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DOCKET NO. 70-36

EXTRA

**MALLINCKRODT  
NUCLEAR  
CORPORATION**

SAINT LOUIS 7, MISSOURI • U.S.A. • CENTRAL

Plant  
Hematite, Missouri

April 16, 1960

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

SUBJECT: Extension of Special Nuclear Materials License  
No. 33 to include A New Storage Facility

Dear Mr. Delaney:

This letter is a request for an extension of our special nuclear material license No. 33 to include the storage facility shown in the attached MCV Drawing No. 3463-2. This facility will be used for the storage of uranium material enriched in the U<sup>235</sup> isotope up to 5%. We are anxious to receive approval for the storage array shown in the noted drawing so that we may order the necessary storage racks. Pertinent information and safety considerations are discussed in the paragraphs that follow.

Five and fifteen gallon drums will be used in this facility for the storage of in process material as well as final product. Fifteen gallon drums will be used for shipment of material enriched in the U<sup>235</sup> isotope up to 3%. Five gallon drums will be used for shipping up to 5% material.

Drawing No. 3463-2 shows that we propose to store containers of material in four parallel racks in our new warehouse building. One rack will be placed along each side of the building. The other two racks will be placed down the center of the building. The racks along the sides of the building will be effectively isolated from the central racks by 12' wide aisles (TID 7016, p. 15, paragraph entitled "Storage"). The two central racks will be isolated from one another by an eight inch thick concrete block wall (TID 7016, p. 15, paragraph entitled "Storage").

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The storage containers will be stored on plates fastened to the racks in four layers. These plates will be placed at no less than 30 inch center to center distances. The vertical distance between the plates in two different layers will be at least 32 inches. Lugs will be welded to the plates to center the containers of material placed in the racks.

The racks have been designed to accommodate up to 15 gallon drums. The plates have been spaced so that 12 inch edge to edge, and top to bottom, intervals will be maintained between adjacent 15 gallon drums. When five gallon containers are placed on the plates, the separation distances will be approximately 17 inches.

It is believed that our proposed storage facility meets with nuclear safety requirements because of the reasons listed below:

1. Each of our four parallel storage racks (plane arrays) will be effectively isolated from one another.
2. Each storage container will contain no more than a safe mass of  $U^{235}$  (as listed in Table XIV, p. 22, K 1019, Fifth Revision).
3. All storage containers will have gasketed water-tight lids.
4. An edge to edge spacing of at least 12 inches will be maintained between all storage containers.
5. All administrative controls, such as insuring that only one container of material will be moved in the storage warehouse at any one time, prevention of double batching, etc., will be carefully and strictly enforced.

Our position that the storage facility will be nuclearly safe is supported by Tables 5, 6, and 7, TID 7016. Table 6 states that there is no limit to the number of 4.5 liter containers that can be stored in a plane array under the conditions noted in the previous paragraph. Though our containers have volumes over 4.5 liter, we understand that the interpretation of the Division of Licensing and Regulation is such that this volume restriction no longer applies. This interpretation is supported by the fact that Table XI in TID 7019 (a later publication than TID 7016), the counterpart of Table 7 of TID 7016, contains no such volume limitation.

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In regard to the filling of storage containers with safe masses of  $U^{235}$ , we point out that safe mass is an administratively controlled variable that is carried through all of our low enrichment processes. It is to be noted that each safe batch of material introduced into a process is held separate from all other safe batches until after the product from the batch has been weighed into storage drums. These drums will be lot marked, and the weights checked by a second individual, before being transferred to the storage facility.

Sincerely,

MALLINCKRODT NUCLEAR CORPORATION

*E. H. Dencker*

E. H. Dencker

EHD:jrt

*See Dwg. 3463-2 -*

*Filed in Manila envelope in this folder.*

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