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20 February 1958

Mr. Lyall Johnson
Licensing Division
U. S. Atomic Energy Commission
Washington, D.C.

SUBJECT: Special Nuclear Materials License No. SNM-33

Dear Mr. Johnson:

This communication is a request for modification of our Special Nuclear Materials License No. SNM-33 with regard to the section of the plant licensed to handle up to 5% enriched uranium dioxide. In our original application, dated 15 May 1956, we described in some detail the entire procedure which we proposed to use. One of the steps was the grinding of ammonium diuranate (ADU) dried cake prior to its further treatment and decomposition. The only difficulty encountered in the equipment used for this grinding operation was the extreme difficulty in controlling airborne dust. In order to eliminate this potential hazard, it was decided to redesign the grinding mechanism and place it at the end of our production operation. The new equipment essentially combines an unloading station for the furnace boxes used for the decomposition of ADU, a grinding station, and a packaging station. The furnace boxes containing the finished product, UO_2, are mechanically positioned at the back of the unloading hood, the front of which is equipped with special air pickup devices so that the operator is completely protected at all times from airborne dust. The operator withdraws trays from the furnace box, places them on a hydraulic elevator which lifts them into position to slide into a mechanical inverter. The powder falls into the hopper which feeds the grinder. The product from the grinder falls directly into a dust sealed shipping container. The entire inverting, grinding, and packaging operations are enclosed in a single dust box with special control of pressure to minimize the dust generated and to eliminate contamination of the box enclosure to as great an extent as possible. The discharge air from the dust box passes through an NSA type filter before it is discharged to the atmosphere. There is no change in the operating technique of the rest of the plant which includes accurate control of batch size to the "limited safe" amount, depending upon assay.

Since the equipment being requested approved under our license has shown by test operation to give a vast improvement in our dust control measures, and inasmuch as we desire to remove the older equipment as quickly as possible from the building, it is requested that this application be given your immediate attention if possible.

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If there are further questions which need clarification, we request that you contact us either by telephone or wire.

Sincerely yours,

MALLINCKRODT CHEMICAL WORKS

W. M. Leaders
Technical Director
Special Metals Division

WML:dj

City of St. Louis) SS
State of Missouri)

Subscribed and sworn to before me this day of 1958

Notary Public