

STAN. 2. 64

Office Memorandum • UNITED STATES GOVERNMENT

TO : Lyall Johnson

DATE: February 11, 1957

FROM : Clifford K. Beck

SUBJECT: SNM LICENSE FOR MALLINCKRODT CHEMICAL WORKS

SYMBOL: CA:HEB:CKB

Information presented by the Mallinckrodt Chemical Works in support of their request for a revision of License SNM-33, to permit processing of  $UF_6$  into uranyl sulfate to be used as fuel for the Danish and Japanese water boilers, has been reviewed.

The first five steps of the process are identical to those previously approved for processing of enriched uranium, in which the batch size will not exceed 318 grams of uranium. No hazards are anticipated here.

The only procedure of concern is the point on which four batches of material are mixed together, placed inside of a three litre flask and converted to uranyl sulfate by the addition of liquid reagents. No hazards will be involved here as long as the enrichment of the material is 20% or less. For enrichments above 20% the applicant states that no more than one batch will be processed. This also is satisfactory.

It should be noted that this step at which multiple batching is permitted for low enrichment and no batch doubling is permitted for higher assay material is one which could be easily vulnerable to operator error. It depends on large measure for safety on procedural control and hence particular vigilance should be maintained at this point when highly enriched materials are being processed.

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Loyal Johnson

February 11, 1957

Clifford K. Beck

**SEE LICENSE FOR MALLINCKRODT CHEMICAL WORKS**

**SYMBOL: CA:HEB:CB**

Information presented by the Mallinckrodt Chemical Works in support of their request for a revision of License SM-33, to permit processing of  $UF_6$  into uranyl sulfate to be used as fuel for the Danish and Japanese water boilers, has been reviewed.

The first five steps of the process are identical to those previously approved for processing of enriched uranium, in which the batch size will not exceed 315 grams of uranium. No hazards are anticipated here.

The only procedure of concern is the point on which four batches of material are mixed together, placed inside of a three litre flask and converted to uranyl sulfate by the addition of liquid reagents. No hazards will be involved here as long as the enrichment of the material is 20% or less. For enrichments above 20% the applicant states that no more than one batch will be processed. This also is satisfactory.

It should be noted that this step at which multiple batching is permitted for low enrichment and no batch doubling is permitted for higher assay material is one which could be easily vulnerable to operator error. It depends on large measure for safety on procedural control and hence particular vigilance should be maintained at this point when highly enriched materials are being processed.

*SM-33 - Mallinckrodt*

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DATE ▶	2/11/57					