

Office Memorandum • UNITED STATES GOVERNMENT

TO : Lyall E. Johnson, Chief
Licensing Branch

DATE: JUN 12 1958

FROM : Clifford K. Beck, Chief
Hazards Evaluation Branch

SUBJECT: ENGELHARD INDUSTRIES, INC. - REQUEST FOR AMENDMENT OF SNM 98
DOCKET NO. 70-90, PROJECT 185

In reply to your memorandum of May 16, 1958, we have reviewed the subject amendment, dated May 9, 1958, from the standpoint of the adequacy of the applicant's proposed procedures to prevent inadvertent criticality.

The applicant proposes, among other items, to increase the capacity of "geometry-safe" equipment by increasing its length. Included in this category of equipment are 5" diameter dissolvers surrounded by 8" diameter jackets. In regard to this particular type of equipment and other equipment to which they might also apply we have two comments:

1. A 5" diameter vessel can be considered "geometry-safe" under all conditions only if the material to be placed in it contains a considerable proportion of moderating atoms, i.e. a 5" diameter geometry can not be considered "always safe" for metals highly enriched in U-235. No limit on gross metal density or on metal-to-water ratio to be used or permitted within this geometry has been stated by the applicant.
2. Since the region outside the 5" diameter container is bounded by a 8" diameter container, it is not inconceivable that material in solution could ~~not~~ fill the entire outer jacket if a single failure in the equipment occurred. Thus, we would like to have the reasons why the applicant believes that such a failure would not produce a critical condition.

With the exception of these two areas of uncertainty we have no reservations as to the applicant's procedures and limits to prevent inadvertent criticality.

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