

UNITED STATES GOVERNMENT

# Memorandum

TO : Donald A. Nussbaumer, Chief  
Source and Special Nuclear Materials Branch  
DL&R

DATE: June 4, 1962

FROM : Alexander E. Aikens, Jr., Chief  
Process Evaluation Branch, DL&R

SUBJECT: SUPPLEMENT TO LICENSE REPORT DMD-2789 - DOCKET 70-53

In accordance with your request we have reviewed the structural integrity of subject shipping container, and have the following comments:

- a. The strength of the shipping package does not meet the proposed requirement (May 24, 1962 Draft of Part 71) of a 30 foot drop with no more than 10% reduction in the minimum spacing as measured from the outside of the inner container to the outside of the outer container.
- b. The above requirement means in subject case that only a 1" deformation of the 55 gallon drum may be allowed. The strength of the outer container must, for the 1" deformation, be equal to an impact force of (b)(4) s, assuming uniform resistance during deformation. As the main body of the drum is only able to resist an impact force of about (b)(4) (based on the 200% weight of the package), the ends of the drum must be able to take the brunt of the (b)(4) s impact. The buckling strength of the 4" x 1/8" spider frames at top and bottom is calculated to be about (b)(4) s. If the thickness of these 1/8" bars were increased to 3/16", the total buckling strength would be increased to about (b)(4) s. Also, in order to avoid excessive deformation between the spider bars (i.e., in case of impact in that area), it is suggested that a solid 3/16" plate be used between inner and outer container, instead of the spider frame.
- c. Reference is made to an apparent discrepancy in the size shown for the 55 gallon drum. The standard 55 gallon drums have an inside diameter of 22-1/2", whereas the 55 gallon drum shown on the applicant's drawings shows an apparent diameter of close to 30".

B/A  
J