

UNITED STATES GOVERNMENT

# Memorandum

TO : Files

FROM : *R. H. Odegaarden*  
Richard H. Odegaarden  
Criticality Branch  
Division of Materials Licensing

SUBJECT: MARTIN-MARIETTA CORPORATION - PU-238 CRITICALITY LIMITS  
DOCKET NO. 70-58, DECEMBER 30, 1964

DATE: December 31, 1964

During a telephone conversation between Mr. Pollard of Martin and R. H. Odegaarden of Criticality Branch, Pollard asked what policies we had concerning criticality limits for Pu-238.

I informed Mr. Pollard that this Branch had not yet established any criticality requirements concerning Pu-238. However, I did inform Pollard that we received recently a pre-print from Hanford, "Unreflected Critical Mass of Pu-238 Metal" by L. L. Carter, HW-84369, which indicated the critical mass for Pu-238 may be about half the critical mass of Pu-239. The quoted Monte Carlo calculation indicated a critical mass for Pu-238 (density 19.6 g/cc) of 5.24 kg for a bare system.

Pollard indicated they were planning heat sources containing more than 5 kg Pu-238. Also, he asked if I knew of any other references on the subject. I informed him I did not.

cc: A. E. Aikens, DML  
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