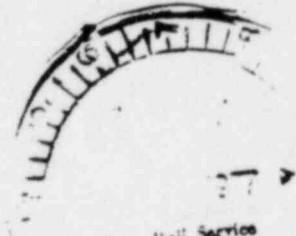




UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555  
MAR 21 1977

Berggren



MEMORANDUM FOR: Frank J. Arsenault, Acting Director  
Division of Safeguards, Fuel Cycle and  
Environmental Research

FROM: Robert M. Bernero, Chief  
Fuel Reprocessing and Recycle Branch  
Division of Fuel Cycle and Material Safety

SUBJECT: CONSEQUENCE ESTIMATION STUDY BY SAI

I have the following comments on the subject draft study:

Page 17, paragraph 4:

The authors should be reminded that many reactors are now enlarging their spent fuel pools to hold far more fuel, typically about a 150% increase.

Also, in this paragraph the authors indicate that the fuel must cool at least 90 days to prevent melting, I assume in air. I believe the recent work by Sandia Corporation estimates that dry spent fuel assemblies will not melt if they are at least 30 days cooled.

Page 23, paragraph 3:

It is very conservative to use 90 days as the minimum cooling time for spent fuel in shipment. I believe that existing casks require at least 120-150 days cooling, and fuel normally shipped now or in the future will be cooled at least about a year. The longer cooling times drastically reduce possible  $I^{131}$  releases. Licensing safety calculations for fuel reprocessing plants or away-from-reactor spent fuel storage are typically being based on 160 days cooling.

Page 25, paragraphs C and F:

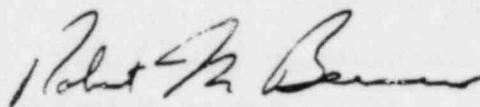
SAI is assuming that high level liquid waste will be stored for the maximum allowable 5 years before solidification. This is an atypically conservative assumption. Although a formal NRC licensing position on this has not been established, we are leaning toward prompt solidification with minimum inventories of stored liquid waste. Note that Barrwell has only one high level liquid waste tank, less than one year's output,

Frank J. Arsenault

- 2 -

MAR 21 1977

and the GE-MFRP, Modified NFS, and Exxon plants are all based on virtually immediate solidification.



Robert M. Bernero, Chief  
Fuel Reprocessing and  
Recycle Branch  
Division of Fuel Cycle  
and Material Safety

cc: I. Wall, RES  
S. Yaniv, RES  
V. Hodge, FC  
T. Sherr, NMSS  
M. Elliott, NRR  
N. Haller, IE  
R. Jones, SD