UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
631 PARK AVENUE
KING OF PRUSSIA, PENNSYLVANIA 19406

Eileen add to 0610 comment file
May - pls 2 copies before 1:30 meeting

NOV 26 1979

MEMORANDUM FOR: L. J. Cunningham, Office of Inspection & Enforcement

FROM: G. H. Smith, Chief, Fuel Facility and Materials Safety Branch, RI

SUBJECT: COMMENTS ON NUREG-0610

Transmitted herewith are D. E. Donaldson's comments on NUREG-0610. I concur with these comments and recommend that they be transmitted for action, to the appropriate members of the NRR staff.

George H. Smith

George H. Smith, Chief
Fuel Facility and Materials
Safety Branch

cc w/o attachments:
B. H. Grier, RI
J. H. Sniezek, HQ
L. B. Higginbotham, HQ
R. J. Bores, RI

EXAMPLE PWR SEQUENCES

1. Small and large LOCA's with failure of ECCS to perform leading to severe core degradation or melt. Ultimate failure of containment likely for melt sequences. (Several hours available for response)

2. Transient initiated by loss of feedwater and condensate systems (principal heat removal system) followed by failure of emergency feedwater system for extended period. Core melting possible in several hours. Ultimate failure of containment likely if core melts.

3. Transient requiring operation of shutdown systems with failure to scram. Core damage for some designs. Additional failure of core cooling and makeup systems would lead to core melt.

4. Failure of offsite and onsite power along with total loss of emergency feedwater makeup capability for several hours. Would lead to eventual core melt and likely failure of containment.

5. Small LOCA and initially successful ECCS. Subsequent failure of containment heat removal systems over several hours could lead to core melt and likely failure of containment.

Note: Most likely containment failure mode is meltthrough with release of gases only for dry containment; quicker and larger releases likely for ice condenser containments for melt sequences or for failure of containment isolation system for any PWR.

EXAMPLE BWR SEQUENCES

1. Transient (e.g., loss of offsite power) plus failure of requisite core shut down systems (e.g., scram or standby liquid control system). Could lead to core melt in several hours with containment failure likely. More severe consequences if pump trip does not function.

2. Small or large LOCA's with failure of ECCS to perform leading core melt degradation or melt. Loss of containment integrity may be imminent.

3. Small or large LOCA occurs and containment performance is unsuccessful affecting longer term success of the ECCS. Could lead to core degradation or melt in several hours without containment boundary.

4. Shutdown occurs but requisite decay heat removal systems (e.g., RHR) or non-safety systems heat removal means are rendered unavailable. Core degradation or melt could occur in about ten hours with subsequent containment failure.

5. Any major internal or external events (e.g., fires, earthquakes, etc.) which could cause massive common damage to plant systems resulting in any of the above.