

5/19

TO: Peter A. Morris, Director  
Division of Reactor Licensing

OCT 19 1966

FROM: R. L. Doan, Consultant  
Office of the Director of Regulation

Original Signed by  
R. L. Doan

SUBJECT: COMMENTS ON PROPOSED CHANGES IN OE CONTAINMENT DESIGN CRITERIA

REFERENCES: 1. Letter of Oct. 7, 1966, to Chairman Seaborg from  
J. F. Young  
2. Amendment No. 2 to Quad-Cities C.P. application dated  
Sept. 9, 1966, Docket 50-254

In reference 1, Mr. Young calls attention to recent ACRS action which precipitated several changes and additions to the emergency core cooling systems for Dresden 3, and then states that "actions that resulted in more conservatism in the preventive safeguards were not followed by compensating adjustments to the consequence limiting safeguards." Mr. Young goes on to say that "we have concluded that changes to these features could be made without reducing the intrinsic overall safety of the system." I cannot agree with this conclusion.

Practical application of the philosophy which implies that increasing conservatism in one area should be compensated by relaxation in other areas is now found in reference 2, which antedates Mr. Young's letter. In revised Section V for the containment design of the Quad-Cities Plant, paragraph 1.1 b states as a present performance objective that "The containment design basis for metal water reactions and other chemical reactions subsequent to the postulated loss of coolant accident shall be consistent with the performance objectives of the reactor core cooling systems described in Section VI herein."

Paragraph 6.1 of Section VI gives as the performance objective of the new Core Spray Systems "(preventing) the fuel cladding from reaching temperatures of the magnitude and duration necessary to support a metal-water reaction which could endanger the integrity of the containment system (even) if the containment atmosphere were not inerted." The pay-off comes at the top of revised Page VI-6-2 when it is concluded that the total extent of the metal-water reaction would be approximately 0.5% and that this wouldn't generate enough hydrogen to require inerting the containment. A further natural corollary of this conclusion would be that, since significant metal-water reaction can be excluded, the containment design pressure can be reduced accordingly. This is what is proposed for

FD-1  
L. L. Doan

the TVA containment as revealed in recent staff discussions. If my recollection is correct, the proposed TVA drywell is smaller than Dresden 3 and has a design pressure 10 psi lower.

It is my belief that the confusion of design objectives that results from treating a core-cooling design objective as an accomplished fact in setting the design basis for the containment is unacceptable from a public safety viewpoint and should be denied by the staff. Contrary to the viewpoints expressed in Mr. Young's letter it is my feeling that the performance objective of the containment should be established wholly apart from the performance objectives of the reactor system and the confidence level associated therewith. Simply stated, the containment should be designed to accommodate without failure anything that could happen to the reactor system inside it under accident conditions, even in the extremely unlikely event that any or every protective device built into the reactor system fails to fulfill its function. Under this philosophy, there is no possibility of a trade-off or "optimization" as between the safeguards in the reactor system and those associated with containment.

cc: H. L. Price  
C. K. Beck  
M. M. Mann