

August 6, 1985

MEMORANDUM FOR: Harold R. Denton, Director  
Office of Nuclear Reactor Regulation

FROM: Hugh L. Thompson, Jr., Director  
Division of Licensing  
Office of Nuclear Reactor Regulation

SUBJECT: USE OF DRAFT REGULATORY GUIDE 1.99, REVISION 2, RADIATION  
DAMAGE TO REACTOR VESSEL MATERIALS, IN THE FORT CALHOUN  
STATION PRESSURIZED THERMAL SHOCK ANALYSIS

In my previous memorandum to you on the above subject dated July 30, 1985, I stated that I would provide an update at the completion of a conference call with the licensee.

A conference call was held on the afternoon of Tuesday, July 30, 1985. The NRC personnel participating were Ed Tourigny (PM-ORB#3), Neil Randall (MEBR), and Lambros Lois (CPB). Combustion Engineering personnel provided technical backup to Omaha Public Power District, the licensee.

We stated that, if one used the equations in the PTS rule, Fort Calhoun would reach the screening criterion in 1996. If someday the PTS rule were amended to use the equations associated with proposed Revision 2 to Regulatory Guide 1.99, Fort Calhoun would reach the screening criterion in 1987. Our calculations were based on documented submittals from the licensee and we requested the licensee to give us an update of their PTS work.

The licensee stated that they have taken a number of steps on this issue over the last year. One step was to obtain better chemistry data for the reactor pressure vessel welds. Another step was a commitment to go to an even lower leakage core for Cycle 10 operation, which would commence in December 1985. Regarding the chemistry data, the NRC staff used so called "upper bound values" for the nickel and copper content for the welds. The licensee stated that they now have chemistry data that characterizes all the beltline welds except for one. This last one will be characterized during the upcoming refueling outage scheduled for this fall. According to the licensee, this data should help to resolve the PTS issue for Fort Calhoun. If one uses the new data and applies it to the equations in the PTS rule, there should be no question of Fort Calhoun ever reaching the screening criterion before end of life. If one uses the new data and applies it to the equations contained in the R.G. 1.99, proposed Revision 2, Fort Calhoun should not reach the screening criterion before the late 1990's. The exact date depends on the exact chemistry and fluence values that will be reported by the licensee pursuant

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to the rule. The NRC personnel discussed the new data and agreed that this should resolve the PTS issue for Fort Calhoun if the rule is not changed. If the rule is changed, the new data buys a great deal of time.

Regarding the lower leakage core for Cycle 10 operation, poison rods will be inserted in the periphery of the core to lower the flux to the welds. This should give even more margin as far as PTS is concerned.

Based upon the conference call discussed above, it appears that the Fort Calhoun PTS problem is resolved if the rule does not change and the issue is not as pressing if the rule is changed to reflect the equations in the regulatory guide update. We plan to formally document the above information when we evaluate the licensee's submittal pursuant to the rule.

Original Signed by  
Hugh L. Thompson, Jr.

Hugh L. Thompson, Jr., Director  
Division of Licensing  
Office of Nuclear Reactor Regulation

CONTACT:  
E. G. Tourigny  
X27110

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