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Memorandum

TO : The Files

THRU: Roger S. Boyd, Chief
Research & Power Reactor Safety Branch, DRL

DATE: JAN 30 1967

FROM : Brian Grimes
Research & Power Reactor Safety Branch, DRL

SUBJECT: MEETING WITH DUKE POWER COMPANY ON OCONEE PLANTS
DOCKET NOs. 50-269 AND 50-270

On January 18, 1966, a meeting was held in the Bethesda offices with representatives of the Duke Power Company and Babcock & Wilcox to discuss the form of future technical specifications for the two-unit station. In response to Dr. Mann's request on December 2, 1966, Duke had prepared a listing of the subjects and parameters to be incorporated into the technical specifications at the operating license stage. When asked whether Duke thought some consideration of technical specifications was beneficial at the construction permit stage, Mr. Lee responded that it was, in that it kept service and testing objectives before the designers as well as the operational considerations. It was decided not to proceed further in the development of specifications at this time.

The staff held discussions with the applicant after this meeting to go over areas which we feel may present problems on the basis of our preliminary look at the application.

Additional subjects which we felt should be covered in the technical specifications included: (1) pressurizer high level, (2) minimum containment required for operation, (3) maximum acceptable primary system leakage, (4) surveillance of the primary system during the plant lifetime, and (5) surveillance of reactivity anomalies.

The following topics were indicated to the applicant as areas which we intended to pursue in our review. We stated that direct communication by Duke or Babcock & Wilcox engineers with Cardis Allen, DRL, on reactivity subjects, and with Don Sullivan, DRL, on instrumentation, was acceptable and desirable.

A. <u>Core Analysis</u>

1. Neutron balances over the core lifetime, particularly as related to the effects of soluble boron.

2. Proof testing of the control rod design (delays in scram time have an effect on excursion calculations).

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3. Additional information on the rod ejection, loss-of-coolant and steam-line-break accidents. Duke stated that the cooldown of the primary system after a steam-line-break accident was not as much of a problem in this reactor since the inventory in the steam generator secondary is not as great with the once-through design (there are no isolation valves in the system).

4. More information on expected control rod programming.

B. Instrumentation

1. Separation of control and safety functions will be explored.

2. It appears that a single failure on the final d.c. bus could prevent a scram.

3. Isolation of the servo-function will be explored.

4. The acceptability of the adjacent hydro plant as a source of emergency power will be explored.

5. copy of the proposed IEEE standards and our criteria on containment penetration were given to the applicant.

C. Site

1. The earthquake design value of 0.05g looks low for this area (my uninformed guess deduced from Carolina Power and Light values).

2. Since the dams are required to remain intact, they must withstand the design earthquake. (One possibility that was not brought up at this time is that it may be desirable to have a method of removing normal decay heat that is independent of the dams.)

3. The presence of residents within the one-mile exclusion radius; Duke indicated that this problem may be resolved by the time of construction permit issuance.

D. Containment

1. How will the containment be tested to justify the assumption that one-half the building leakage will be to the penetration rooms and, thus, available for filtering? Duke stated that they could presently see no way to confirm this by test and that if credit was not given for this filtering, they would change the

design to eliminate the filters and go to a lower leakage containment (probably about 0.3%/day vs. the present 0.5%/day). This would have the effect of paying for more frequent leakage tests with money otherwise used for the filter system.

2. The sharing of engineered safeguards between Units 1 and 2 will be evaluated. As yet, we have no criterion for this.

3. Duke and B&W did not understand that our design basis accident postulated a coolant-line break simultaneous with loss of power and the safeguards had then to withstand a single failure. This would significantly affect the pumping capacity required and may influence their decision on whether to resort to accumulators.

4. The Duke failure-analysis of the safeguard systems assumed passive as well as active failures. We stated that our criterion on this was not yet formulated but that it was possible that only active failures need be considered in certain situations. Although the following criterion was not communicated to the applicant, it represents my judgment on single-failure analyses at this writing: "Safeguard systems must be operable after one active component failure when a loss-of-coolant accident is postulated concurrent with a loss of off-site power. Safeguard systems must be operable with one passive component failure within the containment on a long-term basis (when off-site power will probably be available)."

5. The following criterion was transmitted to the applicant as our current thinking on the over-all design basis for emergency core cooling systems: "The ECCS should be designed to prevent fuel and clad damage that would interfere with adequate emergency core cooling and to limit the clad-water reaction to less than approximately 1% for all break sizes in the primary system piping up to the double-ended rupture of the largest primary coolant pipe, for all break locations and for the applicable break time of the pipe. An analysis should be performed to show the expected margin in the design to prevent clad melting."

6. Duke inquired whether it was permissible to take credit for containment air pressure in calculating the required NPSH of the emergency cooling pumps. They were under the impression that something of this sort had not been allowed on the Florida reactors. I said I would find out and phoned Mr. Lee on January 24, 1967, to inform him that accident pressure should not be taken into account in satisfying NPSH requirements and that we would look at the requirements for sump water height to operate the pumps. This

requirement is based on the judgment that these pumps may be required for situations where the containment is not significantly pressurized. Mr. Lee stated that the capacity of the borated water storage tank had been increased so that recirculation would not be required for about 20 minutes.

One other general consideration mentioned was that it may be necessary to start up Unit 2 with fresh, rather than used, fuel depending on our analysis. Duke said that they were willing to accept a construction permit with this reservation and await our analysis at the operating stage.

Attendance at the meeting was as listed below. In addition, Dr. Morris and Dr. Mann were present during the technical specifications discussion.

DRL	Compliance	Duke	B&W
R. Boyd	L. Kornblith	W. Lee	G. Kulanich
D. Muller	J. Hard	E. Fiss	
B. Grimes			
J. Murphy			
D. Sullivan			

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