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DOCKET NOS. 50-269 AND 50-270
DUKE POWER COMPANY ANSWERS TO DEL QUESTIONS DATED MARCH 23, 1967

Subject answers have been submitted by the applicant as Amendment No. 1 and No. 2 to the original application. Information pertaining to instrumentation and power is contained principally in revised sections 5, 6, 7, and 8, and in the new supplements (No. 1 and No. 2) to Volume II.

At this writing, I have the following comments:

1. Figure 3-59 (Rev. 4/1/67) and Figure 7-2 (Rev. 4/1/67) are still incomplete in that they do not show sufficient details of the proposed circuits downstream of the undervoltage coils (screw breakers) to permit a single failure analysis by the staff. This specific point was raised by us during our last meeting with the applicant.
2. The applicant has stated: "The protection systems will be designed to meet the proposed IEEE standard for nuclear power plant protection systems." He has also stated that protection system instrumentation will be subject to accident environmental (qualification) tests as required by the IEEE standard. These tests, however, will not include the accident radiation environment.

I believe that the applicant's position is acceptable provided he determines from existing radiation damage data that the materials of construction are capable of surviving their accident environment.

3. The "simultaneous-all-rod-withdrawal" accident has been analyzed over the complete spectrum of initial power levels. Details are given on page 4.9-1 (Rev. 4/18/67) and Fig. 4.9-1 (Rev. 4/18/67) of Vol. II. This analysis was requested to determine what "safety grade" interlocks, if any, might be required within the rod drive selector system. The applicant concludes: ". . . no fuel damage would result from simultaneous all-rod withdrawal from any power level."

I believe that the analysis is sufficient to show that no requirement exists for "safety grade" interlocks.

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(It is my intent to defer questions relating to amplifier saturation [overload] to the operating stage when prototypes of the actual instrumentation will be available for testing.)

4. The nutating rod drives will not be used in these reactors. The rod drive design is being changed to a rack and pinion drive actuated by an electric gear motor and magnetic clutch assembly operating through a buffer seal.

My various concerns relating to the nutating concept are thereby resolved, by default. The new design is in common use and presents no difficulties for me at the present time. I will, however, discuss the matter with the applicant.

5. Two of the questions requested information and failure analyses relating, respectively, to the 3-wire d.c. (station batteries) system, and the power/flow safety system. The applicant has submitted answers which appear to be complete in all respects. At this writing, they are under review.
6. Additional information has been submitted relating to off-site power. Bob Ferguson is reviewing this aspect of the power reliability question.
7. A revised table of containment isolation valve information has been received which reflects certain changes made within cooling systems. The table is under review.

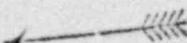
Summary:

- a. Schematics of those circuits downstream of the scram breakers are still needed.
 - b. The agenda for the April meeting with the applicant should include the following topics:
 - (1) Rod drives
 - (2) Power/flow monitoring circuits
 - (3) Emergency Power (a.c. and d.c.)
 - (4) Containment isolation system
 - (5) Provisions for testing instrument channels during reactor operation.
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- c. Because of the large amount of information within the total application and the pressure of other work, it will not be possible to complete a thorough review in time for the June ACRS meeting. (Reviews of SM-1A, Wisconsin-Michigan, Jersey Central, and Millstone will necessarily take precedence). Accordingly, I plan to complete the review in time for the meeting subsequent to June.
- d. No serious problems are outstanding.

cc: S. Levine
 B. Griess

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