

SEP 3 1970

P. A. Morris, Director
Division of Reactor Licensing

DUKE POWER COMPANY, OCONEE NUCLEAR STATION; DOCKET NOS. 50-269/270/287

The DRS Electrical Systems Branch forwarded a report, for use in the DEL ACRS report, covering the Protection Systems and the Auxiliary Electrical Power Systems for the Oconee Station on July 15, 1970. The forwarding letter for that report pointed out that the review of several items within these systems was not complete.

The Electrical Systems Branch has reviewed the information contained in amendments to the FSAR through Amendment 18. Our concerns regarding most of the items have now been resolved. One item, the lack of a diverse signal which will assure the effectiveness of the emergency core cooling systems, is considered to be unresolved. This item and the items which have been resolved since our July 15, 1970, report are discussed in the enclosure.

We believe that the enclosure contains the information required for your supplementary report.

Original signed by
E. G. Case

ESB-76
DRS:ESB:ODP

Edson G. Case, Director
Division of Reactor Standards

Enclosure:
Additional Information

cc w/encl:
R. Boyd, DRL
D. Skovholt, DRL
R. C. DeYoung, DRL
C. G. Long, DRL
A. Schwencer, DEL

Distribution:
→ Suppl.
DR Reading
DRS Reading
ESB Reading

bcc: E. G. Case
V. Moore
O. Parr

OFFICE ▶	DRL:PWR PB #3	DRS:ESE	DRS:DIR		
SURNAME ▶	ODP OParr:ese	<i>VMoore</i>	ECCase		
DATE ▶	9/2/70	9/2/70	9/2/70		

8001080 921 A

DUKE POWER COMPANY - OCONEE NUCLEAR STATION

Docket Nos. 50-269/270/287

A. Item Which Is Considered To Be Unresolved

1. The lack of a diverse signal which will assure the effectiveness of the emergency core cooling system (ECCS). In response to question 7.22 the applicant stated, in Supplement 4, that analysis has shown that should the reactor coolant system pressure signal fail either the void shutdown mechanism or the power/flow comparator should provide backup to shut down the reactor and render the ECCS effective. Duke further stated that the final results of the analysis of the LOCA would be documented in a topical report on systematic failures.

We do not consider this answer acceptable. The applicant should be requested to provide a summary of an analysis to show that in the event of a failure of the low reactor pressure signal, the high containment pressure signal alone, or together with other signals which do not depend on low reactor pressure, will assure the effectiveness of the ECCS. Should the applicant desire to consider the power/flow comparator in addition to the high containment pressure signal, an analysis should be performed to show that for the

spectrum of accidents considered the power/flow comparator and its instrumentation are adequate. Further, test results should be provided which demonstrate that the sensors and their cables will survive a reactor accident.

B. Items Which Are Considered To Be Resolved (Discussed in our memorandum of June 29, 1970)

1. Item 1 - Qualification testing of protection system equipment. The original response to question 6.3 which involves qualification testing of protection system equipment has been supplemented by information on pages 6-12e, 6-12e(s), 7A-1 and 7A-2 of Amendment 17. We have reviewed the additional information provided and found it adequate. We therefore consider this item resolved.
2. Item 2 - QA/QC of protection system equipment. While the applicant has not specifically addressed an answer to part (e) of question 7.3, which requested QA/QC information regarding protection system equipment, we have concluded that sufficient information is contained in Appendix 1B "Quality Assurance." We therefore consider this item resolved.
3. Item 3 - Maximum control rod speed. In response to question 7.15 the applicant stated in Revision 4, that speed-limiting is accomplished through the use of 60Hz synchronous programmer motors and that the system frequency limited the rod speed; the system frequency is limited to 64Hz which could result in

a maximum rod speed of 32 in./minute. The applicant stated orally that a failure mode analysis of the rod control system was being performed. If the results of that study indicated design changes were required, they would be made.

4. Item 4 - Reactor coolant flow instruments' ability to survive a single failure. In response to question 7.21 the applicant provided in Supplement 6, a discussion of various failures of the instrument piping (sensing lines) but did not include flow blockage. Duke has provided a discussion of flow blockage in Supplement 7. We have reviewed this information and consider it adequate.
5. Item 5 - Extent to which the system which trips the turbine stop valves by a reactor trip signal meets IEEE 279. The applicant stated in Supplement 2, that the circuitry was not designed to IEEE 279 as it is not safety related. Duke did state that two channels of equipment are installed. We agree with the applicant that the circuitry does not have to meet IEEE 279 and that the present design is adequate.
6. Item 6 - Answers to questions 14.3.3, 14.3.9, 14.4.1 and 14.4.2. We have reviewed the answers contained in Supplements 3 and 4 and as a result we do not believe that it is

necessary to review the schematics of the control systems involved since failure of these systems does not lead to unacceptable consequences. We consider this item resolved.

7. Item 7 - Reliability considerations of the onsite power design. In response to our question regarding reliability considerations of the onsite power design the applicant submitted a discussion of his system in Amendment 17. We have reviewed the information and consider it acceptable.

- C. Items which were stated to be unresolved in the ACRS report but which are now considered to be resolved.

1. Shutdown bypass switches - The applicant has stated that the shutdown bypass switches are intended for use during physics and control rod drive testing and that they cannot be used during power operation due to a pressure interlock. The applicant has further stated that it will be necessary to make manual protection system setpoint changes when the reactor is shutdown.

Our review of the circuit design confirms that the bypass cannot be used during power operation. While the manual adjustment of protection system setpoint is undesirable, the frequency of making this adjustment is low and is therefore acceptable for this application.

2. Automatic transfer of power to the 600 volt motor control centers - The applicant has stated in Amendment 17 that the three engineered safeguards load centers and the associated motor control centers are redundant and are supplied independently from the three 4160 volt engineered safeguards load buses. The reference to automatic transfers has been eliminated. We consider this item resolved.