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UNITED STATES
ATOMIC ENERGY COMMISSION
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IN REPLY REFER TO:
Docket Nos. 50-269
50-270
and 50-287

Duke Power Company
422 South Church Street
P. O. Box 2178
Charlotte, North Carolina 28201

Attention: Mr. W. S. Lee
Vice President

Gentlemen:

This is a request for supplemental information to your application for a construction permit and operating license for the Oconee Units 1, 2 and 3 to be located in Oconee County, South Carolina.

During a meeting on April 27 and 28, 1967, between representatives of your company and the regulatory staff, a number of technical areas were discussed and it was concluded that additional written information would be required to continue our review. In this regard you are requested to provide the information listed in the enclosure.

Sincerely yours,

Original Signed by
Peter A. Morris

Peter A. Morris, Director
Division of Reactor Licensing

Enclosure:
Requested Additional Information

RPB #3-DRL	RPB #3-DRL	RT/DRL	RP/DRL	DRL
BGrimes/ltj	CGLong	SLevine	RSBoyd	PAMorris
5-10-67	5-10-67	5- -67	5-10-67	5-11-67

REQUESTED ADDITIONAL INFORMATION

11.0 General

11.1 As a result of recent discussions you have indicated that the turbine missile analysis will be reanalyzed for 180% turbine overspeed. Please include the following points in the analysis:

11.1.1 Provide missile area and energy absorption assumptions and give the energy partition and impact velocities.

11.1.2 Discuss the effect of the missile on the tendons and the number of tendons that could be damaged locally in the dome without endangering containment integrity.

11.1.3 Discuss the physical separation, redundancy and protection of vital shutdown components including protection of the control room.

11.2 In recent discussions with the staff the emergency power proposal has been further elaborated to include power separate from the grid which could be supplied during hydro outages or at other times when grid power and hydro power would not be available. An alternate water source was also outlined. Please provide documentation of these proposals. In addition, address yourself to the requirement for shutdown cooling when there is an equipment leak in the primary system during "blackout" conditions.

11.3 Our consultants note that the response spectrum used for the seismic analysis is less conservative than the scaled El Centro spectrum. Please modify the proposed spectrum.

11.4 Discuss the capability of the hydro plant equipment to operate during and after the maximum earthquake.

11.5 Provide the criterion for location of isolation valves with respect to the containment penetration and the strengthened piping in this area.

11.6 Please submit a statement indicating the ability of the anchoring pipe guides to limit forces transmitted to the penetration.

12.0 Site

12.1 Describe the foundation investigation for the dams which will assure that there are no zones of poor material in which "piping" could occur and which will assure that no strata of unsuitable material will be present in the unremoved overburden. Also discuss provisions to detect excessive leakage through the dams and remedial action that could be taken.

12.2 Provide information for the intake canal dike which verifies your statement that it is more conservatively designed than the major dams which have been analyzed from a seismic standpoint.

12.3 Will the future Jocassee Dam be designed for the maximum earthquake?

12.4 We believe that a peripheral tangential tornado design wind speed of at least 300 mph rather than 225 mph should be used in design basis for Class I structures. Also, a pressure differential of 3 psi developed over 5 seconds should be considered. If a lower value is to be justified it will be necessary to present data which indicate lower tornado wind speeds in mountainous versus flat terrain and to justify any assumed variation of wind speed with elevation.

12.5 Discuss the potential for reconcentration of liquid wastes in downstream industrial plants or public water supplies for normal and accidental discharges. Also account for all liquid wastes after a loss-of-coolant accident.

13.0 Thermal Analysis

13.1 Give the DNB ratios for the nominal and worst hot channels at 114% power for unit, wall and corner cells using the W-3 correlation with the non-uniform axial and unheated wall corrections. Provide enthalpy and quality at burnout conditions and the axial location of the calculated burnout. Provide the dimensions of the corner and side cells.

13.2 Please indicate which fuel conductivity model was used in the various calculations for fission gas release, center fuel temperature, average fuel temperature and transient analyses for accident and normal conditions.

14.0 Instrumentation

14.1 Will the circuits which remove the "low reactor coolant pressure trip" bypass be designed to protection system standards?

14.2 Discuss the portions of the rod drive control system which act to limit rod speeds to safe values and the inherent speed limitation of the equipment.

14.3 How are the set points on the power/flow instrumentation calibrated as rod positions change?

15.0 Core Cooling

15.1 Discuss the possibility of a water leg remaining in the steam generators for the spectrum of pipe breaks which could trap a steam bubble as the core was flooded and result in the safety injection water bypassing the core.

15.2 Outline the action which would be taken in case of a leak through the check valves in the core flooding system and the conditions under which reactor operation would be continued.

15.3 State the level to which one core flooding tank will fill the core and provide an analysis of the degraded system case in which one core flooding tank and minimum injection flow only is available.

15.4 Provide an analysis to show that the reactor vessel and thermal shield will accommodate without failure the transient loading, close to the end of its design life, due to safety injection of cold water up to the level of the main coolant nozzles. Assume the maximum deluge rate starting from an empty vessel. State the initial vessel temperature used and the assumed failure criterion. Also, estimate the limit of initial vessel temperature which could cause failure upon injection and relate this temperature to a delayed injection time.

16.0 Accident Analysis

16.1 Consider the long term effects of continuing the feedwater supply to a steam generator after a steam line break.

16.2 Provide a study of the core reactivity effects after a steam line break in which there have been generator tube ruptures. What additional fuel failure could result from the blowdown and potential secondary criticality?

16.3 Give the sequence of events after tube breaks have occurred in the steam generator and state the signals which the operator will have available so that the proper steam generator can be isolated.

16.4 Provide an analysis of a pump seal failure in the safeguards equipment after a loss-of-coolant accident. Give the fission product source and the iodine partition factor assumed. The maximum containment water temperature should be used in the analysis. Discuss the route of fission product release to the environment.

16.5 Discuss the heatup of the penetration room filter after inadvertent closure of the outlet filter valve after fission products have been deposited on the filter.

17.0 Primary System

17.1 Provide the justification for the Class C classification of the letdown cooler.

17.2 Describe the design of the bypass valves on the secondary system which act as both control and safety valves.

17.3 Discuss the physical availability of the external surfaces of the reactor vessel if inspection should be found necessary during the plant life.

17.4 Estimate the sensitivity of the primary system leakage detection methods to be used and state the criterion for corrective action.

18.0 Materials and Construction

18.1 Please provide the standards for acceptance of mechanical splices of reinforcing steel and the extent to which your quality control program assures that the standards are being met.

18.2 Provide information on the welding of structural ~~steel~~ reinforcing bars. Indicate the type, size and locations of reinforcing bars that are to be butt, lap or tack welded. Indicate the quality control measures to be employed for the welding.

19.0 Control Rod Drives

19.1 Discuss the design of the drive housings with respect to forces imposed in the case of a thimble rupture and the need for a holddown mechanism to prevent rod ejection.