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MAR 4 1982

Docket No. 50-364

Mr. F. L. Clayton
Senior Vice President
Alabama Power Company
Post Office Box 2641
Birmingham, Alabama 35291

Dear Mr. Clayton:

SUBJECT: PROPOSED SPENT FUEL POOL EXPANSION
JOSEPH M. FARLEY UNIT NO. 2

We are continuing our review of your proposed Spent Fuel Pool Expansion for Unit No. 2 provided in your application dated December 12, 1981 supplemented by your letter dated February 1, 1982. In order for our review to continue on schedule you are requested to provide the requested information contained in Enclosures 1 through 4 at your earliest convenience.

Your response within 30 days of receipt of this letter is requested. OMB clearance is not required for this request since it is being set to nine or fewer addresses.

Sincerely,

/s/

Steven A. Varga, Chief
Operating Reactors Branch No. 1
Division of Licensing

Enclosures:
1. Request for Information -
   Structural Engineering Branch/DSI
2. Request for Information -
   Auxiliary Systems Branch/DSI
3. Request for Information -
   Chemical Engineering Branch/DE
4. Request for Information -
   Core Performance Branch/DSI

cc: See next page

OFFICE	ORB 1	ORB 1					
SURNAME	EReeves/rs	SVarga					
DATE	3/5/82	3/5/82					

Mr. F. L. Clayton, Jr.
Alabama Power Company

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101 Marietta Street, Suite 3100
Atlanta, Georgia 30303

ENCLOSURE 1

JOSEPH M. FARLEY NUCLEAR PLANT UNIT 2 - DOCKET 50-364

SPENT FUEL POOL EXPANSION

REQUEST FOR INFORMATION - STRUCTURAL ENGINEERING BRANCH

220.1 [IV.(5)G.] [IV.3] Damping values do not appear to be in accordance with Regulatory Guide 1.61. Provide justification for the damping values used in the analysis.

220.2 [IV.(2)] ASTM A 666 material is not found in the ASME Code. The staff has previously accepted the use of this material for spent fuel storage racks under the following conditions:

(1) The applicant agrees to qualify the rack material in question to the ASME Code, Subsection NF (SA240 material) in all respects and, in addition, to obtain valid test results to justify the higher yield stress allowed by ASTM A 666, Grade B.

(2) Allowable weld and base material stresses in all heat-affected-zones are based on the yield strength for SA240 material.

(3) Tensile tests indicate that the yield strength of the material used is not greater than 90 ksi.

(4) The applicant can provide objective evidence that stress corrosion cracking of both base metal and weldment will not occur. Citing of previous experience would be an acceptable approach.

(5) Complete documentation of the applicant's compliance with the above is developed.

The applicant is requested to indicate intended compliance with the above requirement or submit an alternate proposal.

220.3 [IV] Provide details and numerical results of the analysis of loads on the pool liner and the pool structure including the seismic analysis and drop accident. Indicate how the liner will be able to withstand a heavy drop accident. Provide construction drawings of the pool structure and liner.

220.4 [IV.(2)] ASTM-A743 and ASTM-A276 material are not found in the ASME Code. Justify the use of these materials including a discussion of deviations from the material acceptance criteria of the ASME Code.

220.5 [IV.(4).B] What is the stress limit for load combination 5 of paragraph IV.(4)B?

220.6 [IV] Provide a description of all items which may be moved over the spent fuel assemblies. State which of these heavy objects is the critical one during operation and which is critical during installation.

220.7 [IV.(5)] Provide the numerical results of the structural analysis of the racks for all pertinent loading conditions. Provide structural drawings of the racks.

220.8 [IV.(1).a] The description of the plates which are attached to the pool floor in order to provide a smooth surface is not understood. How can such devices eliminate the described obstructions. Provide sketches to illustrate how the plates are to be installed and how they will interact with the racks.

220.9 [IV] Discuss the method used to account for the effect of sloshing water on the fuel pool walls.

220.10 [IV.(5)] Provide and justify the time history and floor response spectra used in the seismic analysis of the fuel rack assembly, and of the spent fuel pool as well. Describe the methods by which seismic responses due to 3 components of earthquake loading were combined.

220.11 [IV] Provide a detailed discussion of the methods of analysis used to calculate stresses due to fuel handling uplift accident and the results of the analysis.

220.12 [IV] Provide a detailed discussion of the methods of analysis used to calculate stresses due to thermal loads and the results of the analysis.

220.13 [IV] If venting of the "containment pocket" for the poison material is not provided, explain the method used to mitigate the structural effects of gas buildup.

220.14 [IV] Indicate whether fabrication and quality control of the spent fuel racks are in conformance with Subsection NF of the ASME Code. If not, identify and justify the deviations.

220.15 [IV] Indicate if this proposed modification conforms with the NRC position on fuel pool modification entitled "OT Position for Review and Acceptance of Spent Fuel Storage and Handling Applications," issued on April 14, 1978, and later amended on January 18, 1979. If not, identify and justify the deviations.

ENCLOSURE 2

REQUEST FOR ADDITIONAL INFORMATION
FARLEY NUCLEAR PLANT UNIT 2
SPENT FUEL POOL MODIFICATIONS FOR HIGH DENSITY STORAGE
AUXILIARY SYSTEMS BRANCH
DOCKET NUMBER 50-364

1. In Section III.1.2(2) of your fuel pool modifications report you state that the size of the load that can be handled over the spent fuel pool when fuel is in the pool is limited to 3,000 pounds by Farley Unit 2 Technical Specifications. In Section IV.(1).b of the report you state that the spent fuel racks are designed to withstand a fuel bundle drop from 42 inches under various conditions and a 9 inch gate drop. Provide the following information to assure your Technical Specifications are sufficient to cover all cases since your Technical Specifications do not impose a height restriction.

   a. Verify that the load drops identified in Section IV.(1).b of your report do not have a higher possible kinetic energy than that assumed in your accident analyses used in developing the Technical Specifications.

   b. Verify that when considering a load drop the weight of the handling fixtures were used in your analyses.

   c. For loads lighter than one fuel assembly verify that their lifting height will not result in a higher kinetic energy if dropped than the maximum used in your accident analyses. Also specify how the height of lighter loads will be limited to an acceptable elevation.

ENCLOSURE 3

REQUEST FOR INFORMATION

CHEMICAL ENGINEERING BRANCH

FARLEY UNIT 2 SPENT FUEL POOL MODIFICATION

281-1 (9.3.2) The February 1, 1982 Amendment request does not indicate any proposed modification of the Spent Fuel Pool Cooling and Cleanup System (SFPCCS) in conjunction with the installation of high density poison spent fuel storage racks. Describe what changes, if any, will be made to SFPCCS to maintain the level of pool water purity with respect to visual clarity and activated corrosion and fission product buildup the same as for the original spent fuel storage capacity. Assume that the number of defective fuel assemblies increase in proportion to the increased spent fuel storage capacity. If no changes to the SFPCCS are to be made, indicate how the same level of pool water purity will be maintained.

281-1 (9.3.2) Describe the samples and instrument readings and their frequency of measurement that will be performed to monitor the spent fuel pool water purity and need for demineralizer resin and filter replacement. State the chemical and radiochemical limits to be used in monitoring the spent fuel pool water and initiating corrective action. Provide the basis for establishing these limits. Your response should consider variables such as: boron, gross gamma and iodine activity, demineralizer and or filter differential pressure, demineralizer decontamination factor pH and crud level.

ENCLOSURE 4

REQUEST FOR INFORMATION

CORE PERFORMANCE BRANCH

FARLEY UNIT 2 SPENT FUEL POOL MODIFICATION

1. What is the calculated nominal effective multiplication factor for the high density storage racks in their design configuration?

2. What are the values of the calculated bias, calculational uncertainty, and mechanical uncertainty which are applied to the nominal effective multiplication factor?

3. What value of water temperature yields the maximum reactivity? What value was used in the calculations?

4. What organization performed the criticality calculations for the high density storage racks? Has the organization benchmarked the versions of the KENO-IV and PDQ-7 codes which are operating on their computer system against critical experiments or does the reference to benchmarking refer to some other organization's efforts on a different computer system?

5. The thermal hydraulic analysis of the cooling of the spent fuel states that voiding between fuel assemblies is not possible because these spaces contain poison plates. This is not obvious from Figure II-4. Is there no coolant between fuel assemblies?