



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SUPPLEMENTAL SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 155 TO FACILITY OPERATING LICENSE NO. DPR-40

OMAHA PUBLIC POWER DISTRICT

FORT CALHOUN STATION, UNIT NO. 1

DOCKET NO. 50-285

1.0 INTRODUCTION

By application dated March 20, 1995, as supplemented by letter dated October 13, 1995, Omaha Public Power District (OPPD) requested a revision to the safety evaluation associated with Amendment No. 155 to the Technical Specifications (Appendix A to Facility Operating License No. DPR-40) for the Fort Calhoun Station, Unit No. 1. The requested revision incorporated as-built design information from the recent installation of new spent fuel storage racks.

2.0 EVALUATION

The NRC staff had reviewed the spent fuel pool storage rerack application submitted by Omaha Public Power District (OPPD) (Reference 1), and had issued a safety evaluation (SE) (Reference 2). OPPD increased the storage capacity of the Fort Calhoun Station (FCS) spent fuel pool from 729 assemblies to 1083 assemblies by installation of new storage racks in 1994.

However, OPPD found a discrepancy after the rack installation that the as-built clearances between the storage racks and the spent fuel pool walls are less than those assumed in the original analysis of Reference 1. Subsequently, OPPD requested NRC to accept the as-built clearances and revise the Reference 2 SE to reflect this as-built information (Reference 3). The staff issued a request for additional information (RAI) regarding the re-analysis with the as-built clearances (Reference 4), and OPPD submitted the results of the analysis on October 13, 1995 (Reference 5).

The staff reviewed the licensee's response, and found that all the conditions (i.e., rack analysis methodologies, time history acceleration input, boundary conditions, material properties, etc.) used in the re-analysis are identical to the conditions used in the original analysis except the clearances between rack-to-rack and rack-to-wall. The results of the re-analysis show that the calculated stresses on the racks are smaller than the allowable stresses of the ASME Boiler and Pressure Vessel Code, Section III, Subsection NF.

The results of the analysis, however, show that rack-to-wall impacts will occur during a seismic (SSE) event. Accordingly, the licensee performed an impact analysis. The results of the impact analysis show that the calculated stresses on the racks and walls are smaller than the allowable stresses of the corresponding ASME and ACI codes, respectively, indicating a conservatism in the rack and wall designs. Furthermore, the licensee designed the racks with the top bumper bars as protective reinforcements to minimize any effects of the impacts.

3.0 CONCLUSION

The staff has concluded that the spent fuel pool storage rack modules and walls will perform their safety functions and maintain their structural integrities under postulated loading conditions. The staff conclusion is based on (1) the licensee's comprehensive analyses, (2) the large factor of safety of the induced stresses of the racks when they are compared to the corresponding allowables provided in the ASME Boiler and Pressure Vessel Code, and (3) a reasonable assurance that the rack-to-wall impact does not affect the wall integrity. Therefore, the use of the proposed as-built clearances in the reracking amendment of Reference 1 is acceptable.

4.0 REFERENCES

1. "Application for Amendment of Operating License," letter dated December 7, 1992, from OPPD to NRC.
2. "Fort Calhoun Station, Unit No. 1 - Amendment No. 155 to Facility Operating License No. DPR-40 (TAC No. M85116)," letter dated August 12, 1993, from S. Bloom to T. Patterson.
3. "Revision to Safety Evaluation for Spent Fuel Storage Racks," letter dated March 20, 1995, from OPPD to NRC.
4. "Request for Additional Information on the Proposed Revision to the Safety Evaluation for the Spent Fuel Storage Reracks at Fort Calhoun Station Unit 1," letter dated July 26, 1995, from T. Liu to T. Patterson.
5. "Response to Request for Additional Information on Proposed Revision to the Safety Evaluation for the Spent Fuel Storage Reracks at Fort Calhoun Station Unit 1," letter dated October 13, 1995, from OPPD to NRC.

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