



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

August 14, 1997

Mr. J. S. Keenan, Vice President
Carolina Power & Light Company
H. B. Robinson Steam Electric Plant,
Unit No. 2
3581 West Entrance Road
Hartsville, South Carolina 29550

SUBJECT: DESIGN INSPECTION OF H. B. ROBINSON STEAM ELECTRIC PLANT, NO. 2
(NRC INSPECTION REPORT NO. 50-261/97-201)

Dear Mr. Keenan:

From April 7 through May 23, 1997, the staff of the U.S. Nuclear Regulatory Commission (NRC), Office of Nuclear Reactor Regulation (NRR), performed a design inspection of the H.B. Robinson Steam Electric Plant, Unit No. 2 (HBR) auxiliary feedwater (AFW) and safety injection (SI) systems, including their support systems. The purpose of the inspection was to evaluate the capability of the selected systems to perform safety functions required by their design bases, the adherence of the systems to their design and licensing bases, and the consistency of the as-built configuration with the updated final safety analysis report (UFSAR).

The inspection findings were discussed during a public exit meeting on June 12, 1997, and are presented in the enclosed report. The team concluded that the systems could perform their safety function, design documentation adhered in most cases to design and licensing bases, and that the UFSAR generally reflected the current installed state of systems and how they were maintained and operated. However, the team identified a number of issues that indicate that additional management attention is warranted in the engineering area.

During the inspection the team identified a concern with the net positive suction head (NPSH) requirements with the SI and residual heat removal (RHR) pumps. A hydraulic analysis was performed subsequent to the inspection. You discovered a potential NPSH problem with SI pump C and reported it to NRC in accordance with 10 CFR 50.72 on June 27, 1997. Subsequently you identified actual NPSH problems with SI pumps B and C for a large break loss of coolant accident (LBLOCA) as stated in LER 97-08. You have undertaken several immediate corrective actions, including raising the refueling water storage tank (RWST) level. The hydraulic analysis is still ongoing for the RHR pumps.

You discovered as the result of the team's inquiries that the redundant autostart cables for SI pumps A and C were routed in the same raceway in violation of your electrical separation criteria. You declared SI pump C inoperable, immediately placed the installed spare pump B in service, and implemented a modification to provide correct separation subsequent to this inspection. You advised the NRC of this discrepancy in accordance with 10 CFR 50.72 on May 21, 1997.

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The team identified that you had not reported significant PCT changes as required by 10 CFR 50.46. Prior to the inspection you reported significant PCT changes for only the most limiting transient for all the evaluation models, whereas you should report them for the limiting transient of each evaluation model and its applications. The NRR technical staff is still evaluating a potential unreviewed safety question (USQ) with regard to your commitments about the transfer to cold leg recirculation following a LBLOCA.

The team found deficiencies with the improper slope of instrument sensing lines, the exclusion of the seismic uncertainty term in calculations for safe shutdown and accident mitigation instrumentation, and with verification of the closure capability of the accumulator isolation valves if a LOCA occurred while filling the accumulators.

Weaknesses were also identified concerning updating and control of calculations, nonconservative design inputs and assumptions, and incorporating design bases into maintenance and test procedures. In addition, the team noted deficiencies and inconsistencies in the USFAR, procedures, design basis documents, systems descriptions, calculations, drawings, and other documents.

You have implemented appropriate measures to address the immediate concerns identified by the team. For the other issues, you have initiated reviews and corrective actions including further evaluations where deemed appropriate. The team concluded that, although a number of problems were noted, the reviewed systems generally adhered to their design and licensing bases, and their as-built configurations were generally consistent with the UFSAR.

In order for the NRC to coordinate follow-up actions, please provide within 60 days of receipt of this letter a schedule for completion of your corrective actions for the open items listed in Appendix A of the enclosed report. As with all NRC inspections, we expect that you will evaluate the applicability of the results of this inspection and the specific findings to other systems and components. Please advise us of your considerations in this regard.

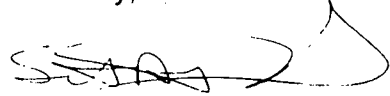
Any enforcement action resulting from this inspection will be handled by the NRC Region II office through separate correspondence.

Mr. J. S. Keenan

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In accordance with Section 10 CFR 2.790(a), a copy of this letter and the enclosure will be placed in the NRC Public Document Room. Should you have any questions concerning the attached inspection report, please contact the project manager, Ms. B. L. Mozafari at (301) 415-2020, or the inspection team leader, Mr. E. A. Kleeh at (301) 415-2975.

Sincerely,



Stuart A. Richards, Chief
Special Inspection Branch
Division of Inspection and Support Programs
Office of Nuclear Reactor Regulation

Docket No. 50-261

Enclosure: NRC Inspection Report No. 50-261/97-201

cc: See next two pages

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