



**Florida
Power**
CORPORATION

Crystal River Unit 3
Docket No. 50-302

June 15, 1992

3F0692-13

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D. C. 20555

Subject: Licensee Event Report (LER) 92-09

Dear Sir:

Enclosed is Licensee Event Report (LER) 92-09 which is submitted in accordance with 10 CFR 50.73.

Sincerely,

G. L. Boldt
Vice President
Nuclear Production

EEF:mag

Enclosure

xc: Regional Administrator, Region II
Project Manager, NRR
Senior Resident Inspector

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ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HOURS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20586, AND TO THE PAPERWORK REDUCTION PROJECT (3150-010-6), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON DC 20503.

EXPIRES 4/30/92

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST 60.0 HOURS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20556, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON DC 20503.

FACILITY NAME (1) CRYSTAL RIVER UNIT 3 (CR-3)	DOCKET NUMBER (2) 0 5 0 0 0 3 0 2 9 2	LER NUMBER (8)			PAGE (3) 0 2 OF 0 4
		YEAR 0 0 9	SEQUENT AL NUMBER 0 0 9	REVISION NUMBER 0 0 0	

TEXT (If more space is required Use additional NRC Form 366A's (17))

EVENT DESCRIPTION

On May 7, 1992, Crystal River Unit 3 was in MODE VI (REFUELING) with reactor coolant temperature at 100 degrees Fahrenheit (F). Ambient air temperature data for inside the Reactor Building [NH] (RB) was collected by equipment located inside the RB during the period of December 15, 1991 to May 4, 1992. This data was retrieved when access to the RB became available, and was analyzed. The RB is segmented by partial walls called "D-rings" because of their shape. It was determined that the area in one D-ring, immediately above the pressurizer [AB,PZR] (Pzr), was experiencing temperatures in excess of design for the equipment in that area.

The postulated temperature profile for the RB inside of the "D" rings, assumed in the Environmental and Seismic Qualification Program manual, is a maximum of 149 degrees F and a mean temperature of 141 degrees F for the general area. The monitor at the 180 foot elevation, approximately 17 feet above the pressurizer spray control valve [AB,FCV] (RCV-14), recorded a maximum of 158 degrees F and a mean temperature of 143 degrees F. The area immediately adjacent to RCV-14 [AB,MO] motor operator was also monitored over the same time frame and the monitor associated with RCV-14 motor operator recorded a maximum temperature of 202 degrees F and a mean temperature of 183 degrees F. Those readings, however, were a result of radiant heating of the probe and not representative of ambient temperature. Other valve operators in the same general area are used on the Pressurizer Spray Block Valve [AB, FCV] (RCV-13), the Power Operated Relief Valve [AB,RV] (PORV) and its Block Valve [AB, FCV] (RCV-11). This report is submitted in compliance with 10 CFR 50.73 (a)(2)(ii)(B).

CAUSE

Over the years, the thermal insulation on and around RCV-14 became degraded as a result of maintenance activities. Approximately one square foot of mirror insulation had degraded to the point that reinstallation was not feasible. Other portions of the insulation were damaged but in place. The insulation was therefore not in proper condition to provide the assumed thermal protection to components in the area of RCV-14. This resulted in higher than normal ambient air temperatures and in radiant heating of nearby piping, valve components, wiring, and concrete structures in the area.

EVENT ANALYSIS

The engineering evaluation of the components and concrete in the high temperature area resulted in the determination that the components remained OPERABLE and the concrete was not overly stressed. Exposure to temperatures which are higher than expected will reduce the service life of some components. The performance of calculations using the observed high temperatures resulted in the determination that the motors in the area are qualified for a minimum of 12.8 years of service. Physical inspection of the components in the area showed that no significant motor degradation is evident and other components showed some minor thermal degradation.

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None of the installed motors are approaching the expiration of their qualified life. The results of the inspections and calculations show that the equipment and the concrete were not degraded beyond their OPERABLE status and that the health and safety of the public were not threatened by this event.

CORRECTIVE ACTION

The Engineering Department has developed a coordinated plan for evaluation and correction of the problems noted. The following actions have been completed:

- 1) The electrical equipment in the 'A' and 'B' D-rings was evaluated by observation or through engineering calculational evaluation for actual or potential deterioration due to heat.

The general conclusion of the inspection of electrical equipment inside the D-rings was that there exists little evidence of thermally induced degradation inside the 'B' D-ring. Degradation found in the 'A' D-ring was confined to the general area of the pressurizer and adjacent areas near the upper portion of the D-ring under the pressurizer missile shield. Affected components were the cable and terminations for RCV-11 and RCV-13 and the electrical terminal box gasket on the B Reactor Coolant Pump motor [AB,MO]. Repair or replacement was initiated for the equipment exhibiting degradation.

- 2) The effects of elevated temperature on the motor-operators for RCV-11, -13, and -14 were assessed.

The motor operators for RCV-11 and RCV-13 did not show any signs of thermally induced degradation. Because RCV-14 was replaced in mid December 1991, it would not be expected to, and does not, show any signs of thermal degradation. These valve operators will remain in service. The two year inspection program established on these valves is considered adequate to detect thermal degradation prior to it becoming an operability problem.

- 3) The effects of increased temperature on the current carrying capabilities of cabling was evaluated.

Cabling was evaluated up to 212 degrees F and found to have ample current carrying capability to meet requirements.

- 4) The effects on concrete in the D-rings were assessed for temperatures up to 202 degrees F.

Based on technical information reviewed to evaluate temperatures approaching 500 degrees F in the reactor cavity walls, engineering has determined that there has been no deterioration of the concrete near RCV-14 due to temperatures of less than 210 degrees F.

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- 5) A modification package was prepared to change the type of insulation used on the pressurizer lines and associated valves.

The improvement will provide durability characteristics such that the new insulation can withstand repeated removal and reinstallation. This modification will be installed upon receipt of the appropriate materials, which is expected to be prior to restart from the current refueling outage.

The following actions are in the planning or implementation stages to further evaluate and correct problems:

- 1) Install temperature monitors in multiple locations throughout the D-rings for collection of temperature data over the time period from Refuel 8 to cycle 9 mid-cycle outage.
- 2) Install the new insulation on the piping and valves associated with the pressurizer.
- 3) Evaluate increasing air flow to the area around the pressurizer to improve cooling.

PREVIOUS OCCURRENCES

There have been no previous reportable instances of excessive area temperatures.