



**Florida  
Power**  
CORPORATION

Crystal River Unit 3  
Docket No. 50-302

June 5, 1992

3F0692-09

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

Subject: Licensee Event Report (LER) 92-08

Dear Sir:

Enclosed is Licensee Event Report (LER) 92-08 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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LICENSEE EVENT REPORT (LER)

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 20545, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON DC 20503.

FACILITY NAME (1) <b>CRYSTAL RIVER UNIT 3 (CR-3)</b>	DOCKET NUMBER (2) <b>0 5 0 0 0 3 0 2</b>	PAGE (3) <b>1 OF 0 4</b>
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TITLE (4)  
**10 CFR 50 Appendix R Design Requirement Not Entered Into Commitment System Results In Procedure Change That Causes Plant Operation Outside Design Basis**

EVENT DATE (6)			LER NUMBER (8)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)										
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES			DOCKET NUMBER(S)							
0	5	0	7	9	2	9	2	0	0	0	0	N/A			0	5	0	0	0

OPERATING MODE (9) <b>5</b>	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (CHECK ONE OR MORE OF THE FOLLOWING) (11)									
POWER LEVEL (13) <b>0 0 0</b>	<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.404(c)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(b)						
	<input type="checkbox"/> 20.405(a)(1)(i)	<input type="checkbox"/> 50.36(c)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(c)						
	<input type="checkbox"/> 20.405(a)(1)(ii)	<input type="checkbox"/> 50.56(c)(2)	<input type="checkbox"/> 50.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 386A)						
	<input type="checkbox"/> 20.405(a)(1)(iii)	<input type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(vii)(A)							
	<input type="checkbox"/> 20.405(a)(1)(iv)	<input checked="" type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)							
<input type="checkbox"/> 20.405(a)(1)(v)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)								

LICENSEE CONTACT FOR THIS LER (12) <b>W. A. Stephenson, Nuclear Safety Supervisor</b>		TELEPHONE NUMBER AREA CODE <b>9 0 4 7 9 5 - 6 4 8 6</b>
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRPDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRPDS

SUPPLEMENTAL REPORT EXPECTED (14)			EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO					

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On May 7, 1992, Crystal River Unit 3 (CR-3) was in MODE 5 (COLD SHUTDOWN). Florida Power Corporation (FPC) reported to the NRC that CR-3 had been operating outside the 10 CFR 50 Appendix R design basis. An independent contractor's review discovered FPC to be outside Appendix R requirements when CR-3 aligns cooling water for its "A" High Pressure Injection (HPI) pump to Decay Heat Closed Cycle cooling (DHCCC). In 1986, FPC changed its procedures for aligning cooling water to the HPI pumps in response to NRC concerns that alignment of the cooling water for the HPI pumps was different than described in the FSAR. This action placed certain cooling water alignments outside Appendix R Fire Study assumptions. The appropriate operating procedure will be revised to support the Appendix R evaluation. FPC will include this procedure change into FPC's commitment system.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

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-500), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0154), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON DC 20503.

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

**EVENT DESCRIPTION:**

On May 7, 1992, Crystal River Unit 3 (CR-3) was in MODE 5 (COLD SHUTDOWN) in preparation for refueling. After receiving a draft report on a review of 10 CFR 50, Appendix R program implementation from a contractor, Florida Power Corporation (FPC) reported to the Nuclear Regulatory Commission (NRC) that CR-3 has operated outside the design basis. This report is submitted in accordance with 10CFR50.73(a)(2)(ii).

United Energy Services Corporation (UESC), under contract to FPC, performed a review of CR-3's Appendix R safe shutdown analysis in March and April of 1992 to assess the documentation and procedural controls for maintaining conformance to the regulations. UESC determined from the review that the procedure for alignment of cooling water to the High Pressure Injection (HPI) pumps [BQ,P] did not conform with the design requirements of Appendix R, Sections III.G and III.J. The line-up of cooling water required by procedure did not assure at least one safe shutdown train remained functional for all postulated fires.

The Appendix R Fire Study issued in 1985 evaluated the necessary safe shutdown equipment trains to assure protection is provided for at least one of the HPI pumps in order for the unit to achieve MODE 3 (HOT SHUTDOWN) following all Appendix R postulated fires. Protection means the necessary power supplies, components, control circuits, and support systems remain functional and undamaged from fire. The approach taken for CR-3, as stated in the Appendix R Fire Study, was to keep the "A" HPI pump available for fires postulated in the fire area containing the HPI pumps, and the "C" HPI pump available for fires postulated in the fire area one elevation above which contains power and control circuitry for the HPI pumps. The "B" HPI pump is available to replace either the "A" or "C" HPI pump should one become inoperable and is protected from fire damage in accordance with Appendix R as necessary. The component cooling water supplies, which are considered to be a necessary support function for all the HPI pumps, are located in the same fire area as the HPI pumps.

Component cooling for the HPI pumps is comprised of two systems: the Nuclear Services Closed Cycle Cooling (SW) and the Decay Heat Closed Cycle Cooling (DHCCC) systems. Component cooling water can be supplied to the HPI pumps as follows.

- "A" HPI pump - SW or DHCCC
- "B" HPI pump - SW only
- "C" HPI pump - SW or DHCCC

The SW system has three pumps and four heat exchangers and the DHCCC has two pumps and two heat exchangers. For the purpose of Appendix R, one train of SW is protected from fire damage while neither of the DHCCC trains are protected. Since all trains of component cooling are located in the same fire area as the HPI pumps, the Appendix R Fire Study concluded that the "A" HPI pump must have component

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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 20545, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON DC 20503.

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TEXT (If more space is required, Use additional NRC Form 306A's (17))

cooling supplied from the protected train of SW at all times. The "C" HPI pump can receive cooling water from either the DHCCC or SW since it is credited for operation only in the event of a fire on the elevation above, and a fire in this area has no adverse effect on either SW or DHCCC.

The operational procedures which establish the required cooling water alignment to the HPI pumps were reviewed in 1985 to assure the proper line-up for SW to the "A" HPI pump was addressed. The procedures at that time provided the proper alignment. However, in 1986 the procedures were changed to align the "A" HPI pump to DHCCC whenever the "C" HPI pump was taken out of service. This change was the result of actions taken in response to concerns identified in a 1986 NRC violation involving conformance to component cooling water alignments contained in the FSAR. It was not recognized at that time that these procedure revisions were in conflict with the requirements of Appendix R.

CAUSE

During the 1985 Appendix R evaluation, the operating procedures were reviewed for proper alignment of the component cooling water to the HPI pumps. The procedures at that time provided guidance which correctly implemented the configuration required by the Fire Study. It was not recognized that administrative controls should be established to maintain this configuration.

In November, 1986 the NRC issued violation 86-31-01 for failure to follow procedures on logging entries into Technical Specification Action Statements. One of the examples cited involved failure to enter the required action statement for one train of HPI inoperable as a result of having all three HPI pumps aligned to SW. This line-up was identified in the violation as being contrary to the requirements of the FSAR. The operating procedures were revised in response to this violation to be consistent with the FSAR and allowed the "A" HPI pump to be aligned to DHCCC for component cooling water whenever the "C" HPI pump is taken out of service. It was not recognized at that time that these changes were in conflict with the requirements of Appendix R Fire Study. The FSAR was subsequently changed to allow more flexibility for the component cooling water, including SW cooling to the "A" HPI pump; but the procedures were never corrected to meet the design requirements of the Fire Study.

EVENT ANALYSIS

The fire areas involved are subdivided into zones equipped with fire detectors and alarms. In addition, a roving fire watch has been checking safety-related areas of the plant, including the fire areas in question since 1985. In the event of a fire, FPC has an on-site fire brigade capable of responding to any fire in the Auxiliary Building within several minutes. The response of the fire brigade, coupled with an adequate warning system and roving fire watch, should assure that fires in the area are capable of being extinguished within an hour. Once the fire

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

is extinguished, operator action could be taken to realign the cooling water to the HPI pumps to the protected SW cooling source in the event the fire damaged the DHCCC system. Based on previous experience, the HPI pumps are capable of operating in excess of one hour without component cooling water. This event did not significantly affect the ability of the plant to safely shutdown in the event of a fire or jeopardize the safety of the public.

CORRECTIVE ACTION

The current FSAR was reviewed to assure alignment of the component cooling systems to the HPI pumps addresses adequate flexibility, and provides for SW cooling to the "A" HPI pump. The operating procedures which control the alignment of component cooling water will be revised to assure the "A" HPI pump is maintained on SW in support of the Appendix R Fire Study evaluation prior to startup from Refuel 8. This requirement and associated implementing procedures will be included in the commitment tracking system used to assess procedure revisior. at CR-3.

PREVIOUS EVENTS

There have been 3 License Event Reports generated on CR-3 being outside design basis associated with 10 CFR 50 Appendix "R". (LER 89-38, LER 89-39, LER 88-12).