

# Florida Power

CORPORATION  
Crystal River Unit 3  
Docket No. 50-302

April 18, 1997  
3F0497-16

U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, D.C. 20555-0001

Subject: LICENSEE EVENT REPORT (LER) 97-009-00

Dear Sir:

Please find the enclosed Licensee Event Report (LER) 97-009-00 concerning the Reactor Coolant Pump (RCP) Motors Lubricating Oil Piping System Components that are outside the boundary of the Lubricating Oil Collection (LOC) System, which resulted in noncompliance with the requirements of 10 CFR 50, Appendix R, Section III.O.

This report is submitted in accordance with 10 CFR 50.73. Florida Power Corporation intends to supplement this report by June 27, 1997 in order to provide the results of the final root cause analysis, engineering evaluation, and corrective actions.

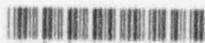
Sincerely,

J. J. Holden,  
Director  
Nuclear Engineering and Projects

JJH/gac

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

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PDR ADDICK 05000302  
S PDR



IE2211

EXPIRES 04/30/98

### LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) <b>CRYSTAL RIVER UNIT 3</b>	DOCKET NUMBER (2) <b>05000302</b>	PAGE (3) <b>1 OF 4</b>
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TITLE (4)  
**inadequate Design Resulted in Reactor Coolant Pump Lubricating Oil Collection System Being Outside the Requirements of 10 CFR 50, Appendix R**

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
03	19	97	97	-- 009 --	00	04	18	97	FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9) <b>N</b>	POWER LEVEL (10) <b>000</b>	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)									
		20.2201(b)	20.2203(a)(2)(v)	50.73(a)(2)(i)	50.73(a)(2)(viii)						
		20.2203(a)(1)	20.2203(a)(3)(i)	X	50.73(a)(2)(ii)	50.73(a)(2)(x)					
		20.2203(a)(2)(i)	20.2203(a)(3)(ii)		50.73(a)(2)(iii)	73.71					
		20.2203(a)(2)(ii)	20.2203(a)(4)		50.73(a)(2)(iv)	OTHER					
		20.2203(a)(2)(iii)	50.36(c)(1)		50.73(a)(2)(v)	Specify in Abstract below or in NRC Form 366A					
		20.2203(a)(2)(iv)	50.36(c)(2)		50.73(a)(2)(vii)						

**LICENSEE CONTACT FOR THIS LER (12)**

NAME <b>Patrick M. Peterson, Sr. Regulatory Specialist</b>	TELEPHONE NUMBER (Include Area Code) <b>(352) 795-6486, ext. 4162</b>
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**COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)**

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

<b>SUPPLEMENTAL REPORT EXPECTED (14)</b>				<b>EXPECTED SUBMISSION DATE (15)</b>	MONTH	DAY	YEAR
X	<b>YES</b> (If yes, complete EXPECTED SUBMISSION DATE)	<b>NO</b>			06	27	97

**ABSTRACT** (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On March 19, 1997, Florida Power Corporation's (FPC) Crystal River Unit 3 (CR-3) was in MODE 5 (COLD SHUTDOWN). As a result of a walkdown of the Reactor Coolant Pump [AB, P] (RCP) Motors [AB, MO], FPC identified several components of the RCP motor lubricating oil piping system that are installed outside the boundary of the lubricating oil collection system. This resulted in noncompliance with the requirements of 10 CFR 50 Appendix R Section III.O, a condition outside the design basis of the plant. An operability evaluation determined that no system/train safety function was lost as a result of this condition.

FPC is developing criteria for the definition of potential leakage sites. A walkdown of five (four installed and one in storage) RCP motors is currently in progress to identify all penetrations in the RCP motor housing that may be outside the lube oil collection system [LM] (LOC). Potential leakage sites determined to be outside of the LOC system will be modified or repaired prior to restart.

FPC has initiated an engineering evaluation to determine the extent of condition of FPC's compliance to Appendix R attributable to RCP motor lubricating oil piping components being outside the boundary of the LOC system. A root cause analysis is in process to determine the extent of the condition and will be completed by June 9, 1997.

**LICENSEE EVENT REPORT (LER)**  
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TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

Event Description:

On March 19, 1997, Florida Power Corporation's (FPC) Crystal River Unit 3 (CR-3) was in MODE 5 (COLD SHUTDOWN). As a result of a walkdown of the Reactor Coolant Pump [AB, P] (RCP) Motors [AB, MO] performed as part of the system readiness review, FPC identified several components of the RCP motors lubricating oil piping system installed outside the boundary of the oil collection system [LM] (LOC) and therefore, not in compliance with the requirements of 10 CFR 50, Appendix R, Section III.O. This condition is outside the design basis of the plant.

The lubricating oil collection system was designed and installed in response to 10 CFR 50, Appendix R, 'Requirements for Fire Protection.' This system is an arrangement of sheet metal encapsulating potential leakage sites on each RCP motor. The oil collection system collects and retains RCP motor lubricating oil from potential leakage into two 400 gallon tanks [LM, TK] (LOT-4A and LOT-4B).

On the motors for RCP-1B, RCP-1C, and RCP-1D, the upper oil reservoir drain lines and valves were identified as being located outside the lubricating oil collection system. The upper oil reservoir drain lines and valves are installed with threaded connections, including a threaded plug installed downstream of each drain valve. These threaded connections are located outside the lubricating oil collection system. The upper oil reservoir drain lines and valves have been installed in this configuration since original construction of the lubricating oil collection system.

Additionally, on RCP-1B motor, one of the check valves in the low pressure oil piping is located outside the lubricating oil collection system. On RCP-1C motor, two of the check valves in the low pressure oil piping are outside the lubricating oil collection system. The check valves are installed in the lines with welded end connections, but have threaded caps for access to valve internals. These threaded joints constitute potential leakage sites. On RCP-1D motor, the check valves on the low pressure oil piping are located within the lubricating oil collection system.

During Refuel 10, the RCP-1A motor was replaced with a new motor. The NRC granted FPC an exemption from the requirements of 10 CFR 50, Appendix R, Section III.O, which allowed the installation of the new RCP-1A motor with an oil collection system capable of collecting oil leakage from potential pressurized and unpressurized leakage sites except for four potential oil leakage sites. The four potential leakage sites identified in the exemption are: the anti-reverse (ARD) vents, upper oil supply lines from the lift pump to the ARD, lower motor leak detection system piping, and lower guide bearing thermocouple wells. On April 14, 1997, FPC identified additional components on RCP motors, RCP-1B, RCP-1C, and RCP-1D, as having similar leakage sites. However, these leakage sites are not included in the exemption.

The RCP motor lubricating oil piping system components located outside the boundary of the LOC system were determined to be outside the design basis of the plant and are being reported per 10 CFR 50.73 (a) (2) (ii) (B). There is no oil leakage from the RCP motors at this time. An operability evaluation concluded that no system/train safety function was lost as a result of this condition.

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

Event Evaluation:

RCP motor lubricating oil system piping components located outside the oil collection system are a potential fire hazard associated with uncontained RCP motor lubricating oil.

The Fire Hazards Analysis (FHA) provides an evaluation of the areas potentially affected by the unconfined oil which includes, (1) RB-95-300, the area of the Reactor Building from the 95' elevation to the 180' elevation inside the secondary shield wall which contains the four RCPs, and (2) RB-95-301, the area of the Reactor Building from the 95' elevation to the 162' elevation outside the secondary shield wall. The FHA evaluation concludes that CR-3 can be safely shutdown even with the loss of all components within either or both of these fire areas. The analyzed fire for the area inside the secondary shield wall was evaluated using the combustible loading from the loss of the entire contents of the RCP motor lube oil collection system. The analyzed fire for the area outside the secondary shield wall assumed a combustible loading associated only with the area cable volumes and did not consider fire loads due to oil.

The consequences of a fire in these areas resulting from oil leakage is not significantly increased. This is due to the spatial separation of components relative to the potential leak path and the small volume of oil which would result from the leak. Based on the relative position of critical components, there is significant spatial separation between the leak path, the RB sump, and the safe shutdown equipment located in the two fire areas. In most cases, the distance is in excess of 50 feet. The 10 CFR 50, Appendix R, Fire Study, 'Analysis of Safe Shutdown Equipment and Operation,' states that "A design basis fire in this area [RB-95-300] will not affect the capability to achieve and maintain cold shutdown."

Cause:

The apparent cause of potential leakage sites outside the LOC is due to inadequate design of the LOC system.

A root cause analysis and engineering evaluation are in progress.

Immediate Corrective Actions:

The RCP motors are not running while CR-3 in MODE 5, therefore, there is no oil leakage from the RCP motors.

FPC initiated an engineering evaluation to determine the extent of condition of FPC's compliance to 10 CFR 50, Appendix R, attributable to RCP motor lubricating oil piping components outside the LOC system. The engineering evaluation will be completed by June 9, 1997.

An operability evaluation concluded that no system/train safety function was lost as a result of this condition. Therefore, FPC concluded that there is no OPERABILITY concern in current MODE 5 (COLD SHUTDOWN).

**LICENSEE EVENT REPORT (LER)**

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

Corrective Actions:

FPC is developing criteria for the definition of potential leakage sites. A walkdown of five (four installed and one in storage) RCP motors is currently in progress to identify all penetrations in the RCP motor housing that may be outside the lube oil collection system [LM] (LOC). Potential leakage sites determined to be outside of the LOC system will be modified or repaired prior to restart.

FPC will supplement this LER to identify root causes and additional corrective actions after the engineering evaluation for extent of condition and root cause analysis are complete.

Actions to Prevent Recurrence:

Recommendations for actions to prevent recurrence will be part of the engineering evaluation.

Previous Similar Events:

There have been three previous reportable events involving the RCP motor LOC system at CR-3. LER 88-009-00 and LER 92-022-00 both addressed the issue of insufficient reserve volume in the RCP motor LOC system tanks. LER 95-008-01 addressed the issue of RCP motors lubricating oil leakage not being collected by the LOC system.

Attachments:

None