

10/01/2001

U.S. Nuclear Regulatory Commission Operations Center Event Report

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m1310

Event # 38333

Power Reactor

Site: CRYSTAL RIVER		Notification Date / Time: 10/01/2001 08:41 (EDT)				
Unit: 3	Region: 2	State: FL	Event Date / Time: 09/28/2001 (EDT)			
Reactor Type: [3] B&W-L-LP		Last Modification: 10/01/2001				
Containment Type: DRY AMB						
NRC Notified by: HERRIN		Notifications: R2 IRC TEAM MANAGER R2				
HQ Ops Officer: CHAUNCEY GOULD		VERN HODGE NRR				
Emergency Class: NON EMERGENCY						
10 CFR Section: 21.21 UNSPECIFIED PARAGRAPH						
Unit	Scram Code	RX Crit	Init Power	Initial RX Mode	Curr Power	Current RX Mode
3	N	No	0	Refueling	0	Refueling

PART 21 INVOLVING UNACCEPTABLE INSPECTION SERVICES

On August 24, 2001, FPC personnel performed a water test on spare safety-related Decay Heat Raw Water System pump RWP-3A to determine whether the lip seal was installed correctly. This test was not part of a FPC receipt inspection. No bearing flush/lubricating water flow was observed coming from the pump. Upon disassembly of the pump bowl, FPC personnel confirmed that the lip seal was installed incorrectly.

In 1999, spare RWP-3A pump was rebuilt by Tampa Armature Works under Purchase Order No. F742538K. FPC contracted Raytheon (Contract Number NO1067AD) to oversee the RWP-3A rebuilding activities and ensure, through inspection, that the work was performed in accordance with the Raytheon 10CFR50, Appendix B, QA Program. The shop traveler provided to Tampa Armature Works by FPC included a detailed sketch and specific guidance with respect to the orientation of the pump lip seal. In February 2000, Tampa Armature Works signed off on and Raytheon Inspector 21 stamped Shop Traveler Line Item #30A attesting to the correct orientation of the lip seal even though the lip seal was not installed correctly. The rebuilt pump was subsequently delivered to FPC.

FPC considers the above condition to be reportable pursuant to 10CFR21.21 as a defect associated with a substantial safety hazard.

10 CFR21.3 states, in part, that a defect means a deviation in a basic component delivered to a purchaser for use in a facility or activity subject to 10CFR21 if, on the basis of an evaluation, the deviation could create a substantial safety hazard.

The NRC Resident Inspector and the vendor were notified.

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**FACSIMILE TRANSMISSION  
10 CFR PART 21.21  
TWO DAY NOTIFICATION**

**October 1, 2001**

**Florida Power Company (FPC)  
Crystal River Unit 3 (CR-3)  
Docket No. 50-302**

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Deviation

A deviation means a departure from the technical requirements included in a procurement document. The deviation in this case is Raytheon's departure from the technical requirements included in the procurement document (Contract Number NO1067AD) to ensure proper orientation of the lip seal.

Basic Component

In all cases, basic component includes safety-related design, analysis, inspection, testing, fabrication, replacement of parts, or consulting services that are associated with the component hardware whether these services are performed by the component supplier or others. The basic component in this case is the contracted inspection service associated with the spare safety-related RWP-3A pump rebuild activity.

### Substantial Safety Hazard Evaluation

After any maintenance (including replacement) of RWP-3A and before return to service, Surveillance Procedure SP-340A, "RWP-3A, DCP-1A and Valve Surveillance," would be performed. This SP performs functional testing of the pump and includes verifying and recording RWP flush water flow rates. With the lip seal installed incorrectly, flush water flow would not be present and the pump would not have been placed back in service.

NUREG-0302, page 21.3(d)-8, states the following: "Quality assurance inspections or tests performed by the licensee cannot be counted upon to prevent installation of defective basic components. In evaluating deviations the assumption which must be made is that the component is installed in the facility, then if it could create a substantial safety hazard it must be reported to the NRC as a defect."

NUREG-0302, page 21.3(k)-2, states the following: "The loss of safety function of a basic component is considered a major reduction in the degree of protection provided to the public health and safety. It is possible that the defect might also exist in the redundant basic component, which could result in a loss of safety function. The existence of a defective basic component, considering a single failure of its counterpart redundant basic component, could result in a loss of safety function. Actually, the counterpart component need not fail. It could be removed from service for other reasons such as routine preventive maintenance or inspection."

Using the above guidance from NUREG-0302, it is assumed that the spare pump, with the incorrect lip seal orientation, is installed in the plant, returned to service, and the opposite train is unavailable. A letter from the pump manufacture (Bingham-Willamette Co.) states that running the pumps without flush/lubricating water would produce a pump failure in 1 to 3 minutes. Therefore, the lip seal being installed incorrectly would lead to premature failure of the pump. With the loss of one pump and the opposite train assumed to be unavailable, a complete loss of the safety related Decay Heat Raw Water, Decay Heat Closed Cycle Cooling (DC), and Decay Heat Removal (DH) would occur.

The primary safety function of RWP-3A and RWP-3B is to provide heat removal from the DC System to the Ultimate Heat Sink (UHS) during design basis accidents. The DC System removes heat from the DH System. The spare RWP-3A lip seal being installed incorrectly could have created a loss of a safety function to the extent that there would have been a major reduction in the degree of protection provided to ensure public health and safety. Therefore, a substantial safety hazard could have been created due to the orientation of the lip seal on the spare RWP-3A.

The above evaluation was completed on September 28, 2001. The FPC director/responsible officer was notified of the above determination on October 1, 2001. The vendor (Raytheon) has been notified of FPC's intent to report this issue under 10CFR21.21.