Progress Energy

Crystal River Nuclear Plant
Docket No. 50-302
Operating License No. DPR-72

Ref: 10 CFR 21.21

September 25, 2009
3F0909-05

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

Subject: Crystal River Unit 3 – 10 CFR 21 Report

Dear Sir:

Florida Power Corporation (FPC), doing business as Progress Energy Florida, Inc. (PEF), is submitting this correspondence to provide a 30-day written report to the NRC, pursuant to 10 CFR 21.21, concerning a spare safety-related Limitorque actuator motor with a magnesium rotor purchased from AREVA NP, Inc., in 2007 and received in 2008. The Attachment to this submittal contains the required 30-day report.

The potentially reportable condition was identified on July 31, 2009. The reportability evaluation was completed on August, 28, 2009. The FPC Responsible Officer was notified of the reportability evaluation results on August 31, 2009. The 2-day facsimile required pursuant to 10 CFR 21.21 was transmitted to the NRC Operations Center, and receipt of the facsimile was confirmed (Event No. 45317) on September 1, 2009. Limitorque was notified of FPC's intention to report the enclosed issue to the NRC under 10 CFR 21.21.

No new commitments are contained in this submittal.

If you have any questions regarding this submittal, please contact Mr. Dan Westcott, Supervisor, Licensing and Regulatory Programs at (352) 563-4796.

Sincerely,

J. W. Holt

James W. Holt
Plant General Manager
Crystal River Unit 3

JWH/dwh

Attachment: 10 CFR 21 Report

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

IE19
NRR

**Progress Energy Florida, Inc.**
Crystal River Nuclear Plant
15760 W. Power Line Street
Crystal River, FL 34428

PROGRESS ENERGY FLORIDA, INC.

CRYSTAL RIVER - UNIT 3

DOCKET NUMBER 50 - 302 / LICENSE NUMBER DPR - 72

ATTACHMENT

10 CFR 21 REPORT

## 10 CFR 21 REPORT

10 CFR 21.21(d)(4) requires that the 30-day written report shall include, but need not be limited to, the following information, to the extent known:

**(i) Name and address of the individual or individuals informing the Commission.**

Progress Energy Florida, Inc. (PEF)
Florida Power Corporation (FPC)
Crystal River Unit 3 (CR-3)
15760 West Power Line Street
Crystal River, Florida 34428-6708

**(ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.**

The basic component is a spare safety-related Limitorque SB-3/SMB-3 actuator motor (Motor Serial Number 7497004-001T1AL; Limitorque Part No. R-403-F04-0821) with a magnesium rotor that was purchased as Quality Level 1 (QL-1).

**(iii) Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect.**

The spare safety-related Limitorque SB-3/SMB-3 actuator motor with a magnesium rotor was purchased from AREVA NP, Inc., under Purchase Order No. 337566 in 2007 and received in 2008. Limitorque purchased the motor from the Baldor Electric Company, doing business as the Reliance Electric Company, as commercial grade and dedicated the motor as safety-related.

**(iv) Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.**

CR-3 personnel performed a pre-installation video probe inspection of a spare safety-related Limitorque SB-3/SMB-3 actuator motor with a magnesium rotor. This inspection was not part of an FPC receipt inspection. Visual indications were observed in the outboard end of the motor which were cause for rejection based on specified acceptance criteria. The specific indication was a cracked weld with dislodged metal in the outboard end of the motor. The piece of dislodged metal was visible in the end ring hub and was not moveable with the video probe head.

Based on the location of the piece of dislodged metal, the object could significantly damage the motor windings and short out the motor. This could occur within seconds of the first start of the motor or any subsequent starts. Failure timing would depend on where the object is thrown when the motor starts, how and where it ricochets within the end bell, and where it lands when the motor is secured.

The spare safety-related Limitorque actuator motor with a magnesium rotor was designated for use in Decay Heat Removal System (DH) pump DHP-1A Low Pressure Injection (LPI) isolation valve DHV-5. The safety function of DHV-5 is to automatically

open on a 500 pound per square inch gauge (psig) LPI actuation signal, allowing water to be injected into the core.

> NUREG-0302, "Remarks Presented (Questions/Answers Discussed) at Public Regional Meetings to Discuss Regulations (10 CFR Part 21) for Reporting of Defects and Noncompliance," Revision 1, 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 actuator motor, with the cracked weld and dislodged metal in the outboard end of the motor, is installed in the plant and returned to service. Assuming a single active failure of the redundant train component (DHV-6) during a limiting plant event, failure of DHV-5 could potentially result in no LPI flow to the reactor core during a hypothetical limiting Large Break Loss of Coolant Accident. This condition would represent 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.

Based on the above, CR-3 concludes that the identified deviation is reportable pursuant to 10 CFR 21.21 as a defect associated with a substantial safety hazard.

**(v) The date on which the information of such defect or failure to comply was obtained.**

CR-3 personnel performed a pre-installation video probe inspection of the spare safety-related Limitorque SB-3/SMB-3 actuator motor with a magnesium rotor on July 31, 2009.

**(vi) In the case of a basic component which contains a defect or fails to comply, the number and location of all such components in use at, supplied for, or being supplied for one or more facilities or activities subject to the regulations of this part.**

There are thirteen (13) spare safety-related Limitorque actuator motors with magnesium rotors on hand in the warehouse that are designated for use in the plant.

| Catalog Identification (CAT ID) | Number |
|---|---|
| CAT ID 63280477 | 1 |
| CAT ID 65380481 | 1 |
| CAT ID 67881087 | 1 |
| CAT ID 9220137082 | 1 |
| CAT ID 63280192 | 1 |
| CAT ID 61960476 | 1 |
| CAT ID 62980473 | 3 |
| CAT ID 63280652 | 1 |
| CAT ID 9220110861 | 1 |
| CAT ID 61960482 | 1 |
| CAT ID 63280479 | 1 |

**(vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has been or will be taken to complete the action.**

FPC Immediate Corrective Action

The thirteen (13) spare safety-related Limitorque actuator motors with magnesium rotors in stock had previously been placed on HOLD pending evaluations due to a previous CR-3 Corrective Action Program Nuclear Condition Report (NCR 174428) associated with the failure of the magnesium rotor for Main Feedwater block valve FWV-29.

The spare safety-related Limitorque actuator motor with a magnesium rotor designated for use in DHV-5 was returned to the vendor (AREVA NP, Inc.) for evaluation and replacement.

Limitorque Root Cause

Unknown

Limitorque Corrective Actions

Unknown

**(viii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.**

Licensees should perform a video probe inspection of any spare safety-related Limitorque actuator motors with a magnesium rotor as part of their receipt inspection.