

Power Reactor

Event # 44059

Site: PALISADES		Notification Date / Time: 03/13/2008 12:38 (EST)				
Unit: 1	Region: 3	State: MI	Event Date / Time: 03/13/2008 (EDT)			
Reactor Type: [1] CE		Last Modification: 03/13/2008				
Containment Type: DRY AMB						
NRC Notified by: LAURIE LAHTY		Notifications: MARK RING R3				
HQ Ops Officer: BILL HUFFMAN		RAY LORSON R1				
Emergency Class: NON EMERGENCY		MARK LESSER R2				
10 CFR Section:		TROY PRUETT R4				
21.21	UNSPECIFIED PARAGRAPH	VERN HODGE NRR				
		JOHN THORP NRR				
Unit	Scram Code	RX Crit	Init Power	Initial RX Mode	Curr Power	Current RX Mode
1	N	Yes	100	Power Operation	100	Power Operation

POTENTIAL DEFECT IN FAIRBANKS MORSE EMERGENCY DIESEL GENERATOR SNUBBER VALVE MATERIAL AND HEAT TREATMENT

Abstract:

"Palisades has experienced failures of two snubber valves on an emergency diesel generator since November 2005. These valves were made from AISI E 5200 material. Entergy has determined through destructive metallurgical analysis that the material was incorrectly heat-treated. Not all of the install snubber valves were constructed of this material. The defect in the material of the snubber valves may allow the snubber valves to crack under operation, resulting in fuel oil leakage and loss of fuel oil supply to the affected cylinder on the engine.

Component information:

"Manufacturer: Fairbanks Morse
 Model: ALCO Model 251F
 ALCO Part Number: 2402466

Description:

"Palisades has experienced failures of two snubber valves on the 1-2 emergency diesel generator since November 2005 due to incorrectly heat treated material of the snubber valves. Both snubber valves failed soon after being initially installed in the engine or after being re-installed in the engine after maintenance. The first snubber valve failed after operating for approximately 10 hours of operation. The second snubber valve was installed in the engine and had approximately 135 hours of run time on it before it was removed, inspected and re-installed in the engine. After reinstallation into the engine, the snubber valve failed after approximately 2 hours of operation.

JE19
 NRR

Power Reactor

Event # 44059

Review of the purchasing history of the snubber valves could not identify when these failed snubber valves were originally purchased.

"On February 27, 2008, Entergy determined, through destructive metallurgical analysis, that the material that was incorrectly heat-treated was AISI E52100 material. Not all snubber valves were constructed of this material. Subsequently, the receipt inspection practices were revised to include testing of the snubber valves for the suspect material. This is accomplished by using a Niton XLT 800 chemical analyzer to identify (non-destructively) the chemical content of the snubber valves. Snubber valves with manganese contents <0.5% are rejected as they are most likely to be constructed of E52100 material.

"In January 2008, five snubber valves were rejected due to not meeting Palisades material requirements. Subsequently, one of the snubber valves was destructively tested and confirmed to have been incorrectly heat treated. These snubber valves were identified to have been purchased in 2004.

"A Part 21 evaluation was performed and it was concluded that this is a substantial safety hazard because the defect may allow the snubber valves to crack under operation, resulting in fuel oil leakage and loss of fuel oil supply to the affected cylinder on the engine. The loss of fuel oil supply to a cylinder may affect the ability of the emergency diesel generator to meet its design basis load rating; the external leakage of fuel may result in the potential for a fire to develop and render the diesel generator inoperable; and the leakage of fuel may affect the ability of the fuel oil system to supply adequate fuel oil to the diesel generator throughout its mission time.

Causes:

"Snubber valves constructed from AISI E52100 material may be incorrectly heat-treated. The cause of this is not known.

Corrective Actions:

"Palisades experienced two failures, which were reported in Licensee Event Reports 2005-007 and 2007-006. Entergy identified the improper heat treatment following the second failure. Entergy has subsequently replaced all snubber valves on the 1-1 emergency diesel generator. Entergy replaced the defective snubber valve and the remaining snubber valves on the 1-2 emergency diesel generator that had been replaced at the same time the defective snubber was installed. Since the replacement snubber valves on 1-2 emergency diesel generator did not have their material composition verified, eight additional snubber valves were sub replaced after verifying E52100 was not present. Entergy plans to replace the remaining 10 snubber valves on 1-2 emergency diesel generator. Based on the amount of in-service time of these snubber valves and verification of 26 acceptable snubber valves, there is reasonable expectation of operability."

The licensee notified the NRC Resident Inspector.

Palisades has been in contact with Fairbanks Morse concerning this issue.
