

PRELIMINARY NOTIFICATION – REGION III

August 30, 2012

PRELIMINARY NOTIFICATION OF EVENT OR UNUSUAL OCCURRENCE – PNO-III-12-007A

This preliminary notification constitutes EARLY notice of events of POSSIBLE safety or public interest significance. Some of the information may not yet be fully verified or evaluated by the Region III staff.

Facility

Palisades Nuclear Plant
Entergy Nuclear Operations, Inc.
Covert, Michigan
Docket: 05000255
License: DPR-20

Licensee Emergency Classification

Notification of Unusual Event
 Alert
 Site Area Emergency
 General Emergency
 Not Applicable

SUBJECT: UPDATE - PALISADES SHUTDOWN DUE TO INCREASE IN UNIDENTIFIED REACTOR COOLANT SYSTEM LEAKAGE

This Preliminary Notification updates information discussed in PNO-III-12-007, as a result of the Palisades plant shutdown on August 12, 2012. The shutdown occurred due to rising unidentified leakage from the reactor coolant system of 0.3 gallons per minute. The required shutdown for unidentified leakage is greater than 1 gallon per minute. The NRC dispatched a Special Inspection Team to supplement the resident inspectors in the review and evaluation of the issue.

The licensee reported that the leakage was coming from control rod-drive mechanism (CRDM) 24. There are 45 CRDMs, one associated with each control rod. The control rods are designed to absorb neutrons when they are inserted in the reactor to control the nuclear reaction. The CRDM extends from the reactor head about 14 feet upward, and is the mechanism that withdraws and inserts the rod. The cause of the rise in leakage was determined to be from a crack that went through the CRDM 24 upper housing wall and was located about 2 feet up from the reactor head and was less than 1/8 inch in size. The leak was from the reactor coolant system pressure boundary, and the Technical Specification limit for pressure boundary leakage is 0 gpm. The NRC resident inspectors and the Special Inspection Team monitored the licensee's activities to determine the source of the leak, the repair process, and testing, as well as analysis and inspections to determine if other CRDMs may be susceptible to similar failures.

The licensee replaced and retested the CRDM 24 housing. Based on the location of the fault, the licensee concluded that CRDM 24 experienced a through-wall crack due to a type of stress corrosion cracking which occurs under stress and certain water chemistry conditions. The licensee conducted analyses and inspections to determine if other CRDMs may be susceptible to the same failure. This included inspecting eight additional CRDMs to determine if any of the other CRDMs have similar cracks. The inspections identified no additional cracks. In response to NRC questions about some of the inspections and analyses, the licensee performed additional work to ensure the plant was safe to start up. In addition, the Special Inspection Team evaluated the licensee's boric acid walkdowns of the reactor vessel head and no damage

was identified. The licensee is currently evaluating the frequency for additional inspections related to the CRDMs. The NRC will review this information to ensure the inspections are adequate.

The NRC team, and regional and headquarters experts also conducted a detailed review of the technical evaluations that were performed to ensure the CRDMs' structural integrity met the applicable codes and standards.

On August 30, 2012, the Palisades plant resumed operation after the CRDM 24 repairs were completed and the extent of condition reviewed. The reactor was made critical at 11:26 p.m. (EDT) on August 29, 2012, and the main generator was synchronized to the grid at 7:18 a.m. (EDT) on August 30, 2012.

The State of Michigan has been notified.

The meeting summaries for the NRC discussions with the licensee regarding the leak will be available through ADAMS.

The information in this preliminary notification is current as of 2:30 p.m. (EDT) on August 30, 2012.

This information has been reviewed with plant management.

This preliminary notification is issued for information only and no further action by the staff is anticipated.

ADAMS Accession Number: ML12243A485

Contacts: John B. Giessner
630-829-9619
John.Giessner@nrc.gov

Thomas Taylor
269-764-8971
Thomas.Taylor@nrc.gov

Enclosure: Palisades Rack and Pinion CRDM

Palisades Rack and Pinion CRDM

