

OYSTER CREEK NUCLEAR GENERATING STATION  
FORKED RIVER, NEW JERSEY 08731

Abnormal Occurrence  
Report No. 50-219/74/34

Report Date

June 7, 1974

Occurrence Date

May 29, 1974

Identification of Occurrence

Indications of coolant leakage existing in the area of an incore flux monitor reactor vessel housing located at core coordinate 28-05. This event is considered to be an abnormal occurrence as defined in the Technical Specifications, paragraph 1.15E.

Conditions Prior to Occurrence

The plant was shut down for refueling. The reactor was in the REFUEL mode during a hydrostatic test at 850 psig pressure and with coolant temperature approximately 155°F.

Description of Occurrence

On Tuesday, May 28, 1974, during a scheduled reactor vessel hydrostatic test to inspect the pressure boundary following refueling maintenance activities, leakage was observed in the vicinity of an incore flux monitor tube located at the bottom of the reactor vessel. Further investigation conducted on Wednesday, May 29, 1974, showed evidence of possible leakage in the area of an incore flux monitor housing penetration located in the reactor vessel bottom head. A second hydrostatic test was conducted at a pressure of 850 psig at approximately 7:00 p.m. on May 29, 1974, whereupon, water was observed leaking between the monitor housing and the reactor vessel. The leakage was measured under the conditions of 850 psig with a temperature of 164°F, and calculated to be on the order of approximately 0.02 gallons per hour.

Apparent Cause of Occurrence

The cause of this event has yet to be determined.

8103040530

Analysis of Occurrence

As stated in FDSAR Amendment No. 37, a postulated failure of the flux monitor tube would result in vessel leakage at a rate which would not cause excessive cladding temperatures and for which core reflooding is possible by engineered safety features. This situation is less severe than the design basis accident. To determine the consequences of a weld failure at a housing for an incore monitor tube, it is assumed that the weld between the housing and the reactor vessel bottom head fails, allowing the housing and the incore monitor tube to be ejected from the vessel. The hole provided in the bottom head for the housing has a diameter of two inches. This is the assumed break size. The hole has a break area of .0218 ft<sup>2</sup>. Assuming worst conditions, this results in peak clad temperatures less than 1000°F, as updated in FDSAR Amendment No. 67. This value is well within acceptable limits of the applicable ECCS criteria.

Corrective Action

An inspection program was developed by the plant staff and Jersey Central Power & Light Company management and concurred with by the nuclear steam supply system vendor, the reactor vessel manufacturer, and an engineering consulting firm. The program to examine the incore flux monitor tube from below the reactor vessel is as follows:

1. Visual inspection with a borescope
2. Leak test with helium using a mass-spectrometer
3. UT inspection
4. Pressure test of the reactor vessel
5. Chemical and physical analysis of the water in the tube, the crud in the tube, and the buildup around the tube.

In addition, an eddy current inspection was later added to this program to be performed following the UT inspection.

Recommendations for repair will be forthcoming pending a complete review and evaluation of the results of this program by the Plant Operations Review Committee.