

U.S. NUCLEAR REGULATORY COMMISSION  
OFFICE OF INSPECTION AND ENFORCEMENT

REGION III

Report No. 50-305/80-18

Docket No. 50-305

License No. DPR-43

Licensee: Wisconsin Public Service  
Corporation  
P. O. Box 1200  
Green Bay, WI 54305

Facility Name: Kewaunee Nuclear Power Plant

Inspection At: Kewaunee Site, Kewaunee, WI

Inspection Conducted: August 1, 4-8, 11-15, 18-22, 25-29, 1980

Inspectors: *RFW for* R. L. Nelson 9-30-80  
*RFW for* B. E. Fitzpatrick 9-30-80  
*RF Warnick* Approved By: R. F. Warnick, Chief 9-30-80  
Projects Section 3

Inspection Summary

Inspection on August 1, 4-8, 11-15, 18-22, 25-29, 1980 (Report No. 50-305/80-18)

Areas Inspected: Routine resident inspection of Operational Safety Verification; Monthly Maintenance Observation; Monthly Surveillance Observation; Plant Trips; ASME Code Section for Pumps and Valves; and followup on regional requests. The inspection involved a total of 189 inspector-hours onsite by two NRC inspectors including 28 inspector-hours onsite during off-shifts.  
Results: Of the six areas inspected, no items of noncompliance were identified in five areas. One item of noncompliance was identified in one area (Infraction - Failure to fully implement inservice testing of pumps and valves as required - Paragraph 6.)

## DETAILS

### 1. Persons Contacted

\*D. C. Hintz, Plant Manager  
\*M. C. Marchi, Technical Supervisor  
R. W. Lange, Superintendent, Maintenance  
\*C. R. Steinhardt, Superintendent, Operations  
J. S. Richmond, Plant Services Superintendent  
W. J. Truttman, Assistant Superintendent, Operations  
R. R. Hirst, Maintenance Supervisor

The inspectors also talked with and interviewed members of the Operations, Maintenance, and Plant Performance Sections.

\*Denotes those attending one or more exit interviews.

### 2. Operational Safety Verification

The inspector observed control room operations, reviewed applicable logs and conducted discussions with control room operators during the month of August. The inspector verified the operability of selected emergency systems, reviewed tagout records and verified proper return to service of affected components. Tours of the auxiliary and turbine buildings were conducted to observe plant equipment conditions, including potential fire hazards, fluid leaks, and excessive vibrations and to verify that maintenance requests had been initiated for equipment in need of maintenance. The inspector by observation verified that the physical security plan was being implemented in accordance with the station security plan.

The inspector observed plant housekeeping/cleanliness conditions and verified implementation of radiation protection controls. During the month of August, the inspector walked down the accessible portions of the Emergency Diesel Generator system to verify operability.

No items of noncompliance were identified.

### 3. Monthly Maintenance Observation

Station maintenance activities of safety related systems and components listed below were reviewed to ascertain that they were conducted in accordance with approved procedures, regulatory guides and industry codes or standards and in conformance with technical specifications.

The following items were considered during this review: the limiting conditions for operation were met while components or systems were removed from service; approvals were obtained prior to initiating the work; activities were accomplished using approved procedures and were

inspected as applicable; functional testing was performed prior to returning components or systems to service; quality control records were maintained; activities were accomplished by qualified personnel; and parts and materials used were properly certified.

The following maintenance activity was reviewed:

MWR 15087 Turbine Driven Auxiliary Feedwater Pump

Following completion of maintenance on MWR 15087, the inspector verified that the equipment had been returned to service properly.

No items of noncompliance were identified.

4. Monthly Surveillance Observation

The inspector observed technical specifications required surveillance testing on the turbine driven auxiliary feedwater pump and verified that testing was performed in accordance with adequate procedures, that test instrumentation was calibrated, that limiting conditions for operation were met, that removal and restoration of the affected components were accomplished, that test results conformed with technical specifications and procedure requirements and were reviewed by personnel other than the individual directing the test, and that any deficiencies identified during the testing were properly reviewed and resolved by appropriate management personnel.

No items of noncompliance were identified.

5. Plant Trips

During an electrical storm on August 19, 1980, a lightning strike is believed to have caused a voltage spike which blew the fuses on instrument bus inverters (1 and 4). This caused the loss of two instrument busses and automatic reactor shutdown (at 11:00 p.m.), safety injection, and containment isolation. The reactor coolant pumps tripped on SI and natural circulation cooling was established in the reactor coolant system (RCS). At 1:15 a.m. on August 20, 1980, the Reserve Auxiliary transformer tripped and an electrical fault and fire was reported on the aluminum bus bars between the Reserve Auxiliary transformer and the 4160 V busses 1-1 and 1-2. The plant fire brigade responded and verified that whatever fire had existed was extinguished.

During the event, offsite power was always available to one ESF bus through the Tertiary transformer. The other ESF bus was supplied power by the Reserve Auxiliary transformer except during a one hour period (1:15 a.m. - 2:15 a.m.) when it was powered by an emergency diesel generator.

The licensee established 4160 V power to the 1-1 and 1-2 busses at 6:15 p.m. on August 20, 1980, by back feeding offsite power through the main transformer and established RCS flow with a reactor coolant pump at 6:35 p.m. The fuses were replaced on the inverters and the instrument busses were returned to service at 7:15 p.m. A four foot section of the top layer of the aluminum bus bar (one-third of the three layer bus) was replaced on each of the three phases and the Reserve Auxiliary transformer was returned to service at 5:50 a.m. on August 21, 1980.

A contingency budget item was initiated based on a preliminary design of installing a parallel run of copper bus work. This preliminary design was performed only to establish a realistic base for funding. A Design Change Request (DCR) has been initiated to formalize and provide a means of tracking progress on investigation, design and installation. Following the plant trip on August 19, 1980, the inspector ascertained the status of the reactor and safety systems by observation of control room indicators and discussions with licensee personnel concerning plant parameters, emergency system status and reactor coolant chemistry. The inspector verified the establishment of proper communications and reviewed the corrective actions taken by the licensee.

All systems responded as expected, and the plant was returned to operation at 5:20 p.m. August 21, 1980.

6. Inservice Inspection for Pumps and Valves, ASME Code Section XI

Station Inservice Inspection (ISI) activities for safety related systems and components were reviewed to ascertain that they were conducted in accordance with the regulations, applicable codes, approved procedures and the technical specifications. Selected ISI data sheets pertaining to ASME Code Section XI pumps and valves were reviewed. 10 CFR Part 50, Section 50.55a(g) in part requires holders of an operating license to implement ASME Code Section XI to test selected pumps and valves. The licensee submitted proposed amendments No. 25 and No. 25A to their license on April 15, 1977 and July 18, 1977, respectively, to identify systems and components that would fall under the testing requirements of ASME Code Sections XI. The proposed amendments also designated changes to the Technical Specifications to make them conform with Section XI requirements and to request specific relief from Section XI requirements. Pending review of the licensee's proposed license amendment, the NRC, by letter dated January 18, 1978, and Notice in the Federal Register, conditionally approved the licensee's Section XI testing program for implementation.

The 1974 edition with Summer 1975 addenda, Section XI of ASME Boiler and Pressure Vessel Code, Section Iw. 3400, Frequency of Inservice Tests, states:

- (a) An inservice test shall be run on each pump, nominally each month during normal plant operation. It is recommended that this test frequency be maintained during shutdown periods where this can reasonably be accomplished, although this is not mandatory. If it is not tested during plant shutdown, the pump shall be tested within one week after plant is returned to normal operation.
- (b) Pumps that are operated more frequently than every month need not be run or stopped for a special test, provided the plant log shows each such pump was operated at least once every month at the reference conditions and the quantities specified were measured, observed, recorded and analyzed.

Section IWV-3410 states; Category A and B valves shall be exercised at least every 3 months, with the exceptions as defined in IWV-3410(b)(1), (e), and (f).

Section IWP-1100 states, this subsection defines the rules and requirements for inservice testing of Class 1, 2, and 3 pumps which are installed in water cooled nuclear power plants and which are provided with an emergency power source. The results of these tests are to be used in assessing operational readiness of the pumps during their service life. IWP-3100 states in part, each measured test quantity shall then be compared to the reference value of the same quantity. Any deviations determined shall be compared to the limits given in table IWP-3100-2 and the specified actions taken. Section IWV-3410(c)(1) states, the limiting value of full stroke time of each power operated valve shall be specified by the owner.

#### Findings

In reviewing the ISI data sheets pertaining to ASME Code Section XI pumps and valves, the inspector noted that all tests had not been conducted at the frequency, and/or test required information was not properly documented in that:

The monthly inservice inspection tests were not conducted on High Head Safety Injection Pumps, Residual Heat Removal Pumps, Auxiliary Feedwater Pumps (Motor Driven), Component Cooling Water Pumps, and Containment Spray Pumps during the May-June refueling outage or within one week after plant was returned to normal operation on June 24, 1980.

The quarterly inservice inspection tests of Category A and B valves associated with Surveillance Procedures 098, 099, 104, 167-1, 167-3 and 167-5 were not performed in accordance with IWV-3410 of Section XI.

Reference values as specified in table IWP-3100-1 were not established for the Turbine Driven Auxiliary Feedwater Pump.

Limiting values for stroke time have not been specified on the inservice data sheet for the following valves associated with SP-167-6:

SI-15A & B  
RHR-300A & B  
RHR-400A & B  
LD-6  
CVC-211, 212  
RBV-1, 2, 3, 4  
VB-10A & B  
FW-12A & E  
ICS-5A & B, 6A & B  
CI-1001A & B

The above examples are considered an item of noncompliance with the ISI for pumps and valves program required by 10 CFR Part 50.55a.

7. Location of Certain Load Centers

In response to a Regional Request (No. 084080), the inspector determined that any valve which is required by Technical Specification to be locked in a particular position during operation (such as a locked open breaker) does have its locking capability located outside of the containment building.

8. Exit Interview

The inspector met with licensee representatives (denoted in Paragraph 1) throughout the month and at the conclusion of the inspection on August 31, 1980, and summarized the scope and findings of the inspection activities.