Reactor Facilities
Br.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

APR 13 1976

Wisconsin Public Service Corporation
ATTN: Mr. E. W. James, Senior
Vice President
Power Generation and Engineering
P. O. Box 1200
Green Bay, Wisconsin 54305

Docket No. 50-305

Gentlemen:

This refers to the inspection conducted by Mr. D. C. Boyd of this office on February 2, 6, 11, 13, 18-20, 25, 27 and March 2-4, 9, 12, 29 and 30, 1976, of activities at Kewaunee Nuclear Power Plant authorized by NRC Operating License No. DPR-43 and to the discussion of our findings with Mr. C. Lucma of your staff at the conclusion of the inspection.

The enclosed copy of our inspection report identifies areas examined during the inspection. Within these areas, the inspection consisted of a selective examination of procedures and representative records, observations, and interviews with personnel.

No items of noncompliance with NRC requirements were identified within the scope of this inspection.

In accordance with Section 2.790 of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations, a copy of this letter and the enclosed inspection report will be placed in the NRC's Public Document Room, except as follows. If this report contains information that you or your contractors believe to be proprietary, you must apply in writing to this office, within twenty days of your receipt of this letter, to withhold such information from public disclosure. The application must include a full statement of the reasons for which the information is considered proprietary, and should be prepared so that proprietary information identified in the application is contained in an enclosure to the application.

AMERICAN REVOLUTION BICENTENNIAL 1776-1976

We will gladly discuss any questions you have concerning this inspection.

Sincerely yours,

Gaston Fiorelli, Chief
Reactor Operations and
Nuclear Support Branch

Enclosure:
IE inspection Rpt
No. 050-305/76-05

bcc w/encl:
PDR
Local PDR
NSIC
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U. S. NUCLEAR REGULATORY COMMISSION
OFFCE OF INSPECTION AND ENFORCEMENT

REGION III

Report of Operations Inspection
Resident Inspection Program

IE Inspection Report No. 050-305/76-05

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

Kewaunee Nuclear Power Plant
Kewaunee, Wisconsin

License No. DPR-43
Category: C

Type of Licensee: PWR W 1650 MWt

Type of Inspection: Routine, Unannounced

Dates of Inspection: February 2, 6, 11, 13, 18-20, 25, 27 and March 2-4, 9, 12, 29 and 30, 1976

Principal Inspector: for D. C. Boyd — 4/12/76 (Date)

Accompanying Inspectors: None

Other Accompanying Personnel: None

Reviewed By: E. L. Jordan, Chief
Reactor Projects Section No. 2 — 4/12/76 (Date)

SUMMARY OF FINDINGS

Inspection Summary

Inspections on February 2, 6, 11, 13, 18-20, 25, 27; March 2-4, 9, 12, 29 and 30, (76-05): Observations in the control room, auxiliary building, turbine building and containment; review of preparations for first refueling, observed portions of refueling; observation and review of verification of refueling; review of reportable events; observation of fuel examination tapes; observation of core baffle examination tapes; review of inservice inspection procedures, records and qualifications; observation of steam generator eddy current testing and review of data; observation of steam generator sludge lancing; and observation of refueling outage maintenance activities.

Enforcement Items

None.

Licensee Action on Previously Identified Enforcement Items

None.

Other Significant Items

A. Systems and Components

1. Modification and upgrade of several components or systems accomplished during first refueling outage. (Paragraphs 6.a. through 6.e., Report Details)

2. Steam generator examination. (Paragraph 5.b., Report Details)

3. Fuel element and core baffle examination. (Paragraph 5.a., Report Details)

4. Inservice inspection. (Paragraph 5.d., Report Details)

B. Facility Items (Plans and Procedures)

The unit was shutdown on February 13, 1976, to begin their first refueling outage. Unit restart is scheduled for April 4, 1976.

C. Managerial Items

None.

D. Noncompliance Items Identified by Licensee

None.

E. Deviations

None.

F. Status of Previously Identified Noncompliance Items

None.

Management Interview

A management interview was conducted on March 30, 1976, with Messrs. Luoma, Plant Superintendent, and Lange, Assistant to the Superintendent, Maintenance.

Items discussed included the following:

A. Resident Inspector activities. (Paragraph 3, Report Details)

B. Reportable events. (Paragraph 4, Report Details)

C. Resolution of outstanding items. (Paragraph 6, Report Details)

D. Refueling outage activities.

1. Fuel element examination and core baffle examination. (Paragraph 5.a., Report Details)

2. Steam generator examination. (Paragraph 5.b., Report Details)

3. Core verification mapping and testing. (Paragraph 5.c., Report Details)

4. Inservice inspection. (Paragraph 5.d., Report Details)

h. Observation of maintenance activities; turbine warranty examination; modifications to main feedwater pumps; and return of main auxiliary transformer to service.

i. Observation of major surveillance and functional testing; loss of offsite power; diesel loading sequence, ECCS response.

j. Observation of portions of the hot zero power core verification testing.

k. Review of plant fire protection.

4. Reportable Occurrences

The following reportable occurrences (ROs) took place during this report interval, and all were reviewed by the inspector. Each of these events were found as a result of required periodic surveillance and calibration testing. The inspector's review establishes that proper corrective action was taken and that the events were properly recorded and reported:

a. RO-76-1, Reported on February 17, 1976, hot leg RTD calibration drift of 6%. Replaced with new unit.

b. RO-76-2, Reported on March 9, 1976. Loose wire in forebay level indication circuit, Train A inoperable. Train B operable. Tightened connection.

c. RO-76-3, Reported on March 9, 1976, containment spray valve 1CS-5B would not open. Redundant train operable. Valve 1CS-5B had previously closed manually and was closed too tight (overtorqued). Valve was manually unseated and subsequent tests in the automatic mode were satisfactory.

d. RO-76-4, Reported on March 9, 1976, three-out-of-four Train B undervoltage reactor trip relays were found to be 2% below minimum value due to instrument drift. Train B was still operable and Train A was operable. Replaced one relay and recalibrated two relays in B train.

e. RO-76-5, Reported on March 18, 1976, one pressurizer level transmitter had a zero calibration drift in the low direction. The other two transmitters were found to be within

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j. Observation of portions of the hot zero power core verification testing.

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acceptable calibration limits, thus, the protective function was not affected. The affected transmitter, LT427, was recalibrated.

5. Refueling Outage Activities

a. Fuel Element and Core Baffle Examination

In a previous report[1/] the possibility of fuel clad damage, as a result of flow impingement through the corner joints of the core baffle plate, was identified. At that time it was postulated that an excessive cross flow through the seams of specified core baffle corner joints might result in fuel element rod vibrations and ultimately in rod clad wear at the grid spacers. During the February 13, 1976, refueling outage, the fuel elements in each of the eight suspect core positions were removed to the spent fuel pit for complete examination. The results of these examinations establish that no evidence of fretting, corrosion or other clad damage exists on any of these fuel elements.

During the period when the core was totally discharged, an inspection was made of each of the eight suspect core baffle seams. This inspection did not disclose any abnormalities, such as excessive seam gaps, warpage, or unusual flow marks.

The inspector observed video tape records of the fuel element examinations and of the core baffle examinations, and concurs with the licensee's finding that no abnormalities were identified.

b. Steam Generator Examination

The inspector accompanied a specialist from Region III in observing the eddy current testing and data analysis for the 'A' and 'B' steam generators. The Region III specialist will issue a detailed report on this inspection. However, in summary, no tube wastage, denting or other problems were found in either of the steam generators. No repairs were required.

1/ IE Inspection Rpt No. 050-305/76-01.

c. Core Verification Mapping and Testing

The inspector observed portions of the final core verification video tape. This video tape permits verification that all core components are fully seated, properly oriented and bear the correct serial number. The video tape is redundant to the many core loading checks performed during the actual core loading procedure, and provides a visual record of the actual core loading. No items requiring correction were found.

The inspector reviewed data obtained during the cold and hot core verification testing, and observed portions of the hot zero power core verification testing. Records establish that the hot all-rods-out critical boron concentration fell within 10 ppm of predicted.

d. Inservice Inspection

A Region III specialist reviewed the 10 year inservice inspection program and those portions of this program that were completed during this refueling outage. The inspection included a comparison of the program against applicable codes and licensee commitments; verification of properly approved implementing procedures; verification of proper standards and calibration of instrumentation used; and verification of proper certification of personnel performing the examinations. No items of Regulatory concern were identified. A separate detailed report will be issued by the Region III specialist who performed this inspection.

6. Resolution of Outstanding Items

During the past several months a number of items which required an extended outage for final resolution have risen. The inspector's review of these items establishes that the following were resolved during the first refueling outage:

a. Charging Line - Excessive Vibrations

Design Change 199 was implemented. This design change resulted in the installation of a pulse dampening tank in the charging line. Testing indicates that this change has resulted in a substantial reduction of line vibrations. This item is considered closed.

b. Limitorque Valves

A possible problem resulting from excessive greasing (during preventive maintenance) of certain Limitorque

valves was identified in previous IE:III reports.[2] This overpressurization of the Bellville spring area results in a premature tripping of the valve torque switch. To eliminate the possibility of this type of event, the licensee, in conjunction with the Limitorque operator vendor, has installed grease pressure relief units in the Bellville spring area on the following safety related Limitorque valves; Letdown Valve, LD-15, Safety Injection Valves, SI-2A, SI-2B, SI-11A, SI-11B, and Service Water Valves, SW-903A and SW-903C

c. AFP - 2xB Relays

In a previous report,[3] the coil in an AFP - 2xB relay was found to be burned out. Investigations by the licensee revealed that the coil rating might be questionable for the coil application. Thus, the question of suitability was raised with the relay vendor. The vendor stated that the coil voltage rating was 120-130 volts DC and that the actual voltage seen in service was 105-140 volts DC. The vendor maintained that the coil application was suitable but provided the licensee with the specifications for replacement coils which were rated for the full voltage spectrum the coil might encounter in service. The licensee changed out the coils on six such relays that were in service in safety related functions. This item is considered to be closed.

d. Main Feedwater Pump and Line Vibrations

Excessive pump and line vibrations have resulted in several instances of weld cracking in small lines associated with the main feedwater pumps. A number of "fixes," including the installation of additional line supports and hangers, strengthening the affected weld areas, strengthening the pump casings and installing stronger pump diaphram bolts, had already substantially reduced the problem. During this outage, the pump impellers (four-vane impellers) were replaced with new seven-vane impellers. Also, an expansion loop was installed on the inlet line to one pump casing. Final verification testing of this system remains to be performed.

e. Boric Acid Tank Level Transmitters

Problems were experienced with a zero shift of the boric acid tank level transmitters, such that on one occasion

2/ IE:III Inspection Rpt No. 050-305/75-15.
3/ Ltr, E. James to B. Rusche, 5/18/75/.

the transmitter on one tank would not reach the 4% trip point even when the tank was drained. Investigations by the licensee revealed that the calibration shift occurred only at the low level end (below ~6%) thus, the short term correction was to change the low level trip functions to occur at 10% rather than the previous 4%. The boric acid content of the tanks was increased to provide the amount required by the Technical Specifications prior to the low level switchover to the RWST.

Permanent correction was delayed due to problems in the vendor's shop in providing proper certification for the components required for the transmitter modifications. These components, properly certified, were received and the modifications of all four boric acid level transmitters have been completed. The licensee has elected to leave the low level transfer trip set at 10% and will maintain the additional amount of boric acid in the tanks to meet the Technical Specifications requirements.

This item is considered to be closed.