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

JAN 6 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. Boyd of this office on November 5, 7, 14, 21 and December 3, 10 and 16, 1975, of activities at the Kewaunee Nuclear Power Plant authorized by NRC License No. DPR-43 and to the discussion of our findings with Mr. Luoma and other members of your staff at the conclusion of the inspection.

A copy of our report of this inspection is enclosed and identifies the areas examined during the inspection. Within those areas, the inspection consisted of a selective examination of procedures and representative records, interviews with plant personnel, and observations by the inspector.

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 "Rulea of Practice," Part 2, Title 10, Code of Federal Regulations, a copy of this letter and the enclesed inspection report will be pleced in the NRC's Public Document Room. If this report contains any information that you or your contractors helieve to he proprietary, it is necessary thet you make a written application to this office, within twenty days of your receipt of this letter, to withhold such information from public disclosure. Any such application must include a full statement of the reasons for which it is cleimed that the information is proprietary, and should be prepared so the

proprietary information idantified in the application is contained in a separate part of the document. Unless we receive an application to withhold information or are otherwise contacted within the specified time period, the written material identified in this paragraph will be pleced in the Public Document Room.

No reply to this letter is necessary; however, should you heve any questions concerning this inspection, we will be glad to discuss them with you.

Sincerely yours,

Gaston Fiorelli, Chief
Reactor Operations and
Nuclear Support Branch

Enclosure:
IE Inspection Report
No. 050-305/75-19

cc w/encl:
D. Luoma, Plant
Superintandent

bcc w/encl:
PDR
Local PDR
NSIC
TIC
J. H. Sniezek, IE:HQ

UNITED STATES NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

REGION III

Report of Operations Inspection
Resident Inspector Program

IE Inspection Report No. 050-305/75-19

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

Kewaunee Nuclear Power Plant
Kewaunee, Wisconsin 54216

License No. DPR-43
Category: C

Type of Licensee: PWR W 1650 MWt

Type of Inspection: Routine, Unannounced

Dates of Inspection: November 5, 7, 14, 21, December 3, 10 and 16, 1975

Principal Inspector: E L Jordan for D. C. Boyd — 1/5/76 (Date)

Accompanying Inspectors: None

Other Accompanying Personnel: None

Reviewed By: E. L. Jordan, Section Leader
Reactor Projects No. 2 — 1/5/76 (Date)

SUMMARY OF FINDINGS

Inspection Summary

Inspections on November 5, 7, 14, 21 and December 3, 10 and 16, (75-19): Observations in the Control Room, Turbine Building and Auxiliary Building; review of plant operations; review of reportable events; review of management practices and directives; review of plant retraining activities and records; review of preparations for unit refueling.

Enforcement Items

None.

Licensee Action on Previously Identified Enforcement Items

None.

Other Significant Items

A. Systems and Components

1. Several electrical connections in the reserve auxiliary bus overheated requiring connector rework. (Paragraph 5, Report Details)

2. Cracking of one inch warm-up line on the main feedwater pumps. (Paragraph 6, Report Details)

B. Facility Items (Plans and Procedures)

1. The plant is currently operating at essentially full power with no operational problems.

2. The major staff activity is the final planning and scheduling for the units first refueling outage. The first refueling outage is scheduled to begin on February 15, 1976, and will last for approximately ten weeks.

C. Managerial Items

None.

D. Noncompliance Items Identified by the Licensee

None.

E. Deviations

None.

F. Status of Previously Identified Unresolved Items

None.

Management Interview

A management interview was conducted on December 16, 1975, with Messrs. Luoma, Plant Superintendent, and Lange, Assistant to the Superintendent, Maintenance.

Items discussed include the following:

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

B. Unusual Events. (Paragraphs 4.a through 4.c, Report Details)

C. Preparations for refueling. (Paragraph 7, Report Details)

REPORT DETAILS

1. Persons Contacted

C. Luoma, Plant Superintendent
R. Lange, Assistant Superintendent, Maintenance
J. Ruege, Plant Performance Engineer
K. Evers, Reactor Supervisor
T. Moore, Administrative Assistant
D. McSwain, I&C Supervisor
L. Arno, Lead I&C Man
D. Ristau, Training Supervisor
D. Braun, Shift Supervisor
C. Steinhardt, Assistant Superintendent, Operations
W. Truttmann, Operations Supervisor

2. General

Reports issued under the Resident Inspector Program address areas of inspection completed in the implementation of the program and will not be reported on in detail unless the findings warrant further discussion.

3. Inspection Activities

a. Observations in control room.

b. Inspection tours of auxiliary and turbine buildings.

c. Reportable Event closure and review. (Paragraphs 4.a through 4.c, Report Details)

d. Review of plant operations.

e. Review of management practices and directives.

f. Review of plant retraining activities.

g. Review of preparations for refueling.

4. Unusual Events

a. Auxiliary Feedwater Pumps - Partial Loss of Flow[1/]

During a unit start-up on November 5, 1975, a partial loss of flow was experienced on each of the three Auxiliary Feedwater Pumps. Investigation by the

1/ Ltr, E. James to B. Rusche, 11/14/75.

licensee revealed that the cause of the flow reduction was due to the accumulation of resin beads, from the make-up system mixed bed demineralizer system, in the suction strainer for each pump.

Investigation by the inspector reveals that the immediate corrective action by the licensee was to clean each of the strainers and return the Auxiliary Feedwater Pump flow capability to normal (all three were cleaned and returned to normal within twenty-eight minutes). The source of the resin was determined to be from the 1B condensate storage tank. This tank was isolated, drained, cleaned (approximately 0.5 cu ft of resin found in the bottom of the tank), refilled and returned to service.

The mechanism by which the resin found it's way out of the make-up mixed bed demineralizer system is not clear. An inspection of the system and screens disclosed no defects, however, the licensee has installed additional hold down straps on the resin bed screens.

The long range corrective action determined by the licensee and their architect-engineer include the following:

(1) Installation of a filter assembly on the make up demineralizer system outlet header to prevent resin beads or other particulates from entering the condensate storage tanks. A modification package has been prepared. (Modification No. DCR-443)

(2) Remove the 40 mesh screens, leaving only the 1/8 inch perforated strainer, in the Auxiliary Feedwater Pump suction lines. This item has been completed.

b. Diesel Generator Failure to Start

On November 5, 1975, during the performance of a periodic turbine trip test, the 1B diesel generator did not start as required.[2/]

The inspector's review of this event reveals that the "automatic" contacts in the control room diesel generator mode switch were not made up even though the mode switch was in the "automatic" position. Simular failures have

2/ Ltr, E. James to B. Rusche, 11/14/75.

been experienced in the mode switch operation for the Auxiliary Feedwater Pumps.[3] The cause of this switch malfunction (Westinghouse, W-2 switch) has been determined to be due to incorrect operator action in positioning the switch. These switches are designed for rapid jerk action positioning and may not always make up properly if eased into position. The inspector verified that a directive was issued to all operators addressing the proper operating technique for the operation of W-2 switches.

New replacement of W-2 switches are on order. The old W-2 switches will be returned to the vendor for analysis.

c. Auxiliary Feed Pump - Failure to Start[4]

On December 4, 1975, while the reactor was at full power, breaker 16201 on 480 volt Bus 1-62 opened. This resulted in a power loss to the Scots Overspeed system for the main turbine, which tripped the turbine, and consequently also tripped the reactor. The breaker was reset within two minutes. The operations personnel believed that all safety related equipment has functioned properly, however, the resident inspector was notified of the event and was advised that an investigation was in progress.

The inspector's review and discussion of this event with the licensee establishes that the Sequence of Events Recorder (SER) indicated that the 1A motor driven and the turbine driven Auxiliary Feedwater Pumps started as required upon receipt of the start signal. However, the SER shows that the 1B motor driven Auxiliary Feedwater Pump did not start until the 16201 breaker was reclosed. Examination of the loads supplied established that the oil pump for the 1B motor driven Auxiliary Feedwater Pump is supplied from this bus, thus the 1B pump could not start due to low lube oil pressure.

The cause of breaker 16201 opening has not been positively established, however, a group of craftsmen were working in the immediate vicinity of the breaker at the time of it's opening and it is believed that the breaker may been bumped causing it to trip.

3/ Ltr, E. James to B. Rusche, 10/23/75.
4/ Ltr, E. James to B. Rusche, 12/12/75.

The licensee's investigation and evaluation of this event are still in progress. This item remains open following final resolution, and review by the NRC.

5. Reserve Auxiliary Bus Overheating

Several connection points along the 4160 Volt reserve Auxiliary bus were found to be overheated enough to discolor the insulation. These joints located randomly along the aluminum bus bar were opened for examination, cleaned, retorqued and reinsulated. During the examination no obvious reasons for the connection overheating were observed. Thus, upon restoration of load to the bus, a bus temperature surveillance program was initiated. This surveillance program utilized infra-red temperature detection units which permit accurate connector temperature readings to be taken on the loaded bus. In this manner it was determined that several of the reworked connectors were still heating excessively. The unit was shutdown, and these joints were opened for re-examination. Again, no obvious reason for the overheating problems were found. The joints were again cleaned, retorqued, reinsulated and returned to service. Currently two bus connectors are still exhibiting acceptable but higher than normal temperatures. These are scheduled for rework during the forthcoming refueling outage.

While the above item is not directly safety related it is of sufficient interest to the NRC to warrant special attention.

6. Main Feedwater Pump Warm Up Line Cracking Problem

Recently completed repairs and modifications to the main feedwater pumps has resulted in localized increases in piping vibrations. These localized vibrations, which are strongest during the recirculation phase of start-up, have resulted in cracking of both one inch diameter pump warm up lines. Repairs and strengthening of these lines has been completed. Vibration surveillance and evaluation will continue. Flexible connectors, to reduce the warm up line rigidity, are on order.

Final system vibration analysis will follow a modification which will replace the present four-vane pump impellers with seven-vane impellers. This change, which is scheduled for the February 1976, refueling outage, is expected to substantially reduce this piping vibration problem.

While the above identified problem area is not directly safety related, it is of sufficient interest to the NRC to warrant special attention.

7. Preparations for First Refueling

The first refueling of the Kewaunee Nuclear Plant is scheduled to start on February 15, 1976, and is expected to require approximately ten weeks for completion.

Preliminary inspections and observations by the inspector indicate that substantial refueling outage planning efforts are in progress at both the plant and corporate levels.

The inspector has observed the preparation of the master critical path schedule and display board A preliminary review by the inspector indicates that all items of Nuclear Regulatory Commission concern have been addressed. These include the following:

a. Technical Specifications Requirements for inspections, calibrations, checks, and functional testing of safety related systems and components.

b. Steam generator eddy current testing.

c. Type B and C containment leak testing of valves and penetrations.

d. Procedure review, update, and approval.

e. Modification package review and approval.

f. Master fuel loading procedure preparation and approval.

A NRC follow-up inspection in the above areas is required prior to start of refueling.