Reactor Facilities Branch

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

MAR 2 9 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 Messrs. W. L. Fisher and M. C. Schumacher of this office on March 2-3, 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. Lucma and others 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 were identified by the inspectors.

Noncompliance identified through your management control system and corrected in a timely manner is described under Other Significant Items in the Summary of Findings section of the attached inspection report. We have no further questions regarding these matters at this time.

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

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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.

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

Sincerely yours,

James M. Allan, Chief
Fuel Facility and
Materials Safety Branch

Enclosure:
IE Inspection Report
No. 050-305/76-03

cc w/encl:
C. Luoma, Plant Superintendent

bcc w/encl:
PDR
Local PDR
NSIC
TIC

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

REGION III

Report of First Refueling Radiation Protection Inspection

IE Inspection Report No. 050-305/76-03

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

Kewaunee Nuclear Power Plant
Kewaunee, Wisconsin

License No. DPR-43
Category: C

Type of Licensee: PWR 560 Mwe (W)

Type of Inspection: Routine, Unannounced

Dates of Inspection: March 2-3, 1976

Principal Inspector: W. L. Fisher for M. C. Schumacher — 3/25/76 (Date)

Accompanying Inspector: W. L. Fisher

Other Accompanying Personnel: None

Reviewed By: W. L. Fisher, Chief — 3/25/76 (Date)
Fuel Facility Projects and
Radiation Support Section

SUMMARY OF FINDINGS

Inspection Summary

Refueling outage radiation protection inspection on March 2-3, (76-03): Review of radiation protection program during refueling outage, including observations of ongoing work and review of pertinent exposure and surveillance records and procedures.

Enforcement Items

None.

Licensee Action on Previously Identified Enforcement Items

Corrective actions taken by the licensee concerning enforcement item A identified in the IE:III letter of November 14, 1975, were reviewed. This matter is considered resolved. (Paragraph 6, Report Details)

Other Significant Items

A. Systems and Components

None.

B. Facility Items (Plans and Procedures)

Unresolved Item - The exposure of one or more licensee employees to airborne radionuclides on February 19, 1976, may have exceeded the 10 CFR 20.103(a) limit. (Paragraph 5, Report Details)

C. Managerial Item

The chemistry supervisor has resigned from the company effective mid-March 1976. A replacement is being sought. (Paragraph 2 Report Details)

D. Noncompliance Identified and Corrected by Licensee

Contrary to Technical Specification 6.11, Rad-Chem Procedure RC-HP-35 was not followed in planning work which resulted in the exposure of three employees to airborne radionuclides. (Paragraph 5, Report Details)

E. Deviations

None.

F. Status of Previously Report Unresolved Items

The unresolved item concerning monitoring of the shield building exhaust system, identified in IE:III Inspection Report 305/75-09 was reviewed by Nuclear Reactor Regulation. The licensee's procedure was found to be acceptable. This matter is considered resolved. (Paragraph 7, Report Details)

Management Interview

A management interview was conducted at the close of the inspection with Messrs. C. Luoma, Plant Superintendent; J. Richmond, Technical Supervisor; and G. Jarvella, Health Physics Supervisor.

A. The inspector stated that failure to follow Rad-Chem Procedure RC-HP-35, a contributing factor in the internal exposure incident of February 19, 1976, would be considered an item of noncompliance (Technical Specification 6.11) identified and corrected by the licensee. (Paragraph 5, Report Details)

B. The inspector stated that the February 19, 1976, internal exposure incident may prove to be reportable if further evaluation indicates that the exposure involved inhalation of insoluble cobalt. The licensee stated that the exposure evaluation will be continued. (Paragraph 5, Report Details)

C. The inspector reminded the licensee that the reportability (10 CFR 20.405) of inhalation exposures must be based on the time integrated concentrations to which the individual was exposed, not on the calculated dose to the critical organ.

D. The inspector stated that he had examined the licensee's corrective action concerning PORC review of Radiation Control Procedures and had no further questions. (Paragraph 6, Report Details)

E. The inspector noted the resolution of questions concerning the monitoring of the shield building exhaust. (Paragraph 7, Report Details)

F. The licensee stated that a replacement for the plant chemist has not yet been selected. (Paragraph 2, Report Details)

REPORT DETAILS

1. Persons Contacted

C. Luoma, Plant Superintendent
J. Richmond, Technical Supervisor
G. Jarvella, Health Physics Supervisor
J. Larson, Chemistry Supervisor
J. Soletski, Acting Training Supervisor
D. Boyd, NRC Resident Inspector

2. Organization Changes

For the outage, the health physics group has been divided into two twelve-hour shifts, each with a lead health physics technician. Supervision is provided by the health physics supervisor (days) and the chemistry supervisor (nights). Monitoring assistance under contract with Radiation Services Incorporated (RSI) is being provided by one leadman and ten senior technicians, who are divided between the two shifts. In addition, four junior technicians provided by RSI are being used during the peak to give continuous manning of exits from the controlled areas.

The chemistry supervisor has tendered his resignation from the company, effective mid-March 1976. The licensee is seeking a replacement.

3. Observation of Radiation Work

The inspectors observed radiation work taking place in the containment and in the auxiliary building, including the transfer of spent fuel to the spent fuel pool. Measurements of radiation fields in selected areas were made using an instrument obtained from the licensee's storage cabinet. General levels ranged from 0.5 to 50 mR/hr in containment areas where traffic was not interdicted by posted barriers. Readings of 15 to 20 mR/hr were observed at about three feet above the refueling pool. The reading above the spent fuel pool was about 6 mR/hr and increased by less than 1 mR/hr with a spent fuel element at its maximum upward position. Readings on the area radiation monitors adjacent to both pools agreed with portable instrument readings at the same locations.

Access to the auxiliary building was controlled in the normal manner at the health physics field office. Within the auxiliary building, access to containment and to the refueling pool was further controlled at a point just outside of the containment personnel air lock. A health physics technician was present at each control point to ensure that personnel were logged in and out, that dosimeters were read, and that protective clothing and survey procedures were followed. Control appeared to be effective and

personnel not actually engaged in work were not observed in these areas. Housekeeping in all areas appeared to be good and floor contamination did not appear to be a problem.

Adequate supplies of protective apparel and of portable survey instruments were observed. The portable survey meters carried recent calibration tags. A new washing machine had been installed inside of the controlled area for washing protective clothing having higher than usual levels of contamination.

4. Review of Records

Daily exposures to individuals working in "hot jobs" are followed using in-house TLD badges worn in addition to a vendor-supplied monthly badge. They are processed after each shift and an individual's exposure record is updated before his next shift. Two self-reading dosimeters, one read after exit from the controlled area and the other read upon daily exit from the site, are also worn. Quarterly doses are generally limited to 1250 millirems with selected individuals cleared to 2500 millirems in accordance with station procedures. Five individuals with exposure greater than 1250 millirems (maximum 1800 millirems) were noted in the sample of about 120 records examined by the inspector. Properly maintained NRC-4's were found for these individuals. Training records for twenty contractor personnel selected from the exposure records were examined. No discrepancies were noted.

Records of direct radiation and contamination surveys and air sampling for the period February 13 through March 2, 1976, indicated a generally satisfactory surveillance program. Highest radiation and contamination levels were associated with in-service inspection and eddy current testing of the steam generators. Contamination to 5E6 dpm/100cm^2 was recorded on the B steam generator diaphragm upon opening of the manway, with radiation levels to 25 R/hr observed at "hot spots". Contamination appeared to have been satisfactorily controlled with only limited tracking beyond the immediate work areas. The highest airborne radioactivity concentration recorded, IE-4 uCi/ml (Xe-133), occurred during venting of the A steam generator on February 17. Full face respirators using supplied air were worn for this work.

Selected review of radiation work permits (RWP's) for outage work revealed no discrepancies, except that no RWP was written to cover the decontamination of bolts on February 19, 1976. (See Paragraph 5).

5. Internal Exposure Incident

During the evening of February 19, 1976, three licensee employees (A, B, and C) were exposed to airborne cobalt-58 and cobalt-60 while cleaning contaminated bolts within the reactor building. The task, which involved wire brushing and cleaning with acetone and rags, was initiated by a contractor employee, who was directing the work of the three licensee employees and who was responsible to the licensee's "work supervisor."

Contrary to Technical Specification 6.11, Rad-Chem Procedure RC-HP-35, "Radiation Work Permit," was not followed, in that the work supervisor neither originated an RWP for nor informed the Health Physics supervisor or his alternate of the task. This matter was identified and corrected by the licensee.

The exposure aspects of the incident are not yet resolved. The licensee has considered the airborne cobalt-58 and cobalt-60 to be highly soluble and the exposure path to have been primarily ingestion. However, whole body counter and urinalysis data suggest the possibility of insoluble cobalt and an inhalation intake pathway. Confirmation of the latter probably would indicate an exposure greater than 40 MPC-hours, the limit of 10 CFR 20.103(a).

6. Noncompliance Followup

Corrective actions taken regarding failure of the Plant Operations Review Committee (PORC) to review changes to the Radiation Committee Procedures[1/] were reviewed. Those procedures involving nuclear safety were identified and submitted to PORC review on November 24, 1975. Subsequently, the licensee received approval of Amendment No. 7 to the Technical Specifications (submitted January 1975). This amendment clarifies the requirements for review of the Radiation Control Procedures.

7. Shield Building Ventilation System Monitoring

The unresolved item concerning lack of continuous monitoring of the shield building exhaust system, identified in IE:III Inspection Report No. 305/75-09, was referred to Nuclear Reactor Regulation for review. The licensee's procedure of sampling the shield building atmosphere before release was found to be satisfactory.

1/ IE:III Inspection Report No. 305/75-17.