U.S. NUCLEAR REGULATORY COMMISSION
REGION III

Report No. 50-316/92007(DRS)

Docket No. 50-316 License No. DPR-74

Licensee: Indiana Michigan Power Company
1 Riverside Plaza
Columbus, OH 43216

Facility Name: D. C. Cook Nuclear Plant, Unit 2

Inspection At: D. C. Cook Site, Bridgman, MI 49127

Inspection Conducted: March 9-11, and 27, 1992

Inspector: _____ 4-1-92
K. D. Ward Date

Approved By: _____ 4-1-92
J. M. Jacobson, Chief Date
Materials & Processes Section

Inspection Summary

Inspection on March 9-11, and 27, 1992 (Report No. 50-306/92007 (DRS))
Areas Inspected: Routine, unannounced safety inspection of inservice inspection (ISI) activities including review of programs (73051), data (73755), procedures (73052), observation of work activities (73753), and review of the erosion/ corrosion (E/C) program (73051, 73052, 73753, and 73755).
Results: No violations or deviations were identified. Based on the results of the inspection, the NRC inspector noted the following:

- The ISI program, including the eddy current examination of the steam generator tubes, was properly implemented in accordance with the ASME Code.
- Licensee staff and contract personnel performing ISI were knowledgeable and competent.
- All activities were controlled by well stated and defined procedures.

DETAILS

1. Persons Contacted

Indiana Michigan Power Company (I&M)

*G. Weber, Superintendent, Plant Engineer
*J. Fitchuk, ISI/NDE Technologist
J. Schrader, General Supervisor, Preventive Maintenance
E. Anderson, Erosion/Corrosion Lead
C. Freer, ISI Coordinator

U.S. Nuclear Regulatory Commission (NRC)

*J. Isom, Senior Resident Inspector
*D. Passehl, Resident Inspector

Southwest Research Institute (SWRI)

E. Escobedo, Level III

Factory Mutual Engineering

M. Muterspaugh, ANII

The NRC inspector also contacted and interviewed other licensee and contractor employees.

*Denotes those present at the exit interview on March 27, 1992.

2. Inservice Inspection (ISI) Unit 2

a. Program Review (73051)

Personnel from Dynacon Systems, Inc. (DSI), SWRI, and I&M, performed the ISI in accordance with the licensee's program and ASME Section XI, 1983 Edition, Summer 1983 Addenda. The licensee did not make a request for relief from the ASME Code for this outage. The NRC inspector reviewed I&M Audit No. QA-91-19 and surveillances of ISI program activities. These audit efforts were found to be acceptable, and performed by qualified personnel. Organizational staffing for the ISI program was found to be acceptable and the services of an Authorized Nuclear Inservice Inspector (ANII) were procured from Factory Mutual Engineering.

b. Procedure Review (73052)

All applicable ISI procedures were approved by the ANII and were reviewed by the NRC inspector. The ISI procedures were found to be acceptable and in accordance with ASME Section V, 1983 Edition, Summer 1983 Addenda.

c. Data Review (73755)

(1) General

The examination data was found to be in accordance with the applicable ISI procedures and ASME Code requirements. The NRC inspector reviewed documents related to nondestructive examination (NDE) equipment, data, and evaluations.

(2) Eddy Current Examination (ET)

This is the second ET of the Unit 2 replacement Westinghouse Series 51F steam generators (SGs). Two hundred thirty-five tubes (6%) were examined in each SG in accordance with Technical Specifications, Sections 4.4.5.1 - 4.4.5.4.

The Zetec MIZ-18A equipment was used for data collection and, the Zetec DDA-4 Digital Data Analysis System was used for data evaluation. The results indicated that all inspected SG tubes were found to be acceptable.

d. Observations of Work Activities (73753)

The NRC inspector observed work activities and had discussions with personnel during the ISI activities. These observations included the following:

(1) SWRI personnel performing ultrasonic examinations on pipe weld No. 2-MS-90-07S. This weld was in the main steam system.

(2) SWRI personnel performing ultrasonic and liquid penetrant examinations on pipe welds No. 2-SI-7-04S-LDO, 2-SI-7-04S-LOI, and 2-SI-7-04S-LU. These welds were in the emergency core cooling system.

(3) DSI personnel performing visual examinations of the reactor vessel internals using an underwater TV camera in conjunction with video tape recorders to record the examination. The following components were observed with no anomalies noted:

a Upper core plate
b Control rod guide tubes
c Upper support plate
d Upper barrel to flange girth welds.

The NRC inspector reviewed the qualifications and certifications of all inspection personnel performing ISI to ensure conformance with SNT-TC-1A.

No violations or deviations were identified.

3. Erosion/Corrosion Activities (73051, 73052, 73753, 73755)

Indiana Michigan Power Company began their erosion/corrosion (E/C) program in 1982. In 1986 a formalized procedure and administrative controls were established to ensure continued long-term implementation of an E/C monitoring program for piping and components. This program consists of ultrasonic examinations of wall thickness and is applicable to both safety related and non-safety related components. Various references were used to establish the program, including EPRI-NP-3944, "Erosion/Corrosion in Nuclear Plant Steam Piping," and NRC Bulletin No. 87-01, "Pipe Wall Thinning."

I&M has been using the Keller's System to aid in the selection of the inspection sample prior to a refueling outage. Starting with the next refueling outage, I&M will select the inspection sample utilizing the EPRI Chec, Checmate computer program. This program considers such variables as the effects created by poor geometry, high fluid velocities, moisture content, temperature conditions, and piping/component material. When a piping component is found that has exhibited wall thinning due to E/C, an engineering analysis is performed. This analysis determines if the degraded component is acceptable for continued use or if repair/replacement is required. I&M has also begun using the tangential radiographic technique for evaluating pipe system E/C. In tangential radiography, a view of the pipe's cross section, including a view of the pipe wall, is projected upon the film, enabling direct measurement of the remaining pipe wall thickness. This technique is primarily used during operation to evaluate the components prior to the outage. The radiography can be performed without removing the insulation or removing the water from the pipe. To date, several components and piping sections have been repaired/replaced as a result of the E/C program. The NRC inspector reviewed the E/C program, procedures, data, radiographs from the tangential radiographic technique, and observed inspections in progress. The overall E/C program at D. C. Cook appeared adequate.

No violations or deviations were identified.

4. Exit Interview (30703)

The NRC inspector met with licensee representatives (denoted in Paragraph 1) at the conclusion of the inspection and summarized the scope and findings of the inspection noted in this report. The NRC inspector also discussed the likely informational content of the inspection report with regard to documents or processes reviewed by the inspector during the inspection. The licensee did not identify any such documents/processes as proprietary.