U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report Nos. 50-315/92010(DRSS); 50-316/92010(DRSS)

Docket Nos. 50-315; 50-316 License Nos. DPR-58; DPR-74

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

Facility Name: D. C. Cook Nuclear Plant, Units 1 and 2

Inspection At: D. C. Cook Site, Bridgman, Michigan

Inspection Conducted: April 21-24 and May 13-20, 1992

Inspectors: R. A. Paul — 5/28/92 Date

N. Shah for M. Schumacher — 5-28-92 Date

Approved By: M. C. Schumacher, Chief
Radiological Controls and
Chemistry Section — 5/28/92 Date

Inspection Summary

Inspection on April 21-24 and May 13-20, 1992 (Report Nos. 50-315/92010(DRSS); and 50-316/92010(DRSS))

Areas Inspected: Routine unannounced inspection of the radiation protection program (Inspection Procedure (IP) 83750), the solid radwaste and transportation programs (IP 86750), and the gaseous and liquid waste programs (IP 84750) including: training and qualifications; management controls; audits and appraisals. In addition, the radioactive material building and the circumstances surrounding a contaminated shipment of hazardous waste were also examined.

Results: The licensee's solid, gaseous, liquid radwaste and transportation programs are well conducted. Operational problems with the main liquid discharge monitor have continued since the previous radwaste inspection (Section 9); licensee management has committed to resolve the problems this year. Two violations were identified; one for failure to follow the unconditional release procedure (Section 13) which led to the second violation concerning transferring radioactive material to an unauthorized recipient (Section 13).

## DETAILS

1. Persons Contacted

K. Cunningham, Radioactive Waste Handling Supervisor
D. Foster, Radioactive Material Specialist
+J. Fryer, General Supervisor, Radioactive Material Control
+L. Gibson, Assistant Plant Manager
+D. Holland, General Supervisor Radiation Support
+S. Lehrer, General Supervisor Radiation Controls
+J. Long, Radioactive Waste Specialist
+D. Loope, Superintendent Radiation Protection
J. Nadeu, Senior QA Auditor
*+D. Noble, General Supervisor Health Physics
+J. E. Rutkowski, Assistant Plant Manager

+J. Isom, Senior Resident Inspector

+Denotes those present at the April 24, 1992, Exit Meeting
*Contacted by telecon May 13-20, 1992

The inspectors also interviewed other licensee and contractor personnel.

2. General

This inspection was conducted to review the licensee's radwaste/transportation program. The inspection included tours of the hazardous waste building, observation of work in progress, review of records, and discussions with licensee personnel. The radwaste facilities appeared well maintained.

3. Changes (IPs 84750 and 86750)

The most significant change in the solid radwaste and transportation program was the promotion of the plant radiation protection supervisor to radiation protection superintendent who now has the general supervisor of radwaste reporting to him. With this change the radiation protection superintendent now has the responsibility for the entire radwaste program.

4. Licensee Action on Previous Inspection Findings (IP 92701)

(Closed) Open Items (315/91015-01 and 316/91015-01):

Incorrect receptor distance for the north sector in the calculation of offsite doses using the computer program MIDAS. The MIDAS program was revised to correct the discrepancy and corrections were submitted for affected

semiannual effluent reports. In addition, both the Offsite Dose Calculation Manual (ODCM) and MIDAS were reviewed by the licensee and found in agreement (Section 11). This item is considered closed.

5. Audits and Appraisals (IPs 86750 and 84750)

A review of quality assurance (QA) audits conducted by the licensee for 1991 and 1992 to date, did not identify any problems. Audits were of good quality and management review of findings were generally thorough, timely and technically sound. QA auditors assigned to this area have the necessary expertise and experience prerequisites and a good working relationship exists between radwaste and QA management.

No violations or deviations were identified.

6. Training and Qualifications (IP 86750 and 83750)

Training in current NRC and DOT requirements is accomplished primarily through attendance at contracted training courses and supplemented by maintenance of current shipping regulations. Training records were reviewed by the inspectors; no problems were identified.

All plant personnel are instructed in Nuclear General Employee training (NGET) to report to radiation protection (RP) whenever an electronic dosimeter (ED) alarms; however, these alarms are not demonstrated. As a result of several industry events involving EDs, the licensee is revising their training to include a video presentation explaining and demonstrating proper ED use. This video is expected to be in use by the end of May 1992.

Contract RP technician (RPT) qualifications are established by the contractor and reviewed by health physics management in accordance with procedure PMI-2260, R4, "Selection of Contractual Support Personnel". Those hired are required to pass a test on RP fundamentals and attend both NGET and plant specific courses. The inspectors reviewed test results of the contract RPTs and the assessment of their qualifications.

No violations or deviations were identified.

7. Solid Radioactive Waste and Transportation (IP 86750)

a. Waste Generation and Processing

Solid radwaste consists primarily of spent resin that has been dewatered and packaged in high integrity containers (HICs), uncompacted Dry Active Waste (DAW) packaged in 55 gallon drums and authorized LSA boxes, and filters have been dewatered and stored in HICs. While both spent resin and filters are processed and stored on site, the majority of DAW is sent offsite for processing and storage.

Total waste generation rates continue to decline due to reduction initiatives documented in inspection reports 50-315/91015(DRSS) and 50-316/91015(DRSS). Wastewater processed by plant systems decreased 20% from 1990 through 1991 due apparently to increased oversight of wastewater processing by management. Further initiatives include increased use of launderable items (mops, bags, etc) and additional oversight of wastewater processing.

Based on a review of NRC topical reports, procedures and facility tours, it appears and that solid radwaste processing activities were performed in accordance with the Process Control Program (PCP).

b. Waste Classification and Transportation

Waste classification and manifest generation continues to be performed as described in inspection reports 50-315/91015(DRSS) and 50-316/91015(DRSS).

A review of radwaste shipments for 1992 to date did not identify any problems; however, a violation was identified concerning a hazardous waste shipment containing radioactive material (Section 13). A total of five shipments comprising approximately 5846 $ft^3$ of DAW was made to offsite contractors. No transportation incidents have occurred since October 1986.

c. Onsite Storage of Radioactive Waste

Construction of the radioactive material building (RMB) for onsite waste storage was completed and

the licensee is currently finalizing procedures and policies describing its use. Approximately 10% of the RMB's 80,000 $ft^3$, will be utilized by radioactive waste currently in storage.

Through a review of procedures, tours of the RMB, and discussions with personnel, construction and planned operation appeared to be consistent with the licensee's safety analysis description for the facility.

No violations or deviations were identified.

8. Liquid and Gaseous Radioactive Waste (IP 84750)

The inspectors reviewed the licensee's liquid and gaseous radioactive effluent program including information concerning: semiannual release reports, waste sampling, process and effluent monitor release paths, batch releases and procedures for waste and effluent systems. A general description of the monitoring, gaseous and liquid release programs, and release paths is discussed in Inspection Reports No. 50-315/90021 and No. 50-316/90021. It appeared that processing, sampling and analysis, and approval and performance of the radioactive effluent releases were conducted in accordance with the procedures.

Contaminated oil collected in radiologically controlled areas is incinerated in the plant heating boiler in accordance with technical specification 3.11.2.3. The oil is initially stored in the waste oil tank, sampled for activity and a dose estimate is performed. Based on the results of the estimate, a calculated volume of oil is transferred from the waste oil tank to the larger fuel oil tanks where another sample is taken. Following incineration, the dose projection is recalculated and included in the total monthly releases. A review of both projected and final dose assessments did not identify any problems. Because of the possibility of contamination, access to the plant heating boiler is controlled and RP notification is required before entry.

No violations or deviations were identified.

9. Liquid Discharge Monitor Problems Identified in LERs

The inspectors reviewed Licensee Event Reports 91010 and 92003 describing failure of the liquid radwaste monitor (RRS-1001) to automatically terminate radwaste releases on October 16, 1991, and March 7, 1992, when

the monitor became inoperable. The releases were terminated manually by the control room operator when the monitor malfunctions were recognized at six and twenty-five minutes, respectively, after the monitor failure. Subsequent samples taken in duplicate confirmed that activity in the discharge had been reliably determined by the samples taken before the release. The releases were properly reinitiated and completed without incident.

A similar event, documented in Inspection Reports 50-315/91010 and 50-316/91010 (LER 91003) was experienced on this monitor on March 8, 1991, shortly after it became operational in early 1991 as a replacement for the plant's original liquid discharge monitor. The licensee's investigation of these events have identified a number of root causes including failure of the monitors trip/isolation relay system, failure of the DC backup power supply source, operator error, and problems associated with the radiation monitoring systems (RMS) monitor alarm logic. Corrective actions for these events included some design changes, replacement of parts/equipment, operator procedural revision, system modification, and a requirement for a radiation protection technician to monitor each release to ensure the release is terminated in the case of system failure. The RPT monitoring is a temporary action taken pending final correction of the RMS system.

This matter was discussed at the exit meeting, where the inspectors expressed their concern about these failures. The licensee also shared the concern and recognized the importance of the issue. In addition a task force to address problems identified with the RMS has been developed. The task force recommended the implementation design of changes to the system, to improve signal communication reliability and overall system performance. These measures are expected to be accomplished by February 15, 1993. LERs 91003, 91010, and 92003 are considered closed and the actions taken to address the reliability problems with the system will be reviewed during a future inspection and is considered an Inspection Follow-up item (IFI). (IFI 315/92010-01; 316/92010-01)
No violations or deviations were identified. One Inspection Follow-up Item was identified.

10. Effluent Control Instrumentation (IP 84750)

The inspectors selectively reviewed secondary calibration and channel functional test records and selected setpoint

records for effluent radiation monitors on the liquid and gaseous radwaste systems and observed calibrations of process monitors and in the calibration facility. No problems were identified.

The primary and secondary calibrations of the SPING gaseous effluent monitors are discussed in Inspection Reports No. 50-315/91015 and 50-316/91015; there have been no significant changes to the calibration program since then. Review of the calibration and test records for the most recent calibrations indicated they were accomplished in accordance with procedural requirements and no significant problems were identified.

The primary calibration of the Eberline liquid release monitor used concentrations of radioactive liquid to establish efficiencies and to demonstrate linearity. At the same time, solid cap sources were counted and efficiencies determined for use in subsequent calibrations. During the most recent calibration the licensee identified the "as found" monitor response correction values and threshold voltage were outside the licensee's procedural acceptance criteria. The licensee issued a condition report on this finding and is determining if liquid effluents met release criteria. The evaluation results will be reviewed by the inspectors; this is considered an Inspection Follow-up Item. (IFI 50-315/92010-02; 50-315/92010-02)

During a previous inspection (Reports No. 50-315/91015; 50-316/91015) it was noted there were performance problems with the Westinghouse liquid monitors. Since then the problems have decreased considerably as a result of upgrading instrument and maintenance testing and surveillance procedures. A review of the most recent calibrations of some of these monitors verified better performance.

No violations or deviations were identified. One Inspection Follow-up Item was identified.

11. Dose Assessment (IP 84750)

Offsite doses from effluent releases are calculated using the computer code MIDAS as described in inspection reports 50-315/91015(DRSS) and 50-316/91015(DRSS). The inspectors performed confirmatory calculations using the ODCM for typical gas and liquid releases. The results of the calculations were in agreement with the MIDAS assessment.

No violations or deviations were identified.

12. Air Cleaning Systems (IP 84750)

Technical Specifications (T/S) requires filter testing of the Control Room Ventilation Systems, Engineered Safety Features Ventilation Systems, and the Spent Fuel Storage Pool Exhaust Ventilation System. A selective review of the surveillances test data for 1991 showed that the surveillance on the ventilation systems met test acceptance criteria. It was also noted that charcoal filters in the control room ventilation system are changed every 18 months but no "as found" tests of the charcoal were performed. Without these the licensee would not be aware of possible degradation of the charcoal during the previous 18 month period. This matter was discussed with the licensee and it is the inspectors' understanding that the licensee plans to perform future "as found" tests when charcoal is replaced in the control room ventilation systems. This matter will be reviewed during a future inspection and is considered an Inspection Follow-up Item. (IFI 50-315/92010-03; 50-316/92010-03)

No violations or deviations were identified. One Inspection Follow-up Item was identified.

13. Onsite Followup of Events

On April 3, 1992, the licensee informed the NRC of the March 30, 1992, notification from a vendor in Arkansas that a barrel labeled as hazardous waste (liquid solvent) they received for incineration contained radioactive material. The vendor did not have a license to receive or possess radioactive material. The barrel was returned to the licensee the next day. Direct radiation measurements confirmed the barrel (30 gallons) contained radioactive material; later analysis showed the barrel contained about 40 microcuries of mixed isotopes (cesium-137 and 134, and cobalt-60). Surveys of the outside of the barrel and truck bed indicated no contamination. No violations of Department of Transportation (DOT) requirements occurred because the radioactivity levels did not meet the DOT definition of radioactive material.

The licensee issued a condition report and a subsequent investigation discovered that samples of the barrel were sent to several unlicensed laboratories prior to shipment. These laboratories were also not authorized to receive radioactive material. The transfer of the radioactive solvent to the incinerator and laboratory vendors is a violation of 10 CFR 30.41(a) requirements (50-315/92010-04; 50-316/92010-04).

Plant personnel surveyed each of the laboratories on April 8 and 9, 1992, and no contamination was found. The licensee's investigation also revealed that on September 14, 1991, a spill involving the solvent had occurred in the hazardous waste storage building, but that no surveys were done because the solvent's radioactivity was not known. Followup surveys (April 4, 1992) indicated fixed contamination levels on sections of the floor ranging up to 40,000 dpm/100 cm2, and low levels of contaminated soil at locations immediately outside the building. No other equipment or barrels were found contaminated during these surveys. The soil apparently became contaminated from periodic floor sweepings which had been swept outside a door of the building during the time the spill occurred and its subsequent discovery. The contaminated soil was recovered for disposal and the inspectors verified the building has been appropriately posted and controlled.

The investigation did not determine where the contaminated solvent came from, but the licensee concluded that it must have been brought out of the radiological controlled area (RCA) without an unconditional release survey. The failure to perform an unconditional release survey is a violation of Procedure 12 PMP 6010-RPP.301 "Control of Equipment and Material in a Restricted Area" (50-315/92010-05; 50-316/92010-05).

Immediate corrective actions taken to prevent recurrence of this event included strengthening of the RCA release survey and chemical control programs, and performing radioactivity surveys of all hazardous wastes leaving the protected area or the plant site. These matters were discussed during the exit interview and will be reviewed during a future inspection.

Two violations and no deviations were identified.

14. Exit Interview

The scope and findings of the inspection were reviewed with licensee representatives (Section 1) at the conclusion of the inspection on April 24, 1992. The licensee did not identify any documents as proprietary. The following matters were specifically discussed by the inspectors:

a. Contaminated hazardous waste shipment (Section 13),

b. Onsite storage of radioactive waste (Section 7c).

c. Incineration of contaminated oil (Section 8),

d. Calculation of effluent doses (Sections 4 and 10), and

e. Charcoal filter testing of T/S ventilation systems (Section 12).