

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-315/86020(DRS); 50-316/86020(DRS)

Docket Nos. 50-315; 50-316

Licenses No. DPR-58; DPR-74

Licensee: American Electric Power Service  
Corporation  
Indiana and 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, Bridgmen, MI

Inspection Conducted: May 5-16, 1986

*M. A. Ring for*  
Inspector: P. R. Rescheske

5/29/86  
Date

*M. A. Ring*  
Approved By: M. A. Ring, Chief  
Test Programs Section

5/29/86  
Date

Inspection Summary

Inspection on May 5-16, 1986 (Reports No. 50-316/86020(DRS); 50-316/86020(DRS))  
Areas Inspected: Routine, unannounced, safety inspection of previous inspection findings, preparations for refueling (60705), refueling activities (60710), and SFP and reactor cavity water level determination (86700).  
Results: No violations or deviations were identified.

SECRET

TO: SAC, [illegible]

FROM: [illegible]

SUBJECT: [illegible]

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## DETAILS

### 1. Persons Contacted

- \*W. G. Smith, Jr., Plant Manager
- K. R. Baker, Operations Superintendent
- \*A. A. Blind, Assistant Plant Manager, Maintenance
- \*J. E. Moline, Maintenance
- \*J. E. Rutkowski, Staff Assistant
- \*J. R. Sampson, Operations, Production Supervisor
- \*J. F. Stietzel, Quality Control Superintendent
- \*B. A. Svensson, Assistance Plant Manager, Operations
- \*M. L. Horvath, Quality Assurance Supervisor, AEPSC
- \*R. Bennett, AEPSC
- \*G. Pavitt, AEPSC
- \*M. Evarts, AEPSC

The inspector also interviewed other personnel during the course of the inspection including members of the licensee's operations staff and the Westinghouse refueling staff.

\*Denotes persons attending the exit meeting on May 16, 1986.

### 2. Action on Previous Inspection Findings

(Closed) Violation (50-315/85021-02(DRS)): Failure to ensure adequate implementation of the Westinghouse Refueling Procedure No. FP-AEP-R8 (i.e., sign-off discrepancies) during Unit 1 refueling operations. The problems identified in the Notice of Violation were a result of errors made during the process of transferring sign-offs to the record copies of the refueling procedures after having performed the actual procedure using working copies. The following changes have been made to correct the deficiencies in the refueling procedures.

- a. Section 4.7, "Controlled Refueling Procedure Copies and Signature Control," was revised to require that three copies of the refueling procedures are controlled, but that only the D.C. Cook Master Copy is the final official copy. The Containment and Spent Fuel Pit copies are used for reference by the Westinghouse refueling crew. In addition, working copies of each segment of the procedure used at the worksite are placed in the D.C. Cook Master Copy for final record.
- b. Each segment of Section 9.2, "Normal Refueling Activity Instructions," was revised to include a sign-off for licensee Q.C. verification that all procedure steps have been signed off.
- c. Section 7.6, "Closeout Section," was revised to include a review of the documentation and signature verification of the refueling procedure in its entirety by the Westinghouse refueling coordinator, a licensee representative, and a licensee Q.A. representative.

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The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that every entry should be supported by a valid receipt or invoice. This ensures transparency and allows for easy verification of the data.

In the second section, the author details the various methods used to collect and analyze the data. This includes both manual and automated processes. The goal is to ensure that the information is both reliable and up-to-date.

The third part of the report focuses on the results of the analysis. It shows a clear upward trend in the data over the period covered. This indicates that the current strategy is effective and should be continued.

Finally, the document concludes with a series of recommendations for future actions. These include regular audits, improved data collection methods, and ongoing communication with stakeholders.



The inspector reviewed the licensee's corrective actions and observed that the changes were effective in achieving full compliance. The inspector has no further concerns in this area.

No violations or deviations were identified.

### 3. Preparations for Refueling

The inspector performed a review of the completed surveillance testing required in preparation for Unit 2 core reload. Specific surveillances included nuclear instrumentation channel functional testing, communication checks between the control room and the refueling stations, manipulator crane operability checks, Spent Fuel Pit (SFP) crane operability testing, reactor vessel water level verification (See Paragraph 5), and boron concentration sampling. The licensee uses Procedure No. 2-OHP 4030.STP.037, "Refueling Surveillance," to ensure that all applicable Technical Specifications are satisfied. Data Sheet No. 1 was completed and reviewed prior to entry into Mode 6. (NOTE: The unit is in Mode 6 when the reactor head is detensioned or off, and there is fuel in the vessel. Entry into Mode 6 occurred on May 6, 1986, as core reload commenced.) Data Sheet No. 2 was completed and reviewed prior to fuel movement. Containment and Auxiliary Building integrity was demonstrated prior to core alterations and documented using Procedure No. 2-OHP 4030.STP.041, "Refueling Integrity," and Data Sheets No. 1, 2, and 3. The inspector verified from the above mentioned documentation that the Technical Specifications were satisfied and that the conditions required prior to core reload were met.

The licensee contracts with the Westinghouse Electric Corporation to provide the refueling personnel and procedures. The inspector reviewed the qualifications of the Westinghouse personnel, and verified that licensee staffing during refueling operations was adequate and in accordance with the refueling procedures. The inspector reviewed Procedure No. FP-AMP-R5, "D.C. Cook Unit No. 2 Nuclear Generating Station Cycle V - VI Refueling Procedure," and verified that it was reviewed and approved for use by the licensee. The inspector also verified that the refueling operations prior to core reload were properly signed off and reviewed, and that the procedure change sheets were incorporated into the procedure.

In addition, the inspector verified that the licensee had conducted a 10 CFR 50.59 safety evaluation and had submitted the proposed Technical Specification changes to NRR.

No violations or deviations were identified.

### 4. Refueling Activities

The inspector observed portions of the fuel handling operations including the commencement of core alterations on May 6, 1986, and fuel movements during regular and backshifts through May 8, 1986. The inspector witnessed fuel moves in the spent fuel pool, through the fuel transfer canal, and in the reactor cavity; and also observed refueling operations

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from the control room. During the core reload, the following licensee and contractor activities were monitored by the inspector.

- a. Periodic surveillance testing in accordance with Procedure No. 2-OHP 4030.STP.037 (Data Sheets No. 3 and 4), and verification of refueling integrity per Data Sheet No. 4 of Procedure No. 2-OHP 4030.STP.041.
- b. Determination of reactor shutdown margin as required by Data Sheet 6.2 of Procedure No. 2-OHP 4030.STP.030, "Daily Surveillance Checks (Modes 5 and 6)", in accordance with Procedure No. 2-OHP 4021.001.012, "Determination of Reactor Shutdown Margin."
- c. Control room activities including updating the status boards, maintaining communications with the refueling stations, and evaluating 1/M plots.
- d. Documentation of all fuel moves and maintaining the fuel assembly handling deviation report.
- e. Communications between all refueling stations, licensee and contractor staffing, responsibilities of key personnel, and shift turnovers.
- f. Good housekeeping, cleanliness and material control, and tool accountability.

The inspector verified that the refueling activities were controlled and conducted in accordance with the refueling procedures and satisfied Technical Specifications.

No violations or deviations were identified.

#### 5. SFP and Reactor Cavity Water Level Determination

During the inspection period, the inspector monitored the SFP and reactor cavity water levels by direct observation and by review of the documented surveillance. The D.C. Cook Unit 2 Technical Specifications, Section 3.9.10, requires that during fuel or control rod movement at least 23 feet of water be maintained over the top of the reactor pressure vessel flange. (NOTE: per design, the flange is at elevation 621' 1.5"). Section 3.9.11 states that at least 23 feet of water shall be maintained over the top of the spent fuel assemblies in the SFP racks. The following is the information obtained during the inspection and a discussion of the inspector concerns which resulted.

- a. The water level in the SFP can be read in feet (above the racks) from a stainless steel "ruler" bolted to the SFP wall. This level indicator is about five feet in length (measures 23 to 28 feet) and has markings at six inch increments. According to the licensee, the indicator was probably part of the original plant design and its accuracy is unknown. The licensee has agreed to make a measurement of the accuracy. SFP water level (in elevation) is further monitored

1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes that this is essential for ensuring transparency and accountability in the organization's operations.

2. The second part of the document outlines the various methods and tools used to collect and analyze data. It highlights the need for consistent data collection procedures and the use of advanced analytical techniques to derive meaningful insights from the data.

3. The third part of the document focuses on the role of data in decision-making. It explains how data-driven insights can help identify trends, anticipate challenges, and make more informed strategic decisions.

4. The fourth part of the document discusses the importance of data security and privacy. It outlines the measures that should be taken to protect sensitive information and ensure compliance with relevant regulations.

5. The fifth part of the document addresses the challenges of data integration and interoperability. It discusses the need for standardized data formats and protocols to facilitate the exchange of information across different systems and departments.

6. The sixth part of the document explores the future of data management and analytics. It discusses emerging technologies and trends that are expected to shape the data landscape in the coming years.

7. The seventh part of the document provides a summary of the key findings and recommendations. It emphasizes the need for a data-driven culture and the importance of investing in data infrastructure and talent.

8. The eighth part of the document discusses the role of data in driving innovation and growth. It explains how data can be used to identify new market opportunities and develop innovative products and services.

9. The ninth part of the document addresses the ethical implications of data collection and analysis. It discusses the need for transparency, consent, and fairness in data practices and the importance of protecting individual rights.

10. The tenth part of the document provides a conclusion and a call to action. It encourages the organization to embrace a data-driven approach and to take the necessary steps to implement the recommendations outlined in the document.

11. The eleventh part of the document discusses the importance of data literacy and training. It emphasizes the need for employees to have the skills and knowledge to effectively use data in their work.

12. The twelfth part of the document addresses the role of data in building a resilient and agile organization. It explains how data can be used to monitor and respond to changes in the market and to improve the organization's ability to adapt to uncertainty.

13. The thirteenth part of the document provides a final summary and a call to action. It reiterates the importance of data and the need for the organization to take action on the recommendations outlined in the document.



with a low level alarm, with the low alarm set at 644' 8" (Unit 2 control room) and the high alarm at 645' 8.75" (SFP heat exchanger room). According to the calibration records, these alarms are usually accurate to 0.5 inches. Assuming that the top of the vessel flange and the SFP racks are at the same elevation (621' 1.5"), then the low and high level alarms should be set at levels of 23' 5.5" and 24' 7.25", respectively. Data Sheet 6.4 of Procedure No. 1-OHP 4030.STP.030 documents the daily surveillance of the SFP level and is only a required test for Unit 2. The inspector reviewed a sample of the surveillances and noted that SFP level was at approximately 24 feet during Unit 2 reload (May 6-9, 1986). On May 15, 1986, the inspector observed that level was about 24' 9" and questioned the licensee as to why the high level alarm was not actuated. The licensee confirmed that the level was 24' 9" and wrote a job order to have the alarm checked and calibrated if necessary. No further information was obtained by the close of this inspection period.

- b. The water level in the Unit 2 reactor cavity during core alterations can be read (in elevation) from an indicator on the cavity wall marked in six inch increments. This measuring tool was recently installed in the Unit 2 cavity (NOTE: this was not a modification to the design of the cavity). Prior to this, level estimates were taken from "the rungs of a ladder," as is still the case in the Unit 1 cavity. The accuracy of both methods of measuring water level is unknown. No level alarms exist in the reactor cavity, but during reload the fuel transfer canal is open to containment, and therefore, the level in the SFP should be the same as the cavity level. The inspector reviewed the shiftly surveillances of cavity level required during core reload per Procedure No. 2-OHP 4030.STP.037, and noted that the level readings were within about six inches of the SFP reading of 24 feet. When the transfer canal is not open to containment and fuel or control rods are being moved in the cavity, the only level indication is that on the cavity wall. The licensee has agreed to make a measurement of the accuracy of the cavity wall level indicator.
- c. The inspector observed that the Technical Specification level requirements are given in feet, the SFP level daily surveillance is recorded in feet, and the cavity level is read in elevation. Cavity level is recorded shiftly during reload in Item 5 on Data Sheet No. 3, Procedure No. 2-OHP 4030.STP.037. The instructions discuss the level in feet above the flange, but no conversion to elevation is given. The instructions do not state how to record the level and therefore, the data is not consistent. In addition, the instructions require a minimum cavity level of 23' 7" during component movement. The basis for the 23' 7" is unclear and component movement is not defined. The licensee has agreed to clarify the requirements of the level surveillance and to specify a consistent method for recording data.

A number of questions still exist in this area and some of the inspector concerns had not been fully resolved by the close of this inspection period. This will be tracked as an Open Item (316/86020-01(DRS)) pending further review and evaluation of the information by the inspector.

The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that every entry should be supported by a valid receipt or invoice. This ensures that the financial statements are reliable and can be audited without any discrepancies.

Furthermore, it is noted that the company's financial health is directly linked to the quality of its record-keeping. By keeping detailed records, management can identify trends, control costs, and make informed decisions about the future of the business.

In addition, the document highlights the need for regular reconciliation of accounts. This process involves comparing the company's internal records with the bank statements to ensure that all transactions have been properly recorded. Any differences should be investigated immediately to prevent errors from accumulating.

It is also stressed that all records should be stored in a secure and organized manner. This not only protects the information from loss or theft but also makes it easier to retrieve when needed for reporting or legal purposes.

The document concludes by stating that good record-keeping is a fundamental aspect of sound business management. It is a practice that should be instilled in all employees and maintained consistently over time. By following these guidelines, the company can ensure its financial integrity and long-term success.

Finally, it is recommended that the company should review its record-keeping procedures periodically to ensure they remain up-to-date and effective. This will help the company adapt to any changes in regulations or business requirements.

No violations or deviations were identified; however, a portion of this area requires further review and is considered an open item.

6. Open Items

Open items are matters which have been discussed with the licensee, which will be reviewed further by the inspector, and which involve some action on the part of the NRC or licensee or both. An open item disclosed during the inspection is discussed in Paragraph 5.

7. Exit Interview

The inspector met with the licensee representatives (denoted in Paragraph 1) on May 16, 1986. The inspector summarized the scope and findings of the inspection. The licensee acknowledged the statements made by the inspector with respect to the open item.

The 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.

THE UNITED STATES OF AMERICA  
DEPARTMENT OF JUSTICE

IN SENATE  
JANUARY 10, 1951

CONFIDENTIAL

REPORT OF THE  
COMMISSION ON THE ORGANIZATION AND  
ADMINISTRATION OF THE  
FEDERAL BUREAU OF INVESTIGATION

PREPARED BY THE  
COMMISSION ON THE ORGANIZATION AND  
ADMINISTRATION OF THE  
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