

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-315/84-11(DRP); 50-316/84-12(DRP)

Docket Nos. 50-315; 50-316

Licenses No. DPR-58; DPR-74

Licensee: American Electric Power Service Corporation
Indiana and Michigan Electric Company
1 Riverside Plaza
Columbus, OH 43216

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

Inspection At: Donald C. Cook Site, Bridgman, MI

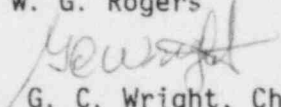
Inspection Conducted: June 4, 1984 through June 8, 1984

Inspectors: E. R. Swanson

B. L. Jorgensen

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W. G. Rogers

Approved By:  G. C. Wright, Chief
Reactor Projects Section 2A

7/24/84
Date

Inspection Summary

Inspection on June 4, 1984 through June 8, 1984 (Reports No. 50-315/84-11(DRP); 50-316/84-12(DRP))

Areas Inspected: Special unannounced inspection by a team of senior resident inspectors of problem alarms; system walkdown and print verification; surveillance; maintenance; inservice testing; work controls, independent verification; operations review; calibration; and miscellaneous issues. The inspection involved a total of 142 inspector-hours by four NRC inspectors including 13 hours during off-shifts.

Results: No items of noncompliance or deviations were identified.

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DETAILS

1. Persons Contacted

- *W. G. Smith, Jr., Plant Manager
- *B. A. Svensson, Assistant Plant Manager
- *K. R. Baker, Operations Superintendent
- *A. A. Blind, Technical Superintendent - Engineering
- T. R. Stephens, Operations Performance Engineer
- *R. L. Dudding, Maintenance Supervisor
- D. Draper, Administrative Compliance Coordinator
- M. J. Camp, Engineering Technologist

*Indicates persons present at exit interview.

2. General

This inspection was conducted by an NRC inspection team composed of the Senior Resident Inspector assigned to the D. C. Cook plant and three other Senior Resident Inspectors currently assigned at other operating pressurized water reactor facilities in NRC Region III. The purpose of the inspection was to selectively examine licensee activities relating to an ongoing Regulatory Performance Improvement Program (RPIP) being conducted by the licensee and to review and observe other areas and activities important to safe and controlled operation of a licensed nuclear power reactor.

3. "Problem" Alarms

The inspector reviewed licensee activities relating to identification and elimination of a relatively large number of "problem" alarms in the main control room, and discussed these activities with personnel involved in the program. "Problem" alarms are those which are frequently or continuously present despite absence of an actual "alarm" condition. The Plant Manager Standing Order, PMSO.062, which addresses these activities was reviewed and implementation was selectively verified. The department instructions describing acceptable response to alarms identified as "problem" alarms were also reviewed. The inspector examined the most recent monthly audit performed by the licensee addressing the status of alarms identified as "problem" alarms or of other alarms being tracked to support a determination as to whether they should also be categorized as "problems". The most recent audit was compared to earlier audits conducted six months and one year previous. The licensee is currently carrying about 190 items in the status evaluation process audited each month in accordance with the PMSO. This represents an increase of about 60 items from the number being followed a year earlier. About 60 items currently being carried, however, appeared appropriate for closeout, either on the basis of completed corrective action or because their infrequent occurrence may not represent a problem.

The licensee's program to identify, evaluate, and correct "problem" alarms was initiated in response to NRC and INPO concerns. The "problem" alarm program has been incorporated into the Regulatory Performance Improvement Program (RPIP) and a completion date for resolution has been established. The inspector reviewed selected records covering actions completed to resolve some items, or planned for resolution of others, and concluded the licensee is making responsible choices and appears to be effectively resolving items. Still, a considerable number of actions (Requests for Change, Plant Modifications, Job Orders or others) remain to be completed; and some of these items will require the support of the licensee's Corporate engineering organization. This program will require the continued attention of the licensee over the next year. The inspector considered the information developed by the licensee on the individual items reviewed; the effectiveness of actions taken to date; and the proposed resolution of additional items, all to be indicative of an appropriate level of licensee attention to this matter in the early stages of the RPIP.

No items of noncompliance or deviations were identified.

4. System Walkdown and Print Verification

An inspector reviewed licensee activities relating to the general area of verifying accuracy of plant system flow diagrams via field walkdown of plant systems, and to appropriate upgrading of other reference materials based on information generated during the walkdowns. The RPIP currently underway at the site addressed the first of these activities. The licensee's program, however, is more ambitious than that described in the RPIP. The inspector reviewed basis documents such as instructions and status reports, and discussed the scope and status of activities with involved licensee personnel. Particular attention was directed to program status summary reports covering such matters as schedule implementation, kind and correction of discrepancies identified, and timeliness of corrective actions. The licensee's program identified and corrected in excess of 100 flow print discrepancies (none of the identified items have been of major significance thus far) in the first five months of the walkdown program. Drawing revisions were timely in all cases reviewed. The program has been accomplished either on or ahead of schedule to date.

Additional information being derived by field walkdowns addresses such items as needed maintenance, desirable field "operator aids", and information to support the development of a much more complete equipment data base (component identification, tagging, location reference, etc.). After the first several systems were walked down by licensee-employed, experienced, Auxiliary Equipment Operators, the licensee retained a small group of new hires to perform these activities under the direction of the licensee's experienced personnel. The inspector noted an apparent decrease in the number of discrepancies, job orders, and operator aids being identified

in the more recent walkdowns performed by the less experienced personnel. This was discussed at the Management Interview.

No items of noncompliance or deviations were identified.

5. Surveillance

The inspectors reviewed selected instructions, procedures, and records, and discussed activities with licensee personnel, relating to the conduct of surveillance and inservice inspection testing activities.

An inspector reviewed the Plant Managers Instruction PMI-4030 "Surveillance Testing" and selected maintenance surveillance testing procedures, to evaluate procedure technical content and compliance to applicable regulatory requirements. The following procedures were reviewed:

- a. MHP 4030.STP.001: "Pressurizer Safety Valve Setpoint Verification by Bench Test". The inspector noted the procedure permits nozzle ring adjustments (due to low test-stand capacity) prior to lift setpoint verification. The subject valves are Crosby safety valves, and the lift setpoint may be subject to change with nozzle ring adjustment of more than a very few "flats". The licensee indicated this procedure is not in routine use, a contractor having been retained instead to perform the testing.
- b. MHP 4030.STP.002: "Maintenance Procedure for Main Steam Safety Valve Setpoint Verification".
- c. MHP 4030.STP.003: "Steam Generator Snubber Inspection". The procedure itself provides no specific acceptance criteria for such items as fluid level, temperatures, or pin-to-pin dimensions, to enable an immediate determination on the acceptability of the snubber's condition.
- d. MHP 4030.STP.004: "ITT Grinnel Hydraulic Snubber Inspection". Specific criteria addressing snubber "operability" are provided.
- e. MHP 4030.STP.008: "Inspection of Containment Sump".
- f. MHP 4030.STP.012: "Maintenance Inspection Procedure of Ice Condenser Floor Drain Valves".
- g. MHP 4030.STP.013: "Maintenance Inspection Procedure - 250V Plant Batteries AB and CD". Specific acceptance criteria addressing battery "operability" are provided.
- h. MHP 4030.STP.018: "Maintenance Surveillance Test Procedure for Diesel Fire Pump Batteries".

- i. MHP 4030.STP.022: "Maintenance Surveillance Test Procedure for Plant Batteries Emergency Load Discharge Test".
- j. MHP 4030.STP.025: "Maintenance Surveillance Test Procedure for Channel Calibration of Pressurizer PORV Block Valves".

In addition, a number of other surveillance procedures relating to plant batteries were reviewed briefly, including STP.014, STP.023, STP.024 and STP.026. The inspector found several of these procedures addressing batteries which called for the use of a hydrometer and thermometer to determine specific gravity, but these instruments were not specifically required to be calibrated items. Similarly, the licensee permits the use of a "digital density meter" in lieu of a hydrometer in some cases, and this instrument is not specifically required by the respective procedures to be calibrated. Further, while the licensee does stipulate a calibrated voltmeter for implementation of the subject procedures, no provision is made to record the calibrated instrument specific identification and calibration status. PMI 4030 stipulates surveillance procedures will outline the inspection and test equipment required, and the identity and calibration status of this test equipment. Use of calibrated test equipment (and documentation thereof) for testing plant batteries, was discussed at the management interview. The inspector also noted the licensee adjusts cell specific gravity determinations on the basis of electrolyte level; the adjustment factor having been predetermined. In that one Unit 2 station battery is being replaced (all cells) with a battery bank from another manufacturer, the licensee may need a different adjustment factor for those cells. This was also discussed at the management interview.

6. Maintenance

Several maintenance procedures were reviewed for both technical content and to evaluate compliance to regulatory requirements.

- a. MHP 5021.032.007: "Maintenance Procedure for Replacement and Repair of EDG Lube Oil Bypass Filter Pump".
- b. MHP 5021.032.008: "Maintenance Procedure for Replacement and Repair of EDG Starting Air Compressor".
- c. MHP 5021.056.002: "Maintenance Repair Procedure for Motor Driven Auxiliary Feedwater Pump".
- d. MHP 5021.082.002: "Maintenance Inspection and Repair Procedure for Type K-600S, 600v and 480 v Power Circuit Breakers".
- e. MHP 5021.051.001: "Maintenance Repair Procedure for Packing Hopkinson Valves".

- f. MHP 5021.082.013: "Maintenance Procedure for Jumpering Cells in the Plant Battery".

The procedures were found to vary somewhat with respect to the level of detail given for return-to-service from maintenance. One example stipulated the specific surveillance test to be run to establish "operability", and required filing of the test results with the maintenance documentation package. The procedure for repacking main steam isolation (Hopkinson) valves involves stroking the valve twice, but does not address stroke timing. Essentially no information is provided in the procedure for jumpering battery cells which specifies how return-to-service is to be accomplished. Further, the battery cell jumpering procedure is non-specific with respect to cable and equalizing cell(s) which must be used to assure battery protection. These matters were discussed at the management interview.

7. Inservice Testing

The inspector reviewed procedures and practices used for implementation of pump and valve testing as required by 10 CFR 50.55(g). 10 CFR 50.55(g) requires that the licensee perform inservice testing to verify operational readiness of pump and valves whose function is required for safety, in compliance with the 1974 Edition with 1975 Addenda of Section XI of the ASME Boiler and Pressure Vessel Code. Section XI Sub-Article IWP-3110, states, in part, "Reference values of the quantities shown in Table IWP-3100-1 as measured or observed when the equipment is known to be operating acceptably. All subsequent test results shall be compared to these reference values..." Sub-Article IWP-3100 states, in part, "the test quantities shown in Table IWP-3100-1 shall be measured or observed and recorded as directed in the Subsection. Each measured test quantity shall then be compared with the reference value of the same quantity. Any deviations determined shall be compared with the limits given in Table IWP-3100-2 and the specified corrective action taken." Sub-Article IWP-3230(b) states, "If deviations fall within the Required Action Range of Table IWP-3100-2, the pump shall be declared inoperative and not returned to service until the cause of the deviation has been determined and the condition corrected."

OHP 4030 STP.020 "Component Cooling Water System Test", step 8.2.7-6, states, "Vibration should be less than 5.0 mils-this is an ISI required value. No operator action is required if this value is above the required value." Review of reference data for the West Component Cooling Water pump indicated that the reference value for vibration (Vr) was 0.48 mil. OHP 4030 STP.022, "Essential Service Water System Test", indicated that the pumps would be considered operable if the vibration was less than 7.0 mils. Review of reference data for the East Essential Service Water pump indicated that Vr was 0.63. The inspector noted that an Instruction and Procedure Change had been submitted on March 28, 1984, for STP.022, to increase the vibration limit to less than 7.0 mils. The reason for change stated, "Increase limit to the point where pump damage

is imminent. This should preclude the initiation of condition reports for anything less than extreme levels. This change was requested by Performance Section Personnel." The change was approved by the PNSRC on April 10, 1984. The inspector informed the licensee that without an NRC approved exemption to the limits specified in Table IWP-3100-2, of Section XI, their maximum operability limits for vibration for the above pumps was unacceptable.

Review of OHP 4030 STP.017, "Auxiliary Feedwater Systems Test", indicated that the procedure could be performed and the acceptance criteria as specified in the procedure satisfactorily achieved, although the pump's performance would be less than the operability requirements specified in the Technical Specifications. The above findings were summarized and communicated to the licensee at the exit meeting on June 8, 1984.

Followup inspection on the concerns identified in this area will be conducted by a NRC region-based specialist inspector.

No items of noncompliance were identified.

8. Work Controls

During a review of work on the containment recirculation sump isolation valve (ICM-305) a number of discrepancies were noted in the work area.

- The valve was being rewired because the motor operator leads were crossed.
- An electrical junction box for the motor operator was left open with unterminated wires hanging out.
- Two nearby component cooling water relief valves had "reject" stickers affixed - apparently sometime before.
- Leak detection box covers were left off.
- Trash from work and cleaning (rimple cloth, mops, tape) were left in the work area.

After the containment equipment hatch seals failed leak testing the licensee found that the hatch had been disassembled subsequent to the last known reassembly. The subsequent reassembly was evidently not done according to procedure since the closure bolts were not torqued and no Quality Control coverage was provided.

These findings indicate a lack of supervision and attention to detail in work performance and restoration. Both of the above maintenance deficiencies were identified during the subsequent operability testing and this underscores both the necessity of post maintenance testing and the acceptability of this aspect of the licensee work control program.

No items of noncompliance or deviations were identified.

9. Independent Verification

The inspector reviewed portions of Surveillance Tests 2 THP 4030 STP.203, "Type B&C Leak Rate Testing", and 12 THP 4030 STP.202, "Integrated Leak Rate Testing", for implementation of lifted leads, jumpers and clearance permit controls. Discrepancies were found in the documentation provided on tags identifying lifted leads. According to the Plant Manager Instruction controlling the bypass of safety functions (PMI-2140) the terminal location, date lifted and the name of the person who bypassed the safety function is to appear on the tag. The PMI did not specify independent verification of the bypassing function, but a planned revision would include this as a requirement. The surveillance procedure itself provided appropriate documentation of the independent verification function.

Programmatic controls outlined by the Plant Manager Standing Order No. 077 are still in the process of being integrated into plant procedures, while in practice independent verification was found to be utilized in most applicable situations.

10. Operations Review

The inspector performed procedure reviews and control room tours during the week of June 3, 1984. The inspector noted that:

- a. No designation on the startup feedwater flow indicators as to what unit (gpm, lb/hr, etc.) was being sensed.
- b. Unit 1's average power level on May 15 and 28 exceeded 100% as measured by heat balance.
- c. In the startup procedure, 1 OHP 4021.001.001, steps 6.45, 6.46 and 6.47 require recording auxiliary feedwater flow in gpm; however, the flow indicator is in lb/hr. Subsequent to the exit the licensee stated that these steps had been changed to indicate lb/hr instead of gpm.
- d. In the Operations Daily and Shift Surveillance Checks, 1 OHP 4030 STP.030, the procedure does not specify a maximum allowable difference between instruments sensing the same parameter. Examples are RWST level, Accumulator pressure, Accumulator level, Boric Acid Storage Tank level, Condensate Storage Tank level and Ice condenser temperature.

These items were discussed with the Operations Superintendent who committed to review the items and take appropriate action.

11. Calibration

The inspector reviewed the licensee's Instrument Calibration System (ICS) as described in 12 THP 6030 IMP.045. The ICS is a computer based system which informs the I&C personnel when an instrument requires calibration. Included in the ICS are the instruments and instrument loops required to

be calibrated by Technical Specifications. The inspector noted that the ICS is incapable of ensuring that the total maximum combined interval of time for any three consecutive calibrations does not exceed 3.25 times the specified surveillance interval for those calibrations required by Technical Specifications.

During the review the inspector noted that the level indicators on the diesel generator day tanks have not been calibrated since installation in 1977. The indicators are used to verify a surveillance requirement on the diesel generators. The licensee stated that there were already plans to replace these indicators.

12. Miscellaneous

- a. The inspector reviewing activities relating to system walkdowns and flow print verification discussed means for incorporating information derived from these activities into appropriate revisions of plant procedures, with the focus being on Operations Department procedures. The information was being provided to an assigned individual, who was reviewing and prioritizing it and identifying whether procedure revisions were appropriate.
- b. Activities under the Regulatory Performance Improvement Program (RPIP) to reduce and maintain temporary procedure changes to fewer than four per plant procedure were briefly examined. This activity was on schedule. No instances were noted, in review of numerous procedures for other purposes during this inspection, wherein four or more temporary changes remained in effect.

13. Management Interview

A management interview (attended as indicated in Paragraph 1) was conducted at the conclusion of the inspection on June 8, 1984. The following matters were discussed with licensee representatives.

- a. The scope and findings of the inspection as described in these Details were briefly reviewed.
- b. An apparent decrease in walkdown team "findings" over the latest half-dozen system print verifications was noted by the inspectors (Paragraph 4), who felt the licensee should assure that this was not a consequence of utilizing less experienced personnel for the more recent walkdowns. The licensee had independently noted this trend, and a Plant Manager's memorandum has been issued to evaluate the situation.
- c. Apparent inconsistencies between the requirements of PMI-4030 "Surveillance Testing" concerning identification and documentation of calibration status of test equipment, and the requirements of several procedures for surveillance of plant batteries was discussed (Paragraph 5).

- d. The inspectors noted procedure changes for adjustment factors used in determining battery cell specific gravity may be required in that one Unit 2 station battery is currently being replaced with cells from a different manufacturer (Paragraph 5).
- e. Lack of specificity in selected maintenance procedures concerning required equipment and return-to-service instruction, was discussed (Paragraph 6).
- f. Procedural adequacy for determining operability of Essential Service Water and Auxiliary Feedwater pumps was discussed (Paragraph 7).
- g. Work controls reviews indicated a lack of: Supervisory attention, procedural compliance, and attention to detail in work performance (Paragraph 8).
- h. The independent verification program appears to be implemented, but is still lacking proceduralization in some areas (Paragraph 9).
- i. Deficiencies were found in control room instrument labeling, procedure units, instrument cross check requirements, and power level recording (Paragraph 10).
- j. The Instrument Calibration System does not prevent surveillance periods which exceed the 325% limit for three consecutive tests (Paragraph 11).