

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-315/84-23(DRP); 50-316/84-25(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: December 22, 1984 through February 11, 1985

Inspectors: B. L. Jorgensen

J. K. Heller

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

2/27/85
Date

Inspection Summary

Inspection on December 22, 1984 through February 11, 1985 (Reports No. 50-315/84-23(DRP); 50-316/84-25(DRP))

Areas Inspected: Routine unannounced inspection by the resident inspectors of licensee actions on previous inspection findings; operational safety; reactor trips; surveillance; Licensee Event Reports; maintenance; and independent inspection activities. The inspection involved a total of 242 inspector-hours by two NRC inspectors including 30 inspector-hours off-shift.

Results: Of the seven areas inspected, no items of noncompliance or deviations were identified in six areas; one item of noncompliance was identified in the remaining area (failure to collect and analyze compensatory grab samples within required time limits - Paragraph 6).

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DETAILS

1. Persons Contacted

- *W. G. Smith, Jr., Plant Manager
- E. L. Townley, Assistant Plant Manager
- *B. A. Svensson, Assistant Plant Manager
- *T. A. Kriesel, Technical Supervisor, Physical Sciences
- K. R. Baker, Operations Superintendent
- *A. A. Blind, Technical Superintendent-Engineering
- *J. F. Stietzel, QC Supervisor
- *C. E. Murphy, Production Supervisor

The inspectors also contacted a number of licensee and contract employees and informally interviewed operation, technical and maintenance personnel during this period.

*Denotes personnel attending exit interview on February 19, 1985.

2. Licensee Action on Previous Inspection Findings

(Open) Noncompliance (315/81-28-01; 316/81-32-01 and 315/82-11-01; 316/82-11-01): Noncompliance 315/81-28-01; 316/81-32-01 documented that the controls for maintaining the "N" List as an up-to-date, reliable reference were inadequate. Noncompliance 82-11-01 documented that while verifying the adequacy of the updated "N" List, the Divider Barrier Seal (covered by Technical Specification 3/4.6.5.9 and considered to be safety related) was not listed. This resulted in purchasing the seal as a non-safety related item from a non-approved vendor. To correct these items of noncompliance the licensee committed to review the "N" List for completeness and accuracy and to make the required actions to make the list an up-to-date document. The review and updating were scheduled to be completed by December 31, 1982. While reviewing these items the inspectors were unable to find documentation that the review and updating had been completed by December 31, 1982. The licensee was requested to provide documentation prior to the close of the next inspection report.

(Closed) Unresolved Item (315/82-15-07; 316/82-15-02): This item questioned the Fire Protection Coordinator's practice of finding nonconforming conditions and using word-of-mouth to correct them. Through discussion with the Fire Protection Coordinator and review of condition reports, the inspectors found that nonconforming conditions are currently being identified on Condition Reports. In addition, this item documented that findings from the monthly QC surveillance housekeeping reports are not subject to the condition reporting system. Through discussion with the Quality Control Supervisor and the Plant Manager, the inspectors were informed that the housekeeping Quality Control Surveillance reports are reviewed by the Plant Manager who initiates corrective action.

(Closed) Noncompliance (315/82-22-04; 316/82-22-04): The Plant Nuclear safety Review Committee (PSNRC) did not document that determination of an unreviewed safety question was made for violations of Technical Specifications. The inspectors verified the licensee action as stated in their response dated March 22, 1983.

No items of noncompliance or deviations were identified.

3. Operational Safety Verification

The inspectors observed control room operations, including manning, shift turnover, approved procedures and LCO adherence, reviewed applicable logs, and conducted discussions with control room operators during the inspection of December 22, 1984 through February 11, 1985. Observations of control room monitors, indicators, and recorders were made to verify the operability of emergency systems, radiation monitoring systems, and nuclear and reactor protection systems. Reviews of surveillance, equipment condition, and tagout logs were conducted. Proper return to service of selected components was verified. Tours of the auxiliary building, turbine building, Unit 1 containment, and screenhouse were made to observe accessible equipment conditions, including fluid leaks, potential fire hazards, and control of activities in progress.

By observation and direct interview the inspectors verified that the physical security plan was being implemented in accordance with the station security plan.

The inspectors observed Unit 2 loose parts monitoring activities following receipt of an alarm on the monitoring instrumentation during startup on January 3, 1985. The licensee and vendor (Westinghouse) evaluation indicated the likelihood that broken split pin parts, as found in other plants, were the cause of the condition. The plant was cooled down, the steam generators opened, and small split pin parts were found and retrieved as expected. The licensee subsequently provided NRC Region III a special report on this matter, including a safety evaluation in support of the licensee's review pursuant to 10 CFR 50.59.

During a tour of the Unit 2 cable spreading room, the inspectors noted two fire extinguishers without current operability check tags attached. Independent records verified the proper checks had been performed and current tags were affixed to the subject extinguishers.

Unit 2 pressurizer spray valve NRV-163, which contributed to a reactor trip/safety injection on November 11, 1984 due to excess leakage, once again became suspected of leakage despite intervening maintenance and tagging of the valve controller to maintain the valve in "manual" and closed. This was identified only after considerable investigative effort on the pressurizer heaters as a potential source of pressure control problems - a situation contributed to by placement of the aforementioned tag such that the valve controller was partially obscured. The tag was placed to the side of the controller and a manual "closed" signal given to the valve, which may have drifted slightly off its seat.

Several matters came to the attention of the inspectors for which Licensee Event Reports (LERs) are anticipated. These matters will be reviewed fully in evaluation of the LER information. They include: for Unit 2 - identification of a cold leg RTD installed with components not all environmentally qualified; for Unit 1 - concurrent inoperability during Mode 5 of both the AB emergency diesel and the CD station battery without restoration of containment integrity within eight hours; for both Units - identification of multiple Rockwell RTD loop bypass isolation valve failures, and; for both Units - ice condenser door testing to erroneous criteria such that surveillance test failures were not identified and appropriate LCO Action Statements complied with. Except for the Rockwell valve failure matter, these items may have NRC enforcement action implications. This was discussed at the Management interview.

In review of preliminary information concerning concurrent inoperability of the AB diesel and the DC battery identified above, the inspectors discovered a Technical Specification "interpretation" by the Plant Nuclear Safety Review Committee (PNSRC) involving LCO actions for inoperable station batteries. This interpretation (No. 12 dated July 11, 1978) appears contradictory to Technical Specification 3.8.2.3, at least insofar as no cross-reference is made to Specification 3.0.3 for contemplated cross-tieing of the batteries when one or the other battery is "inoperable". This situation developed with Unit 2 in Mode 1 on January 30, 1985 when the batteries were cross-tied under the provisions of 3.0.3 while a faulty cell in one battery was jumpered. An LER is forthcoming on this matter, which will be reviewed further. Concerning the PSNRC interpretation, the licensee agreed to re-examine the matter. This was discussed at the Management Interview.

Routine inspector review of Unit 1 logs identified an apparent concurrent inoperability of two engineered safety feature fans, contrary to Technical Specification requirements. Further evaluation and discussion with licensee personnel established that Specifications had been met, appearances to the contrary being a consequence of imprecise log entries. The log entries were corrected.

Observations of the plant housekeeping/cleanliness conditions and the implementation of the radiation protection program and controls were made. These reviews and observations were conducted to verify that facility operations were in conformance with the requirements established per Technical Specifications, 10 CFR, and Administrative Procedures.

No items of noncompliance or deviations were identified.

4. Reactor Trips

Following the plant trips discussed below, the inspectors ascertained the status of the reactor and safety systems by observation of control room indicators and/or by discussions with licensee personnel. The inspectors verified the establishment of proper communications and reviewed the corrective actions taken by the licensee.

Unit 2 tripped from about 2% power on January 12, 1985 when steam generator lo-lo level developed from a combination of steam demand control difficulty at low power and level shrinkage due to increased cold auxiliary feedwater flow in response to these difficulties. System responses to the trip were normal and the reactor was made critical at 1928 hours.

Unit 2 tripped from about 96% power on January 26, 1985 when power was lost to a control room instrument panel (CRID III) due to an internal computing capacitor short circuit. This caused an indicated loss of reactor coolant flow on one loop, tripping the reactor. Subsequent to the trip, the Turbine Driven Auxiliary Feedwater Pump (TDAFP) failed to auto-start on steam generator lo-lo level. Investigation revealed the TDAFP would not stay latched. A governor linkage maladjustment was corrected and several TDAFP start tests, including start on the lo-lo level signal, were performed successfully. Internal components of CRID III were replaced. The Plant Nuclear Safety Review Committee (PNSRC) reviewed the circumstances of the trip and the findings concerning CRID III and the TDAFP; restart was approved. The reactor was made critical at 0241 hours the following day.

No items of noncompliance or deviations were identified.

5. Monthly Surveillance Observation

The inspectors reviewed Technical Specifications required surveillance testing on the systems listed below and verified that testing was performed in accordance with adequate procedures, that test instrumentation was calibrated, that limiting conditions for operation were met, that removal and restoration of the affected components were accomplished, that test results conformed with Technical Specifications and procedure requirements and were reviewed by personnel other than the individual directing the test, and that deficiencies identified during the testing were properly reviewed and resolved by appropriate management personnel.

The following surveillance activities were observed/reviewed:

2 OHP 4030 STP.017	Auxiliary Feedwater System Test
1 OHP 4030 STP.032	Quadrant Power Tilt Ratio Calculation
12 THP 4030 STP.227	Multiple Entry Personnel Air Lock Leakage Surveillance Test.
12 THP 4030 STP.204	Personnel Air Lock Leakage and Interlock Surveillance Test.
12 THP 6040 Per.091	RTD Bypass Loop Flow Verification
1 OHP SP.032	Special Test of the Turbine Driven Auxiliary Feedwater Pump

No items on noncompliance or deviations were identified.

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6. Licensee Event Reports

Through direct observation, discussions with licensee personnel, and review of records, the following event reports were reviewed to determine that reportability requirements were fulfilled, immediate corrective action was accomplished, and corrective action to prevent recurrence had been accomplished in accordance with Technical Specifications. The following LERs are considered closed:

Unit 1

RO 83-026/03L-0	Hole found in fire seal.
RO 83-098/01T-0 and 1	Incorrect data used for Cycle 7 Ep (z)
RO 83-121/01T-0	Backup sampling for vent stack monitor not done.
RO 83-125/03L-0	T-Average exceeded 570° F.
RO 83-128/03L-0	AB Diesel Generator inoperable due to defective electronic tachometer circuit.
RO 83-130/03L-0	Steam generator blowdown isolation valve inoperable.
RO 84-001-0	Reactor trip January 23, 1984 during reactor coolant loop flow instrument calibration. An incompletely closed equalizing valve on Channel 3 (Instrument NFP-222 which was in "trip" for calibration) reduced the pressure differential across associated instruments (common hi pressure side tap) resulting in apparent low flow on a second channel (2 of 3 to trip). Plant response was normal - see IE Report 315/84-02. Appropriate modifications were made to the subject calibration procedures (1 THP 6030.IMP.099 thru .101) to ensure proper equalizing valve closure.
RO 84-002-0	On initial use of Rev. 11 of 1 OHP 4030 STP.005, the Unit Supervisor discovered an error which could have rendered both RHR trains inoperable, in that the quarterly portion of the test called for isolation of one loop at a point in the procedure where the other loop was already isolated by the monthly portion of the test. The procedure error was corrected.

RO 84-005-0 and
84-030-0

Required grab samples were not taken within 12 hours per Table 3-13, Item 1.a, Action No. 30 when the auto gas analyzer was inoperable. In both cases repairs were started without first obtaining a grab sample, and were incomplete (and preventing grab sampling) when the 12-hour time limit expired.

RO 84-026-0 and
84-029-0

Required grab samples were not taken within 8 hours per Table 3-13, Item 3.a, Action No. 28 when the auxiliary building vent monitor was inoperable.

In accordance with NRC enforcement policy, a licensee-identified noncompliance which should have been prevented by corrective action for a previous similar occurrence, is subject to enforcement action. RO 84-029-0 and RO 84-030-0 are each repeat examples of previous similar occurrences as discussed above; and both represent failure to comply with Technical Specification 3.3.3.10.6 in that required actions of Table 3.3-13 (ACTION 28 and ACTION 30 respectively) were not preformed within the times allowed. Thus, failure to collect and analyze required grab samples in compensation for inoperable monitors as described above and in RO 84-029-0 and RO 84-030-0 is considered an example of noncompliance with the referenced Technical Specification for which a Notice of Violation is being issued with this report. (315/84-23-01 and 316/84-25-01).

RO 84-016-0

Motor driven auxiliary feedwater (MDAFW) pump handswitches were in "neutral" during Mode 3, making them incapable of responding to selected emergency auto-start signals. A noncompliance (Item 325-84-18-02) and escalated enforcement action (Civil Penalty) relating in part to this matter, have been issued. Corrective and preventive actions will be examined in followup of the noncompliance.

RO 84-017-0

MDAFW pumps started automatically as designed when the single operating main feed pump was lost during startup. Manual steam generator level control involving both an operator and a trainee resulted inadvertently in high S/G No. 4 level.

RO 84-019-0

The turbine driven auxiliary feedwater pump governor valve position was left in a condition per instructions of a surveillance such that it was not capable of meeting design pressure and flow requirements. This item was part of a noncompliance (Item 315/84-18-03 and 316/84-20-01) and escalated enforcement (Civil Penalty). Corrective and preventive actions will be examined in followup of the noncompliance citation.



RO 84-024-0

Spent fuel exhaust ventilation dampers did not initially respond to input of a high alarm on radiation monitor R-5 during a test. No system problem could be found; the dampers responded properly on subsequent tests (the event could not be repeated) and were left "operable" after testing.

RO 84-025-0

System walkdowns being conducted under the D. C. Cook Regulatory Performance Improvement Program identified mislabeled firewater ring header valves as such required testing was being applied to the wrong valves. Procedures were corrected and the correct valves were tested satisfactorily.

Unit 2

RO 83-042/03L-0

Hydrogen sampling system inoperable

RO 83-069/03L-0

Component cooling water pump discharge valve inoperable

RO 83-102/03L-0

Non essential service water valve from lower containment ventilation Unit No. 3 closing time.

RO 83-117/03L-0

Number 1 Steam Generator blowdown sample valve inoperable due to a damaged actuator.

RO 84-001/0

A boron injection tank (BIT) was diluted when, following maintenance, the system line-up restoration did not address the valve which had been worked on and it was left partially open. The LCO Action Statement (1 hour restoration) was met.

RO 84-012-0

Inadvertent Mode 6 Safety injection signal (no injection) due to insufficient specific test procedure instructions for sequence of returning components (solid state protection system) to service. The procedure was corrected.

RO 84-013-0

This was a voluntary licensee report concerning the AB battery 60-month capacity (discharge) test, which showed the battery had reached the end of its useable life. The battery was replaced and the new battery tested and placed in service.

RO 84-014-0

Both RHR pumps were inoperable in Mode 5 for about 25 minutes when operators switching from one pump to the other started the second pump before stopping the first while in "half-loop" operation. Both pumps became airbound and had to be vented before being returned to service. The procedure was revised to clarify that restrictions on two-pump operations apply even during the brief switching process.

RO 84-015-0

Surveillance requirements of Technical Specification 4.0.2.6 were not met when a required RCS boron sample was analyzed 35 minutes late. The technicians involved were not adequately informed concerning either the sample location or the deadline. They were reinstructed and the sample frequency was increased to prevent recurrence.

RO 84-017-0

Shiftly channel checks of the intermediate range excore detectors were not performed in accordance with Technical Specification Table 4.3-1 (asterisked notation) for a condition other than Modes 1 or 2 with the reactor trip breakers closed and the rod drive system capable of rod withdrawal. The surveillance procedure (2 OHP 4030 STP.030) was revised to include the asterisk notation requirements.

RO 84-018-0

Control rods B-8 and K-10 indicated 14 and 13 step misalignments, respectively, from their group demand positions - the limit being 12 steps. The applicable Action valuation indicated the secondary coil stack measurements used for position determination had not yet stabilized following thermal cycling associated with the post-refueling low power physics testing in progress at the time. Thus, the "misalignments" were likely an indication error. The rods indicated proper alignment on withdrawal the following day.

RO 84-019-0 and
84-019-1

When a reactor coolant loop was removed from service and T-avg maintained above 541° F, associated loop bistables were not tripped within one hour per Technical Specification 3.3.2-1, Table 3.3-3, Item 4d. This matter was inspector-identified and a noncompliance citation (Item 316/84-14-02) issued. Corrective action will be reviewed in followup to the noncompliance citation.

RO 84-024-0
RO 84-025-0
RO 84-031-0
RO 84-032-0

These reports all involve Unit 2 low power or zero power RPS actuations (trips) which have been previously reviewed - the first two in IE Report 316/84-21, the other two in IE Report 316/84-24.

One item of noncompliance was identified involving a repetitive failure to collect timely compensatory samples when automatic equipment was inoperable.

7. Independent Inspection Activities

- a. Licensee Condition Reports were routinely reviewed to provide an on-going and current perception of the effectiveness of the licensee's corrective action program. Selected reports were reviewed in more detail on the basis of their potential implications or the particular interest of the inspectors. Condition Report 2-12-84-2641 discussed lifting of an RHR safety valve during Unit 2 air sweeps on December 23, 1984. Procedure 2 OHP 4021.002.001 was used in a manner (higher RCS pressure) not contemplated and, as such, this event could be considered a consequence of violating an approved safety-related procedure. Condition Report 1-12-84-2598 involved "E" motor driven auxiliary feed-water pump emergency leakoff valve inoperability as a consequence of violating procedural controls on lifted leads. Under NRC Enforcement Policy, minor violations of this type identified and corrected by the licensee are not subject to NRC Enforcement Action.
- b. The licensee's response to IE Bulletin 84-03 "Refueling Cavity Water Seal" was subjected to preliminary review. Copies of this response distributed to the site were apparently transmitted without an oath or affirmation statement, though the copy sent to NRC Region III had such a statement. The inspectors requested a copy of the affirmation statement be transmitted to the site.
- c. NUREG-0737, Item II.B.1 "Reactor Coolant System Vents" and 10 CFR 50.44 (c)(3)(iii) provided for installation and operability (including procedure preparation and operator training) of RCS vent systems for use in controlling potential noncondensable gas accumulation in the reactor coolant system. The licensee installed the vent system as discussed in IE Report 315/84-20 and 316/84-22, leaving "open" the completion of surveillance testing, procedure revisions, training, and conversion of the systems to full operability, pursuant to newly issued Technical Specifications.

During unit outages for each of the respective units during this inspection period, the licensee verified or performed current surveillance testing and energized and declared the respective vent systems "operable". Procedure revisions covering system operation were approved and issued (TP-1 to Rev. 1 dated May 15, 1984 of Procedures 1 and 2 OHP 4023.001.015) prior to the operability declarations. Operator training was performed after installation of the actual modifications with a refresher memorandum to the shifts (October 19, 1984) relating to final elevation of the systems to full operability under the Technical Specifications.

The inspectors, having no further questions concerning this item, consider this item closed.

- d. The inspectors discussed internal NRC information potentially applicable to D. C. Cook with appropriate licensee representatives. On January 12, 1985, a reactor trip breaker at Sequoyah Unit 2 did not open automatically on demand due to a printed circuit board short (i.e., the breaker did not "fail safe"). The licensee was provided with available information and asked to review the matter for applicability. On a separate matter, the licensee was requested to review his records for possible historical procurement of safety-related components from a vendor (Familian Northwest) under investigation for falsification of material certifications. The licensee review indicated this vendor has not supplied safety-related components to D. C. Cook.

No items of noncompliance or deviations were identified.

8. Management Interview

A management interview (attended as indicated in Paragraph 1) was conducted at the completion of the inspection. The following items were discussed:

- a. The inspectors summarized the scope and findings of the inspection as described in these details.
- b. The apparent item of noncompliance (partially affecting both Units) was specifically identified and discussed (Paragraph 6).
- c. Events for which LERs (or supplemental information thereto) are anticipated and which may have NRC enforcement action implications were identified and discussed (Paragraph 3).
- d. A questionable PNSRC Technical Specification "interpretation" concerning cross-tieing station batteries was discussed - the licensee agreed to re-examine the matter (Paragraph 3).
- e. The TMI Action Item (NUREG-0737 Item II B.1) involving reactor coolant vents was identified as "closed" on the basis of this inspection (Paragraph 8.c).
- f. The inspector asked the licensee representatives whether they considered any of the matters discussed to contain proprietary information or other information exempt from disclosure pursuant to 10 CFR 2.790. No such information was identified.

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