

March 17, 2000

Mr. R. P. Powers
Senior Vice President
Nuclear Generation Group
American Electric Power Company
500 Circle Drive
Buchanan, MI 49107-1395

SUBJECT: NRC INSPECTION REPORT 50-315/2000010(DRS); 50-316/2000010(DRS)

Dear Mr. Powers:

On February 25, 2000, the NRC completed an inspection at your D. C. Cook Nuclear Plant, Units 1 and 2. The inspection addressed Case Specific Checklist Item No. 14D, "Emergency Operating Procedures Program Ready for Restart," which was established through the NRC's Manual Chapter 0350, "Staff Guidelines for Restart Approval." The enclosed report documents the results of the inspection.

During this inspection, we conducted a review of a sample of emergency operating procedures to verify that adequate corrective actions had been taken to resolve previously identified programmatic deficiencies. Based on this review, we determined that the emergency operating procedures reviewed were technically correct and consistent with owner's group guidelines and that control room and local actions could be performed as directed by the procedures. We concluded that the emergency operating procedure program is ready for restart and Case Specific Checklist Item No. 14D is closed.

In accordance with 10 CFR Part 2.790 of the NRC's "Rules of Practice," a copy of this letter, the enclosure, and your response to this letter, if you choose to provide one, will be placed in the NRC Public Document Room.

We will gladly discuss any questions you have concerning this inspection.

Sincerely,

/RA/

John A. Grobe, Director
Division of Reactor Safety

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

Enclosure: Inspection Report 50-315/2000010(DRS);
50-316/2000010(DRS)

See Attached Distribution

R. Powers

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cc w/encl: A. C. Bakken III, Site Vice President
J. Pollock, Plant Manager
M. Rencheck, Vice President, Nuclear Engineering
R. Whale, Michigan Public Service Commission
Michigan Department of Environmental Quality
Emergency Management Division
MI Department of State Police
D. Lochbaum, Union of Concerned Scientists

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cc w/encl: A. C. Bakken III, Site Vice President
J. Pollock, Plant Manager
M. Rencheck, Vice President, Nuclear Engineering
R. Whale, Michigan Public Service Commission
Michigan Department of Environmental Quality
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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

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

Report No: 50-315/2000010(DRS); 50-316/2000010(DRS)

Licensee: Indiana Michigan Power Company

Facility: D. C. Cook Nuclear Plant

Location: 1 Cook Place
Bridgman, MI 49106

Dates: February 7 through 25, 2000

Inspector: R. A. Langstaff, Reactor Inspector

Approved by: Gary L. Shear, Chief, Plant Support Branch
Division of Reactor Safety

EXECUTIVE SUMMARY

D. C. Cook Nuclear Plant, Units 1 and 2
NRC Inspection Report 50-315/2000010(DRS); 50-316/2000010(DRS)

By NRC letter, dated September 17, 1999, the NRC transmitted the updated Case Specific Checklist for the D. C. Cook Nuclear Plant, which identified specific issues requiring resolution prior to restart of CNP. This inspection focused on the licensee's corrective actions for resolution of Case Specific Checklist Item No. 14D, "Emergency Operating Procedures Program Ready for Restart."

The standard applied to evaluate the acceptability for resolution of this CSC item was that described in paragraphs C.1.1, "Root Cause Determination," C.1.2, "Corrective Action Development," and C.1.3, "Corrective Action Plan Implementation and Effectiveness," of Enclosure 2 of the NRC letter transmitting the Case Specific Checklist. Based on this inspection, Case Specific Checklist Item No. 14D, "Emergency Operating Procedures Program Ready for Restart," is closed.

Operations

- The emergency operating procedures were technically correct and consistent with owner's group guidance. Control room actions could be performed in an expeditious manner. Adequate guidance was provided for local actions. No programmatic concerns were identified (Section 03.1).
- Some discrepancies and omissions in guidance for local actions existed which could contribute towards minor delays in accomplishing local actions under event conditions. Sufficient actions had been taken to demonstrate that the emergency operating procedure program was ready for restart and Case Specific Checklist Item No. 14D is closed (Section 03.1).

Report Details

Background

In a letter, dated July 30, 1998, and updated on October 13, 1998, the Nuclear Regulatory Commission (NRC) informed American Electric Power that a restart oversight panel had been established in accordance with NRC Manual Chapter 0350, "Staff Guidelines for Restart Approval." The Manual Chapter 0350 Panel issued a checklist of activities that the NRC considered necessary for American Electric Power to address prior to restarting the D. C. Cook Nuclear Plant. On September 17, 1999, the NRC provided an updated Case Specific Checklist for the D. C. Cook Nuclear Plant.

In the "Operations Leadership Plan," dated October 29, 1999, the licensee identified the actions necessary to correct deficiencies relative to D. C. Cook Nuclear Plant's Emergency Operating Procedures Program and to address Manual Chapter 0350, Case Specific Checklist Item No. 14D, "Emergency Operating Procedures Program Ready for Restart." In these documents, the licensee specified root cause acceptance criteria/contributing factors, corrective action items and effectiveness measures to address the programmatic deficiencies identified by the NRC and licensee audits and self-assessments.

I. Operations

O3 Operations Procedures and Documentation

O3.1 CSC Item No. 14D - Emergency Operating Procedures Program Readiness for Restart

a. Inspection Scope (42001)

The inspectors reviewed licensee actions taken to address Case Specific Checklist Item No. 14D, "Emergency Operating Procedures Program Ready for Restart." This inspection supplemented the inspection documented in Inspection Report 50-315/99033; 50-316/99033.

b.1 General Observations and Findings

At the time of this inspection, all of the revised emergency operating procedures (EOPs) for Unit 2 had been conditionally approved by the Plant Operations Review Committee. In comparison, for the inspection documented in Inspection Report 50-315/99033; 50-316/99033, few such procedures had been approved by the Plant Operations Review Committee. The procedures, although conditionally approved, had a number of open items which needed to be addressed prior to restart. The majority of open items pertained to finalizing supporting analyses and setpoints used for EOP steps. As discussed in Inspection Report 50-315/99033; 50-316/99033, the inspector considered the licensee's corrective action and oversight programs adequate to ensure that open items are properly addressed prior to restart.

b.2 Control Room Actions, Observations and Findings

The inspector reviewed procedures 02-OHP 4023 E-3, "Steam Generator Tube Rupture," and 02-OHP 4023 FR-S.1, "Response to Nuclear Power Generation/ATWS [Anticipated Transient Without Scram]," and compared them to the Westinghouse Owners Group emergency response guidelines. Procedure deviations from the guidelines were appropriately justified. In general, deviations from the guidelines were taken for plant specific equipment differences and human factors improvements. The inspector determined that Procedures E-3 and FR-S.1 met the intent of Westinghouse Owners Group emergency response guidelines and were technically correct.

Procedure steps, in general, were clear and not subject to interpretation. However, the inspector identified one step which required knowledge beyond that described in the procedure for correct interpretation. Specifically, Step 18 of FR-S.1 directed operators to check core exit thermocouples to verify core temperatures were less than 1200 degrees Fahrenheit (°F). However, based on review of the background documents and discussions with the EOP project staff, the licensee considered that the step would be satisfied with up to four thermocouples reading over 1200°F (to allow for failed high thermocouples). The inspector considered the step to be potentially confusing because the criteria for the step was not explicitly stated. The licensee agreed to review the step.

b.3 Local Actions, Observations and Findings

The inspectors performed walk throughs of a sample of the local actions specified by Procedures 02-OHP 4023 ECA-0.0, "Loss of All AC Power," and 02-OHP 4023 ES-1.3, "Transfer to Cold Leg Recirculation," with three non-licensed operators. Procedures ECA-0.0 and ES-1.3 were selected for review because the two procedures covered the majority of local operator actions and both procedures had risk significant operator actions. The licensee chose to provide location information in supplemental procedure 02-OHP 4023 SUP.014, "Equipment Locations and Power Supplies," or procedure attachments. The inspector considered the use of supplements or attachments for providing location information acceptable. At the time of this inspection, SUP.014 was still in draft form and the non-licensed operators had not yet been trained on the procedure. The licensee planned to provide training to the non-licensed operators on SUP.014 prior to restart.

The non-licensed operators were able to find most of the components needed for local actions without consulting SUP.014. However, the operators believed that having the procedure available would be beneficial and did use the procedure occasionally to verify equipment locations. With the use of SUP.014, the operators were able to consistently locate the components necessary to perform local actions specified by EOPs. Although the operators had not yet been trained on SUP.014, the operators were able to readily find location information associated with the components listed in SUP.014.

The inspector verified that component designator information provided in SUP.014 was correct and that component description information was not misleading. Although SUP.014 provided adequate guidance for performing local actions, the inspector

identified some discrepancies and omissions which could contribute towards minor delays under event conditions. Specifically:

- The inspector noted that SUP.014 did not identify when keys or other equipment, such as ladders, would be necessary to gain access to equipment or to operate equipment. For example, performance of Step 11.c of ECA-0.0 required a key to gain entry to the building the valve was located in. Neither ECA-0.0 nor SUP.014 identified the need for a key. The required key was normally carried by non-licensed operators assigned to the auxiliary building. However, during an event, other operators who may be available could be assigned to close the valve and would not have ready access to the key. During this inspection, it took operations staff approximately five minutes of sorting through keys in the shift manager's office to find the necessary key.
- Performance of ECA-0.0 Step 10 required the use of a key from the radiation protection department to gain access to the room where valves 2-CS-307, 2-CS-311N, and 2-CS-311S were located. Although the control room procedure, Procedure ECA-0.0, identified the need for radiation protection support, the procedure used by the non-licensed operators, SUP.014, only provided location information and did not indicate the need for radiation protection support and a key to unlock the room.
- Component designators, such as valve numbers, were correct. However, component descriptions in SUP.014 generally did not match in plant labeling for components exactly. Although differences existed, the descriptions in SUP.014 were not misleading. Based on discussions with the EOP project group, SUP.014 was written to match the licensee's facility database rather than in plant labeling. Operations management stated that the consistency between EOPs, the facility database, and in plant labeling would be reviewed.
- In some instances, location information for local actions was provided in control room procedures. However, location information was not provided in a consistent manner nor was information provided identical to that provided in SUP.014. For example, Step 11.c of Procedure ECA-0.0 identified valve 2-C-261 as being located in the "CST [condensate storage tank] doghouse" whereas SUP.014 identified the location as "609' [foot] CST valve house." In another example, the response not obtained column of ECA-0.0 Step 5.a(2) directed operators to "locally close 2-QCM-350, RCP [Reactor Coolant Pump] seal water return valve outside containment (Vestibule 591')." However, SUP.014 identified the valve and location information as "RCP seal water return (Aux 591' vestibule 601' platform)." Although not prohibited, the inclusion of location information within the control room procedure was inconsistent with Section 3.16.4 of Procedure PMP 4023.EOP.002, EOP Writers Guide.
- Although SUP.014 provided location information for most valves required for local actions, the procedure did not provide location information for some components, such as circuit breakers, needed for local actions. The response not obtained portion of ES-1.3, Step 16.a, directed operators to locally trip the breaker for any residual heat removal or containment spray pump not aligned to

the recirculation sump. However, SUP.014 did not list the breaker nor provide its location. The EOP project team stated that the affected breakers were commonly known to operators. During procedure walk throughs, operators were able to locate the affected breakers without requiring procedural guidance. In addition to not listing breakers, SUP.014 did not list valve 2-QT-506 for which actions were specified by the response not obtained column of ECA-0.0 Step 4.

The inspector also reviewed the control room back panel actions specified by Attachment A, "Establishing Vital Cabinet Cooling," to ECA-0.0. The inspector performed a walk through of a portion of the attachment with a member of the EOP project team. The attachment provided a map of affected panel locations and had the steps in sequence by location. The inspector verified that the location and description information provided in the attachment was correct. In addition, the panel descriptions in the attachment matched the panel labeling. The inspector considered the map and sequential order of steps to be beneficial features.

c. Conclusions

The EOPs were technically correct and consistent with owner's group guidance. Control room actions could be performed in an expeditious manner. Adequate guidance was provided for local actions. No programmatic concerns were identified. However, some discrepancies and omissions in guidance for local actions existed which could contribute towards minor delays in accomplishing local actions under event conditions. Sufficient actions had been taken to demonstrate that the EOP program was ready for restart and Case Specific Checklist Item No. 14D is closed.

O8 Miscellaneous Operations Issues (92701)

- O8.1 (Closed) Inspection Follow-Up Item No. 50-315/98023-01; 50-316/98023-01 (Restart Action Matrix (RAM) Item No. R.2.5.2): Verify quality and adequacy of licensee's EOPs prior to plant restart. Based on the inspection documented in Sections O3.1 and O3.2 of inspection report 50-315/99033; 50-316/99033 and Section O3.1 above, the inspector determined that quality and adequacy of the EOP's was adequate to support restart. This Inspection Followup Item and RAM Item is closed.

III. Engineering

E8 Miscellaneous Engineering Issues (92700)

- E8.1 (Closed) Licensee Event Report (LER) 50-315/98018-02 (RAM Item No. R.2.3.50): Use of RCP seals as alternate boron injection flow path potentially results in unanalyzed condition. The licensee identified that the boric acid storage tank (BAST) was maintained at temperatures above the 150°F maximum RCP seal water injection temperature recommended by the vendor. Consequently, extended use of the RCP seals as a boron injection flowpath could result in damage to the RCP seals which, in turn, could result in seal leak-off flow rates beyond the seal injection capabilities. Subsequent to issuing this LER, the licensee initiated design change, 2-DCP-642, "Boric

Acid Reduction,” which would reduce the BAST boron concentration from approximately 12 percent to approximately four percent. As a result of the DCP, the BAST temperatures would be reduced to below 135°F. Although the design change had been initiated at the time of this inspection, the design change had not yet been completed. The inspector verified that an information change package, ICP-000332, had been issued to specify “off” setpoints for heaters of 120°F and high temperature alarm setpoints of 130°F. In addition, the inspector verified that a procedure change to the BAST temperature annunciator procedure had been initiated to specify a 130°F high temperature alarm setpoint. The inspector concluded that the licensee’s actions in progress were sufficient to resolve this item. This LER and RAM item is closed.

- E8.2 (Open) LER 50-315/98047-00 (RAM Item No. R.2.3.55): Potential increase for leakage RCP seals identified. The inspector reviewed the status of the licensee’s progress in resolving this item and determined that their actions were still in the developmental stage and not ready for review. This LER and RAM item will remain open pending review of actions completed by the licensee.

V. Management Meetings

X1 Exit Meeting Summary

The inspector held an inspection debrief at the D. C. Cook facility on February 11, 2000. During a telephone conference on February 25, 2000, the inspector presented the final inspection results to members of licensee management. The licensee acknowledged the inspection conclusions presented and did not identify any potential report material as proprietary.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

J. Abshire, EOP Manager
R. Crane, Lead Inspection Interface
R. Godley, Regulatory Affairs Director
S. Greenlee, Design Engineering Director
R. Huey, Restart Oversight Coordinator
I. Jackiw, Compliance Engineer
W. Lacey, Engineering Restart Director
J. Pollock, Plant Manager
T. Quaka, Nuclear Safety Assessment Manager
R. Rickman, EOP Project Manager
A. Silakoski, Corrective Action Coordinator

U.S. Nuclear Regulatory Commission

B. Bartlett, Senior Resident Inspector, D. C. Cook
G. Shear, Chief, Plant Support Branch, Region III

INSPECTION PROCEDURES USED

42001: Emergency Operating Procedures
92700: Onsite Followup of Written Reports of Nonroutine Events at Power Reactor
Facilities
92701: Followup

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Closed

<u>Number</u>	<u>Type</u>	<u>RAM Item</u>	<u>Description</u>
50-315;316/98023-01	IFI	R.2.5.2	Verify quality and adequacy of licensee's EOPs prior to plant restart
50-315/98018-02	LER	R.2.3.50	Use of reactor coolant pump (RCP) seals as alternate boron injection flow path potentially results in unanalyzed condition

Discussed

<u>Number</u>	<u>Type</u>	<u>RAM Item</u>	<u>Description</u>
50-315/98047-00	LER	R.2.3.55	Potential Increase for Leakage Reactor Coolant Pump Seals Identified

LIST OF ACRONYMS USED

°F Degrees Fahrenheit
ATWS Anticipated Transient Without Scram
BAST Boric Acid Storage Tank
CST Condensate Storage Tank
DRS Division of Reactor Safety
EOP Emergency Operating Procedure
LER Licensee Event Report
NRC U.S. Nuclear Regulatory Commission
RCP Reactor Coolant Pump
SE Safety Evaluation
SS Safety Screening
WOG Westinghouse Owners Group

LIST OF DOCUMENTS REVIEWED

The following is a list of licensee documents reviewed during the inspection, including documents prepared by others for the licensee. Inclusion on this list does not imply that NRC inspectors reviewed the documents in their entirety, but rather that selected sections or portions of the documents were evaluated as part of the overall inspection effort.

Procedures

02-OHP 4022.055.003	Loss of Condensate to Auxiliary Feedwater Pumps
02-OHP 4023 E-3	Steam Generator Tube Rupture, Draft Revision 7y
02-OHP 4023 ECA-0.0	Loss of All AC Power, Draft Revision 9y+++
02-OHP 4023 ES-1.3	Transfer to Cold Leg Recirculation, Draft Revision 6x
02-OHP 4023 FR-S.1	Response to Nuclear Power Generation/ATWS, Draft Revision 8x
02-OHP 4023 SUP.014	Equipment Locations and Power Supplies, Draft Revision R0z
PMP-4023.EOP.002	EOP Writers Guide, Revision 1

Plant Specific Background Documents

02-OHP 4023.E-3	Steam Generator Tube Rupture, draft dated December 11, 1999
02-OHP 4023.FR-S.1	Response to Nuclear Power Generation/ATWS, draft dated November 23, 1999

Safety Screenings/Safety Evaluations

SE 1999-0659-00	02-OHP 4023.E-3, Revision 7, Steam Generator Tube Rupture, dated December 10, 1999
SE 1999-1247-00	02-OHP 4023 FR-S.1, Revision 8, dated December 22, 1999
SS 1999-1506-00	2-DCP-642, Revision 0, Unit CVCS Boron Reduction Modifications, dated January 6, 2000

Design Change Package

2-DCP-642 Boric Acid Reduction, Revision 0

Information Change Package

ICP-00332 2-DCP-642, Boric Acid Reduction, dated January 29, 2000

Condition Reports

P-99-03135	R-NED FSAR Chapter 14 dose analysis of the off-site consequences of a loss-of-coolant accident did not include contribution of the recirculation fluid in the auxiliary building that bypassed containment, dated February 19, 1999
P-99-19345	Dose Maps for local area operations need to be verified, July 23, 1999
P-00-02303	Condensate Storage Tank (CST) Level Low-low needs to be determined in order to resolve inconsistencies in procedures

Westinghouse Owners Group (WOG) Guidance

WOG Emergency Response Guidelines, High Pressure Version, Revision 1C
WOG Direct Work Request DW-96-037, dated March 12, 1999