U.S. NUCLEAR REGULATORY COMMISSION

REGION III

REPORT NO. 50-315/95014

FACILITY

Donald C. Cook Nuclear Generating Plant

LICENSEE

Indiana Michigan Power Company
Donald C. Cook Nuclear Generating Plant
1 Riverside Plaza
Columbus, OH 43216

DATES

December 20, 1995 through January 16, 1996

INSPECTORS

B. L. Bartlett, Senior Resident Inspector
D. J. Hartland, Resident Inspector
C. N. Orsini, Resident Inspector

APPROVED BY

W. J. Kropp, Chief
Reactor Projects Branch 3

1-22-96
Date

AREAS INSPECTED

A special, unannounced inspection of the circumstances surrounding the inoperability of the Unit 1 West Centrifugal Charging Pump (CCP). The areas inspected primarily involved Instrumentation and Control (I&C) technician performance, training, and the quality of procedures as they related to the calibration of safety-related induction coil relays.

Executive Summary

A self-revealing event occurred where the licensee subsequently identified that the Unit 1 West CCP had been inoperable for 6 months. It was identified that a lack of requalification training for the I&C technicians, a poor procedure, and a poor review of as-found data contributed to this event. In addition, the licensee had an unnecessary delay in determining the operability and reportability of the as-found condition following the self-revealing failure on September 12, 1995.

INSPECTION DETAILS

1.0 Summary of Event

On September 12, 1995, Unit 1 was in a refueling outage with all fuel removed from the reactor vessel. During the time the core was unloaded, the licensee performed full flow testing of the emergency core cooling system (ECCS). During the full flow testing, the West Centrifugal Charging Pump (CCP) tripped on a sensed overcurrent after 7 minutes of full flow. The licensee's evaluation determined that the overcurrent relay was improperly set since the last calibration on March 15, 1995.

The licensee has two CCPs in each unit as required by technical specification (TS). Each CCP performs the dual role of CCP and of being the high-head safety injection pump. During normal operation, the CCPs do not draw as much current as when used for high-head safety injection. During a loss-of-coolant accident (LOCA), reactor coolant system (RCS) pressure would drop, the CCPs discharge flow rate would increase and the motor amperage drawn would increase.

A timed overcurrent relay (1-51-TA8) was in the circuit in order to protect the motor from harm during long term (seconds to several minutes) overcurrent situations. The relay was a General Electric model 66 type IAC (Induction Disc Current sensing relay). The greater the sensed overcurrent, the shorter the time delay. For overcurrents just slightly above the setpoint, the relay would normally take a number of minutes to trip. That the relay tripped 7 minutes into what would otherwise be a normal run indicated that the setpoint was close to the normal operating condition.

2.0 Root Causes

The licensee and the inspectors identified the following root causes for this event:

- The primary root cause was the lack of requalification training which lead to personnel error on the part of the I&C technicians. The two technicians involved in the March 15, 1995, calibration had been properly trained in 1992. However, the lead technician had not performed any relay calibrations since this training. The lead technician had calibrated the relay using a wrong technique as a result of his unfamiliarity. The second technician had been qualified on this type of relay on August 25, 1993, and had assisted other lead technicians in the performance of this type calibration. However, he did not question or closely observe the lead technician in the performance of this calibration. (Licensee Identified)

- The calibration procedure, 12IHP6030.IMP.014, was written such that it did not assist the technicians in the performance of their duties. The calibration procedure for this type of relay had remained essentially unchanged since it was written in the mid 1970s. At that time, technicians specialized in the calibration of relays and as such the

amount of detail required in the procedure was small. Since then, the licensee's practice was to have any qualified I&C technician capable of calibrating relays. This necessarily diluted the experience that any one technician would gain, thus causing the procedure quality to become inadequate. (Inspector Identified)

- The as-found data taken by the technicians in the March 1995 calibration was not identified as being erroneous. The as-found data showed that the 1 times (1X) overcurrent setpoint was high, while the 3 times (3X) overcurrent setpoint was low. When the data was reviewed following the surveillance, this should have been identified as inconsistent with this type of instrument. Both setpoints would either be high or they would both be low, it would not be possible to have one setpoint low and the other setpoint high.

  In addition, the 3X overcurrent was by itself so low that it should have been identified as warranting further attention. Using the calibration curves of the relay, it was possible to identify during the event assessment that if the 3X overcurrent data was correct, that the pump would have tripped on sensed overcurrent during normal operation. Licensee Identified

3.0 Licensee Corrective Actions

- Relay 1-51-TA8 was recalibrated and returned to service.
- The two I&C technicians involved had their relay qualifications voided and were to be requalified on the calibration of IAC relays.
- Periodic requalification for technicians was added to the licensee's training program. The training program was to continue to assess the need for additional training.
- The calibration procedure was enhanced by increasing the level of detail in the procedure.
- All relays monitoring safety related motors that had not been tested by other surveillances have been checked to verify their calibration. The licensee stated that only one other relay was identified as being out of calibration. The Unit 1 West containment spray pump was identified as being low, but was assessed as still operable.
- Until all technicians were re-trained, only those technicians that were tested using bench devices would be allowed to calibrate IAC relays.

4.0 Inspector Assessment of Licensee Actions

4.1 Review of As-found Data

One of the root causes identified by the licensee was that the review of as-found data in March of 1995 should have identified that calibration

technique used to obtain the data was incorrect. However none of the licensee's corrective actions stated in Licensee Event Report 315/95-011 Revision 0, addressed this failure.

4.2 Calibration Procedure Level of Detail

The calibration procedure was revised by the licensee as stated in their LER. This revision was initially weak in that it failed to use the same terminology that was in the I&C technicians training program (for example it did not use "just flicker"). Subsequently, the licensee revised the procedure to supply additional information. This additional information did supply the I&C technicians with sufficient detail and also added other enhancements. As such, the inspectors concerns were resolved.

4.3 Timeliness of Event Assessment

The inspectors determined that the licensee promptly assessed the trip of the Unit 1 West CCP following the failure to run on September 12, 1995. The onsite efforts to identify the root cause and its implications were excellent.

4.4 Timeliness of Operability/Reportability

On September 22, 1995, site personnel requested the assistance of corporate engineering in assessing the operability of the CCP with the relay set too low. It took corporate engineering until November 20, 1995, to respond. It appeared that corporate engineering failed to place the appropriate priority on this response. In addition, once corporate engineering made the determination of inoperability, corporate licensing did not realize that a high head safety injection pump being inoperable for 6 months would be reportable to the NRC. These two factors combined, added up to an unnecessary delay in reporting of about 2 months.

4.5 Performance of the Technicians

During the performance of the surveillance on March 15, 1995, the technicians failed to question the as-found data which would have shown that his technique was incorrect. In addition, the second I&C technician, who had been trained more recently than the lead technician, did not observe in detail or question the lead technician. The questioning by the second technician did not occur even though he observed different lead technicians performing the calibration using different techniques.

5.0 Potential Violations

The following potential violations were identified:

a. Technical Specification 3.5.2 requires, in part, "Two independent ECCS subsystems shall be OPERABLE with each subsystem comprised of:

   a. One OPERABLE centrifugal charging pump,...."

The applicability of this TS is Modes 1, 2, and 3.

Action a. States, "With one ECCS subsystem inoperable, restore the inoperable subsystem to OPERABLE within 72 hours or be in HOT SHUTDOWN within the next 12 hours."

Contrary to the above, from 4:31 a.m. on March 15, 1995, until 11:17 a.m. on July 30, 1995, the Unit 1 West (Train B) centrifugal charging pump was inoperable due to a mis-calibrated overcurrent relay and the unit was not placed in hot shutdown.

b. Technical Specification 3.0.3 requires, in part, "When a Limiting Condition for Operation is not met, except as provided in the associated ACTION requirements, within one hour action shall be initiated to place the unit in a MODE in which the Specification does not apply by placing it, as applicable, in:

   1. At least HOT STANDBY within the next 6 hours,
   2. At least HOT SHUTDOWN within the following 6 hours, and
   3. At least COLD SHUTDOWN within the subsequent 24 hours."

Contrary to the above, both CCPs were inoperable which is a condition not covered by TS 3.5.2 and the unit was not placed in hot shutdown:

- On July 10, 1995, from 1:00 a.m. until 2:50 a.m. on July 12, the Emergency Diesel Generator Train "A," the emergency power source for the East CCP, was out of service while in Mode 1.

- On July 19, 1995, for 17 hours and 35 minutes the East CCP was removed from service while in Mode 3.

c. 10 CFR 50, Appendix B, Criterion V, states that activities affecting quality shall be prescribed by documented procedures of a type appropriate to the circumstances.

Contrary to the above, calibration procedure, 12IHP6030.IMP.014, was not appropriate for calibrating a GE model 66 type IAC (Induction Disc Current sensing) relay. This procedure was originally written for technicians that specialized in the calibration of relays and had not been changed since the mid-1970s. The licensee's practice for calibrating relays changed to allow less specialized I&C technicians to calibrate relays. However, the procedure was not revised to contain

sufficient detail for this reduction in technician proficiency to ensure proper calibration of the GE model 66 type IAC relay.

6.0 Safety Significance

The inoperability of the Unit 1 West CCP for 6 months was considered significant in that an ECCS component was incapable of performing its intended safety function assuming a single failure. In addition, there was at least one period in which no CCP was capable of acting as a high head safety injection pump.

6.0 Management Debriefing

The inspectors met with licensee representatives (denoted in Section 7.0) after the inspection on January 16, 1996, to discuss the scope and findings of the inspection. During the exit meeting, the inspectors discussed the likely informational content of the inspection report and documents or processes reviewed by the inspectors during the inspection. Licensee representatives did not identify any such documents or processes as proprietary.

7.0 Persons Contacted

Licensee Personnel

*A. A. Blind, Site Vice President
*J. R. Sampson, Plant Manager
*K. R. Baker, Assistant Plant Manager-Production
*M. E. Barfelz, Superintendent, Nuclear Safety & Analysis
*J. D. Allard, Maintenance Superintendent
*M. Depuydt, Licensing Activity Coordinator
*D. Walker, Maintenance Procedures
*C. Miles, Maintenance Supervisor, Instrumentation & Controls
*A. Lotfi, Supervisor, Site Design
*G. Gurnow, Plant Engineering, Maintenance I&C
*E. Morris, Plant Performance Assurance Supervisor
*D. Willeman, Training
*J. Sankey, Plant Engineering
*B. Nichols, Acting Operations Superintendent
*T. Walsh, General Supervisor - Support
*P. McCarty, Procedure Supervisor - Maintenance

U.S. Nuclear Regulatory Commission (NRC)

*D. Hartland
*C. Orsini
*B. Bartlett
*B. Fuller

*Denotes those present during the exit meeting on January 16, 1996.

January 25, 1996

EA 96-020

Mr. E. E. Fitzpatrick
Senior Vice President
Nuclear Generation
Indiana Michigan Power Company
1 Riverside Plaza
Columbus, OH 43216

SUBJECT: NRC SPECIAL INSPECTION REPORT NO. 50-315/95014(DRP)

Dear Mr. Fitzpatrick:

This refers to the special safety inspection conducted by Messrs. B. Bartlett, D. Hartland, and C. Orsini of this office from December 20, 1995, through January 16, 1996. The inspection included a review of activities at your Donald C. Cook Nuclear Plant, Units 1 and 2. At the conclusion of the inspection, the findings were discussed with those members of your staff identified in the enclosed report.

Areas examined during the inspection are identified in the report. The inspectors reviewed the circumstances surrounding the inoperability of the Unit 1 West Centrifugal Charging Pump (CCP). Within these areas, the inspection consisted of a selective examination of procedures and representative records, observations, and interviews with personnel.

Based on the results of this inspection, three apparent violations (Section 5.0) were identified and are being considered for escalated enforcement action in accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions" (Enforcement Policy), NUREG-1600. The apparent violations involved a personnel error and procedural weakness that left one CCP unable to meet its technical specification (TS) requirement for operability from March 15, 1995 to September 13, 1995. The circumstances surrounding these apparent violations, the significance of the issues, and the need for lasting and effective corrective action were discussed with members of your staff at the inspection exit meeting on January 16, 1995. As a result, it may not be necessary to conduct a predecisional enforcement conference in order to enable the NRC to make an enforcement decision. However, a Notice of Violation is not presently being issued for these inspection findings. Before the NRC makes its enforcement decision, we are providing you an opportunity to either (1) respond to the apparent violations addressed in this inspection report or (2) request a predecisional enforcement conference.

If you choose to provide a response, your response should be submitted within 30 days of this letter and be clearly marked as a "Response to Apparent Violations in Inspection Report No. 50-315/95014(DRP)" and should include for each apparent violation: (1) the reason for the apparent violation, or, if

contested, the basis for disputing the apparent violation, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken to avoid further violations, and (4) the date when full compliance will be achieved. In addition, we request your response address: (1) the potential of other maintenance activities being conducted using technicians who have not maintained proficiency by requalification training or on the job performance of specialized procedures; and (2) the factors contributing to the delay in determining operability and reportability of the Unit 1 West CCP following the event. Your response should be submitted under oath or affirmation and may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. If an adequate response is not received within the time specified or an extension of time has not been granted by the NRC, the NRC will proceed with its enforcement decision or schedule a predecisional enforcement conference.

If you choose not to provide a response and would prefer participating in a predecisional enforcement conference, please contact Mr. Wayne Kropp at (708) 829-9633 within 15 days of the date of this letter.

In addition, please be advised that the number and characterization of apparent violations described in the enclosed inspection report may change as a result of further NRC review. You will be advised by separate correspondence of the results of our deliberations on this matter.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter, its enclosure(s), and your response (if you choose to provide one) will be placed in the NRC Public Document Room (PDR). To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be placed in the PDR without redaction.

The responses to the apparent violations described in the enclosed inspection report are not subject to the clearance procedures of the Office of Management and Budget as required by the Paperwork Reduction Act of 1980, Pub. L. No. 96-511.

Sincerely,

/s/William L. Axelson

W. L. Axelson, Director
Division of Reactor Projects

Docket No. 50-315
License No. DPR-58

Enclosure: Inspection Report
No. 50-315/95014(DRP)

See Attached Distribution

Distribution:

cc w/encl: A. A. Blind, Site Vice President
John Sampson, Plant Manager
James R. Padgett, Michigan Public Service Commission
Michigan Department of Public Health

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