

Indiana Michigan
Power Company
500 Circle Drive
Buchanan, MI 49107 1395



June 5, 2002

AEP:NRC:2195

Docket No.: 50-316

U. S. Nuclear Regulatory Commission,
ATTN: Document Control Desk
Mail Stop O-P1-17
Washington, DC 20555-0001

Donald C. Cook Nuclear Plant Unit 2
RESPONSE TO NOTICE OF VIOLATION 50-316/02-02-04

On May 6, 2002, the U.S. Nuclear Regulatory Commission issued Notice of Violation (NOV) 50-316/02-02-04. This NOV cited an example of Indiana Michigan Power Company's (I&M) failure to meet the requirements of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action. I&M acknowledges and accepts this violation.

The attachment to this letter contains a detailed discussion of I&M's evaluation and corrective actions associated with the NOV.

No commitments are identified in this violation response.

If you have any questions or desire additional information, please contact Mr. Gordon P. Arent, Manager Regulatory Affairs, (616) 697-5553.

Sincerely,

A handwritten signature in black ink that reads 'Joseph E. Pollock'.

Joseph E. Pollock
Site Vice President

RAM/jen

Attachment

JE01

c: K. D. Curry
J. E. Dyer
MDEQ - DW & RPD
NRC Resident Inspector
R. Whale

ATTACHMENT TO AEP:NRC:2195

Donald C. Cook Nuclear Plant Unit 2
Reply to Notice of Violation 50-316/02-02-04

Restatement of Violation 50-316/02-02-04:

“10 CFR 50 Appendix B, Criterion XVI, “Corrective Action,” requires, in part, that measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected. In the case of significant conditions adverse to quality, the measures shall assure that the cause of the condition is determined and corrective actions taken to preclude repetition.

Contrary to the above, the licensee failed to take corrective action to preclude repetition of the August 10, 2001, failure of the Unit 2 Turbine Driven Auxiliary Feedwater Pump (TDAFWP), a significant condition adverse to quality. Specifically, the Unit 2 TDAFWP failed to start on August 10, 2001, because the trip throttle valve latch mechanism failed to remain engaged during pump start. On December 13, 2001, the licensee obtained information from the trip throttle valve vendor identifying [some of the] critical parameters for the trip hook mechanism geometry and alignment. The licensee failed to promptly perform corrective actions to verify that the Unit 2 TDAFWP trip hook conformed to these critical parameters. Consequently, a second failure of the Unit 2 TDAFWP occurred on January 18, 2002, because the trip throttle valve latch mechanism failed to remain engaged during pump start. Subsequently investigation determined that the cause of the August 10, 2001 and January 18, 2002 failures was due to incorrect trip hook geometry and alignment.”

Admission/Denial of the Violation:

Indiana Michigan Power Company (I&M), the licensee for Donald C. Cook Nuclear Plant (CNP), acknowledges and accepts the violation as stated.

Reasons for the Violation:

A defective trip latch was procured in 1985 from a quality assurance N-parts supplier. Another qualified vendor subsequently acquired the original supplier. A causal determination from the original vendor is not attainable for the manufacturing deficiency.

In June 2000, CNP installed this trip latch into the Unit 2 TDAFWP. The latch was installed and adjusted using CNP Maintenance Procedure 12-MHP-5021-056-007, “Turbine Driven Auxiliary Feed Pump Trip and Throttle Valve Linkage Adjustment.” The criterion for face contact was 75% line contact. The line contact criterion was provided by the trip and throttle valve (TTV) manufacturer in response to an engineering evaluation request made by the CNP Maintenance Department to clarify the 75% blue contact. CNP maintenance personnel wanted clarification in

the procedure as to whether the 75% should be full-face or thin-line. The procedure governing the activity was changed in June 1997 incorporating 75% line contact criteria.

In August 2001, CNP Unit 2 experienced a trip of the TDAFWP. The apparent causal investigation determined that the cause of the trip was an inadequate makeup of the trip latch mechanism. The investigation determined the trip latch mating surfaces had a 50% line contact versus the required 75% line contact. CNP filed/stoned the surfaces to obtain the required minimum 75% line contact. Post-maintenance testing was performed satisfactorily, demonstrating the TDAFWP was OPERABLE. Additionally, based on this event, CNP began a review to determine if enhancements to the design of the latch mechanisms could be made to prevent recurrence.

In December 2001, CNP, as part of its investigation of the August 2001 TTV trip, obtained critical parameter information from the original equipment manufacturer (OEM) for the TTV. The information stated, in part, that the TTV trip latch faces should be filed or stoned to obtain 75% surface area contact. This criterion conflicted with the criteria specified in CNP Maintenance Procedure 12-MHP-5021-056-007, which stated that 75% "line contact" should be achieved. Because of the differences between the vendor-specified surface contact and the CNP-specified surface contact, CNP performed a prompt operability evaluation and determined, based on successful surveillance testing, reasonable assurance of OPERABILITY had been demonstrated. Additionally, CNP developed and scheduled actions to restone/file the mating surfaces of the trip latch mechanisms to enhance the operability of the TDAFWP pumps during the upcoming refueling outages.

The correspondence received from the vendor in December 2001 also contained a portion (not all) of the critical geometry for the trip latch. This correspondence stated that a critical characteristic of the trip hook was that the latch face must be perpendicular to a line coincident with the trip hook bore. If this characteristic was not machined properly into the trip hook, a moment about the trip hook pin would be generated when the latch faces were loaded (valve was opened). At the time, the geometry information was not considered relevant. The apparent cause performed in August 2001 identified the mating surface contact was not sufficient. The newly-provided information that the 75% contact area was to be the entire mating surface vice a continuous line supported the August 2001 apparent cause. Based on the demonstrated history of successful operation since the August 2001 failure (i.e., routine surveillance testing and demanded operation), I&M concluded that there was reasonable assurance of OPERABILITY for both the Unit 1 and Unit 2 TDAFWPs.

In January 2002, during routine testing of the Unit 2 TDAFWP, the trip latch failed. After this failure, the OEM provided a partial drawing of the trip hook. This drawing showed another critical parameter (a dimension) which was not described or otherwise included in the December 2001 letter from the OEM. Based on information received from the OEM, the applicable maintenance procedures were revised and reviewed by a third party to ensure adequacy. Subsequently, when the valve was disassembled during the outage, the trip hook was found to be

mismachined such that a moment would be generated during valve opening, causing the trip hook to rotate away from the latch.

Cause of the Violation:

Upon receipt of critical characteristic information associated with the TTV geometry, I&M failed to aggressively pursue the importance of this information and to ensure timely access to the OEM proprietary drawings of the individual parts of the TTV. This error hindered I&M's ability to adequately identify, assess, and correct the trip latch machining error. I&M recognized that if an equipment root cause analysis had been performed in August 2001, the incorrectly machined trip latch mechanism may have been identified.

Corrective Actions that Have Been Taken and Results Achieved:

The OEM provided a partial drawing of the trip hook after the January 18, 2002, failure.

The Unit 2 trip hook was remachined per this drawing in February 2002 and post-maintenance testing was successfully completed.

The Unit 1 trip hook was inspected and has been determined to be correctly machined.

Corrective Actions that Will Be Taken to Avoid Further Violations:

The above corrective actions have been reviewed and deemed adequate to prevent recurrence.

Date Full Compliance Will Be Achieved:

With respect to the identified violation, CNP is in full compliance with 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action."