July 12, 2002

Mr. A. C. Bakken III
Senior Vice President
Nuclear Generation Group
American Electric Power Company
500 Circle Drive
Buchanan, MI 49107

SUBJECT: D. C. COOK NUCLEAR POWER PLANT, UNITS 1 AND 2
NRC SUPPLEMENTAL INSPECTION REPORT 50-315/02-05(DRP);
50-316/02-05(DRP)

Dear Mr. Bakken:

On June 20, 2002, the NRC completed a supplemental inspection at your D. C. Cook Nuclear Power Plant, Units 1 and 2. The enclosed report documents the inspection findings which were discussed on July 9, 2002, with Mr. J. Pollock and other members of your staff.

This supplemental inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection consisted of a selective examination of records and interviews with personnel. Specifically, this inspection focused on your assessment of the root causes and development of corrective actions for the White inspection finding associated with repetitive failures of the Unit 2 turbine driven auxiliary feedwater pump that was documented in NRC Inspection Report 50-315/316-02-02(DRP).

Based upon the results of this inspection, no findings of significance were identified.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosures will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

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

Sincerely,

**/RA/**

David Passehl, Acting Chief
Branch 6
Division of Reactor Projects

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

Enclosure: Inspection Report 50-315/02-05(DRP);
50-316/02-05(DRP)

cc w/encl: J. Pollock, Site Vice President
M. Finissi, Plant Manager
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

DOCUMENT NAME: G:\cook\ML022000331.wpd ***See previous concurrence**

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

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|---|---|
| Docket Nos: | 50-315; 50-316 |
| License Nos: | DPR-58; DPR-74 |
| Report No: | 50-315/02-05(DRP); 50-316/02-05(DRP) |
| Licensee: | American Electric Power Company |
| Facility: | D. C. Cook Nuclear Power Plant, Units 1 and 2 |
| Location: | 1 Cook Place<br>Bridgman, MI 49106 |
| Dates: | June 17 through June 20, 2002 |
| Inspector: | B. Kemker, Senior Resident Inspector |
| Approved by: | D. Passehl, Acting Chief<br>Branch 6<br>Division of Reactor Projects |

## SUMMARY OF FINDINGS

IR 05000315/02-05(DRP), IR 05000316/02-05(DRP); Indiana Michigan Power Company; on 06/17-20/2002; D. C. Cook Nuclear Power Plant, Units 1 and 2. Supplemental Inspection - Mitigating Systems Cornerstone.

This supplemental inspection was performed by a senior resident inspector to assess the licensee's root cause evaluation, extent of condition determination, and corrective actions for recurring failures of the Unit 2 turbine driven auxiliary feedwater pump. This finding was previously characterized as having low to moderate safety significance (i.e., White) in an NRC letter dated May 6, 2002, which finalized the preliminary assessment of the finding documented in NRC Inspection Report 50-315/316-02-02(DRP).

A. Inspector Identified Findings

**Cornerstone: Mitigating Systems**

This supplemental inspection was performed to assess the licensee's evaluation of a White inspection finding that resulted from the licensee's failure to take appropriate corrective actions to prevent the repetitive failure of the Unit 2 turbine driven auxiliary feedwater pump (TDAFWP). The pump failures were due to the unlatching of the TDAFWP trip throttle valve caused by incorrect machining of the trip throttle valve trip hook. During this supplemental inspection, performed in accordance with NRC Inspection Procedure 95001, the inspector concluded that the licensee performed a thorough root cause evaluation of the pump failures and identified the root cause and contributing cause for the events. The licensee's corrective actions were reasonable and appropriately addressed the causes and the extent of condition of the pump failures. However, the inspector concluded that the licensee's apparent cause evaluation, which was intended to address the cause for the corrective action violation itself, did not adequately address why the licensee failed to take appropriate corrective actions to prevent a repetitive failure of the Unit 2 TDAFWP in January 2002. In response to the issues raised by the inspector, the licensee re-opened the evaluation and provided reasonable corrective actions.

Given the licensee's acceptable performance in addressing the repetitive TDAFWP failures, the White finding associated with this issue will only be considered in assessing plant performance for a total of four quarters in accordance with the guidance in NRC Inspection Manual Chapter (IMC) 0305, "Operating Reactor Assessment Program."

Report Details

01 Inspection Scope

This supplemental inspection, performed in accordance with NRC Inspection Procedure 95001, assessed the licensee's evaluation of a low to moderate risk finding associated with repetitive failures of the Unit 2 turbine driven auxiliary feedwater pump (TDAFWP). This finding was previously characterized as "White" in an NRC letter dated May 6, 2002, which finalized the preliminary assessment of the finding that was documented in NRC Inspection Report 50-315/316-02-02(DRP). The finding was related to the mitigating systems cornerstone in the reactor safety strategic performance area. The inspector reviewed the licensee's root cause evaluation for the repetitive pump failures and the licensee's apparent cause evaluation associated with the licensee's failure to take appropriate corrective actions to prevent the repetitive TDAFWP failures. The inspector also assessed the extent of condition evaluation and corrective actions to prevent recurrence associated with this finding.

02 Evaluation of Inspection Requirements

02.1 *Problem Identification*

a. *Determine that the evaluation identifies who (i.e. licensee, self-revealing, or NRC), and under what conditions the issue was identified.*

On August 10, 2001, the Unit 2 TDAFWP failed to start during three successive start attempts. The NRC documented a preliminary evaluation of this issue in NRC Inspection Report 50-315/316-01-19(DRP). To provide additional risk evaluation of the TDAFWP failure in accordance with the Significance Determination Process, the NRC identified this issue as Unresolved Item 50-316-01-19-03(DRP). Prior to the completion of the NRC staff's risk significance evaluation for this issue, an additional failure of the Unit 2 TDAFWP occurred on January 18, 2002. The NRC reviewed the circumstances of this subsequent TDAFWP failure to fully assess the adequacy of the licensee's previous apparent cause evaluation and to evaluate the risk significance of the repetitive failure. The NRC determined that the licensee failed to take appropriate corrective actions to prevent the repetitive failure of the Unit 2 TDAFWP and documented an apparent violation of 10 CFR 50, Appendix B, Criteria XVI in NRC Inspection Report 50-315/316-02-02(DRP).

The inspector concluded that the licensee's root cause evaluation adequately described the conditions of this self-revealing issue. Two of the three unsuccessful start attempts in August 10, 2001, occurred while performing a fill and vent procedure for the pump following pre-planned maintenance activities. A third unsuccessful start attempt, which was not discussed in the licensee's root cause evaluation, occurred later that day during troubleshooting of the previous two unsuccessful start attempts. The licensee investigated the failure and determined that the cause of the failure to start was insufficient engagement of the trip throttle valve latching mechanism. The licensee

stoned the latch lever face per an approved maintenance procedure, conducted several successful start tests, and returned the pump to service on August 11, 2001.

The January 18, 2002, another Unit 2 TDAFWP failure occurred while performing time response testing in accordance with an approved surveillance test procedure. The licensee declared the TDAFWP inoperable but reset the trip latch mechanism to align the TDAFWP for auto-start capability. Although no corrective maintenance was performed on the TDAFWP, the pump started satisfactorily on January 19, 2002, following a pre-planned reactor trip to support the Cycle 13 refueling outage. The licensee subsequently determined that the failure was due to the unlatching of the TDAFWP trip throttle valve caused by incorrect machining of the trip throttle valve trip hook.

*b. Determine that the evaluation documents how long the issue existed, and prior opportunities for identification.*

During the apparent cause evaluation for the August 10, 2001 TDAFWP failure, the licensee identified that the pump had previously failed during governor valve testing on June 13, 2000. The licensee determined that the cause of the failure was due to excessive wear of the trip hook latch mechanism. The trip hook latch mechanism was replaced and adjusted to at least a 75 percent line contact in accordance with maintenance procedure 12-MHP 5021.056.007. During a review of the August 10, 2001 TDAFWP failure, the NRC identified that the licensee failed to initiate a condition report (CR) to document and evaluate this previous failure. Initiation of a CR for the June 2000 failure would have been appropriate since the trip throttle valve failure was unrelated to the original governor testing activities and the trip hook latch assembly replacement was not within the scope of the original job order that replaced the governor. The trip hook, which was later determined to be incorrectly machined, had been procured from the TDAFWP vendor in 1985 and had been held in stock until it was installed on June 13, 2000. The NRC concluded in NRC Inspection Report 50-315/316-01-19(DRP), that the licensee's failure to document the June 13, 2000 TDAFWP failure in the corrective action system potentially delayed an adequate evaluation of the trip throttle valve failure mechanism and contributed to the August 10, 2001 failure. The licensee initiated CR 01362027 to document this issue.

On December 13, 2001, the licensee received information from the trip throttle valve vendor regarding the required specifications for alignment between the trip hook and the latching up lever. Specifically, the vendor identified the necessary geometry of the trip hook to avoid generation of a force that would tend to unlatch the trip mechanism, but did not provide a drawing of the trip hook latch mechanism with specific dimensions. In addition, the vendor clarified that the 75 percent blue check acceptance criteria for alignment between the trip hook and latching up lever referred to a surface area contact rather than a line criteria. The licensee did not consider the trip hook geometry information to be relevant at the time and did not attempt to verify the correct trip hook geometry. Based on the knowledge that the blue check contact alignment criteria specified in its maintenance procedure was incorrect (i.e., line contact vice area contact), the licensee concluded that there was little probability that the vendor supplied trip hook was improperly machined.

Because the correct blue check contact alignment criteria was not known to the licensee immediately following the August 10, 2001 TDAFWP failure, the licensee had previously aligned the trip mechanism using a 75 percent line contact acceptance criteria on August 11, 2001. In January 1997, the licensee evaluated the blue check acceptance criteria under an engineering evaluation in order to clarify the criteria. That evaluation incorrectly concluded that the blue check acceptance criteria be applied to line contact as measured from side to side rather than area contact. Consequently, the procedure was revised on June 11, 1997 to specify a trip throttle valve trip hook blue check criteria of 75 percent line contact. The licensee's root cause evaluation concluded that use of the incorrect blue check contact alignment acceptance criteria may have delayed identification of this condition. Specifically, with the incorrect contact angle between the trip hook and latching up lever, a 75 percent surface area blue check contact alignment acceptance criteria would not have been attainable, and the installation of the defective trip hook could have been discovered in June 2000.

*c. Determine that the evaluation documents the plant specific risk consequences (as applicable) and compliance concerns associated with the issue.*

The plant specific risk consequences associated with this issue was characterized by the NRC staff as a "White" finding (i.e., a finding of low to moderate safety significance). The licensee documented in its root cause evaluation that this problem did not present an actual challenge to safety because the pump failures did not occur following a valid demand signal. The licensee acknowledged that the August 2001 and January 2002 TDAFWP failures represented approximately 80 days of fault exposure unavailability and that the risk associated with this issue was correctly characterized as a "White" finding. The licensee noted that the function of the TDAFWP was considered as high safety significant based on the risk ranking criteria used in its Maintenance Rule Program and that the risk achievement worth for a failure of the TDAFWP is 2.95 based on its probabilistic risk assessment (PRA) model. However, it should be noted that the licensee has recently updated its PRA model and is in the process of changing its Maintenance Rule Program scoping criteria based on the new model. The risk achievement worth for a failure of the TDAFWP is 1.41 based on the new PRA model, which is below the 2.0 high safety significant threshold.

02.2 *Root Cause and Extent of Condition Evaluation*

*a. Determine that the problem was evaluated using a systematic method(s) to identify root cause(s) and contributing cause(s).*

The licensee constructed a basic event time line describing the Unit 2 TDAFWP activities to determine if any organizational and programmatic (O&P) problems would be revealed. The licensee's evaluation of the potential O&P failure modes were illustrated using an Ishikawa (Fishbone) Diagram. In addition, a supporting and refuting analysis was performed to evaluate all of the potential latch mechanism failure modes. The original supporting and refuting analysis conducted after the August 10, 2001 TDAFWP failure was significantly expanded after the January 18, 2002 pump failure. However, the licensee noted that neither of these two efforts included an incorrectly machined part as a possible cause.

*b. Determine that the root cause evaluation was conducted to a level of detail commensurate with the significance of the problem.*

Following the January 18, 2002 TDAFWP failure, the licensee initiated CR 02018064 and performed a root cause evaluation to determine the cause of the repetitive pump failures. The licensee concluded that incorrect machining of the trip throttle valve trip hook, resulting in an inadequate alignment of the trip hook and latching up lever faces, was the root cause of the repetitive failures. Proper machining of the trip hook would have resulted in a parallel alignment of the trip hook face and the latching up lever face (this would allow adequate surface area engagement to prevent inadvertent unlatching of the trip throttle valve). In addition, the licensee identified that a contributing cause to the pump failures was the incorrect alignment specification for engagement between the trip hook and latching up lever. The NRC previously reviewed the licensee's root cause evaluation and concluded in NRC Inspection Report 50-315/316-02-02(DRP) that the root cause evaluation was thorough and reasonable. The licensee's root cause evaluation appropriately evaluated the issue to level of detail commensurate with its safety significance.

Upon receiving the Notice of Violation associated with this finding, the licensee wrote CR 02134053 and performed an apparent cause evaluation to determine why it failed to take prompt corrective actions to prevent a repetitive failure of the Unit 2 TDAFWP on January 18, 2002. The licensee concluded that the lack of timely access to the vendor's proprietary drawing of the trip hook latch mechanism was the apparent cause for the violation. However, the inspector noted that the apparent cause evaluation did not assess why the licensee failed to promptly and fully evaluate information obtained during its investigation of the August 10, 2001 TDAFWP failure, specifically information provided by the vendor on December 13, 2001, relating to the critical parameters for the trip hook latch mechanism geometry. The licensee provided some rationale for why it disregarded this information in its root cause evaluation for CR 02018064, which focused solely on the blue check contact alignment criteria. However, the apparent cause evaluation did not identify this as a contributing cause of the violation. In addition, the inspector noted that the human performance elements associated with this finding (e.g., the error in changing the blue check acceptance criteria in the maintenance procedure in June 1997, the failure to document the June 13, 2000 TDAFWP failure in a CR, and the failure to promptly and fully evaluate information obtained from the vendor) were also not adequately addressed in the apparent cause evaluation. In response to the inspector's questions, the licensee reopened the apparent cause evaluation to address these issues.

The NRC recently concluded in NRC Inspection Report 50-315/316-02-04(DRP) that the licensee's ability to consistently identify reasonable causes for conditions adverse to quality in apparent cause evaluations performed for Category 3 CRs was inadequate and documented a finding (FIN 50-315/316-02-04-03). At the time of this inspection, the licensee had not yet completed its root cause evaluation and had not developed corrective actions for that finding. The inspector considered the inadequacies of this apparent cause evaluation to be consistent with the previously documented finding.

*c. Determine that the root cause evaluation included a consideration of prior occurrences of the problem and knowledge of prior operating experience.*

The licensee's root cause evaluation reviewed operating experience from internal (i.e., plant specific) as well as external (i.e., industry) sources. Three similar events occurred at D. C. Cook: one in May 1994 for the Unit 1 TDAFWP, one in May 1995 for the Unit 2 TDAFWP, and one in June 2000 for the Unit 2 TDAFWP. The licensee also noted that there were five Nuclear Plant Reliability Data System entries from 1989 to 1995 that were similar to this issue, in that, they described TDAFWPs tripping due to the trip throttle valve trip hook disengaging.

*d. Determine that the root cause evaluation included consideration of potential common cause(s) and extent of condition of the problem.*

The root cause evaluation included an extensive extent of condition review of the problem. The extent of condition review is discussed in the following section. A common cause evaluation was not deemed necessary.

02.3 *Corrective Actions*

*a. Determine that appropriate corrective action(s) are specified for each root/contributing cause or that there is an evaluation that no actions are necessary.*

The inspector concluded that appropriate immediate corrective actions were specified and completed to address the Unit 2 TDAFWP failure. The licensee re-machined the defective trip hook per the vendor's drawing and satisfactorily completed appropriate post maintenance testing on the pump. The licensee inspected the Unit 1 TDAFWP trip hook and determined it to be correctly machined and aligned.

Due to the historic nature of the incorrect engineering evaluation that resulted in the error in changing the blue check acceptance criteria in the maintenance procedure in June 1997 and the procurement of the incorrectly machined trip hook latch mechanism, the licensee performed an extent of condition review to determine if similar conditions currently exist. No related conditions with the receipt of defective parts were identified by the licensee. The licensee further concluded that sufficient actions had been taken since the time of these occurrences in response to previously identified deficiencies in the quality of engineering products to adequately address these issues. The inspector concluded that the licensee's rationale for performing no additional corrective actions was reasonable but could not determine if the broad corrective actions for previously identified deficiencies would result in preventing recurrence of these problems.

The inspector noted that the licensee did not initially identify corrective actions to address the more recent human performance aspects associated with the violation, in particular, why the engineering staff did not fully evaluate the trip hook latch mechanism geometry information obtained from the vendor on December 13, 2001. Because the licensee did not initially assess the human performance aspects in its apparent cause evaluation for the violation, no corrective actions were identified. The licensee subsequently prescribed two corrective actions which it currently intends to perform,

specifically: (1) a lessons learned letter regarding timeliness of corrective actions will be issued to system engineering staff by the Director of Nuclear Technical Services, and (2) a management expectations presentation regarding timeliness of corrective actions will be given during the next round of engineering support personnel continuing training. The inspector concluded that these corrective actions seemed reasonable but could not determine if the actions, once completed, would prevent recurrence of the violation.

*b. Determine that the corrective actions have been prioritized with consideration of the risk significance and regulatory compliance.*

The licensee appropriately prioritized the immediate corrective actions with respect to the risk significance of the non-compliance. Those actions have been completed.

*c. Determine that a schedule has been established for implementing and completing the corrective actions.*

The licensee completed corrective actions to restore the Unit 2 TDAFWP to a fully operable status and to verify that the Unit 1 TDAFWP's trip latch mechanism was correctly machined and aligned. The licensee planned an effectiveness review of its corrective actions to be completed by its Maintenance Rule Expert Panel as part of the approved (a)(1) Action Plan associated with this issue. An appropriate schedule for monitoring TDAFWP performance, including increased frequency testing of the Unit 2 TDAFWP, was established in the (a)(1) Action Plan.

*d. Determine that quantitative or qualitative measures of success have been developed for determining the effectiveness of the corrective actions to prevent recurrence.*

The inspector noted that an appropriate measure of success (i.e., performance goal) was developed for determining the effectiveness of the corrective actions to prevent recurrence as part of the approved (a)(1) Action Plan associated with this issue. During the monitoring period, no functional failures of the trip throttle valve latch mechanism will be acceptable.

03 Disposition of Non-compliance

(Closed) Violation 50-316-02-02-04(DRP): "Failure to Take Prompt Corrective Action to Prevent Repetitive Failure of the Unit 2 Turbine Driven Auxiliary Feedwater Pump." The inspector determined that the licensee's response to the Notice of Violation provided an accurate description of the root cause, corrective actions taken, and other aspects of the violation. No other instances of the violation were identified. This violation is closed.

04 Exit Meeting Summary

The inspector presented the inspection results to Mr. J. Pollock and other members of licensee management at the conclusion of the inspection on July 9, 2002. The licensee acknowledged the findings presented. The inspector asked the licensee whether any materials examined during the inspection should be considered proprietary. Proprietary information was examined during this inspection but details are not specifically discussed in this report. This exit meeting also served as the Regulatory Performance Meeting described in Section 06.05.a.1 of IMC 0305, "Operating Reactor Assessment Program."

KEY POINTS OF CONTACT

Licensee

G. Arent, Regulatory Affairs Manager
A. Bakken, Senior Vice President, Nuclear Generation
R. Gaston, Regulatory Compliance Supervisor
J. Gebbie, System Engineering Manager
S. Greenlee, Nuclear Technical Services Director
N. Jackiw, Regulatory Affairs
R. Meister, Regulatory Affairs
J. Pollock, Site Vice President
S. Vazquez, Engineering Supervisor

NRC

K. Coyne, Resident Inspector
D. Passehl, Acting Branch Chief

## LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Closed

| | | |
|---|---|---|
| 50-316-02-02-04 | VIO | Failure to take prompt corrective action to prevent repetitive failure of the Unit 2 turbine driven auxiliary feedwater pump |

Discussed

| | | |
|---|---|---|
| 50-316-01-19-03 | URI | Apparent violation of 10 CFR Appendix B, Criterion V for the failure to incorporate adequate quantitative acceptance criteria in turbine driven auxiliary feedwater pump maintenance instructions |
| 50-315/316-02-04-03 | FIN | Green finding regarding the failure to consistently identify a reasonable apparent cause for conditions adverse to quality |

## LIST OF ACRONYMS USED

| | |
|---|---|
| CFR | Code of Federal Regulations |
| CR | Condition Report |
| DRP | Division of Reactor Projects |
| FIN | Finding |
| IMC | Inspection Manual Chapter |
| NRC | Nuclear Regulatory Commission |
| O&P | Organizational and Programmatic |
| PARS | Publicly Available Records |
| PRA | Probabilistic Risk Assessment |
| TDAFWP | Turbine Driven Auxiliary Feedwater Pump |
| URI | Unresolved Item |
| VIO | Violation |

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 the NRC inspector 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. Inclusion of a document in this list does not imply NRC acceptance of the document, unless specifically stated in the inspection report.

CONDITION REPORTS

| Number | Description | Revision/Date |
|---|---|---|
| 01222001 | While Performing the Fill and Vent Procedure for the TDAFWP the Pump Failed to Start on Two Consecutive Attempts | August 10, 2001 |
| 01354104 | This CR is to Document a Prompt Operability Call for Both Units' TDAFWPs (½-PP-4). Trip Throttle Valve Latch Faces Have Not Been Maintained as Per Vendor Information | December 20, 2001 |
| 01362027 | Failure to Generate a Condition Report for a Test Failure of the TDAFWP Trip and Throttle Valve in June 2000 | December 28, 2001 |
| 02018064 | TDAFWP Trip Throttle Valve Tripped Shortly After Start of Pump During Performance of Time Response Test | January 18, 2002 |
| 02093037 | Generate a Work Request to Remove the Unit 1 TDAFWP Trip and Throttle Trip Hook for Inspection | April 3, 2002 |
| 02134053 | NRC White Finding for Failure to Implement Timely Corrective Actions for TDAFWP Failure | May 14, 2002 |

PROCEDURES

| Number | Description | Revision/Date |
|---|---|---|
| 12 MHP 5021.056.007 | Turbine Driven Auxiliary Feed Pump Trip and Throttle Valve Linkage | Revision 2 Changes 4 and 5 |
| Job Order C0030027-01 | 2-QT-506 Troubleshoot and Repair Latch Hook | May 26, 1995 |

| | | |
|---|---|---|
| Job Order 01222001-01 | Determine Reason TDAFWP Didn't Start, and Repair - Inspect/Disassemble/Repair Linkage on 2-T-506 | August 10, 2001 |
| Job Order 02018064-01 | 2-PP-4 TDAFWP Trip Throttle Valve Tripped Shortly After Start of Pump - Investigate and Repair Tripping | January 25, 2002 |
| Job Order 02093037-01 | Remove 1-QT-506 Trip Hook for Inspection | May 1, 2002 |
| 77S-0048V | Schutte & Koerting Company Test Procedure for Throttle Trip Valves | March 7, 1977 |
| 85S-0051V | Schutte & Koerting Company Instructions for Field Coversion of Solenoid Trip Arrangement on 4 Inch - 900 Pound Throttle Trip Valve | April 1986 |

Miscellaneous Documents

| **Number** | **Description** | **Revision/Date** |
|---|---|---|
| Indiana Michigan Power Letter AEP:NRC:2195 | Donald C. Cook Nuclear Plant Unit 2 Response to Notice of Violation 50-315/02-02-04 | June 5, 2002 |
| | Maintenance Rule (a)(1) Action Plan for Cook Nuclear Plant Units 1 and 2 Auxiliary Feedwater System - Turbine Driven Auxiliary Feedwater Pump Trip Throttle Valve Latch Failure | Revision 1 March 22, 2002 |
| | Maintenance Rule Scoping Document for Auxiliary Feedwater System | Revision 2 April 26, 2001 |
| EP 01-167 | Maintenance Rule Expert Panel Meeting Minutes for Meeting No. EP 01-167 | November 2, 2001 |
| Engineering Evaluation (No Number) | Maintenance Request Clarification on Step 6.1 and 6.16 of 12 MHP 5021.056.007 | February 1, 1997 |
| Operating Experience 6843 | Auxiliary Feedwater Pump Turbine Trip/Throttle Valve Problems | June 1, 1994 |
| Operating Experience 7936 | Auxiliary Feedwater Turbine, Trip & Throttle Valve Linkage | January 16, 1996 |

| | | |
|---|---|---|
| Operating Experience 13481 | Trip and Throttle Valve Tripped Closed During Turbine Driven Auxiliary Feedwater Pump Time Response Testing | January 18, 2002 |
| | Supporting and Refuting Table for CR 01222001 | August 10, 2001 |
| | Supporting and Refuting Table for CR 02018064 | January 19, 2002 |
| | Dresser-Rand Trip and Throttle Valve Critical Characteristics Drawing | February 4, 2002 |
| | Electronic Mail Message From Mark Weinberger of Schutte & Koerting Company, Subject: "Terry Turbine Trip and Throttle Valve Latch Problems" | December 12, 2001 |
| | Electronic Mail Message From Charlie Grondalski of Schutte & Koerting Company, Subject: "Schutte & Koerting Analysis to Comments on Probable Causes Analysis Date January 19, 2002 | January 25, 2002 |
| | Shift Manager's Logs | August 10, 2001 |
| | Nuclear Plant Reliability Database System Entries Related to Turbine Trip Throttle Valve Failures | Various Dates |