UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
61 FORSYTH STREET SW SUITE 23T85
ATLANTA, GEORGIA 30303-8931

December 3, 2004

Duke Energy Corporation
ATTN: Mr. G. R. Peterson
Vice President
McGuire Nuclear Station
12700 Hagers Ferry Road
Huntersville, NC 28078-8985

SUBJECT: MCGUIRE NUCLEAR STATION - NRC PROBLEM IDENTIFICATION AND RESOLUTION INSPECTION REPORT 05000369/2004008 AND 05000370/2004008

Dear Mr. Peterson:

On November 5, 2004, the NRC completed an inspection at your McGuire Nuclear Station. The enclosed report documents the inspection findings which were discussed on November 4, 2004, with Mr. J. Kammer and other members of your staff.

The inspection was an examination of activities conducted under your licenses as they relate to the identification and resolution of problems, compliance with the Commission's rules and regulations, and with the conditions of your operating licenses. Within these areas, the inspection involved selected examination of procedures and representative records, observations of activities, and interviews with personnel.

On the basis of the sample selected for review, the inspectors concluded that, in general, problems were properly identified, evaluated, and corrected within the problem identification and resolution program. Overall, implementation of your corrective action program was effective in preventing repetition of safety significant issues, root cause evaluations were of sufficient depth to address the root causes of issues, and there was evidence that a safety conscious work environment had been established.

This report documents an NRC-identified finding (with two examples) of very low safety significance (Green). The finding was determined to be a violation of NRC requirements. However, because of the very low safety significance and because the finding was entered into your corrective action program, the NRC is treating the violation as a non-cited violation (NCV) consistent with Section VI.A of the NRC Enforcement Policy. In addition, the NRC identified another example of a previously identified NCV for failure to update the Updated Final Safety Analysis Report. If you deny these NCVs, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the United States Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region II; the Director, Office of Enforcement, United

States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the McGuire facility.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure 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).

Sincerely,

/RA/

Michael E. Ernstes, Chief
Reactor Projects Branch 1
Division of Reactor Projects

Docket Nos. 50-369, 50-370
License Nos. NPF-9, NPF-17

Enclosure: NRC Inspection Report 05000369/2004008 and 05000370/2004008
w/Attachment - Supplemental Information

cc w/encl:
C. J. Thomas
Regulatory Compliance Manager (MNS)
Duke Energy Corporation
Electronic Mail Distribution

R. L. Gill, Jr., Manager
Nuclear Regulatory Issues
and Industry Affairs
Duke Energy Corporation
526 S. Church Street
Charlotte, NC 28201-0006

Lisa Vaughn
Legal Department (PB05E)
Duke Energy Corporation
422 South Church Street
P. O. Box 1244
Charlotte, NC 28201-1244

Anne Cottingham
Winston & Strawn LLP
Electronic Mail Distribution

Beverly Hall, Acting Director
Division of Radiation Protection
N. C. Department of Environmental
Health & Natural Resources
Electronic Mail Distribution

County Manager of Mecklenburg County
720 East Fourth Street
Charlotte, NC 28202

Peggy Force
Assistant Attorney General
N. C. Department of Justice
Electronic Mail Distribution

Distribution w/encl:
S. Peters, NRR
J. Shea
L. Slack, RII EICS
RIDSNRRDIPMLIPB
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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos.:	50-369, 50-370
License Nos.:	NPF-9, NPF-17
Report No.:	05000369/2004008, 05000370/2004008
Licensee:	Duke Power Corporation
Facility:	McGuire Nuclear Station, Units 1 and 2
Location:	12700 Hagers Ferry Road Huntersville, NC 28078
Dates:	October 18, 2004 through November 5, 2004
Inspectors:	S. Shaeffer, Senior Project Engineer (Lead Inspector) M. Bates, Operations Engineer S. Rudisail, Project Engineer S. Walker, Resident Inspector- McGuire
Approved by:	M. Ernstes, Chief Reactor Projects Branch 1 Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000369/04-08, IR 05000370/04-08; 10/18/2004 - 11/5/2004; McGuire Nuclear Station, Units 1 & 2; Prioritization and Evaluation of Issues, Effectiveness of Corrective Actions.

The inspection was conducted by a resident inspector and three regional inspectors: a senior project engineer, a project engineer, and an operations engineer. Two non-cited violations (NCVs) were identified; one Green (with two examples) and one Severity Level IV (as an additional example of a previously identified NCV). The significance of most findings is indicated by their color (Green, White, Yellow, Red) using IMC 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

Identification and Resolution of Problems

Overall, the licensee maintained an effective program for the identification and correction of conditions adverse to quality. The licensee was effective at identifying problems at a low threshold and entering them into the Corrective Action Program (CAP). In general, the licensee consistently prioritized issues in accordance with their CAP and routinely performed adequate evaluations that were technically accurate and of sufficient depth. Minor problems were identified related to thoroughness of corrective action program issue documentation. The inspectors considered the licensee's CAP tracking program adequately supported tracking of identified issues, as well as the proposed corrective actions to resolve problems and implement improvement initiatives. The system also supported the ability to perform efficient and productive CAP trending at a variety of plant employee levels.

Formal root cause evaluations for significant conditions adverse to quality were thorough and detailed. Corrective actions developed for lower level root and contributing causes were generally timely, effective, and commensurate with the safety-significance of the issue. Although the licensee incorporated a wide variety of root cause techniques, the use of simplistic root and apparent cause evaluations techniques for lower level Problem Investigation Process reports (PIPs), such as change analysis, could improve the reliability of apparent causes for some lower level issues and provide improved basis for PIP documentation. Several examples were identified where immediate corrective actions were not through or timely, as well as where vendor oversight could have been improved.

The licensee's periodic self-assessments and audits were effective in identifying deficiencies in the CAP and covered all areas of plant performance. Corrective actions for previous performance examples were being actively monitored within self-assessments and audits of the CAP. Overall, the ability to perform critical self-assessments was considered an effective program attribute, especially when identifying repetitive equipment issues. Assessments were also effective in evaluating human performance areas for improvement, which indicated an emphasis on continuous improvement. With few exceptions, reviews of sampled operating experience information were comprehensive. Improved review of operating experience between other sites from the same utility was noted.

Site management was adequately involved in the CAP and focused appropriate attention on significant plant issues. Previous non-compliance issues documented as non-cited violations were properly tracked and resolved via the corrective action program. The results of the last comprehensive corrective action program audit conducted by the licensee were properly entered and dispositioned in the corrective action program. Improvements were seen in the area of trending reviews identifying areas warranting increased management attention and focus. In one specific area of corrective actions for previous containment cleanliness issues, the licensee was not effective in precluding NRC identification of foreign material inadvertently left in the containment.

Based on discussions with plant personnel and the low threshold for items entered in the corrective action program database, the inspectors concluded that workers at the site generally felt free to raise safety concerns to their management and that a safety conscious work environment existed.

A. Inspector-Identified and Self-Revealing Findings

Cornerstone: Initiating Events

- Green. The inspectors identified the first example of a non-cited violation of 10 CFR 50 Appendix B, Criterion XVI, Corrective Action, for failure to thoroughly evaluate and take timely corrective actions to resolve a problem with the Instrument Air (VI) supply to the actuator of steam admission valve 2SA-49AB, steam supply from the “B” steam generator to the Unit 2 turbine driven auxiliary feedwater pump (TDCAP). Specifically, following identification of a nitrogen leak into the redundant VI supply for the actuator of steam admission valve 2SA-49AB, the licensee isolated the redundant instrument air supply which backs up the nitrogen supply that maintains the TDCAP steam admission valve in the closed position. Subsequently, high nitrogen usage depleted the available nitrogen and allowed 2SA-49AB to open and inadvertently start the TDCAP. This auxiliary feedwater addition to all four steam generators resulted in an overpower condition and required operator action to mitigate the reactivity event.

  This finding was considered more than minor because it resulted in an inadvertent TDCAP start which delivered flow to all four steam generators. This caused an over-power condition in the reactor; thereby, affecting the Initiating Events Cornerstone objective by increasing the likelihood of events that upset plant stability. The finding was determined to be of very low safety significance because the operators implemented immediate manual actions to maintain reactor power less than 102% rated thermal power and the TDCAP was able to perform its design function at all times due to the fail-safe design of the valve actuator to open. (Section 4OA2b.(3).1)

Cornerstone: Mitigating Systems

- Green. The inspectors identified a second example of a non-cited violation of 10 CFR 50 Appendix B, Criterion XVI, Corrective Action, for failure to take

adequate corrective actions to preclude repetitive issues with spent fuel pool (KF) cooling pump motor bearings. Specifically, repetitive challenges to KF pump motor bearings due to inadequate lubrication issues have resulted in increased unavailability of the pumps due to failures and increased unreliability of the system to meet its intended function.

This finding was determined to be more than minor, in that it affected the mitigating system cornerstone objective by affecting the availability and reliability of the KF cooling system to maintain the spent fuel pool within the design limits. The improper venting of the spent fuel cooling pump motor oil level resulted in the repetitive failures of the pump motor. Failure of the pump motor adversely affects the ability to reliably maintain cooling in the spent fuel pool. This issue was determined to be of very low safety significance (Green) due to the availability of a redundant SFP cooling pump and because the allowable temperature limits were not exceeded. (Section 4OA2c.(3).1)

- SL IV. The inspectors identified an additional example of a previously identified non-cited violation (05000369,370/2004003-02) for failure to update the Updated Final Safety Analysis Report (UFSAR) as required by 10 CFR 50.71(e). Specifically, the inspectors noted a failure to resolve an UFSAR discrepancy with the Design Basis Document regarding feedwater isolation valve stroke time requirements.

  This issue is greater than minor because the failure to include descriptive information on feedwater isolation valve stroke time requirements could have an impact on future stroke time tests and subsequent performance of the isolation valves. However, it is of very low safety significance because use of the un-updated UFSAR did not result in unacceptable changes to the facility or procedures. (Section 4OA2c.(3).2)

B. Licensee Identified Violations

None.

Report Details

4. OTHER ACTIVITIES

4OA2 Problem Identification and Resolution

a. Effectiveness of Problem Identification

(1) Inspection Scope

The inspectors reviewed items selected across the three strategic performance areas (reactor safety, radiation safety, and physical protection) to verify that problems were being properly identified, appropriately characterized, and entered into the corrective action program for evaluation and resolution. The inspectors reviewed program documents, including Nuclear System Directive (NSD) 208, Problem Investigation Process, and NSD 210, Corrective Action Program Directive, which described the administrative process for documenting and resolving issues. The inspectors reviewed Problem Investigation Process reports (PIPs) associated with systems that ranked the highest on the licensee's risk significance list. Systems selected included the refueling water storage tank (FWST), nuclear service water (RN), and safety injection (NI), as well as systems and programs related to reactivity management. The inspectors reviewed a sampling of PIPs that had been generated since the last problem identification and resolution inspection (September 2002). The specific documents reviewed are listed in the Attachment to this report. In addition, in accordance with the inspection procedure, a longer term review was performed for the spent fuel pool cooling, auxiliary feedwater, and charging systems.

The inspectors conducted multiple computer database searches to identify the threshold at which issues were identified and documented in the corrective action program. The review was performed to verify that the licensee's threshold for identification and documentation of issues was consistent with procedural guidance and licensee management expectations. The inspectors also conducted multiple trend analysis searches to identify potential adverse trends not previously identified by the licensee.

The inspectors reviewed industry operating experience (OE) items to determine if they were appropriately evaluated for applicability to McGuire and whether problems identified through these reviews were entered into the PIP database.

The inspectors reviewed plant equipment issues associated with Maintenance Rule (a)(1) items, functional failures, maintenance preventable functional failures (MPFFs), and repetitive MPFFs, to verify that maintenance rule equipment deficiencies were being appropriately entered into the PIP database. The inspectors toured the plant, including both the upper and lower portions of the Unit 1 containment, to determine whether equipment and material condition problems were being identified. The inspectors reviewed the equipment removal and restoration logbook (all open items), the shift engineers' logbook, and the logbook of open control room discrepancies to determine if problems potentially affecting safe plant operations were properly entered into the PIP database.

The inspectors monitored the licensee's Daily Site Direction Meetings, and a Directional Root Cause Meeting, reviewed minutes from a variety of Plant Operation Review Committee Meetings, and reviewed Daily PIP Screenings to affirm the appropriate categorization and priority were applied to new issues. The inspectors observed management interactions in the PIP screening process in ensuring that problems were properly captured in the licensee's PIP database. The inspectors had discussions with plant personnel and the NRC resident inspectors to determine if problems were properly identified.

The inspectors reviewed several of the licensee's recent self-assessments and audits of the corrective action program to verify if findings and recommended areas for improvement were being entered into the licensee's corrective action program. Samples were reviewed to determine that appropriate corrective actions were taken to resolve identified program deficiencies. The assessments and audits reviewed were conducted by the Regulatory Audit group from the Duke Energy General Office and site quality assurance personnel.

The licensee had performed area specific assessments for individual functional areas such as security, maintenance, operations, operating experience, and other areas resulting in a multiple cornerstone review. The inspectors reviewed the results of these assessments to determine if they were documented in the licensee's corrective action program as appropriate. These assessments touched on corrective action elements as they related to specific issues within the functional area being evaluated.

The inspectors also reviewed NSD 223, Trending of PIP Data, to determine if an appropriate level of trending was occurring at the site and/or corporate level to allow for the identification of adverse trends and issues that might represent cross cutting areas.

(2) Assessment

Overall, the licensee maintained an effective program for the identification of conditions adverse to quality. The licensee was effective at identifying problems at a low threshold and entering them into the Corrective Action Program (CAP). In general, the licensee consistently prioritized issues in accordance with their CAP and routinely performed adequate evaluations that were technically accurate and of sufficient depth. Minor problems were identified related to thoroughness of corrective action program issue documentation. There were no significant examples identified concerning the categorization of PIPs where higher categorization may have been more consistent with the licensee's CAP requirements. The inspectors considered the licensee's CAP tracking program adequately supported tracking of identified issues, as well as the proposed corrective actions to resolve problems and implement improvement initiatives. The system also supported the ability to perform efficient and productive CAP trending at a variety of plant employee levels.

The licensee's periodic self-assessments and audits were effective in identifying deficiencies in the CAP and covered all areas of plant performance. Corrective actions for previous performance examples were being actively monitored within self-

assessments and audits of the CAP. Several assessments identified repetitive deficiencies with the CAP that resulted in the issuance of higher level PIPs. Overall, the ability to perform critical self-assessments was considered an effective program attribute, especially when identifying repetitive equipment issues. Assessments frequently evaluated human performance areas for improvement. This indicated an emphasis on continuous improvement. With few exceptions, reviews of sampled operating experience information were comprehensive. Specific group self-assessments were being performed for key areas and programs. Reviews conducted of the reactivity management area were considered very detailed and provided monthly evaluations of corrective action prioritization, apparent root cause determinations, and near miss trending.

Several examples, including PIP M-04-0577, were noted to have a lack of documentation for operating experience reviews. Once researched by the inspectors, adequate justification for the licensee's response was identified. Improved review of operating experience between other sites from the same utility was noted. This improvement corresponded with recent management and personnel exchanges between the sites.

Trending of site level issues was considered to have improved from the previous corrective action review performed by the NRC. Numerous adverse trend PIPs had been identified through the use of licensee audits and assessments or via the system engineering, operations, and maintenance staffs. Observations of the licensee's identification of Maintenance Rule applicable issues did not identify any concerns.

(3) Findings

No findings of significance were identified.

b. Prioritization and Evaluation of Issues

(1) Inspection Scope

The inspectors monitored daily PIP categorization screening and reviewed PIPs that were assigned various Action Categories to determine whether issues were properly prioritized and evaluated in accordance with NSD 208. The Action Categories (1 through 4) were defined in NSD 208 and were numbered based on decreasing significance. Action Category 1 PIPs involved "significant conditions adverse to quality" that required formal root cause evaluations. Action Category 2 PIPs were defined as "conditions adverse to quality" for which management could use its discretion in deciding whether to perform a formal root cause evaluation. Action Category 3 PIPs concerned problems for which an "apparent cause" analysis was sufficient in fixing the immediate problem. Action Category 4 PIPs involved low level conditions or conditions not adverse to quality; neither of which required any type of causal evaluation. The inspectors reviewed PIPs covering all four categories, focusing on those associated with risk significant systems, as well as those associated with violations of regulatory requirements. During these PIP reviews, the inspectors evaluated the disposition of the

issues with respect to operability and/or reportability. The inspectors reviewed several PIPs which required root cause analyses to determine the adequacy of the causal determinations.

(2) Assessment

Overall, the licensee's threshold for classification, prioritization, and evaluation of problems in the corrective action program was considered to be satisfactory. The technical adequacy and depth of evaluations, as documented in individual PIPs, were acceptable. The inspectors found that the licensee overall properly prioritized proposed corrective actions in a manner commensurate with the safety significance of the issue. Formal root cause evaluations for significant conditions adverse to quality were thorough and detailed. Corrective actions developed for lower level root and contributing causes were generally timely, effective, and commensurate with the safety-significance of the issue. Although the licensee incorporated a wide variety of root cause techniques, the use of simplistic root and apparent cause evaluation techniques for lower level PIPs, such as simple change analysis, could improve the reliability of apparent causes for some lower level issues and provide improved basis for PIP documentation.

Several examples were identified where vendor oversight could have precluded the issue. Previous problems were identified regarding vendor oversight of emergency diesel generator rebuilds. Examples identified during this review period included residual heat removal pump shaft refurbishment, control of steam generator inspection/cleaning tools, main steam isolation valve material modifications, and independent spent fuel storage installation cart construction. The inspectors determined that each of these examples had some degree of vendor oversight issues that could have precluded the issue, and in most cases, this cause was reflected in the licensee's individual issue PIPs.

Based on the total number of PIPs with root cause evaluations that were reviewed during this inspection, the inspectors concluded that the licensee's corrective action program was generally being effectively implemented with respect to evaluation of problems. However, the inspectors did identify one exception where the licensee's evaluation and corrective actions for a degraded condition were not thorough and resulted in additional challenges to safety-related systems and operators. This exception is discussed in the findings section below.

During the inspectors' review of procedures associated with the Problem Investigation Process and Work Control and Planning Processes, attention was given to the practice of closing a corrective action written in the PIP System by initiating a Work Request/Work Order (WR/WO) written in the Work Control System. The following observations were discussed with the licensee with respect to closing corrective actions in PIPs by initiating a WR/WO:

- Corrective Actions written in PIPs are controlled by due dates. Once a Corrective Action is closed to a WR/WO, the work is no longer controlled by a due date.

- A lower level of approval for work cancellation exists in the WR/WO process as compared to the Problem Investigation Process. The approval for the deletion of a WR/WO that is generated from a Corrective Action must be performed by the originator of the corrective action, vice the manager or supervisor that is required by the Problem Investigation Process. NSD 208, "Problem Investigation Process", Section 208.3.4, "Management and Supervision", states, "Section/group Management shall decide when it is appropriate that no work be performed on selected, low significance/risk activities with documentation provided within the PIP to support this decision." Contrary to this requirement, the WPM 500 Planning Process (Section 500.5.2.7, "Voiding or Rejecting of Tasks or Work Orders") does not require that a manager/supervisor determine that no work needs to be performed; rather the process allows the Corrective Action Originator to determine if a new PIP needs to be generated when a WR/WO is cancelled.

- The explanation for deletion of a WR/WO that was generated from a PIP, does not get documented back into the Problem Investigation Process. NSD 208, Section 208.3.4, states, "Section/group Management shall decide when it is appropriate that no work be performed on selected, low significance/risk activities with documentation provided within the Problem Investigation Process to support this decision." Contrary to this, the NSD 208 process allows corrective actions to be closed by writing a WR/WO, which upon deletion of a WR/WO, does not require appropriate documentation in the PIP. The WPM 500 Planning Process requires that an explanation of deleted work be documented in the WR/WO process, but does not require that the explanation be documented in the Problem Investigation Process.

- No field exists in the WR/WO Process to prompt the user to include the PIP number on the WR/WO. A procedural requirement exists for the PIP number to be included; however, the software only supports placing the PIP number in the narrative section of the WR/WO form. While it appears that the procedural requirement is being met, this is an area for improvement that the licensee indicated would be considered when developing the new Work Process Program.

(3) Findings

.1 Inadequate Corrective Actions for Air/Nitrogen Supply to the Turbine Driven Auxiliary Feedwater Pump Steam Admission Valve

Introduction: The inspectors identified a Green non-cited violation (NCV) for the failure to thoroughly evaluate and take timely corrective actions to resolve a problem with the Instrument Air (VI) supply to the actuator of steam admission valve 2SA-49AB, steam

supply from the “B” steam generator to the Unit 2 turbine driven auxiliary feedwater pump (TDCAP).

Description: 2SA-49AB is a spring-to-open/air-to-close valve that is supplied with 195 psig nitrogen and 90 psig VI, aligned in parallel for increased reliability. Either of these supplies is capable of maintaining the valve in its normally closed position. In addition, the nitrogen supply has an accumulator that functions to maintain the valve in the closed position on the loss of both nitrogen and VI. This accumulator was added as part of modification described in McGuire Final Scope Document NSM MG-22556, dated May 23, 2003.

On June 18, 2004, a leak was identified on a check valve in the VI supply line to the 2SA-49AB actuator supply line. The VI supply to the valve actuator was subsequently isolated and a red tag was placed on the valve (WO# 98673555). A WO was also written for the repair of the leaking check valve. Isolating the VI supply placed the actuator in a configuration where it was supplied by nitrogen only. Reducing the redundancy of the supplies to the actuator did not impact the ability of 2SA-49AB to perform its safety function due to the fail open design of the valve actuator.

On October 19, 2004, following a shutdown of Unit 1, the installed nitrogen supply was used to support Unit 1 shutdown activities and the nitrogen pressure lowered to the point where it was no longer capable of counteracting the spring force required to maintain 2SA-49AB in the closed position (M-04-05079). The valve subsequently opened, emitting steam to the TDCAP. All four Unit 2 steam generators were supplied with auxiliary feedwater, causing reactor power to increase to approximately 100.8% rated thermal power. Operators took action to reduce turbine demand, which prevented the reactor from exceeding 102% rated thermal power.

The inspectors reviewed the corrective action taken for the indication of the VI supply line check valve leak. Aside from isolating the normal VI supply, no actions were taken to ensure the reliability of the nitrogen supply, no actions were taken to ensure the functionality of the valve actuator nitrogen accumulator, and no operator contingency actions were put in place to monitor or re-establish a motive force to the valve actuator should the remaining supply be lost. The inspectors concluded that the 123 days which elapsed from the time the VI leak was identified to the occurrence of the over-power event was not indicative of timely problem resolution, considering the lack of additional measures to protect the remaining nitrogen supply to the valve. Prompt corrective action to repair the leak, verification of the accumulator’s ability to adequately supply the actuator, verification of the reliability of the nitrogen supply, or appropriate operator contingencies would have prevented the event.

In addition, during the inspectors’ review of the post-modification testing that was performed after the modification of the actuator (approved on May 23, 2003, per NSM MG-22556), the inspectors identified that the test plan did not include aspects that would have thoroughly tested the functionality of the accumulator. Following the event of October 19, 2004, the inspectors identified that the corrective actions associated with addressing the condition adverse to quality did not consider the fact that the nitrogen

accumulator was not able to supply the required pressure to the actuator to maintain 2SA-49AB in the closed position.

Analysis: This finding was considered more than minor because it resulted in an inadvertent TDCAP start which delivered flow to all four steam generators. This caused an over-power condition in the reactor; thereby, affecting the Initiating Events Cornerstone objective by increasing the likelihood of events that upset plant stability. The finding was determined to be of very low safety significance (Green) because the operators implemented immediate manual actions to maintain reactor power less than 102% rated thermal power and the TDCAP was able to perform its design function at all times due to the fail-safe design of the valve actuator to open.

Enforcement: 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, requires that measures 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. Contrary to this requirement, corrective actions for the VI supply to the 2SA-49AB actuator were not adequately identified and corrected such that the isolation of the VI supply was performed without additional measures being implemented to ensure the reliability of the nitrogen supply to the actuator or verifying the ability of the associated accumulator to provide a motive force to the actuator. Furthermore, operator contingencies were not developed and implemented to monitor the nitrogen supply pressure, which would prompt additional measures to ensure the continued supply of a motive force to the actuator. Lastly, repair of the VI supply line check valve leak was, and remains, untimely, in that 123 days elapsed from identification to the inadvertent start of the TDCAP. Since the violation is of very low safety significance and the licensee has entered it into its corrective action program as PIP M-04-3207, this violation is being treated as a NCV in accordance with Section VI.A.1 of the NRC Enforcement Policy: NCV 05000369,370/ 200408-01, Inadequate Corrective Action for Plant Equipment Issues - (first example).

c. Effectiveness of Corrective Actions

(1) Inspection Scope

The inspectors reviewed PIPs listed in the Attachment to this report, to determine whether the licensee had identified and implemented corrective actions commensurate with the safety significance of the issues. Where possible, the inspector also evaluated the effectiveness of the actions taken. Part of this effectiveness review was conducted by attending several meetings related to the PIP. The inspectors verified that common causes and generic concerns were addressed where appropriate. Also, the inspectors reviewed corrective actions associated with previous NCVs to assess the adequacy of corrective actions. The inspection sample included the oldest open PIPs in the licensee's database, deleted PIPs, cancelled corrective actions, and rework activities identified in the maintenance program.

(2) Assessment

From a review of corrective actions and the assigned action levels, the inspectors determined that the licensee's corrective action program was overall effective in correcting problems. Management involvement at various stages of the corrective action process was evident. During routine the PIP related meetings the inspectors observed that the licensee managers reviewed root cause analyses results which were presented by the site employees who led the analyses. They routinely posed additional questions exploring the thoroughness of the analysis, and assessed the adequacy and effectiveness of related corrective actions. Corrective actions for NCVs were generally determined to be determined to be adequate. One exception is discussed below in the findings section as an additional example of a previously identified NCV.

During the inspection, the inspectors also identified several instances where the licensee's immediate corrective actions were not thorough enough to capture the full scope of the problem identified; thereby, resulting in repetitive or continuous adverse conditions. The following are examples of this type of issue:

- In December 2003, the resident inspectors identified that the internal and external doghouses did not have fire pre-plans. One reason this was of importance was due to the lack of suppression and detection in these fire areas. This issue was captured in the licensee's corrective action program as PIP M-03-06071; however, it was not until October 2004 during a fire audit, that the licensee evaluated the lack of suppression and detection for these areas.

- In early 2003, PIP M-03-01831 describes fire/smoke being identified on the emergency diesel generator (EDG) building roofs near the mufflers for the EDGs. The event was caused by combustibles being left in contact with muffler supports that experience high heat load. After identification of the original issue, a repetitive example of fire/smoke occurred a short time later. An additional near miss was also identified concerning combustible material left in the area of the problem, which was identified before it could cause a fire situation.

- In June 2004, the resident inspectors identified an issue with the DC emergency lighting system, in that, the system was not being properly monitored per the Maintenance Rule. Included with this concern, was a question of how the system reliability impacted operator actions. This issue was captured in the licensee's corrective action program as PIPs M-04-2837, M-04-2981, and M-04-2983; however, an extent of condition (i.e., for the AC powered emergency lighting) was not done until a fire audit was conducted by the licensee in October 2004.

In addition, examples were identified where the inspectors determined a higher level or more rigorous evaluation would have been more appropriate and/or may have been more effective in the timely resolution of the problem. Examples of these types of issues included the following:

- M-04-00163, Fire Detection Data Gathering Panels have local AC failure indication. Less than adequate operability assessment resulted in numerous PIPs and repetitive failures.

- M-04-02441, 1SM-1 (MSIV) Found Scored During Engineering Walkdown. A lack of rigor in identifying the scoring prior to startup and in evaluating the scoring, contributed to not identifying problems with the MSIV sooner. The operability assessment did not take into account historical issues with the component nor significant OE.

- M-04-03803, Several issues exist with the UFSAR description of the auxiliary feedwater system (CA) and alignment of the TDCAP. The operability evaluation used invalid and undetermined assumptions to declare operability which resulted in a non-cited violation.

On the basis of the PIPs sampled and specific trending searches performed by the inspectors, the inspectors determined that a number of areas had indications of a growing negative trend. These areas included fire protection NCV's and program issues, service water fouling events, and foreign material concerns in the spent fuel pool and related areas. For these issues, the licensee had previously identified an adverse trend PIP to evaluate the overall impact of the increased number of related PIPs.

The inspectors also identified that licensee corrective actions to preclude repetitive NRC identification of foreign material in the containment following licensee containment closeout inspections was continuing. During previous refueling outage reactor restarts, the NRC had identified a number of issues which could have impacted emergency core cooling system (ECCS) or emergency sump performance, including excessive boron via residual heat removal (RHR) backleakage into the ECCS sump and an excessive amount of fibrous insulation located in the fan room directly above the ECCS sump. During the most recent refueling outage restart, inspectors again identified a number of items which needed to be addressed prior to restart. Based on these observations, the inspectors toured both upper and lower potions of Unit 1 containment that were accessible due to a shutdown concurrent with the inspection. The team identified several broken electrical conduits leading to containment isolation valves, several weld rods located in a support for the D reactor coolant loop, and assorted pieces of yellow tape located in both upper and lower containment. Additional small amounts of boron were identified inside the ECCS which were bounded by previous analysis performed by the licensee. Overall improvements have been seen in the method by which the licensee has addressed improving containment closure; however, this attention has not precluded NRC's identification of problems.

The licensee's processes and programs for monitoring work order and PIP backlogs were consistent with a mature corrective action program. Backlogs in both areas were being effectively monitored and trended, providing management key information regarding resource needs. Presentations to management on the backlogs occurred on a frequent basis and group specific monitoring was actively incorporated. The

inspectors also found that the oldest open PIPs were reviewed on a frequent basis. The older PIPs included in the review sample had a valid reason to remain open.

(3) Findings

.1 Inadequate Corrective Action for Repetitive Spent Fuel Pool Cooling (KF) Pump Motor Bearing Lubrication.

Introduction: The inspectors identified a Green NCV for failing to implement adequate long-term corrective actions per 10 CFR 50, Appendix B, Criterion XVI, for repetitive issues related to KF pump motor bearing lubrication.

Description: On August 8, 2004, the 2A KF pump motor failed after being started for a routine train swap. A root cause determination attributed the failure to improper venting of the motor bearing oil sight glass due to inadequate vent line design. This was documented in PIP M-04-03950. Due to a loss of sight glass venting, actual oil level in the KF pump motor oil reservoir was lower than indicated. An oil sample had been performed on July 27, 2004. On July 30, 2004, a work request was initiated to remove oil from the reservoir due to high level indication in the sight glass. Oil was drained from the reservoir on July 30, 2004. After the train rotation to the 2A KF pump on August 8, 2004, the pump was shutdown due to a high bearing temperature alarm. Upon inspection, the inboard bearing was determined to have failed. A root cause investigation was initiated to determine the cause of the bearing failure and determine if the cause of this failure was the same as previous KF pump failures.

In 1999, due to a similar failure of the 2A KF pump motor, a vent hose was installed on the KF pump motor bearing oil sight glass. In 1998, a vent hose was installed as corrective action on the 1A pump after a failure of sight glass level indication due to ventilation blowing on the sight glass resulted in level indication inaccuracy. The transportability of this corrective action was not considered for other KF pumps at that time. The root cause for the August 8, 2004, pump failure was determined to be an inadequately installed/designed vent hose for the motor bearing oil sight glass.

Contributing to the overall problem of maintaining KF motor bearing oil level, the inspectors noted a number of problems related to the understanding of oil level indication markings. Numerous PIPs had previously been initiated related to oil level management, including examples of inadequate oil level or no oil being identified in the pump motor bearing. Lack of process control for oil level adjustments was identified as a contributing cause for the August 8, 2004, KF pump failure. The inspectors noted that the KF pump motor bearings had a relatively high thrust load as compared to other pumps installed at the site. This, combined with a limited capacity bearing oil reservoir, made the KF pumps particularly susceptible to failure caused by inadequate oil level monitoring and maintenance.

Analysis: This finding was determined to be more than minor, in that it affected the mitigating system cornerstone objective by affecting the availability and reliability of the KF cooling system to maintain the spent fuel pool within the design limits. The improper

venting of the spent fuel cooling pump motor oil level resulted in the repetitive failures of the pump motor. Failure of the pump motor adversely affects the ability to reliably maintain cooling in the spent fuel pool. This issue was determined to be of very low safety significance (Green) due to the availability of a redundant SFP cooling pump and because the allowable temperature limits were not exceeded.

Enforcement: 10 CFR, Part 50, Appendix B, Criterion XVI, Corrective Action, states, in part, that measures shall be established to assure that conditions adverse to quality are promptly identified and corrected to preclude repetition. Contrary to this, the licensee did not promptly and adequately correct a continuing problem with oil level indication resulting in an additional failure of the 2A KF pump. Because this finding is of very low safety significance and it has been entered into the licensee's corrective action program as PIP M-04-03950, this violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000369,370/2004008-01, Inadequate Corrective Action for Plant Equipment Issues - (second example).

.2 UFSAR Not Updated for Feedwater Isolation Valve (FIV) Stroke Time Requirements

Introduction: An additional example of a previously identified Severity Level IV NCV was identified for failure to update the UFSAR as required by 10 CFR 50.71(e). Specifically, the inspectors identified a failure to resolve an UFSAR discrepancy with the Design Basis Document regarding FIV stroke time requirements.

Description: The inspectors reviewed PIP —04-00640 which was written to resolve discrepancies associated with the FIV stroke time requirements that are used as test procedure acceptance criteria for those valves. Discrepancies existed in the Design Basis Document (Section 3.3.1.9), the UFSAR (Section 10.4.7.4), and the test acceptance criteria (TAC) sheets (MCTC-1591-CF.V002-01 and MCTC-1591-CF.V002-02). The Design Basis Document stated, "The normal and safety related stroke time of the FIV is to be procedurally limited to not be faster than 4.5 seconds, to comply with existing water hammer analyses (MCC-1206.02-72-0004)." The UFSAR stated, "... because design features preclude the possibility of a destructive water hammer, no analyses have been performed or test programs conducted regarding this occurrence." The TAC sheets had no specified minimum stroke time listed as a condition of operability. The proposed corrective action was to resolve the discrepancy and update the affected documents. As part of the review, the inspectors attempted to verify that the actual corrective actions addressed all the proposed corrective actions, in that all the stated document discrepancies were resolved.

Upon review of the actual corrective actions, it was noted that the TAC sheets were revised; however, the UFSAR discrepancy, as compared to the Design Basis Document, was not addressed. The stroke time requirements as they pertain to operability and the listing of associated references were not added to the UFSAR, nor was an evaluation of the discrepancies documented in PIP M-04-00640.

Analysis: The inspectors found that PIP M-04-00640 was closed without addressing the UFSAR discrepancies, as compared to the Design Basis Document. 10 CFR 50.71(e)

requires, in part, that the UFSAR be updated to include the design basis for the feedwater isolation valves. This issue is greater than minor because the failure to include descriptive information on feedwater isolation valve stroke time requirements could have an impact on future stroke time tests (PT/1/A/4253/003) and subsequent performance of the isolation valves. In addition, inaccurate UFSAR information could be inappropriately used in operability and design reviews to support key decisions. However, the issue was concluded to be of very low safety significance because use of the un-updated UFSAR did not result in unacceptable changes to the facility or procedures.

Enforcement: 10 CFR 50.71(e) requires that licensees shall periodically update the UFSAR originally submitted as part of the application for the operating license, to assure that the information is current. This submittal shall contain all the information necessary to reflect information and analysis submitted to the Commission by the licensee or prepared by the licensee pursuant to Commission requirements since the submittal of the original UFSAR, or as appropriate the last update of the UFSAR. Contrary to this requirement, the licensee had failed to update the UFSAR to resolve a discrepancy noted in PIP M-04-0640, regarding FIV stroke time requirements. This failure to update the UFSAR per the requirements of 10 CFR 50.71(e) is characterized as a Severity Level IV violation and is being treated as a NCV consistent with Section VI.A.1 of the NRC Enforcement Policy. Being similar to previously identified NCV 05000369,370/ 2004003-02, Failure to Update the UFSAR, this recent issue will be identified as an additional example of that NCV. This issue has been entered into the licensee's corrective action program under PIP M-04-05292.

.3 Inadequate Corrective Actions To Preclude Main Steam Isolation Valve (MSIV) Inoperability

Introduction: An Unresolved Item (URI) was identified regarding the failure of MSIV 1SM-1 to fully stroke closed during a valve stroke timing surveillance test. The valve's failure resulted from untimely corrective actions to resolve valve body guide rib wear, internal valve mis-alignment, and other possible indicators of degraded valve components. This issue will remain unresolved pending further investigation into a recent failure of an additional MSIV 1SM-3 to evaluate the root causes for each failure and any common cause implications.

Description: On October 18, 2004, while conducting a valve stroke timing test during a Unit 1 forced outage, valve 1SM-1, the "D" loop main steam isolation valve (MSIV), failed to fully stroke closed. The licensee's preliminary root cause investigation determined that major contributing factors were excessive clearance of the valve guide rib and consequential rib wear caused by main poppet vibration, and stem side loading caused by misalignment of the valve internals. Through a historical review, the inspectors found that guide rib wear on 1SM-1 had been previously identified and documented in the licensee's corrective action program in March 2001. During that time, 1SM-1 was disassembled for its 10 year PM and the stem was identified to have scoring and was also slightly bent. According to the vendor, Atwood & Morrill, the apparent cause of the stem scoring was guide rib wear and inadequate stem guiding,

both common issues among this particular valve type in the industry as demonstrated by various OE and NRC Information Notice 94-08. The stem was machined and placed back into service without performing detailed inspections to verify proper guide rib clearances and condition. Based on the repairs that were done, the licensee subsequently scheduled a detailed inspection of the guide ribs and the installation of several recent modifications to 1SM-1 for the Unit 1 end-of-cycle (EOC) refueling outage (1EOC17) in late 2005.

During restart from the 1EOC16 refueling outage in April 2004, MSIV 1SM-7 failed to fully close during a valve stroke timing test. Two major root causes were attributed to this failure: (1) valve stem thermal expansion; and (2) marginal actuator capability due to original spring sizing and removal of an air assist feature. Both major root causes were due to a lack of information exchange between the licensee and the vendor, Atwood & Morrill. The stem material was changed based on vendor approval and without proper consideration to detrimental effects to fit, form, and function of the material. The air assist feature was removed due to maintenance complications. The removal, though, was supported by an analysis performed by the vendor. Consequently, the licensee failed to question the vendor analysis, and therefore, an error present in the analysis ultimately removed significant operating margin from the MSIV with regard to closing force. An operability assessment of 1SM-1 was performed as result of the 1SM-7 failure at this time and it was recognized 1SM-1 and 1SM-7 had similarities in their valve configuration (i.e., packing and bushing in stuffing box, same stem material, and no air assist feature). However, due to no present visual evidence of scoring and the passing of its stroke time test, the licensee considered 1SM-1 fully operable and capable of fulfilling its intended safety function.

During the 1SM-7 repair evolution, 1SM-1 was cycled open and closed (April 9), and open again (April 10). Engineering was not aware these additional valve manipulations had occurred, and therefore did not inspect the valve prior to restart. Following U1 restart, during an engineering walkdown on April 27, 2004, scoring was identified on the stem of 1SM-1. Scoring on the stem was not apparent during a previous inspection conducted prior to cooldown for the 1SM-7 repair. An operability assessment was performed as a result of the stem scoring. This assessment addressed comparisons between the 1SM-7 scoring marks and the 1SM-1 scoring marks and found there to be no similarity. However, the licensee failed to consider and evaluate the 1SM-1 history, operating experience, and failure contributors present (i.e., past scoring indicating guide rib wear and misalignment, increased frictional loads due to stem bushing material, and reduced safety margin due to removed air assist feature). Given the visual indicator of an alignment problem as evidenced by the recurring stem scoring, since1SM-1 passed its previous stroke test, Operations and Engineering deemed the valve fully operable and capable of performing its safety function to close. Consequently, the October 18, 2004, failure of 1SM-1 was due to failure mechanisms previously identified in 2001 and indicated again in April 2004.

The excessive clearances between the valve body and the guide ribs, as found by the licensee, have been assumed to be a manufacturing defect. These excessive clearances caused the main poppet to vibrate during operation and in turn cause

additional guide rib wear on the guide rib and the guide rib pad (located on the main poppet). The failure consequences from excessive guide rib wear caused by MSIV main poppet vibration (one of the apparent causes of 1SM-1stem scoring in 2001) and excessive guide rib clearances causing MSIV main poppet vibration (one of the identified causes for the 1SM-1 2004 failure) have been demonstrated to have the same effect, stem scoring and mechanical binding (misalignment) of the main poppet. Based on this, the inspectors concluded, that the licensee did not thoroughly evaluate the 1SM-1 stem scoring identified on April 27, 2004, and missed an opportunity to verify critical valve body measurements during previous 1SM-1 stem scoring events.

Analysis: This issue is considered a performance deficiency because the inadequate and untimely corrective actions by the licensee resulted in the failure of a main steam isolation valve during a full temperature and pressure valve stroke timing test. The finding is considered greater than minor because it had a direct impact on the ability of the MSIV to perform its safety function which is to close during a high energy line break or steam generator tube rupture. The finding affects both the Mitigating Systems and Barrier Integrity cornerstones, in that the failure to close impacts the equipment performance (reliability, availability) attribute and containment isolation (minimization of radiological releases) attribute , respectively. However, due to a recent failure of main steam isolation valve 1SM-3 on November 4, 2004, the significance of this finding is to be determined, pending further inspection and evaluation as to whether the multiple MSIV failures resulted from a possible common cause.

Enforcement: 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, required 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 action taken to preclude repetition. Contrary to the above, from March 2001 until October 18, 2004, the licensee failed to adequately resolve a significant condition adverse to quality related to the MSIVs. Specifically, the licensee was aware valve body guide rib wear was occurring and internal valve misalignment existed on 1SM-1 in 2001 as indicated by the apparent stem scoring, and yet when stem scoring reappeared on 1SM-1 in April 2004, the licensee failed to consider known assumed deficiencies with the MSIV, and assessed there were no operability concerns and the valve was fully capable of performing its safety function. In October 2004, 1SM-1 failed to fully close due to a guide rib defect and consequential guide rib wear and internal valve misalignment. Pending further investigation into common cause degradations due to a recent failure of MSIV 1SM-3, this issue is identified as URI 05000369/2004008-02, Potential for Multiple MSIV Inoperability. This issue is in the licensee's corrective action program as PIP M-04-5043 (MSIV 1SM-1) and PIP M-04-5315 (MSIV 1SM-3).

d. Assessment of Safety-Conscious Work Environment

(1) Inspection Scope

During the conduct of interviews the inspectors questioned licensee personnel concerning their experience with the corrective action program to assess whether there were impediments to the establishment of a safety conscious work environment. Specifically, personnel were asked questions regarding any reluctance to initiate PIPs and adequacy of corrective actions for identified issues. In addition, the inspectors interviewed members of the licensee's employee concerns staff to determine the adequacy of procedural control, tracking of concerns, and trending of issues in order to identify problems in the area of safety conscious work environment as implemented by NSD 602, Employee Concerns Program (ECP). The inspectors also reviewed the employee program issues and evaluated how they were resolved in relation to maintaining and promoting a safety conscious work environment and to determine if issues affecting nuclear safety were being appropriately addressed.

(2) Assessment

The individuals interviewed actively utilized the corrective action program in response to plant safety issues and other conditions adverse to quality. The inspectors determined that a safety conscious work environment was evident. Issues entered into the employee concerns program received the appropriate level of management involvement and feedback to employees following closure of the issues. During discussions with the licensee's employee concerns program personnel, the inspector noted that daily PIP screenings were being conducted to identify potential ECP issues. This practice was considered a strong program attribute; however, it was not documented in the licensee's ECP guidance document. The inspector concluded that employee concerns were actively pursued, as indicated by the relatively short duration to closure of the issues raised.

(3) Findings

No findings of significance were identified.

4OA6 Meetings

Exit Meeting Summary

The inspectors presented the inspection results to Mr. J. Kammer, and other members of licensee management at the conclusion of the inspection on November 4, 2004. A subsequent conversation was held on November 29, 2004, with Mr. C. J. Thomas, Regulatory Compliance Manager, to discuss the final inspection results. The licensee acknowledged the findings presented.

The inspectors asked the licensee whether any of the material examined during the inspection should be considered proprietary. No proprietary information was identified.

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

Bryant, J., Regulatory Compliance
Crane, K., Regulatory Compliance
Deal, H., Corrective Action Program Coordinator
Kammer, J., Manager, Safety Assurance
Harkey, B., Maintenance Manager for Valves and Civil
Jackson, W., Human Resources Manager
Harrall, T., Station Manager, McGuire Nuclear Station
Loucks, L., Radiation Protection
Mooneyhan, S., Work Control Manager
Nolin, J., Operations Support Manager
Painter Sr., J. Operations Specialist, Emergency Preparedness
Brown, S., Manager, Engineering
Peterson, G, Vice President, McGuire Nuclear Station
Scheurger, P., Safety Review Manager
Thomas, C., Regulatory Compliance Manager
Black, D., Security Manager

Other licensee employees included program area managers, engineering supervisors, engineers, operations and maintenance personnel, and administrative personnel.

NRC
Bernhard, R., Senior Reactor Analyst, Region II
Brady, J., Senior Resident Inspector, McGuire Nuclear Station

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05000369/2004008-02	URI	Potential for Multiple MSIV Inoperability (Section 4OA2c.(3).3)

Opened and Closed During this Inspection

05000369,370/2004008-01	NCV	Inadequate Corrective Action for Plant Equipment Issues - Two Examples (Sections 4OA2b.(3).1 and 4OA2c.(3).1)
05000369,370/2004003-02	NCV	Failure to Update the UFSAR - Additional Example (Section 4OA2c.(3).2)

Attachment

DOCUMENTS REVIEWED

Procedures / Nuclear Safety Directives (NSD)

Document Number	Title
NSD 204	Operating Experience Program (OEP) Description
NSD 208	Problem Identification Process (PIP)
NSD 210	Corrective Action Program Directive
NSD 212	Cause Analysis
NSD 223	Trending of PIP Data
NSM Directive 4.0	Reporting and Trending of Safeguards and Security Events
NSD 602	Employee Concerns Program
NSD 600	Technical Audits
NSD 215	Duke Power Company INPO/Nuclear Network Program
NSD 310	Requirements For The Maintenance Rule
Work Process Manual: Section 401	Problem Communication Guidelines
Work Process Manual 500	Planning
DPND-1551.00-0001	Emergency Planning Functional Area Manual

PIPs

Operating Experience Reports

M-02-05295	OE14261 discusses Fisher Model 67CFR Regulators installed on Air Operated Valves (AOVs) that may not allow the AOV to move to the fail safe position on loss of Instrument Air (IA) (OEDB 02-030748)
M-02-05645	1A and 1C NC pump shaft cracking update
M-03-00989	Problems concerning the Agastat E7000 series time delay relays
M-03-01499	OE15858 Waterford identified banding separation from the generator exciter rotor. Review OE for MNS applicability.
M-03-01602	During the DCPP post 2R11 reactor coolant system heatup, reactor coolant pump (RCP) 2-1 #1seal had high leak-off and was extremely sensitized to seal injection temperature
M-03-01802	Track CNS 1B NCDT pump failure issues and resolutions following their 2A and 2B NCDT inspections. CNS PIP 03-2513 and MNS PIP 01-5454 (1EOC16)
M-03-02148	Review of Oconee PIP 02-6543 to prevent situation from occurring on pump seal assembly

M-03-02160	McGuire/Catawba Technical Specification (TS) 3.6.9, “Hydrogen Mitigation System” (HMS) does not include a Condition to preclude immediate entry into TS 3.0.3 when both HMS trains are inoperable.
M-03-02356	Evaluate Catawba PIP C-02-5052 for applicability to MNS. Rapid fouling of KC Heat Exchangers resulted in unplanned TSAIL entries and need to clean heat exchangers.
M-03-02507	Review potential CA vulnerabilities in light of recent loss of condenser cooling event at DC Cook. May be due to CAST makeup going directly into CA suction piping
M-03-02726	Common Mode Failure of All Charging Pumps (O#DB 03-33300). Evaluation for applicability to MNS
M-03-02906	Monitor and Evaluate Corrective Actions resulting from Catawba PIP C-03-3752. Event resulted in unposted Radiation Area near U-2 VE filters
M-03-03188	Documentation of issue raised during employee survey during SOER 02-04, Recommendation 3 assessment
M-03-03189	Documentation of issue raised during Employee Survey conducted as part of Recommendation 3 assessment
M-03-03219	Stock Code #54002 is for SCI part number SCI-T-8514B (model CH804), which has had multiple failures at CNS
M-03-03305	Failures of safety-related valves due to linestarter relay degradation caused by past use of excessive amounts of tricholoroethane-based cleaners during preventive maintenance
M-03-03334	PIP C-0303862 and PIP C-03-3906 require re-verification of type of O-rings currently installed in the RCP’s at their respective sites
M-03-03655	Westinghouse Nuclear Safety Advisory Letter NASL-03-04: CDRM Seismic Spacer Plates applicable to MNS and requires review
M-03-03659	Westinghouse InfoGram 1G-03-2: Rodlet End-Plug Separation applicable to MNS and provided for review
M-03-03785	Lack of Containment Closure due to problems with the Personnel Airlock
M-03-04116	NRC Information Notice 2003-15: Importance of Followup Activities in Resolving Maintenance Issues (OEBD 03-034506)
M-03-04313	Westinghouse Nuclear Safety Advisory Letter NSAL-03-08: Loose Wire on 50 DHP-VR350 Circuit Breaker Position Indication Switch (10 CFR Part 21)
M-03-04321	Part 21 Issue at Seabrook on Spent Fuel Pool Test Coupons
M-03-05437	Information received from North Anna Unit 22.5 RLIJ IDP/Flowserve charging pump shaft failure root cause.
M-03-05601	Documentation CNS CRDM duct failure applicability to MNS
M-03-05984	The 18' CF pipe downstream of man reg valves may be experiencing localized thinning associated with impingement wear caused by water entering via the 6' main reg bypass lines
M-03-05991	McGuire Response to OEDB 03-35167 (OE17328): Fatigue Failures of Boric Acid Transfer Pump Shafts
M-04-00148	McGuire Security Review Required for OEDB item 17564
M-04-00239	System engineering requested to vent NV piping to ensure water solid due to CNS air entrapment experience
M-04-00260	Document MNS review of current CNS NV system gas intrusion event
M-04-00268	10 CFR PART 21 Notification for Defective Particulate Radiation Monitors
M-04-00289	Vogtle OE 17544: cotter pin for pilot plug hex nut coming loose from Fisher SS-120 style valve. Evaluation for similar pins at McGuire.

M-04-00295	Bench Marking at Shearon Harris during an INPO assessment identified an unshared OE item which needs to be evaluated for applicability with respect to fuel pool clarity and FWST pH changes
M-04-01136	MNS Security review of OE17903
M-04-02063	CARBs request to ensure that the OEA champion creates PIPs for McGuire and Oconee to ensure each site evaluates the action from the root cause of PIP C-02-5659
M-04-02211	Access applicability to OE18092: Negative Trend in Battery Indicators. SSF lead acid batteries are of a similar type
M-04-02549	Duke Power Company Catawba Units 1 & 2 and McGuire Unit 2 NSAL-04-3 Rev. 1, B4C RCCA Cracking
M-04-02569	Notice of Part 21 Fairbanks Morse Engineer has determined a Potential Safety Hazard with the Woodward Digital Reference Unit (DRU)
M-04-02678	MNS review of Recommendations for Improvement from primary systems integrity review visit at Catawba Nuclear Station, Feb. 9-12, 2004
M-04-02691	Track resolution of OPS Workaround item # 01-01 “S/G level control at low power levels”
M-04-02833	Evaluation of applicability of PIP C-04-02462, which addresses a concern with NSHX discharge temperatures in excess of the design temperature of the RN outlet piping
M-04-02846	Review CAPRS from Oconee PIP 04-0017 for applicability to MNS Reactor Coolant and Containment Operability Systems
M-04-03151	OE item from Catawba NRC Fire Protection Inspection - PIP C-04-2847
M-04-03249	Evaluate OE18598: Cracks found in Overhead Crane Bridge Trucks following movement of dry cask units at Sequoyah Nuclear Power Plant
M-04-03895	Cutler-Hammer (C-H) E-30 Pushbutton Control Switch (and associated Contact Blocks) failures
M-04-04403	Review of OE related to overfilling the FWST may affect procedure for Draining Refueling Cavity.
M-04-04846	Facilitate review of a D. C. Cook NRC inspection finding for applicability
M-04-04915	While performing Hi Pot testing of electrical relays an electrical current leakage was detected.
M-04-04962	Evaluate actions for a Root Cause initiated at Oconee, PIP O-04-6606: “Unit 3 RB NR Pressure < -0.5 psig”
M–04-02460	Engineering review of unexpected inoperability due to 2NS-18A showing intermediate following IWV event at Catawba NS (PIP C-03-5824) for applicability to MNS

<u>Category 3 and 4 PIPs</u>

M-02-00162	Project view running extremely slow prevented daily update of schedule information in WMS
M-02-04467	During 1EOC15 shutdown valve 1CF106 was not closing fully and allowed leakby flow
M-02-05409	Catawba PIP C-02-5660 (cat 4) identified non-conservative problems with a vendor supplied software that is an integral part of MNS Calculation
M-03-00698	ABB K-1600 breaker refurb kit from OEM has been revised with a redesigned close prop spring that cause the breaker to trip free during function testing at Catawba

M-03-00699	OE 03-032549 identified hydrogen explosion while performing maintenance on plant batteries at Davis-Besse
M-03-01493	Piece of metallic debris found on bottom of fuel assembly D53 during visual examination for dry cask loading
M-03-01495	OVPG9940 makes “B” train of VC inoperable due to lack of isolation valves
M-03-01498	Low flow condition during performance of Fire Protection System Turbine and Service Building Flow test
M-03-01518	NC motor oil level trending identified the 1D NC motor upper oil pot level is increasing. Possibility of KC water leak into oil via oil cooler tube sheet.
M-03-01580	The FW system requires classification as “A(1)” status due to exceeding Reliability Performance Criteria
M-03-01646	Unexpected reactor power change. Indicated only due to “D” loop final feed temp input to TPBE
M-03-01704	Chronic problems with DGP-24
M-03-01741	Primary Chemistry 1st Quarter Chemical Control Audit Discrepancies
M-03-03109	NRC Resident questioned scheduling logic of performing the PM on the EVCD battery charger just prior to performing EVCD performance test
M-03-03214	Evaluation of limiting location for small break LOCAs to confirm adequate containment sump level at time FWST Lo level is reached.
M-03-03221	Discovery of foreign material in a fuel assembly currently in unit 2 spent fuel pool and scheduled to be used in next fuel cycle (M2C16)
M-03-03227	2ND85 would not vent
M-03-03265	Revise the ND and NV summary flow diagrams and the ND description in the UFSAR to show missing information
M-03-03290	Resolve VA system issues identified during the NRC interface meeting
M-03-03319	Trench outside the 1B diesel generator exhaust port has several inches of water present. Pump (0WYPU0024) does not pump all water out of trench. Water level is above fire penetrations in to the west wall of the 1B d/g room.
M-03-03442	1CF-32A failed to control S/G “1A” Level properly, resulting in Level Deviation and Steam Flow-Feed Flow mismatch (OPS Post Event review documented in PIP —03-3467
M-03-03617	2B CA Pump was started twice during slave start test
M-03-03618	1B EDG gov control did not respond as normally
M-03-03624	1A NCP #1 seal leakoff flow decreased from 2.4 gpm to 1.2 gpm over a 1 hour period and then made a steep change increase back to 2.4 gpm
M-03-03646	Tank has corrosion on the bottom
M-03-03659	Westinghouse InfoGram 1G-03-2, RCCA Rodlet End-Plug Separation is applicable to MNS and provided for review
M-03-04435	Scaffold platform was bound up against the stainless instrumentation line near the top of ‘C’ Steam Generator
M-03-04458	2NV-142B found closed with no documentation. Maintenance activities manually closed the valve
M-03-05980	Instrument loops on control room ventilation system that do not have isolation valves. When PM is performed, instruments must be disconnected from duct work resulting in breach of control room boundary and both VC trains inoperable
M-03-06102	Significant Boron accumulation at 2NV-8 and its neighboring components due to an apparent body-to-bonnet leak on the valve
M-04-00825	“1A” D/G room temp indicated less than 55 degrees F during 24 hr. run
M-04-00836	There is no permanent nitrogen supply available for the KG system

M-04-01073	U1 VCT pressure higher than desired with SDT B supplying overpressure and degas operations in effect
M-04-01074	NC Pump 1D had to be secured when stator temperature reached 311 deg. F
M-04-01076	INI-82 & INI-94 had excessive leakage during shutdown check valve testing
M-04-01168	IND-96 did not vent during performance of PT/1/A/4200/36
M-04-01193	Incorrect torque setting may be cause for valve leaking by
M-04-01202	Feedwater system FAC inspection location 1CF79 found below 87.5% T-nom (ref. PIP —03-5894 CAC#2)
M-04-01374	While performing diagnostic test on 1NI-10 per w/o 98581345, actuator stalled resulting in high motor current and exceeding structural limits
M-04-01375	Rotork AOP (add-on-pak) quality issue

Other McGuire PIPs included:
04-02691, 96-02198, 03-05668, 03-05559, 04-3067, 00-02276, 02-00247, 00-03292, 01-03224, 01-05249, 03-00651, 03-02256, 03-00564, 02-05912, 04-04219, 03-03615 03-03543, 03-03265, 03-02714, 03-01489, 03-02822, 04-04398, 03-03368, 03-03700 04-04036, 03-04311, 04-00639, 03-05434, 03-04962, 03-05640, 03-05612, 03-04772

NCVs

Unit	Number
369, 370	02-04-01
369, 370	03-02-01
369, 370	03-02-02
369, 370	03-02-03
369, 370	03-02-04
369	03-03-01
369, 370	03-04-01
369, 370	03-05-01
369, 370	04-02-01
369, 370	04-03-01
369, 370	04-03-02
369, 370	04-03-03
370	04-03-04
369	04-03-05
369, 370	04-04-01
370	04-04-02
369	04-04-03
369	04-04-04
369	04-04-05

Licensee Event Reports (LERs)

Unit	Number
369	03-01
369	03-02
369	03-03
369	04-01

Audits/Assessments and Trend Reports

M-03-01641, 1EOC15 Post Outage Assessment

M-04-02633, Group Self Assessment SR-SA-04-01, Safety Assurance Corrective Action Effectiveness Review for 2002

M-04-00404, McGuire Pre-INPO Self Assessment GO-04-01

M-03-05276, Group Self Assessment Annual Review of Effectiveness of Corrective Actions of Previous Years Assessments No. OPS-SA-03-20

M-04-03225, Work Control Group Assessment WCG-SA04-04 "2003 Corrective Action Effectiveness Review"

SA-01-03 (ALL)(RA), Corrective Action Program Assessment

SA-01-28(ALL)(RA), Quarterly Assessments of Corrective Action Program, Assessment of Trending of PIP Data

M-04-00418, McGuire Pre-INPO Assessment GO-04-0, Interim Corrective Actions for Root Cause Evaluations Continue to Challenge the Organization

M-04-04682, Area for Improvement for Root Cause Analysis Techniques

M-03-04103, Work Control's Human Performance Semi-annual corrective action assessment

M-03-03862, MCE PIP Problem Evaluation Quality Assessment

M-03-03263, Safety Assurance Corrective Action Effectiveness Review for 2001

M-03-06110, Operations Assessment OPS-SA03-19, Group Self Assessment Annual Review of Effectiveness of Corrective Actions of Previous Year's Assessment

M-03-02819, Safety Review Assessment SR-SA03-04, Assessment of PIP Corrective Actions Closed-out to WMS

M-04-03512, Corrective Action to Prevent Recurrence Effectiveness Review Assessment

Safety Review group Monthly Reports over the previous two years

Nuclear Safety Review Board Meeting Minutes over the previous two years

References Related To The Maintenance Rule Review:

VC - Control Room and Area Ventilation Health Report, Report Time Period: 2004T2
M-03-01959, The YC System Requires Classification as "A(1)" Status Due to Exceeding Repetitive Maintenance Preventable Functional Failure (MPFF), Discovered Date 09/02/2003.
MNS Maintenance Rule Unavailability for Current Cycles, Report Run 10/19/2004.

M-02-06182, “A” VC/YC Chiller Tripped after Train Swap, Discovered Date 12/30/2002.
M-03-00368, B YC Chiller Tripped Without Any Apparent Reason, Discovered Date 01/27/2003.
M-03-05559, A VC/YC Chiller RN Flow High Out of Spec, Discovered Date 11/13/2003.
M-03-01711, A VC/YC Chiller Condenser Divider Plate Was Found Shifted Out of Normal Position, , Discovered Date 04/14/2003.
M-02-03690, A YC Chiller Was Declared Inoperable at 1350 at 7/25/02, Discovered Date 07/25/2002.
M-00-02264, Low Freon Thus YC Chiller Inoperable, Discovered Date 06/28/2000.
M-02-02003, Computer Room Temperature Reached 83 Degrees F Due to Chiller Trip, Discovered Date 04/13/2002.
M-02-01977, Documentation of INPO and Duke OE Associated With YC Chillers, Discovered Date 04/11/2002.
M-02-00814, OSM Walking Through Computer Noticed Temperature Elevated, Discovered Date 02/24/2002.
M-01-03554, Actuator Disconnected From Valve on B YC Chiller, Discovered Date 08/11/2001.
M-03-00495, This PIP Is To Address the Operability of A VC/YC Chiller, Discovered Date 02/03/2003.
M-02-03693, B YC Chiller Tripped With Approx. 45 Minutes Run Time After Being Placed in Service When A YC Chiller Was Declared Inoperable Due to a Refrigerant Leak, Discovered Date 07/26/2002.
M-02-03465, Degraded Condition of Computer Room Chillers, Discovered Date 07/15/2002.

Other Related Documents

McGuire Nuclear Station Lower Tier Programs within the previous two years

Quarterly Trending Report for Radiation Protection

Quarterly Safeguards and Security Event Trending Report

Quarterly Trending Report for Emergency Preparedness

Mispositioned Component Trending Report

Corrective Action Review Board Meeting Minutes

MNS System and Component Health Report

McGuire Engineering Support Panel Review Board Comments

MNS System and Component Health Report

Category 1&2 PIPs Generated FY 00-04

McGuire Maintenance A(1) SSC’s, 7/02 - 10/04

Valves and Heat Exchangers Health Report CY 2003 - 2004

Reactor Systems Health Reports CY 2003 - 2004

120VAC Systems Health Reports, CY 2003 - 2004

Grouped Components Health Report, CY 2003 - 2004

Emergency Diesel Generator Health Reports, CY 2003 - 2004

Ice Making/Transportation Equipment Trending report

Primary Systems Health Report, CY 2003 - 2004