

McGuire 2

4Q/2004 Plant Inspection Findings

Initiating Events

G**Significance:** Nov 05, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Corrective Action for Plant Equipment Issues - Two Examples

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 40A2b.(3).1)

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 40A2c.(3).1)

Inspection Report# : [2004008\(pdf\)](#)

Mitigating Systems

G**Significance:** Sep 11, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to comply with design control for a design assumption associated with the nuclear service water system

A non-cited violation of 10CFR50, Appendix B, Criterion III was identified by the inspectors for inadequate design control involving an assumption that supported nuclear service water flow following a seismic event. The assumption was that non-seismic condenser circulating water pipe would be available for an extended period of time after a seismic event as the discharge path for nuclear service water train A. Similar to Example 3.a. of Inspection Manual Chapter 0612, this issue is more than minor because it affects the mitigating systems cornerstone objective to ensure reliability of systems that respond to initiating events and associated attributes of design control and protection from external factors (seismic). Following the identification of the issue, the licensee performed a seismic evaluation of the piping and determined that it would sufficiently perform the relied upon minimal service water flow function after a seismic event. Consequently, the issue was determined to be of very low safety significance. (Section 1R15)

Inspection Report# : [2004005\(pdf\)](#)**Significance:** SL-IV Sep 11, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to obtain a license amendment prior to implementing an unreviewed safety question associated with the nuclear service water system

The inspectors identified a non-cited violation of 10CFR50.59 for failure to obtain a license amendment prior to implementing a change to plant procedures that involved an unreviewed safety question. The unreviewed safety question dealt with extending the availability of non-

seismic condenser circulating water piping to perform a safety-related function following a seismic event. This issue is more than minor because it would require NRC review prior to implementation. A subsequent engineering evaluation determined that the non-seismic piping would not collapse or kink, and although it may leak, it will provide the necessary minimal service water flow function. Since the technical issue was determined to be of very low safety significance, the regulatory significance was categorized as a Severity Level IV violation. (Section 4OA2b.(1))

Inspection Report# : [2004005\(pdf\)](#)

Significance: SL-IV Sep 11, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to obtain a license amendment prior to implementing a design change to the facility associated with the auxiliary feedwater system

A non-cited violation of 10CFR50.59 was identified by the inspectors for changing the design of the auxiliary feedwater system as described in the Updated Final Safety Analysis Report without performing a safety evaluation or obtaining a Technical Specification change. The change reduced the required number of trains of auxiliary feedwater from three independent trains to two independent trains to safely shutdown the reactor.

This failure to perform a safety evaluation and submit a Technical Specification change is more than minor because it would require an NRC review prior to implementation. Because there was no evidence to indicate that the licensee had used the change the safety significance was determined to be very low. Consequently, the regulatory significance was categorized as a Severity Level IV violation. (Section 4OA2b.(2))

Inspection Report# : [2004005\(pdf\)](#)



Significance: G Sep 11, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Separation and Protection of Cables Associated With Redundant Trains of Instrumentation Located in the Same Fire Area

A non-cited violation of Unit 1 Operating License Condition 2.C.4 and Unit 2 Operating License Condition 2.C.7 was identified by the inspectors for failure to comply with McGuire's approved fire protection program and 10 CFR Part 50, Appendix R, Section III.G.2. Specifically, Train A and Train B cables for the primary and backup power supplies for all four reactor protection system (RPS) channels were routed in close proximity in Room 803A (Unit 1 Fire Area 15/17) and Room 805A (Unit 2 Fire Area 16/18). The cables did not have adequate protection (i.e., 20-foot separation or fire barriers) to remain free of fire damage in the event of a fire. The licensee entered this issue into its corrective action program. The finding is greater than minor because it is associated with the protection against external factors attribute, and degraded the reactor safety mitigating systems cornerstone objective. The finding degraded the defense-in-depth for fire protection. This finding is of very low safety significance because the likelihood of a fire, in either room 803A or 805A, that would damage all four reactor protection system channels was relatively low due to the small ignition sources and the horizontal distance of the ignition sources from the cables. (Section 4OA5)

Inspection Report# : [2004005\(pdf\)](#)



Significance: G Jun 12, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to update fire strategy plans when a modification removed numerous extinguishers.

The inspectors identified a non-cited violation (NCV) of the operating license condition for fire protection for failing to update fire strategy plans when a modification removed numerous fire extinguishers from plant fire areas that contain safety-related equipment. The non-updated fire strategy plans could decrease the effectiveness of the fire brigade. This finding is greater than minor because it is associated with fire protection equipment availability and degraded the ability to meet the manual suppression Mitigating Systems Cornerstone objective. The finding is of very low safety significance because the areas where the inspectors found extinguishers missing did not have both trains of safe shutdown and the standby shutdown system in the same fire area while utilizing 20 foot separation between trains, hence, the significance of the fire brigade's decreased effectiveness was reduced. (Section 1R05)

The inspectors identified a second example of non-cited violation 05000369,370/2004004-01 which involved inadequate fire strategy plans and was a violation of the license condition for fire protection. The strategy plan for fire area 21, auxiliary building 750 elevation, did not identify that class D combustibles were located in the fire zone and identified that extinguishants were in locations where none existed. The strategy plan for fire area 4, auxiliary building elevation 716, did not list one of the rooms that was in the fire area. The failure to have comprehensive pre-fire strategy plans was considered a degradation for manual fire fighting effectiveness. This finding is more than minor because it affects the mitigating systems cornerstone objectives to ensure capability of features that respond to initiating events and the associated attributes of protection from external factors (including fire), procedure quality, and design control. The licensee's corrective actions for the previous violation have not yet been implemented for these fire areas. The inspectors determined these corrective actions would likely have identified the deficiencies. The finding was determined to be of very low safety significance because it only minimally diminished manual suppression effectiveness without affecting the low fire ignition frequency within the compartments or the previously established safe shutdown strategy for a fully developed fire within the applicable compartments. (Section 1R05 of IR 05000369,370/2004005)

Inspection Report# : [2004004\(pdf\)](#)

G**Significance:** Jun 12, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Monitor the Emergency Lighting System under 10 CFR 50.65a(1).

The inspectors identified a non-cited violation of 10 CFR 50.65 (maintenance rule) for failing to demonstrate that the performance of the emergency lighting battery system was being effectively controlled after it exceeded its Maintenance Rule a(2) performance. The licensee had not established goals nor monitored the performance of the batteries per 10 CFR 50.65a(1). The finding is more than minor because of the affected reliability objective of the Equipment Performance attribute under the Mitigating Systems Cornerstone. Portions of the emergency lighting were not available to perform their intended function of supporting operator actions to mitigate the consequences of fires upon loss of all other lighting. The finding is of very low safety significance because there is no design deficiency, the finding does not represent an actual loss of a safety function, nor does this involve a risk significant system for mitigating fire, flood, seismic, or severe weather events, in accordance with MC 0609, Safety Determination Process, Phase 1 worksheet. (Section 1R12)

Inspection Report# : [2004004\(pdf\)](#)**G****Significance:** Mar 13, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to have pre-fire plans for the Unit 1 and 2 interior and exterior doghouses

The inspectors identified a non-cited violation of the operating license condition for fire protection (2.C.4 for Unit 1, 2.C.7 for Unit 2) for failure to have pre-fire (strategy) plans for the interior and exterior doghouse fire areas as part of the fire fighting procedures. The dog houses contain safety-related main steam piping and main steam isolation valves, steam generator power operated relief valves, main steam safety valves, main feed piping and isolation valves, and auxiliary feedwater piping and isolation valves.

This finding was considered to be more than minor because the manual fire suppression defense-in-depth feature was moderately impacted, which affected the mitigating systems cornerstone objective of protection from external factors including fire. This finding was considered to be of very low safety significance because the dog houses are physically independent (separated by distance and enclosed in 3-hour fire barriers) and either the interior or exterior doghouse can independently provide the necessary safe shutdown functions.

Inspection Report# : [2004003\(pdf\)](#)**Significance: SL-IV** Mar 13, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to update the UFSAR - (two examples)

The inspectors identified a non-cited violation for failure to update the Updated Final Safety Analysis Report (UFSAR) as required by 10 CFR 50.71(e) for inclusion of all aspects of the fire protection program, including the standby shutdown facility (SSF) and fire protection safe shutdown methodology. This issue is greater than minor because the failure to include descriptive information on fire protection defense-in-depth features in the UFSAR could have an impact on future design or operational changes to the safe shutdown methodology or SSF.

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.

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. (IR 05000369,370/2004008; Section 4OA2c.(3).2)

Inspection Report# : [2004003\(pdf\)](#)**G****Significance:** Mar 13, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to have a rated 3-hour barrier around the SSF power system

The inspectors identified a non-cited violation of the operating license condition for fire protection (2.C.4 for Unit 1, 2.C.7 for Unit 2) for failure to have a 3-hour-rated fire barrier that enclosed the SSF power system equipment as described in the McGuire Safety Evaluation Report Supplement 6.

This finding was considered to be more than minor because it is a degradation of the fire protection defense-in-depth feature to protect structures, systems, and components important to safety in order to minimize the affect of fire, which affects the mitigating systems cornerstone objective of protection from external factors including fire. This finding was considered to be of very low safety significance because B safe shutdown train equipment can independently provide the necessary safe shutdown functions and is physically independent of the SSF.

Inspection Report# : [2004003\(pdf\)](#)

G**Significance:** Mar 13, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Include Valve 2CA0007A in the Fire Protection Safe Shutdown Analysis for Control Room Fire

The inspectors identified a non-cited violation of Unit 2 license condition 2.C.(7), in that, the licensee failed to properly analyze the impact of a fire on Unit 2 auxiliary feedwater system valve 2CA0007A for potential fires in the control room and Fire Area 4. Immediate corrective action by the licensee was to revise fire response procedures to incorporate a time critical local operator manual action to de-energize the valve to preclude spurious closure.

This finding is greater than minor because it is associated with the protection against external factors attribute and degraded the Mitigating Systems Cornerstone of Reactor Safety objective. This performance deficiency potentially degraded the defense-in-depth for fire protection. However, the finding was determined to be of very low safety significance because review and analysis could not identify credible or likely fire scenarios in the chosen fire areas that would lead to loss or degradation of the secondary heat removal function as a result of spurious closure of 2CA007A, auxiliary feedwater turbine pump suction valve.

Inspection Report# : [2004003\(pdf\)](#)**G****Significance:** Feb 13, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Deviation from Design Requirements for Line Slope and Drain Legs for Containment Pressure Transmitter Impulse Lines Was not Identified or Evaluated

The team identified a non-cited violation of 10 CFR 50, Appendix B, Criterion III, Design Control requirements. The licensee had failed to identify and evaluate the impact on design of sloping the impulse lines for the containment pressure transmitters downward from the containment towards the transmitters without low point drain legs installed. This configuration was a deviation from the licensee's design requirements, and introduced the potential for water intrusion in the instrument impulse lines during normal operation and accident conditions. In response to this condition, the licensee performed an operability evaluation and entered the finding into their corrective program (Problem Investigation Process (PIP) Report No. M-04-00713). The finding is greater than minor because it affects the design control attribute of the mitigating systems cornerstone objective, in that the formation of a loop seal would have the potential to affect the performance capability of instruments used for automatic initiation of engineered safety features, containment pressure control, and post-accident monitoring. The finding was determined to be of very low safety significance (Green) because it is a design deficiency that will not result in loss of automatic initiation of engineered safety features, containment pressure control, or post-accident monitoring capability (loss of function). (Section 1R21.21. b).

Inspection Report# : [2004002\(pdf\)](#)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

[Physical Protection](#) information not publicly available.

Miscellaneous

Significance: N/A Nov 05, 2004

Identified By: NRC

Item Type: FIN Finding

PI&R SUMMARY

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.

Inspection Report# : [2004008\(pdf\)](#)

Last modified : March 09, 2005