



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION II
245 PEACHTREE CENTER AVENUE NE, SUITE 1200
ATLANTA, GEORGIA 30303-1257

January 21, 2016

Mr. Steven D. Capps
Site Vice President
Duke Energy Carolinas, LLC
McGuire Nuclear Station
MG01VP/12700 Hagers Ferry Road
Huntersville, NC 28078

**SUBJECT: MCGUIRE NUCLEAR STATION - NRC INTEGRATED INSPECTION REPORT
05000369/2015004 AND 05000370/2015004**

Dear Mr. Capps:

On December 31, 2015, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your McGuire Nuclear Station Units 1 and 2. On January 14, 2016, the NRC inspectors discussed the results of this inspection with you and other members of your staff. Inspectors documented the results of this inspection in the enclosed inspection report.

NRC inspectors documented one NRC-identified Severity Level IV violation with no associated finding under the traditional enforcement process. The NRC is treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2.a of the Enforcement Policy. If you contest the violation or significance of this NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region II; the Director, Office of Enforcement, U. S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC resident inspector at the McGuire Nuclear Station.

In accordance with Title 10 of the Code of Federal Regulations 2.390, "Public Inspections, Exemptions, Requests for Withholding," of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC's Public Document Room or from the Publicly Available Records (PARS) component of NRC's Agencywide Document Access and Management System (ADAMS).

S. Capps

2

ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Frank Ehrhardt, Chief
Reactor Projects Branch 1
Division of Reactor Projects

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

Enclosure: NRC Integrated Inspection Report 05000369/2015004
and 05000370/2015004
w/Attachment - Supplementary Information

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3

Letter to Steven D. Capps from Frank Ehrhardt dated January 21, 2016

SUBJECT: MCGUIRE NUCLEAR STATION - NRC INTEGRATED INSPECTION REPORT
05000369/2015004 AND 05000370/2015004

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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.: 05000369/2015004 and 05000370/2015004

Licensee: Duke Energy Carolinas, LLC

Facility: McGuire Nuclear Station, Units 1 and 2

Location: Huntersville, NC 28078

Dates: October 1, 2015 through December 31, 2015

Inspectors: J. Zeiler, Senior Resident Inspector
R. Cureton, Resident Inspector
M. Meeks, Senior Operations Engineer (Section 1R11.3)

Approved by: Frank Ehrhardt, Chief
Reactor Projects Branch 1
Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR05000369/2015004 and IR05000370/2015004; 10/01/2015 – 12/31/2015; McGuire Nuclear Station, Units 1 and 2; Follow-Up of Events and Notices of Enforcement Discretion

The report covered a 3-month period of inspection by resident inspectors and one regional inspector. There was one NRC identified non-cited violation (NCV) documented in this report. The significance of inspection findings are indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) and determined using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process," (SDP) dated April 29, 2015. The cross-cutting aspects are determined using IMC 0310, "Aspects Within The Cross-Cutting Areas," dated December 4, 2014. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy dated February 4, 2015. The NRC's program for overseeing the safe operations of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision (Rev.) 5.

Other Findings

- SL IV: An NRC identified Severity Level (SL) IV non-cited violation (NCV) of 10 CFR 50.72(b)(3)(iv)(A) was identified for the licensee's failure to make a required NRC event notification within eight hours for an unplanned valid actuation of the auxiliary feedwater (CA) system. The unplanned valid actuation occurred during main turbine and main feedwater pump safety injection (SI) train trip function testing with Unit 2 in Mode 4 on October 7, 2015. The licensee entered this issue into their corrective action program and subsequently reported this CA actuation to the NRC on October 15, 2015.

The failure to submit an event notification to the NRC within eight hours of occurrence of an unplanned valid CA system actuation in accordance with 10 CFR 50.72(b)(3)(iv)(A) was a performance deficiency (PD). Since the failure to submit an event report within the time requirements may impact the ability of the NRC to perform its regulatory oversight function, this PD was dispositioned under the traditional enforcement process and was determined to be a SL IV violation. Because this SL IV violation was not repetitive or willful, and did not have an underlying technical violation that would be considered more-than-minor, a cross-cutting aspect was not assigned to this violation. (Section 4OA3.1)

REPORT DETAILS

Summary of Plant Status

Unit 1 operated at approximately 100 percent rated thermal power (RTP) for the entire inspection period.

Unit 2 was shutdown for a scheduled refueling outage at the beginning of the inspection period. The unit was placed back online on October 9 and was returned to 100 percent power on October 14. The unit was operated at essentially full power for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

a. Inspection Scope

.1 Seasonal Extreme Weather Conditions

The inspectors conducted a detailed review of the station's adverse weather procedures written for extreme low temperatures. The inspectors verified that weather-related equipment deficiencies identified during the previous year had been placed into the work control process and/or corrected before the onset of seasonal extremes. The inspectors evaluated the licensee's implementation of adverse weather preparation procedures and compensatory measures before the onset of seasonal extreme weather conditions. Documents reviewed are listed in the attachment.

The inspectors evaluated the following risk-significant systems:

- Unit 1 and 2 freeze protection for refueling water storage tank level instrumentation
- Unit 1 and 2 interior/exterior doghouses
- Unit 1 and 2 main feedwater flow transmitter compartments
- Unit 1 and 2 freeze protection for auxiliary feedwater storage tank level instrumentation

.2 Readiness to Cope with External Flooding

The inspectors evaluated the licensee's implementation of flood protection procedures and compensatory measures during the impending conditions of flooding or heavy rains. The inspectors reviewed the updated final safety analysis report (UFSAR) and related flood analysis documents to identify those areas containing safety related equipment that could be affected by external flooding and their design flood levels. The inspectors walked down flood protection barriers, reviewed procedures for coping with external flooding, and reviewed corrective actions for past flooding events. The inspectors verified that the procedures for coping with flooding could reasonably be used to achieve

the desired results. For those areas where operator actions are credited, the inspectors assessed whether the flooding event could limit or prevent the required actions. Documents reviewed are listed in the attachment.

The inspectors conducted walkdowns of the following plant areas containing risk-significant structures, systems, and components that are below flood levels or otherwise susceptible to flooding:

- Northern earthen dike extension of the Cowans Ford Dam
- Unit 1 and 2 yard drains inside the protected area
- Unit 1 and 2 auxiliary building, service building, and fuel handling building rooftop drainage systems

b. Findings

No findings were identified.

1R04 Equipment Alignment (71111.04)

a. Inspection Scope

.1 Partial Walkdown

The inspectors verified that critical portions of the selected systems were correctly aligned by performing partial walkdowns. The inspectors selected systems for assessment because they were a redundant or backup system or train, were important for mitigating risk for the current plant conditions, had been recently realigned, or were a single-train system. The inspectors determined the correct system lineup by reviewing plant procedures and drawings. The inspectors observed whether there was indication of degradation, and if so, verified the degradation was being appropriately managed and entered into the licensee's corrective action program. Documents reviewed are listed in the attachment.

The inspectors selected the following three systems or trains to inspect:

- 2B motor driven CA pump while the 2A motor driven CA pump was out of service for testing
- 1A emergency diesel generator (EDG) while the 1B EDG was out of service for planned maintenance
- "B" train nuclear service water (RN) system and "A" train RN suction header from Lake Norman while the "A" train RN suction from the Standby Nuclear Service Water Pond (SNSWP) was unavailable because of inspection

.2 Complete Walkdown

The inspectors verified the alignment of the Unit 2 CA system. The inspectors selected this system because it is a risk-significant mitigating system. The inspectors determined the correct system lineup by reviewing plant procedures, drawings, the UFSAR, and other documents. The inspectors reviewed records related to the system design, maintenance work requests, and deficiencies. The inspectors verified that the selected system was correctly aligned by performing a complete walkdown of accessible components. The inspectors observed whether there was indication of degradation, and if so, verified the degradation was being appropriately managed in accordance with an aging management program and it had been entered into the licensee's corrective action program.

To verify the licensee was identifying and resolving equipment alignment discrepancies, the inspectors reviewed corrective action documents, including condition reports and outstanding work orders. The inspectors also reviewed periodic reports containing information on the status of risk-significant systems, including maintenance rule reports and system health reports. Documents reviewed are listed in the attachment.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05A)

a. Inspection Scope

.1 Quarterly Inspection

The inspectors evaluated the adequacy of selected fire plans by comparing the fire plans to the defined hazards and defense-in-depth features specified in the fire protection program. In evaluating the fire plans, the inspectors assessed the following items:

- control of transient combustibles and ignition sources
- fire detection systems
- fire suppression systems
- manual firefighting equipment and capability
- passive fire protection features
- compensatory measures and fire watches
- issues related to fire protection contained in the licensee's corrective action program

The inspectors toured the following five fire areas to assess material condition and operational status of fire protection equipment. Documents reviewed are listed in the attachment.

- Unit 2 upper and lower containment (fire areas 33 and 33A)

- Unit 2 electrical penetration room 733 elevation (fire area 10)
- Unit 2 electrical penetration room 750 elevation (fire area 16)
- Unit 1 CA pump room (fire areas 2 and 2A)
- Unit 1 electrical penetration room 750 elevation (fire area 17)

.2 Annual Inspection

The inspectors evaluated the licensee's fire brigade performance during a drill on December 18, 2015 and assessed the brigade's capability to meet fire protection licensing basis requirements. The inspectors observed the following aspects of fire brigade performance:

- capability of fire brigade members
- leadership ability of the brigade leader
- use of turnout gear and fire-fighting equipment
- team effectiveness
- compliance with site procedures

The inspectors also assessed the ability of control room operators to combat potential fires, including identifying the location of the fire, dispatching the fire brigade, and sounding alarms. The inspectors evaluated the licensee's ability to declare the appropriate emergency action level and make required notifications in accordance with NUREG 0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants (FEMA-REP-1)" and Title 10 of the Code of Federal Regulations (10 CFR) Part 50.

The inspectors also observed the post-drill critique to assess if it was appropriately critical, included discussions of drill observations, and identified any areas requiring corrective actions.

Documents reviewed are listed in the attachment.

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

Internal Flooding

The inspectors reviewed related flood analysis documents and walked down the area listed below containing risk-significant structures, systems, and components susceptible to flooding. The inspectors verified that plant design features and plant procedures for flood mitigation were consistent with design requirements and internal flooding analysis assumptions. The inspectors also assessed the condition of flood protection barriers

and drain systems. In addition, the inspectors verified the licensee was identifying and properly addressing issues using the corrective action program. Documents reviewed are listed in the attachment.

- Unit 2 CA pump area

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program and Licensed Operator Performance (71111.11)

a. Inspection Scope

.1 Resident Inspector Quarterly Review of Licensed Operator Requalification

On December 11, 2015, the inspectors observed an evaluated simulator scenario administered to an operating crew conducted in accordance with the licensee's accredited requalification training program. The simulator scenario involved a failed power range nuclear instrument followed by a loss of condenser vacuum and subsequent steam generator tube rupture event.

The inspectors assessed the following:

- licensed operator performance
- the ability of the licensee to administer the scenario and evaluate the operators
- the quality of the post-scenario critique
- simulator performance

Documents reviewed are listed in the attachment.

.2 Resident Inspector Quarterly Review of Licensed Operator Performance in the Actual Plant/Main Control Room

On October 8-9, 2015, the inspectors observed licensed operator performance in the Unit 2 main control room during reactor startup and reactor physics testing following the refueling outage.

The inspectors assessed the following:

- use of plant procedures
- control board manipulations
- communications between crew members
- use and interpretation of instruments, indications, and alarms
- use of human error prevention techniques
- documentation of activities

- management and supervision
Documents reviewed are listed in the attachment.

.3 Annual Review of Licensee Regualification Examination Results

On June 12, 2015, the licensee completed the annual requalification operating examinations required to be administered to all licensed operators in accordance with Title 10 of the Code of Federal Regulations 55.59(a)(2), "Requalification Requirements," of the NRC's "Operator's Licenses." During the week of December 14, 2015, the inspectors performed an in-office review of the overall pass/fail results of the individual operating examinations and the crew simulator operating examinations in accordance with Inspection Procedure (IP) 71111.11, "Licensed Operator Requalification Program." These results were compared to the thresholds established in Section 3.02, "Requalification Examination Results," of IP 71111.11.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors assessed the licensee's treatment of the two issues listed below to verify the licensee appropriately addressed equipment problems within the scope of the maintenance rule (10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants"). The inspectors reviewed procedures and records to evaluate the licensee's identification, assessment, and characterization of the problems as well as their corrective actions for returning the equipment to a satisfactory condition. The inspectors also interviewed plant personnel to assess the licensee's treatment of performance deficiencies and extent of condition. Documents reviewed are listed in the attachment.

- Action Request (AR) 01960759, Degraded "B" train control room air handling unit chill water condenser divider plate gasket following superflush
- AR 01968367, Groundwater drainage (WZ) system level switch 2WZLS5060 found non-functional during routine calibration

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13)

a. Inspection Scope

The inspectors reviewed the four maintenance activities listed below to verify that the

licensee assessed and managed plant risk as required by 10 CFR 50.65(a)(4) and licensee procedures. The inspectors assessed the adequacy of the licensee's risk assessments and implementation of risk management actions. The inspectors also verified that the licensee was identifying and resolving problems with assessing and managing maintenance-related risk using the corrective action program. Additionally, for maintenance resulting from unforeseen situations, the inspectors assessed the effectiveness of the licensee's planning and control of emergent work activities. Documents reviewed are listed in the attachment.

- Yellow risk on Unit 2 for planned reactor coolant system (RCS) lowered level inventory conditions following fuel reload, reactor vessel head installed, and "A" train safety-related equipment unavailable
- Yellow risk associated with 1RN-296 (1A essential header return isolation valve) work
- Yellow risk on Unit 1 and Unit 2 during critical activity plan for planned drainage and inspection of the "A" train RN suction valve from the SNSWP
- Yellow risk associated with 2B EDG complex plan associated with maintenance on starting air solenoid valves

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15)

a. Inspection Scope

Operability and Functionality Review

The inspectors selected the five operability determinations or functionality evaluations listed below for review based on the risk-significance of the associated components and systems. The inspectors reviewed the technical adequacy of the determinations to ensure that technical specification operability was properly justified and the components or systems remained capable of performing their design functions. To verify whether components or systems were operable, the inspectors compared the operability and design criteria in the appropriate sections of the technical specification and updated final safety analysis report to the licensee's evaluations. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. Additionally, the inspectors reviewed a sample of corrective action documents to verify the licensee was identifying and correcting any deficiencies associated with operability evaluations. Documents reviewed are listed in the attachment.

- AR 01955812, Leak chase caps found missing on several Unit 2 containment leak chase ports
- AR 01956223, Unit 2 emergency core cooling system throttle valves found with tighter seat clearances than sump screen openings

- AR 01981232, Ice buildup on Unit 1 ice condenser intermediate deck doors
- AR 01985285, 2RN-25B accumulator tank pressure low
- AR 01986214, SDSP1 Battery Cells 22 & 23 do not meet acceptance criteria

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18)

a. Inspection Scope

The inspectors verified that the three plant modifications listed below did not affect the safety functions of important safety systems. The inspectors confirmed the modifications did not degrade the design bases, licensing bases, and performance capability of risk significant structures, systems and components. The inspectors also verified modifications performed during plant configurations involving increased risk did not place the plant in an unsafe condition. Additionally, the inspectors evaluated whether system operability and availability, configuration control, post-installation test activities, and changes to documents, such as drawings, procedures, and operator training materials, complied with licensee standards and NRC requirements. In addition, the inspectors reviewed a sample of related corrective action documents to verify the licensee was identifying and correcting any deficiencies associated with modifications. Documents reviewed are listed in the attachment.

- Permanent modification engineering change (EC) 109070, Unit 2 assured air supplies for steam generator PORVs and CA flow control valves to meet IER L1 11-4
- Permanent modification EC 109072, Unit 2 assured CA suction for extended station blackout per NRC Order EA-12-049
- Temporary modification EC 401429, Temporary EC to support removing grounding issue with limit switch circuitry on non-essential nuclear service water return header valve 1RN-277B for the reactor coolant pump motor coolers

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

The inspectors either observed post-maintenance testing or reviewed the test results for the maintenance activities listed below to verify the work performed was completed correctly and the test activities were adequate to verify system operability and functional capability.

- Unit 2 lower ice condenser door functional testing following refueling outage ice

- condenser preventive maintenance activities
- 2B reactor coolant pump flow transmitter 2NCLP5030 functional test following emergent replacement due to erratic indication
- 2A containment air return fan performance test following emergent repair of containment return air fan damper 2RAF-D-2
- 1B residual heat removal (ND) pump performance test following planned calibration of mini-flow valve pressure switch 1NDPS5050
- 1B CA pump performance test following planned replacement of pump motor breaker and other minor pump electrical preventive maintenance (PM)
- 1B safeguards sequencer functional test following planned replacement of loss of voltage relays

The inspectors evaluated these activities for the following:

- acceptance criteria were clear and demonstrated operational readiness
- effects of testing on the plant were adequately addressed
- test instrumentation was appropriate
- tests were performed in accordance with approved procedures
- equipment was returned to its operational status following testing
- test documentation was properly evaluated

Additionally, the inspectors reviewed a sample of corrective action documents to verify the licensee was identifying and correcting any deficiencies associated with post-maintenance testing. Documents reviewed are listed in the attachment.

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities (71111.20)

a. Inspection Scope

For the Unit 2 refueling outage that completed October 14, 2015, the inspectors evaluated the following outage activities:

- reactor coolant fill and vent, heatup and startup
- reactor coolant system instrumentation and electrical power configuration
- reactivity and inventory control
- decay heat removal and spent fuel pool cooling system operation
- containment closure

The inspectors verified that the licensee:

- considered risk in developing the outage schedule
- controlled plant configuration per administrative risk reduction methodologies
- developed work schedules to manage fatigue

- developed mitigation strategies for loss of key safety functions
- adhered to operating license and technical specification requirements

The inspectors verified that safety-related and risk-significant structures, systems, and components not accessible during power operations were maintained in an operable condition. The inspectors also reviewed a sample of related corrective action documents to verify the licensee was identifying and correcting any deficiencies associated with outage activities. Documents reviewed are listed in the attachment.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed the five surveillance tests listed below and either observed the test or reviewed test results to verify testing adequately demonstrated equipment operability and met technical specification and current licensing basis. The inspectors evaluated the test activities to assess for preconditioning of equipment, procedure adherence, and equipment alignment following completion of the surveillance. Additionally, the inspectors reviewed a sample of related corrective action documents to verify the licensee was identifying and correcting any deficiencies associated with surveillance testing. Documents reviewed are listed in the attachment.

Routine Surveillance Tests

- PT/0/A/4150/028, Initial Criticality and Zero Power Physics Testing, Rev. 67
- PT/2/A/4350/055A, 2A Diesel Generator Slave Start Test, Rev. 27

Containment Isolation Valve

- PT/2/A/4200/001C, Isolation Leak Rate Test, Rev. 110 (Enclosure 13.34, Test Sheet for Penetration M-360)

In-Service Tests (IST)

- PT/1/A/4204/001A, 1A ND Pump Performance Test, Rev. 84

Reactor Coolant System Leak

- PT/1/A/4150/001B, Reactor Coolant Leakage Calculation, Rev. 93

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

a. Inspection Scope

The inspectors reviewed a sample of the performance indicator (PI) data, submitted by the licensee, for the Unit 1 and Unit 2 PIs listed below. The inspectors reviewed plant records compiled between October 2014 and September 2015 to verify the accuracy and completeness of the data reported for the station. The inspectors verified that the PI data complied with guidance contained in Nuclear Energy Institute 99-02, "Regulatory Assessment Performance Indicator Guideline," and licensee procedures. The inspectors verified the accuracy of reported data that were used to calculate the value of each PI. In addition, the inspectors reviewed a sample of related corrective action documents to verify the licensee was identifying and correcting any deficiencies associated with PI data. Documents reviewed are listed in the attachment.

Cornerstone: Barrier Integrity

- reactor coolant system leak rate
- reactor coolant system specific activity

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152)

.1 Routine Review

The inspectors screened items entered into the licensee's corrective action program to identify repetitive equipment failures or specific human performance issues for follow-up. The inspectors reviewed problem identification program reports, attended screening meetings, or accessed the licensee's computerized corrective action database.

.2 Semi-Annual Trend Review

a. Inspection Scope

The inspectors reviewed issues entered in the licensee's corrective action program and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors focused their review on repetitive equipment issues and human performance trends, but also considered the results of inspector daily problem identification program report screenings, licensee trending efforts, and licensee human performance results. The review nominally considered the 6-month period of July 2015 through December 2015, although some examples extended beyond those dates when the scope of the trend warranted. The inspectors compared their results with the licensee's analysis of trends. Additionally, the inspectors reviewed the

adequacy of corrective actions associated with a sample of the issues identified in the licensee's trend reports. The inspectors also reviewed corrective action documents that were processed by the licensee to identify potential adverse trends in the condition of structures, systems, and/or components as evidenced by acceptance of long-standing non-conforming or degraded conditions. Documents reviewed are listed in the attachment.

b. Findings and Observations

No findings were identified.

.3 Annual Followup of Selected Issues

a. Inspection Scope

The inspectors conducted a detailed review of AR 01961955 associated with the unexpected Unit 2 CA actuation during main turbine and main feedwater pump SI train trip function testing in Mode 4 on October 7, 2015.

The inspectors evaluated the following attributes of the licensee's actions:

- complete and accurate identification of the problem in a timely manner
- evaluation and disposition of operability and reportability issues
- consideration of extent of condition, generic implications, common cause, and previous occurrences
- classification and prioritization of the problem
- identification of root and contributing causes of the problem
- identification of any additional condition reports
- completion of corrective actions in a timely manner

Documents reviewed are listed in the attachment.

b. Findings and observations

No findings were identified.

4OA3 Follow-Up of Events and Notices of Enforcement Discretion (71153)

.1 Plant Events

a. Inspection Scope

The inspectors reviewed the October 7, 2015, automatic actuation of the CA system that occurred with Unit 2 in Mode 4 while conducting main turbine and main feedwater pump SI train trip function testing. The inspectors compared the event details with criteria contained in IMC 0309, "Reactive Inspection Decision Basis for Reactors," for consideration of potential reactive inspection activities. The inspectors verified that the

licensee made appropriate emergency classification assessment and reported the event in accordance with 10 CFR 50.72.

b. Findings

Introduction: The inspectors identified a SL IV NCV of 10 CFR 50.72(b)(3)(iv)(A) for the licensee's failure to submit an event notification to the NRC within eight hours of occurrence of an unplanned valid automatic actuation of the Unit 2 CA system.

Description: On October 7, 2015, Unit 2 was in Mode 4 preparing to enter Mode 3 after completing scheduled refueling outage activities. As part of the surveillances required for entering Mode 3, the licensee was conducting "A" train solid state protection system (SSPS) testing to verify that the main turbine and main feedwater pumps trip upon actuation of a SI signal. At 6:55 a.m., during restoration from this testing, an inadvertent "A" train CA system auto start signal was generated when the operators returned the 2A CA pump Auto-Start-Defeat switch to the reset versus defeat position (since this was the original position prior to starting the test). This unblocked the CA auto start actuation circuitry and since both main feedwater pump trip signals were still present from the testing and had not been reset, the circuitry logic was made up to generate an actual CA auto start actuation. At the time of this CA actuation, the ND system was secured and the steam generators were being relied upon to provide RCS heat removal with both motor driven CA pumps in service providing feedwater to the steam generators. As a result of the actuation, the 2A CA pump received an auto start signal, the 2A CA flow control valves to the steam generators went to their full open positions, and the steam generator blowdown and nuclear sampling containment isolation valves closed. The operators recognized the unexpected CA actuation and took manual control of the 2A CA flow control valves and realigned them to their original throttled positions to maintain the desired steam generator levels. All systems functioned as designed from the actuation and there was no adverse impact to the unit.

Section (b)(3)(iv)(A) of 10 CFR 50.72, "Immediate Notification Requirements for Operating Nuclear Power Reactors," requires that the licensee notify the NRC as soon as practical and in all cases within eight hours of occurrence any event or condition that results in valid actuation of certain specified systems (which includes the CA system), except when the actuation results from and is part of a pre-planned sequence during testing or reactor operation. The licensee initially screened this event as not reportable pursuant to 10 CFR 50.72(b)(3)(iv)(A) because at the time of the event, the main feedwater pumps were not in service and not needed in lieu of the CA pumps providing feedwater cooling to the steam generators. The licensee concluded this was an invalid actuation of the CA system.

Based on review of the event circumstances and the guidance in NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 50.73," Rev. 3, the inspectors did not agree with the licensee's basis for concluding this was an invalid CA actuation. NUREG-1022, Section 3.2.6, "System Actuation," states that valid actuations are those that result from valid signals or from intentional manual initiation unless it is part of preplanned testing. The inspectors concluded that the actuation was valid because it was the result of actual plant conditions (valid main feedwater pump trip signals) and did not result from a

preplanned sequence during testing. Therefore, the actuation was reportable under 10 CFR 50.72(b)(3)(iv)(A), as well as 10 CFR 50.73(a)(2)(iv)(A). Based upon further review, the licensee determined the condition was reportable and reported the event pursuant to 10 CFR 50.72(b)(3)(iv)(A) at 10:18 p.m. on October 15, 2015. A Licensee Event Report (LER) (05000370/2015-001-00) was submitted pursuant to 10 CFR 50.73(a)(2)(iv)(A) on December 7, 2015, and was reviewed by the inspectors in Section 4OA3.2 of this inspection report.

Analysis: The inspectors determined that the licensee's failure to submit an event notification to the NRC within eight hours of occurrence of an unplanned valid CA system actuation in accordance with 10 CFR 50.72(b)(3)(iv)(A) was a PD. Since the failure to submit an event report within the time requirements may impact the ability of the NRC to perform its regulatory oversight function, this PD was dispositioned under traditional enforcement and the violation was assessed using Section 2.2.4 of the NRC's Enforcement Policy. Using the example listed in Section 6.9.d.9, "A licensee fails to make report required by 10 CFR 50.72," the issue was determined to be a SL IV violation. In accordance with IMC 0612, because this violation involved traditional enforcement and does not have an underlying technical violation that would be considered more-than-minor, a cross-cutting aspect is not assigned to this violation.

Enforcement: 10 CFR 50.72(b)(3)(iv)(A) required that the licensee notify the NRC as soon as practical and in all cases within eight hours of occurrence of any event or condition that results in valid actuation of certain specified systems (which includes the CA system), except when the actuation results from and is part of a pre-planned sequence during testing or reactor operation. Contrary to the above, on October 7, 2015, the licensee did not recognize that a valid actuation of the Unit 2 CA system occurred, which was not part of a pre-planned activity, and failed to notify the NRC within eight hours of the event occurrence. After NRC review of the event determined the CA actuation was valid, the licensee subsequently reported the event in accordance with 10 CFR 50.72 on October 15, 2015. Because this violation was of very low safety significance, was not repetitive or willful, and was entered into the licensee's corrective action program as ARs 01961955 and 01965239, this issue is being treated as a SL IV NCV consistent with Section 2.3.2.a of the NRC Enforcement Policy. (NCV 05000370/2015004-01: Failure to Report Unit 2 Unplanned Valid Auxiliary Feedwater Actuation in Mode 4)

.2 (Closed) LER 05000370/2015-001-00, Auxiliary Feedwater Actuation While in Mode 4

a. Inspection Scope

The inspectors reviewed the LER, causal evaluation and corrective actions, and discussed the issue with the licensee staff. The cause of the inadvertent CA actuation was determined to be an inadequate test procedure used to verify the SI trip functions for the main turbine and main feedwater pumps. Specifically, PT/2/A/4200/026A, "Turbine and MFWPT Trips from SSPS," test restoration instructions did not clearly require either the reset of the main feedwater pump trip signals generated during the test or require the CA train auto start defeat switches to remain in the defeat position as part of the test restoration alignment. The inspectors concluded that this inadequate SSPS

surveillance test procedure was a violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requiring procedures affecting quality to be appropriate to the circumstances. Due to the fact that no actual loss of feedwater occurred during the incident and there was no adverse impact on plant operation, the failure to comply with this requirement constituted a violation of minor safety significance that was not subject to enforcement action in accordance with the NRC's Enforcement Policy. The licensee entered this issue into their corrective action program as AR 01961955. LER 05000370/2015-001-00 is closed.

b. Findings

No findings were identified.

4OA5 Other Activities

Independent Spent Fuel Storage Installation (60855.1)

a. Inspection Scope

The inspectors reviewed licensee procedures and observed aspects of loading and transporting casks associated with storing spent fuel in the Independent Spent Fuel Storage Installation (ISFSI) in accordance with IP 60855.1. The inspectors observed or reviewed documentation of selected licensee activities related to the loading of cask number 42 and 38, completed July 16, 2015, and November 16, 2015, respectively, to verify that they were performed in a safe manner and in compliance with the NAC-MAGNATOR Certificate of Compliance, Technical Specifications, and licensee approved procedures. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

4OA6 Meetings, Including Exit

On January 14, 2016, the resident inspectors presented the inspection results to Mr. Steven Capps and other members of the licensee's staff. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

ATTACHMENT: SUPPLEMENTARY INFORMATION

SUPPLEMENTARY INFORMATION

KEY POINTS OF CONTACT

Licensee

B. Anderson, Superintendent of Operations
D. Brenton, Maintenance Superintendent
S. Capps, Vice President, McGuire Nuclear
K. Crane, Senior Licensing Specialist
J. Gabbert, Chemistry Manager
J. Glenn, Organizational Effectiveness Manager
M. Kelly, Outage and Scheduling Manager
K. Kinard, Security Manager (Interim)
S. Mooneyhan, Radiation Protection Manager
C. Morris, Station Manager
J. Robertson, Regulatory Affairs Manager
P. Schuerger, Training Manager
S. Snider, Engineering Manager

LIST OF REPORT ITEMS

Opened and Closed

05000370/2015004-01 NCV Failure to Report Unit 2 Unplanned Valid Auxiliary
Feedwater Actuation in Mode 4 (Section 4OA3.1)

Closed

05000370/2015-001-00 LER Auxiliary Feedwater Actuation While in Mode 4 (Section
4OA3.2)

DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Seasonal Extreme Weather Conditions

AD-WC-ALL-0230, Seasonal Readiness, Rev. 0
NSD 317, Freeze Protection Program, Rev. 4 and 5
PT/0/B/4700/038, Cold Weather Protection, Rev. 32 through 37
PT/0/B/4700/070, On Demand Freeze Protection Verification Checklist, Rev. 30
Action Register Update Details Reports (of freeze protection program from September –
December 2015)

Readiness to Cope with External Flooding

UFSAR Section 2.4, Hydrology
MCS-1465.00-00-0012, Design Basis Specification for Flooding from External Sources, Rev. 2
MCC-1100.00-00-0002, McGuire Probable Maximum Precipitation Flood Analysis, Rev. 0
MCC-1612.00-00-0002, 10CFR50.54.f Recommendation 2.3 Fukushima Near-Term Task Force
Flood Walkdowns, Rev. 0

MCM-1100.00-0001.001, McKim & Creed Probable Maximum Precipitation Flood Analysis, Rev. 0

Drawing No. MC-1022-01.00, Grading Plan, Plant Area, Rev. 51

AP/0/A/5500/044, Plant Flooding, Rev. 17

FG/0/A/FLEX/FSG-22, FLEX Sump Pump Operations, Rev. 0

Section 1R04: Equipment Alignment

Partial Walkdown

OP/1/A/6200/001B, Chemical and Volume Control System Charging, Rev. 71

OP/1/A/6200/001E, Chemical and Volume Control System Valve Checklists, Rev. 36

MCFD-1554-03.01, Flow Diagram of Chemical and Volume Control System (NV), Rev. 24

OP/2/A/6200/004, Residual Heat Removal System, Rev. 97

MCFD-2561-01.00, Flow Diagram of Residual Heat Removal System (ND), Rev. 25

Complete Walkdown

OP/2/A/6250/002, Auxiliary Feedwater System, Rev. 097

Auxiliary Feedwater System Health Report Q2 2015

MCS-1592.CA-00-0001, Auxiliary Feedwater Design Basis, Rev. 34

MCFD-2592-01.01, Flow Diagram of Auxiliary Feedwater System (CA), Rev. 32

Section 1R05: Fire Protection

Quarterly Inspection

MCS-1465.00-00-0008, Design Basis Specification for Fire Protection, Rev. 19

MCS-1465.00-00-0022, Appendix R Safe Shutdown Analysis, Rev. 14

MCC-1435.00-00-0059, NFPA 805 – Appendix R Safe Shutdown Deterministic Analysis, Rev. 2

AD-EG-ALL-1520, Transient Combustible Control, Rev. 3

NSD 104, Material Condition/Housekeeping, Foreign Material Exclusion and Seismic Concerns, Rev. 37

NSD 316, Fire Protection Impairment and Surveillance, Rev. 16

FS/2/B/9000/033, Unit 2 Lower Annulus/Containment Fire Strategy #33, Rev. 1

FS/2/B/9000/033A, Unit 2 Upper Annulus/Containment Fire Strategy #33A, Rev. 0

FS/2/B/9000/016, Unit 2 750' Electrical Penetration Room Fire Strategy #16, Rev. 0

FS/2/B/9000/010, Unit 2 733' Electrical Penetration Room Fire Strategy #10, Rev. 1

FS/1/B/9000/017, 1ETA Room Fire Strategy #17, Rev. 0

FS/1/B/9000/017A, HVAC Room for 1ETA Fire Strategy #17A, Rev. 0

MFSD-015.017, 1ETA/750 Electrical Penetration Room, Rev. 0

MFSD-033, Unit 2 Lower Annulus/Containment, Rev. 0

MFSD-033A, Unit 2 Upper Annulus/Containment, Rev. 0

MFSD-010.0012, 2ETB/733 Electrical Penetration Room, Rev. 1

MFSD-016.018, 2ETA/750 Electrical Penetration Room, Rev. 0

MFSD-002, Unit 1 CA Pump Room, Rev. 0

Annual Inspection

NSD 112, Fire Brigade Organization, Rev. 13

PT/0/B/4600/121, Fire Drill, Rev. 8

RP/0/A/5700/025, Fire Brigade Response, Rev. 19

MNS Fire Drill Scenario #17, SSF

McGuire Nuclear Station Fire Strategy Number RB 4.1-1, (SSF)

FS/1/B/9000/070, Unit 1 Outside Yard Fire Strategy #70, Rev. 0

Section 1R06: Flood Protection Measures

Internal Flooding

MCC-1206.47-69-100, Auxiliary Building Flooding Analysis, Rev. 16

MCS-1154.00-0004, Design Basis Specification for Auxiliary Building Structures, Rev. 13

AP/0/A/5500/44, Plant Flooding, Rev.18

PT/0/A/4973/007B, WZ Sump B, Pumps A and B Performance Test, Rev. 34

Section 1R11: Licensed Operator Requalification Program and Licensed Operator Performance

Resident Inspector Quarterly Review of Licensed Operator Requalification

AD-OP-ALL-1000, Conduct of Operations, Rev. 4

NSD 509, Site Standards in Support of Operational Focus, Rev. 6

SOMP 01-07, Control Room Oversight, Rev. 2

Active Simulator Examination Package (for described scenario)

AP/1/A/5500/016, Malfunction of Nuclear Instrumentation System, Rev. 27

AP/1/A/5500/023, Loss of Condenser Vacuum, Rev. 22

EP/1/A/5000/E-0, Reactor Trip or Safety Injection, Rev. 42

EP/1/A/5000/ES-0.1, Reactor Trip Response, Rev. 40

EP/1/A/5000/E-3, Steam Generator Tube Rupture, Rev. 43

RP/0/A/5700/000, Classification of Emergency, Rev. 24

Resident Inspector Quarterly Review of Licensed Operator Performance in the Actual Plant/Main Control Room

AD-OP-ALL-1000, Conduct of Operations, Rev. 4

OMP 4-3, Use of Emergency and Abnormal Procedures and FLEX Support Guidelines, Rev. 42

NSD-509, Site Standards in Support of Operational Focus, Rev. 6

SOMP 01-07, Control Room Oversight, Rev. 2

OP/2/A/6100/001, Controlling Procedure for Unit Startup, Rev. 143

OP/2/A/6100/003, Controlling Procedure for Unit Operation, Rev. 170

PT/0/A/4150/021, Post Refueling Controlling Procedure for Criticality, Zero Power Physics, and Power Escalation Testing, Rev. 116

PT/0/A/4150/026, Power Escalation Testing, Rev. 18

PT/0/A/4150/028, Initial Criticality and Zero Power Physics Testing, Rev. 67

PT/0/A/4150/047, 1/M Monitoring During Startup, Rev. 6

Section 1R12: Maintenance Effectiveness

AD-EG-ALL-1210, Maintenance Rule Program, Rev. 0

AD-EG-ALL-1204, Single Point Vulnerability Identification, Elimination and Mitigation, Rev. 2

AD-EG-ALL-1206, Equipment Reliability Classification, Rev. 2

AD-EG-ALL-1209, System, Component, and Program Health Reports and Notebooks, Rev. 3

AD-EG-ALL-1211, System Performance Monitoring and Trending, Rev. 3

SSC Function Scoping Database

WZ System Health Report 3Q

AR 01606494, Evaluate adding Maintenance Rule Function for Floor Drain Tank Sump level indication

AR 01975118, C WZ Sump Pump A Motor Overload

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

AD-WC-ALL-0410, Work Activity Integrated Risk Management, Rev. 1
 NSD 415, Operational Risk Management (Modes 1–3) per 10 CFR 50.65(a)(4), Rev. 8
 SOMP 02-02, Operations Roles in the Risk Management Process, Rev. 17
 OMP 13-7, Operational Control of Protected Equipment, Rev. 7
 AD-OP-ALL-0201, Protected Equipment, Rev. 1
 91-01 risk management plan for lowered inventory

Section 1R15: Operability Determinations and Functionality Assessments

AD-OP-ALL-0102, Operational Decision Making, Rev. 0
 AD-OP-ALL-0105, Operability Determinations and Functionality Assessments, Rev. 2

Section 1R18: Plant Modifications

EDM 601, Engineering Change Manual, Rev. 29
 NSD 301, Engineering Change Program, Rev. 45
 AD-EG-ALL-1132, Preparation and Control of Design Change Engineering Changes, Rev. 2
 AD-EG-ALL-1110, Design Review Requirements, Rev. 1
 OMP 10-2, Temporary Engineering changes, Rev. 14
 SOMP 02-04, Engineering Change Implementation Process, Rev. 0
 MCS-1592.CA-00-0001, Auxiliary Feedwater Design Basis, Rev. 34
 MCC-1210.04-00-0043, Instrument Loop Uncertainty CA-RN Swapover Suction Pressure Switch Loops, Rev. 5
 MCC-1223.42-00-0053, Documentation of Adequacy of the Assured Suction Sources to the Unit 1 CA Pumps, Rev. 2
 MCC-1223.42-00-0054, Documentation of Adequacy of the Assured Suction Sources to the Unit 2 CA Pumps, Rev. 2
 TT/2/A/EC109072/001, Post Modification Testing for EC109072, Assured CA Suction, Rev. 0
 AR 01961749, 1RN-277B has ground

Section 1R19: Post-Maintenance Testing

NSD 408, Testing, Rev. 18
 WPM 501, Post Maintenance Testing, Rev. 15
 AD-EG-ALL-1155, Post Modification Testing, Rev. 1
 PT/0/A/4200/032, Periodic Inspection of Ice Condenser Lower Inlet Doors, Rev. 21
 IP/2/A/3000/022D, Reactor Coolant System Flow Calibration Loop B, Protection Channel 2NCLP5030, Rev. 11
 PT/2/A/4450/006A, VX System Train 2A Performance Test, Rev. 54
 WO 02198748, PT 1NDLP5050: RHR Pump B Min Flow Loop Calibration
 OP/1/A/6200/004, Residual Heat Removal System, Rev. 133
 WO 02165123, PM 1ETA1 Breaker Replacement
 OP/1/B/6400/006, Auxiliary Feedwater System, Rev. 129
 PT/1/A/4350/004, 4KV Loss of Voltage Trip Actuating Device Operational Test, Rev. 17
 IP/0/A/4971/010, Brown Boveri ITE27D Relay Calibration, Rev. 12

Section 1R20: Refueling and Other Outage Activities

NSD 403, Shutdown Risk Management (Modes 4, 5, 6, and No-Mode) Per 10CFR50.65 (a)(4), Rev. 34
 MSD 585, Reactor Building Personnel Access and Material Control, Rev. 16

OP/2/A/6100/001, Controlling Procedure for Unit Startup, Rev. 143
 OP/2/A/6100/003, Controlling Procedure for Unit Operation, Rev. 170
 OP/2/A/6100/SO-1, Maintaining NC System Level, Rev. 50
 OP/2/A/6100/SO-10, Controlling Procedure for LTOP Operation, Rev. 39
 OP/2/A/6100/SU-1, Mode 6 and Core Alterations Checklist, Rev. 47
 OP/2/A/6100/SU-3, Mode 5 Checklist, Rev. 28
 OP/2/A/6100/SU-5, Filling the NC System, Rev. 57
 OP/2/A/6100/SU-6, Venting the NC System, Rev. 34
 OP/2/A/6100/SU-7, Fill and Vent Valve Checklist, Rev. 19
 OP/2/A/6100/SU-8, Heatup to 200 Degrees F, Rev. 54
 OP/2/A/6100/SU-9, Mode 4 Checklist, Rev. 75
 OP/2/A/6100/SU-10, Heatup Checklist, Rev. 12
 OP/2/A/6100/SU-13, Heatup to 350 Degrees F, Rev. 51
 OP/2/A/6100/SU-14, Removing ND from Service, Rev. 33
 OP/2/A/6100/SU-15, Mode 3 Checklist, Rev. 49
 OP/2/A/6100/SU-16, Aligning ND System for Standby Alignment, Rev. 12
 OP/2/A/6100/SU-19, Heatup to 557 Degrees F, Rev. 65
 OP/2/A/6100/SU-20, Modes 1 and 2 Checklist, Rev. 40
 PT/0/A/4150/026, Power Escalation Testing, Rev. 18
 PT/0/A/4150/028, Initial Criticality and Zero Power Physics Testing, Rev. 67
 PT/0/A/4150/046, Containment Walkdown, Rev. 4
 PT/0/A/4150/047, 1/M Monitoring During Startup, Rev. 6
 PT/2/A/4200/002C, Containment Closure, Rev. 72
 PT/2/A/4600/003F, Containment Cleanliness and ECCS Operability Inspection, Rev. 20

Section 1R22: Surveillance Testing

AD-EG-ALL-1202, Preventive Maintenance and Surveillance Testing Administration, Rev. 2
 AD-WC-ALL-0250, Work Implementation and Completion, Rev. 0
 AD-EG-ALL-1720, Inservice Testing (IST) Program Implementation, Rev. 0

Section 40A1: Performance Indicator (PI) Verification

AD-LS-ALL-0004, NRC Performance Indicators and Monthly Operating Report, Rev. 0 and 1
 Technical Specification Action Item Logs
 Control Room Operator Logs
 Corrective Action Program Database

Section 40A2: Problem Identification and Resolution

AD-PI-ALL-0100, Corrective Action Program, Rev. 3
 AD-PI-ALL-0101, Root Cause Evaluation, Rev. 1
 AD-PI-ALL-0102, Apparent Cause Evaluation, Rev. 1
 AD-PI-ALL-0103, Quick Cause Evaluation, Rev. 1
 AD-PI-ALL-0104, Prompt Investigation Response Team, Rev. 1
 AD-PI-ALL-0105, Effectiveness Reviews, Rev. 1
 AD-PI-ALL-0201, Corrective Action Program (CAP) Trending, Rev. 2
 AD-PI-ALL-0300, Self-Assessment and Benchmark Programs, Rev. 2
 AD-PI-ALL-1000, Conduct of Performance Improvement, Rev. 2

Section 40A3: Follow-Up of Events and Notices of Enforcement Discretion

AD-LS-ALL-0006, Notification/Reportability Evaluation, Rev. 0

AD-OP-ALL-0101, Event Response and Notifications, Rev. 4

PT/2/A/4200/026A, Turbine and MFWPT Trips From SSPS, Revs. 21, 20, and 19

Completed test records for PT/1/A/4200/026A and PT/2/A/4200/026A since 2011

Section 40A5: Other Activities

MP/0/A/7650/227, (ISFSI) Loading Spent Fuel Assemblies Into MAGNASTOR Casks, Rev. 14

MP/0/A/7650/231, (ISFSI) Operation of Dry Cask Transporter (MAGNASTOR Spent Fuel Casks), Rev. 8

AD-MN-ALL-0002, Foreign Material Exclusion, Rev. 4

OP/0/A/6550/011, Internal Transfer, Rev. 64

OP/0/A/6550/029, (ISFSI) MAGNASTOR Fuel Assembly Loading/Unloading Procedure, Rev. 7

MCC-1553.12-00-0046 (Dry Storage Certifications for ISFSI casks #42 and #38)

WO 02175939 (ISFSI Cask Load # 0FCTKN042)

WO 02175936 (ISFSI Cask Load # 0FCTKN038)