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

April 25, 2017

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 05000369/2017001 AND 05000370/2017001

Dear Mr. Capps:

On March 31, 2017, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your McGuire Nuclear Station Units 1 and 2. On April 5, 2017, the NRC inspectors discussed the results of this inspection with you and other members of your staff. The results of this inspection are documented in the enclosed report.

NRC inspectors documented one finding of very low safety significance (Green) in this report. The finding involved a violation of NRC requirements. 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 the 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; and the NRC resident inspector at the McGuire Nuclear Station. Also, if you disagree with a cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region II; and the NRC resident inspector at the McGuire Nuclear Station.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at http://www.nrc.gov/reading-rm/adams.html and at the NRC Public Document Room in accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

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:
IR 05000369/2017001 and 05000370/2017001
w/Attachment - Supplemental Information

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SUBJECT: MCGUIRE NUCLEAR STATION - NRC INTEGRATED INSPECTION REPORT 05000369/2017001 AND 05000370/2017001 April 25, 2017

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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.:	05000369/2017001 and 05000370/2017001
Licensee:	Duke Energy Carolinas, LLC
Facility:	McGuire Nuclear Station, Units 1 and 2
Location:	Huntersville, NC 28078
Dates:	January 1, 2017 through March 31, 2017
Inspectors:	A. Hutto, Senior Resident Inspector R. Cureton, Resident Inspector M. Toth, Project Engineer (Section 1R20)
Approved by:	Frank Ehrhardt, Chief Reactor Projects Branch 1 Division of Reactor Projects

Enclosure

SUMMARY

IR 05000369/2017001, 05000370/2017001; January 1, 2017 through March 31, 2017; McGuire Nuclear Station, Units 1 and 2; Fire Protection

The report covered a 3-month period of inspection by resident inspectors and regional inspectors. There was one NRC-identified violation 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 November 1, 2016. The NRC's program for overseeing the safe operations of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 6.

Cornerstone: Initiating Events

- Green. An NRC-identified Green non-cited violation (NCV) of the McGuire Unit 1 Renewed Facility Operating License Condition 2.C.4, "Fire Protection Program" (FPP), was identified for the licensee's failure to adequately implement fire protection procedures for a waste receptacle fitted with a self-closing fire lid used to store plastic hard hats in the Unit 1 "B" train electrical penetration room. The licensee took immediate corrective actions to empty the receptacle (Nuclear Condition Report (NCR) 2100090).

  The licensee's failure to properly implement transient combustible control requirements for a waste receptacle equipped with a self-closing fire lid was a performance deficiency. The performance deficiency was more than minor because it affected the initiating events cornerstone attribute of protection against external factors, specifically fire, and adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, a fire ignited in the overfilled receptacle without a functioning self-closing lid could damage safety related cabling running directly overhead. The inspectors determined the finding to be of very low safety significance (Green) because it did not affect the ability to reach and maintain cold shutdown conditions in that a postulated fire in the overfilled receptacle did not present the possibility of impacting more than one train of safe shutdown equipment. This finding had a cross-cutting aspect of procedure adherence in the area of human performance, because personnel did not follow procedural requirements of procedure AD-EG-ALL-1520. [H.8] (Section 1R05)

REPORT DETAILS

Summary of Plant Status

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

Unit 2: Began the inspection period at 100 percent RTP and shut down to Mode 5 for a forced outage due to a pressure boundary leak on February 24, 2017. Following leak repairs, the unit was restarted and power increased to 88 percent RTP on March 14, 2017. On March 30, 2017, the unit was shut down for a scheduled refueling outage and ended the inspection period in Mode 5.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

a. Inspection Scope

Impending Adverse Weather Conditions

The inspectors reviewed the licensee's preparations to protect risk-significant systems from extreme cold and snow/ice expected to occur January 6-9, 2017. The inspectors evaluated the licensee's implementation of adverse weather preparation procedures and compensatory measures, including operator staffing, before the onset of and during the adverse weather conditions. The inspectors reviewed the licensee's plans to address the consequences that may result from extreme cold and snow/ice. The inspectors verified that operator actions specified in the licensee's adverse weather procedure maintain readiness of essential systems. The inspectors verified that required surveillances were current, or were scheduled and completed, if practical, before the onset of anticipated adverse weather conditions. The inspectors also verified that the licensee implemented periodic equipment walkdowns or other measures to ensure that the condition of plant equipment met operability requirements. Documents reviewed are listed in the attachment.

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. Documents reviewed are listed in the attachment.

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

- Unit 1,1B diesel generator (DG) while the 1A DG was out of service for planned maintenance
- Unit 2, 2B DG while the 2A DG was out of service for hot web deflection measurements
- Unit 2, 2B containment spray (NS) train while the 2A NS train was out of service for 2NS-12B valve preventive maintenance (PM)
- Unit 1, 1A auxiliary feedwater (CA) pump and Unit 1 turbine driven CA pump while the 1B CA pump was out of service for planned maintenance

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05AQ)

a. Inspection Scope

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, CA pump room 716' elevation (fire area 3)
- Unit 1, electrical penetration room 733' elevation (fire area 9)
- Unit 2, A/B emergency DG rooms (fire areas 7 and 8)
- Auxiliary building 695' elevation (fire area 1)
- Auxiliary building 767' elevation (fire area 25)

b. Findings

Introduction: An NRC-identified Green NCV of the McGuire Unit 1 Renewed Facility Operating License Condition 2.C.4, “Fire Protection Program” (FPP), was identified for the licensee’s failure to adequately implement fire protection procedures for a waste receptacle fitted with a self-closing fire lid used to store plastic hard hats in the Unit 1 “B” train electrical penetration room.

Description: During a fire area walkdown on February 9, 2017, of the Unit 1, 733’ level electrical penetration room, the inspectors identified a 55 gallon waste receptacle that was used to contain plastic hard hats that had been used by licensee personnel while working inside the containment building the previous weekend. The inspectors noted that the receptacle was fitted with a self-closing lid that is designed to close if a fire is ignited in combustibles stored in the drum by the melting of a fusible link that holds the lid open. The inspectors noted that the receptacle was over filled with hard hats such that the lid would not close as designed, as well as the fact that the receptacle was positioned next to scaffolding that protruded in the space between the lid and the top of the drum which would also prevent the lid from closing. Additionally, the receptacle was placed next to a wall-mounted fire extinguisher making it unavailable for use in a fire involving the receptacle. The receptacle was also less than three feet from a potential ignition source (6.9 kV reactor coolant pump breaker). The licensee's fire protection transient combustible program allows the storage of receptacles with these lids in all fire areas of the plant and takes credit for the fire mitigation feature of the lids in lieu of accounting for the transient combustible fire loading of the materials inside the receptacles. The licensee’s procedure AD-EG-ALL-1520, “Transient Combustible Control,” requires that waste containers with these lids be inspected on a regular basis and emptied to prevent overfill. The procedure also requires that transient combustibles less than three million BTUs have a minimum separation of three feet from energized equipment. The licensee initiated NCR 2100090 and emptied the receptacle.

Analysis: The licensee’s failure to properly implement transient combustible control requirements for a waste receptacle equipped with self-closing fire lid was a performance deficiency. The performance deficiency was more than minor because it affected the initiating events cornerstone attribute of protection against external factors, specifically fire, and adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, a fire ignited in the overfilled receptacle without a functioning self-closing lid could damage safety-related cabling running directly overhead. The finding was screened in accordance with NRC Inspection Manual Chapter (IMC) 0609, “Significance Determination Process,” dated April 29, 2015, Attachment 4, “Initial Characterization of Findings,” dated October 7, 2016, which determined that an IMC 0609, Appendix F, “Fire Protection Significance Determination Process,” was required since the finding involved a failure to adequately implement fire prevention and administrative controls for transient combustible materials. Using the guidance in IMC 0609, Appendix F, Attachment 1, “Fire Protection SDP Phase 1 Worksheet,” dated September 20, 2013, the finding was assigned a category of Fire Prevention and Administrative Controls. The inspectors used Step 1.3, “Ability to Achieve Safe Shutdown,” to determine the finding to be of very low safety significance (Green) because it did not affect the ability to reach and maintain cold shutdown

conditions in that a postulated fire in the overfilled receptacle did not present the possibility of impacting more than one train of safe shutdown equipment. This finding had a cross-cutting aspect of procedure adherence in the area of human performance, because personnel did not follow procedural requirements of AD-EG-ALL-1520. [H.8]

Enforcement: McGuire Nuclear Station Unit 1 Renewed Facility Operating License Condition 2.C.4, "Fire Protection Program," required the licensee to implement and maintain in effect all provisions of the approved FPP as described in Section 9.5.1 of the Updated Final Safety Analysis Report (UFSAR). UFSAR Section 9.5.1.2.1, "(General) Program Description," stated, in part, that FPP administrative controls are included in Nuclear System Directives to manage control of flammable and combustible materials. The licensee implemented this requirement, in part, through procedure AD-EG-ALL-1520, "Transient Combustible Controls," which specified that receptacles containing transient combustibles shall be equipped with a compatible cover, such as a tight fitting lid or approved self-extinguishing or self-closing lid, and shall be inspected on a regular basis and emptied as needed to prevent overfill, and that transient combustibles less than three million BTUs have a minimum separation of three feet from energized equipment. Contrary to the above, from approximately February 5, 2017, to February 9, 2017, the licensee failed to adequately implement the transient combustible control program as required by AD-EG-ALL-1520, in that, adequate inspections and necessary emptying of plastic hard hats from a receptacle equipped with a self-closing fire lid was not conducted, and the receptacle was placed within three feet of energized equipment. Because this failure to adequately implement and maintain fire protection administrative controls regarding the use of a self-closing fire lid receptacle is of very low safety significance, was entered into the licensee's corrective action program as NCR 2100090, and corrective actions were taken to empty the receptacle, this violation is being treated as an NCV, consistent with Section 2.3.2.a of the Enforcement Policy. (NCV 05000369/2017001-01, Failure to Adequately Control Transient Combustibles Using a Receptacle with a Self-Closing Lid)

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

a. Inspection Scope

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

The inspectors observed licensed operator performance in the main control room during Unit 2 drain-down activities associated with both forced and refueling outages, reactor startup activities following a Unit 2 forced outage, and Unit 2 shutdown for a 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.

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.

- Unit 1, Operator aid computer (OAC), loss of all OAC indication due to breaker DCA-51 trip (NCR 2060588)
- Units 1 and 2, Digital individual rod position indication data failures (NCRs 2090992, 2091314, 2091685, 2097369, 2098651, 2103202)

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors reviewed the six 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.

- Unit 1, January 17, 2017, risk plan for 1A DG PMs
- Unit 2, January 26, 2017, equipment protection plan for 2A CA train out of service for PMs
- Unit 2, February 7, 2017, equipment protection plan for 2B decay heat removal (ND) train out of service for PMs
- Unit 1, February 14, 2017, equipment protection plan for 1B CA train out of service for PMs
- Unit 2, February 28, 2017, critical activity plan for Unit 2 drain to reduced inventory during forced outage
- Unit 2, March 29, 2017, independent review team outage risk review report (2EOC24)

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.

- NCR 2087316, Unit 1/2, McGuire positions/actions regarding thermally induced currents for containment high range radiation monitors (1/2 EMF 51 A,B)
- NCR 2092846, Unit 1/2, No PM for implementation of Selected Licensee Commitment (SLC) 16.8.3.10
- NCR 2095333, Unit 1/2, Discrepancies between current EQMM maintenance requirements for NAMCO limit switches and the EQ test report
- NCR 2102403, Unit 2, 2A nuclear service water (RN) pump suction pressure test acceptance criteria not met during flow balance
- NCR 2102073, Unit 2, 2A DG, cylinder 2 left valve lash adjuster early degradation

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18)

a. Inspection Scope

The inspectors verified that the plant modification listed below did not affect the safety functions of important safety systems. The inspectors confirmed the modification 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.

- Engineering Change (EC) 405149, "Support Temporary Leak Seal Device on Leaking HA Pipe Immediately Upstream of Valve 2HA-9"

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 six 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.

- Work Order (WO) 20108496 01, "PM-1EQADE0001-MISC D/G Work (DOWNDAY)," January 18, 2017
- WO 20085122, "PM-2EQADE0001 – Perform Hot Web Deflections, 2A DG," January 24, 2017
- WO 20141083, "0ETM BC SDSS: Replace Control Board; Perform Functional," January 27, 2017
- WO 20069912, "PM-1NIPU0009 – (COUPLING) – 1A NI PUMP," February 01, 2017
- WO 20084735, "PM 2NSLP5090, Containment Spray Pump B Outlet," February 15, 2017
- WO 20107392, "PM -1ETB9 Breaker, (1B Safety Injection Pump Breaker)," March 15, 2017

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)

.1 Unit 2 forced outage 2F171

a. Inspection Scope

For the Unit 2 forced outage from February 24, 2017, through March 14, 2017, the inspectors evaluated the following outage activities:

- outage planning
- shutdown, cooldown, heat up, and startup
- reactor coolant system instrumentation and electrical power configuration
- reactivity and inventory control
- decay heat removal and spent fuel pool cooling system operation

The inspectors verified that the licensee:

- considered risk in developing the outage schedule
- controlled plant configuration per administrative risk reduction methodologies
- 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.

b. Findings

No findings were identified.

.2 Unit 2 Refueling Outage 2EOC24

a. Inspection Scope

For the Unit 2 refueling outage from March 30, 2017, through the remainder of the inspection period, the inspectors evaluated the following outage activities:

- outage planning
- shutdown, cooldown
- reactor coolant system instrumentation and electrical power configuration
- reactivity and inventory control
- decay heat removal and spent fuel pool cooling system operation

The inspectors verified that the licensee:

- considered risk in developing the outage schedule
- controlled plant configuration per administrative risk reduction methodologies
- 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.

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 tests 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/2/A/4350/036 A, “D/G 2A 24 Hour Run”
- PT/2/A/4252/001A, “2A CA Pump Test”
- PT/1/A/4403/007, “RN Train 1A Flow Balance”

In-Service Tests (IST)

- PT/2/A/4204/001 B, "2B ND Pump Performance Test"

Reactor Coolant System Leak Detection

- PT/2/A/4150/001 B, "Reactor Coolant Leakage Calculation"

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

The inspectors observed the emergency preparedness drill conducted on January 18, 2017. The inspectors observed licensee activities in the simulator and technical support center to evaluate implementation of the emergency plan, including event classification, notification, and protective action recommendations. The inspectors evaluated the licensee's performance against criteria established in the licensee's procedures. Additionally, the inspectors attended the post-exercise critique to assess the licensee's effectiveness in identifying emergency preparedness weaknesses and verified the identified weaknesses were entered in the corrective action program.

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 January 1, 2016, and December 31, 2016, 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: Initiating Events
- unplanned scrams per 7000 critical hours
- unplanned power changes per 7000 critical hours
- unplanned scrams with complications

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 Annual Follow-up of Selected Issues

a. Inspection Scope

The inspectors conducted a detailed review of NCR 2048072, "B train YC Pump Suction Pressure Low on Train Swap"

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)

On February 23, 2017, Unit 2 was shut down due to pressure boundary leakage from a through-wall flaw in a two and a half inch safety injection line connected to the 2D cold leg. The inspectors reviewed the licensee's shutdown plan and subsequently observed the licensees activities in determining pressure boundary leakage.

4OA5 Other Activities

Temporary Instruction (TI) 2515/192, "Inspection of the Licensee's Interim Compensatory Measures Associated with the Open Phase Condition Design Vulnerabilities in Electric Power Systems."

a. Inspection Scope

The objective of this performance based TI was to verify implementation of interim compensatory measures associated with an open phase condition design vulnerability in electric power systems for operating reactors. The inspectors conducted an inspection to determine if the licensee had implemented the interim compensatory measures listed below. These compensatory measures are to remain in place until permanent automatic detection and protection schemes are installed and declared operable for open phase condition design vulnerability. The inspectors verified the following:

- The licensee identified and discussed with plant staff the lessons-learned from the open phase condition events at U.S. operating plants including the Byron Station open phase condition and its consequences. This included conducting operator training for promptly diagnosing, recognizing consequences, and responding to an open phase condition.

- The licensee updated plant operating procedures to help operators promptly diagnose and respond to open phase conditions on off-site power sources credited for safe shutdown of the plant.

- The licensee established and implemented periodic walkdown activities to inspect switchyard equipment such as insulators, disconnect switches, and transmission line and transformer connections associated with the offsite power circuits to detect a visible open phase condition.

- The licensee ensured that routine maintenance and testing activities on switchyard components have been implemented and maintained. As part of the maintenance and testing activities, the licensee assessed and managed plant risk in accordance with 10 CFR 50.65(a)(4) requirements.

Documents reviewed are listed in the attachment.

b. Findings

No findings were identified.

4OA6 Meetings, Including Exit

On April 5, 2017, 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: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel
S. Capps, Vice President, McGuire Nuclear
S. Gibby, Maintenance Manager
J. Glenn, Organizational Effectiveness Manager
M. Kelly, Training Manager
K. Kinard, Security Manager
N. Kunkel, Engineering Manager
S. Mooneyhan, Radiation Protection Manager
T. Paglia, Work Control Manager
E. Pigott, Operations Manager
S. Snider, Plant Manager
J. Thomas, Regulatory Affairs Manager

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed		
05000369/2017001-01	NCV	Failure to Adequately Control Transient Combustibles Using a Receptacle with a Self-Closing Lid (Section 1R05)
Closed		
TI 2515/192	TI	Inspection of the Licensee's Interim Compensatory Measures Associated with the Open Phase Condition Design Vulnerabilities in Electric Power Systems (Section 4OA5)

Attachment

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection
AD-WC-ALL-0230, "Seasonal Readiness"
NSD 317, "Freeze Protection Program"
PT/0/B/4700/038, "Cold Weather Protection"
PT/0/B/4700/070, "On Demand Freeze Protection Verification Checklist"

Section 1R04: Equipment Alignment
MCFD-2592-01.01, "Unit 1, Flow Diagram of Auxiliary Feedwater System"
OP/2/A/6350/002, "Diesel Generator"
OP/1/A/6250/002, "Auxiliary Feedwater System"
OP/2/A/6350/002, "Diesel Generator"
MCFD-2563-01.00, "Flow Diagram of Containment Spray System"

Section 1R05: Fire Protection
MCS-1465.00-00-0008, "Design Basis Specification for Fire Protection"
MCS-1465.00-00-0022, "Appendix R Safe Shutdown Analysis"
MCC-1435.00-00-0059, "NFPA 805 – Appendix R Safe Shutdown Deterministic Analysis"
AD-EG-ALL-1520, "Transient Combustible Control"
FS/2/B/9000/003, "Unit 2 CA Pump Room Fire Strategy #3"
FS/1/B/9000/009, "Unit 1 Electrical Penetration Room Fire Strategy #9"
FS/2/B/9000/007/008, "Unit 2 2A and 2B Diesel Generator Rooms Fire Strategy #7/8"
FS/0/B/9000/001, "Auxiliary Building 695' Fire Strategy #1"
FS/0/B/9000/025, "Auxiliary Building 767' Fire Strategy #25"
MFSD-003, "Unit 2 CA Pump Room
MFSD-009, "Unit 1 Electrical Penetration Room"
MFSD-007.008, "Unit 2 2A and 2B Diesel Generator Rooms"
MFSD-001, "Auxiliary Building 695' Level"
MFSD-025, "Auxiliary Building 767' Level"

Section 1R11: Licensed Operator Requalification Program and Licensed Operator Performance
AD-OP-ALL-1000, "Conduct of Operations"
NSD 509, "Site Standards in Support of Operational Focus"
OMP 4.3, "Use of Emergency and Abnormal Procedures and FLEX Support Guidelines"
SOMP 01-07, "Control Room Oversight"
OP/A/2/6100/SD-20, "Draining the NC System"
OP/A/2/6100/SO-1, "Maintaining NC System Level"
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Section 1R12: Maintenance Effectiveness
AD-EG-ALL-1204, "Single Point Vulnerability Identification, Elimination and Mitigation"
AD-EG-ALL-1206, "Equipment Reliability Classification"
AD-EG-ALL-1209, "System, Component, and Program Health Reports and Notebooks"
AD-EG-ALL-1210, "Maintenance Rule Program"
AD-EG-ALL-1211, "System Performance Monitoring and Trending"
Duke Equipment Reliability Maintenance Rule Database

Section 1R13: Maintenance Risk Assessments and Emergent Work Control
NSD-213, "Risk Management Process"
NSD-415, "Operational Risk Management (Modes 1–3) per 10 CFR 50.65(a)(4)"
SOMP 02-02, "Operations Roles in the Risk Management Process"
OMP 13-7, "Operational Control of Protected Equipment"
AD-OP-ALL-0201, "Protected Equipment"

Section 1R15: Operability Determinations and Functionality Assessments
AD-OP-ALL-0102, "Operability Decision Making"
AD-OP-ALL-0105, "Operability Determinations and Functionality Assessment"

Section 1R18: Plant Modifications
EC 405149, "Support Temporary Leak Seal Device on Leaking HA Pipe Immediately Upstream of Valve HA-9"
WO 20099463, "2HA VA 0009: Build Scaffold & Remove Insulation Steam Leak"

Section 1R19: Post-Maintenance Testing
NSD-408, "Testing"
AD-EG-ALL-1155, "Post Modification Testing"
PT/1/A/4350/002 A, "Diesel Generator 1A Operability Test"
PT/2/A/4350/002 A, "Diesel Generator 2A Operability Test"
MP/0/A/7300/007, "Rotating Equipment Inspection and Vibration Measuring"
PT/2/A/4208/001 B, "2B NS Performance Test"
IP/0/A/2001/004 H, "Removal and Installation of Station Circuit Breakers"

Section 1R22: Surveillance Testing
AD-EG-ALL-1202, "Preventive Maintenance and Surveillance Testing Administration"
AD-WC-ALL-0250, "Work Implementation and Completion"
AD-EG-ALL-1720, "In-service Testing (IST) Program Implementation"

Section 4OA1: Performance Indicator (PI) Verification
AD-LS-ALL-0004, "NRC Performance Indicators and Monthly Operating Report"
AD-PI-ALL-0100, "Corrective Action Program"

Section 4OA2: Problem Identification and Resolution
AD-PI-ALL-0100, "Corrective Action Program"
AD-PI-ALL-0102, "Apparent Cause Evaluation"
AD-PI-ALL-0103, "Quick Cause Evaluation"
AD-PI-ALL-0104, "Prompt Investigation Response Team"
AD-PI-ALL-0105, "Effectiveness Reviews"
AD-LS-ALL-0006, "Notification/Reportability Evaluation"

Section 4OA5: Other Activities
NCR 01650148
NCR 01550069
EC 109459
MCS-114.00-EQB-001, "Design Basis Specification for the EQB System"
IP/0/B/2003/032, "230kV, 525kV and ATI Switchyard Monthly Rounds"
IP/0/B/2003/033, "230kV, 525kV and ATI Switchyard Weekly Rounds"
McGuire Response to RAI dated January 30, 2014