



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

October 24, 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
05000369/2016003 AND 05000370/2016003

Dear Mr. Capps:

On September 30, 2016, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your McGuire Nuclear Station Units 1 and 2. On October 4, 2016, the NRC inspectors discussed the results of this inspection with Mr. Steve Snider and other members of your staff. The results of this inspection are documented in the enclosed inspection report.

No NRC-identified or self-revealing findings were identified during this inspection. However, inspectors documented a licensee-identified violation which was determined to be of very low safety significance in this report. 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.

S. Capps

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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:
NRC Integrated Inspection Report 05000369/
2016003 and 05000370/2016003
w/Attachment - Supplemental Information

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S. Capps

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Letter to Steven D. Capps from Frank Ehrhardt dated October 24, 2016

SUBJECT: MCGUIRE NUCLEAR STATION - NRC INTEGRATED INSPECTION REPORT
05000369/2016003 AND 05000370/2016003

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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.: 05000369/2016003; 05000370/2016003

Licensee: Duke Energy Carolinas, LLC

Facility: McGuire Nuclear Station, Units 1 and 2

Location: Huntersville, NC 28078

Dates: July 1, 2016 through September 30, 2016

Inspectors: A. Hutto, Senior Resident Inspector
J. Zeiler, Senior Resident Inspector
R. Cureton, Resident Inspector
S. Sanchez, Senior Emergency Preparedness Inspector (Sections 1EP2, 1EP3, 1EP4, 1EP5, 4OA1, 4OA6)
C. Fontana, Emergency Preparedness Inspector (Sections 1EP2, 1EP3, 1EP4, 1EP5, 4OA1, 4OA6)
J. Hickman, Emergency Preparedness Inspector (trainee) (Sections 1EP2, 1EP3, 1EP4, 1EP5, 4OA1, 4OA6)

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

Enclosure

SUMMARY

IR 05000369/2016003 and 05000370/2016003, July 1, 2016, through September 30, 2016; McGuire Nuclear Station, Units 1 and 2; Integrated Inspection Report.

The report covered a 3-month period of inspection by resident inspectors and an announced inspection by three regional emergency preparedness inspectors. No findings were identified during this inspection period. 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 August 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.

A violation of very low safety significance that was identified by the licensee has been reviewed by the NRC. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. This violation and corrective action tracking number is listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

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

Unit 2: Operated at approximately 100 percent RTP for the entire inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R04 Equipment Alignment (71111.04)

a. Inspection Scope

Partial Walkdown

- .1 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:

- 1A annulus ventilation system (VE) while the 1B VE system was out of service for planned carbon filter replacement/testing
- 2B diesel generator (DG) while the 2A DG was out of service for planned maintenance
- 2A DG while the 2B DG was out of service for planned maintenance
- 2A auxiliary feedwater (CA) pump while the 2B CA pump was unavailable due to testing

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05AQ)

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.

- 1A and 1B DG rooms (fire areas 5 and 6)
- Unit 1 and Unit 2 auxiliary building 750 elevation (fire area 21)
- service building basement VI compressor area
- control room area (fire area 24)
- Unit 1 and Unit 2 auxiliary building cable rooms (fire areas 19 and 20)

Documents reviewed are listed in the attachment.

b. Findings

No findings were identified.

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

a. Inspection Scope

.1 Resident Inspector Quarterly Review of Licensed Operator Regualification

On August 24, 2016, the inspectors observed a simulator scenario (ASE-110) conducted for training of an operating crew for licensed operator continuing training. The scenario included failure of a pressurizer power operated relief valve, followed by a spent fuel cooling pump shaft failure and a main steam line break inside containment.

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

The inspectors observed licensed operator performance in the main control room during a Unit 1 dilution, startup and monitoring of the Unit 1A DG, a Unit 2 containment air release, and 2A containment spray pump testing.

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 three 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. Documents reviewed are listed in the attachment.

- Nuclear Condition Report (NCR) 01943414, Failure to maintain continuous vent of Unit 1 condenser circulating water supply to suction of the turbine driven auxiliary feedwater pump
- NCR 02060588, Unit 1 – loss of 1KU and Unit 1 OAC

- Licensee's 10 CFR 50.65(a)(3) Periodic Evaluation

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors reviewed the five 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 1 for planned maintenance on the 1B DG
- Yellow risk on Unit 2 for planned maintenance on the 2A DG
- Yellow risk on Unit 2 for 2NC-33A backseat planned maintenance
- Yellow risk on Unit 1 for planned maintenance on 1KC-56A
- Week 38 (September 19-25/16) work activity risk review

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 six 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 2042765, Loss of numerous Unit 2 control room annunciators due to equipment failures
- NCR 2032731, Through wall nuclear service water (RN) pipe leak on drain of 1B DG cooling water (KD) Hx return piping
- NCR 2050773, Exit LCO for 1KC-56A
- NCR 2057055, Air leak off of solenoid 1CFSV0260 'C' side
- NCR 2057806, Crane Nuclear Inc. Part 21 notification
- NCR 2061350, 2A RN strainer differential pressure taking longer to clear

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18)

a. Inspection Scope

The inspectors verified that the two 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.

- Engineering Change (EC) 103972, Rotork to Limitorque actuator replacement on 1A decay heat removal (ND) heat exchanger cooling water isolation valve 1KC-56A
- EC 405140, Install non-ASME code encapsulation sleeves on 1RN-883 & 1RN-884

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 five 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.

- 1B annulus ventilation system functional testing following carbon filter replacement
- 1B DG operability test following various preventive maintenance activities
- 2B DG time to speed timer replacement
- 2A DG operability test following diesel fluid checks
- EVCC battery following modified performance testing

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.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed the six 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.

Routine Surveillance Tests

- PT/1/A/4350/002 B, Diesel Generator 1B Operability Test
- PT/2/A/4403/001 A, 2A RN Pump Performance Test
- PT/1/A/4204/001 B, 1B ND Pump Performance Test
- PT/2/A/4252/001 B, 2B CA Pump Performance Test

In-Service Tests (IST)

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

Reactor Coolant System Leakage Testing

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

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP2 Alert and Notification System Evaluation

a. Inspection Scope

The inspectors evaluated the adequacy of the licensee's methods for testing and maintaining the alert and notification system in accordance with NRC Inspection Procedure 71114, Attachment 02, "Alert and Notification System Evaluation." The applicable planning standard, 10 CFR Part 50.47(b)(5), and its related 10 CFR Part 50, Appendix E requirements were used as reference criteria. The criteria contained in NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1, was also used as a reference.

The inspectors reviewed various documents which are listed in the attachment and interviewed personnel responsible for system performance. This inspection activity satisfied one inspection sample for the alert and notification system on a biennial basis.

b. Findings

No findings were identified.

1EP3 Emergency Response Organization Staffing and Augmentation System

a. Inspection Scope

The inspectors reviewed the licensee's emergency response organization (ERO) augmentation staffing requirements and process for notifying the ERO to ensure the readiness of key staff for responding to an event and timely facility activation. The qualification records of key position ERO personnel were reviewed to ensure all ERO qualifications were current. A sample of problems identified from augmentation drills or system tests performed since the last inspection were reviewed to assess the effectiveness of corrective actions. The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 03, "Emergency Response Organization Staffing and Augmentation System." The applicable planning standard, 10 CFR 50.47(b)(2), and its related 10 CFR 50, Appendix E requirements were used as reference criteria.

The inspectors reviewed various documents which are listed in the attachment. This inspection activity satisfied one inspection sample for the ERO staffing and augmentation system on a biennial basis.

b. Findings

No findings were identified.

1EP4 Emergency Action Level and Emergency Plan Changes

a. Inspection Scope

Since the last NRC inspection of this program area, three changes were made to the radiological emergency plan, along with changes to several implementing procedures. The licensee determined that, in accordance with 10 CFR 50.54(q), the radiological emergency plan continued to meet the requirements of 10 CFR 50.47(b) and 10 CFR Part 50 Appendix E. The inspectors reviewed these changes to evaluate for potential reductions in the effectiveness of the plan. However, this review was not documented in a safety evaluation report and does not constitute formal NRC approval of the changes. Therefore, these changes remain subject to future NRC inspection in their entirety.

The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 04, "Emergency Action Level and Emergency Plan Changes." The applicable planning standards of 10 CFR 50.47(b), and its related requirements in 10 CFR 50, Appendix E were used as reference criteria. The inspectors reviewed various documents which are listed in the attachment. This inspection activity satisfied one inspection sample for the emergency action level and emergency plan changes on an annual basis.

b. Findings

No findings were identified.

1EP5 Maintenance of Emergency Preparedness

a. Inspection Scope

The inspectors reviewed the corrective actions identified through the emergency preparedness program to determine the significance of the issues, the completeness and effectiveness of corrective actions, and to determine if issues were recurring. The licensee's post-event after action reports, self-assessments, and audits were reviewed to assess the licensee's ability to be self-critical, thus avoiding complacency and degradation of their emergency preparedness program. Inspectors reviewed the licensee's 10 CFR 50.54(q) change process, personnel training, and selected screenings and evaluations to assess adequacy. The inspectors toured facilities and reviewed equipment and facility maintenance records to assess licensee's adequacy in maintaining them. The inspectors evaluated the capabilities of selected radiation monitoring instrumentation to adequately support emergency action level (EAL) declarations.

The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 05, "Maintenance of Emergency Preparedness." The applicable planning standards, related 10 CFR 50, Appendix E requirements, and 10 CFR 50.54(q) and (t) were used as reference criteria. The inspectors reviewed various documents which are listed in the attachment. This inspection activity satisfied one inspection sample for the maintenance of emergency preparedness on a biennial basis.

b. Findings

No findings were identified.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

The inspectors observed the emergency preparedness drill conducted on August 3, 2016. 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. Documents reviewed are listed in the attachment.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) 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 data compiled between July 2015 and June 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: Mitigating Systems

- residual heat removal system
- heat removal system
- cooling water system

The inspectors sampled licensee submittals relative to the PIs listed below for the period July 1, 2015, through June 30, 2016. To verify the accuracy of the PI data reported during that period, PI definitions and guidance contained in NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, was used to confirm the reporting basis for each data element.

Cornerstone: Emergency Preparedness

- Drill/Exercise Performance (DEP)
- Emergency Response Organization (ERO) Readiness
- Alert and Notification System (ANS) Reliability

For the specified review period, the inspectors examined data reported to the NRC, procedural guidance for reporting PI information, and records used by the licensee to identify potential PI occurrences. The inspectors verified the accuracy of the PI for ERO drill and exercise performance through review of a sample of drill and event records. The inspectors reviewed selected training records to verify the accuracy of the PI for ERO drill participation for personnel assigned to key positions in the ERO. The inspectors verified the accuracy of the PI for alert and notification system reliability through review of a sample of the licensee's records of periodic system tests. The inspectors also interviewed the licensee personnel who were responsible for collecting and evaluating the PI data. Licensee procedures, records, and other documents reviewed within this inspection area are listed in the attachment. This inspection satisfied three inspection samples for PI verification on an annual basis.

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 followup. The inspectors reviewed problem identification program reports, attended screening meetings, or accessed the licensee's computerized corrective action database.

.2 Annual Followup of Selected Issues

a. Inspection Scope

The inspectors conducted a detailed review of NCR 1943414, "Failure to restore standby shutdown system (SSS) turbine driven auxiliary feedwater pump and water supplies to functional condition within 7-days as required by Selected Licensee Commitments 16.9.7."

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

A licensee-identified violation of Technical Specification 5.4.1, "Procedures," was identified for the licensee's failure to recognize the adverse impact from a clogged continuous vent line in the water supply to the turbine driven auxiliary feedwater pump which resulted in the standby shutdown system being non-functional greater than the allowed 7-day action requirement of selected licensee commitment 16.9.7. This licensee-identified violation is documented in Section 4OA7 of this report.

4OA5 Other Activities

.1 Operation of an Independent Spent Fuel Storage Installation (60855.1)

a. Inspection Scope

The inspectors performed a walkdown of the onsite independent spent fuel storage installation (ISFSI) and monitored the activities associated with the dry fuel storage campaign completed on August 25, 2016. The inspectors reviewed changes made to the ISFSI programs and procedures, including associated 10 CFR 72.48, "Changes, Tests, and Experiments," screens and evaluations to verify that changes made were consistent with the license or certificate of compliance. The inspectors observed the loading activities to verify that the licensee recorded and maintained the location of each fuel assembly placed in the ISFSI. Documents reviewed are listed in the attachment.

b. Findings

No findings were identified.

4OA6 Meetings, Including Exit

On October 4, 2016, the resident inspectors presented the inspection results to Mr. Steve Snider 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.

4OA7 Licensee-Identified Violations

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which meets the criteria of the NRC Enforcement Policy, for being dispositioned as a non-cited violation.

Technical Specifications 5.4.1.a, "Procedures," requires, in part, that procedures for certain activities recommended in Regulatory Guide 1.33, Rev. 2, Appendix A, be established, implemented, and maintained. Administrative procedures for shift and relief turnover is one of the identified activities. Administrative procedure AD-OP-ALL-1000, "Conduct of Operations," Rev. 4, implements the licensee's shift and relief turnover standards. This procedure requires shift turnovers to contain detailed information on equipment and system status, alignments, and activities, to ensure watchstanders have a complete understanding of plant status. Contrary to the above, from August 10 to August 13, 2015, operators were not aware of the required nuclear service water system alignment which required a continuous vent (passing water flow) to be maintained in the condenser cooling water (RC) suction supply to the Unit 1 turbine driven auxiliary feedwater pump. The continuous vent mitigates the potential for air entrainment in the RC piping high point and is needed in order for the standby shutdown system to be functional during an Appendix R fire event when the suction of the turbine driven auxiliary feedwater pump is transferred from the auxiliary feedwater storage tank to the long term water supply provided by the RC system. This lack of operator awareness stemmed from a misunderstanding in the operator turnovers that the nuclear service water system was in a standby nuclear service water pond cooling alignment, which does not require the continuous vent to be maintained. The discrepancy was subsequently identified by oncoming shift operations personnel and the continuous vent was re-established on August 16, 2015, after removing material that obstructed the continuous vent line. As a result of not maintaining the continuous vent at the suction of the turbine driven auxiliary feedwater pump, the standby shutdown system was rendered non-functional for a period of eleven days, which was in excess of the 7-day limit allowed by Selected Licensee Commitments 16.9.7. This violation was determined to be of very low safety significance (Green) because it only affected the non-safety related Appendix R water supply to the turbine driven auxiliary feedwater pump. This violation was entered into the licensee's corrective action program as NCR 01943414.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

B. Anderson, Superintendent of Operations
M. Austin, Corporate Functional Area Manager
R. Burris, Emergency Preparedness Specialist
S. Capps, Vice President, McGuire Nuclear
R. Gibson, Emergency Preparedness Specialist
J. Glenn, Organizational Effectiveness Manager
M. Kelly, Outage and Scheduling Manager
B. Kimray, Fleet Emergency Preparedness
K. Kinard, Security Manager
N. Kunkel, Engineering Manager
S. Mooneyhan, Radiation Protection Manager
G. Murphy, Licensing Specialist
K. Murray, Emergency Preparedness Manager
B. Nanney, Fleet Emergency Preparedness
J. Robertson, Regulatory Affairs Manager
P. Schuerger, Training Manager
S. Snider, Plant Manager

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

None

LIST OF DOCUMENTS REVIEWED

Section 1R04: Equipment Alignment

Partial System Walkdown

OP/1/A/6450/002, Annulus Ventilation System
MCFD-2592-01.01, Flow Diagram of Auxiliary Feedwater 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
NSD-104, Material Condition/Housekeeping, Foreign Material Exclusion and Seismic Concerns
NSD-316, Fire Protection Impairment and Surveillance
MFSD-005.006, Unit 1 D/G Rooms
FS/1/B/9000/005, 1A D/G Fire Strategy #5
FS/1/B/9000/006, 1B D/G Fire Strategy #6
MFSD-021, Aux 750
FS/0/B/9000/021, (Aux 750) Fire Strategy #21
FS/1/B/9000/019, 750' Unit 1 Aux Cable Room Fire Strategy #19
FS/1/B/9000/020, 750' Unit 2 Aux Cable Room Fire Strategy #20

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

Quarterly Resident Inspector LOR Activity Review

NSD-509, Site Standards in Support of Operational Focus
SOMP 01-07, Control Room Oversight
Active Simulator Examination ASE-110

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

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

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
Maintenance Rule Periodic Assessment, McGuire Nuclear Station, July 1, 2014 – December 31, 2015

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
PT/2/A/4600/033, Loss of Control Room Annunciators
WO 20095274, Investigate/Repair loss of Unit 2 control room annunciators

Section 1R18: Plant Modifications

AR 1996208, 10 CFR 50.59 screen for EC 103972
WO 02169320, replace actuator on valve 1KC-56A
MCS-1573.KC-00-0001, Design Basis Specification for the KC System
MCFD-1573-01.01, Flow Diagram of the KC System
EC 405140, Install non-ASME code encapsulation sleeves on 1RN-883 & 1RN-884
AR 2050414, 10 CFR 50.59 screen for EC 405140

Section 1R19: Post-Maintenance Testing

NSD-408, Testing
AD-EG-ALL-1155, Post Modification Testing
WOs 20056521 and 20050624, 1B VE filter unit replacement and testing

PT/1/A/4450/001I, VE Train B HEPA and Carbon Adsorber Filters In-Place Leak Test
 PT/1/A/4450/012I, VE Train B Air Flow Measurement
 TS 5.5.11, Ventilation Filter Testing Program
 TS 3.6.10, Annulus Ventilation System
 MCSF-1564.VE-01, Flow Diagram of Annulus Ventilation System
 ANSI N510-1975, Testing of Nuclear Air-Cleaning Systems
 WO 01946548, 2EGA PN DGCP2B Replace (time to speed timer)
 PT/2/A/4351/001B, Diesel Generator Control Circuit Test
 IP/0/A/3061/012, Charging Site Lead-Acid Batteries

Section 1EP2: Alert and Notification System Evaluation

Procedures and Reports

PT/0/A/4600/103A, Siren System Availability (Silent Test), Rev. 4
 PT/0/A/4600/103B, Siren System Quarterly Test, Rev. 3
 PT/0/A/4600/103C, Siren System Annual Preventive Maintenance Review, Rev. 2
 FEMA Report – Analysis of the Prompt Alert and Notification System, dated 12/8/86
 FEMA Back-up ANS letter, November 2012
 MNS Site-Specific Offsite Radiological Emergency Plan Alert and Notification System Quality Assurance Verification report, dated 9/12/86
 Federal Signal Corporation 2001 Siren Manual, Rev. M1

Records and Data

Siren System Annual Preventive Maintenance records for 2015 and 2016
 Quarterly and Bi-weekly Activation Results from July 2014 through July 2016
 2015 and 2016 Robinson Nuclear Plant Emergency Preparedness Calendar mailer to members of the public in the 10-mile EPZ

Corrective Action Documents (Nuclear Condition Reports)

NCR 1686854, Siren #62 failure on 9/18/14 silent test
 NCR 1688902, Initial test results from quarterly full cycle siren test (siren #18 failed)
 NCR 1689168, Sirens 58 & 21 indicated an AC power failure
 NCR 1693637, Observations from daily polling
 NCR 1695166, Siren #57 failed the daily 0800 poll
 NCR 1696699, Weekly siren test results for siren #66 indicated failure
 NCR 1696810, Siren #25 is requiring multiple communication attempts
 NCR 1699939, Siren #62 required 5 attempts to respond

Section 1EP3: Emergency Response Organization Staffing and Augmentation System

Procedures

AD-EP-0002, NRC Regulatory Assessment Performance Indicator Guideline Emergency Preparedness Cornerstone, Rev. 1
 AD-EP-ALL-0501, Emergency Preparedness Staff Training and Qualification, Rev. 0
 AD-EP-ALL-0801, Design and Development of Drills and Exercises, Rev. 1
 AD-PI-ALL-0100, Corrective Action Program, Rev. 6
 MTP-7111.0, Emergency Response (ER) Training Program, Rev. 11
 RP/0/A/5700/002, Alert, Rev. 34
 RP/0/A/5700/012, Activation of the Technical Support Center (TSC), Rev. 46
 RP/0/A/5700/012, Activation of the Operational Support Center (OSC), Rev. 32

Records and Data

2015 and 2016 ERO Augmentation after-hours drill reports
 2015 and 2016 ERO Notification System call-out test results
 McGuire Nuclear Station On-Shift Staffing Analysis Report, dated 12/13/12
 Various EP staff and ERO member training records

Corrective Action Documents

NCR 1682467, Drill player arrived early in OSC
 NCR 1686661, The EOF Services Reference Manual contains outdated information
 NCR 1904517, Observation of the 0700 communications poll of McGuire
 NCR 1990587, Complex procedure used by CR communicators
 NCR 2042294, ERO Notification System down on 6/29/16
 NCR 2052745, EP Group Manual section 1.10 inadequate

Section 1EP4: Emergency Action Level and Emergency Plan ChangesProcedures

AD-EP-ALL-0502, Emergency Preparedness 10 CFR 50.54(q) Training Requirements, Rev. 1
 AD-EP-ALL-0602, Emergency Plan Change Screening & Effectiveness Evaluations 10 CFR 50.54 (q), Rev. 1

Records and Data

10 CFR 50.54(q) Screening Evaluation Form for MNS Emergency Plan Section H.2 Rev. 15-2, dated 9/24/15
 10 CFR 50.54(q) Effectiveness Evaluation Form for MNS Emergency Plan Section H.2 Rev. 15-2, dated 9/24/15
 10 CFR 50.54(q) Screening Evaluation Form for MNS Emergency Plan Section Q (Appendix) Rev. 15-3, dated 10/5/15
 10 CFR 50.54(q) Screening Evaluation Form for RP/0/A/5700/010, NRC Immediate Notifications, Rev. 28, dated 9/29/15
 10 CFR 50.54(q) Screening Evaluation Form for RP/0/A/5700/000, Emergency Classification, Rev. 24, dated 11/16/15
 10 CFR 50.54(q) Screening Evaluation Form for MNS Emergency Plan Section A Rev. 16-1, dated 1/11/16
 10 CFR 50.54(q) Screening Evaluation Form for MNS Emergency Plan Section H Rev. 16-1, dated 1/21/16
 10 CFR 50.54(q) Screening Evaluation Form for MNS Emergency Plan Section A Rev. 16-2, dated 4/11/16
 10 CFR 50.54(q) Screening Evaluation Form for MNS Emergency Plan Section B Rev. 16-2, dated 4/11/16
 10 CFR 50.54(q) Screening Evaluation Form for MNS Emergency Plan Section E Rev. 16-2, dated 4/11/16
 10 CFR 50.54(q) Screening Evaluation Form for MNS Emergency Plan Section F Rev. 16-2, dated 4/11/16
 10 CFR 50.54(q) Screening Evaluation Form for MNS Emergency Plan Section G Rev. 16-2, dated 4/11/16
 10 CFR 50.54(q) Screening Evaluation Form for MNS Emergency Plan Section I Rev. 16-2, dated 4/11/16
 10 CFR 50.54(q) Screening Evaluation Form for MNS Emergency Plan Section J Rev. 16-2, dated 4/11/16

- 10 CFR 50.54(q) Screening Evaluation Form for MNS Emergency Plan Section K Rev. 16-2, dated 4/11/16
- 10 CFR 50.54(q) Screening Evaluation Form for MNS Emergency Plan Section H Rev. 16-2, dated 4/14/16
- 10 CFR 50.54(q) Screening Evaluation Form for RP/0/A/5700/010, NRC Immediate Notifications, Rev. 30, dated 4/14/16

Corrective Action Documents

- NCR 1682439, Different procedure revisions in emergency response facilities
- NCR 2032454, RP/010, Revision 30 was approved and issued without EP knowledge
- NCR 2044175, 2016 NRC EP inspection readiness assessment
- NCR 2053399, NRC EP Baseline inspection minor violation (NRC identified)
- PRR 2053319, RP/0/A/5700/010 needs revised due to format change deletions

Section 1EP5: Maintenance of Emergency Preparedness

Procedures

- RP/0/A/5700/029, Self-Assessment and Benchmark Program, Rev. 002
- AD-PI-ALL-100, Corrective Action Program, Rev. 6
- AD-PI-ALL-300, Self-Assessment Report, Rev. 1, Attachment 6 for M-ORG-SA-15-02, EP
- AD-TQ-ALL-440, Processing Training Exemptions, Exemption Form, Rev. 2
- AD-EP-ALL-502, Emergency Preparedness, 10 CFR 50.54 (q) Training Requirement, Rev. 1, Attachment 2 and 10 CFR 50.54 (q) Reviewer Training Requirements Documentation
- AD-PI-ALL-801, Design and Development of Drill and Exercises, Rev. 1
- AD-PI-ALL-802, Conducting Drill and Exercises, Rev. 2
- AD-PI-ALL-803, Evaluation and Critique of Drill and Exercise, Rev. 0
- RP/0/A/5700/020, Activation of the Operations Support Center (OSC), Rev. 32
- RP/0/A/5700/029, MNS Notifications to Offsite Agencies from the Control Room, Rev. 017A
- RP/0/B/5700/031, Compensatory Measures for Equipment Important to Emergency Planning, Rev. 0

Records and Data

- KLD TR-571, McGuire Nuclear Station, Population Analysis 2013, 2014, and 2015, October 20, 2013, October 19, 2014, and October 18, 2014 respectively
- Emergency Planning Functional Area Manual Section 3.10, 10 CFR 50.54(q) Evaluations, Rev. 12
- 2015 and 2016 Emergency drill summary and critique reports
- 2015 Biennial Exercise assessment documentation – Drill Critique Reports
- ERO Integrated Drill Reports for July, 2015, through June, 2016 (12 total)
- Challenge Board for Hostile Action Drill for NRC Graded Exercise
- AD-HU-ALL-0001, Human Performance Review Board (HURB) Charter, Rev. 8, Attachment 3
- 2014-MNS/NGO-EP-01, Nuclear Oversight (NOS) Audit, 2014 McGuire and Nuclear General Office EP Audit, dates: 2/10-13/2014
- NOS-2016-057, NOS Audit Report – McGuire Nuclear Station Emergency Planning for 2016-NMS-EP-01, 3/21/2016
- 10 CFR 50.54(q) Screening Evaluation Form for MNS Emergency Plan Section A Rev. 16-1, dated 1/11/16
- 10 CFR 50.54(q) Screening Evaluation Form for MNS Emergency Plan Section A Rev. 16-2, dated 4/11/16

10 CFR 50.54(q) Screening Evaluation Form for RP/0/A/5700/010, NRC Immediate Notifications, Rev. 28, dated 9/29/15
 10 CFR 50.54(q) Screening Evaluation Form for HP/0/B/1009/024, Personnel Monitoring for Emergency Conditions, Rev. 4
 Work Order (WO) # 02086855 01, Spent Fuel Building Radiation Monitor 2EMF42, 1/13/2014
 WO # 02101461 02, PT 2EMF-51B Source Check Containment Radiation Monitor, 4/3/2014
 WO # 02101462 02, PT 2EMF-51A Source Check Containment Radiation Monitor, 4/3/2014

Corrective Action Documents

NCR 1682421, When manually inputting RADD0SE
 NCR 1695203, HAZMAT callout
 NCR 1696797, Lincoln County warning contacted the McGuire Control Room
 NCR 1902702, Review of OE provided in PIP C-15-000953
 NCR 1903096, Instructions in EP Functional Area Manual for logging entries
 NCR 1940037, NRC exercise notification of ALERT was not made in 1 hour
 NCR 1940081, Unqualified RP tech during ERO Drill
 NCR 1973711, Emergency Sirens Randomly reporting status
 NCR 1974806, ERO drill 2015-07
 NCR 1998100, NOS ID: Incorrect EP Procedure revision available
 NCR 1999480, NOS ID: Actions taken not aligned with CAP procedures
 NCR 2002816, NOS ID: Challenges with retrieval of records in Fusion
 NCR 2025794, Critique of Actual Medical Event on 3/21/16
 NCR 2036191, EP drill and exercise performance trend
 NCR 2052707, NRC EP inspection Request for Information (NRC identified)
 NCR 2053334, Wrong revision of HP/0/B/1009/024 in emergency kits (NRC identified)

Section 1EP6: Drill Evaluation

EP/1/A/5000/E-0, Reactor Trip or Safety Injection
 EP/1/A/5000/ES-0.1, Reactor Trip Response
 EP/1/A/5000/E-1, Loss of Reactor or Secondary Coolant
 EP/1/A/5000/ES-1.2, Post LOCA Cooldown and Depressurization
 RP/0/A/5700/000, Classification of Emergency
 RP/0/A/5700/001, Notification of Unusual Event
 RP/0/A/5700/002, Alert
 RP/0/A/5700/004, General Emergency
 RP/0/A/5800/010, NRC Immediate Notification Requirements
 RP/0/B/5700/029, Notification to Offsite Agencies from the Control Room

Section 40A1: Performance Indicator (PI) Verification

AD-LS-ALL-0004, NRC Performance Indicators and Monthly Operating Report, Rev. 001
 AD-EP-ALL-0001, Emergency Preparedness Key Performance Indicators, Rev. 001
 AD-EP-ALL-0002, NRC Regulatory Assessment Performance Indicator Guideline Emergency Preparedness Cornerstone, Rev. 001
 AD-PI-ALL-0100, Corrective Action Program
 AD-EP-ALL-0801, Design and Development of Drills and Exercises
 DEP opportunities documentation for 3rd and 4th quarters 2015; 1st and 2nd quarters 2016
 Siren test data for 3rd and 4th quarters 2015; 1st and 2nd quarters 2016
 Drill and exercise participation records of ERO personnel for 3rd and 4th quarters 2015; 1st and 2nd quarters 2016

NCR 1681095, Three ERO positions were not staffed for the ERO Team 2 muster
 NCR 1695267, During performance of the ERO drill 2014-04 off-site agency deficiency
 NCR 1704440, MNS ERO members show inactive in the ERO database
 NCR 1984926, Water intrusion in ANS siren cabinets
 NCR 1988700, DEP Failure on McGuire simulator
 NCR 2000630, DEP KPI changed from green to yellow in January 2016
 NCR 2002364, Missed Classification in the 2-17-16 MNS ERO drill
 NCR 2002903, Siren #51 did not rotate during full sounding test
 McGuire Data File: MC-854.02-3, Heat Removal
 McGuire Data File: MC-854.02-4, Residual Heat Removal
 Control Room, Shift Operations Management System (eSOMS)
 Maintenance Rule Logs

Section 40A2: Problem Identification and Resolution

AD-PI-ALL-0100, Corrective Action Program
 AD-PI-ALL-0101, Root Cause Evaluation
 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
 Selected Licensee Commitment Special Report 2015-01, dated September 10, 2015
 SLC 16.9.7, Standby Shutdown System
 OP/1/A/6400/006, Nuclear Service Water System
 MCS-1223.SS-00-0001, Design Basis Specification for the Standby Shutdown System
 MCC-1223.42-00-0055, Design Considerations and Bases for 1/2CA161C and 1/2CA-162C
 Automatic Open Deletion Modifications, MD101869 and MD201870

Section 40A5: Other Activities

Operation of an Independent Spent Fuel Storage Installation (60855.1)
 MP/0/A/7650/227, (ISFSI) Loading Spent Fuel Assemblies Into MAGNASTOR Casks
 MP/0/A/7650/231, (ISFSI) Operation of Dry Cask Transporter (MAGNASTOR Spent Fuel Casks)
 MP/0/A/7650/234, (ISFSI) MAGNASTOR Spent Fuel Cask Loading Contingencies
 HP/2/B/1006/045, ISFSI Radiation Protection Controls for Loading Spent Fuel Assemblies into NAC Magnastor Dry Storage Casks
 OP/0/A/6550/011, Internal Transfer
 OP/0/A.6550/029, (ISFSI) MAGNASTOR Fuel Assembly Loading/Unloading Procedure