



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

September 7, 2017

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

**SUBJECT: MCGUIRE NUCLEAR STATION – U.S. NUCLEAR REGULATORY COMMISSION  
EMERGENCY PREPAREDNESS INSPECTION REPORT 05000369/2017502  
AND 05000370/2017502**

Dear Mr. Capps:

On August 10, 2017, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your McGuire Nuclear Station. On August 10, 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.

The NRC inspectors did not identify any findings or violations of more than minor significance.

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/

Brian R. Bonser, Chief  
Plant Support Branch 1  
Division of Reactor Safety

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

Enclosure:  
NRC IR 05000369, 370/2017502  
w/Attachment: Supplemental Information

cc: Distribution via Listserve

SUBJECT: MCGUIRE NUCLEAR STATION – U.S. NUCLEAR REGULATORY COMMISSION  
 EMERGENCY PREPAREDNESS INSPECTION REPORT 05000369/2017502  
 AND 05000370/2017502 dated September 7, 2017

**DISTRIBUTION:**

F. Ehrhardt, RII, DRP  
 J. Worosilo, RII, SPE  
 M. Toth, RII, PE  
 A. Hutto, RII, SRI  
 R. Cureton, RII, RI  
 S. Price, RII, ORA/RC  
 K. Sloan, RII, EICS  
 RIDSNRRDIRS  
 PUBLIC

\* See previous page for concurrence

PUBLICLY AVAILABLE     NON-PUBLICLY AVAILABLE     SENSITIVE     NON-SENSITIVE  
 ADAMS:  Yes    ACCESSION NUMBER:     SUNSI REVIEW COMPLETE     FORM 665 ATTACHED

OFFICE	RII:DRS	RII:DRS	RII:DRS	RII:DRS	RII:DRP	RII:DRP	RII DRS
SIGNATURE	SPS	<b>JDH9</b>	<b>CAF2</b>	<b>JRP1</b>	<b>GAH2</b>	FJE	BRB1
NAME	S. SANCHEZ	J. HICKMAN	C. FONTANA	J. PANFEL	G. HUTTO	F. EHRHARDT	B. BONSER
DATE	9/5/2017	8/31/2017	8/31/2017	9/1/2017	8/31/2017	9/7/2017	9/7/2017
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

OFFICIAL RECORD COPY DOCUMENT NAME: G:\DRSI\PSB1\INSPECTION REPORTS (EP)\2017\MCG EP IR 2017-502.DOCX

**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION II**

Docket Nos: 50-369, 50-370

License No: NPF-9, NPF-17

Report No: 05000369/2017502 and 05000370/2017502

Licensee: Duke Energy Carolinas, LLC

Facility: McGuire Nuclear Station, Units 1 and 2

Location: Huntersville, NC

Dates: August 7 – 11, 2017

Inspectors: Steven P. Sanchez, Senior Emergency Preparedness Inspector  
Christopher A. Fontana, Emergency Preparedness Inspector  
John D. Hickman, Emergency Preparedness Inspector  
G. Andy Hutto, Senior Resident Inspector  
Jacob Panfel, Health Physicist

Approved by: Brian R. Bonser, Chief  
Plant Support Branch 1  
Division of Reactor Safety

Enclosure

## **SUMMARY**

Inspection Report (IR) 05000369/2017502 and 05000370/2017502; 08/07/2017 – 08/11/2017; McGuire Nuclear Station, Units 1 and 2; Exercise and Baseline Inspection.

This report covers an announced inspection by three emergency preparedness inspectors, one senior resident inspector, and one health physicist. The U.S. Nuclear Regulatory Commission's (NRC) program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 6.

The NRC inspectors did not identify any findings or violations of more than minor significance.

## REPORT DETAILS

### 1. REACTOR SAFETY

Cornerstone: Emergency Preparedness

#### 1EP1 Exercise Evaluation

##### a. Inspection Scope

The onsite inspection consisted of the following review and assessment:

- The adequacy of the licensee's performance in the biennial exercise, conducted on August 8, 2017, was reviewed and assessed regarding the implementation of the Risk Significant Planning Standards in 10 CFR 50.47(b)(4), (5), (9), and (10); which address emergency classification, offsite notification, radiological assessment, and protective action recommendations, respectively.
- The overall adequacy of the licensee's emergency response facilities with regard to NUREG-0696, "Functional Criteria for Emergency Response Facilities," and Emergency Plan commitments. The facilities assessed were the Control Room Simulator, Technical Support Center, Operations Support Center, and the corporate Emergency Operations Facility.
- Other performance areas, such as the emergency response organization's (ERO) recognition of abnormal plant conditions; command and control, intra- and inter-facility communications; prioritization of mitigation activities; utilization of repair and field monitoring teams; interface with offsite agencies; and the overall implementation of the emergency plan and its implementing procedures.
- Past performance issues from NRC inspection reports and Federal Emergency Management Agency (FEMA)/Department of Homeland Security (DHS) exercise reports to determine the effectiveness of corrective actions as demonstrated during this exercise to ensure compliance with 10 CFR 50.47(b)(14).
- The post-exercise critique process and the presentation to the licensee's senior management conducted on August 10, 2017, to evaluate the licensee's self-assessment of its ERO performance during the exercise, and to ensure compliance with 10 CFR Part 50, Appendix E, Subsection IV.F.2.g.

The inspectors reviewed various documents, which are listed in the Attachment. The inspectors also attended the FEMA-sponsored public meeting on August 10, 2017. This inspection activity satisfied one inspection sample for the exercise evaluation 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 revisions to the emergency plan, two revisions to the emergency action levels, and several revisions to emergency plan implementing procedures had been made. The licensee determined that, in accordance with 10 CFR 50.54(q), the emergency plan continued to meet the requirements of 10 CFR 50.47(b), and Appendix E to 10 CFR Part 50. The inspectors reviewed the revisions, and sampled implementing procedure changes to evaluate potential reductions in the effectiveness of the Plan. As this review was not documented in a Safety Evaluation Report, and does not constitute formal NRC approval of the changes, these changes remain subject to future NRC inspection in their entirety.

The inspection was conducted in accordance with NRC Inspection Procedure (IP) 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 Part 50, Appendix E, were used as reference criteria. The inspectors reviewed various documents, which are listed in the Attachment to this report. 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.

#### 1EP8 Exercise Evaluation – Scenario Review

##### a. Inspection Scope

Prior to the inspection activity, the inspectors conducted an in-office review of the exercise objectives and scenario submitted to the NRC using IP 71114.08, "Exercise Evaluation - Scenario Review," to determine if the exercise would test major elements of the emergency plan as required by 10 CFR 50.47(b)(14). The inspectors reviewed various documents, which are listed in the Attachment to this report. This inspection activity satisfied one inspection sample for the exercise evaluation on a biennial basis.

##### b. Findings

No findings were identified.

#### 4. OTHER ACTIVITIES

##### 4OA1 Performance Indicator Verification

##### a. Inspection Scope

The inspectors sampled licensee submittals relative to the performance indicators (PIs) listed below for the period July 1, 2016, through June 30, 2017. To verify the accuracy of the PI data reported during that period, PI definitions and guidance contained in

Nuclear Energy Institute 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, was used to confirm the reporting basis for each data element.

#### Emergency Preparedness Cornerstone

- 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 PIs for ERO and DEP 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 ANS 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.

#### 4OA6 Meetings

On August 10, 2017, the inspection team presented the inspection results to Mr. S. Capps and other members of the plant staff. The inspectors confirmed that no proprietary information was provided during the inspection.

ATTACHMENT: SUPPLEMENTAL INFORMATION

## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### **Licensee Personnel**

R. Burris, Emergency Preparedness (EP) Specialist  
S. Capps, Site Vice President  
R. Gibson, Emergency Preparedness Specialist  
J. Glenn, Organizational Effectiveness Manager  
K. Murray, Emergency Preparedness Manager  
B. Nanney, Fleet Emergency Preparedness Manager  
M. Nelson, Fleet EP Drill/Exercise Coordinator  
B. Richards, Regulatory Affairs  
S. Snider, Plant Manager  
J. Thomas, Regulatory Affairs Manager  
D. Thompson, Manager, Fleet Emergency Preparedness

### **LIST OF DOCUMENTS REVIEWED**

#### **1EP1 Exercise Evaluation**

##### **Procedures**

AD-EP-ALL-0202, Emergency Offsite Dose Assessment, Rev. 4  
AD-EP-ALL-0204, Distribution of Potassium Iodide Tablets in the Event of a Radioiodine Release, Rev. 0  
AD-EP-ALL-0801, Design & Development of Drills and Exercises, Rev. 2  
AD-EP-ALL-0802, Conducting Drills & Exercises, Rev. 3  
AD-EP-ALL-0803, Evaluation & Critique of Drills & Exercises, Rev. 1  
RP/0/A/5700/002, Alert, Rev. 35  
RP/0/A/5700/003, Site Area Emergency, Rev. 35  
RP/0/A/5700/004, General Emergency, Rev. 33  
RP/0/A/5700/010, NRC Immediate Notification Requirements, Rev. 31  
RP/0/A/5700/011, Conducting a Site Assembly, Site Evacuation or Containment Evacuation, Rev. 20  
RP/0/A/5700/012, Activation of the Technical Support Center, Rev. 49  
RP/0/A/5700/019, Core Damage Assessment, Rev. 7  
RP/0/A/5700/020, Activation of the Operational Support Center, Rev. 32  
SR/0/A/2000/003, Activation of the Emergency Operations Facility, Rev. 13

##### **Records and Data**

2017 NRC Evaluated Emergency Preparedness Exercise Scenario Manual, dated 8/8/17  
McGuire Graded Exercise, 8/10/17 Management Debrief  
Control Room Simulator, Operations Support Center, Technical Support Center, and  
Emergency Operations Facility /Joint Information Center - Documentation packages (logs,  
event notification forms, Protective Action Recommendations, Media releases, and  
Radiological Dose Assessments)

##### **Corrective Action Program Documents (Nuclear Condition Reports)**

NCR 02036191, EP Drill and Exercise Trend  
NCR 02047160, Computer changes in OSC affected ERO preparedness  
NCR 02122505, KPI for Drill and Exercise Performance changed to yellow

NCR 02142200, ERDS not received by NC Emergency Management  
 NCR 02142218, Equipment issues in Charlotte EOF  
 NCR 02142705, Failed demonstration criteria during MNS ERO drill 17-04  
 NCR 02142733, 2017 MNS graded exercise unsat demonstration criteria  
 NCR 02142735, TSC equipment issues identified during NRC graded exercise  
 NCR 02142797, EP Objective 03 Demonstration Criteria 2 fleet applicability determination  
 NCR 02142930, FEMA finding for Mecklenburg County MEDIC  
 NCR 02142932, Offsite JIC FEMA finding  
 NCR 02142956, Use of variance during emergency drill on simulator

#### 1EP4 Emergency Action Level and Emergency Plan Changes

##### Procedures

AD-EP-ALL-0501, Emergency Preparedness Staff Training & Qualifications, Rev. 1  
 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  
 McGuire Emergency Plan, Rev. 16-3, 16-4, & 16-5  
 RP/0/A/5700/000, Classification of Emergencies, Rev. 029  
 RP/0/A/5700/018, Notifications to the State & Counties from the TSC, Rev. 031  
 RP/0/B/5700/029, Notifications to Offsite Agencies from the Control Room, Rev. 022

##### Change Packages

10 CFR 50.54(q) Screening Evaluation Form for MNS Emergency Plan Section B, Rev. 16-3, dated 8/22/16  
 10 CFR 50.54(q) Effectiveness Evaluation Form for MNS Emergency Plan Section B, Rev. 16-3, dated 8/22/16  
 10 CFR 50.54(q) Screening Evaluation Form for MNS Emergency Plan Section E, Rev. 16-3, dated 8/22/16  
 10 CFR 50.54(q) Effectiveness Evaluation Form for MNS Emergency Plan Section E, Rev. 16-3, dated 8/22/16  
 10 CFR 50.54(q) Screening Evaluation Form for MNS Emergency Plan Section H, Rev. 16-3, dated 8/24/16  
 10 CFR 50.54(q) Screening Evaluation Form for MNS Emergency Plan Section J, Rev. 16-4, dated 11/10/16  
 10 CFR 50.54(q) Effectiveness Evaluation Form for MNS Emergency Plan Section D, Rev. 16-4, dated 11/10/16  
 10 CFR 50.54(q) Screening Evaluation Form for MNS Emergency Plan Section D, Rev. 16-5, dated 11/14/16  
 10 CFR 50.54(q) Effectiveness Evaluation Form for MNS Emergency Plan Section D, Rev. 16-5, dated 11/14/16  
 10 CFR 50.54(q) Screening Evaluation Form for RP/0/B/5700/029, Rev. 022, dated 5/16/17  
 10 CFR 50.54(q) Screening Evaluation Form for RP/0/A/5700/018, Rev. 031, dated 5/16/17  
 10 CFR 50.54(q) Screening Evaluation Form for RP/0/A/5700/000, Rev. 029, dated 6/1/17

##### Corrective Action Program Documents

NCR 02046338, Evaluate improving process of change description in 50.54(q)'s  
 NCR 02048254, NRC EP program inspection procedure revisions  
 NCR 02051958, EAL wall charts may need to include RVLIS check  
 NCR 02053399, NRC EP Baseline Inspection Minor Violation  
 NCR 02069320, NEI 99-01 R6 Emergency Action Level Upgrade RAI

NCR 02103672, Conflicting information in Emergency Plan HU4.1 EAL basis  
 NCR 02106825, RP/0/5700/000 wall chart for EAL declarations  
 NCR 02139171, EPIP approved without coordinating with EP  
 NCR 02143087, Procedure PAR not aligned with the Emergency Plan (NRC-identified)

### 1EP8 Exercise Evaluation

#### Procedures

AD-EP-ALL-0801, Design & Development of Drills and Exercises, Rev. 2  
 AD-EP-ALL-0802, Conducting Drills & Exercises, Rev. 3  
 AD-EP-ALL-0803, Evaluation & Critique of Drills and Exercises, Rev. 1

#### Records and Data

2017 NRC Evaluated Emergency Preparedness Exercise Scenario Manual, dated 8/8/17  
 Various Drill Critique Reports, 2016-2017  
 FEMA - McGuire Nuclear Station Final After Action Report, dated 9/23/15

### 4OA1 Performance Indicator Verification

#### Procedures

AD-EP-ALL-0001, Emergency Preparedness Key Performance Indicators, Rev. 2  
 AD-EP-ALL-0002, NRC Regulatory Assessment Performance Indicator Guideline, Rev. 2  
 AD-PI-ALL-0100, Corrective Action Program, Rev. 7  
 AD-PI-ALL-0200, Performance Trending, Rev. 5

#### Records and Data

DEP opportunities documentation for 3<sup>rd</sup> & 4<sup>th</sup> quarters 2016, and 1<sup>st</sup> & 2<sup>nd</sup> quarters 2017  
 Siren test data for 3<sup>rd</sup> & 4<sup>th</sup> quarters 2016, and 1<sup>st</sup> & 2<sup>nd</sup> quarters 2017  
 Drill and exercise participation records for 3<sup>rd</sup> & 4<sup>th</sup> quarters 2016, and 1<sup>st</sup> & 2<sup>nd</sup> quarters 2017  
 MNS Performance Trending Report, dated 2/2/17

### Corrective Action Program Documents

NCR 02002364, Missed classification in ERO drill  
 NCR 02019337, MNS Siren Performance for 1/2016 corrected  
 NCR 02020173, Siren #57 failed Quarterly Full Cycle Test  
 NCR 02025335, Siren #27 failed scheduled weekly test  
 NCR 02028286, Siren #27 failed scheduled weekly test on 5/10/16  
 NCR 02035021, Lincoln County warning point lost activation capability  
 NCR 02045499, Siren #57 test failure  
 NCR 02049712, Out of Sequence notifications counted for DEP  
 NCR 02050258, Siren #57 out of service during scheduled test  
 NCR 02051428, EP Drill failure – missed classification  
 NCR 02051645, Failed siren due to electrical fault  
 NCR 02089244, Siren failed scheduled silent test on 1/3/17  
 NCR 02091090, Lincoln County did not conduct their siren test  
 NCR 02097707, Siren #33 failed weekly test on 1/3/2017  
 NCR 02103908, Lincoln County did not complete siren silent test on 2/23/17  
 NCR 02104672, Siren #31 out of service to overhaul signal receiving system  
 NCR 02106052, Siren UPS at Gaston County 911 Center replaced  
 NCR 02116703, ANS upgrade project 201  
 NCR 02119733, Error in September DEP KPI Data

NCR 02131345, Siren #15 out of service  
NCR 02134444, Siren #15 reported failure on 6/13/17 test, retest successful  
NCR 02136609, EAS Siren Notification of remote alarm

### **LIST OF ACRONYMS USED**

ADAMS	Agencywide Documents Access and Management System
ANS	Alert and Notification System
CAP	Corrective Action Program
CFR	Code of Federal Regulations
DEP	Drill and Exercise Performance
DHS	Department of Homeland Security
ERO	Emergency Response Organization
FEMA	Federal Emergency Management Agency
IMC	Inspection Manual Chapter
IP	Inspection Procedure
IR	Inspection Report
NCV	Non-Cited Violation
NRC	Nuclear Regulatory Commission
PI	Performance Indicator
PI&R	Problem Identification and Resolution
ROP	Reactor Oversight Process
SDP	Significance Determination Process