



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

May 16, 2017

Tanya Hamilton  
Site Vice President  
Shearon Harris Nuclear Plant  
5413 Shearon Harris Road  
M/C HNP01  
New Hill, NC 27562-0165

**SUBJECT: SHEARON HARRIS NUCLEAR PLANT – U.S. NUCLEAR REGULATORY  
COMMISSION EMERGENCY PREPAREDNESS INSPECTION REPORT  
05000400/2017502**

Dear Ms. Hamilton:

On April 28, 2017, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Shearon Harris Nuclear Plant. The enclosed inspection report (IR) documents the inspection results that were discussed on April 28, 2017, with you and members of your staff.

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 No. 50-400  
License No. NPF-63

Enclosure:  
NRC IR 05000400/2017502  
w/Attachment: Supplementary Information

cc: Distribution via Listserv

SUBJECT: SHEARON HARRIS NUCLEAR STATION – U.S. NUCLEAR REGULATORY COMMISSION EMERGENCY PREPAREDNESS INSPECTION REPORT  
05000400/2017502 dated: ,May 16, 2017

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E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION II**

Docket No: 05000400

License No: NPF-63

Report No: 05000400/2017502

Licensee: Duke Energy Progress, Inc.

Facility: Shearon Harris Nuclear Plant, Unit 1

Location: New Hill, NC

Dates: April 24 - 28, 2017

Inspectors: Steven P. Sanchez, Senior Emergency Preparedness Inspector  
Christopher A. Fontana, Emergency Preparedness Inspector  
Wade Loo, Senior Health Physicist  
Jacob Panfel, Health Physicist  
James Dodson, Senior Project Engineer

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

Enclosure

## **SUMMARY**

Inspection Report (IR) 05000400/2017502; 04/24/2017 – 04/28/2017; Shearon Harris Nuclear Plant, Unit 1; Exercise and Baseline Inspection

This report covers an inspection by two emergency preparedness inspectors, two health physicists, and one senior project engineer. No findings of significance were identified. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 6.

## 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 April 26, 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 offsite 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 April 27, 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 April 28, 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, one revision to the emergency plan, one revision 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 April 1, 2016, through December 31, 2016. 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 April 28, 2017, the inspection team presented the inspection results to Ms. T. Hamilton and other members of the plant staff. The inspectors confirmed that proprietary information was provided and returned during the inspection.

ATTACHMENT: Supplementary Information

## **SUPPLEMENTARY INFORMATION**

### **KEY POINTS OF CONTACT**

#### Licensee personnel

B. Belfer, General Supervisor, Radiation Protection  
J. Brown, Emergency Preparedness Trainer  
S. Cahill, Manager, Work Management  
M. Denny, Director, Plant Engineering  
L. Faulk, Director, Nuclear Security  
P. Fisk, Plant Manager  
M. Grantham, Director, Engineering  
D. Griffith, Manager, Training  
T. Hamilton, Site Vice President  
K. Henderson, Senior Vice President, Corporate  
B. Jones, Director, Organizational Effectiveness  
J. Keltner, Manager, Chemistry  
T. Mitchell, Manager, Maintenance  
B. Nanney, Manager, Fleet Emergency Preparedness  
I. Nordby, Senior Engineer  
S. O'Connor, General Manager, Engineering  
W. Pitesa, Chief Nuclear Officer  
J. Robertson, Manager, Regulatory Affairs  
S. Scott, Manager, Operations  
J. Sharlow, Senior Emergency Preparedness Specialist  
G. Simmons, Manager, Emergency Preparedness  
D. Stih, Emergency Preparedness Specialist  
D. Thompson, Corporate Functional Area Manager  
T. Toler, Manager, Nuclear Oversight  
R. Vandenberg, Assistant Operations Manager  
E. White, Emergency Preparedness Specialist, Corporate  
F. Womack, Senior Projects Director

### **LIST OF DOCUMENTS REVIEWED**

#### 1EP1 Exercise Evaluation

#### Procedures

AD-EP-ALL-0202, Emergency Offsite Dose Assessment, Rev. 3  
AD-EP-ALL-0801, Design and Development of Drills and Exercises, Rev. 2  
AD-EP-ALL-0802, Conducting Drills and Exercises, Rev. 3  
AD-EP-ALL-0803, Evaluation and Critique of Drills and Exercises, Rev. 1  
AD-EP-ALL-1000, Conduct of Emergency Preparedness, Rev. 1  
AD-PI-ALL-0100, Corrective Action Program, Rev. 7  
AOP-32, High Reactor Coolant System Activity, Rev. 20  
AOP-38, Rapid Downpower, Rev. 44  
EOP-E-1, Loss of Reactor or Secondary Coolant, Rev. 4  
EOP-ES-1.2, Post LOCA Cooldown & Depressurization, Rev. 2  
PEP-230, Control Room Operations, Rev. 28  
PEP-240, Activation & Operation of the Technical Support Center, Rev. 23  
PEP-260, Activation & Operation of the Operations Support Center, Rev. 18



PEP-260, Activation and Operation of the OSC, Att. 2, Damage Control Coordinator Checklist; Att. 6, OSC Log Keeper Checklist; and Att.10, OSC Log from Chemical Coordinator  
 PEP-270, Activation and Operation of the Emergency Operations Facility, Rev. 35  
 PEP-310, Notifications & Communications, Rev. 37  
 PEP-330, Radiological Consequences, Rev. 13  
 PEP-342, Core Damage Assessment, Rev. 6  
 PEP-350, Protective Actions, Rev.10  
 PLP-201, Emergency Plan, Rev. 66

#### Records and Data

Harris Graded Exercise, 4/27/17 Management Debrief  
 Harris Nuclear Plant, Duke Energy, Emergency Response Organization (ERO),  
 Graded Exercise, 17-04, Scenario Manual  
 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 02119680, EP Drill 17-04 OSC facility log in/out board  
 NCR 02119686, Graded Exercise: ENF line 10 wrong units used  
 NCR 02119687, Release information provided on ENF  
 NCR 02119693, Individual eating following restrictions in EOF  
 NCR 02119704, Graded Exercise17-04: OSC WedEOC issues  
 NCR 02119709, Graded Exercise 17-04: WebEOC update irregularities  
 NCR 02119757, Graded Exercise emergency notification message 9  
 NCR 02119894, HNP ERO Graded Exercise scenario development improvements  
 NCR 02119910, JIC intrafacility briefings not used as communication method  
 NCR 02119939, Approval of KI to support emergency missions  
 NCR 02120143, ERO Graded Exercise: use of ENF for initial NRC notification  
 NCR 02120160, ERO Graded Exercise: J-5 objective evaluation  
 NCR 02120164, OSC controller TAM during Harris Graded Exercise 17-04  
 NCR 02120165, ENF initial versus actual  
 NCR 02120212, HNP EP Exercise inspection minor violation (NRC identified)

#### 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 10CFR50.54(q) Training Requirements, Rev. 1  
 AD-EP-ALL-0602, Emergency Plan Change Screening & Effectiveness Evaluations 10 CFR  
 50.54(q), Rev. 1  
 EP-EAL, Emergency Action Level, Revs. 16 & 17  
 PEP-110, Emergency Classification and Protective Action Recommendations, Revs. 25& 26  
 PLP-201, Emergency Plan, Revs. 65 & 66

##### Change Packages

10 CFR 50.54(q)(3) Screening Form for HNP E-Plan Rev. 66, dated 3/28/17  
 10 CFR 50.54(q)(3) Evaluation Form for HNP E-Plan Rev. 66, dated 3/28/17  
 10 CFR 50.54(q)(3) Screening Form for EP-EAL Rev. 17, dated 9/15/16  
 10 CFR 50.54(q)(3) Evaluation Form for EP-EAL Rev. 17, dated 9/20/16  
 10 CFR 50.54(q)(3) Screening Form for PEP-110 Rev. 26, dated 4/4/17  
 10 CFR 50.54(q)(3) Evaluation Form for PEP-110 Rev. 26, dated 4/4/17

10 CFR 50.54(q)(3) Screening Form for PEP-310 Rev. 37, dated 9/1/16  
 10 CFR 50.54(q)(3) Evaluation Form for PEP-310 Rev. 37, dated 9/1/16  
 10 CFR 50.54(q)(3) Screening Sheet for PEP-330 Rev. 13, dated 7/14/16  
 10 CFR 50.54(q)(3) Evaluation Sheet for PEP-330 Rev. 13, dated 7/14/16  
 10 CFR 50.54(q)(3) Screening Form for PEP-350 Rev. 10, dated 10/20/15  
 10 CFR 50.54(q)(3) Evaluation Form for PEP-350 Rev. 10, dated 10/20/15

Corrective Action Program Documents

NCR 01966460, Perform regulatory reviews in accordance with AD-EP-ALL-0602

1EP8 Exercise Evaluation

Procedures

AD-EP-ALL-801, Design and Development of Drills and Exercises, Rev. 2  
 AD-EP-ALL-802, Conducting Drills and Exercises, Rev. 3  
 AD-EP-ALL-803, Evaluation and Critique of Drills and Exercises, Rev. 1

Records and Data

Emergency Response Organization 15-10 HAB Exercise Manual  
 Final After Action Report for Shearon Harris Nuclear Power Plant, dated 5/23/16  
 Harris Nuclear Plant 2015 NRC Graded Exercise – HAB 10/27/15 Critique Report for Drill 15-10  
 Harris Nuclear Plant 2017 NRC Graded Exercise Manual  
 Harris Nuclear Plant 17-04, Drill & Exercise Performance Summary Table  
 Scenario Review Checklist

Corrective Action Program Documents

NCR 01969628, QHSA on the 15-10 Graded HAB exercise

40A1 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 Emergency Preparedness Cornerstone, Rev. 2

Records and Data

DEP opportunities documentation for 2<sup>nd</sup>, 3<sup>rd</sup>, and 4<sup>th</sup> quarters 2016  
 Siren test data for 2<sup>nd</sup>, 3<sup>rd</sup>, and 4<sup>th</sup> quarters 2016  
 Drill and exercise participation records for 2<sup>nd</sup>, 3<sup>rd</sup>, and 4<sup>th</sup> quarters 2016  
 Quick Cause Evaluation Report for NCR 02032192, dated 7/16/16

Corrective Action Program Documents

NCR 02032192, Missed DEP opportunity  
 NCR 02032713, EP Drill rosters discrepancies  
 NCR 02045119, C-31 Siren damaged due to an automobile accident  
 NCR 02047022, ERO Drill 16-07 DEP failure  
 NCR 02069198, Chatham County not notified within time requirement  
 NCR 02119255, May 2016 Drill Participation KPI discrepancy (NRC identified)  
 NCR 02119455, Siren test and record missing one page of 2016 DEP PI data (NRC identified)

## **LIST OF ACRONYMS USED**

ADAMS	Agency wide 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
NCV	Non-Cited Violation
NRC	Nuclear Regulatory Commission
PIM	Plant Issues Matrix
PI	Performance Indicator
PI&R	Problem Identification and Resolution
ROP	Reactor Oversight Process
SDP	Significance Determination Process
SUNSI	Sensitive Unclassified Non-Safeguards Information
TBD	To Be Determined
TI	Temporary Instruction
VIO	Violation