



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II

245 PEACHTREE CENTER AVENUE NE, SUITE 1200
ATLANTA, GEORGIA 30303-1257

August 25, 2016

William R. Gideon
Site Vice President
Brunswick Steam Electric Plant
8470 River Road SE (M/C BNP001)
Southport, NC 28461

SUBJECT: BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2 – U.S. NUCLEAR
REGULATORY COMMISSION EMERGENCY PREPAREDNESS INSPECTION
REPORT 05000325/2016502 AND 05000324/2016502

Dear Mr. Gideon:

On July 28, 2016, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Brunswick Steam Electric Plant, Units 1 and 2. The enclosed inspection report (IR) documents the inspection results that were discussed on July 28, 2016, with you and members of your staff.

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

In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 2.390, "Public inspections, exemptions, requests for withholding," of the NRC's "Agency Rules of Practice and Procedure," a copy of this letter, its Enclosure, and your response if any, will be available electronically for public inspection in the NRC's Public Document Room, or from the Publicly Available Records (PARS) component of NRC's Agencywide Documents Access and Management System (ADAMS); accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA: Adam D. Nielsen for/

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

Docket Nos. 50-325 and 50-324
License Nos. DPR-71 and DPR-62

Enclosure:
NRC IR 05000325 and 324/2016502
w/Attachment: Supplementary Information

cc: Distribution via Listserv

August 25, 2016

William R. Gideon
Site Vice President
Brunswick Steam Electric Plant
8470 River Road SE (M/C BNP001)
Southport, NC 28461

SUBJECT: BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2 – U.S. NUCLEAR
REGULATORY COMMISSION EMERGENCY PREPAREDNESS INSPECTION
REPORT 05000325/2016502 AND 05000324/2016502

Dear Mr. Gideon:

On July 28, 2016, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Brunswick Steam Electric Plant, Units 1 and 2. The enclosed inspection report (IR) documents the inspection results that were discussed on July 28, 2016, with you and members of your staff.

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

In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 2.390, "Public inspections, exemptions, requests for withholding," of the NRC's "Agency Rules of Practice and Procedure," a copy of this letter, its Enclosure, and your response if any, will be available electronically for public inspection in the NRC's Public Document Room, or from the Publicly Available Records (PARS) component of NRC's Agencywide Documents Access and Management System (ADAMS); accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA: Adam D. Nielsen for/
Brian R. Bonser, Chief
Plant Support Branch 1
Division of Reactor Safety

Docket Nos. 50-325 and 50-324
License Nos. DPR-71 and DPR-62

Enclosure:
NRC IR 05000325 and 324/2016502
w/Attachment: Supplementary Information

cc: Distribution via Listserv

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:DRS	
SIGNATURE	SPS VIA EMAIL	JDH9 VIA EMAIL	ADN FOR CAF2	WTL	ADN FOR	ADN FOR BRB1	
NAME	S. SANCHEZ	J. HICKMAN	C. FONTANA	W. LOO	M. SCHWIEG	B. BONSER	
DATE	8/ 23 /2016	8/ 23 /2016	8/ 25/2016	8/25 /2016	8/25 /2016	8/25/206	
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

Letter to Mr. William R. Gideon from Mr. Brian R. Bonser dated August 25, 2016

SUBJECT: BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2 – U.S. NUCLEAR
REGULATORY COMMISSION EMERGENCY PREPAREDNESS INSPECTION
REPORT 05000325/2016502 AND 05000324/2016502

DISTRIBUTION:

G. Hopper, RII, DRP
J. Dodson, RII, SR PE
D. Jackson, RII, PE
E. Powell, RII, RIDP
M. Catts, RII, SRI
M. Schweg, RII, RI
S. Price, RII, ORA/RC
L. Gibson, RII, EICS
RIDSNRRDIRS
Public

U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos: 05000325 and 05000324

License Nos: DPR-71 and DPR-62

Report Nos: 05000325/2016502 and 05000324/2016502

Licensee: Duke Energy Progress, Inc.

Facility: Brunswick Steam Electric Plant, Units 1 and 2

Location: Southport, NC

Dates: July 25–28, 2016

Inspectors: Steven P. Sanchez, Senior Emergency Preparedness Inspector
Christopher A. Fontana, Emergency Preparedness Inspector
John D. Hickman, Emergency Preparedness Inspector (Trainee)
Wade T. Loo, Senior Health Physicist
Mark Schwieg, Resident Inspector

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

Enclosure

SUMMARY

Inspection Report (IR) 05000325/2016502 and 05000324/2016502; 7/25/2016 – 7/28/2016;
Brunswick Steam Electric Plant, Units 1 and 2; Exercise and Baseline Inspection

This report covers an inspection by three emergency preparedness inspectors, one senior health physicist, and one resident inspector. 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 5.

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 July 26, 2016, 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 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 July 28, 2016, 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 July 28, 2016. 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 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 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, 2015, through March 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 July 28, 2016, the inspection team presented the inspection results to Mr. R. Gideon and other members of the plant staff. The inspectors confirmed that no proprietary information was provided during the inspection.

ATTACHMENT: Supplementary Information

SUPPLEMENTARY INFORMATION

KEY POINTS OF CONTACT

Licensee personnel

M. Austin, Corporate Functional Area Manager
R. Bassett, Emergency Preparedness Specialist
J. Bryant, Regulatory Affairs
K. Crocker, Manager of Emergency Preparedness
P. Dubrouillet, Director of Engineering
J. Ferguson, Manager of Nuclear Oversight
G. Galloway, Radiation Protection
R. Gideon, Site Vice President
L. Grzeck, Manager of Licensing/Regulatory Affairs
B. Houston, Manager of Maintenance
B. Kimray, Corporate Emergency Preparedness
K. Moser, Plant General Manager
B. Nanney, Corporate Emergency Preparedness
J. Nolin, General Manager of Engineering
A. Pope, Director Organizational Effectiveness
K. Sawyer, Emergency Preparedness Specialist
R. Wiemann, Director of Engineering
B. Wooten, Operations

LIST OF DOCUMENTS REVIEWED

Section 1EP1: Exercise Evaluation

Procedures

0ERP, Radiological Emergency Response Plan, Rev. 88
0PEP-02.1.1, Emergency Control – Notification of Unusual Event, Alert, Site Area Emergency, and General Emergency, Rev. 27
0PEP-02.2.1, Emergency Action Level Technical Bases, Rev. 8
0PEP-02.6.20, Dose Projection Coordinator, Rev. 27
0PEP-02.6.21, Emergency Communicator, Rev. 76
0PEP-02.6.26, Activation & Operation of the Technical Support Center, Rev. 37
0PEP-02.6.27, Activation and Operation of the Emergency Operations Facility (EOF), Rev. 38
0PEP-02.6.28, Off-Site Protective Action Recommendations, Rev. 14
0PEP-02.6.30, Alternate Emergency Facility Operation, Rev. 9
0PEP-03.4.8, Offsite Dose Projections for Monitored Releases, Rev. 3
0PEP-03.6.1, Release Estimates Based Upon Stack/Vent Readings, Rev. 16
0PEP-03.7.6, Emergency Exposure Controls, Rev. 4
0PEP-03.7.7, Onsite Radiological Controls, Rev. 5
AD-EP-ALL-0202, Emergency Response Offsite Dose Assessment, Rev. 1
AD-EP-ALL-0301, Activation of the Emergency Response Organization Notification System, Rev. 0
AD-EP-ALL-0802, Conducting Drills and Exercises, Rev. 2
AD-EP-ALL-0803, Evaluation and Critique of Drills and Exercises, Rev. 0
AD-PI-ALL-0100, Corrective Action Program, Rev. 6
PD-EP-ALL-0800, Drills and Exercises Program, Rev. 2

Records and Data

Brunswick Steam Electric Plant 2016 Emergency Preparedness Biennial Exercise Scenario
 Brunswick Nuclear Plant Evaluated Exercise 2016 Management Debrief package
 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 Documents (Nuclear Condition Reports)

NCR 2048631, JIC facility procedure OPEP-02.6.29 needs to be updated
 NCR 2048791, NOS ID: DPC trainee observed updating EOF status board
 NCR 2048827, Brunswick exercise 7/26/16 reactor water level discrepancy
 NCR 2048868, 7/26/16 EP exercise DEP failure – SAE classification
 NCR 2048965, ENS communicator 7/26/16 drill issues
 NCR 2048985, During EP drill, could not send or receive Coast Guard faxes
 NCR 2048995, Undesired partial activation of New Hanover #6 siren
 NCR 2049210, 7/26/16 EP exercise objective E.4 failure – NRC communication
 NCR 2049237, Review practice for keeping NOT resources in control room during an event
 NCR 2049327, 7/26/16 EP exercise – ORO PAG did not match the BNP PAR
 NCR 2049409, Errors on the EP ENFs
 NCR 2049447, WebEOC ENF not printing correctly for offsite organizations
 NCR 2049720, NRC identified player critique improvements
 NCR 2049711, EP 10CFR50.54(q) accuracy – OPEP-02.2.1 (EAL Basis)
 NCR 2049712, Out of sequence notifications counted for DEP

Section 1EP4: Emergency Action Level and Emergency Plan ChangesProcedures and Records

0ERP, Radiological Emergency Response Plan, Revs. 87 and 88
 OPEP-02.6.28, Offsite Protective Action Recommendations, Rev. 13 & 14
 AD-PI-ALL-0100, Corrective Action Program, Rev. 6
 AD-EP-ALL-0501, Emergency Preparedness Staff Training & Qualifications, Rev. 0
 AD-EP-ALL-0602, Emergency Plan Change Screening and Effectiveness Evaluations 10 CFR
 50.54(Q), Rev. 1
 KLD-TR-512, Development of Evacuation Time Estimates (ETE), dated November 2012
 KLD-TR-683, Development of Protective Action Strategies, dated 1/30/15
 Summary of Key Findings of KLD ETE Analysis for Methodology of Rapidly Progressing Severe
 Accident (RPSA) at Brunswick, KLD Engineering, P.C., Rev. 1, dated January 2015

Change Packages

50.54(q) Screening Evaluation Form for 0ERP Radiological Emergency Response Plan Rev. 88,
 dated 1/14/16
 50.54(q) Effectiveness Evaluation Form for 0ERP Radiological Emergency Response Plan
 Rev. 88, dated 1/14/16
 50.54(q) Screening Evaluation Form for OPEP-02.6.28 Protective Action Recommendations
 Rev. 14, dated 1/14/16
 50.54(q) Effectiveness Evaluation Form for OPEP-02.6.28 Protective Action Recommendations
 Rev. 14, dated 1/14/16
 50.54(q) Screening Evaluation Form for OPEP-02.1 Rev. 53 & OPEP-02.2.1 Rev. 8, dated
 5/24/16

50.54(q) Effectiveness Evaluation Form for OPEP-02.1 Rev. 53 & OPEP-02.2.1 Rev. 8, dated 6/1/16

Corrective Action Documents

NCR 0754945, Authorize use of Rev. 14 DRAFT OPEP-2.6.28 for EP Training
NCR 1964709, OPEP-02.6.28, Rev. 14, License Submit 50.54(q) to NRC within 30 days of change

Section 1EP8: Exercise Evaluation

Procedures

OERP, Radiological Emergency Response Plan, Rev. 88
OPEP-04.2, Emergency Facilities & Equipment, Rev. 42
OPEP-04.3, Performance of Training, Exercises, & Drills, Rev. 27
AD-EP-ALL-0801, Design and Development of Drills and Exercises, Rev. 1
AD-EP-ALL-0802, Conducting Drills and Exercises, Rev. 2
AD-EP-ALL-0803, Evaluation and Critique of Drills and Exercises, Rev. 0
PD-EP-ALL-0800, Drills and Exercises Program, Rev. 2

Records and Data

Brunswick Steam Electric Plant 2016 Emergency Preparedness Biennial Exercise Scenario
Brunswick Nuclear Plant 8 Year Drill Objective Matrix
BNP-EP-ID-14-02 May 13, 2014 Limited Participation ERO Training Drill Critique Report, dated 7/06/14
BNP-EP-ID-14-04 May 28, 2014 Limited Participation ERO Training Drill Critique Report, dated 7/19/14
BNP-EP-EX-14-01 July 22, 2014 Evaluated Exercise Critique Report, dated 9/15/14
BNP-EP-ID-14-04 September 09, 2014 Limited Participation ERO Training Drill Critique Report, dated 11/05/14
BNP-EP-10-15-01 January 19, 2015 Limited Participation ERO Training Drill Critique Report, dated 2/24/15
BNP-EP-10-15-02 April 16, 2015 Limited Scope Quarterly Drill Critique Report, dated 6/23/15
BNP-EP-10-15-04 September 09, 2015 Limited Scope Quarterly Drill Critique Report, dated 10/04/15
BNP-EP-10-15-05 November 04, 2015 Limited Participation Quarterly Drill Critique Report, dated 10/04/15

Section 4OA1: Performance Indicator Verification

Procedures

AD-EP-ALL-0001, Emergency Preparedness Key Performance Indicators, Rev. 1
AD-EP-ALL-0002, NRC Regulatory Assessment Performance Indicator Guideline Emergency Preparedness Cornerstone, Rev. 1
AD-EP-ALL-0803, Evaluation & Critique of Drills & Exercises, Rev. 0

Records and Data

Documentation of Performance Indicator data from July 1, 2015 through March 31, 2016 for DEP, ANS, and ERO
Weekly Siren Tests and Independent Verification Checklists

Corrective Action Documents

NCR 0727460, EP DEP KPI changed from green to yellow
 NCR 0705775, Siren B18 failed to activate during weekly silent test
 NCR 0751444, LOCT DLAS on EAL Classifications and Notifications
 NCR 0753244, EP DEP KPI changed from green to yellow
 NCR 1952101, BNP Siren B198 damaged by vehicle

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
EAL	Emergency Action Level
EOF	Emergency Operations Facility
EP	Emergency Preparedness
ERO	Emergency Response Organization
FEMA	Federal Emergency Management Agency
IMC	Inspection Manual Chapter
IP	Inspection Procedure
JIC	Joint Information Center
NCR	Nuclear Condition Report
NCV	Non-Cited Violation
NOS	Nuclear Oversight
NRC	Nuclear Regulatory Commission
ORO	Offsite Response Organization
OSC	Operations Support Center
PAR	Protective Action Recommendation
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
TSC	Technical Support Center
VIO	Violation