



**UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II**

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

August 1, 2017

Mr. Joseph W. Shea
Vice President, Nuclear Licensing
Tennessee Valley Authority
1101 Market Street, LP 3R-C
Chattanooga, TN 37402-2801

**SUBJECT: BROWNS FERRY NUCLEAR PLANT – U.S. NUCLEAR REGULATORY
COMMISSION EMERGENCY PREPAREDNESS INSPECTION REPORT
05000259/2017502, 05000260/2017502, AND 05000296/2017502**

Dear Mr. Shea:

On June 30, 2017, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Browns Ferry Nuclear Plant, Units 1, 2, and 3. On June 30, 2017, the NRC inspectors, discussed the results of this inspection with Mr. G. Pry 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 <https://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. 50-259, 50-260, and 50-296
License Nos. DPR-33, DPR-52, and DPR-68

Enclosure:
IR 05000259, 260, 296/2017502
w/Attachment: Supplemental Information

cc: Distribution via Listserve

SUBJECT: BROWNS FERRY NUCLEAR PLANT – U.S. NUCLEAR REGULATORY COMMISSION EMERGENCY PREPAREDNESS INSPECTION REPORT 05000259/2017502, 05000260/2017502, AND 05000296/2017502 DATED August 1, 2017

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SIGNATURE	SPS	CAF2	JDH9	DED	WTL	JRP1	AJB3	BRB1
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DATE	7/31/2017	7/26/2017	7/31/2017	8/1/2017	8/1/2017	7/25/2017	8/1/2017	8/1/2017
EMAIL COPY	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos: 05000259, 05000260, and 05000296

License Nos: DPR-33, DPR-52, and DPR-68

Report Nos: 05000259/2017502, 05000260/2017502, and 05000296/2017502

Licensee: Tennessee Valley Authority

Facility: Browns Ferry Nuclear Plant, Units 1, 2, and 3

Location: Athens, AL

Dates: June 26 through 30, 2017

Inspectors: Christopher Fontana, Emergency Preparedness (EP) Inspector
Steven Sanchez, Senior EP Inspector
David Dumbacher, Senior Resident Inspector
Wade Loo, Senior Health Physicist
John Hickman, EP Inspector
Jacob Panfel, Health Physicist

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

Enclosure

SUMMARY

Inspection Report (IR) 05000259/2017502; 05000260/2017502; 05000296/2017502; 06/26/17 – 06/30/17; Browns Ferry Nuclear Plant, Units 1, 2, and 3; Emergency Preparedness Exercise and Baseline Inspection.

This report covers an announced inspection by three emergency preparedness inspectors, two health physicists, and one senior resident inspector. 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 June 28, 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 June 29, 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 June 30, 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. 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 March 31, 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 evaluated 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 evaluated 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, Including Exit

On June 30, 2017, the inspection team presented the inspection results to Mr. G. Pry 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

E. Bates, Site Licensing
S. Bono, Site Vice President
K. Bronson, Senior Site Vice President
B. Bruce, Director of Maintenance
M. Clark, Emergency Preparedness Specialist
J. Garner, Site Licensing
P. Gianlatarino, Quality Assurance
D. Hughes, General Manager Site Operations
S. Hunnewell, Engineering Manager
J. Kent, Plant Support
W. Lee, Corporate Emergency Preparedness Manager
E. Meisno, Engineering
M. McAndrew, Director of Operations
P. Parker, Security Manager
J. Parshall, Corporate EP Program Manager
J. Paul, Licensing Manager
G. Pry, Plant Manager
T. Runnels, Emergency Preparedness
S. Schiel, Corporate EP D&E Coordinator
T. Scott, Work Management (Outage Manager)
L. Sluzewski, Operations Superintendent
J. Solley, Maintenance Superintendent
S. Taubuki, Emergency Preparedness Specialist
B. Tidwell, Emergency Preparedness Manager
C. Vaughn, Operations Training Manager

LIST OF DOCUMENTS REVIEWED

1EP1 Exercise Evaluation

Procedures

CECC EPIP-1, Central Emergency Control Center (CECC) Operations, Rev. 62
CECC EPIP-7, CECC Radiological Assessment Staff Procedure for Alert, Site Area Emergency, and General Emergency, Rev. 38
CECC EPIP-8, Dose Assessment Staff Activities During Nuclear Plant Radiological Emergencies, Rev. 44
CECC EPIP-9, Emergency Environmental Radiological Monitoring Procedures, Rev. 56
CECC EPIP-17, Central Emergency Control Center Meteorologist Procedures, Rev. 23
NP-REP, Radiological Emergency Plan, Appendix A, Browns Ferry Nuclear Plant, Rev. 108
EPDP-3, Emergency Plan Exercises and Preparedness Drills, Rev. 14
EPDP-3, Emergency Plan Exercises & Preparedness Drills, Rev. 15
EPDP-8, Emergency Preparedness Quality Assurance, Rev. 5
EPIP-1, Emergency Classification Procedure, Rev. 53 & 54
EPIP-3, Alert, Rev. 39 & 40
EPIP-4, Site Area Emergency, Rev. 38 & 39
EPIP-5, General Emergency, Rev. 51 & 52
NPG-SPP-01.2, Administration of Site Technical Procedures, Rev. 14
NPG-SPP-18.3, Emergency Preparedness, Rev. 13
NPG-SPP-22.300, Corrective Action Program, Rev. 9
NPG-SPP-22.600, Issue Resolution, Rev. 2

Records and Data

2017 BFN Graded Exercise, TVA, Browns Ferry, 06/28/2017
Simulator Control Room, Technical Support Center, Operations Support Center, and the Central Emergency Control Center Documentation packages (logs, event notification forms, Protective Action Recommendations, Media releases, and Radiological Dose Assessments)

Corrective Action Program Documents (Condition Reports)

CR 1180428, Lessons Learned from June 2016 EP Inspection NCV
CR 1192346, 2016 "D" (Green) Team TD-Emergency Center Enhancements
CR 1311749, Administrative CR for OPS
CR 1312003, Equipment issues in REP truck #6 during graded exercise
CR 1312374, NRC Identified EPIP-13 Revision Log Issue Recommendation
CR 1312455, 6.28.17 Graded Exercise Lessons Learned
CR 1312457, Summary 6.28.17 Graded Exercise ECNS Issues
CR 1312458, 6.28.17 Graded Exercise CECC Dose Assessment (I.9)
CR 1312459, 6.28.17 Graded Exercise Sim PEDS Locking Out
CR 1312460, Summary 6.28.17 Graded Exercise EPIP-4 Implementation Failure
CR 1312466, 6.28.17 Graded Exercise Failed Objective (J.3)
CR 1312471, 6.28.17 Graded Exercise PAT Core Damage Issue
CR 1312472, 6.28.17 Graded Exercise KI Issue
CR 1312473, 6.28.17 Graded Exercise JIC Issues
CR 1312474, 6.28.17 Graded Exercise OSC/ OSC Staging Area PA
CR 1312478, 6.28.17 Graded Exercise Drill Control Issue

CR 1312501, BFN Senior Management Debrief started seven minutes late
 CR 1312508, Evaluate timeliness of EPIB on missed PAR distribution
 CR 1314046, July 5, 2017 Post NRC Inspection Critique
 CR 1314450, Graded BFN REP Drill Observation: Team dispatched without controller

1EP4 Emergency Action Levels and Emergency Plan Changes

Procedures

NP-REP TVA Nuclear Power Radiological Emergency Plan, Appendix C, Rev. 106, 107, & 108
 TVA Generic Radiological Emergency Plan, Rev. 105 & 106
 EPDP-3, Emergency Plan Exercises and Preparedness Drills, Rev. 14
 EPDP-17, NPG Emergency Plan Effectiveness Review 10 CFR 50.54 (q), Rev. 5
 NPG-SPP 03.5.1, Reporting Requirements for Loss of Emergency Preparedness Capabilities,
 Rev. 0000 & Rev. 0001
 NPG-SPP-18.3, Emergency Preparedness, Rev. 13
 NPG-SPP-22.300, Corrective Action Program, Rev. 9
 EPIP-1, Emergency Classification Procedure, Rev. 53 & 54
 EPIP-3, Alert, Rev. 39 & 40
 EPIP-4, Site Area Emergency, Rev. 38 & 39
 EPIP-13, Dose Assessment, Rev. 22 & 23

Change Packages

BFN 2016-010, EPDP-17, Att. 2 Screening Evaluation Form and Att. 4 Effectiveness Evaluation
 Form for EPIP-3, Alert, Rev. 39 and EPIP-4, Site Area Emergency Rev. 38, dated 5/4/2016
 BFN 2016-078, EPDP-17, Att. 2 Screening Evaluation Form for EPIP-13, Dose Assessment
 Rev. 23, dated 11/8/2016
 BFN 2016-079, EPDP-17, Att. 2 Screening Evaluation Form for EPIP-13, Dose Assessment
 Rev. 23, dated 10/26/2016
 BFN 2016-080, EPDP-17, Att. 2 Screening Evaluation Form and Att. 4 Effectiveness Evaluation
 Form for EPIP-13, Dose Assessment Rev. 23, dated 11/8/2016
 BFN 2016-010, EPDP-17, Att. 2 Screening Evaluation Form and Att. 4 Effectiveness Evaluation
 Form for EPIP-3, Alert, Rev. 39 and EPIP-4, Site Area Emergency Rev. 38, dated 5/4/2016
 BFN 2017-007, EPDP-17, Att. 2 Screening Evaluation Form for EPIP-3, Alert, Rev. 40 and
 EPIP-4, Site Area Emergency Rev. 39, dated 3/7/2017
 BFN 2016-082, EPDP-17, Att. 2 Screening Evaluation Form for EPIP-1, Emergency
 Classification Procedure Rev. 53, dated 12/06/2016
 BFN 2016-082, EPDP-17, Att. 2 Screening Evaluation Form for EPIP-1, Emergency
 Classification Procedure Rev. 54, dated 01/06/2017
 CECC 2014-030, EPDP-17, Att. 2 Screening Evaluation Form for REP App. A, Rev. 106, dated
 7/21/2016
 CECC 2016-2017, EPDP-17, Att. 2 Screening Evaluation Form for REP App. A Rev. 107, dated
 5/19/2016
 CECC 2016-018, EPDP-17, Att. 2 Screening Evaluation Form for REP App. A Rev. 107, dated
 5/18/2016
 CECC 2017-001, EPDP-17, Att. 2 Screening Evaluation Form for REP App. A Rev. 108, dated
 1/11/2017
 CECC 2017-002, EPDP-17, Att. 2 Screening Evaluation Form for REP App. A, Section A.2.2,
 Rev. 108, dated 1/11/2017
 CECC 2017-006, EPDP-17, Att. 2 Screening Evaluation Form for REP App. A Rev. 108, dated
 1/12/2017

Corrective Action Program Documents

CR 1133821, NRC Identified, EPIP-5 requires revision
 CR 1148381, EPDP EPIP-1 Screening revision
 CR 1163146, EPIP-13 made with inadequate 10 CFR 50.54 (q) evaluations
 CR 1180169, During the 2016 BFN NRC baseline inspection 1 of 2 controlled REP books out-of-date
 CR 1191002, BFN calculation needs to be revised
 CR 1195335, BFN Dewpoint sensor out-of-tolerance
 CR 1209781, The Engineering limit high for point ID SPDS0024 (WGERMS) is incorrect
 CR 1228511, EPIP record inconsistencies
 CR 1209781, The engineering limit high for WRGERMS is incorrect
 CR 1223922, SFSP level indications should be in BFN EITER matrix
 CR 1228511, EPIP record inconsistencies
 CR 1251047, PCR EPDP-17 Updates based on Annual Review
 CR 1312320, Quality requirements for the 10 CFR 50.54 (q) preparers
 CR 1312372, NRC identified EPIP-13 Revision Log Issue
 CR 1312385, NRC identified PCR CECC EPIP-8 references

1EP8 Exercise Evaluation – Scenario ReviewProcedures

EPDP-3, emergency Plan Exercises and Preparedness Drills, Attachments 8 & 9, Rev. 14
 TVA Generic Radiological Emergency Plan (REP), Rev. 105 & 106

Records and Data

Table Top Report on the 6/3/2015 Browns Ferry Table Top, 6/15/2015
 Drill Report for the 9/2/2015 Browns Ferry Training Drill, 9/28/2015
 Drill Report for the 9/9/2015 Browns Ferry Tabletop, 9/10/2015
 Drill Report for the 9/24/2015 Browns Ferry Medical Drill, 10/1/2015
 Drill Report for the 11/4/2015 Browns Ferry Graded Exercise, 11/11/2015
 Drill Report for the 10/7/2015 Browns Ferry Integrated Training Drill, 10/20/2015
 Drill Report for the 1/13/2016 Browns Ferry Training Drill, 1/27/2016
 Drill Report for the 2/3/2016 Browns Ferry Training Drill, 2/10/2016
 Drill Report for the 5/11/2016 Browns Ferry Off Year Drill, 6/9/2016
 Drill Report for the 7/13/2016 Browns Ferry Training Drill, 7/21/2016
 Drill Report for the 9/29/2016 Browns Ferry Medical Drill, 10/10/2016
 Drill Report for the 11/30/2016 Browns Ferry Pass Drill, 12/20/2016
 Drill Report for the 1/25/2017 Browns Ferry Training Drill, 2/2/2017
 2017 BFN Graded Exercise Mini-Scenarios used in the past two years
 FEMA Browns Ferry Nuclear Power Plant After Action Report, Exercise date November 4, 2015,
 Radiological Emergency Preparedness Program, published January 11, 2016 Drill
 Scenario Review Checklist

Corrective Action Program Documents

CR 1179095, Late for weekly ERO Duty Team muster
 CR 1189508, Inaccurate procedure information led to unnecessary NRC event report
 CR 1244249, Declining trend in plant support of the Emergency Preparedness Organization

Section 4OA1: Performance Indicator VerificationProcedures

NPG-SPP-02.2, Performance Indicator Program, Rev. 7

Records and Data

DEP opportunities documentation for second, third, and fourth quarters 2016; first, quarter 2017
 Siren test data for second, third, and fourth quarters 2016; first, quarter 2017
 Drill and exercise participation records of ERO personnel for second, third, and fourth quarters 2016; and first, quarter 2017

Corrective Action Program Documents

CR 1077805, A&NS Siren rotation failures
 CR 1132571, BFN-0-PNS-901-74, Failed to rotate during monthly test
 CR 1181323, BFN-0-PNS-901-19 Failed to rotate during monthly activation test
 CR 1182624, Failure to document condition adverse to quality (EP sirens)
 CR 1186544, BFN-0-PNS-901-70 Failed to rotate during annual maintenance
 CR 1180166, NRC identified – during the 2016 BFN NRC baseline inspection
 CR 1180171, NRC identified – during the 2016 BFN NRC baseline inspection
 CR 1188610, Siren BFN-0-PNS-901-21 failed to respond to scheduled bi-weekly silent test
 CR 1195335, BFN dewpoint sensor out-of-tolerance
 CR 1200724, Siren failed to rotate during monthly activation test on August 8, 2016
 CR 1200726, Siren BFN-PNS-901-21 failed bi-weekly silent test
 CR 1223922, SF SP indications should be in BFN EITER matrix SPP-18.3.5
 CR 1248007, Failed “as found” temperature sensor calculation on 12/13/2016

LIST OF ACRONYMS USED

ANS	Alert and Notification System
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CR	Condition Reports
DEP	Drill and Exercise Performance
DHS	Department of Homeland Security
EAL	Emergency Action Level
EITER	Equipment Important to Emergency Preparedness
EOF	Emergency Operations Facility
EP	Emergency Preparedness
ERO	Emergency Response Organization
FEMA	Federal Emergency Management Agency
IP	Inspection Procedure
IR	Inspection Report
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
OSC	Operations Support Center
PIs	Performance Indicators
ROP	Reactor Oversight Program
RSPS	Risk Significant Planning Standard
TSC	Technical Support Center