



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

November 24, 2015

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  
05000259/2015502, 05000260/2015502, AND 05000296/2015502

Dear Mr. Shea:

On November 6, 2015, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Browns Ferry Nuclear Plant, Units 1, 2, and 3. The enclosed inspection report (IR) documents the inspection results that were discussed on November 6, 2015, with you and other members of your staff.

No findings were identified during this inspection.

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 Public Document Room, or from the Publicly Available Records (PARS) component of NRC's 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 by Adam Nielsen Acting for/***

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, 296/2015502  
w/Attachment: Supplementary Information

cc: Distribution via Listserv

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ADAMS:  Yes    ACCESSION NUMBER: ML15328A329     SUNSI REVIEW COMPLETE     FORM 665 ATTACHED

OFFICE	RII:DRS/PSB1	RII:DRS/PSB1	RII:DRS/PSB2	RII:DRP/BR6	ADM:TTC/STT	RII:DRS/PSB1	
SIGNATURE	SPS	SPS for CAF2	RLP5 via e-mail	WXD1 via e-mail	MES4 via e-mail	ADN for BRB1	
NAME	S. Sanchez	C. Fontana	R. Patterson	W. Deschaine	M. Speck	B. Bonser	
DATE	11/ 23 /2015	11/ 24 /2015	11/ 24 /2015	11/ 24 /2015	11/ 23 /2015	11/ 24 /2015	
E-MAIL COPY	YES    NO	YES    NO	YES    NO	YES    NO	YES    NO	YES    NO	

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Letter to Joseph Shea from Brian Bonser dated November 24, 2015

SUBJECT: BROWNS FERRY NUCLEAR PLANT – U.S. NUCLEAR REGULATORY  
COMMISSION EMERGENCY PREPAREDNESS INSPECTION REPORT  
05000259/2015502, 05000260/2015502, AND 05000296/2015502

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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: 05000259/2015502, 05000260/2015502, and 05000296/2015502

Licensee: Tennessee Valley Authority

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

Location: Athens, AL

Dates: November 2–6, 2015

Inspectors: Steven Sanchez, Senior Emergency Preparedness Inspector  
Christopher Fontana, Emergency Preparedness Inspector  
Mark Speck, Senior Technical Training Program Specialist  
Randy Patterson, Physical Security Inspector  
Wesley Deschaine, Sequoyah Resident Inspector

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

Enclosure

## **SUMMARY**

Inspection Report (IR) 05000259/2015502; 05000260/2015502; 05000296/2015502; 11/2/2015 – 11/6/2015; Browns Ferry Nuclear Plant, Units 1, 2, and 3; Emergency Preparedness Exercise and Baseline Inspection

This report covers an announced inspection by two emergency preparedness inspectors, one physical security inspector, one senior technical training program specialist, 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.

No findings were identified during this inspection.

## REPORT DETAILS

### 1. REACTOR SAFETY

Cornerstone: Emergency Preparedness

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

##### a. Inspection Scope

Since the last NRC inspection of this program area, some revisions were made to the Radiological Emergency Plan, and associated implementing procedures. 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 changes and sampled implementing procedure changes made, to evaluate for 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.

#### 1EP7 Exercise Evaluation – Hostile Action Event

##### a. Inspection Scope

Title 10 CFR 50, Appendix E, Section IV.F.2.j, requires, in part, that nuclear power reactor licensees, in each 8-calendar-year exercise cycle, provide the opportunity for their emergency response organization (ERO) to demonstrate proficiency in the key skills necessary to respond to a hostile action (HA) directed at the plant site. The licensee designed the November 4, 2015, exercise to satisfy that requirement, and the NRC inspected the HA event exercise to assess the licensee's ability to effectively implement their emergency plan during a HA event, and adequately protect public health and safety.

The exercise evaluation consisted of the following reviews and assessments:

- The adequacy of the licensee's performance in the biennial exercise, conducted on November 4, 2015, 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, the Secondary Alarm Station, the Incident Command Post, the Alternate Facility, and the corporate Emergency Operations Facility.
- A review of other performance areas, such as the ERO recognition of abnormal plant conditions; command and control, including interactions with site security staff, intra- and inter-facility communications; prioritization of mitigation activities; utilization of repair and field monitoring teams; interface with offsite agencies, including local law enforcement agencies; staffing and procedure adequacy; 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 adequacy of the licensee's post-exercise critiques, to evaluate licensee self-assessment of its ERO performance during the November 4, 2015, exercise 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 November 20, 2015. This inspection activity satisfied one inspection sample for the exercise evaluation on a biennial 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, 2014, through September 30, 2015. 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 November 6, 2015, the inspection team presented the inspection results to Mr. S. Bono 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

J. Addison–Manager of Drills and Exercises  
E. Bates–Site Licensing  
J. Bayles–Corporate Defensive Strategy Program Manager  
S. Bono–Site Vice President  
K. Bronson–Senior Site Vice President  
M. Clark–Emergency Preparedness Specialist  
J. Garner–Site Licensing  
J. Kulisek–Emergency Preparedness Manager  
W. Lee–Corporate Emergency Preparedness Manager  
M. Oliver–Site Licensing  
P. Parker–Security Manager  
J. Parshall–EP Program Planning and Implementation Manager  
J. Paul–Site Licensing  
J. Perrel–Corporate Emergency Preparedness  
M. Rasmussen–Work Control Manager  
T. Scott–Site Quality Assurance Manager  
P. Summers–Plant Support Director  
B. Tidwell–Emergency Preparedness Training Program Manager  
T. Townsend–Site Defensive Strategy Program Manager  
C. Vaughn–Operations Training Manager  
A. Yarbrough–System Engineer

### **ITEMS OPENED, CLOSED, DISCUSSED, AND UPDATED**

None

### **LIST OF DOCUMENTS REVIEWED**

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

##### Procedures

NP-REP Radiological Emergency Plan, Rev. 104  
NP-REP Radiological Emergency Plan Appendix C, Browns Ferry Nuclear Plant, Rev. 105  
EPDP-17, NPG Emergency Plan Effectiveness Review [10CFR50.54(q)], Rev. 5  
EPIP-1, Emergency Classification Procedure, Rev. 50 and 51  
EPIP-13, Dose Assessment, Rev. 20 and 21

Records and Data

CECC 2014-030, EPDP-17, Attachment 2 Screening Evaluation Form for REP Appendix A, Rev.104, dated 7/11/2014  
 CECC 2014-031, EPDP-17, Attachment 2 Screening Evaluation Form for REP Appendix A, Rev.104, new Fig. A-2, dated 7/11/2014  
 CECC 2014-032, EPDP-17, Attachment 2 Screening Evaluation Form for REP Appendix A, Rev.104, revise Fig. A-1, dated 7/11/2014  
 CECC 2015-011, EPDP-17, Attachment 2 Screening Evaluation Form for REP Appendix A, Rev. 105, dated 4/2/2015  
 EPIP-1, Emergency Classification Procedure, Rev. 51 change package  
 EPIP-13, Dose Assessment, Rev. 21 change package

Corrective Action Program Documents

CR 0824720, EPDP-17 procedure non-compliances  
 CR 0840252, Same individual prepared and reviewed procedure revision  
 CR 0847034, Lost Dose Assessment Capability  
 CR 0879918, EIPs 2 through 5 contain ambiguous steps  
 CR 0908104, Errors identified in EPIP-8 and EPIP-14  
 CR 0920358, BFN EIPs do not reflect current EOI changes  
 CR 1043488, Emergency response planning areas over bodies of water

1EP7 Exercise EvaluationProcedures

0-AOI-100-8, Security Event Response, Rev. 38  
 EPIP-1, Emergency Classification Procedure Event Classification Matrix, Rev. 51  
 EPIP-4, Site Area Emergency, Rev. 36  
 EPIP-5, General Emergency, Rev. 48  
 EPIP-8, Personnel Accountability and Evacuation, Rev. 27  
 EPIP-11, Security and Access Control, Rev. 14  
 NPG-SPP-18.3.7, Alternate Facility Activation and Operation, Rev. 2

Records and Data

Exercise Report Browns Ferry Graded Exercise 6/5/2013, dated 6/10/2013  
 Drill Report Browns Ferry Off Year Report 7/29/2014, dated 8/19/2014  
 Drill Report Browns Ferry Integrated Training Drill 10/7/2015, dated 10/20/2015

Corrective Action Program Documents

CR 1101651, Failed Objective P.1 was not met  
 CR 1101652, Failed Objective E.3 was not met  
 CR 1101654, Failed Objective E.2 was not met  
 CR 1101656, Failed Objective N.11 was not met  
 CR 1101658, Revise EPIP-5 to provide guidance for the failure of the ECNS phone  
 CR 1101666, Several calls were made to the real control room during the drill  
 CR 1101669, Revise AOI 100-8 to add NRC phone numbers like there is in the EPIP  
 CR 1101697, Discuss drillmanship during future drill pre-job briefs and what players need to do to earn information  
 CR 1101702, Maintenance REP tool box inventory needs to be reviewed to add a functional check of equipment in the toolbox

- CR 1101704, CECC EPIP-8 does not provide a clear understanding for dose assessment
- CR 1101719, Create additional objectives for Security to use in future HABs to evaluate their performance
- CR 1101726, Evaluate the site procedure (EPIP-5) to move the PAR worksheet to appendix H
- CR 1101728, QA identified that controlled copies of EIPs in the Plant Assessment area were not maintained with the most recent procedure revisions
- CR 1101858, During the BFN REP HAB GE on November 4 the SED was not observed as evaluating upgrade criteria for significant changes in plant conditions
- CR 1101859, During the BFN REP HAB GE on November 4 plant personnel were placed in "Shelter In Place" and the Control Room was "locked down", however personnel were requested and dispatched which raises the question if the staff understand what these terms and conditions mean
- CR 1101860, During the BFN REP HAB GE on November 4 the Security team did not meet the "extent of play" as outlined in the drill package
- CR 1101862, During the BFN REP HAB GE on November 4 the Simulator Modeling for the RCIC leak needs to be evaluated
- CR 1101863, During the BFN REP HAB GE on November 4 the Simulator critique could be improved by utilizing the simulator drill objectives in the critique LOR critique format

#### 1EP8 Exercise Evaluation – Scenario Review

##### Procedures

EPDP-3, Emergency Plan Exercises and Preparedness Drills, Rev. 13

#### Section 4OA1: Performance Indicator Verification

##### Procedures

EPDP-11, Emergency Preparedness Performance Indicators, Rev. 7

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

##### Records and Data

DEP opportunities documentation for second, third, and fourth quarters 2014; first, second, and third quarters 2015

Siren test data for second, third, and fourth quarters 2014; first, second, and third quarters 2015

Drill and exercise participation records of ERO personnel for second, third, and fourth quarters 2014; first, second, and third quarters 2015

##### Corrective Action Program Documents

CR 0827691, Qualification

CR 0899196, June 11, 2014, REP drill classification improvement opportunity

CR 0943527, ERO Drill Participation Indicator Changed to Yellow for September 2014

CR 1074326, Siren #21 failed to rotate

CR 1075891, Siren #75 failed

CR 1076137, Siren #56 failed

CR 1076174, Siren #68 growl test failed

CR 1076217, Siren #63 failed

CR 1076420, Siren #48 failed

CR 1081855, September 2015 REP training drill comments – NRC identified

CR 1100545, During the November 2015 EP inspection the NRC identified an error in the PI Data

## **LIST OF ACRONYMS USED**

ANS	Alert and Notification System
DEP	Drill and Exercise Performance
DHS	Department of Homeland Security
ERO	Emergency Response Organization
FEMA	Federal Emergency Management Agency
HA	Hostile Action
IP	Inspection Procedure
PIs	Performance Indicators