



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

September 19, 2011

Tennessee Valley Authority  
ATTN: Mr. R. M. Krich  
Vice President, Nuclear Licensing  
1101 Market Street, LP 3R-C  
Chattanooga, TN 37402-2801

SUBJECT: BROWNS FERRY NUCLEAR PLANT – NRC OPERATOR LICENSE  
EXAMINATION REPORT 05000259/2011302, 05000260/2011302, AND  
05000296/2011302

Dear Mr. Krich:

During the period August 8 – 12, 2011, the Nuclear Regulatory Commission (NRC) administered operating tests to employees of your company who had applied for licenses to operate the Browns Ferry Nuclear Plant. At the conclusion of the tests, the examiners discussed preliminary findings related to the operating tests with those members of the plant staff identified in the enclosed report. The written examination was administered by the plant training department staff on August 19, 2011.

Four Reactor Operator (RO) and three Senior Reactor Operator (SRO) applicants passed both the operating test and written examination. One RO applicant failed both the written and operating exam. Four RO applicants and one SRO applicant failed the written examination. There were no post-examination comments. A Simulator Fidelity Report is included in this report as Enclosure 2.

The initial operating examination submittal was within the range of acceptability expected for a proposed examination. All examination changes agreed upon between the NRC and the plant training staff were made according to NUREG-1021, Operator Licensing Examination Standards for Power Reactors, Revision 9, Supplement 1.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosures will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of the NRC's document system (ADAMS). ADAMS is accessible from the NRC Website at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

If you have any questions concerning this letter, please contact me at (404) 997- 4436

Sincerely,

***/RA: Malcolm Widmann for/***

Mark E. Franke, Chief  
Operations Branch 2  
Division of Reactor Safety

Docket Nos: 50-259, 50-260, 50-296  
License Nos: DPR-33, DPR-52, DPR-68

Enclosures: 1 Report Details  
2. Simulator Fidelity Report

cc w/encls: (See page 3)

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cc w/encls: (See page 3)

PUBLICLY AVAILABLE

NON-PUBLICLY AVAILABLE

SENSITIVE

NON-SENSITIVE

ADAMS:  Yes    ACCESSION NUMBER: ML112640385\_\_\_\_\_

SUNSI REVIEW COMPLETE     FORM 665 ATTACHED

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SIGNATURE	<b>RA</b>	<b>RA</b>	<b>RA</b>	<b>RA</b>	<b>RA</b>	<b>RA</b>	
NAME	BCABALLERO	ELEA	MRICHS	GAPGER	EGUTHRIE	MFRANKE	
DATE	9/8/2011	9/ 8 /2011	9/14 /2011	9/16/2011	9/ 14/2011	9/19 /2011	9/ /2011
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

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cc w/encl:  
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Tennessee Valley Authority  
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Letter to R. M. Krich from Mark E. Franke dated September 19, 2011.

SUBJECT: BROWNS FERRY NUCLEAR PLANT – NRC OPERATOR LICENSE  
EXAMINATION REPORT 05000259/2011302, 05000260/2011302, AND  
05000296/2011302

Distribution w/encl:

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**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION II**

Docket No.: 50-259, 50-260, AND 50-296

License No.: DPR-33, DPR-52, and DPR-68

Report No.: 05000259/2011302, 05000260/2011302, and 05000296/2011302

Licensee: Tennessee Valley Authority (TVA), LLC

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

Location: Athens, AL 35611

Dates: Operating Test – August 8 – 12, 2011  
Written Examination – August 19, 2011

Examiners: Bruno Caballero, Chief, Senior Operations Engineer, RII/DRS/OLB2  
Edwin Lea, Senior Operations Engineer, RII/DRS/OLB2  
Mark Riches, Operations Engineer, RII/DRS/OLB1  
Gabe Apger, Senior Operations Engineer, RIV/DRS/OLB

Approved by: Mark E. Franke, Chief  
Operations Branch 2  
Division of Reactor Safety

## **SUMMARY OF FINDINGS**

ER 05000259/2011302, 05000260/2011302, and 05000296/2011302; operating test August 8 – 12, 2011 & written exam August 19, 2011; Browns Ferry Nuclear Plant, Operator License Examinations.

Nuclear Regulatory Commission (NRC) examiners conducted an initial examination in accordance with the guidelines in Revision 9, Supplement 1, of NUREG-1021, "Operator Licensing Examination Standards for Power Reactors." This examination implemented the operator licensing requirements identified in 10 CFR §55.41, §55.43, and §55.45, as applicable.

The operating tests were developed by members of the Browns Ferry Nuclear Plant staff and the written examination was developed by the NRC.

The NRC administered the operating tests during the period August 8 – 12, 2011. Members of the Browns Ferry Nuclear Plant training staff administered the written examination on August 19, 2011. Four Reactor Operator (RO) and three Senior Reactor Operator (SRO) applicants passed both the operating test and written examination. Five applicants were issued licenses commensurate with the level of examination administered. Two applicants were issued a letter stating that they passed the examination and issuance of their license has been delayed pending any written examination appeals that may impact the licensing decision for their application.

There were no post-examination comments.

No findings were identified.

## REPORT DETAILS

### 4. OTHER ACTIVITIES

#### 4OA5 Operator Licensing Examinations

##### a. Inspection Scope

The operating tests were developed by members of the Browns Ferry Nuclear Plant staff and the written examination was developed by the NRC. All examination material was developed in accordance with the guidelines contained in Revision 9, Supplement 1, of NUREG-1021, "Operator Licensing Examination Standards for Power Reactors." The NRC examination team reviewed the proposed examination. Examination changes agreed upon between the NRC and the licensee were made per NUREG-1021 and incorporated into the final version of the examination materials.

The NRC reviewed the licensee's examination security measures while preparing and administering the examinations in order to ensure compliance with 10 CFR §55.49, "Integrity of examinations and tests." The potential for an exam security compromise occurred on May 23, 2011 (SR# 374670) when the Unit 3 simulator computers were prematurely reconnected to the network; however, no actual exam compromise occurred.

The NRC examiners evaluated eight Reactor Operator (RO) and four Senior Reactor Operator (SRO) applicants using the guidelines contained in NUREG-1021. The examiners administered the operating tests during the period August 8 – 12, 2011. Members of the Browns Ferry Nuclear Plant training staff administered the written examination on August 19, 2011. Evaluations of applicants and reviews of associated documentation were performed to determine if the applicants, who applied for licenses to operate the Browns Ferry Nuclear Plant, met the requirements specified in 10 CFR Part 55, "Operators' Licenses."

##### b. Findings

No findings were identified. The NRC determined, using NUREG-1021, that the licensee's initial operating examination submittal was within the range of acceptability expected for a proposed examination.

Four RO applicants and three SRO applicants passed both the operating test and written examination. Three RO applicants and one SRO applicant passed the operating test but did not pass the written examination. One RO applicant failed both the written and operating exam. Additionally, one RO "retake" applicant, who was waived from taking the operating exam, did not pass the written examination. Two RO applicants and three SRO applicants were issued licenses.

Two RO applicants passed the operating test, but passed the written examination with overall scores between 80% and 82%. Each of these applicants was issued a letter stating that they passed the examination and issuance of their license has been delayed pending any written examination appeals that may impact the licensing decision for their application.



During administration of the operating exam, the examiners noted the following generic weaknesses.

- During exam scenarios, after the control rod drive (CRD) flow controller had failed to operate in the automatic mode, the applicants did not promptly restore system flow by operating the controller in manual mode, which resulted in several CRD temperatures exceeding 350 °F, which was an operability concern.
- During job performance measures (JPMs), several applicants did not locate 1-FCV-23-57, Standby Coolant Valve from RHRSW.
- During JPMs, most of the applicants did not readily locate the main steam line drain valves' position indicator, ZI-1-174, at Panel 9-3.
- During an alternate path JPM associated with emergency venting the drywell via the suppression chamber hardened vent valves, several applicants still attempted to open the inboard hardened vent valve even though the outboard hardened vent valve (in series) had already failed to open. Consequently, in two instances, the primary containment pressure exceeded 55 psig before the applicants abandoned the hardened vent valves and continued in the procedure to vent the drywell directly to the reactor building.

Copies of all individual examination reports were sent to the facility Training Manager for evaluation of weaknesses and determination of appropriate remedial training.

The licensee did not submit any post-examination comments. A copy of the final RO and SRO written examinations and answer keys, with all changes incorporated, may be accessed not earlier than August 19, 2013, in the ADAMS system (ADAMS Accession Numbers ML112370110 and ML112370111, respectively).

#### 4OA6 Meetings, Including Exit

##### Exit Meeting Summary

On August 12, 2011, the NRC Chief Examiner discussed generic issues associated with the operating test with Daniel L. Hughes, Operations Manager, and members of the Browns Ferry staff. The examiners asked the licensee if any of the examination material was proprietary. The information that the licensee identified as proprietary was handled in a manner consistent with NRC and licensee guidelines for this type of information.

ATTACHMENT: SUPPLEMENTAL INFORMATION

## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### **Licensee personnel**

D. L. Hughes, Operations Manager  
Matthew M. Rasmussen, Operations Superintendent  
Micah Nash, Operations Shift Manager  
Joe Bennett, Operations Unit Supervisor  
David Malinowski, Operations Training Manager  
Barry D. Tidwell, Training Supervisor  
Dan Zielinski, Exam Team Developer  
David C. Matherly, Senior Manager, BFN Focus  
Gerald J. Doyle, Assistant Site Vice President Technical Assistant  
James Emens, Site Licensing Manager  
James W. Davenport, Site Licensing  
Cris Boschetti, BFN Quality Assurance Manager  
Steve Bono, BFN Maintenance Manager  
Bill Nurenberger, Work Control Manager  
Robert Norris, Radiation Protection Manager  
Michael Durr, Engineering Director  
Steve Brown, Projects Supervisor

#### **NRC personnel**

Thierry Ross, Senior Resident Inspector

## **SIMULATOR FIDELITY REPORT**

Facility Licensee: Browns Ferry

Facility Docket No.: 50-259, 50-260, and 50-296

Operating Test Administered: August 8 – 12, 2011

This form is used only to report observations. The observations do not constitute audit or inspection findings and, without further verification and review in accordance with Inspection Procedure 71111.11 are not indicative of noncompliance with 10 CFR 55.46. No licensee action is required in response to these observations.

No simulator fidelity or configuration issues were identified.