



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

July 22, 2010

Mr. R. M. Krich  
Vice President, Nuclear Licensing  
Tennessee Valley Authority  
3R Lookout Place  
1101 Market Street  
Chattanooga, TN 37402-2801

SUBJECT: BROWNS FERRY NUCLEAR PLANT – NRC OPERATOR LICENSE  
EXAMINATION REPORT 05000259/2010301, 05000260/2010301, AND  
05000296/2010301

Dear Mr. Krich:

During the period June 7 – 14, 2010, 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 your staff identified in the enclosed report. The written examination was administered by your staff on June 17, 2010.

Of the twelve applicants who applied for licensees, three Reactor Operator (RO) and seven Senior Reactor Operator (SRO) applicants passed both the operating test and written examination. One RO applicant passed a written retake exam (the operating test for this individual has been waived.) One SRO applicant failed the written examination. There were three administration comments concerning the written examination. These comments and the NRC resolution of these comments are summarized in Enclosure 2. A Simulator Fidelity Report is included in this report as Enclosure 3.

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) 997-4550.

Sincerely,

*/RA/*  
Malcolm T. Widmann, Chief  
Operations Branch  
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. NRC Post Examination Comment Resolution  
3. Simulator Fidelity Report

cc w/encl: (See page 2)

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TVA

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Letter to Mr. Krich from Malcolm T. Widmann dated July 22, 2010

SUBJECT: BROWNS FERRY NUCLEAR PLANT – NRC OPERATOR LICENSE  
EXAMINATION REPORT 05000259/2010301, 05000260/2010301, AND  
05000296/2010301

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**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION II**

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

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

Report Nos.: 05000259/2010301, 05000260/2010301, 05000296/2010301

Licensee: Tennessee Valley Authority (TVA)

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

Location: Corner of Shaw and Nuclear Plant Roads  
Athens, AL 35611

Dates: Operating Test – June 7 - 14, 2010  
Written Examination – June 17, 2010

Examiners: Phillip G. Capehart, Chief Examiner, Operations Engineer  
Gerard W. Laska, Senior Operations Engineer  
Kenneth D. Schaaf, Operations Engineer

Approved by: Malcolm T. Widmann, Chief  
Operations Branch  
Division of Reactor Safety

## SUMMARY OF FINDINGS

ER 05000259/2010301, 05000260/2010301, 05000296/2010301, 06/7-14/2010 & 06/17/2010; 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.

Members of Browns Ferry Nuclear Plant training staff developed both the operating tests and the written examination.

The NRC administered the operating tests during the period June 7 - 14, 2010. Members of the Browns Ferry Nuclear Plant training staff administered the written examination on June 17, 2010. Three Reactor Operator (RO) and seven Senior Reactor Operator (SRO) applicants passed both the operating test and written examination. One RO applicant passed a written retake exam. One SRO applicant failed the written examination. Nine applicants were issued licenses commensurate with the level of examination administered. Due to their written exam scores, two applicants' licenses will be held in abeyance for a minimum of 20 days to account for any possible appeals due to the one written exam failure.

There were three post-examination comments.

No findings of significance were identified.

## REPORT DETAILS

### 4. OTHER ACTIVITIES

#### 4OA5 Operator Licensing Examinations

##### a. Inspection Scope

Members of the Browns Ferry Nuclear Plant developed both the operating tests and the written examination. 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 Part 55.49, "Integrity of examinations and tests."

The NRC examiners evaluated four Reactor Operator (RO) and eight Senior Reactor Operator (SRO) applicants using the guidelines contained in NUREG-1021. The examiners administered the operating tests during the period June 17 - 14, 2010. Members of the Browns Ferry Nuclear Plant training staff administered the written examination on June 17, 2010. 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 of significance were identified. The NRC determined that the details provided by the licensee for the written exam, walkthrough, and simulator tests were within the range of acceptability expected for a proposed examination.

During the performance of the examination, Job Performance Measures were being conducted in the simulator by the examination team, a security violation occurred. A Licensed Operator Requalification Instructor, who was not on the security agreement, ignored the examination barriers in place and entered the simulator during the examination process. Both the licensee and the NRC examiner immediately recognized the security violation, stopped the examination process, and addressed the individual to be escorted out of the simulator. The licensee immediately placed the Instructor on the security agreement and wrote a service request report (192291) to address the error and to prevent a reoccurrence.

Three RO applicants and seven SRO applicants passed both the operating test and written examination. One RO applicant passed a written retake and was waived on the operating examination. One SRO applicant failed the written examination. Two RO applicants and seven SRO applicants were issued licenses.

Two RO applicants passed the operating test, but passed the written examination with overall scores between 80% and 82%. These applicants were issued letters 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.

A copy of the final "as-given" RO and SRO written examinations and answer keys, with all changes incorporated, and the licensee's post-examination comments, may be accessed in the ADAMS system (ADAMS Accession Numbers ML102020489, ML102020475, and ML102020502).

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

#### 4OA6 Meetings, Including Exit

##### Exit Meeting Summary

On June 14, 2010, the NRC examination team discussed generic issues associated with the operating test with Mr. K. Polson, Browns Ferry Nuclear Plant, Site Vice President, and members of the Browns Ferry Nuclear Plant staff. The examiners asked the licensee if any of the examination material was proprietary. No proprietary information was identified.

## KEY POINTS OF CONTACT

### Licensee personnel

J. Davenport, Licensing Engineer  
B. Carrier, Exam Developer  
D. Malinowski, Operations Training Manager  
D. McConnell, Initial Training Manager  
J. Miller, Operations Manager  
J. Morris, Training Manager  
K. Polson, Site Vice President BFN  
J. Randich, GMSO  
M. Sweeney, Exam Team Member  
D. Williamson, Licensing Manager  
D. Zielinski, Exam Team Member

### NRC personnel

P. Capehart, DRS  
T. Ross, SRI  
K. Schaaf, DRS

## **NRC Post Examination Comment Resolution**

A complete Text of the licensee's post examination comments can be found in ADAMS under Accession Number ML102020502.

### **RO QUESTION # 68**

#### **LICENSEE COMMENT:**

The question asks, "What is the MINIMUM personnel requirement at the VFD (Variable Frequency Drive) to perform speed control manipulations for the Reactor Recirculation Pumps in accordance with the procedure (2-OI-68, Reactor Recirculation System)?"

2-OI-68, Reactor Recirculation System, only requires communication between a "licensed operator" and the Unit Operator in the control room. The correct answer, based solely on the 2-OI-68 procedure, from the choices given, was intended to be "Reactor Operator ONLY", choice A.

The licensee, in their post examination comment, challenges this question and request that two correct answers (choice A "Reactor Operator ONLY" and choice C "Reactor Operator AND Senior Reactor Operator for oversight") be accepted. The licensee states that there are two higher ranking procedures that state a Unit Supervisor shall be present or provide direct oversight when reactivity manipulations are performed:

OPDP-1, Conduct of Operations, Rev 16, page 13, step 3.6.B.2, states that the Unit Supervisor is responsible for all manipulations that affect reactivity and is charged to personally oversee all reactivity changes or assign another SRO to oversee the reactivity change if unable to give his/her undivided attention.

SSP-10.4, Reactivity Management Program, Rev. 8, page 12, step 3.2.6.J, states that the Unit Supervisor shall provide direct oversight (line of sight within normal conversation level distance) for all reactivity manipulation (may be performed by a dedicated SRO for major reactivity evolutions such as reactor startup).

#### **NRC RESOLUTION:**

Based on the above discussion, the licensee's recommendation was not accepted. Both answer choices A and C are not correct. Based on the two higher tier procedures, an SRO should always be present for reactivity manipulations. This does not contradict but adds additional requirements to 2-OI-68 that always applies. Therefore, both A and C cannot be correct. The only correct answer is choice C. The answer key has been changed to reflect this change.

**SRO QUESTION # 77****LICENSEE COMMENT:**

The question concerns itself with the requirement for the highest level of EAL classification if the backup control panel cannot be manned within 20 minutes following a control room evacuation.

The licensee contends that the basis document of EPIP-1, 6.2-S, gives a possible justification for NOT classifying the event as a Site Area Emergency based on certain key parameters being controlled by automatic functions. HPCI initiation and automatic operation is specifically given as one of these instances. With no other evidence of uncontrolled key parameters in the question stem, the event could also be classified as an Alert and therefore there are two correct answers.

The licensee contends that there are two correct answers for this question: Choice A (1) Alert and Choice C (1) Site Area Emergency.

**NRC RESOLUTION:**

After reviewing the licensee's contention and supporting information, the recommendation is not accepted. The criteria to establish plant control from the backup control panel is not based on just one parameter (i.e. HPCI control), but on several critical parameters. The operator is forced to evacuate the control room and is not aware of the status of these other critical parameters within the time limit of 20 minutes and therefore has no other option but to declare a Site Area Emergency.

Based on the above discussion, the recommendation to accept two answers was not accepted; only answer choice C will be considered as a correct answer. No answer key change was required.

**Simulator JPM b “Place a 2<sup>nd</sup>/3<sup>rd</sup> RFPT in service”****LICENSEE COMMENT:**

The JPM cue statement states “The Unit Supervisor directs you to place RFPT 3A in service and in automatic level control per 3-OI-3, Reactor Feedwater System, section 5.7”. The task standard is to “Place the 2<sup>nd</sup>/3<sup>rd</sup> RFPT in service”.

For this JPM, Unit 3 was less than 70% Reactor Power with the B and C Reactor Feedwater Pumps in service. Placing RFP 3A MIN FLOW VALVE, 3-HS-3-20, in the OPEN position will lock it open, preventing minimum flow valve oscillations at low flow. Although it is desired to minimize valve oscillations, such oscillations at given conditions are well within the capability of the Feedwater Level Control System to respond to and will not result in a significant plant transient or significant diminished margin to safety.

The licensee contends that step [3] of the procedure: VERIFY RFP 3A MIN FLOW VALVE, 3-HS-3-20 in OPEN position, is not a critical step. The task standard for this JPM is to place RFPT 3A in service and in automatic level control per 3-01-3 Reactor Feedwater System section 5.7. Failure to perform this step will not prevent successful completion of the task standard. Therefore, the licensee recommends that the performance of the step be changed to “Not Critical”.

**NRC RESOLUTION:**

After reviewing the licensee’s contention and supporting information, the recommendation is accepted. JPM step [3] to “VERIFY RFP 3A MIN FLOW VALVE, 3-HS-3-20 OPEN” does not require the operator to place the switch from AUTO to OPEN and therefore it is not critical.

## **SIMULATOR FIDELITY REPORT**

Facility Licensee: Browns Ferry Nuclear Plant

Facility Docket No.: 05000259, 05000260, 05000296

Operating Test Administered: June 7 - 14, 2010

This form is to be used only to report observations. These 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.

The following simulator fidelity or configuration issues were identified:

During a simulator scenario examination the simulator stopped responding and the examination process had to be halted. The simulator support staff identified that the problem originated from the digital feedwater computer. The crew under examination was escorted from the simulator so that a simulator download and upload could be performed. This was required to restore the simulator to proper operation. After approximately 15 minutes, the simulator was restored and verified to be operational. The simulator examination crew was reintegrated to the scenario from the point at which the simulator stopped responding and the exam was recommenced. The delay in the scenario evaluation process did not impact administration of the scenario. [Simulator Problem Report # 5048]