



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

January 23, 2018

Mr. David R. Vineyard  
Site Vice President  
Southern Nuclear Operating Company, Inc.  
Edwin I. Hatch Nuclear Plant  
11028 Hatch Parkway North  
Baxley, GA 31513

**SUBJECT: EDWIN I. HATCH – NRC OPERATOR LICENSE EXAMINATION REPORT  
05000321/2017301 AND 05000366/2017301**

Dear Mr. Vineyard:

During the period September 25 – October 5, 2017, the Nuclear Regulatory Commission (NRC) administered operating tests to employees of your company who had applied for licenses to operate the Edwin I. Hatch Nuclear Plant. At the conclusion of the tests, the examiners discussed preliminary findings related to the operating tests and the written examination submittal with those members of your staff identified in the enclosed report. The written examination was administered by your staff on October 12, 2017.

Eight Reactor Operator (RO) and nine Senior Reactor Operator (SRO) applicants passed both the operating test and written examination. There was one post-administration comment concerning the operating test. That comment, and the NRC resolution of that comment, is summarized in Enclosure 2. A Simulator Fidelity Report is included in this report as Enclosure 3.

The initial examination submittal was within the range of acceptability expected for a proposed examination. All examination changes agreed upon between the NRC and your staff were made according to NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 11.

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) 997-4662.

Sincerely,

*/RA/*

Eugene F. Guthrie, Chief  
Operations Branch 2  
Division of Reactor Safety

Docket Nos: 50-321, 50-366  
License Nos: DPR-57, NPF-5

Enclosures: 1. Report Details  
2. Facility Comments and NRC Resolution  
3. Simulator Fidelity Report

cc: Distribution via Listserv

SUBJECT: EDWIN I. HATCH – NRC OPERATOR LICENSE EXAMINATION REPORT  
05000321/2017301 AND 05000366/2017301

Distribution:

- A. Goldau, RII
- T. Stephen, RII
- J. Drake, RII
- B. Caballero, RII
- J. Bundy, RII
- E. Guthrie

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**U.S. NUCLEAR REGULATORY COMMISSION**

REGION II

Docket No.: 50-321, 50-366

License No.: DPR-57, NPF-5

Report No.: 05000321/2017301 and 05000366/2017301

Licensee: Southern Nuclear Operating Company (SNC)

Facility: Edwin I. Hatch Nuclear Plant, Units 1 and 2

Location: Baxley, GA

Dates: Operating Test – September 25 – October 5, 2017  
Written Examination – October 12, 2017

Examiners: A. Goldau, Chief Examiner, Operations Engineer  
B. Caballero, Senior Operations Engineer  
J. Bundy, Operations Engineer  
J. Drake, Senior Reactor Inspector  
Tom Stephen, Operations Engineer

Approved by: Eugene F. Guthrie, Chief  
Operations Branch 2  
Division of Reactor Safety

## **SUMMARY**

ER 05000321/2017301, 05000366/2017301; September 25 – October 5, 2017 & October 12, 2017; Edwin I. Hatch Nuclear Plant; Operator License Examinations.

Nuclear Regulatory Commission (NRC) examiners conducted an initial examination in accordance with the guidelines in Revision 11, 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 the Edwin I. Hatch Nuclear Plant staff developed both the operating tests and the written examination. The initial operating tests, written Reactor Operator (RO) examination, and written Senior Reactor Operator (SRO) examination submittals met the quality guidelines contained in NUREG-1021.

The NRC administered the operating tests during the period September 25 – October 5, 2017. Members of the Edwin I. Hatch Nuclear Plant training staff administered the written examination on October 12, 2017. Eight Reactor Operator (RO) and nine Senior Reactor Operator (SRO) applicants passed both the operating test and written examination. All seventeen applicants were issued licenses commensurate with the level of examination administered.

There was one post-examination comment.

No findings were identified.

## REPORT DETAILS

### 4. OTHER ACTIVITIES

#### 4OA5 Operator Licensing Examinations

##### a. Inspection Scope

The NRC evaluated the submitted operating test by combining the scenario events and job performance measures (JPMs) in order to determine the percentage of submitted test items that required replacement or significant modification. The NRC also evaluated the submitted written examination questions (RO and SRO questions considered separately) in order to determine the percentage of submitted questions that required replacement or significant modification, or that clearly did not conform with the intent of the approved knowledge and ability (K/A) statement. Any questions that were deleted during the grading process, or for which the answer key had to be changed, were also included in the count of unacceptable questions. The percentage of submitted test items that were unacceptable was compared to the acceptance criteria of NUREG-1021, "Operator Licensing Standards for Power Reactors."

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 NRC administered the operating tests during the period September 25 – October 5, 2017. The NRC examiners evaluated eight RO and nine SRO applicants using the guidelines contained in NUREG-1021. Members of the Edwin I. Hatch Nuclear Plant training staff administered the written examination on October 12, 2017. Evaluations of applicants and reviews of associated documentation were performed to determine if the applicants, who applied for licenses to operate the Edwin I. Hatch Nuclear Plant, met the requirements specified in 10 CFR Part 55, "Operators' Licenses."

The NRC evaluated the performance and fidelity of the simulation facility during the preparation and conduct of the operating tests.

##### b. Findings

No findings were identified.

The NRC developed the written examination sample plan outline. Members of the Edwin I. Hatch Nuclear Plant training staff developed both the operating tests and the written examination. All examination material was developed in accordance with the guidelines contained in Revision 11 of NUREG-1021. 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 determined, using NUREG-1021, that the licensee's initial examination submittal was within the range of acceptability expected for a proposed examination.

No issues related to examination security were identified during preparation and administration of the examination.

All eight RO applicants and all nine SRO applicants passed both the operating test and written examination. All applicants were issued licenses.

Two generic weaknesses were identified with the applicants' performance during the operating exam.

- Nine of seventeen applicants displayed a weakness in their ability to restart RCIC after a mechanical overspeed. 34SO-E51-001-2 Reactor Core Isolation Cooling (RCIC) System, Section 7.1.4.3 (title), Step 7.4.3.7 stated:

<b>CAUTION:</b>	2E51-F524 MUST BE JOGGED OPEN SLOWLY (BUMPED OPEN) UNTIL THE FLOW CONTROLLER HAS CONTROL OF THE TURBINE. STROKE TIME OF THE 2E51-F524 IS 8 - 10 SECONDS. IF OPENED TOO QUICKLY, TURBINE OVERSPEED COULD OCCUR.
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7.1.4.3.7      **Slowly throttle open** 2E51-F524, Trip & Throttle Valve, AND  
**concurrently confirm open OR open** 2E51-F013, Pump Discharge Valve.     

Nine applicants did not concurrently open 2E51-F524 and 2E51-F013.

- The second weakness was associated with an in-plant JPM, where the applicants were required to open an infrequently used valve located approximately 15 feet in the overhead. The applicants stated that they would use an extension ladder to gain access to the valve, and were unaware of Safety Procedure Section 507, "Ladder Safety", which would prohibit operating the valve from an extension ladder.

Additionally, the quality of a plant procedure required a proposed JPM to be replaced during the on-site preparatory week, because the procedure did not include enough detail for satisfactory task completion. The examiners noted several other instances where the quality of plant procedures increased the likelihood of applicant procedure use errors.

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 submitted one post-examination comment concerning the operating test which may be accessed in the ADAMS system (ADAMS Accession Number ML17132A132). A copy of the final written examination and answer key, with all changes incorporated, may be accessed not earlier than November 8, 2019 in the ADAMS system (ADAMS Accession Number ML16214A180).

#### 4OA6 Meetings, Including Exit

##### Exit Meeting Summary

On October 5, 2017 the NRC examination team discussed generic issues associated with the operating test with David Vineyard, Site Vice President, and members of the Edwin I. Hatch 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

David Vineyard, Site Vice President  
Tony Spring, Plant Manager  
James E. Henry, Operations Director  
Kip Wainwright, Operations Training Manager  
Charlie Edmund, Nuclear Oversight Manager (Acting)  
Russell Lewis, Operations Support Manager  
Ed Jones, Operations Training Instructor - Lead  
Anthony Ball, Operations Instructor - Lead Exam Author  
Dwayne Taylor, Operations Instructor – Class Coordinator  
John Derek Williams, Operations ILT Mentor  
Derwood Tootle, Operations ILT Instructor



## FACILITY POST-EXAMINATION COMMENTS AND NRC RESOLUTIONS

A complete text of the licensee's post-examination comments can be found in ADAMS under Accession Number ML16214A194.

### Post-Examination Comment

The facility licensee contended that the Standard for JPM Step #8 for In Plant JPM "i", From the Remote Shutdown Panel, Start RHR in Torus Cooling, should be changed to the following:

*"The operator throttles open 2E11-F024B and RHR FLOW, 2C82-R004, indicates  $\leq 7700$  gpm."*

The facility licensee contended that the original Standard for JPM Step #8 inappropriately included a lower allowable flow rate (6700 gpm), which, if an applicant operated Torus Cooling below this value, would not result in any adverse conditions. The facility stated that the lower value of 6700 gpm was arbitrarily selected as an achievable tolerance band less than or equal to the upper limit of 7700 gpm, but was not directed by the procedure and has no technical basis.

### NRC Resolution

The licensee's post-examination comment was accepted.

During administration of this JPM, examiners observed two applicants establish a flow rate slightly lower than 6700 gpm and one applicant establish approximately 6000 gpm.

The original Standard for JPM Step #8 stated:

*"The operator throttles open 2E11-F024B and RHR FLOW, 2C82-R004, indicates  $\leq 7700$  gpm. (accept 6700-7700 gpm)"*

31RS-OPS-001-2, Shutdown From Outside Control Room, Attachment 6 Torus Cooling From The Remote Shutdown Panel, Step 8.0 and 8.1 stated:

8.0 At panel 2C82-P001, THROTTLE OPEN 2E11-F024B, Full Flow Test Line, to obtain a flow rate of less than or equal to 7700 GPM as indicated on 2C82-R004, RHR Flow, on panel 2C82-P001. \_\_\_\_\_

8.1 Confirm 2E11-F007B, Min Flow Vlv, CLOSES. \_\_\_\_\_

Step 8.0 did not contain a lower limit on flow. Applicants that established a flow lower than 6700 gpm did not cause an adverse condition to the RHR system, or to the performance of Torus cooling as long as the conditions of step 8.1 were met. 2E11-F007B, Min Flow Valve is designed to automatically close at a flow of 1945 gpm increasing which, when closed, would direct all of the flow through the Torus cooling flow path. A lower flow rate of 6000 gpm would slightly reduce the rate of heat transfer from the Torus but still would have achieved the desired results.

Therefore, the NRC accepts that a flow of 6000 gpm meets the intent of the procedure step and that JPM step 8 STANDARD is revised as requested.

## **SIMULATOR FIDELITY REPORT**

Facility Licensee: Edwin I. Hatch Nuclear Plant

Facility Docket No.: 50-321, 50-366

Operating Test Administered: September 25 – October 5, 2017

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.

No simulator fidelity or configuration issues were identified.