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

September 7, 2016

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 05000321/2016301 AND 05000366/2016301

Dear Mr. Vineyard:

During the period June 20 – 29, 2016, 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 July 7, 2016.

Six Reactor Operator (RO) and five Senior Reactor Operator (SRO) applicants passed both the operating test and written examination. One RO applicant failed the operating test and written examination. There were four post-administration comments concerning both the operating test and 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.

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 10.

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) 997-4551.

Sincerely,

/RA/

Gerald J. McCoy, Chief
Operations Branch 1
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

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ADAMS: ☒ Yes ACCESSION NUMBER:__ _____ ☒ SUNSI REVIEW COMPLETE ☐ FORM 665 ATTACHED

OFFICE	RII:DRS	RI:DRS	RII:DRS	RII:DRS			
SIGNATURE	**JDB10 via email**	**PAP3 via email**	**JXV3 via email**	**GJM1**			
NAME	JBUNDY	PPRESBY	JVIERA	GMcCOY			
DATE	8/31/2016	8/31/2016	9/1/2016	9/ 7 /2016			
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

OFFICIAL RECORD COPY DOCUMENT NAME: G:\OLEXAMS\HATCH EXAMINATIONS\INITIAL EXAM 2016-301\CORRESPONDENCE\HATCH 2016-301 EXAM REPORT.DOCX

U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.:	50-321, 50-366
License No.:	DPR-57, NPF-5
Report No.:	05000321/2016301 and 05000366/2016301
Licensee:	Southern Nuclear Operating Company (SNC)
Facility:	Edwin I. Hatch Nuclear Plant, Units 1 and 2
Location:	Baxley, GA
Dates:	Operating Test – June 20-29, 2016 Written Examination – July 7, 2016
Examiners:	J. Viera, Chief Examiner, Operations Engineer P. Presby, Senior Operations Engineer J. Bundy, Operations Engineer
Approved by:	Gerald J. McCoy, Chief Operations Branch 1 Division of Reactor Safety

SUMMARY

ER 05000321/2016301, 05000366/2016301; June 20-29, 2016 & July 7, 2016; Edwin I. Hatch Nuclear Plant; Operator License Examinations.

Nuclear Regulatory Commission (NRC) examiners conducted an initial examination in accordance with the guidelines in Revision 10, 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 June 20-29, 2016. Members of the Edwin I. Hatch Nuclear Plant training staff administered the written examination on July 7, 2016. Six Reactor Operator (RO) and five Senior Reactor Operator (SRO) applicants passed both the operating test and written examination. Eleven applicants were issued licenses commensurate with the level of examination administered.

There were four post-examination comments.

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 June 20-29, 2016. The NRC examiners evaluated seven RO and five SRO applicants using the guidelines contained in NUREG-1021. Members of the Edwin I. Hatch Nuclear Plant training staff administered the written examination on July 7, 2016. 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 or 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 10 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.

Six RO applicants and five SRO applicants passed both the operating test and written examination. One RO applicant did not pass the operating test or written examination. Six RO applicants and five SRO applicants were issued licenses.

One RO applicant passed the operating test, but passed the written examination with an overall score between 80% and 82%. This applicant 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.

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 three post-examination comments concerning the operating test and one post-examination comment concerning the written examination. A copy of the final written examination and answer key, with all changes incorporated, may be accessed not earlier than July 7, 2018, and a copy of the licensee's post-examination comments, may be accessed in the ADAMS system (ADAMS Accession Numbers ML16214A180, ML16214A189 and ML16214A194).

4OA6 Meetings, Including Exit

Exit Meeting Summary

On July 29, 2016 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
Chuck Vonier, Operations Director
Brad Deen, Training Director
Greg Johnson, Regulatory Affairs Manager
Russell Lewis, Operations Support Manager
Ed Jones, Nuclear Operations Training Instructor – Lead
Anthony Ball, Lead Exam Developer
Richard Greenhouse, Exam Developer
Art Genereax, Exam Developer
Jerry Thomas, Initial Nuclear Operations Training Instructor
John Campbell, Initial Nuclear Operations Training 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.

Item #1: RO / SRO Written Exam Question # 56

Post-Examination Comment

During administration of the written examination, two applicants provided questions seeking clarification for the second half answer choices to Question # 56 (Q56). The licensee contended that these Q56 answer choices were open to interpretation, contained ambiguity, and required revision. Use of the Q56 term, ILLUMINATED, or 'annunciator in alarm' as an answer choice, implied control panel annunciator indication of either SOLID GREEN (annunciator in non-alarming condition) or FLASHING WHITE (annunciator in alarming condition). The licensee recommended a revision of the second half answer choices to remove this ambiguity:

FROM:		**TO:**	
A.	10:01; ILLUMINATED	A.	10:01; WHITE FLASHING
B.	10:01; EXTINGUISHED	B.	10:01; GREEN SOLID
C.	10:02; ILLUMINATED	C.	10:02; WHITE FLASHING
D.	10:02; EXTINGUISHED	D.	10:02; GREEN SOLID

NRC Resolution

The entire text of Q56 is included below.

56. 295031EK2.11 001

Unit 1 is operating at 100% RTP.

An event occurs causing RWL to decrease and results in the following 1C32-R606A-C GEMAC, indications:

Time	RWL
10:00	+40 inches and steady
10:01	+5 inches and decreasing
10:02	-5 inches and decreasing
10:15	+35 inches and steady

Based on the above conditions and ONLY on plant automatic response,

The NPO is first REQUIRED to perform RWL control actions per Placard RC-2 at _____ .

At 10:15, alarm, REACTOR VESSEL WATER LEVEL HIGH/LOW, 603-141, will be _____ .

The licensee's recommendation was partially accepted.

Following discussion with the facility examination team and based, in part, on the applicant questions provided, the Chief Examiner concluded that the provided answer choices of ILLUMINATED and EXTINGUISHED were not specific to actual control board annunciator response with no operator action, did not definitively elicit the 'asked-for' knowledge, and required revision.

In Post Exam Comment #1, the licensee recommended adoption of revised answer choices for Q56 to remove ambiguity and elicit the 'asked-for' knowledge, i.e. alarm status of annunciator 603-141. This was performed during administration of the written examination as a result of questions raised by several applicants where the licensee staff and the chief examiner jointly agreed that the wording was ambiguous.

Therefore, the second half answer choices for Q56 are revised to read FLASHING WHITE and SOLID GREEN and all applicants were informed of the revised wording during administration of the written examination. The correct answer choice for Q56 remains answer choice D.

Item #2: Administrative Topic "d", 2016-301 ADMIN 5, Evaluate an RWP and Survey Map

Post-Examination Comment

The licensee contended that job performance measure (JPM) Step 1 required reclassification from CRITICAL to non-CRITICAL. As a basis, the licensee contended that the provided radiological survey map contained no areas with an indicated dose rate > 1000 mRem/hour in the JPM specified work area, Unit 1 Turbine Building Condenser Bay 147' elevation. JPM Step 1, with accompanying NOTE, is included below.

**1.	Determine the appropriate RWP.	Operator determines that RWP 16-0164 is the correct RWP.	

NOTE: RWP 16-004 can be used to enter High Rad Areas but not Locked High Rad or Very High Rad areas.

A portion of Radiation Work Permit (RWP) 16-0164 is included below.

SOUTHERN NUCLEAR

Radiation Work Permit

16-0164

UNIT **1**

PLANT HATCH

	ACTIVE	REV: 0		Status Color: RED
Job Description	Unit 1 Turbine Building and ConBay Locked High Radiation Area Work. THIS RWP IS NOT TO BE USED FOR GENERAL AREA DOSE RATES GREATER THAN 2 REM.			
Location	U1 TURBINE BUILDING ALL ELEVATIONS			

A portion of RWP 16-004 is included below.

Radiation Work Permit
16-0004

UNIT **0**

PLANT HATCH

		ACTIVE	REV: 0		Status Color: GOLD
Job Description	Operations Inspection, Surveillance and Fire Watch - This RWP not for entries into Locked High Rad or Very High Rad Areas				
Location	GENERAL PLANT LOCATION				

NRC Resolution

The licensee's recommendation was not accepted.

Although the JPM provided survey map contained no areas with an indicated dose rate > 1000 mRem/hour (i.e. the radiological dose rate requiring designation of an area as a Locked High Radiation Area (LHRA)), the given plant condition of operation at 20% reactor power procedurally required LHRA posting of all access doors into the Unit 1 Turbine Building Condenser Bay. Knowledge of this procedural requirement was required to perform JPM step 1. The task standard for this JPM is included below.

TASK STANDARD: The task shall be completed when the operator has determined: the correct RWP, Estimated Dose, and whether or not the predicted task could be completed without exceeding any limits and why.

For this JPM, the following information, in part, was provided to each applicant.

INITIAL CONDITIONS:

1 Unit 1 is operating at 20% RTP.

INITIATING CUES:

Use the above conditions and the provided survey map to determine the following:

- The correct RWP for the task

Procedurally, during preparations to perform a reactor startup, the locking of High Radiation Areas (HRAs) is commenced in accordance with 34GO-OPS-003-1, Startup System Status Checklist, Version 12.19.

7.8.14 **Confirm** all high radiation areas are locked per 62RP-RAD-016-0, High Radiation Area Access Control. _____/_____

The process of LHRA posting verification is completed in accordance with performance of 62RP-RAD-019-0, Radiation Protection Start-Up Surveillance, Version 10.0.

4.2 AT 20% POWER

BEGIN REFERENCE USE

NOTE
Performance of the following steps must be documented on HPX-1084, "Radiation Protection Start-Up Surveillance" - "At 20% Power" section and can be performed before reaching 20% power.

3. **Request** two technicians concurrently verify all Very High, Locked High, and High Radiation Areas and ladder guards are locked and posted AND **record** results on HPX-1082 (for Unit 1) OR HPX-1083 (for Unit 2). ☐

5. RP Supervisor SHALL visually verify LHRA and VHRA postings. ☐

A portion of HPX-1082, Unit One High Radiation Area Entrance Surveillance at 20% Power, which provides a listing of the entry doors into High Radiation areas is provided below.

UNIT ONE HIGH RADIATION AREA ENTRANCE SURVEILLANCE AT 20 % POWER

NOTES:	• Inspections are to be performed concurrently. • N/A may be used for TB Floor Plugs if they are installed.

UNIT ONE

GENERAL AREA	LOCATION	DOOR NUMBER	RP Initials	Verifier RP Initials	REMARKS
TURB BLDG 112'	CONBAY NORTH	1T-4			
	MECH VAC PMP RM	1T-1			
	SJAE "A"	1T-3			
	SJAE "B"	1T-2			
	BW REC TK PIT	N/A			
TURB BLDG 130'	CONBAY EAST	1T-14			
	CONBAY NORTH	1T-13			

In Post Exam Comment #2, the licensee recommended revising JPM Step 1 from CRITICAL to non-CRITICAL based on a lack of indicated radiological dose rate information in the provided survey map. However, a procedural basis did exist for the conditions specified in the JPM and indicate that the doors which permit entry into the Unit 1 Turbine Building Condenser Bay (112' CONBAY NORTH, 130' CONBAY EAST, and 130' CONBAY NORTH), would be verified to be locked and posted as a LHRA with Unit 1 operating at a minimum of 20% reactor power.

Therefore, since a procedural basis exists that validates the licensee provided JPM standard for applicant selection of RWP 16-0164, JPM step 1 remains a CRITICAL step.

Item #3: Systems – Control Room JPM "c", CR-SIM 3 2016-301, Override the MSIVs in an Emergency

Post-Examination Comment

During the performance of this job performance measure (JPM), several license applicants commenced opening an Inboard Main Steam Isolation Valve (MSIV) with a differential pressure (d/p) in excess of the procedurally prescribed 200 pounds-per-square inch differential (psid). The licensee contended that further analysis would be required to determine the consequence of opening an Inboard MSIV with this d/p.

NRC Resolution

The licensee's comment was accepted.

In Post Exam Comment #3, the licensee recommended that additional analysis would be required to determine the consequence of MSIV operation with a d/p in excess of procedural limits during the performance of this JPM.

Therefore, the NRC accepts that any MSIV operation with a d/p in excess of procedural limits could result in MSIV damage during the performance of this JPM.

Item #4: Systems – Control Room JPM "f", CR-SIM 6 2016-301, Transfer an Emergency 4160 VAC Bus from the Emergency to the Normal Power Supply

Post-Examination Comment

During performance of this job performance measure (JPM), actions taken by a license applicant resulted in the inadvertent trip of the running emergency diesel generator (EDG). The licensee contended that no equipment damage or personnel injury would result from an inadvertent reverse power trip of the EDG. The basis for this contention lies in the automatic TRIP of the EDG output breaker and automatic shutdown of the running EDG.

NRC Resolution

The licensee's comment was accepted.

In Post Exam Comment #4, the licensee recommended that there was no adverse plant impact from an inadvertent reverse power trip of the EDG during the performance of this JPM.

Therefore, the NRC accepts that an inadvertent reverse power trip of the running EDG during performance of this JPM would result in no adverse impact to the EDG.

SIMULATOR FIDELITY REPORT

Facility Licensee: Edwin I. Hatch Nuclear Plant

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

Operating Test Administered: June 20-29, 2016

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.