



**UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II**

245 PEACHTREE CENTER AVENUE NE, SUITE 1200
ATLANTA, GEORGIA 30303-1257

May 10, 2016

Joseph W. Shea
Vice President, Nuclear Licensing
Tennessee Valley Authority
1101 Market Street, LP 3D-C
Chattanooga, TN 37402

SUBJECT: SEQUOYAH NUCLEAR PLANT – NRC OPERATOR LICENSE
EXAMINATION REPORT 05000327/2016301 AND 05000328/2016301

Dear Mr. Shea:

During the period March 7–11, 2016, the Nuclear Regulatory Commission (NRC) administered operating tests to employees of your company who had applied for licenses to operate the Sequoyah 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 March 23, 2016.

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

J. Shea

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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: 50-327, 50-328
License Nos: DPR-77, DPR-79

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

cc: Distribution via Listserv

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☒ NON-SENSITIVE

ADAMS: ☒ Yes ACCESSION NUMBER: _____

☒ SUNSI REVIEW COMPLETE ☐ FORM 665 ATTACHED

OFFICE	RII:DRS	RII:DRS	RII:DRS	RII:DRS	RII:DRS		
SIGNATURE	GJM1 FOR PGC1	RSB2 VIA EMAIL	AXT6 VIA EMAIL	RCK1 VIA EMAIL	GJM1		
NAME	CAPEHART	BALDWIN	TOTH	KILIAN	MCCOY		
DATE	5/10/2016	.5/10/2016	.5/10/2016	5/10/2016	5/10/2016	5/ /2016	5/ /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\SEQUOYAH EXAMINATIONS\INITIAL EXAM 2016-301
(PHIL)\CORRESPONDENCE\SEQUOYAH 2016-301 FINAL_REV1.DOCX

U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.: 50-327, 50-328

License No.: DRP-77, DPR-79

Report No.: 05000327/2016301, 05000328/2016301

Licensee: Tennessee Valley Authority (TVA)

Facility: Sequoyah Nuclear Plant, Units 1 & 2

Location: Sequoyah Access Road
Soddy-Daisy, TN 37379

Dates: Operating Test—March 7–11, 2016
Written Examination—March 23, 2016

Examiners: Phillip G. Capehart, Chief Examiner, Senior Operations Engineer
Richard S. Baldwin, Senior Operations Engineer
J. Amanda Toth, Operations Engineer
Reese C. Kilian, Operations Engineer (Under Instruction)

Approved by: Gerald J. McCoy, Chief
Operations Branch 1
Division of Reactor Safety

SUMMARY

ER 05000327/2016301, 05000328/2016301, March 7–11, 2016 & March 23, 2016; Sequoyah 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 Sequoyah Nuclear Plant staff developed both the operating tests and the written examination. The initial operating test, written RO examination, and written SRO examination submittals met the quality guidelines contained in NUREG-1021.

The NRC administered the operating tests during the period March 7–11, 2016. Members of the Sequoyah Nuclear Plant training staff administered the written examination on March 23, 2016. One 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. Six applicants were issued licenses commensurate with the level of examination administered.

There were two operating test 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 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 March 7–11, 2016. The NRC examiners evaluated two Reactor Operator (RO) and five Senior Reactor Operator (SRO) applicants using the guidelines contained in NUREG-1021. Members of the Sequoyah Nuclear Plant training staff administered the written examination on March 23, 2016. Evaluations of applicants and reviews of associated documentation were performed to determine if the applicants, who applied for licenses to operate the Sequoyah 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.

Members of the Sequoyah Nuclear Plant training staff developed both the operating test 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.

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

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 two post-examination comments concerning the operating test. A copy of the final written examination and answer key, with all changes incorporated, and a copy of the licensee's post-examination comments may be accessed not earlier than March 23, 2018, in the ADAMS system (ADAMS Accession Numbers ML16110A044, ML16110A027, and ML16110A030).

4OA6 Meetings, Including Exit

Exit Meeting Summary

On March 11, 2016, the NRC examination team discussed generic issues associated with the operating test with K. Smith, Director of Training, and members of the Sequoyah 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

K. Smith, Director of Training
 M. McMullin, Manager of Operations Training
 C. Dahlman, Operations Training Supervisor
 T. Marshall, Director Nuclear Plant Operations
 D. Allen, Lead Operations Instructor
 M. Buckner, Lead Operations Instructor
 J. Johnson, Program Manager
 R. Joplin, Corporate Program Manager
 F. Schulte, Facility Representative
 M. Leenetjs, Operations Training Liaison

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 ML16110A044.

Item #1: Administrative Job Performance Measure (JPM C); "Align ECCS & CS Pumps to the Containment Sump with a Failure of a Containment Sump Valve."

Post-Examination Comment:

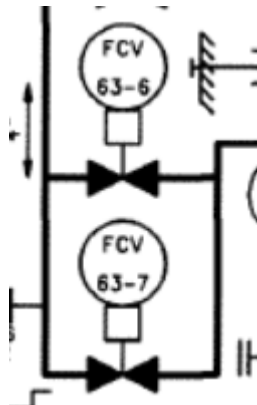
During performance of JPM C, an applicant failed to open FCV-63-7, "RHR Supply to SI pump suction." In the original version of the JPM, at JPM step 19, the applicants were expected to open BOTH FCV-63-6 **AND** FCV-63-7 per step 11 of the procedure as noted below. This step was marked as CRITICAL due to the belief that both valves were required to provide suction flow from the RHR pumps to the suction of the SI pumps. After a review of ES-1.3 "TRANSFER TO RHR CONTAINMENT SUMP" and drawing 47W811 sheet 1, it was confirmed that both FCV-63-6 and FCV-63-7 RHR Supply to SI pumps suction are in parallel. Therefore, opening either valve provides flow from the RHR pumps to the SI pumps suction. Sequoyah requests the wording for the critical step on JPM step 19 be changed to open EITHER FCV-63-6 **OR** FCV-63-7.

From ES-1.3 TRANSFER TO RHR CONTAINMENT SUMP

- | | |
|--|--|
| 11. OPEN CCP and SI pump suction valves from RHR: | ENSURE the following: |
| <ul style="list-style-type: none">• FCV-63-7• FCV-63-6. | <ul style="list-style-type: none">• FCV-63-7 OPENOR• FCV-63-6 OPEN. |

NRC Resolution:

The licensee's recommendation to modify the wording of the critical step for JPM step 19 to "open EITHER FCV-63-6 OR FCV-63-7" is accepted. A review of drawing 47W811 sheet 1 verified that FCV-63-7 and FCV-63-6 are in parallel:



Therefore, opening only one of the valves would still provide a suction path to the SI pumps and allow for successful completion of the task.

Item #2 Control Room Job Performance Measure (JPM F): "Perform Post Trip Equipment Checks with a Failure of Slave Relays and EGTS Fans to Start."

Post-Examination Comment:

During performance of JPM F, two applicants failed to close dampers 1-FCO-65-52, "Annulus Vacuum fan 1A Isolation Damper" and 1-FCO-65-53, "Annulus Vacuum fan 1B Isolation Damper" due, in part, to the applicants using provisions contained in EPM-4 "USER'S GUIDE APPENDIX E APPROVED PRUDENT OPERATOR ACTIONS." In the original version of the JPM, steps to close 1-FCO-65-52 and 1-FCO-65-53 were marked CRITICAL due to the belief that the dampers, when closed, allowed EGTS to perform the design function of maintaining the annulus at a slight vacuum during a LOCA and prevented the possibility of an unfiltered release from the annulus to the Auxiliary Building ventilation stack (atmosphere) under certain conditions. After reviewing drawings 47W866-1, 47W866-10 and 47W866-11, Auxiliary Building Exhaust Vent Isolation Dampers FCO-30-49 and FCO-30-55, located downstream of 1-FCO-65-52 and 1-FCO-65-53 were discovered to provide the isolation function for Auxiliary Building ventilation. Additionally, Auxiliary Building Exhaust Vent Isolation Dampers FCO-30-49 and FCO-30-55 will receive an automatic closure signal upon receipt of a Phase A Isolation signal, which occurred during the postulated condition of this JPM. Therefore, closure of 1-FCO-65-52 and 1-FCO-65-53 would not be critical since the downstream path would be isolated upon receipt of Phase A Isolation. Sequoyah requests the wording on JPM step 11 and 12 be changed to reflect this discovery.

Condition Report No. 1154410 was initiated for Sequoyah Initial License Training to evaluate training on the provisions contained in EPM-4, "USER'S GUIDE APPENDIX E APPROVED PRUDENT OPERATOR ACTIONS" and what the implications of utilizing prudent operator actions may result in.

NRC Resolution:

The licensee's recommendation to change the wording of JPM steps 11 and 12 is accepted. The facility-provided reference supports that Auxiliary Building ventilation isolation is provided by Auxiliary Building Exhaust Vent Isolation Dampers FCO-30-49 and FCO-30-55. Since 1-FCO-65-52 and 1-FCO-65-53 are not relied upon to prevent an unfiltered release, their operation is not critical to completion of the task.

SIMULATOR FIDELITY REPORT

Facility Licensee: Sequoyah Nuclear Plant

Facility Docket No.: 50-327, 50-328

Operating Test Administered: March 7–11, 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.