



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

March 5, 2020

Mr. Daniel G. Stoddard
Senior Vice President and
Chief Nuclear Officer
Innsbrook Technical Center
5000 Dominion Blvd., Floor: IN-2SW
Glen Allen, VA 29060

**SUBJECT: VIRGIL C. SUMMER NUCLEAR STATION – NRC OPERATOR LICENSE
EXAMINATION REPORT 05000395/2019301**

Dear Mr. Stoddard:

During the period December 9 – 13, 2019, the Nuclear Regulatory Commission (NRC) administered operating tests to employees of your company who had applied for licenses to operate the Virgil C. Summer Nuclear Station. 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 December 19, 2019.

All applicants passed both the operating test and written examination. There were two post-administration comments concerning operating test items. 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 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, (Internet E-Mail: Eugene.Guthrie@nrc.gov).

Sincerely,

/RA/

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

Docket Nos: 50-395
License Nos: NPF-12

Enclosures:

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

cc: Distribution via Listserv

SUBJECT: VIRGIL C. SUMMER NUCLEAR STATION – NRC OPERATOR LICENSE
EXAMINATION REPORT 05000395/2019301 dated March 5, 2020

DISTRIBUTION:

E. Guthrie, RII
M. Meeks, RII

☒ PUBLICLY AVAILABLE ☐ NON-PUBLICLY AVAILABLE ☐ SENSITIVE ☒ NON-SENSITIVE

ADAMS: ☒ Yes ACCESSION NUMBER: **ML20065J835** ☐ SUNSI REVIEW COMPLETE ☐ FORM 665 ATTACHED

OFFICE	RII:DRS/OB	RII:DRS/OB	RII:DRS/OB	RII:DRS/OB	RII:DRS/OB
NAME	M.Meeks	N. Lacy	M.Donithan	K. Kirchbaum	E. Guthrie
DATE	03/01/2020	03/ 05 /2020	03/ 02 /2020	03/ 02 /2020	03/ 05 /2020
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO

OFFICIAL RECORD COPY DOCUMENT NAME

U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Examination Report

Docket No.: 05000395

License No.: NPF-12

Report No.: 05000395/2019301

Enterprise Identifier: L-2019-OLL-0028

Licensee: Dominion Energy South Carolina, Inc.

Facility: Virgil C. Summer Nuclear Station, Unit 1

Location: Jenkinsville, South Carolina

Dates: Operating Test – December 9-13, 2019
Written Examination – December 19, 2019

Examiners: M. Meeks, Chief Examiner, Senior Operations Engineer
M. Donithan, Operations Engineer
K. Kirchbaum, Operations Engineer
N. Lacy, Operations Engineer

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

SUMMARY

ER 05000395/2019301; December 9-13, 2019 & December 19, 2019; Virgil C. Summer Nuclear Station; 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 Virgil C. Summer Nuclear Station 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 December 9-13, 2019. Members of the Virgil C. Summer Nuclear Station training staff administered the written examination on December 19, 2019. All Reactor Operator (RO) and Senior Reactor Operator (SRO) applicants passed both the operating test and written examination. All applicants were issued licenses commensurate with the level of examination administered.

There were two 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 performed an audit of license applications during the preparatory site visit in order to confirm that they accurately reflected the subject applicants' qualifications in accordance with NUREG-1021.

The NRC administered the operating tests during the period December 9-13, 2019. The NRC examiners evaluated five Reactor Operator (RO) and three Senior Reactor Operator (SRO) applicants using the guidelines contained in NUREG-1021. Members of the Virgil C. Summer Nuclear Station training staff administered the written examination on December 19, 2019. Evaluations of applicants and reviews of associated documentation were performed to determine if the applicants, who applied for licenses to operate the Virgil C. Summer Nuclear Station 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 Virgil C. Summer Nuclear Station 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.

All applicants passed both the operating test and written examination and 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, may be accessed not earlier than February 9, 2022, in the ADAMS system (ADAMS Accession Number(s) ML20043F093 and ML20043F094).

4OA6 Meetings, Including Exit

Exit Meeting Summary

On December 13, 2019, the NRC examination team discussed generic issues associated with the operating test with R. Justice, General Manager Nuclear Plant Operations, and other members of the V. C. Summer Nuclear Station 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.

KEY POINTS OF CONTACT

Licensee personnel

M. Anderson, Operations Training Instructor
J. Bouknight, Licensing
D. Edwards, Operations Manager
D. Fisher, Operations Shift Manager
J. Galloway, Initial Licensed Operator Class Mentor
R. Haseldew, General Manager Design Engineering
R. Johnston, Lead Examination Developer
R. Justice, General Manager Nuclear Plant Operations
T. Kogelmann, Operations Initial Training Supervisor
B. Moore, Training Manager
J. Reuer, Operations Training Instructor
T. Stewart, Licensing

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 ML20043F115.

Item

Job Performance Measure 'H,' Shift CCW to Fast Speed in the Active Loop

Comment

2019 NRC JPM h (JPS-H-N19)

The cue sheet for 2019 JPM h was changed by the direction of the Chief Examiner to provide additional information and clarification during the operating exam week. That sheet is included as the next page of this section [the changed text is also stated below in the 'NRC Resolution' section].

Facility Licensee Position

This comment was submitted by the facility licensee.

NRC Resolution

The licensee's recommendation was accepted.

The final text of the JPM's "Initiating Cues" initially read as follows, as validated with facility licensed operators:

The CRS directs you as the NROATC to align "A" train CCW for fast speed operation by starting "C" CCW pump in fast speed, supplying both essential and non-essential loads using SOP-118 Section IV.D.
A surrogate operator will acknowledge non-related alarms per your direction.

During the operating test week administration of this JPM to the first applicant, a self-revealing deficiency in the "Initiating Cue" was revealed, in that it did not provide the desired final configuration of the previously-running "A" CCW pump. The relevant procedure step in SOP-118 stated "**if necessary** [emphasis added], shift Component Cooling Pump A to fast speed...." As part of the design of the JPM, it was intended that the applicants would shift the "A" CCW pump to fast speed. However, this expectation was not clearly provided in the initial conditions or the initiating cue statement. The first applicant to take the JPM noted that the configuration of the "A" CCW pump was not specified and verbalized that the "A" CCW pump in fast speed was not necessary. At this point, the examiner administering the JPM provided a verbal cue to the applicant that it **was** desired to shift the "A" CCW pump to fast speed, and the initial applicant taking this JPM was then able to complete the remaining steps in the JPM in a satisfactory manner.

When this self-revealing deficiency was recognized following the administration of the initial JPM, the NRC Chief Examiner coordinated a revision to the initiating cue statement with the

assistance and concurrence of the facility licensee exam team supervisor and operations representative. All parties agreed to change the text of the “Initiating Cues” to the following:

The CRS directs you as the NROATC to align “A” train CCW for fast speed operation by starting “C” CCW pump in fast speed, and aligning “A” CCW pump to fast speed in Standby to supply both essential and non-essential loads using SOP-118 Section IV.D.
A surrogate operator will acknowledge non-related alarms per your direction.

All additional applicants were given the revised cue statement. The Chief Examiner asked the facility licensee to provide a post-examination comment on this operating test item in order to formalize the revision to the approved examination material.

Item

Job Performance Measure ‘J,’ Shutdown of XIT-5903 and Transfer APN-5903 to Alternate Power Supplied by 1FB

Comment

2019 NRC JPM j (JPP-J-N19)

Feedback was provided by an examiner to VCS Summer staff regarding the performance of JPM f [sic]. He [the examiner] stated that he observed a candidate, while performing JPM f [sic], step 10, point to the UPS AC OUTPUT breaker and state that this breaker would be opened at step 2.7 of SOP-310, Section IV.U rather than the required BACKUP SOURCE breaker.

If this were to occur in actual performance of that step, this would result in opening the sole path of power from inverter XIT-5903 from any of the three upstream sources to Vital 120 VAC bus APN-5903. This would result in a loss of power to that bus.

V.C. Summer management asserts that if this were to happen during administration of JPM f [sic] by facility staff, this would warrant creation of a new critical step and task standard that requires maintaining APN-5903 continuously energized. This would be graded as a JPM failure.

Facility Licensee Position

This comment was submitted by the facility licensee.

NRC Resolution

The licensee’s recommendation was accepted.

In order to successfully complete in-plant JPM “J,” the applicant was expected to correctly shut down Inverter XIT-5903, while maintaining Vital AC Distribution Panel APN-5903 supplied by alternate power from 1FB via manual bypass switch. While performing the JPM, at procedure

step U.2.7, it was expected that the applicant would correctly follow the procedural direction to open the BACKUP SOURCE breaker. Correct operation of this breaker was identified as a critical step in the JPM.

Procedure step U.2.7 specifically directed the operator to “Open the BACKUP SOURCE breaker on the Inverter front.” However, one applicant simulated opening the UPS AC OUTPUT breaker, which was contrary to the procedure. During the JPM, the applicant had been provided with a laser pointer and he read the step, then clearly indicated the UPS AC OUTPUT breaker’s label plate with the laser pointer, read the step again, pointed to the label again, then indicated that he would move that breaker down to Off/Open.

As a consequence of incorrectly opening the UPS AC OUTPUT breaker, the applicant would have unexpectedly de-energized Vital 120 VAC panel APN-5903, which would have caused a loss of several vital control room indications and instruments, along with causing reactor control rods to continuously insert in Automatic until stopped by a Reactor Operator.

The NRC concurs with the facility licensee assessment that incorrectly opening the UPS AC OUTPUT breaker at that point of the inverter re-alignment sequence constituted creation of a new critical step, and unsuccessful completion of the new critical step.

SIMULATOR FIDELITY REPORT

Facility Licensee: V. C. Summer Nuclear Station (Unit 1)

Facility Docket No.: 05000395

Operating Test Administered: December 9-13, 2019

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.