



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION II
245 PEACHTREE CENTER AVENUE N.E., SUITE 1200
ATLANTA, GEORGIA 30303-1200

November 10, 2021

Mr. Daniel G. Stoddard
Senior Vice President and
Chief Nuclear Officer
Innsbrook Technical Center
5000 Dominion Boulevard
Glen Allen, VA 29060

**SUBJECT: SURRY NUCLEAR PLANT – NRC OPERATOR LICENSE EXAMINATION
REPORT 05000280/2021301 and 05000281/2021301**

Dear Mr. Stoddard:

During the period August 23 – 26, 2021, and October 5, 2021, the Nuclear Regulatory Commission (NRC) administered operating tests to employees of your company who had applied for licenses to operate the Surry Nuclear Plant. One RO applicant was unable to complete the operating test in August, but subsequently completed the operating test on October 5, 2021. The written examination was administered by your staff on September 3, 2021. At the conclusion of the operating test, the chief examiner discussed preliminary findings related to the operating tests with those members of your staff identified in the enclosed report.

Four Reactor Operator (RO) and three Senior Reactor Operator (SRO) applicants passed the operating test and written examination. Two SRO applicants passed the operating test but failed the written examination. There were fourteen post-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.

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) 997-4551

Sincerely,

/RA/

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

Docket Nos: 50-280 and 50-281
License Nos: DPR-32 and DPR-37

Enclosures:

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

cc: Distribution via Listserv

SUBJECT: SURRY NUCLEAR PLANT – NRC OPERATOR LICENSE EXAMINATION
REPORT 05000280/2021301 and 05000281/2021301 dated November 10, 2021

DISTRIBUTION:

Bruno Caballero, RII
Gerald J. McCoy, RII

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ADAMS: Yes ACCESSION NUMBER: **ML21314A567** SUNSI REVIEW COMPLETE FORM 665 ATTACHED

OFFICE	RII:DRS/OB2	RII:DRS/OB1	RII:DRS/OB1	NRR/DCO/IOLB	RII:DRS/OB1
NAME	Bruno Caballero	Joseph Viera	Mike Kennard	Bernie Litkett	Gerald McCoy
DATE	11/8 /2021	11/8/2021	11/8 /2021	11/ 8 /2021	11/ 10 /2021

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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Examination Report

Docket No.: 50-280, 50-281

License No.: DPR-32, DPR-37

Report No.: 05000280/2021301 and 05000281/2021301

Enterprise Identifier: L-2021-OLL-0044

Licensee: Virginia Electric & Power Company

Facility: Surry Nuclear Plant, Units 1 and 2

Location: 5850 Hog Island Road
Surry, VA 23883

Dates: Written Examination – September 3, 2021
Operating Test – August 23 – 26, 2021, and October 5, 2021

Examiners: Bruno Caballero, Chief Examiner, Senior Operations Engineer
Joseph Viera, Senior Operations Engineer
Michael Kennard, Senior Operations Engineer
Bernard Litkett, Reactor Engineer

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

SUMMARY

ER 05000280/2021301, 05000281/2021301; operating test August 23 – 26, 2021 and October 5, 2021 & written exam September 3, 2021; Surry 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 Surry Nuclear Plant staff developed both the operating test and the written examination. The initial operating test, written RO examination, and written SRO examination met the quality guidelines contained in NUREG-1021.

Members of the Surry Nuclear Plant training staff administered the written examination on September 3, 2021. The NRC administered the operating tests during the periods August 23 – 26, 2021 and October 5, 2021. Four Reactor Operator (RO) and three Senior Reactor Operator (SRO) applicants passed both the operating test and written examination. Two SRO applicants passed the operating test but failed the written examination. Seven applicants were issued licenses commensurate with the level of examination administered.

There were fourteen post-examination comments.

No findings were identified.

REPORT DETAILS

4. OTHER ACTIVITIES

4OA5 Operator Licensing Examinations

a. Inspection Scope

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 to confirm that they accurately reflected the subject applicants' qualifications in accordance with NUREG-1021.

Members of the Surry Nuclear Plant training staff administered the written examination on September 3, 2021. The NRC administered the operating test during the period August 23 – 26, 2021; however, one RO applicant was unable to complete the operating test, but subsequently completed the operating test on October 5, 2021. The NRC examiners evaluated four Reactor Operator (RO) and five Senior Reactor Operator (SRO) applicants using the guidelines contained in NUREG-1021. Evaluations of applicants and reviews of associated documentation were performed to determine if the applicants, who applied for licenses to operate the Surry 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 Surry 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 11, of NUREG-1021. The NRC determined that the licensee's written examination and operating test submittals were within the range of acceptable quality for a proposed examination specified by NUREG-1021. 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.

During the on-site preparatory visit week (July 19 - 23, 2021), a near miss exam security event occurred. While the NRC exam team was using the simulator, a member of the licensee's training staff, who was not on the exam security agreement, used the simulator door passcode and entered the simulator room. When the training staff member entered the simulator room, he recognized that the NRC examiners were using the simulator and immediately left the simulator room. The licensee subsequently changed the simulator door passcode, placed the training staff member on the exam security agreement, and initiated a condition report (CR1177122). No compromise of

exam occurred because the training staff member could not see any scenario details and immediately left the simulator room.

Four RO applicants and three SRO applicants passed both the operating test and written examination. Two SRO applicants passed the operating test but failed the written examination. Four RO applicants and three 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 applicants provided five post-exam comments that contended written exam answer key changes and provided nine post-exam written exam comments that did not contend answer key changes. A copy of the final written examinations and answer keys, with all changes incorporated, may be accessed not earlier than October 2, 2023, in the ADAMS system (ADAMS Accession Numbers ML21302A209 and ML21302A212). A copy of the licensee's post-examination comments may be accessed in the ADAMS system (ADAMS Accession Number ML21302A214.)

40A6 Meetings, Including Exit

Exit Meeting Summary

On October 6, 2021, the NRC Chief Examiner discussed generic issues associated with the operating test with Mr. David Wilson, Plant Manager, and members of the Surry 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 Wilson, Plant Manager
Skip Irwin, Supervisor Training
Joe Ford, Senior Instructor
Mike Meyer, Senior Instructor
Johnny Henderson, Director Safety & Licensing
Don Shue, Director Engineering
Adina LaFrance, Manager Licensing & Emergency Preparedness
James Shell, Manager Outage & Planning
Richard Philpot, Manager Organizational Effectiveness
Allen Harrow, Manager Site Engineering Systems Programs
Ron Herbert, Manager Engineering Design
Josh LaFrance, Supervisor Nuclear Engineering
Tim Catlett, Superintendent Maintenance
Mike True, Engineering Technical Specialist III

NRC personnel

Brian Towne, NRC Resident Inspector

FACILITY AND APPLICANT POST-EXAMINATION COMMENTS AND NRC RESOLUTIONS

A complete text of the facility licensee and applicant post-examination comments can be found in ADAMS under Accession Number ML21302A214. The applicants provided five post-exam comments that contended written exam answer key changes and the facility licensee concurred with three of the applicants' comments. The applicants also provided nine post-exam comments that did not contend written exam answer key changes, and the facility licensee did not concur with the applicants' comments.

RO Question #28:

Three applicants contended that this question should be deleted from the exam because 1-AP-9.00, RCP Abnormal Conditions, contained conflicting information about whether a manual reactor trip was required before stopping one RCP when the unit was not online. The facility licensee did not concur with the applicants' contention.

Background

RO Question #28 was a two-part question and the answer key indicated that Choice "D" was the correct answer. The first part of the question tested which parameter trend [thrust bearing (incorrect) or shaft vibration (correct)] would first reach its threshold value that required the RCP to be shutdown, in accordance with 1-AP-9.00. The second part of the question tested whether a manual reactor trip was required first, before stopping the RCP.

Three of the applicants contested the second part of the question. Five of the applicants picked the correct answer (i.e., Choice "D"), three applicants picked Choice "C", and one applicant picked Choice "A."

Initial Conditions:

- Unit 1 Reactor startup was in progress following a Forced outage for RCP Corrective maintenance.
- Power was at 1×10^{-8} amps and holding for Critical Rod data.
- The crew has entered 1-AP-9.00, RCP ABNORMAL CONDITIONS, due to rising temp. and vibration trends, and has suspended any further power increase.

Current Conditions (10 minutes):

- The RO has plotted the most limiting 1-RC-P-1A parameters over the last 10 minutes and are as follows:

Parameter	Initial Reading	Current Reading (10 min)
Lower Thrust bearing	110 °F	145 °F
RCP Shaft vibration	9 mils	15.5 mils

Which ONE of the following completes the statements below?

- 1) Based on these trends, and assuming the trends continue at the same rate, the first parameter that will require the pump to be shutdown is the (1).
- 2) In accordance with the annunciator procedures and 1-AP-9.00, at this power level, a manual reactor trip (2) required before the RCP is shutdown.
 - A. 1) Lower Thrust bearing
2) is
 - B. 1) Lower Thrust bearing
2) is NOT
 - C. 1) RCP Shaft vibration
2) is NOT
 - D. 1) RCP Shaft vibration
2) is

NRC Resolution: Applicants' comment NOT accepted

The stem initial conditions stated that a unit startup was in progress and reactor power was being held at 1×10^{-8} amps to obtain data for reactor criticality when two abnormal RCP parameters occurred, i.e., thrust bearing and shaft vibration. The stem stated that further power ascension was suspended. Therefore, the reactor was critical, and the turbine generator was not online.

Based on the rate-of-rise during a ten-minute interval, the shaft vibration would first require the RCP to be shutdown based on reaching its 20-mil threshold value, in accordance with annunciator procedure 1C-H5, RCP Shaft Danger, Steps 3 through 6:

3. _____ CHECK ALARM – RCP SHAFT VIBRATION GREATER THAN OR EQUAL TO 20 MILS
4. _____ CHECK REACTOR – CRITICAL
5. _____ MANUALLY TRIP REACTOR AND INTIATE 1-E-0, REACTOR TRIP OR SAFETY INJECTION
6. _____ STOP AFFECTED RCP|

1-AP-9.00 included a NOTE at the beginning of the procedure:

NOTE: • If an RCP needs to be tripped with the Reactor critical, a Reactor trip must be performed before securing the RCP.

The applicants contended that the above 1-AP-9.00 NOTE conflicted with Step 19.

Specifically, the applicants contended that Step 19 was guidance to trip the reactor (before tripping the RCP), but only if the unit was online, whereas the NOTE implied that tripping the reactor (before tripping the RCP) was required at all times the reactor was critical. Step 19, which stated:

19. ___ CHECK UNIT STATUS - ON LINE GO TO Step 21.
20. ___ REMOVE UNIT FROM SERVICE IAW SHIFT
MANAGER DIRECTION:
- Applicable GOP 2 Series Procedure
- OR
- 0-AP-23.00, RAPID LOAD
REDUCTION
- OR
- 1-E-0, REACTOR TRIP OR SAFETY
INJECTION
21. ___ SECURE AFFECTED RCP IAW SHIFT
SUPERVISION DIRECTION

However, the fill-in-the-blank statement referenced not only 1-AP-9.00, but it also referenced the "annunciator procedures":

2) *In accordance with the annunciator procedures and 1-AP-9.00, at this power level, a manual reactor trip ___(2)___ required before the RCP is shutdown.*

The annunciator procedure 1C-H5, RCP Shaft Danger, did include a step to trip the reactor, and the 1-AP-9.00 NOTE accommodated the annunciator procedure's guidance for the RCP shutdown.

Therefore, the only correct answer to the question was Choice "D." The licensee subsequently initiated condition report 1182020 to revise AP-9.00.

RO Question #70:

Two applicants and the facility licensee contended that the answer key should be changed from Choice "A" to "B" because OP-23.2.1, Putting WGDT 1B on Holdup and WGDT 1A in Service, was not the correct procedure for releasing the Waste Gas Decay Tank (WGDT), i.e., the first fill-in-the-blank statement should have referred to OP-23.2.4, Release of WGDT 1B.

Background

RO Question #70 was a two-part question. The first part of the question tested whether a release of the "B" WGDT was permitted, and the second part of the question tested the maximum WGDT radioactivity content allowed by Tech Spec 3.11.B, Gas Storage Tanks.

Given the following:

- 1B Waste Gas Decay Tank (WGDT) is in service on the "A" oxygen analyzer.
- Preparations are being made to place the "B" WGDT on holdup for release in accordance with OP-23.2.1, PUTTING WGDT 1B ON HOLDUP AND WGDT 1A IN SERVICE.
- Initial Hydrogen concentration in "B" WGDT is 8.1%.
- "B" WGDT pressure is 115 psig.
- Annunciator 0-WD-D9, WASTE GAS DECAY TANKS HI O₂, is LIT and verified at the alarm setpoint.

Which ONE of the following completes both statements?

- 1) In accordance with OP-23.2.1, release of "B" WGDT __ (1) __ permitted.
- 2) In accordance with TS 3.11.B, Gas Storage Tanks, the maximum curie content in each gas storage tank is limited to a maximum of __ (2) __ in order to limit the total body exposure to an individual at the exclusion boundary.

- A. 1) is
2) 24,600 curies
- B. 1) is NOT
2) 24,600 curies
- C. 1) is
2) 12,300 curies
- D. 1) is NOT
2) 12,300 curies

Neither the facility licensee nor any of the applicants contested the second part of the question. The answer key indicated Choice "A" (release of the WGDT WAS permitted; 24600 curies) was the correct answer. All nine applicants missed the question and chose Answer "B" (i.e., release of the WGDT was NOT permitted; 24600 curies). All nine applicants chose Choice "B."

NRC Resolution: Applicants' and facility licensee comment accepted

The applicants and the facility licensee contended that the first fill-in-the-blank statement asked whether OP-23.2.1 permitted the release, which was not the procedure used to release the

WGDT. The actual procedure used to release 1B WGDT was OP-23.2.4, Release of WGDT 1B. The applicants and the facility licensee contended that the release was NOT permitted, i.e., Choice "B" was correct, because OP-23.2.1 was the wrong procedure to use for releasing the WGDT.

The intent of the question was to test that neither the 0-WD-D9 annunciator procedure nor OP-23.2.4 precluded the release of the 1B WGDT with the conditions provided in the stem. However, because the first fill-in-the-blank statement contained an undetected typographical error, i.e., it incorrectly referred to OP-23.2.1 instead of OP-23.2.4, the question became different than intended.

In accordance with OP-23.2.1, release of the "B" WGDT _____ permitted.

[is vs is NOT]

All nine applicants chose Choice "B", i.e., release is NOT permitted, because the fill-in-the-blank statement referenced the wrong procedure. OP-23.2.1 does not include steps to release the WGDT.

NUREG-1021, Section ES-403.D.1.b states, in part:

The following types of errors, if identified and adequately justified by the facility licensee or an applicant, are most likely to result in post-examination changes agreeable to the NRC:

- *Unintended typographical errors in a question or on the answer key*

Therefore, the applicants' and facility licensee's comment was accepted and the answer key was changed to Choice "B" as the only correct answer.

SRO Question #76:

Two applicants contended that the question should be deleted from the exam because there is no correct answer to the first part of the question. Specifically, the applicants contended that RCP Seal Leakoff Flow would not lower all the way to 0 gpm for a failure of the #3 seal. The facility licensee did not concur with the applicants' contention.

Background

RO Question #76 was a two-part question. The first part of the question tested whether a failure of the #3 seal or a seal return line blockage had occurred based on stem conditions. The second part of the question tested whether one running RCP would be sufficient to provide adequate mixing in the RCS in accordance with the Basis for Tech 3.1.A.1, Reactor Coolant Pumps. The answer key indicated that Choice "A" was correct.

Initial Conditions:

Unit 1 is at Hot Shutdown.

The "A" Reactor Coolant Pump (1-RC-P-1A) is secured, "B" and "C" RCPs are running.

The crew is lowering RCS boron concentration to Hot Zero Power Boron Concentration per 1-GOP-1.3, UNIT STARTUP, RCS HEATUP FROM 345oF TO HSD.

Current Conditions:

The following conditions exist for the "B" Reactor Coolant Pump (1-RC-P-1B):

1C-B5, RCP 1B SEAL 2 LO INLET PRESS, is LIT.

1C-E4, RCP 1B SEAL LEAKOFF LO FLOW, is LIT.

RCP B SEAL PRESS 1-CH-PI-1155A is 1150 psig.

RCP SEAL LEAKOFF FLOW on 1-CH-FR-1190 is 0.00 gpm.

Which ONE of the following completes the following statements?

1-RC-P-1B is experiencing a __ (1) __.

After securing 1-RC-P-1B, there __ (2) __ be sufficient forced RCS flow to provide adequate boron mixing in the RCS per Tech Spec 3.1.A.1, Reactor Coolant Pumps Basis.

- A. 1) failure of #3 seal
 2) will
- B. 1) blockage in the seal return line
 2) will not
- C. 1) failure of #3 seal
 2) will not
- D. 1) blockage in the seal return line
 2) will

Four of the five applicants picked Choice "A" (correct answer) and one applicant picked Choice B and another applicant picked Choice "D." Neither the facility licensee nor any of the applicants contested the second part of the question.

NRC Resolution: Applicants' comment NOT accepted

After the exam review with the applicants, the facility licensee ran the #3 seal failure malfunction on the plant reference simulator. RCP SEAL LEAKOFF FLOW on 1-CH-FR-1190 lowered to 0.00 gpm and RCP B SEAL PRESS on 1-CH-PI-1155A lowered to approximately 1150 psig, as indicated in the stem. In the case of the #3 seal failure, the reason why the 1-CH-FR-FE1190 seal leakoff flow indication lowered to 0.00 gpm was because the leakoff flow would take the path of least resistance to the Primary Drain Transfer Pump Suction, instead of flowing through 1-CH-FR-FE1190 to the VCT.

Additionally, the facility licensee ran the seal return line blockage malfunction on the plant reference simulator. In the case of the seal return line blockage, RCP SEAL LEAKOFF FLOW on 1-CH-FR-1190 also lowered to 0.0 gpm because the seal return line containing 1-CH-FR-1190 was blocked. However, in this case, the RCP SEAL PRESS on rose to full reactor pressure (i.e., 2235 psig), which was different than the information provided in the stem.

Therefore, the only correct answer was Choice "A."

RO Question #80:

Two applicants and the facility licensee contended that the question should be deleted from the exam because 0-AP-12.00, Service Water System Abnormal Conditions, did not include a requirement to shift charging pumps at 180°F (i.e., at time 1440). The two applicants and the facility licensee contended that the AP-12.00 Step 3 Response Not Obtained (RNO) Column did not require a charging pump shift; they contended that the words “as necessary” in the RNO meant that shifting pumps was not mandatory.

Background

RO Question #70 was a two-part question. The first part of the question tested *when* the operating charging pump was required to be shifted in accordance with 0-AP-12.00. The second part of the question tested the latest time the unit was required to be in cold shutdown.

Neither the applicants nor the facility licensee contested the second part of the question. The answer key indicated Choice “D” (180°F at time 1440; Thursday at 2100) was the correct answer. All five applicants missed the question; four applicants picked Choice “B” and one applicant picked Choice “C.”

Initial Conditions:

- Unit 1 is at Hot Shutdown, Unit 2 is shutdown with fuel offloaded.
- Today is Wednesday.
- 1410: Annunciator 1D-G5, SW OR CC PPS DISCH TO CHRGP PPS LO PRESS is in alarm.
- The crew enters 0-AP-12.00, SERVICE WATER SYSTEM ABNORMAL CONDITIONS.

Current Conditions (10 minutes later):

- The RO starts recording Unit 1 operating CHG pump bearing temperatures.
 - 1420 = 170 °F
 - 1430 = 175 °F
 - 1440 = 180 °F
 - 1450 = 185 °F
 - 1500 = 190 °F
- 1500: All Unit 1 Charging pumps are declared inoperable.

Based on the current conditions which ONE of the following answers the questions below?

- 1) In accordance with 0-AP-12.00, the earliest time the operating charging pump is required to be shifted is __ (1) __.
 - 2) The latest time Unit 1 is required to be in Cold Shutdown is __ (2) __.
- A. 1) 1440
2) Friday at 0300
- B. 1) 1450
2) Thursday at 2100
- C. 1) 1450
2) Friday at 0300
- D. 1) 1440
2) Thursday at 2100

NRC Resolution: Applicants' comment NOT accepted

The first part of the question was a fill-in-the-blank statement:

In accordance with 0-AP-12.00, the earliest time the operating charging pump is required to be shifted is (1) .

[1440 vs 1450]

(Time 1440 was the time bearing temperatures were 180°F; time 1450 they were 185°F.)

0-AP-12.00 included the following Caution, Note, and Step 3 RNO:

CAUTION: Charging pumps should be secured if bearing temperatures reach 185°F.

NOTE: • Preparations should be made to shift charging pumps if bearing temperatures exceed 180°F.

- The system engineer should be notified as soon as possible if charging pump bearing temperatures exceed 180°F.

*3. CHECK CHG PUMP TEMPERATURES - LESS THAN 180°F Shift CHG pumps as necessary.

The CAUTION said that a charging pump should be stopped if its bearing temperature reached 185°F. However, Step 3 *required* “shifting” the charging pump at 180°F. “Shift” meant to first start a pump that was not previously running, and then stop the charging pump whose temperature had risen to 180°F. The phrase “as necessary” meant that shifting pumps may be required multiple times using different pumps, i.e., as many times as was necessary to keep one of the charging pumps running with its bearing temperature less than 180°F.

Therefore, because 0-AP-12.00 Step 3 was a procedure requirement, the only correct answer to the question was Choice “D.”

SRO Question #99:

Three applicants and the facility licensee contended that the answer key should be changed from Choice “D” to “C” because the NOTE in 1-E-0, Reactor Trip or Safety Injection (SI), Attachment 1, System Alignment Verification, was no longer applicable in 1-E-1, Loss of Reactor or Secondary Coolant. Specifically, the applicants and facility licensee contended that subsequent SI signals were not allowed to be reset using Attachment 1, Step 12, after 1-E-1 had been entered.

Background

SRO Question #99 was a two-part question. The first part of the question tested whether the crew was permitted to reset SI using the guidance of 1-E-0, Attachment 1, System Alignment Verification, while in 1-E-1. The second part of the question tested the required procedural path to transition to 1-ECA-1.2, LOCA Outside Containment, after the SRO identified that an incorrect transition to 1-E-1, had occurred. That is, 1-ES-0.0, Rediagnosis, was required.

Neither the applicants nor the facility licensee contested the second part of the question. The answer key indicated that Choice “D” was the correct answer.

Initial Conditions:

- Unit 1 was at 100%.
- A Reactor Trip and Safety Injection occurred.
- A field operator reports water and steam coming from the Unit 1 Safeguards Valve Pit door.
- The team entered 1-E-0, REACTOR TRIP OR SAFETY INJECTION.
- The Assistant RO performed Attachment 1, SYSTEM ALIGNMENT VERIFICATION.
- At Attachment 1 Step 12, CHECK SI FLOW, Safety Injection was reset.

Current Conditions:

- The SRO incorrectly transitioned from 1-E-0, to 1-E-1, LOSS OF REACTOR OR SECONDARY COOLANT.
- The team is at 1-E-1, Step 2, CHECK IF SGs ARE NOT FAULTED.
- The SRO identifies that the team should be in 1-ECA-1.2, LOCA OUTSIDE CONTAINMENT.
- A Safety Injection re-initiation occurs.

Which ONE of the following completes both statements in accordance with OP-AP-104, EMERGENCY AND ABNORMAL OPERATING PROCEDURES?

- 1) After the SRO exited 1-E-0, the team ___(1)___ permitted to reset SI again, using Step 12 of 1-E-0 Attachment 1.
- 2) In order to transition to 1-ECA-1.2, from 1-E-1 step 2, the SRO should ___(2)___ .
 - A. 1) is NOT
2) go directly to 1-E-1, step 18, INITIATE EVALUATION OF PLANT STATUS
 - B. 1) is
2) go directly to 1-E-1, step 18, INITIATE EVALUATION OF PLANT STATUS
 - C. 1) is NOT
2) go to 1-ES-0.0, REDIAGNOSIS
 - D. 1) is
2) go to 1-ES-0.0, REDIAGNOSIS

Three applicants picked Choice “C” and two applicants picked Choice “D.”

NRC Resolution: Applicants’ and facility licensee comment accepted

1-E-0, Step 5 required the implementation of Attachment 1 when SI was actuated. Attachment 1 was an alignment verification following an SI actuation. The second bullet in the NOTE preceding Step 12 was:

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
	<p>NOTE:</p> <ul style="list-style-type: none"> • CHG pumps should be run in the following order of priority: C, B, A. • Subsequent SI signals may be reset by reperforming Step 12. 	
12. ___	CHECK SI FLOW:	
	<p>a) HHSI to cold legs - FLOW INDICATED</p>	
<input type="checkbox"/>	• 1-SI-FI-1961 (NQ)	<input type="checkbox"/> a) Manually start pumps and align valves. <u>IF</u> flow <u>NOT</u> established, <u>THEN</u> consult with Shift Supervision to establish another high pressure injection flowpath while continuing with this procedure.
<input type="checkbox"/>	• 1-SI-FI-1962 (NQ)	
<input type="checkbox"/>	• 1-SI-FI-1963 (NQ)	
<input type="checkbox"/>	• 1-SI-FI-1943 or 1-SI-FI-1943A	<input type="checkbox"/> • Alternate SI to cold legs
		<input type="checkbox"/> • Hot leg injection
<input type="checkbox"/>	b) Check CHG pumps - THREE RUNNING	<input type="checkbox"/> b) GO TO Step 12.e.
<input type="checkbox"/>	c) Reset SI	
<input type="checkbox"/>	d) Stop one CHG pump and put in AUTO	
<input type="checkbox"/>	e) RCS pressure - LESS THAN 185 PSIG	e) <u>IF</u> two LHSI pumps are running, <u>THEN</u> do the following:

Neither the NOTE nor Step 12 were continuous action steps, i.e., there was no asterisk (*) designator. OP-AP-104, Emergency and Abnormal Operating Procedures, Section 3.4.1 stated pertaining to NOTES:

3.4 Procedure Layout and Format

3.4.1 REVIEW the following for NOTES and CAUTIONS:

- NOTE or CAUTION are considered part of the step that it precedes.
- Unless stated otherwise, NOTES and CAUTIONS apply throughout the procedure. If an operator returns to a procedure, any applicable NOTES or CAUTIONS within that procedure are once again in effect.
- NOTES and CAUTIONS may also be used to provide a contingent transition based on changes in plant conditions. Passive action statements may be used when continuous monitoring of a specific plant condition and an associated action is required.
- NOTES and CAUTIONS before the first step of a procedure typically apply to the entire procedure.

The applicants and facility licensee contended that, unlike continuous action steps, NOTES do not carry forward into subsequent procedures.

OP-AP-104, Section 3.4.6 included guidance for continuous action steps in the following note:

NOTE: Continuous Action Steps may transfer from EOP to EOP. One example is RCS Temperature control. Temperature control guidance is applicable from the initial instructions on how and at what values to maintain RCS temperature until another EOP changes the temperature band.

However, the 1-E-0 Attachment 1 NOTE was not a continuous action step; therefore, it was not applicable when 1-E-1 was entered. Therefore, the applicants' and facility licensee's comment was accepted and the answer key was changed to Choice "C" as the only correct answer. The licensee subsequently initiated condition report 1182020 to revise E-0, Attachment 1.

The applicants also provided the following nine comments; however, none of these applicant comments contended answer key changes, and the facility licensee did not concur with these applicant comments.

RO Question #5:

One applicant commented that 1-AP-9.00, RCP Abnormal Conditions, required a reactor trip with a loss of seal injection.

NRC Resolution: No answer key change was required. 1-AP-~~8.00~~, Loss of Normal Charging Flow, was referenced in the second fill-in-the-blank (not AP-9.00), and both 1-AP-8.00 and 1-AP-9.00 required a manual reactor trip only when all seal injection and thermal barrier cc flow was lost. The stem of the question did not include any information related to a loss of thermal barrier cc flow.

RO Question #14:

Two applicants commented that the operating point on the Generator Capability Curve (1-DRP-003, Attachment 52) "looked to be right on the curve."

NRC Resolution: No answer key change was required. The point where 900 MWe and +350 VARS intersected was a reasonable distance outside the 60-psig generator hydrogen curve, the curve provided to the applicants as a reference is the actual curve used by operators and was enlarged for the applicants.

RO Question #21:

One applicant commented that the underlined portion of the first fill-in-the-blank statement (i.e., "without I&C support") led them to the wrong answer.

NRC Resolution: No answer key change was required. 1-AP-4.00, Nuclear Instrumentation Malfunction, contained steps for operators to shift the audible containment count rate without I&C support, whereas other 1-AP-4.00 steps required I&C support.

RO Question #23:

One applicant commented by asking a question “how do you know the affected area, and what does health physics do when sent out to the affected area?”

NRC Resolution: No answer key change was required. Step 10 of 0-AP-5.20, Radiation Monitor System Ventilation Vent High Alarm, provided guidance for the stem situation where the source of ventilation vent activity was unknown. Step 10 required placing one area at a time on the filtered exhaust system to identify a change in ventilation activity.

RO Question #24:

One applicant commented by asking a question “why are we not using 0-AP-22.00; the first fill-in-the-blank statement referenced annunciator procedures.”

NRC Resolution: No answer key change was required. Annunciator procedure 0-RM-D3, 1-RM-FI-153 HIGH, and 0-AP-22.0 both required fuel building evacuation.

RO Question #48:

One applicant commented by stating “I confused the output breaker with excitation status.”

NRC Resolution: No answer key change was required. The second fill-in-the-blank statement tested the applicants’ knowledge on how excitation was affected by a loss of the Unit 2 “A” DC Bus. Specifically, second fill-in-the-blank statement was “*If an automatic turbine trip occurred, Main Generator excitation _____ remain energized with no operator action.*”

RO Question #67:

One applicant commented that the second part of the question tested a procedure change that the class did not have and was minutia.

NRC Resolution: No answer key change was required. The second part of the question tested the October 2019 version of SUADM-O-26, Administrative Control of Operational Components, which was in effect before the class started. The second fill-in-the-blank statement was “*It _____ acceptable for an operator assigned to the Fire Team to also have an administrative control function.*” Lesson Plan RO/SRO/SROUTP-SDS-2, Administrative Procedures, identified SUADM-O-26 as a “Tier 1” procedure, which required an in-depth knowledge of the procedure, and included Learning Objective A, which was 1) purpose of the procedure, 2) operations personnel responsibilities, 3) who is required to authorize specific plant operations or process changes, 4) knowledge items applicable to operators.

SRO Question #79:

One applicant commented that during the exam they requested the emergency action levels (EALs) basis document because there was not enough information to rule out a General Emergency (GE).

NRC Resolution: No answer key change was required. For a GE classification to be required, the determination that “long-term RCS heat removal capability was not likely to be established and maintained per procedure” was needed. The stem indicated that the event had been in

progress for only seventeen minutes, and the EAL basis document credited flex equipment and flex strategy towards maintenance of long-term RCS heat removal capability.

SRO Question #94:

One applicant commented that LI-AA-700, Fatigue Management and Work Hour Limits for Covered Workers, contained guidance that the Shift Manager had authority to approve a waiver.

NRC Resolution: No answer key change was required. The NOTE preceding Step 3.12.5 defined “site senior-level manager” as the site vice president, plant manager, or Director Nuclear Station Safety and Licensing.

SIMULATOR FIDELITY REPORT

Facility Licensee: Surry Nuclear Plant

Facility Docket No.: 05000280, 05000281

Operating Test Administered: August 23 – 26, 2021 and October 5, 2021

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.

During the validation of a portion of the operating test, the examiner observed the following:

<u>Item</u>	<u>Description</u>
1.	Feedwater Regulating Valve Controllers "OK" status light was not illuminated. Simulator Work Order # 202110041000