May 20, 2011

Director, Division of Inspection and Regional Support
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
11555 Rockville Pike
Rockville, Maryland 20852

SUBJECT: REGRADE OF THE WRITTEN EXAMINATION

The purpose of this package is to submit a request that the NRC administratively regrade the written examination administered on April1, 2011 at Plant Vogtle (05000424/2011301; 05000425/2011301). A proposed license denial letter has been issued by the NRC Regional office in accordance with ES-501, "Initial Post-Examination Activites." In response, new information is being submitted in accordance with ES-502, "Processing Request For Administrative Reviews and Hearings After Initial License Denial." Request additional review for **Question identifier #87 056G2.2.42, #90 068AA2.04-004, and #97 G.2.2.44-003**. Documentation is included to support the items in contention.

Sincerely,

Charlissa Smith
Docket # 55-23694

[redacted]

Enclosures:

1. NRC Region II letter to Vogtle Vice President. Subject : Vogtle electric generating plant – reactor and Senior reactor operator initial examinations 05000424/2011301 and 05000425/2011301, May 12, 2011
2. NUREG 1021, Rev 9, Supplement1, ES-401
3. NUREG 1021, Rev 9, Supplement1, ES-402
4. NUREG 1021, Rev 9, Supplement1, ES-403
5. NUREG 1021, Rev 9, Supplement1, Appendix B
6. NMP-TR-417-F02, Post-Examination Test Item Analysis
7. SRO Question 068AA2.04-004 and Distracter Analysis
8. SRO Question G.2.2.44-003 and Distracter Analysis
9. SRO Question 056G2.2.42 and Distracter Analysis
10. Examination Answer Sheet
11. TS Bases 3.7.6
12. Illustration of LCO 3.7.6 Bases Timeline
13. TS LCO Applicability (3.0.4)
14. TS LCO 3.5.4
15. TS LCO 3.5.3
16. NMP-TR-423-F15, Written Exam Comment Sheet

VOGTLE ELECTRIC GENERATING PLANT

EXAMINATION ANSWER SHEET

COURSE TITLE: HL-16 Hot License Class

EXAM TITLE: HL-16 NRC SRO Exam (2011-301) **EXAMINER:** [redacted]

DATE ADMINISTERED: 4/01/11

INSTRUCTIONS TO EXAMINEE:

Use a #2 pencil or black pen and this answer sheet to document your answers. Turn in this answer sheet upon completion of the exam. If needed, the exam proctor will provide any additional instructions. Passing criteria requires a final grade of at least 80% on this exam and an average of at least 70% for the SRO only questions.

Smith, Charlissa C — NAME (Last, First MI)

SMIT 8442 — PLATEAU USER ID

1.	B	18.	B	35.	C	52.	C	69.	D
2.	D	19.	A	36.	A	53.	C	X 70.	A C
X 3.	C A	20.	B	X 37.	B A	54.	B	71.	A
4.	A	21.	D	38.	D	55.	C	X 72.	A D
5.	B	22.	C	39.	C	56.	B	73.	A
6.	B	23.	A	40.	D	57.	B	74.	D
X 7.	A C	24.	A	41.	C	58.	D	75.	D
8.	B	25.	A	42.	C	59.	A	SRO Only	
9.	C	26.	A	43.	A	60.	B	X 76.	C A
10.	B	27.	D	44.	D	61.	A	77.	B
11.	A	28.	A	45.	D	X 62.	B D	78.	C
X 12.	A ~~C~~ B A	29.	D	X 46.	C D	63.	D	79.	B
13.	A	30.	C	47.	D	64.	B	80.	B
X 14.	C B	31.	C	X 48.	B A	65.	A	81.	B
15.	C	32.	D	49.	B	~~66.~~	~~D~~	82.	C
16.	A	X 33.	B A	50.	A	67.	B	X 83.	C D
17.	D	34.	C	51.	B	68.	B	X 84.	D A

85.	C	86.	D	X 87.	B A	88.	D	X 89.	C D
X 90.	A C	91.	A	92.	D	X 93.	B D	94.	B
95.	B	96.	A	X 97.	C D	X 98.	A C	99.	C
100.	C								

RO/SRO-Only/Total Exam Values	73	/	25	/	98 Points
Applicant's Scores	-11 62	/	-9 16	/	-20 78 Points
Applicant's Grade	84.93	/	64.00	/	79.59 Percent
	-11 84.93		-9 64.00		79.59

GRADED BY: _____ REVIEWED BY: _____

NOTE: **The 'Comment' box should be checked if the question is not worded clearly or contains errors and/or misleading information. The 'Challenge' box should be checked if the question to be reviewed for credit on your exam. Include your name.**

Exam Title: Vogtle 2011 NRC SRO Examination (2011-301) 4/1/11
Date Exam Administered

Submitted By: Charlissa Smith 5/20/11
Date

☑ Comment ☑ Challenge

Question Identifier	**#87 056G2.2.42**

State the reason for comment or challenge on the question:

Answer/Distractor analysis for **SRO Exam question # 87** indentifies "A" as the correct answer. However, in the initial conditions it is identified that "An LOSP has occurred and resulted in the loss of the RWST Heaters". A LOSP includes the loss of ECCS pumps (CCP and RHR). Based on the question stem it was determined that occurrence of a LOSP would require the consideration of LCO 3.5.3 in addition to LCO 3.5.4 in determining whether or not a mode change may be performed. LCO 3.5.3 contains a note stating "*LCO 3.0.4 (b) is not applicable to ECCS centrifugal charging pump subsystem*". Therefore, a mode change or heat-up would not be allowed, even if a risk assessment is performed. Based on evaluating the impact of LCO 3.5.3, answer "B" was selected as the most correct answer.

In addition another examinee requested clarification on question # 87, asking if the effects of other equipment should be considered as a result of the LOSP. Clarification was provided to the examinee stating "**Consider only the RWST effects on the mode change. No other reference is needed to answer the question**"; reference NMP-TR-423-F15, Written Exam Comment Sheet. This information was not shared with the rest of the examinees. According to ES-402, page 5, any question changes or clarifications shall be made on the chalkboard or white board, if available and called to the attention of all the applicants. The Chief Examiner elected not to share this information with all the examinees. If the question's intent was to consider only the RWST and excluded other effects from the "LOSP" then that information should have been shared because it has a significant impact on evaluating which answer is correct. It is recommended in addition to answer A, that answer B also be accepted based on evaluating the impact of the LOSP on the ability to perform a mode change.

Challenge Review:

Credit given to the submitter	☐	YES	☐	NO		
Key changed	☐	YES	☐	NO	☐	N/A
Submitted for exam bank update	☐	YES	☐	NO	☐	N/A

Exam Bank Review:

Comment/Challenge incorporated	☐	YES	☐	NO	☐	N/A

Reason for not incorporating: _____

_____

_____

_____

_____

*Challenge Approved: _____

Training Supervisor Date

* N/A if challenge does not result in an exam key change

3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

LCO 3.0.1

LCOs shall be met during the MODES or other specified conditions in the Applicability, except as provided in LCO 3.0.2 and LCO 3.0.8.

LCO 3.0.2

Upon discovery of a failure to meet an LCO, the Required Actions of the associated Conditions shall be met, except as provided in LCO 3.0.5 and LCO 3.0.6.

If the LCO is met or is no longer applicable prior to expiration of the specified Completion Time(s), completion of the Required Action(s) is not required unless otherwise stated.

LCO 3.0.3

When an LCO is not met and the associated ACTIONS are not met, an associated ACTION is not provided, or if directed by the associated ACTIONS, the unit shall be placed in a MODE or other specified condition in which the LCO is not applicable. Action shall be initiated within 1 hour to place the unit, as applicable, in:

a. MODE 3 within 7 hours;

b. MODE 4 within 13 hours; and

c. MODE 5 within 37 hours.

Exceptions to this Specification are stated in the individual Specifications.

Where corrective measures are completed that permit operation in accordance with the LCO or ACTIONS, completion of the actions required by LCO 3.0.3 is not required.

LCO 3.0.3 is only applicable in MODES 1, 2, 3, and 4.

LCO 3.0.4

When an LCO is not met, entry into a MODE or other specified condition in the Applicability shall only be made:

a. When the associated ACTIONS to be entered permit continued operation in the MODE or other specified condition in the Applicability for an unlimited period of time; or

(continued)

3.0 LCO APPLICABILITY

LCO 3.0.4 (continued)

b. After performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering the MODE or other specified condition in the Applicability, and establishment of risk management actions, if appropriate; exceptions to this Specification are stated in the individual Specifications; or

c. When an allowance is stated in the individual value, parameter, or other Specification.

This Specification shall not prevent changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS or that are part of a shutdown of the unit.

LCO 3.0.5

Equipment removed from service or declared inoperable to comply with ACTIONS may be returned to service under administrative control solely to perform testing required to demonstrate its OPERABILITY or the OPERABILITY of other equipment. This is an exception to LCO 3.0.2 for the system returned to service under administrative control to perform the testing required to demonstrate OPERABILITY.

LCO 3.0.6

When a supported system LCO is not met solely due to a support system LCO not being met, the Conditions and Required Actions associated with this supported system are not required to be entered. Only the support system LCO ACTIONS are required to be entered. This is an exception to LCO 3.0.2 for the supported system. In this event, additional evaluations and limitations may be required in accordance with Specification 5.5.15, "Safety Function Determination Program (SFDP)." If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered.

When a support system's Required Action directs a supported system to be declared inoperable or directs entry into Conditions and Required Actions for a supported system, the applicable Conditions and Required Actions shall be entered in accordance with LCO 3.0.2.

(continued)

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.4 Refueling Water Storage Tank (RWST)

LCO 3.5.4 The RWST shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. RWST boron concentration not within limits. OR RWST borated water temperature not within limits.	A.1 Restore RWST to OPERABLE status.	8 hours
B. One or more sludge mixing pump isolation valves inoperable.	B.1 Restore the valve(s) to OPERABLE status.	24 hours
C. Required Action and associated Completion Time of Condition B not met.	C.1 Isolate the sludge mixing system.	6 hours
D. RWST inoperable for reasons other than Condition A or B.	D.1 Restore RWST to OPERABLE status.	1 hour

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Required Action and associated Completion Time of Condition A or D not met.	E.1 Be in MODE 3. AND E.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.4.1	----------NOTE---------- Only required to be performed when ambient air temperature is < 40°F. ---------- Verify RWST borated water temperature is ≥ 44°F and ≤ 116°F.	24 hours
SR 3.5.4.2	Verify RWST borated water volume is ≥ 686,000 gallons.	7 days
SR 3.5.4.3	Verify RWST boron concentration is ≥ 2400 ppm and ≤ 2600 ppm.	7 days
SR 3.5.4.4	Verify each sludge mixing pump isolation valve automatically closes on an actual or simulated RWST Low-Level signal.	18 months

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.3 ECCS - Shutdown

LCO 3.5.3 One ECCS train shall be OPERABLE.

APPLICABILITY: MODE 4.

ACTIONS

----------NOTE----------
LCO 3.0.4b is not applicable to ECCS centrifugal charging pump subsystem.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required ECCS residual heat removal (RHR) subsystem inoperable.	A.1 Initiate action to restore required ECCS RHR subsystem to OPERABLE status.	Immediately
B. Required ECCS centrifugal charging subsystem inoperable. AND At least 100% of the ECCS flow equivalent to a single OPERABLE ECCS train available.	B.1 Restore required ECCS centrifugal charging subsystem to OPERABLE status.	72 hours
C. Required ECCS centrifugal charging subsystem inoperable.	C.1 Restore required ECCS centrifugal charging subsystem to OPERABLE status.	1 hour
D. Required Actions and associated Completion Times of Conditions B or C not met.	D.1 Be in MODE 5.	24 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.3.1	----------NOTE---------- An RHR train may be considered OPERABLE during alignment and operation for decay heat removal, if capable of being manually realigned to the ECCS mode of operation. ---------- The following SRs are applicable for all equipment required to be OPERABLE: SR 3.5.2.3 SR 3.5.2.7 SR 3.5.2.4	In accordance with applicable SRs

Southern Nuclear Operating Company			
SOUTHERN COMPANY	Nuclear Management Form	Written Exam Comment Sheet	NMP-TR-423-F15 Version 1.0 Page 1 of 2

Instructions:

[redacted]

- Make multiple copies of the first page, as needed, for questions during exam.
- The Proctor will use Page 2 to keep track of what questions were asked and when. In addition, students can use it to record the answers if they were not present for the exam.

Exam Title		Date Administered	
		04/01/2011	
Name of requestor			
[redacted]			
Test Question #	87	Time of Question	0915

Student's Question: Question 87. States an LOSP has occured. You can't swap modes with 2 trains of RHR and changing in-op (mode 5 to 4) and the second part of the answer does not mention other plant equip effects. Reference should be provided for looking up whether a risk assement is needed on hot for RWST. The answers don't exactly fit the condition.

Time of response: 0932

Provided to:
- [x] Requesting student ONLY
- [ ] All remaining students

Response provided: Consider only the RWST effects on the Mode change. No other reference is needed to answer the question.

[redacted]

Proctor Name: [redacted]

Exam: SRO 2011-301

Date: 04/01/2011

Time	Question #	Question	Proctor Response	NRC Called		NRC Response
0915	87	Question states an LOSP has occurred You can't swap modes with 2 Trains RHR & charging inop; Reference should be provided for risk assessment is needed for RWST.	See NRC Response	☑ YES	☐ NO	Consider only the RWST effects on the mode change No other reference is needed to answer the question
1122	35	Question gives indications of Loss of two SGFPs Selection B say Trip RX due to pwr level, C due to MFP indications Appears to be two correct answers	See NRC Response	☑ YES	☐ NO	Reread the Question No additional information is required to answer Question
1247	76	Is this Question based on No operator action	See NRC Response	☑ YES	☐ NO	No Operator action.
1333	14	Is CIA assumed to be reset? Is this with No operator action for 15 mins?	See NRC Response	☑ YES	☐ NO	No Operator action taken.

VOGTLE ELECTRIC GENERATING PLANT

EXAMINATION ANSWER SHEET

COURSE TITLE: HL-16 Hot License Class

EXAM TITLE: HL-16 NRC SRO Exam (2011-301) **EXAMINER:** [redacted]

DATE ADMINISTERED: 4/01/11

INSTRUCTIONS TO EXAMINEE:

Use a #2 pencil or black pen and this answer sheet to document your answers. Turn in this answer sheet upon completion of the exam. If needed, the exam proctor will provide any additional instructions. Passing criteria requires a final grade of at least 80% on this exam and an average of at least 70% for the SRO only questions.

[redacted] NAME (Last, First MI [redacted] PLATEAU USER ID

1.	B	18.	B	35.	C	52.	~~C~~ D	69.	~~A~~ D
2.	D	19.	A	36.	A	53.	C	70.	~~A~~ C
3.	A	20.	B	37.	A	54.	B	71.	A
4.	A	21.	D	38.	D	55.	C	72.	~~A~~ D
5.	B	22.	C	39.	C	56.	B	73.	A
6.	B	23.	A	40.	D	57.	B	74.	D
7.	~~A~~ C	24.	A	41.	C	58.	D	75.	~~B~~ D
8.	B	25.	A	42.	C	59.	A	SRO Only	
9.	C	26.	A	43.	A	60.	B	76.	A
10.	~~D~~ B	27.	D	44.	D	61.	A	77.	B
[redacted] 11.	~~C~~ A	28.	~~B~~ A	45.	D	62.	D	78.	~~C~~ D
12.	A	29.	D	46.	D	63.	D	79.	B
13.	~~D~~ A	30.	C	47.	D	[redacted] 64.	~~A~~ ~~D~~ B	80.	B
14.	~~C~~ B	31.	C	48.	~~B~~ A	65.	A	81.	B
15.	C	32.	D	49.	~~D~~ B	66.	~~D~~ C	82.	C
16.	A	33.	A	50.	~~C~~ A	67.	B	83.	D
17.	D	34.	C	51.	B	68.	B	84.	~~D~~ A

85.	C	86.	D	87.	~~B~~ A	88.	D	89.	~~C~~ D
90.	~~A~~ C	91.	A	92.	~~B~~ D	93.	~~A~~ D	94.	B
95.	~~D~~ B	96.	A	97.	~~C~~ D	98.	~~A~~ C	99.	C
100.	C								

RO/SRO-Only/Total Exam Values	75	/	25	/	100 Points
Applicant's Scores	60	/	16	/	76 Points
Applicant's Grade	80	/	64	/	76 Percent

GRADED BY: [redacted] REVIEWED BY: [redacted]

87. 056G2.2.42 004/1/1/LOSP-TS/4.6 C/A/BANK/SRO/NRC/GCW

Given the following conditions:

- An RCS heatup is in progress on Unit 1 in preparation for a Mode change following refueling.
- Tavg is 195 °F.
- Outside air temperature is 12 °F.
- An LOSP has occurred and resulted in the loss of the RWST Heater.
- RWST water temperature is 42 °F.
- RWST Boron Concentration is 2470 ppm.

Which ONE of the following identifies the status of the RWST and the actions relative to the upcoming Mode change?

Status of RWST	Actions Relative to Mode Change
A. Below minimum temperature.	Heatup can continue. Mode change can be made only if a risk assessment is performed.
B. Below minimum temperature.	Heatup must be stopped. Mode change is prohibited until the RWST heater is restored. A risk assessment is NOT required.
C. Below minimum Boron Concentration.	Heatup must be stopped. Mode change is prohibited until the RWST Boron Concentration is restored. A risk assessment is NOT required.
D. Below minimum Boron Concentration.	Heatup can continue. Mode change can be made only if a risk assessment is performed.

NOTE! - WAS CLARIFIED FOR ONE STUDENT → NOT MADE AVAILABLE FOR REST OF CLASS.

056 Loss of Offsite Power

Equipment Control

G2.2.42 Ability to recognize system parameters that are entry-level conditions for Technical Specifications.
(CFR: 41.7 / 41.10 / 43.2 / 43.3 / 45.3)

K/A MATCH ANALYSIS

Question gives a plausible scenario during an LOSP on a class 1E electrical bus which causes a loss of the RWST heater and lowering of RWST temperature below TS.

SRO-Question meets 10CFR55.43(b) criteria for item # 2 - Facility operating limits in Tech Specs and their bases.

ANSWER / DISTRACTOR ANALYSIS

A. Correct. TS mimimum RWST temperature is 44°F which the question is below. 3.0.4b is applicable and a Risk Assessment should be performed prior to mode change.

B. Incorrect. Plausible because TS mimimum RWST temperature is 44°F which the question is below. RWST heater is not required in itself, just the related RWST temperature. Risk assessment is required prior to mode change.

C. Incorrect. Plausible if RWST Boron concentration is missed. Boron is currently within TS limits of 2400 to 2600 ppm.

D. Incorrect. Plausible if RWST Boron concentration is missed. Boron is currently within TS limits of 2400 to 2600 ppm. Also plausible 2nd part is correct for the risk assessment and mode change.

REFERENCES

Tech Spec 3.5.4 for RWST
osp14000-1, Operations Shift and Daily Surveillance Logs page # 25
Tech Spec LCO 3.0.4.b (Risk assessment)

VEGP learning objectives:

LO-LP-39211-02, Given a set of Tech Specs and the bases, determine for a specific set of plant conditions, equipment availability, and operational mode.

a. Whether any Tech Spec LCOs of section 3.5 are exceeded.

LO-LO-39211-04, Describe the bases for any given Tech Spec in section 3.5

ES-402
ADMINISTERING INITIAL WRITTEN EXAMINATIONS

A. Purpose

This standard specifies the requirements and procedures for administering written examinations for the initial licensing of reactor operator (RO) and senior reactor operator (SRO) applicants at power reactor facilities. As such, this standard includes instructions for proctoring the examinations and conducting post-examination reviews of NRC-developed examinations.

B. Background

As noted in ES-201, "Initial Operator Licensing Examination Process," facility licensees will generally prepare the written operator licensing examinations, subject to review and approval by the NRC. Generally, examinations that are prepared by the facility licensee will also be administered by the facility licensee in accordance with the instructions contained herein.

C. Responsibilities

1. Facility Licensee

a. The facility licensee shall safeguard the integrity and security of the examinations in accordance with ES-201.

b. The facility licensee shall provide a single room suitable for administering the written examination. To ensure examination integrity, the room shall be large enough so that there is only one applicant per table, with a 1-meter (3-foot) space between tables.

   The examination room and supporting restroom facilities (i.e., the examination area) shall be located to prevent the applicants from having contact with all other facility and contractor personnel during the written examination.

c. If desired and compatible with examination security requirements, the facility licensee may arrange for the applicants to have lunch, coffee, or other refreshments during the examination.

d. Before the scheduled examination date, the facility licensee should familiarize the applicants with the examination policies and guidelines contained in Appendix E.

e. The facility licensee shall provide the necessary number of copies of the approved examinations, answer sheets, and handouts (e.g., equation sheets, selected technical specifications, and steam tables) for each applicant,

as directed and approved by the NRC chief examiner. An English dictionary should also be available in the examination room.

The facility licensee may use machine-gradable answer sheets if desired, but this is *not* required.

f. If the facility licensee developed the examination, it shall also administer the examination to the applicants identified on the "List of Applicants" (Form ES-201-4) as arranged with the NRC chief examiner and in accordance with the specific instructions in Section D.

g. The facility licensee will send a letter to the NRC regional administrator to formally withdraw the applications of any individuals whose names appear on Form ES-201-4 but who will not be taking the examination.

h. As discussed in Section E, the facility licensee should provide the NRC's regional office with formal comments for consideration during the grading process (refer to ES-403, "Grading Initial Site-Specific Written Examinations"). The facility licensee may also request an informal meeting with the NRC's chief examiner to discuss the examination questions and resolve facility concerns.

2. <u>NRC Regional Office</u>

a. The NRC's regional office may administer the examination, at its discretion, in accordance with the specific instructions in Section D, even if the examination was developed by the facility licensee. However, the regional office will generally arrange for the facility licensee to administer the examination. (Refer to ES-201 for further instructions on examination scheduling.)

If the NRC developed the examination, the regional office may arrange for an NRC examiner or the facility licensee to administer the examination.

b. If the facility licensee will conduct the examinations while the NRC examiners are on site, the chief examiner should inspect the examination facilities to ensure their adequacy. In addition, the NRC examiners should periodically monitor the exam to ensure that the proctor is appropriately addressing the applicants' questions. If this is not feasible, the regional office should consider having an examiner check the facilities during the preparatory site visit (if one is deemed necessary) or upon arriving at the site for the operating tests.

If the facility licensee will conduct the examinations when no NRC examiners are on site, the chief examiner will ensure that an NRC point of contact is available in the regional office to respond to facility questions while the examinations are being given. If the NRC prepared the examination, an examiner familiar with the examination content must be available to respond to the applicants' questions by telephone.

The written examinations may be administered as soon as they and the license applications (including any applicable waivers) have been approved. The region shall not allow the written examination and operating test dates to diverge by more than 30 days without obtaining concurrence from the NRR operator licensing program office. (Refer to ES-201 for additional guidance regarding examinations that have to be rescheduled to achieve an acceptable product.)

c. When the applicants have completed the written examination, the chief examiner may conduct an examination review with the facility staff as described in Section E, below.

D. Examination Administration Instructions

1. Make Preparations

a. Arrange for the applicants to be proctored at all times while taking the written examination. Ensure that the proctor clearly understands his or her responsibilities (refer to Section D.2) before the examinations are distributed.

If the NRC will administer the examinations, the chief examiner should consider using the following resources to ensure adequate proctoring:

- NRC secretarial help
- another examiner
- other NRC employees

The examiner may arrange for facility employees to proctor the examination for brief periods if it is necessary for the examiner to go to the restroom.

b. At least one individual who is familiar with the intent of the questions (i.e., an NRC examiner or facility employee who took part in developing the examination) shall be available to clarify examination questions for the applicants during the examination.

c. Remove from the examination area, or otherwise remove from the applicants' view, any wall charts, models, or other training materials that might compromise examination integrity.

d. Only NRC-approved applicants are allowed to take the examination. If applicable, the NRC examiner shall verify each applicant's identity and examination level against Form ES-201-4 before beginning the examination. Any errors or absences shall be resolved with the facility staff, and the form shall be updated as required.

e. If possible, the RO and SRO applicants shall be seated at alternate tables. The proctor shall construct a chart illustrating the seating arrangement of the applicants during the examination.

f. If the applicants will record their answers on machine gradable forms that offer more than four answer choices (e.g., "a" through "e"), use a straight edge to line out the inapplicable column(s) before distributing the forms.

2. Start the Examination

a. Remind the applicants that they may use calculators to complete the examination, and that only reference materials provided with the examination are allowed in the examination area (i.e., the examination room and supporting restroom facilities).

b. Pass out the examinations, blank answer sheets, and all required handouts approved by the NRC chief examiner (e.g., steam tables, equation sheets, and selected technical specifications). Instruct the applicants not to review the examination until told to do so.

c. Provide each applicant with a copy of Appendix E, "Policies and Guidelines for Taking NRC Examinations," and brief the applicants on the rules and guidelines that will be in effect during the written examination (i.e., review Parts A and B of Appendix E). If time permits and the operating tests have not yet been administered, review those policies and guidelines (i.e., Parts C, D, and E of Appendix E) as well; this will save time later and give the applicants greater opportunity to resolve any questions they may have.

d. Instruct the applicants to verify the completeness of their copies by checking the appropriate cover sheet (Form ES-401-7, ES-401-8, or ES-701-8) and each page of the examination. RO applicants should have a 75-question exam and SROs should have a 100-question exam, unless they have obtained a waiver (per ES-204, "Processing Waivers Requested by Reactor Operator and Senior Reactor Operator Applicants") to upgrade their RO licenses with a 25-question SRO-only exam or they are taking the 40-question SRO examination limited to fuel handling.

e. Answer any questions that the applicants may have regarding the examination policies. Start the examination, and record the time.

3. Monitor the Examination

a. The proctor shall give full attention to the applicants taking the examination. The proctor shall not read procedures or other material, grade examinations, or engage in any other activities in a manner that may divert his or her attention from the applicants and possibly cause the examination to be compromised.

b. Personnel responding to questions raised by applicants during the examination must be extremely careful not to lead the applicants or give away answers when clarifying questions. If the proctor has any doubt about how to respond to an applicant's question, it is best to withhold additional guidance and instruct the applicant to do his or her best with the information that is provided.

Any question changes or clarifications shall be made on a chalk board or white board, if available, and called to the attention of all the applicants. Changes made to questions during the examination should be made in ink on the NRC's master copy and a copy that is retained by the facility staff after the examination is administered. Changes shall be reviewed and approved by the NRC's chief examiner as part of the grading process (refer to ES-403).

All applicant questions regarding specific written examination test items and all statements of clarification shall also be documented (verbatim if possible) for future review by the NRC's chief examiner and for reference in resolving grading conflicts.

c. The proctor shall periodically advise the applicants of the time that remains to complete the examination. Normally, a chalk board or white board is available and can be used for this purpose.

4. Complete the Examination

a. As the applicants complete the examination, ensure that they sign the examination cover sheet and staple it on top of their answer sheets. Collect the examination packages, including the questions and answer sheets, and any reference material provided with the examination. Verify that all applicants have entered their names on both the answer and cover sheets, and record the official start time and the time at which each applicant completed the examination in the space provided on the examination cover sheet.

b. Retain the cover and answer sheets for grading in accordance with ES-403. The question books may be distributed to the applicants after the last examination has been collected.

c. Remind the applicants to leave the examination area, as previously defined.

d. When the allotted time for the examination (3 hours for the 25-question SRO-upgrade exam, 4 hours for the SRO exam limited to fuel handling, 6 hours for the RO exam, and 8 hours for the combined RO/SRO exam) has elapsed, instruct the remaining applicants to stop work, sign their examination cover sheets, and turn in their examinations. The facility licensee may extend the time allowed to complete the examination, but shall first notify the NRC's regional office to ensure that a point of contact remains available to respond to questions. The facility licensee shall inform the NRC when all of the applicants have completed the examination.

e. Deliver the completed examination packages, the marked-up master examinations, the list of applicant questions and answers, and the seating chart to the NRC's chief examiner or the appropriate facility representative, as applicable, for review and grading in accordance with ES-403.

E. Post-Examination Reviews

1. If the NRC administered the examination, the chief examiner shall ensure that the master copy of the examination reflects all changes made to questions during the administration of the examination. The chief examiner will then provide a copy of the master examination and answer key to the facility staff and answer any questions they may have regarding the NRC's examination review and comment process.

2. If the NRC developed the examination, the chief examiner will also provide the facility licensee with a copy of the examination as edited during the facility prereview. If the facility reviewers believe that the NRC did not adequately resolve the prereview comments, they should address those concerns in a formal comment letter.

3. The NRC's chief examiner will ask the facility prereviewers to confirm that they did not divulge any information about the examination(s) by having them sign the post-examination security statement (Form ES-201-3) after the examinations are completed.

4. The facility licensee should submit formal comments within 5 working days after the examination is administered. However, the facility licensee may expedite the grading process by giving draft comments to the NRC chief examiner before he or she leaves the site. The NRC will consider comments not submitted within the requested time on a case-by-case basis; however, late comments may delay the examination grading process.

   The facility licensee should collect all comments from the license applicants and submit them to the NRC. When submitting applicant comments to the NRC, the facility licensee should identify by docket number which applicant made the comment (which may be useful to the NRC should the applicant request an informal review or a hearing), and include a facility position for each applicant comment. Note that the NRC examination report (refer to ES-501, Section E.3) will not identify examination comments by applicant docket number.

5. The facility licensee should submit all comments in the following format:

   - List the question, answer, and reference.
   - State the comment and make a recommendation as to whether the answer should be changed or the question should be deleted. If the facility licensee does not support an applicant's comment, it should briefly explain the reason for its rejection.
   - Support the comment with a reference, and provide a copy if it was not included in the original reference material submittal. (Note: The NRC will not change the examination without a reference to support the facility's comment.)

6. Formal comments should be signed by an authorized facility representative and addressed to the responsible NRC regional office, with a copy to the NRC's chief examiner.

7. Although the NRC will review all post-examination comments submitted by a facility licensee, the agency is likely to approve only certain kinds of comments. In the interest of efficiency, facility licensees should consider the guidance contained in ES-403 Section D.1, before submitting post-examination comments to the NRC.

1. Does the concept being measured have a direct, important relationship to the ability to perform the job?

2. Does the question match the testing objective and intent of the K/A?

3. Is the question clear, concise, and easy to read? Could it be stated more simply and still provide the necessary information? Should it be reworded or split up into more than one question?

4. Is each question stated positively, unless the intent is to test knowledge of what not to do?

5. Does the question provide all necessary information, stipulations, and assumptions needed for a correct response? Does the stem include as much information as possible?

6. Is the question written at the highest appropriate level of knowledge or ability for the job position of the person being tested?

7. Is the question free of unnecessary difficulty, trickiness, or irrelevance?

8. Is the question limited to one concept or topic, making it something other than a collection of true-false items?

9. Does the question have face validity?

10. Are key points underlined or highlighted?

11. Is each question separate and independent of all other questions?

12. Are the answer options homogeneous and highly plausible? Are common misconceptions used as distractors? Is the question free of trivial distractors?

13. Are "none of the above" and "all of the above" avoided?

14. Are there four answer options for each question?

15. Are the answer options of the questions ordered sequentially?

16. Is the question free of "specific determiners" (e.g., logical or grammatical inconsistencies, incorrect answers that are consistently different, verbal associations between the stem and the answer options)?

NOTE: **The 'Comment' box should be checked if the question is not worded clearly or contains errors and/or misleading information. The 'Challenge' box should be checked if the question to be reviewed for credit on your exam. Include your name.**

Exam Title: Vogtle 2011 NRC SRO Examination (2011-301) 4/1/11
Date Exam Administered

Submitted By: Charlissa Smith 5/20/11
Date

☐ Comment ☑ Challenge

Question Identifier	**# 97 G.2.2.44-003**

State the reason for comment or challenge on the question:

Contrary to the Answer/Distracter analysis, the only correct answer for **SRO Question # 97** is "C".

This is based on the following discussion of T.S.B 3.7.6 and the attached time line illustrating the T.S. bases. The T.S. B. 3.7.6 for the CSTs is written with a common portion applicable to both Vogtle Units 1 and 2 and it also has unique sections that are specific Unit 1 or Unit 2. The sections that are specific to Unit 1 or Unit 2 are appropriately labeled "This page applicable to Unit 1/2 only."

Based on the common section of T.S.B 3.7.6 CST page B 3.7.6-2 which states, "The CST level REQUIRED is equivalent to a usable volume of ≥ 340,000 gallons (66% instrument span) **which is based on holding the unit in MODE 3 for 4 hours, followed by a 5 hour cooldown** to RHR entry conditions at 50°F/hour with one Reactor Coolant Pump in operation." This applies to both Units.

Based on the Unit 2 specific section of T.S.B 3.7.6 CST page B 3.7.6-3 The additional volume of 38,000 gals and the associated additional 3 hrs is required to support the depressurization of the RHR Suction line, not to be applied for holding in Mode 3 or cooldown to mode 4. Therefore, based on the Technical Specifications Bases, "C" is the only Correct Answer.

The attached time line illustrates the bases for an Operable CST for both units and the bases for the additional CST volume specific to Unit 2 as stated in T.S.B 3.7.6 page B 3.7.6-3 "..The basis for requiring an additional 38,000 gallons of safety-related usable CST inventory is to support the elimination of the bypass line and associated valve bonnet depressurization line for the 2HV-8701B RHR suction isolation valve. The elimination of the bypass line and valve bonnet depressurization line requires an additional 3 hours for a total of 12 hours prior to placing RHR Train A in service. The additional time ensures that the 2HV-8701B valve bonnet and the space between the 2HV-8701B and 2HV-8701A RHR suction isolation valves have depressurized sufficiently to allow the suction isolation valves to be opened."

Based on the Technical Specifications "C" is the correct answer.

Challenge Review:

Credit given to the submitter	☐	YES	☐	NO		
Key changed	☐	YES	☐	NO	☐	N/A
Submitted for exam bank update	☐	YES	☐	NO	☐	N/A

Exam Bank Review:

Comment/Challenge incorporated	☐	YES	☐	NO	☐	N/A

Reason for not incorporating: _____

_____

_____

_____

_____

*Challenge Approved: _____

Training Supervisor Date

* N/A if challenge does not result in an exam key change

LCO 3.7.6 Bases Time line

Unit 1 & 2 (9 hrs common bases)

Mode 3 (4hrs) | Cooldown to RHR (5 hrs)

TS Bases 3.7.6 CST states "The CST level required is equivalent to a usable volume of ≥ 340,000 gallons (66% instrument span) which is **based on holding the unit in MODE 3 for 4 hours, followed by a 5 hour cooldown** … " (pg B 3.7.6-2)

Unit 2 only (additional 3 hrs bases)

Mode 3 (4hrs) | Cooldown to RHR (5 hrs) | Depressurization (3 hrs)

These 3 hrs are to allow depressurization at RHR conditions per Tech Spec.
This window is also where the additional 38,000 gallons is applied.
Not for holding NOPT (Mode 3) for additional time. Reference Pg B 3.7.6-3

B 3.7 PLANT SYSTEMS

B 3.7.6 Condensate Storage Tank (CST)

BASES

BACKGROUND

The two CSTs (V4001 and V4002) provide redundant safety grade sources of water to the steam generators for removing decay and sensible heat from the Reactor Coolant System (RCS). The CSTs provide a passive flow of water, by gravity, to the Auxiliary Feedwater (AFW) System (LCO 3.7.5). The steam produced is released to the atmosphere by the main steam safety valves or the atmospheric dump valves.

When the main steam isolation valves are open, the preferred means of heat removal is to discharge steam to the condenser by the nonsafety grade path of the steam dump valves. The condensed steam is returned to the CST. This has the advantage of conserving condensate while minimizing releases to the environment.

Because the CST is a principal component in removing residual heat from the RCS, it is designed to withstand earthquakes and other natural phenomena, including missiles that might be generated by natural phenomena. The CST is designed to Seismic Category I to ensure availability of the feedwater supply.

A description of the CST is found in the FSAR, Subsection 9.2.6 (Ref. 1).

APPLICABLE SAFETY ANALYSES

The CST provides cooling water to remove decay heat and to cool down the unit following all events in the accident analysis as discussed in the FSAR, Chapters 6 and 15 (Refs. 2 and 3, respectively). For anticipated operational occurrences and accidents that do not affect the OPERABILITY of the steam generators, the analysis assumption is generally 60 minutes at MODE 3, steaming through the MSSVs, followed by a cooldown to residual heat removal (RHR) entry conditions.

The limiting event for the condensate volume is the large feedwater line break coincident with a loss of offsite

(continued)

BASES

APPLICABLE SAFETY ANALYSES (continued)

power. Single failures that also affect this event include the following:

a. Failure of the diesel generator powering the motor driven AFW pump to the unaffected steam generator (requiring additional steam to drive the remaining AFW pump turbine); and

b. Failure of the steam driven AFW pump (requiring a longer time for cooldown using only one motor driven AFW pump).

These are not usually the limiting failures in terms of consequences for these events.

A nonlimiting event considered in CST inventory determinations is a break in either the main feedwater or AFW line near where the two join. This break has the potential for dumping condensate until terminated by operator action, since the Auxiliary Feedwater Actuation System would not detect a difference in pressure between the steam generators for this break location. This loss of condensate inventory is partially compensated for by the retention of steam generator inventory.

The CST satisfies Criterion 3 of 10 CFR 50.36 (c)(2)(ii).

LCO

To satisfy accident analysis assumptions, the CST must contain sufficient cooling water to remove decay heat for 60 minutes following a reactor trip from 102% RTP, and then to cool down the RCS to RHR entry conditions, assuming a coincident loss of offsite power and the most adverse single failure. In doing this, it must retain sufficient water to ensure adequate net positive suction head for the AFW pumps during cooldown, as well as account for any losses from the steam driven AFW pump turbine, or before isolating AFW to a broken line.

The CST level required is equivalent to a usable volume of ≥ 340,000 gallons (66% instrument span) which is based on holding the unit in MODE 3 for 4 hours, followed by a 5 hour cooldown to RHR entry conditions at 50°F/hour with one Reactor Coolant Pump in operation. This basis is

(continued)

THIS PAGE APPLICABLE TO UNIT 1 ONLY

BASES

LCO (continued)

established in Reference 4 and exceeds the volume required by the accident analysis.

The OPERABILITY of the CST is determined by maintaining the tank level at or above the minimum required level. Either CST V4001 or CST V4002 may be used to satisfy the LCO requirement.

APPLICABILITY

In MODES 1, 2, and 3, the CST is required to be OPERABLE.

Due to the reduced heat removal requirements and short period of time in MODE 4 and the availability of RHR in MODE 4, the LCO does not require a CST to be OPERABLE in this MODE.

In MODE 5 or 6, the CST is not required because the AFW System is not required.

(continued)

THIS PAGE APPLICABLE TO UNIT 2 ONLY

BASES

LCO (continued)

established in Reference 4 and exceeds the volume required by the accident analysis.

The OPERABILITY of the CST is determined by maintaining the tank level at or above the minimum required level. Either CST V4001 or CST V4002 may be used to satisfy the LCO requirement.

For Unit 2 only, two CSTs are required to be OPERABLE with a combined safety-related volume of ≥ 378,000 gallons, and the CST aligned to supply the auxiliary feedwater pumps shall have a safety-related volume ≥ 340,000 gallons. The basis for requiring an additional 38,000 gallons of safety-related usable CST inventory is to support the elimination of the bypass line and associated valve bonnet depressurization line for the 2HV-8701B RHR suction isolation valve. The elimination of the bypass line and valve bonnet depressurization line requires an additional 3 hours for a total of 12 hours prior to placing RHR Train A in service. The additional time ensures that the 2HV-8701B valve bonnet and the space between the 2HV-8701B and 2HV-8701A RHR suction isolation valves have depressurized sufficiently to allow the suction isolation valves to be opened.

APPLICABILITY

In MODES 1, 2, and 3, the CST is required to be OPERABLE.

Due to the reduced heat removal requirements and short period of time in MODE 4 and the availability of RHR in MODE 4, the LCO does not require a CST to be OPERABLE in this MODE.

In MODE 5 or 6, the CST is not required because the AFW System is not required.

(continued)

97. G2.2.44 003/3/N/A/CR INDICATIONS/4.4 MEM/NEW/SRO/NRC/GCW

A seismic event has occurred.

Unit 2 CST levels are as follows:

- CST # 1 is 70% and stable.
- CST # 2 is 11% and lowering.

The Unit 2 CSTs are ___(1)___ and the basis for the Tech Spec minimum level requirements are for___(2)___ followed by a 5 hour cooldown to RHR entry conditions.

A. (1) OPERABLE

(2) holding the unit in MODE 3 for 4 hours

B. (1) OPERABLE

(2) holding the unit in MODE 3 for 7 hours

C. (1) INOPERABLE

(2) holding the unit in MODE 3 for 4 hours

D. (1) INOPERABLE

(2) holding the unit in MODE 3 for 7 hours

2.2 Equipment Control

2.2.44 Ability to interpret control room indications to verify the status and operation of a system, and understand how operator actions and directives affect plant and system conditions.
(CFR: 41.5 / 43.5 / 45.12)

K/A MATCH ANALYSIS

Question directs the student to the indications of Unit 2 CST levels and LCO requirements and bases for them.

SRO 10CFR55.43 (b2)

ANSWER / DISTRACTOR ANALYSIS

A. Incorrect-Plausible because this is correct for Unit 1 CST operability and associated bases.

B. Incorrect-Operable for Unit 1 and plausible because of hold time to start of the cooldown to RHR conditions is for unit 2 due to the RHR modification.

C. Incorrect-INOP is correct for Unit 2 CST's. U2 requires a higher Combined Volume of both CST's and a longer hold time prior to cooldown to RHR conditions due to the RHR modification.

D. Correct

REFERENCES

Tech Spec 3.7.6 CST's and Bases

VEGP learning objectives:

LO-PP-20101-03, State the AFW and CST LCO, Applicability, Bases and any 1 hour or less required actions.

LO-LP-39211-04, Describe the bases for any given Tech Spec in section 3.7.