



UNITED STATES  
 NUCLEAR REGULATORY COMMISSION  
 REGION II  
 101 MARIETTA STREET, N.W.  
 ATLANTA, GEORGIA 30323

ENCLOSURE 1

EXAMINATION REPORT NO. 50-424/92-301

Facility Licensee: Georgia Power Company

Facility Name: Vogtle Electric Generating Plant

Facility Docket Nos.: 50-424 and 50-425

Examinations were administered at the Vogtle Electric Generating Plant near Waynesboro, Georgia.

Chief Examiners: George T. Hopper 8/11/92  
 George T. Hopper Date Signed

Michael E. Ernestes 8/12/92  
 Michael E. Ernestes Date Signed

Approved By: Lawrence L. Lawyer 8/14/92  
 Lawrence L. Lawyer, Chief Operator Licensing Section 1  
 Division of Reactor Safety Date Signed

SUMMARY

Scope: Requalification written examinations and operating tests were administered to 12 Reactor Operators (RO) and 18 Senior Reactor Operators (SRO) during the weeks of June 22 and 29, 1992.

In addition, requalification test results data was compared to NRC administered requalification test data for 1992 segment 5 examinations.

Results: Twelve ROs and 17 SROs passed these examinations. One SRO failed the JPM portion of the operating test.

The Vogtle Requalification Program was determined to be satisfactory.

Strengths were noted in the areas of written exam development (para. 4.c.1), exam administration (para. 4.d), and facility evaluator performance (para. 4.e).

No generic operator weaknesses were identified. However, weaknesses were noted in the areas of unauthorized operator aids (para. 4.g), and in the grading of in-house exams and remediation practices (para. 4.h). The unauthorized operator aids will be tracked as IFI 50-424, 425/92-301-02.

In addition, the examination team was concerned that the classification logic scheme contained in the "Emergency Classification and Implementing Instructions" was overly conservative (para 4.f.1). This item will be tracked as IFI 50-424, 425/92-301-01 (para 4.f.1).

The examiners also closed several IFIs that are listed in paragraph five of this report.



## REPORT DETAILS

### 1. Persons Contacted

- \*H. Reacher, Senior Engineer, Technical Support
- \*J. Beasley, Assistant General Manager
- \*R. Brown, Supervisor of Operator Training
- \*B. Burmeister, Engineering Manager
- \*P. Burwinkel, Plant Engineering Supervisor
- \*S. Chesnut, Manager of Technical Support
- \*R. Dorman, Training Manager
- \*G. Frederick, Manager of Maintenance
- \*J. Gasser, Unit Superintendent
- \*K. Holmes, Manager of Health Physics and Chemistry
- \*J. Hopkins, Shift Superintendent
- \*R. LeGrand, Operations Manager
- \*T. Mozingo, Superintendent of Operations
- \*B. Shipman, General Manager

Other licensee employees contacted included training department personnel, operators, and office personnel.

### 2. Examiners

- \*M. Ernstes, Chief Examiner, NRC, Region II
- \*B. Haagensen, Sonalysts Inc.  
G. Hopper, Chief Examiner, NRC, Region II
- \*E. Lea, NRC, Region II
- \*L. Lawyer, Section Chief, NRC, Region II  
R. Temps, NRC, Region I

\*Attended exit interview

### 3. Other NRC Personnel Attending Exit

- B. Bonser, Senior Resident Inspector
- R. Starkey, Resident inspector

### 4. Discussion

#### a. Examination Results/Program Evaluation

The examiners observed the licensee administer requalification examinations to 18 SRO candidates and 12 RO candidates. Seventeen of the 18 SRO candidates passed all sections of their requalification examination. One SRO candidate failed the JPM portion of the operating test. The 12 RO candidates passed all sections of their requalification examination. There was a 97 percent pass rate for the candidates who participated in the examination process.

The Vogtle Requalification Program was evaluated based on the requirements set forth in ES-601 Section C.2.b (Requalification Program Evaluation). A review of the examination results indicated that all of these criteria were met. Accordingly, the Vogtle Requalification Program was rated as satisfactory.

b. Reference Material

The reference material supplied by the licensee was reviewed and found satisfactory. The material was well organized and easy to use for examination development.

c. Proposed Examination

The NRC examination team reviewed the facility's proposed examinations during the week of June 1, 1992. The test outline was properly prepared and met the requirements of ES-601 Attachment 2 (Examination Test Outline/Sample Plan).

- (1) The examiners reviewed the proposed requalification written and static examinations for both examination weeks. The examination team concluded that the questions were of high quality. Their caliber indicated that a considerable effort had been put forth by the Vogtle training staff regarding their question bank development. The examiners made minimal changes and deletions to the proposed questions. Those questions which were replaced were not safety related. The examiners concluded that the majority of questions were comprehensive in nature and required the use of synthesis in deriving the answers. Additionally, the RO examination tested at a very high level of understanding. The SRO examination tested at an appropriate level for SROs. The examination team considered both the RO and SRO examinations to be a good discriminating tool for determining satisfactory/unsatisfactory performance.
- (2) The JPMS tested at an appropriate level and were well thought out and properly validated. The NRC replaced four of the JPMS from the proposed examination because they were relatively simplistic and nondiscriminatory. Additionally, 15 percent of the total JPMS selected were modified to be "Faulted" JPMS.
- (3) The simulator scenarios were well organized, and the format used facilitated the auditing process. The scenarios met the requirements of ES-604-1 (Simulator Scenario Review Checklist) with the following exceptions:

- (a) The number of instrument malfunctions originally proposed averaged six per scenario set. The NRC team reduced the number to average three per set in order to allow for more EOP run time during the scenario.
- (b) The facility had identified all EOP transitions as ISCTs. This resulted in an excessive number of ISCTs for the Unit Shift Supervisor and was not in accordance with ES-604 Attachment 1 (Individual Simulator Critical Task Methodology.). The examination team edited the ISCTs to be in accordance with the Examiner Standard guidelines.

d. Examination Administration

The proposed schedule was modified by the NRC team so that the examination could be administered over a four, vice five day period each week. This improved efficiency and reduced the stress placed on the operators. The facility examination team rehearsed this schedule prior to the examination, and implemented it flawlessly.

e. Facility Evaluators

The evaluators demonstrated a thorough understanding of the JPMs. Their familiarity with the JPMs contributed to the success of the evaluation process. In addition, the evaluators were attentive to the actions of the operators. They provided clear and timely cues when required, and asked appropriate follow-up questions when necessary. No weaknesses were identified.

f. Procedures

- (1) The Vogtle Emergency Classification and Implementing Instructions (91001-C) were reviewed during the preparation week to validate the classification of events contained in the scenarios. This review determined that this procedure would result in the classification of a ruptured faulted steam generator (rupture in excess of make-up capacity) as a General Emergency. The classification chart assumes the fuel cladding is breached if a known LOCA exists in excess of make-up capacity. This classification was overly conservative when compared to the NUREG-0654 guidance given in the Example Initiating Conditions for a General Emergency (as long as protection systems operate as designed). Projected radiological release rates are much lower than the EPA's Protective Action Guides if the source term does not include fuel damage. The significance of this is that the facility would declare a General Emergency for an event which would result in a relatively low order release.

This item is identified as IFI 50-424, 425/92-301-01: Emergency Action Level (EAL) Classification Logic Scheme Overly Conservative.

Procedure 18007-C (Chemical and Volume Control System Malfunction) Step C6.B(3) stated "Open FV-110A with HS-110A or by failing its air supply." During the performance of a JPM (Initiate Local Manual RCS Boration), operators were confused as to how to exactly perform this step. The NRC observed the operators accomplish the failing of the air supply by various methods. The procedure did not specifically identify the valves which must be manipulated to execute this step.

g. Material Condition of the Plant

During the performance of many of the JPMs, the examiners noticed that unauthorized operator aids had been used to identify equipment and components (valves, switches, gauges, . . .) addressed by the JPMs. Various component identification numbers were written on the walls, support plates, pipes, access doors, and ladders. In some instances there were arrows pointing to components to indicate actual locations. These components have been labeled by the operators using pencils, magic markers, etc. The NRC examination team was concerned about this for two reasons. The first being that an apparent lack of control of labeling plant equipment existed, and the requirements of 10016-C (Component Identification) were not being met. This condition could lead to errors with respect to the operation of plant equipment, due to the reasonable probability of incorrect unauthorized operator aids existing in the plant. There was one instance where an examiner noticed that there were two numbers written with magic marker to identify a component. One of the numbers had a line drawn across it. In addition, the components identified with magic markers were components that were specifically addressed by the JPMs. If an operator is observed to rely on these markings during the performance of a JPM, it is not possible to ascertain if the JPM could be successfully completed utilizing only the existing authorized component identification labels.

This item is identified as IFI 50-424, 425/92-301-02: Unauthorized operator aids exist in plant on systems utilized in the performance of JPMs.

h. Inspection Findings

The examination team compared the requalification examination results of 1992, week 2, segment 5, with results of the NRC administered 1992, week 4, segment 5 examinations in detail. The comparison included grading criteria and their implementation, operator weakness remediation, and documentation consistency and clarity. Several apparent errors were identified to the licensee



and discussed. Most were failures to consistently document data required by the forms. However, two items of safety significance were also identified. The first of these was that grading criteria were not consistently applied. For example, one operator missed a critical task but was given a passing grade. The second major discrepancy was that individuals who performed major simulator errors were remediated by instructor oral discussion only. No further practice or testing was required. For example, in a scenario which included an Anticipated Transient Without Trip (ATWT), one crew initiated safety injection prior to tripping the reactor, thus, seriously degrading the mitigation of the event. This occurred on a practice scenario. The crew was orally reinstructed but was not required to demonstrate the adequacy of their remediation by actual performance on the simulator.

The examiners reviewed licensee material that pertained to previously identified IFIs. Based upon a review, the examiner determined that the licensee had done an adequate job in addressing the concerns of each IFI. The following paragraphs describe the resolution of each item.

- (1) (CLOSED) IFI-50-424/91-300-01; Inability to properly complete Checklist 3 of 91002, Emergency Notifications

While conducting initial operator licensing examinations, during the week of June 3, 1991, the examiners noticed that reactor operator candidates were unable to properly complete checklist number 3 of 91002, Emergency Notifications. The checklist was a collection of plant parameters and release rates and is used by an operator as a source of information when making emergency notifications to the NRC.

The examiner reviewed the corrective actions provided by the licensee. The corrective actions included revising the task of completing the NRC notification form, from SRO only to all licensed operators; changing learning objectives 17, 19 and 23 from SRO only to all licensed operators; revising lesson plan LO-IU-40101-002 to include detailed information of completing the NRC notification form; and emphasizing the completion of the NRC notification form during simulator training. Documentation indicated that these corrective actions were completed by the licensee, and they adequately addressed the concerns of the IFI.

- (2) (CLOSED) IFI 50-424, 425/91-301-01, Additional Interpretation Required For ATWT Classification Determination

While performing a simulator scenario that required a response to an ATWT, two crews had to perform an EAL classification. One crew made the classification when the subcriticality red

path actually existed, and the other crew classified the event when the subcriticality red path ceased to exist. One crew declared a Notice of Unusual Event (NOUE), and the other crew declared an ALERT. Based on the scenario given, an ALERT classification should have been declared by both crews.

The examiners reviewed the corrective actions taken by the licensee to address the concerns of the IFI. The corrective actions included training of the appropriate personnel on the management of radiological emergencies, and the performance of scenarios that required implementation of emergency classification procedures. The examiners also interviewed licensee personnel on concerns identified in the IFI. Based on the interview of licensee personnel and the review of licensee documentation, the licensee has adequately addressed the concerns identified in the IFI.

(3) (CLOSED) IFI 50-424/91-301-02, Positive Training on Simulator Infidelity

While conducting simulator operating tests, during initial exams, a problem with the anti-pumping circuit on the pressurizer heater control circuit was identified. This simulator infidelity caused confusion for operators during training. The licensee compensated for the infidelity by informing the operators that the plant and simulator do not operate the same. This is considered negative training.

The examiners reviewed documentation and interviewed licensee personnel concerning corrective actions. The licensee submitted a Simulator Change Request, Modification Number 9111034, to correct the problem. The corrective action modified simulation software "G. RXL and G.ANDRVR". This change added logic for handswitch contacts (break before make) and corrected the variable heater overload trip. Documentation indicated that a function test was completed on November 11, 1991. The examiners also observed that the problem no longer existed while performing requalification operating tests. No further actions are required in association with this IFI.

5. Exit Meeting

At the conclusion of the site visit, the examiners met with representatives of the plant staff, to discuss the results of the examinations and inspection findings. The licensee did not identify as proprietary any material provided to or reviewed by the examiners. The examiners further described the areas inspected and discussed in detail the inspection findings listed below. Dissenting comments were not received from the licensee.



<u>Item</u>	<u>Status</u>	<u>Description/Paragraph</u>
IFI 50-424, 425/92-301-01	Open	EAL classification logic scheme overly conservative, para 4.f.1.
IFI 50-424, 425/92-301-02	Open	Unauthorized operator aids exist in plant on systems utilized in JPM performance, para. 4.g.
IFI 50-424/91-300-01	Closed	Licensed operators' inability to properly complete checklist 91002, Emergency Notifications, para. 4.h.1.
IFI 50-424, 425/91-301-01	Closed	Additional interpretation required for ATWT classification determination, para. 4.h.2.
IFI 50-424/91-301-02	Closed	Positive training on simulator infidelity, para 4.h.3.

ENCLOSURE 2

SIMULATOR FIDELITY REPORT

Facility Licensee: Georgia Power Company

Facility Name: Vogtle Electric Generating Plant

Facility Docket Nos.: 50-424 and 50-425

Operating Tests Administered On: June 23 - 25 and June 30 - July 02, 1992

This form is to be used only to report observations. These observations do not constitute, in and of themselves, audit or inspection findings and are not, without further verification and review, indicative of noncompliance with 10 CFR 55.45(b). These observations do not affect NRC certification or approval of the simulation facility other than to provide information which may be used in future evaluations. No licensee action is required solely in response to these observations.

During the conduct of the simulator portion of the operating tests, no fidelity items were observed.

GEORGIA POWER COMPANY  
VOGTLE ELECTRIC GENERATING PLANT  
TRAINING DEPARTMENT  
EXAMINATION COVER SHEET

Master  
week 1  
Vogtle 92-304

COURSE TITLE: Licensed Operator Regualification Annual Written Exam

COURSE / EXAM #: SR-925-92-03.R

EXAMINER: RAY

DATE ADMINISTERED: Week of 6/22/92

APPROVED: *Robert J. Brann*

EXAM TYPE: CLASSROOM , SIMULATOR , BIENNIAL , OTHER

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INSTRUCTIONS TO STUDENT:

USE SHEET PROVIDED FOR ANSWERS. STAPLE EXAMINATION COVER SHEET ON TOP OF THE ANSWER SHEET(S). IF NEEDED, THE INSTRUCTOR WILL PROVIDE ANY ADDITIONAL INSTRUCTIONS. POINTS FOR EACH QUESTION ARE INDICATED NEXT TO THE QUESTION. PASSING REQUIRES A FINAL GRADE OF AT LEAST 70% OVERALL.

\*\* PRINT NEATLY \*\*

\_\_\_\_\_  
NAME (Last, First, MI)

\_\_\_\_\_  
SOCIAL SECURITY #

\_\_\_\_\_  
DEPARTMENT

\_\_\_\_\_  
COMPANY

ALL WORK DONE ON THIS EXAM IS MY OWN. I HAVE NEITHER GIVEN NOR RECEIVED AID.

\_\_\_\_\_  
STUDENT SIGNATURE

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TOTAL POINTS      POINTS MISSED      RAW SCORE      FINAL GRADE

\_\_\_\_\_  
25

\_\_\_\_\_  
%

GRADED BY: \_\_\_\_\_

REVIEWED BY: \_\_\_\_\_

C92-05-003

PLANT VOGTLE TRAINING DEPT.

M A S T E R     K E Y

FOR

EXAM: SR-925-92-03.R

Total Points: 25.00

ASSEMBLED IN MANUAL MODE.

EXAM KEY  
yR

1. Q: While withdrawing Shutdown Bank "A" during 12001-C, an RPI Urgent Failure Alarm, General Warning LED for rod M-2, and a Data A failure 1-2-3 LED were received. Rod M-2 indicated 6 steps on DRPI with the rest of Shutdown Bank A indicating 24 steps withdrawn.

What initial action must be taken by the operator if the unit is in Mode 4?

- The operator should select DATA A ONLY on the DRPI selector switch.
- The operator should select DATA B ONLY on the DRPI selector switch.
- Immediately open the reactor trip breakers.
- Immediately notify Reactor Engineering.

A: b.

R: 17010-C,R21,PG. 31, T.S. 3.1.3.3,  
EB#: LO-OR-27201-C6-01

Point Value: 1.00

2. Q: Given that a Vogtle technical specification LCO action statement which requires "suspension of all core alterations" has been entered, which one of the following MAY proceed?
- Removal of any neutron sources from the reactor core area.
  - The lifting of the upper internals from the core as long as the fuel bundles remain undisturbed.
  - Shuffling of the control rods and burnable poison assemblies, provided that Keff is less than or equal to .95.
  - Completion of a component movement to a safe position within the reactor pressure vessel.

A: d.

R: TS DEF. 1.9,  
EB#: LO-OR-39202-02-01

Point Value: 1.00

EXAM KEY  
yR

3. Q: Steam generator tube leakage falls under which ONE of the following Tech. Spec. leakage classifications?

- a. Identified leakage
- b. Pressure boundary leakage
- c. Controlled leakage
- d. Unisolable leakage

A: a.

R: T.S. DEFN'S, PG. 1-3,  
EB#: LO-OR-39202-02-04

Point Value: 1.00

4. Q: -The unit is at 1500 psig and 385 degrees F.  
-CCP "B" fails due to a siezed bearing.  
-The PDP is out of service awaiting a part (estimated time for return to service 96 hours).  
-It will be at least a week before CCP "B" can be repaired.

When determining shutdown margin and boron concentration to comply with the action statement in T.S. 3.1.2.4, it is noted that the boron concentration is 575 ppm and shutdown margin is 1% Delta K/K. What action (s) must be taken ?

- a. Stop any positive reactivity changes that are in progress.
- b. Commence boration using, 13009-1, to establish a SDM of 1.2 delta K/K per action of 3.1.2.4.
- c. Perform action of 3.1.1.2 until the limit specified by the COLR is attained.
- d. Commence cooldown to take the unit to Mode 5 within the next 6 hours.

A: c.

R: T.S. 3.1.1.2, T.S. 3.1.2.4,  
EB#: LO-OR-39205-03-01

Point Value: 1.00



## EXAM KEY

yR

5. Q: The control room is being evacuated with control being established at the B Train shutdown panel (PSDB). Choose the ONE correct response to complete the following statement.

When LOCAL/REMOTE transfer switches on PSDB are placed in LOCAL automatic functions of those controls:

- a. May be operated only from the switch on the QMCB.
- b. Will function only if a valid ES actuation occurs.
- c. Are defeated and will not function in most cases.
- d. Must be reset using the remote function reset pushbutton located on the QMCB.

A: c.

R: 18038-1,R14,PG. 20,  
EB#: LO-OR-60327-02-01

Point Value: 1.00

6. Q: Which one of the following conditions would result in the core becoming uncovered in the shortest period of time if a total loss of RHR occurred 120 hours after shutdown? (Assume no operator action taken)

- a. Refueling pool filled to Tech Spec level with fuel movement in progress in the containment building.
- b. RCS at midloop with all SG primary manways removed. No nozzle dams are installed.
- c. RCS at midloop with all SG primary manways removed. Hot leg nozzle dams are installed and there have been no vent paths established.
- d. RCS at midloop with all SG primary manways removed. Hot leg nozzle dams are installed and the pressurizer manway has been removed.

A: c.

R: VOGTLE TEXT, 18019-C,R12,PG. 1,  
EB#: LO-OR-12101-15-02

Point Value: 1.00

KEY CONTINUED ON NEXT PAGE

EXAM KEY  
yR

7. Q: During RCS drain down conditions, the RCS sightglass level indication system must be continuously monitored if:
- RCS level is stable below a pressurizer level of 15% (207 ft. elev.)
  - RCS level is being changed below a pressurizer level of 15% (207 ft. elev.)
  - RCS temporary level detectors in the control room indicate level at or below the reactor vessel flange.
  - RCS temporary level detectors in the control room indicate level at or below the top of the hot leg.

A: b.

R: 12006-C,R23,PG. 36, 13005-1,R22,PG. 2,  
EB#: LO-OR-12101-16-01

Point Value: 1.00

8. Q: Unit 1 is in Mode 5. The RCS is at mid-loop with the following conditions:
- A RHR pump is in service at 3000 GPM.
  - B RHR pump is in standby alignment.

Which ONE of the following action(s) would be the operator's first course of action if the A RHR pump motor amps start Fluctuating (indicative of pump cavitation).

- Initiate gravity feed to the RCS from the RWST by opening HV-8802A.
- Initiate makeup to the RCS by opening HV-0112D or HV-0112E on the suction of the CCP's.
- Reduce flow through the "A" RHR pump.
- Stop the "A" RHR pump.

A: c.

R: 18019-C,R12,PG. 3,  
EB#: LO-OR-12101-18-02

Point Value: 1.00

EXAM KEY  
yR

9. Q: Following a Unit 2 reactor trip and SI, S/G #1 is immediately identified as being ruptured and is isolated. #1 S/G level is approximately 40% WR level (below the narrow range) and increasing rapidly. Choose ONE of the below which properly describes AFW flow control to the ruptured S/G.

Secure AFW flow to the ruptured S/G...

- a. ...when NR level is restored above 10% to ensure that the ruptured S/G level is above the U-tubes.
- b. ...when NR level is restored above 65% level to ensure even cooldown of the plant.
- c. ...immediately because the rapidly rising WR level indicates that S/G #1 will overflow if feed is continued.
- d. ...immediately because it is not necessary to feed the ruptured S/G.

A: a.

R: 19030-C,R12,PG. 5,  
EB#: LO-OR-37002-04-03

Point Value: 1.00

EXAM KEY  
yR

10. Q: 19030-C (SGTR) step 3 (Isolate flow from ruptured S/Gs) directs the operator to "adjust the ruptured S/G ARV controller setpoint to 1160 psig". After performing this action the RO observes that Ruptured S/G pressure is 1190 psig, and the Ruptured S/G's ARV is opening automatically. Because he wants to minimize radiological release from the ruptured S/G, he places its ARV in "manual" and closes it.

Do you agree with the operators action? Why or why not?

- a. Yes. The operator should shut the ARV since neither the ARV nor the MS safety valves can be isolated if required.
- b. Yes. The operator can't control the S/G ARV locally if a release is in progress so placing it in manual was correct.
- c. No. The ARV is set higher to keep it from lifting. But if pressure does increase you want the ARV to lift vs. the MS safety valve.
- d. No. Manual operation of ARV's is not called for in the procedure therefore it should not be placed in manual.

A: c.

R: 19030-C,E9,PG. 3, WOG BACKGROUND DOC.,  
EP#: LO-OR-37311-07-04

Point Value: 1.00

EXAM KEY  
yR

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11. Q: The control room operators are responding to a Loss of All AC power. Excess Letdown was in service prior to the event and mistakenly not isolated during verification of RCS isolation. Both of these valves are left open.

If left uncorrected during performance of subsequent steps, this excess letdown valve misalignment could create a leak path to the

- a. PRT via the letdown line relief valve. RCS inventory loss could increase, reducing the time to PRT overfill / rupture.
- b. PRT via the RCP seal return relief valve. RCS inventory loss could increase, reducing the time to core uncover.
- c. RCDT via the RCP controlled leakage seals. RCS inventory loss could increase, possibly leading to core uncover.
- d. RCDT, increasing the RCS leakage rate until it is terminated by automatic isolation upon PZR low level.

A: 1.

R: 19400-C,R9,PG. 3, GREB 000-055-003,  
EB#: LO-OR-37031-06-01

Point Value: 1.00

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EXAM KEY  
yR

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12. Q: A loss of secondary heat sink has occurred. The operating team is implementing 19231-C. IAW Step 6, attempts are being taken to restore a main feed pump but the crew cannot get either pump reset.

The following unit conditions exist:

- All RCP's are stopped.
- SG levels (WR) are all 19% and decreasing.
- Core exit TC temperatures are increasing.
- RCS pressure has begun to increase rapidly and is now above 2400 psig.

What action(s) are required to be taken by the operating crew?

- a. Immediately initiate feed and bleed per step 11 of 19231-C
- b. Initiate Safety Injection and transition to 19000-C, step 1.
- c. Immediately open all PORV's and turn off all heaters to reduce RCS pressure.
- d. Start ECCS pumps as needed and continue with attempts to restore feedwater flow to all S/G's.

A: a.

R: WOG BACKGROUND DOC., 19231-C,R15,PG. 3,  
EB#: LO-OR-37051-08-03

Point Value: 1.00

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EXAM KEY  
yR

13. Q: 19121 C, Uncontrolled Depressurization of All Steam Generators is in effect.

The following conditions occur:

- TDAFW Pump 1-1302-P4-001 trips on overspeed and can not be reset.
- "A" MDAFW Pump 1-1302-P4-003 is tagged out.
- "B" MDAFW Pump 1-1302-P4-002 trips on overcurrent.
- Offsite power is lost, with both D/G's reenergizing it's respective 4160 VAC bus
- All SG levels are below the NR.

The Operating Response is:

- a. Remain in 19121
- b. Transition to 19005 Rediagnosis
- c. Transition to 19100-C
- d. Transition to 19231-C

A: d.

R: 19200-C,R9,PG. 6,  
EB#: LO-OR-37002-07-09

Point Value: 1.00

## EXAM KEY

YR

14. Q: The unit is in Mode 1 at 100% power, when the following indications/alarms are observed.

- SERVICE AIR HDR LO PRESS annunciator is alarming
- Instrument air supply pressure reading 78 psig and decreasing at 3 psig/minute
- All air compressors are verified running on the QMCB
- Service Air Header Isolation Valve PV-9375 is verified closed

What action(s) must the control room operators take within the next 5 minutes if the above conditions continue?

- a. Trip the turbine and allow the plant to stabilize on the Steam Dump Control System at 40% reactor power.
- b. Secure the TWO CHAMBER/FULL FLOW mode of the instrument air dryers since the leakage appears to be increasing.
- c. Trip the reactor and enter 19000-C when instrument air pressure drops to less than 70 psig and is not recoverable.
- d. Stop two air compressors and isolate the UNIT 2 crosstie which will slow the header depressurization.

A: c.

R: 18028-C,R11,PG. 5,  
EB#: LO-OR-02110-15-01

Point Value: 1.00

EXAM KEY  
YR

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15. Q: Unit 1 has tripped from 100% power. While performing the immediate operator actions of E-0, the operating crew observes the following parameters:

- SI ACTUATED BPLP lit
- No SI annunciator lit
- RCS pressure is at 1190 psig
- Containment pressure is .5 psig
- All four S/G's are at 550 psig and lowering
- A small amount of steam flow is indicated on all 4 S/G's
- Tave on all four loops is approximately 530 degrees F
- No ECCS equipment has realigned

Select the ONE response below which describes the proper actions for the given conditions.

- a. Transition to 19001-C, Reactor Trip Response.
- b. Manually actuate SI and go on to next step.
- c. Transition to 19020-C, Faulted Steam Generator Isolation.
- d. Isolate AFW flow to all four S/G's

A: b.

R: 19000-C,R13,PG. 3,  
EB#: LC-OR-37011-15-01

Point Value: 1.00

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EXAM KEY  
yR

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16. Q: Unit 1 is operating at 100 percent power when a control rod drops into the core. The reactor does not trip. Operators take actions to stabilize the plant. Reactor power is 95% and Tavg is matched to Tref. The USS then has the extra operator perform a QPTR calculation. During recovery actions, QPTR is determined to be 1.05. What procedural restrictions are placed on power operation over the next several hours?
- a. Power must be lowered to 80% within 2 hours.
  - b. Power range hi flux trip setpoints must be lowered to 85% within the next 4 hours.
  - c. Unit must be shutdown with a QPTR of greater than 1.02.
  - d. Power must be reduced to below 85% within the next two hours.

A: d.

R: 18003-C, T.S.3.1.3.1,  
EB#: LO-OR-39205-03-03

Point Value: 1.00

---

EXAM KEY  
yR

=====

17. Q: After stabilizing the plant following a steam generator tube rupture, the operating crew transitioned to EOP 19031-C to cooldown the plant to cold shutdown. RCS subcooling was 68 degrees F and RCS pressure was 1000 psig at the time of the transition. Two hours after the cooldown was started, RCS pressure was 485 psig and core exit thermocouple readings were 251 degrees F.

Are the operators performing steps within the restrictions established by EOP 19031-C?

- a. Yes. Operators are maintaining all parameters (temp. and press.) within the allowed bands.
- b. Yes. Operators are within the limitations as set forth by the operators curve in 12006-C.
- c. No. Cooldown rate has exceeded 100 degrees per hour as limited by step 5.
- d. No. Pressure is too high for low pressure cooling systems to inject as required.

A: c.

R: WOG BACKGROUND DOC., 19031-C,R6,PG. 5,  
EB#: LO-OR-37312-02-01

Point Value: 1.00

=====

## EXAM KEY

yR

18. Q: The plant has stabilized following a major tube rupture in S/G #1. ECCS flow has been terminated and normal charging and letdown reestablished. A recovery procedure has not yet been selected. Auxiliary feedwater flow to the ruptured steam generator is isolated. The Balance of Plant Operator reports ruptured steam generator level is slowly rising. The Reactor Operator reports pressurizer level at 18% and slowly trending down.

Based on these conditions what action(s) must be taken currently to stabilize both steam generator and pressurizer level?

- a. Increase PZR pressure above S/G pressure and increase charging flow to maintain PZR level.
- b. Reduce PZR pressure to less than or equal to S/G pressure and increase charging flow to maintain PZR level.
- c. Increase PZR pressure above S/G pressure and reduce charging flow to maintain PZR level.
- d. Reduce PZR pressure to less than or equal to S/G pressure and reduce charging flow to maintain PZR level.

A: b.

R: WOG BACKGROUND DOC., 19030-C,R9,PG. 10,  
EB#: LO-OR-37312-02-06

Point Value: 1.00



EXAM KEY  
YR

=====

19. Q: A natural circulation cooldown is in progress in accordance with 19002-C, Natural Circulation Cooldown. The RCS is at 510 degrees F and 1900 psig. All CRDM cooling fans have tripped and cannot be restarted.

Without the CRDM fans in operation, which of the following is the greatest concern?

- a. Damage may occur to the CRDM coils because of overheating.
- b. NDT requirements are more likely to be exceeded for the reactor head flange welds.
- c. Damage may occur to the excore nuclear instrumentation because of overheating.
- d. The formation of a steam bubble in the reactor vessel head region.

A: d.

R: 19002-C, R10, PG. 7, GREB 002-010-001,  
EB#: LO-OR-37012-05-05

Point Value: 1.00

=====

20. Q: The reactor is critical at  $1 \times 10E^{-8}$  amps. Inverter 1AD111 output breaker trips open. This action causes a loss of 120 VAC vital panel 1AY1A.

This condition will result in which of the following?

- a. The loss of several NIS channels, but no change in reactor power.
- b. A reactor trip due to the deenergization of IR channel N35.
- c. A reactor trip due to the deenergization of IR channel N36.
- d. An SR high flux trip due to the deenergization of permissive P-6.

A: b.

R: 18032-1, R7, PG. 2, GREB 015-000-001,  
EB#: LO-OR-28102-02-01

Point Value: 1.00

=====

EXAM KEY  
yR

- =====
21. Q: The Unit 1 fully withdrawn limit for the RCCA's has been changed from 228 steps to a range of 225 steps to 231 steps. Which ONE of the following explains why this is done?
- a. Distribute fretting wear over a larger area thus increasing the life of the RCCA's.
  - b. Limit peak power at the top of the core for different cycles, thus minimizing the possibility of fracture due to stress during an accident.
  - c. Decrease or lower the rod insertion limit so as to extend core life for different cycles.
  - d. Account for varying flow rates of the moderator from BOL to EOL without affecting the RCCA's adversely.

A: a.

R: 12004-C,R29,PG. 20, 13502-1,R13,PG. 8,  
EB#: LO-OR-61300-03-01

Point Value: 1.00

=====

22. Q: One of the intermediate range channels (N35) is discovered to be overcompensated when doing a routine surveillance. If this is left uncorrected the expected response of the IR channel would be:
- a. N35 will indicate low and source range instruments WILL NOT automatically energize following a reactor trip.
  - b. N35 will indicate low and source range instruments WILL automatically energize following a reactor trip.
  - c. N35 will indicate high and source range instruments WILL NOT automatically energize following a reactor trip.
  - d. N35 will indicate high and source range instruments WILL automatically energize at a lower than usual flux level.

A: b.

R: 18002-C,R5,PG. 4,  
EB#: LO-OR-17201-08-01

Point Value: 1.00

=====

EXAM KEY  
yR

- =====
23. Q: Which one of the following is a continuous action step?
- a. Check SG levels narrow range level in at least one SG - GREATER THAN 10%
  - b. Control feed flow to maintain S/G narrow range level between 10% and 65%
  - c. Transfer condenser steam dump to STEAM PRESSURE MODE
  - d. Determine if natural circulation cooldown is required

A: b.

R: WOG BACKGROUND DOC, 19001-C,R13,PG. 6,  
EB#: LO-OR-37002-04-01

Point Value: 1.00

=====

24. Q: Step 12 of procedure 19251-C, Response to High Containment Pressure, directs the operator to perform a startup of the Hydrogen Recombiners. Given a containment pressure of 8 psig, Pre-LOCA containment temperature of 90 degrees, Post-LOCA temperature of 120 degrees F, and a hydrogen concentration of 4.6%, which ONE of the following is the pressure factor for the recombiner?
- a. 1.23 (+/- 0.03)
  - b. 1.30 (+/- 0.03)
  - c. 1.37 (+/- 0.03)
  - d. 1.45 (+/- 0.03)

A: c.

R: 13130-C,R6,PG. 21, 19251-C,R6,PG. 10,  
EB#: LO-OR-29110-03-02

Point Value: 1.00

=====

## EXAM KEY

yR

25. Q: A D/G was started due to a spurious SI signal. Which ONE of the following describes the action(s) that must be completed to permit a NORMAL STOP of the D/G?
- a. Reset the SI signal.
  - b. Reset the SI signal and depress the EMERG STOP RESET pushbutton.
  - c. Break the EMERG STOP break glass and place the UNIT/PARALLEL switch in the UNIT position.
  - d. Reset the SI and depress the RESET FROM LOCA/LOSP pushbutton.

A: d.

R: 13145-1,R29,PG. 22,  
EB#: LO-OR-11201-04-01

Point Value: 1.00

END OF TEST KEY

## PLANT VOGTLE TRAINING DEPT.

QUESTION USE LIST for EXAM: SR-925-92-03.R

Total Points: 25.00

FILE NO: C92-05-003

Page 1

Assembled by LEON RAY on 06/05/92 in MANUAL mode.

<u>ITEM</u>	<u>EB NUMBER</u>	<u>REVISION</u>	<u>DESCRIPTION</u>
1.	LO-OR-27201-06-01	8 05/21/92	Actions required for DRPI Failure i
2.	LO-OR-39202-02-01	6 11/10/90	Application of "suspend core alts."
3.	LO-OR-39202-02-04	2 04/05/91	Tech. Spec leakage classification
4.	LO-OR-39205-03-01	8 06/05/92	Application of CVCS Tech. Specs. (3
5.	LO-OR-60327-02-01	1 05/19/92	Effects of local operation at the S
6.	LO-OR-12101-15-02	13 05/19/92	Loss of RHR with the RCS at Mid-100
7.	LO-OR-12101-16-01	10 05/19/92	Monitoring the tygon tube for RCS d
8.	LO-OR-12101-18-02	7 06/04/92	Operator actions if vortexing occur
9.	LO-OR-37002-04-03	7 06/11/92	Describe AFW flow control to the ru
10.	LO-OR-37311-07-04	6 06/04/92	SGTR ARV Setpoint Adjustment and re
11.	LO-OR-37031-06-01	3 04/22/92	What is the problem with not isolat
12.	LO-OR-37051-08-03	11 04/22/92	Loss of heat sink - What to do if 3
13.	LO-OR-37032-07-09	9 05/25/92	Loss of Secondary Heat Sink FRP
14.	LO-OR-02110-15-01	2 04/22/92	What actions are required on decrea
15.	LO-OR-37011-15-01	2 06/11/92	SI initiation criteria
16.	LO-OR-39205-03-03	8 06/05/92	Interpretation of AOP's and T.S. as
17.	LO-OR-37312-02-01	5 11/10/90	Determine subcooling & cooldown lim
18.	LO-OR-37312-02-06	7 05/18/92	SGTR recovery procedural applicatio
19.	LO-OR-37012-05-05	5 06/11/92	Concerns about NC cooldown without
20.	LO-OR-28102-02-01	4 05/21/92	Loss of vital 120 VAC on NIS
21.	LO-OR-61300-03-01	3 05/19/92	Rod withdrawal limits.
22.	LO-OR-17201-08-01	4 06/05/92	Overcompensated intermediate range

=====~~LIST CONTINUED ON NEXT PAGE~~=====

## QUESTION USE LIST

<u>ITEM</u>	<u>EB NUMBER</u>	<u>REVISION</u>	<u>DESCRIPTION</u>
23.	LO-OR-37002-04-01	13 05/25/92	EOP Usage - Continuous action steps
24.	LO-OR-29110-03-02	2 04/23/92	Determine pressure factor for Hydro
25.	LO-OR-11201-04-01	3 05/19/92	D/G normal stop after an SI.

=====

END OF QUESTION LIST



GEORGIA POWER COMPANY  
VOGTLE ELECTRIC GENERATING PLANT  
TRAINING DEPARTMENT  
EXAMINATION COVER SHEET

COURSE TITLE: Licensed Operator Requalification Annual Written Exam

COURSE / EXAM #: SR-925-92-03.AR

EXAMINER: RAY

DATE ADMINISTERED: Week of 6/22/92

APPROVED: Ray J. Brown

EXAM TYPE: CLASSROOM , SIMULATOR , BIENNIAL , OTHER

-----  
INSTRUCTIONS TO STUDENT:

USE SHEET PROVIDED FOR ANSWERS. STAPLE EXAMINATION COVER SHEET ON TOP OF THE ANSWER SHEET(S). IF NEEDED, THE INSTRUCTOR WILL PROVIDE ANY ADDITIONAL INSTRUCTIONS. POINTS FOR EACH QUESTION ARE INDICATED NEXT TO THE QUESTION. PASSING REQUIRES A FINAL GRADE OF AT LEAST 70% OVERALL.

\*\* PRINT NEATLY \*\*

\_\_\_\_\_  
NAME (Last, First, MI)

\_\_\_\_\_  
SOCIAL SECURITY #

\_\_\_\_\_  
DEPARTMENT

\_\_\_\_\_  
COMPANY

ALL WORK DONE ON THIS EXAM IS MY OWN. I HAVE NEITHER GIVEN NOR RECEIVED AID.

\_\_\_\_\_  
STUDENT SIGNATURE

-----  
TOTAL POINTS      POINTS MISSED      RAW SCORE      FINAL GRADE

\_\_\_\_\_  
25

\_\_\_\_\_  
%

GRADED BY: \_\_\_\_\_

REVIEWED BY: \_\_\_\_\_

C92-05-009

PLANT VOGTLE TRAINING DEPT.

M A S T E R   K E Y

F O R

EXAM: SR-925-92.03.AR

Total Points: 25.00

ASSEMBLED IN MANUAL MODE.

STATIC SIMULATOR - PART A 05  
SIMULATOR SETUP INSTRUCTIONS SS-05

INITIALIZE TO: IC 11; 50% power, BOL.

INSERT MALFUNCTIONS:

<u>NO.</u>	<u>NAME</u>	<u>ENTRY METHOD</u>
720	Pzr Relief Discharge High Temp	[1,720,ON]
41C	CL WR RTD Failure Low	[2,41C,27]
62A	PT-505 Fail Low	[3,62A,0]

INSERT OVERRIDES:

<u>NAME</u>	<u>ENTRY METHOD</u>
TI-463 to - 230°F	[1, TI463, ,53]
VCT level	[2, LI185, ,28]

SELECT THE FOLLOWING SWITCH POSITIONS:

<u>NUMBER</u>	<u>NAME</u>	<u>POSITION</u>
HS-8000H	TRAIN B COPS	ARMED
HS-456A	Pzr PORV 456A	CLOSED
HS-8000B	Pzr PORV 456A Block Valve	CLOSED

START THE SCENARIO

PERFORM THE FOLLOWING ACTIONS:

Start DG1A and load to 6300 kw and approx. 2000 kvar.  
Open BIT Discharge Valve (HS8801A).

FREEZE THE SIMULATOR AT:

8801A full open, charging line Hi/Lo Flow and RCP Seal Water  
Inj Lo Flow indicators lit.

STATIC SIMULATOR - PART A 05  
SIMULATOR SETUP INSTRUCTIONS FOR SS-05

VERIFY THE FOLLOWING CONDITIONS:

POWER: ~ 52%                      RODS: CBD - 84 steps      BORON: 2134 ppm  
PZR LVL: ~ 45%                      PZR PRESS: ~ 2235 psig      TAVE: ~ 570°F  
RCP STATUS: Running                      ECCE STATUS: Standby  
SG PRESS: ~ 1010 psig                      SG LVL: ~ 65%

OTHER CONDITIONS:

None

VERIFY THE FOLLOWING SWITCH POSITIONS:

Rod Bank Selector Switch (HS-40041) in MANUAL.  
DG1A Synch Mode Selector in MANUAL.  
DG1A Mode Selector in Droop.  
HS456A - PORV 456 in CLOSE.  
HS8000B - PORV 456 Block Valve in CLOSE.

SELECT THE FOLLOWING DISPLAYS:

ERF DISPLAY 1: Top level digital  
ERF DISPLAY 2: Top level digital  
ERF DISPLAY 3: Reactivity CSFST  
PROTEUS:                      RCS

STATIC SIMULATOR - PART A 05

INSTRUCTION TO EXAMINEES FOR SS-05

The reactor has been stable at approximately 50 percent power for five days.

DG1A is running according with the requirements of Technical Specification due to DG1B being declared inoperable 15 minutes ago. It was declared inoperable due to a miscalibration on the air start system resulting in the receivers being maintained at 200 psig. No actions have been taken to correct this problem yet.

The following equipment malfunctions have occurred:

- cold leg wide range temperature channel, TI-433 has failed.
- Turbine Impulse Pressure, PT-505, has failed.
- PORV 456 is leaking by its seat.

EXAM KEY  
1.A

=====

1.01 Q: If placed in auto the control rods would:

- a. move out at maximum rate.
- b. move in at maximum rate.
- c. not move due to the C-5 interlock.
- d. not move because the Tref and cold leg temperature failures offset each other.

A: B

R: LO-LP-27101-00, FSAR LOGIC 7.2.1-1,  
EB#: LO-SS-05000-01-01

Point Value: 1.00

=====

1.02 Q: With steam dump demand meter UI-500 reading as it is, why aren't the steam dumps open?

- a. Because Tave and Tref are matched.
- b. Because nothing has armed the steam dumps.
- c. Because C-9 is not present.
- d. The steam dumps should be open, they appear to be malfunctioning.

A: B

R: LO-LP-21201-00, FSAR LOGIC 7.2.1-1,  
EB#: LO-SS-05000-01-02

Point Value: 1.00

=====



EXAM KEY  
1.A

---

1.03 Q: If a loss of 1BY1B occurred, which of the following would be true?

- a. PORV 456 would open and stay open.
- b. If Train A COPS were armed, both PORVS would open and stay open.
- c. Neither PORV would open and stay open.
- d. PORV 456 would open and stay open until RCS pressure lowered to less than 2185 psig.

A: C

R: LO-LP-16501-00, ,,  
EB#: LO-SS-05000-01-04

Point Value: 1.00

---

EXAM KEY  
1.A

---

1.04 Q: If a SI occurred, which of the following would be correct regarding DG 1A operation?

- a. The DG would continue to run and carry the bus.
- b. The DG would continue to run, the output breaker would open and then reclose.
- c. The DG would stop, then would automatically start with an emergency start signal, and pick up loads.
- d. The DG would continue to run, but the output breaker would open and stay open.

A: D

R: LO-LP-28201-00, SSPS TECH MAN,  
EB#: LO-SS-05000-01-05

Point Value: 1.00

---

## EXAM KEY

1.A

=====

1.05 Q: For this question assume that block valve 8000B is leaking by.

Given this information and considering only the temperature indicated on TI-463, which of the following is correct?

- a. As long as RCS and PRT pressures remain constant, the indicated temperature should remain at the same value.
- b. If PRT pressure increased to 80 psig, indicated temperature should increase to 280F.
- c. If RCS pressure were lowered to 1400 psig, indicated temperature should increase to 250F.
- d. As long as RCS and PRT pressures remain constant, the indicated temperature should increase to offscale high.

A: A

R: LO-LP-16301-00, ASME STEAM TABLES,  
EB#: LO-SS-05000-01-06

Point Value: 1.00

=====

EXAM KEY  
1.A

1.06 Q: Assume HV-8801A could not be shut. Listed below are proposed methods to re-establish normal charging flow through the charging header. Which one will NOT accomplish this?

- a. Shutting HV-8438.
- b. Shutting the 'A' CCP discharge valve, (HV-8485A), and stopping 'A' CCP, then starting the 'B' CCP.
- c. Shutting FV-121, starting the PD pump, and then stopping CCP 'A'.
- d. Shutting HV-8485A and HV-8106, opening HV-8116, opening 1208-U6-152 as needed and throttling with HV-190A.

A: B

R: 1X4DB116-2,  
EB#: LO-SS-05000-01-07

Point Value: 1.00

1.07 Q: Calculate the amount of reactor makeup water required to be injected in order to raise power to 100%, with ARO. Ignore Xenon effects. (Assume DBW = 7.6 pcm/ppm)

- a. 0 to 500 gallons
- b. 500 to 1000 gallons
- c. 1000 to 1500 gallons
- d. Over 1500 gallons

A: A

R: LO-LP-33440-00, Plant Technical Dat,  
EB#: LO-SS-05000-01-10

Point Value: 1.00

EXAM KEY  
1.A

=====

1.08 Q: Which of the following is the status of the reactor trip breaker coils during the present plant conditions?

- a. UV coil is energized from 125vdc.  
Shunt trip coil is energized from 48vdc.  
Auto shunt relay is de-energized.
- b. UV coil is energized from 48vdc.  
Shunt trip coil is de-energized.  
Auto shunt relay is energized.
- c. UV coil is energized from 125vdc.  
Shunt trip coil is de-energized.  
Auto shunt relay is de-energized.
- d. UV coil is energized from 48vdc.  
Shunt trip coil is energized from 125vdc.  
Auto shunt relay is energized.

A: B

R: LO-LP-2E102-00,  
EB#: LO-SS-05000-01-12

Point Value: 1.00

=====

1.09 Q: If LT-185 failed high, how would VCT level control respond?  
(Assume no operator action)

- a. VCT high level alarm will sound but letdown will not divert until 2/2 high level signals are received.
- b. Letdown flow will immediately divert to the Recycle Holdup tank.
- c. Automatic makeup will stop.
- d. VCT level will control normally since LT-112 is still functioning properly.

A: B

R: LO-LP-09101-00,  
EB#: LO-SS-05000-01-13

Point Value: 1.00

=====

EXAM KEY  
1.A

=====

1.10 Q: NOTE: THIS QUESTION POSES A SITUATION THAT IS NOT RELATED TO THE  
CURRENT PLANT/CONTROL BOARD CONDITIONS!!!!!!

If RE-002, Containment Area radiation monitor were to fail high:

- a. CVI would actuate, and the containment atmosphere hydrogen monitor would isolate.
- b. CVI would NOT actuate, but the containment evacuation alarm would sound.
- c. CVI would actuate, and any open containment purge valves would close.
- d. CVI would NOT actuate, but ALB05-B3 and C3, the intermediate and high radiation alarm annunciators would alarm.

A: C

R: P&IDS,  
EB#: LO-SS-98000-01-02

Point Value: 1.00

=====



## EXAM KEY

1.A

=====

1.11 Q: THIS QUESTION IS INDEPENDENT OF CURRENT PLANT CONDITIONS!!!

Assume the control room was evacuated due to a large fire. The only action performed by the operators prior to leaving the control room was to manually trip the reactor. Select the flow path used to maintain pressurizer level under these conditions using "B" Centrifugal Charging Pump, from the pump discharge to the Reactor Coolant System, if instrument air is not available.

- a. CCP discharge is throttled through HV-8485B, and directed through the normal charging header to loop 1 cold leg.
- b. CCP discharge is throttled through HV-8485B, and directed through the High Head Safety Injection line to all 4 cold legs.
- c. CCP discharge is throttled through HV-190B, and directed through the High Head Safety Injection Line to all 4 cold legs.
- d. CCP discharge is directed to the High Head Safety Injection line, throttled through HV-8801B, and sent to all 4 cold legs.

A: C

R: 18038-1,R10,PG. 54,  
EB#: LO-SS-98000-01-05

Point Value: 1.00

=====

EXAM KEY  
1.A

=====

1.12 Q: THIS QUESTION IS INDEPENDENT OF CURRENT PLANT CONDITIONS!!!

The plant is at 100% power when both MFP's trip. Which statement below correctly describes the automatic plant response to this failure?

- a. An AMSAC actuation would immediately be generated, which would cause a turbine trip, which would cause a reactor trip.
- b. A turbine trip signal is immediately generated, which trips the reactor, AMSAC never actuates because it senses the turbine trip signal.
- c. The reactor trips on LO-LO S/G levels, which trips the turbine. AMSAC actuates after a short time delay (less than a minute)
- d. The reactor trips on LO-LO S/G levels, which trips the turbine. AMSAC actuates after a long time delay (about 4 minutes)

A: C

R: AMSAC TECH MANUAL, LOGICS  
EB#: LO-SS-98000-01-50

Point Value: 1.00

=====

END OF SECTION KEY

STATIC SIMULATOR - PART A SS-21  
SIMULATOR SETUP INSTRUCTIONS FOR SS-21

INITIALISE TO: IC-6, 4 $\frac{1}{2}$  Power, BOL.

INSERT MALFUNCTIONS:

<u>NO.</u>	<u>NAME</u>	<u>ENTRY METHOD</u>
14	RTB 'B' fails closed	[1, 14]
91	SLB IRC	[2, 91, 10]
132	Loss of 1AA02	[3, 132A, after SI]

INSERT OVERRIDES:

<u>NAME</u>	<u>ENTRY METHOD</u>
None	

SELECT THE FOLLOWING SWITCH POSITIONS:

<u>NUMBER</u>	<u>NAME</u>	<u>POSITION</u>
HS-40001A	VCT Mode Select	MAN

START THE SCENARIO

PERFORM THE FOLLOWING ACTIONS:

Emer. Trip 'A' D/G after the Loss of 1AA02 is inserted.

FREEZE THE SIMULATOR AT:

After tripping the 'A' D/G, (ensure that SLI has not occurred).

STATIC SIMULATOR - PART A SS-21

SIMULATOR SETUP INSTRUCTIONS FOR SS-21

VERIFY THE FOLLOWING CONDITIONS:

POWER: ~ E-7                      ROD POSITION: ARI                      BORON: N/A  
PZR LVL: ~ 0%                      PZR PRESS: ~ 2000 psig                      TAVE: ~ 540°F  
RCP STATUS: All Running                      ECCS STATUS: Injecting  
SG PRESS: ~ 900 psig                      SG LVL: ~ 65 to 70% NR

OTHER CONDITIONS:

ALB-09 D06 de-energized. If not enter the malfunction number to over-ride it off.

VERIFY THE FOLLOWING SWITCH POSITIONS:

HS-40001A in MAN.

SELECT THE FOLLOWING DISPLAYS:

ERF DISPLAY 1: Top Level Digital  
ERF DISPLAY 2: PRZR & PRT  
ERF DISPLAY 3: Reactivity CSFST  
PROTEUS: Reactor Coolant Pumps

STATIC SIMULATOR - PART A SS-21  
INSTRUCTION TO EXAMINEES FOR SS-21

Operators were performing a reactor startup during BOL conditions, boron concentration was 2215 ppm. Reactor Power was stable at 4% when the following events occurred:

A steam line break occurred inside containment on #3 S/G. As a result, the reactor tripped and safety injection occurred. During the shedding of the stub busses, a fault occurred on 1AA02.

EXAM KEY  
R1.A

---

2.01 Q: How did the 'B' reactor trip breaker failing to open affect the operation of the steam dumps?

- a. The steam dumps did not shift to the Plant Trip Controller.
- b. The steam dumps would control Tave at Tref plus two degrees F.
- c. All 12 steam dumps opened on the Load Reject Controller trip open bistables, and were shut by the P-12 interlock.
- d. Steam dump operation was not affected due to the current system alignment.

A: D

R: LO-LP-21201-00, FSAR Logic Diagram,  
EB#: LO-SS-21000-01-01

Point Value: 1.00

---



EXAM KEY  
R1.A

---

2.02 Q: If both trains of COPs were armed, which of the following would be true?

- a. PORV 455A would open if RCS pressure increased to greater than 2335 psig.
- b. PORV 456A would open if RCS pressure increased to greater than 2335 psig.
- c. PORV 455A would open because pressure is greater than the COPs setpoint.
- d. PORV 456A would open because pressure is greater than the COPs setpoint.

A: B

R: LO-LP-01001-00, Drawing 1X3D-AA-F24,  
EB#: LO-SS-21000-01-02

Point Value: 1.00

---

2.03 Q: Which signal most likely caused the reactor trip?

- a. Low Steamline Pressure SI.
- b. CNTMT HI-1, SI.
- c. Low pressurizer pressure trip.
- d. #3 S/G hi-hi level.

A: B

R: LO-SE-60407-00, Tech Spec 2.2.2, LS,  
EB#: LO-SS-21000-01-03

Point Value: 1.00

---

KEY CONTINUED ON NEXT PAGE

EXAM KEY  
R1.A

---

2.04 Q: Following the reactor trip, the reactor operator noted that the rod bank lo and lo-lo limit annunciators were not illuminated, even though the rods were below the 0% power limit of bank B @ 161 steps.

Which of the following is correct?

- a. There is something wrong with the annunciators, they should be illuminated.
- b. The annunciators will not illuminate until the bank overlap unit is locally reset.
- c. The RIL computer still sees the rods at their pre-trip height.
- d. Due to the steam leak, actual delta T is increased, therefore the setpoint has gone down below the normal values.

A: C

R: LO-LP-27102-00, Drawing 2X6AT01-573,  
EB#: LO-SS-21000-01-05

Point Value: 1.00

---

EXAM KEY  
R1.A

---

2.05 Q: Which of the following is true?

If the VCT M/U selector switch were taken to start right now:

- a. Demin water would be delivered to the VCT through FV-111A.
- b. A blended flow would be delivered to the VCT through FV-110A and FV-111A.
- c. Boric acid would be delivered to the VCT through 110A.
- d. No demin water or boric acid would be delivered to the VCT.

A: D

R: LO-LP-09401-00,  
EB#: LO-SS-21000-01-07

Point Value: 1.00

---

EXAM KEY  
R1.A

---

2.06 Q: Which of the following is true regarding the CR HVAC system?

- a. CRI was actuated upon receipt of the CVI. As a result of the loss of power, the B train ESF CR HVAC unit started 30 seconds after the CVI.
- b. CRI was actuated by the SI. As a result of the loss of power, the B train ESF CR HVAC unit started 30 seconds after the SI.
- c. CRI was actuated by the UV sequencer. The B train ESF CR HVAC unit started 30 seconds after the loss of power occurred.
- d. CRI was actuated by the SI. The response of the B train ESF CR HVAC was not altered due to the loss of power.

A: D

R: 13301-C, O,  
ER#: LO-SS-21000-01-08

Point Value: 1.00

---

EXAM KEY  
R1.A

---

2.07 Q: Assume that before the present transient occurred, the normal letdown flowpath had been isolated due to LV-460 failing closed, and excess letdown had been placed in service to the seal return header.

Which of the following would be true regarding this lineup?

- a. Excess L/D would still be in service, and would have automatically re-align to the RCDT since HV-8143 fails to the RCDT when HV-8100 or HV-8112 are shut.
- b. Excess L/D flowpath would not have been affected by the CIA, but flowrate would have decreased due to lower RCS pressure.
- c. Excess L/D isolation valves would have been automatically isolated inside containment directly by the CIA.
- d. Excess L/D isolation valves would not have been affected directly by the CIA, but the loss of Instrument Air to containment would cause the valves to fail closed.

A: D

R: 1X4DB114,  
EB#: LO-SS-21000-01-11

Point Value: 1.00

---



EXAM KEY  
R1.A

2.08 Q: If steam pressure was falling at a rate of 150#/sec in #3 SG, and continued to fall at that rate, which one of the following would be true?

- a. All steam lines would isolate on high steam line pressure rate SLI.
- b. Only #3 steam line would isolate on high steam line pressure rate SLI.
- c. Only #3 steam line would isolate on low steam line pressure SI/SLI.
- d. All steam lines would isolate on low steam line pressure SI/SLI.

A: D

R: LOGICS,  
EB#: LO-SS-21000-01-12

Point Value: 1.00

2.09 Q: If power had been lost to 1BA03 instead of 1AA02, which of the following would be true?

- a. To stop feed flow from the MDAFW pumps to the faulted SG would require a PEO to locally close the flow control valve, because of a loss of power to 1BBB.
- b. ALB-10 C05 and D05 would NOT annunciate, because DRPI is powered from B Train.
- c. ACCW would still be supplying cooling water to the RCPs.
- d. The TDAFW pump would NOT have auto started.

A: C

R: ONE LINES,  
EB#: LO-SS-21000-01-13

Point Value: 1.00



EXAM KEY  
R1.A

=====

2.10 Q: Assuming no operator actions are taken, which of the following is true?

- a. When the MS lines isolate, the steam pressure in #3 SG will continue to lower, but the other SGs will stabilize and remain constant at the pressure at which they were isolated.
- b. The RCPs will be damaged due to high temperatures.
- c. As #3 SG pressure lowers, AFW flow to that SG will increase. This will result in SG #3 steam flow rate increasing from that presently indicated.
- d. It will not be possible to reset either train of SI until the B reactor trip breaker is opened.

A: B

R: P&IDS, 13003-1,  
FB#: LO-SS-21000-01-14

Point Value: 1.00

=====

2.11 Q: THIS QUESTION IS INDEPENDENT OF CURRENT PLANT CONDITIONS!!!

Which of the following valve positions is INCORRECT for an AUTO makeup to the VCT?

- a. FV-110A, Boric acid flow control valve, MODULATED OPEN.
- b. FV-110B, Blender to CCP suction valve, OPEN.
- c. FV-111A, Total makeup flow control valve, MODULATED OPEN.
- d. FV-111B, Blender to VCT discharge valve, OPEN.

A: D

R: 13009-1,R6,PG. 3, 1X4DB116,  
EB#: LO-ES-98000-01-10

Point Value: 1.00

=====

EXAM KEY  
R1.A

=====

2.12 Q: THIS QUESTION IS INDEPENDENT OF CURRENT PLANT CONDITIONS!!!

Unit 1 is operating at 320 degrees F and 365 psig with RHR in service, when a slow pressure transient occurs. Which of the following will be the first automatic action to terminate the increasing pressure transient?

- a. Pressurizer heaters deenergize.
- b. Pressurizer spray valves open.
- c. RHR suction reliefs lift.
- d. COPS actuation.

A: C

R: 1X4DB121, 13011-1,R16,PG. 2, T.S. 3.4.9.3  
EB#: LO-SS-98000-01-30

Point Value: 1.00

=====

2.13 Q: THIS QUESTION IS INDEPENDENT OF CURRENT PLANT CONDITIONS!!!

Which of the following most completely describes what causes natural circulation to occur?

- a. A density difference existing in system fluid at the start of NC flow, and steam generator level being maintained greater than 50%.
- b. The heat sink located above the heat source, and the existence of a density difference in the system fluid.
- c. The heat source located above the heat sink, and PZR level being maintained greater than 50%.
- d. A combination of locating the heat sink above the heat source to create a density difference in the fluid, and also ensuring PZR level is maintained above 50% during NC.

A: B

R: WOG BACKGRND DOC., T&AA/MCD, HTFF  
EB#: LO-SS-98000-01-61

Point Value: 1.00

=====

END OF SESTIEYKEY

EXAM PULLED FOR CCR FILING

SUPV: \_\_\_\_\_

DATE: \_\_\_\_\_

PLANT VOGTLE TRAINING DEPT.

QUESTION USE LIST for EXAM: SR-925-92-03.AR

Total Points: 25.00

FILE NO: C92-05-009

Page 1

Assembled by LEON RAY on 06/05/92 in MANUAL mode.

<u>ITEM</u>	<u>EB NUMBER</u>	<u>REVISION</u>	<u>DESCRIPTION</u>
1.01	LO-SS-05000-01-01	10 05/18/92	Determination of cause and effect
1.02	LO-SS-05000-01-02	14 05/18/92	Analysis of Plant Conditions
1.03	LO-SS-05000-01-04	13 01/18/92	Assessment of Plant Conditions
1.04	LO-SS-05000-01-05	10 01/18/92	Determination of Plant Status
1.05	LO-SS-05000-01-06	14 05/18/92	Analysis of Plant Conditions
1.06	LO-SS-05000-01-07	14 05/18/92	CVCS lineups
1.07	LO-SS-05000-01-10	14 05/18/92	Dilution Calculation
1.08	LO-SS-05000-01-12	6 01/15/92	RTB status when at power
1.09	LO-SS-05000-01-13	6 05/18/92	VCT M/U response to failed 185.
1.10	LO-SS-98000-01-02	5 05/18/92	High Rad effects on CVI
1.11	LO-SS-98000-01-05	15 03/03/92	Describe CVCS flowpath when operati
1.12	LO-SS-98000-01-50	13 03/05/92	Describe how AMSAC reacts to a loss

=====  
END OF SECTION

## PLANT VOGTLE TRAINING DEPT.

QUESTION USE LIST for EXAM: SR-925-92-03.AR

Total Points: 25.00

FILE NO: C92-05-009

Page 1

Assembled by LEON RAY on 06/05/92 in MANUAL mode.

<u>ITEM</u>	<u>EB NUMBER</u>	<u>REVISION</u>	<u>DESCRIPTION</u>
2.01	LO-SS-21000-01-01	8 03/02/92	Knowledge of system operating modes
2.02	LO-SS-21000-01-02	11 03/02/92	COPs
2.03	LO-SS-21000-01-03	11 06/04/92	SSPS operation
2.04	LO-SS-21000-01-05	8 03/02/92	Operation of P/A converter
2.05	LO-SS-21000-01-07	6 03/02/92	VCT M/U controls
2.06	LO-SS-21000-01-08	7 03/02/92	CR HVAC response to a SI
2.07	LO-SS-21000-01-11	9 03/02/92	Excess letdown flowpath post SI
2.08	LO-SS-21000-01-12	5 06/05/92	SLI response to SG depressurization
2.09	LO-SS-21000-01-13	5 03/02/92	Event diagnosis
2.10	LO-SS-21000-01-14	8 06/04/92	Loss of ACCW effects on the RCPs
2.11	LO-SS-98000-01-10	15 03/03/92	RMCS Flowpaths for Auto Makeup
2.12	LO-SS-98000-01-30	13 03/03/92	Low temperature overpressure protec
2.13	LO-SS-98000-01-61	15 02/17/92	Causes of Natural circulation

=====  
END OF SECTION

END OF QUESTION LIST

GEORGIA POWER COMPANY  
VOGTLE ELECTRIC GENERATING PLANT  
TRAINING DEPARTMENT  
EXAMINATION COVER SHEET

COURSE TITLE: Licensed Operator Requalification Annual Written Exam

COURSE / EXAM #: SR-925-92-03.AS

EXAMINER: RAY

DATE ADMINISTERED: Week of 6/22/92

APPROVED: *Raymond J. Barry*

EXAM TYPE: CLASSROOM , SIMULATOR , BIENNIAL , OTHER

INSTRUCTIONS TO STUDENT:

USE SHEET PROVIDED FOR ANSWERS. STAPLE EXAMINATION COVER SHEET ON TOP OF THE ANSWER SHEET(S). IF NEEDED, THE INSTRUCTOR WILL PROVIDE ANY ADDITIONAL INSTRUCTIONS. POINTS FOR EACH QUESTION ARE INDICATED NEXT TO THE QUESTION. PASSING REQUIRES A FINAL GRADE OF AT LEAST 70% OVERALL.

\*\* PRINT NEATLY \*\*

NAME (Last, First, MI)

SOCIAL SECURITY #

DEPARTMENT

COMPANY

ALL WORK DONE ON THIS EXAM IS MY OWN. I HAVE NEITHER GIVEN NOR RECEIVED AID.

STUDENT SIGNATURE

TOTAL POINTS	POINTS MISSED	RAW SCORE	FINAL GRADE
25			%

GRADED BY: \_\_\_\_\_

REVIEWED BY: \_\_\_\_\_



C92-05-008

PLANT VOGTLE TRAINING DEPT.

M A S T E R   K E Y

F O R

EXAM: SR-925-92-03.AS

Total Points: 25.00

ASSEMBLED IN MANUAL MODE.



STATIC SIMULATOR - PART A 05  
SIMULATOR SETUP INSTRUCTIONS 88-05

INITIALIZE TO: IC 11; 50% power, BOL.

INSERT MALFUNCTIONS:

<u>NO.</u>	<u>NAME</u>	<u>ENTRY METHOD</u>
720	Pzr Relief Discharge High Temp	[1,720,ON]
41C	CL WR RTD Failure Low	[2,41C,27]
62A	PT-505 Fail Low	[3,62A,0]

INSERT OVERRIDES:

<u>NAME</u>	<u>ENTRY METHOD</u>
TI-463 to - 230°F	[1,TI463,,53]
VCT level	[2,LI,,28]

SELECT THE FOLLOWING SWITCH POSITIONS:

<u>NUMBER</u>	<u>NAME</u>	<u>POSITION</u>
HS-8000H	TRAIN B COPS	ARMED
HS-456A	Pzr PORV 456A	CLOSED
HS-8000B	Pzr PORV 456A Block Valve	CLOSED

START THE SCENARIO

PERFORM THE FOLLOWING ACTIONS:

Start DG1A and load to 6300 kw and approx. 2000 kvar.

Open BIT Discharge Valve (HS8801A).

FREEZE THE SIMULATOR AT:

8801A full open, charging line Hi/Lo Flow and RCP Seal Water  
Inj Lo Flow annunciators lit.

STATIC SIMULATOR - PART A 05  
SIMULATOR SETUP INSTRUCTIONS FOR SS-05

VERIFY THE FOLLOWING CONDITIONS:

POWER: ~ 52%                      RODS: CBD - 84 steps      BORON: 2134 ppm  
PZR LVL: ~ 45%                    PZR PRESS: ~ 2235 psig      TAVE: ~ 570°F  
RCP STATUS: Running              ECCS STATUS: Standby  
SG PRESS: ~ 1010 psig            SG LVL: ~ 65%

OTHER CONDITIONS:

None

VERIFY THE FOLLOWING SWITCH POSITIONS:

Rod Bank Selector Switch (HS-40041) in MANUAL.  
DG1A Synch Mode Selector in MANUAL.  
DG1A Mode Selector in Droop.  
HS456A - PORV 456 in CLOSE.  
HS8000B - PORV 456 Block Valve in CLOSE.

SELECT THE FOLLOWING DISPLAYS:

ERF DISPLAY 1: Top level digital  
ERF DISPLAY 2: Top level digital  
ERF DISPLAY 3: Reactivity CSFST  
PROTEUS:                      RCS

STATIC SIMULATOR - PART A 05

INSTRUCTION TO EXAMINEES FOR SS-05

The reactor has been stable at approximately 50 percent power for five days.

DG1A is running accordi- with the requirements of Technical Specification due to DG1B being declared inoperable 15 minutes ago. It was declared inoperable due to a miscalibration on the air start system resulting in the receivers being maintained at 200 psig. No actions have been taken to correct this problem yet.

The following equipment malfunctions have occurred:

- Cold leg wide range temperature channel, TI-433 has failed.
- Turbine Impulse Pressure, PT-505, has failed.
- PORV 456 is leaking by its seat.

EXAM KEY  
S1.A

=====

1.01 Q: If placed in auto the control rods would:

- a. move out at maximum rate.
- b. move in at maximum rate.
- c. not move due to the C-5 interlock.
- d. not move because the Tref and cold leg temperature failures offset each other.

A: B

R: LO-LP-27101-00, FSAR LOGIC 7.2.1-1,  
EB#: LO-SS-05000-01-01

Point Value: 1.00

=====

1.02 Q: With steam dump demand meter UI-500 reading as it is, why aren't the steam dumps open?

- a. Because Tave and Tref are matched.
- b. Because nothing has armed the steam dumps.
- c. Because C-9 is not present.
- d. The steam dumps should be open, they appear to be malfunctioning.

A: B

R: LO-LP-21201-00, FSAR LOGIC 7.2.1-1,  
EB#: LO-SS-05000-01-02

Point Value: 1.00

=====

EXAM KEY  
S1.A

=====

1.03 Q: If a loss of 1BY1B occurred, which of the following would be true?

- a. PORV 456 would open and stay open.
- b. If Train A COPS were armed, both PORVS would open and stay open.
- c. Neither PORV would open and stay open.
- d. PORV 456 would open and stay open until RCS pressure lowered to less than 2185 psig.

A: C

R: LO-LP-16501-00, , ,  
EB#: LO-SS-05000-01-04

Point Value: 1.00

=====

EXAM KEY  
S1.A

=====

1.04 Q: If a SI occurred, which of the following would be correct regarding DG 1A operation?

- a. The DG would continue to run and carry the bus.
- b. The DG would continue to run, the output breaker would open and then reclose.
- c. The DG would stop, then would automatically start with an emergency start signal, and pick up loads.
- d. The DG would continue to run, but the output breaker would open and stay open.

A: D

R: LO-LP-28201-00, SSPS TECH MAN,  
EB#: LO-SS-05000-01-05

Point Value: 1.00

=====



## EXAM KEY

S1.A

=====

1.05 Q: For this question assume that block valve 8000B is leaking by.

Given this information and considering only the temperature indicated on TI-463, which of the following is correct?

- a. As long as RCS and PRT pressures remain constant, the indicated temperature should remain at the same value.
- b. If PRT pressure increased to 80 psig, indicated temperature should increase to 280F.
- c. If RCS pressure were lowered to 1400 psig, indicated temperature should increase to 250F.
- d. As long as RCS and PRT pressures remain constant, the indicated temperature should increase to offscale high.

A: A

R: LO-LP-16301-00, ASME STEAM TABLES,  
EB#: LO-SS-05000-01-06

Point Value: 1.00

=====

EXAM KEY  
S1.A

---

1.06 Q: Assume HV-8801A could not be shut. Listed below are proposed methods to re-establish normal charging flow through the charging header. Which one will NOT accomplish this?

- a. Shutting HV-8438.
- b. Shutting the 'A' CCP discharge valve, (HV-8485A), and stopping 'A' CCP, then starting the 'B' CCP.
- c. Shutting FV-121, starting the PD pump, and then stopping CCP 'A'.
- d. Shutting HV-8485A and HV-8106, opening HV-8116, opening 1208-U6-152 as needed and throttling with HV-190A.

A: B

R: 1X4DB116-2,  
EB#: LO-SS-05000-01-07

Point Value: 1.00

---

1.07 Q: SRO ONLY  
With DG1B inoperable per Tech Specs, which of the following is true?

- a. The 'A' DG needs to complete its surveillance run within 1 hour.
- b. The TDAFW pump must be run within 2 hours.
- c. An offsite source verification needs to be done within 45 minutes.
- d. 'A' CCP needs to be verified operable within 24 hours.

A: C

R: LO-LP-39212-00, TECH SPEC 3.8.1.1,  
EB#: LO-SS-05000-01-08

Point Value: 1.00

---

KEY CONTINUED ON NEXT PAGE

EXAM KEY  
S1.A

=====

1.08 Q: NOTE: THIS QUESTION IS NOT RELATED TO CURRENT PLANT CONDITIONS!!

An automatic reactor trip occurred following a spurious turbine trip. The crew stabilized the plant and transitioned to 19001. The crew has noted the indication for rods D2 and D4 is 228 steps, the current ARO position. Assuming an RCS boron concentration of 1000 ppm and a Boric Acid Storage Tank concentration of 7000 ppm, which one of the following amounts of boric acid must be added to the RCS to compensate for the stuck rods.

- a. 0 gallons
- b. 1910 gallons
- c. 230 gallons
- d. 2400 gallons.

A: d

R: LO-LP-33440, PTDB,  
EB#: LO-SS-06000-01-18

Point Value: 1.00

=====

EXAM KEY  
S1.A

=====

1.09 Q: Which of the following is the status of the reactor trip breaker coils during the present plant conditions?

- a. UV coil is energized from 125vdc.  
Shunt trip coil is energized from 48vdc.  
Auto shunt relay is de-energized.
- b. UV coil is energized from 48vdc.  
Shunt trip coil is de-energized.  
Auto shunt relay is energized.
- c. UV coil is energized from 125vdc.  
Shunt trip coil is de-energized.  
Auto shunt relay is de-energized.
- d. UV coil is energized from 48vdc.  
Shunt trip coil is energized from 125vdc.  
Auto shunt relay is energized.

A: B

R: LO-LP-28102-00,  
LO-SS-05000-01-12

Point Value: 1.00

=====

EXAM KEY  
S1 A

1.10 Q: THIS QUESTION IS INDEPENDENT OF CURRENT PLANT CONDITIONS!!!

Assume the control room was evacuated due to a large fire. The only action performed by the operators prior to leaving the control room was to manually trip the reactor. Select the flow path used to maintain pressurizer level under these conditions using "B" Centrifugal Charging Pump, from the pump discharge to the Reactor Coolant System, if instrument air is not available.

- a. CCP discharge is throttled through HV-8485B, and directed through the normal charging header to loop 1 cold leg.
- b. CCP discharge is throttled through HV-8485B, and directed through the High Head Safety Injection line to all 4 cold legs.
- c. CCP discharge is throttled through HV-190B, and directed through the High Head Safety Injection Line to all 4 cold legs.
- d. CCP discharge is directed to the High Head Safety Injection line, throttled through HV-8801B, and sent to all 4 cold legs.

A: C

R: 18038-1,R10,PG. 54,  
EB#: LO-S3-98000-01-05

Point Value: 1.00

EXAM KEY  
S1.A

-----  
1.11 Q: NOTE: THIS QUESTION POSES A SITUATION THAT IS NOT RELATED TO THE  
CURRENT PLANT/CONTROL BOARD CONDITIONS!!!!!!

If RE-002, Containment Area radiation monitor, were to fail high:

- a. CVI would actuate, and the containment atmosphere hydrogen monitor would isolate.
- b. CVI would NOT actuate, but the containment evacuation alarm would sound.
- c. CVI would actuate, and any open containment purge valves would close.
- d. CVI would NOT actuate, but ALB05-B3 and C3, the intermediate and high radiation alarm annunciators would alarm.

A: C

R: P&IDS,  
EB#: LO-SS-98000-01-02

Point Value: 1.00  
-----



EXAM KEY  
S1.A

---

1.12 Q: THIS QUESTION DOES NOT RELATE TO THE CURRENT PLANT CONDITIONS!!!

Which of the following would NOT require suspension of Refueling Operations?

- a. Both the inside and outside containment isolation valves are opened to allow trouble shooting of an intact Containment H2 Monitor.
- b. With both RHR trains operable and RHR Train A in service, vessel level is inadvertently lowered to 22.5 feet above the vessel flange.
- c. The Input Error Inhibit switches on both trains of SSPS are positioned to INHIBIT.
- d. Power is removed from AY1A.

A: A

R: T.S. CLARIFICATIONS,  
EB#: LO-SS-92000-01-04

Point Value: 1.00

---

END OF SECTION KEY

STATIC SIMULATOR - PART A SS-21  
SIMULATOR SETUP INSTRUCTIONS FOR SS-21

INITIALIZE TO: IC-6, 4 $\frac{1}{2}$  Power, BOL.

INSERT MALFUNCTIONS:

<u>NO.</u>	<u>NAME</u>	<u>ENTRY METHOD</u>
14	RTB 'B' fails closed	[1, 14]
91	SLB IRC	[2, 91, 10]
132	Loss of 1AA02	[3, 132A, after SI]

INSERT OVERRIDES:

<u>NAME</u>	<u>ENTRY METHOD</u>
None	

SELECT THE FOLLOWING SWITCH POSITIONS:

<u>NUMBER</u>	<u>NAME</u>	<u>POSITION</u>
HS-40001A	VCT Mode Select	MAN

START THE SCENARIO

PERFORM THE FOLLOWING ACTIONS:

Emer. Trip 'A' D/G after the Loss of 1AA02 is inserted.

FREEZE THE SIMULATOR AT:

After tripping the 'A' D/G, (ensure that SLI has not occurred).

STATIC SIMULATOR - PART A SS-21

SIMULATOR SETUP INSTRUCTIONS FOR SS-21

VERIFY THE FOLLOWING CONDITIONS:

POWER: ~ E-7            ROD POSITION: ARI            BORON: N/A  
PZR LVL: ~ 0%            PZR PRESS: ~ 2000 psig    TAVE: ~ 540°F  
RCP STATUS: All Running    FCCS STATUS: Injecting  
SG PRESS: ~ 900 psig        SG LVL: ~ 65 to 70% NR

OTHER CONDITIONS:

ALB-09 D06 de-energized. If not, enter the malfunction number to over-ride it off.

VERIFY THE FOLLOWING SWITCH POSITIONS:

HS-40001A in MAN.

SELECT THE FOLLOWING DISPLAYS:

ERF DISPLAY 1: Top Level Digital  
ERF DISPLAY 2: PRZR & PRT  
ERF DISPLAY 3: Reactivity CSFST  
PROTEUS:            Reactor Coolant Pumps

STATIC SIMULATOR - PART A SS-21

INSTRUCTION TO EXAMINEES FOR SS-21

Operators were performing a reactor startup during BOL conditions, boron concentration was 2215 ppm. Reactor Power was stable at 4% when the following events occurred:

A steam line break occurred inside containment on #3 S/G. As a result, the reactor tripped and safety injection occurred. During the shedding of the stub busses, a fault occurred on 1AA02.

EXAM KEY  
S1.A

=====

2.01 Q: How did the 'B' reactor trip breaker failing to open affect the operation of the steam dumps?

- a. The steam dumps did not shift to the Plant Trip Controller.
- b. The steam dumps would control Tave at Tref plus two degrees F.
- c. All 12 steam dumps opened on the Load Reject Controller trip open L1stables, and were shut by the P-12 interlock.
- d. Steam dump operation was not affected due to the current system alignment.

A: D

R: LO-LP-21201-00, FSAR Logic Diagram,  
EB#: LO-SS-21000-01-01

Point Value: 1.00

=====

EXAM KEY  
S1.A

2.02 Q: If both trains of COPS were armed, which of the following would be true?

- a. PORV 455A would open if RCS pressure increased to greater than 2335 psig.
- b. PORV 456A would open if RCS pressure increased to greater than 2335 psig.
- c. PORV 455A would open because pressure is greater than the COPS setpoint.
- d. PORV 456A would open because pressure is greater than the COPS setpoint.

A: B

R: LO-LP-01001-00, Drawing 1X3D-AA-F24,  
EB#: LO-SS-21000-01-02

Point Value: 1.00

2.03 Q: Which signal most likely caused the reactor trip?

- a. Low Steamline Pressure SI.
- b. CNTMT HI-1, SI.
- c. Low pressurizer pressure trip.
- d. #3 S/G hi-hi level.

A: B

R: LO-SE-60407-00, Tech Spec 2.2.2, LS,  
EB#: LO-SS-21000-01-03

Point Value: 1.00

KEY CONTINUED ON NEXT PAGE



EXAM KEY  
S1.A

---

2.04 Q: Following the reactor trip, the reactor operator noted that the rod bank lo and lo-lo limit annunciators were not illuminated, even though the rods were below the 0% power limit of bank B @ 161 steps.

Which of the following is correct?

- a. There is something wrong with the annunciators, they should be illuminated.
- b. The annunciators will not illuminate until the bank overlap unit is locally reset.
- c. The RIL computer still sees the rods at their pre-trip height.
- d. Due to the steam leak, actual delta T is increased, therefore the setpoint has gone down below the normal values.

A: C

R: LO-LP-27102-00, Drawing 2X6AT01-573,  
EB#: LO-SS-21000-01-05

Point Value: 1.00

---

EXAM KEY  
S1.A

---

2.05 Q. Which of the following is true?

If the VCT M/U selector switch were taken to start right now:

- a. Demin water would be delivered to the VCT through FV-111A.
- b. A blended flow would be delivered to the VCT through FV-110A and FV-111A.
- c. Boric acid would be delivered to the VCT through 110A.
- d. No demin water or boric acid would be delivered to the VCT.

A: D

R: LO-LP-09401-00,  
EB#: LO-SS-21000-01-07

Point Value: 1.00

---

EXAM KEY  
S1.A

---

2.06 Q: Which of the following is true regarding the CR HVAC system?

- a. CRI was actuated upon receipt of the CVI. As a result of the loss of power, the B train ESF CR HVAC unit started 30 seconds after the CVI.
- b. CRI was actuated by the SI. As a result of the loss of power, the B train ESF CR HVAC unit started 30 seconds after the SI.
- c. CRI was actuated by the UV sequencer. The B train ESF CR HVAC unit started 30 seconds after the loss of power occurred.
- d. CRI was actuated by the SI. The response of the B train ESF CR HVAC was not altered due to the loss of power.

A: D

R: 13301-C, O,  
EB#: LO-SS-21000-01-08

Point Value: 1.00

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EXAM KEY  
S1.A

---

2.07 Q: Assume that before the present transient occurred, the normal letdown flowpath had been isolated due to LV-460 failing closed, and excess letdown had been placed in service to the seal return header.

Which of the following would be true regarding this lineup?

- a. Excess L/D would still be in service, and would have automatically re-align to the RCDT since HV-8143 fails to the RCDT when HV-8100 or HV-8112 are shut.
- b. Excess L/D flowpath would not have been affected by the CIA, but flowrate would have decreased due to lower RCS pressure.
- c. Excess L/D isolation valves would have been automatically isolated inside containment directly by the CIA.
- d. Excess L/D isolation valves would not have been affected directly by the CIA, but the loss of Instrument Air to containment would cause the valves to fail closed.

A: D

R: 1X4DB114,  
EB#: LO-SS-21000-01-11

Point Value: 1.00

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EXAM KEY  
S1.A

2.08 Q: If steam pressure was falling at a rate of 150#/sec in #3 SG, and continued to fall at that rate, which one of the following would be true?

- a. All steam lines would isolate on high steam line pressure rate SLI.
- b. Only #3 steam line would isolate on high steam line pressure rate SLI.
- c. Only #3 steam line would isolate on low steam line pressure SI/SLI.
- d. All steam lines would isolate on low steam line pressure SI/SLI.

A: D

R: LOGICS,  
EB#: LO-SS-21000-01-12

Point Value: 1.00

2.09 Q: If power had been lost to 1BA03 instead of 1AA02, which of the following would be true?

- a. To stop feed flow from the MDAFW pumps to the faulted SG would require a PEO to locally close the flow control valve, because of a loss of power to 1BBB.
- b. ALB-10 C05 and D05 would NOT annunciate, because DRPI is powered from B Train.
- c. ACCW would still be supplying cooling water to the RCPs.
- d. The TD/FW pump would NOT have auto started.

A: C

R: ONE LINES,  
EB#: LO-SS-21000-01-13

Point Value: 1.00

EXAM KEY  
S1.A

=====

2.10 Q: Assuming no operator actions are taken, which of the following is true?

- a. When the MS lines isolate, the steam pressure in #3 SG will continue to lower, but the other SGs will stabilize and remain constant at the pressure at which they were isolated.
- b. The RCPs will be damaged due to high temperatures.
- c. As #3 SG pressure lowers, AFW flow to that SG will increase. This will result in SG #3 steam flow rate increasing from that presently indicated.
- d. It will not be possible to reset either train of SI until the B reactor trip breaker is opened.

A: B

R: P&IDS, 13003-1,  
EB#: LO-SS-21000-01-14

Point Value: 1.00

=====

2.11 Q: THIS QUESTION IS INDEPENDENT OF CURRENT PLANT CONDITIONS!!!

What plant safety feature prevents operation above the Reactor Core Safety Limit curve, at point .4 (Fraction of Rated Thermal Power) and 660 degrees F? (Reference: Figure 2.1-1 of T.S.)

- a. Overpower trip.
- b. OT delta T trip.
- c. OP delta T trip.
- d. S/G Safety valves.

A: D

R: T.S. 2.0, VOGTLE TEXT CH.7,  
EB#: LO-SS-98000-01-60

Point Value: 1.00

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EXAM KEY  
S1.A

=====

2.12 Q: THIS QUESTION IS INDEPENDENT OF CURRENT PLANT CONDITIONS!!!

Unit 1 is operating at 320 degrees F and 365 psig with RHR in service, when a slow pressure transient occurs. Which of the following will be the first automatic action to terminate the increasing pressure transient?

- a. Pressurizer heaters deenergize.
- b. Pressurizer spray valves open.
- c. RHR suction reliefs lift.
- d. COPS actuation.

A: C

R: 1X4DB121, 13011-1, R16, PG. 2, T.S. 3.4.9.3  
EB#: LO-SS-98000-01-30

Point Value: 1.00

=====

2.13 Q: THIS QUESTION IS INDEPENDENT OF CURRENT PLANT CONDITIONS!!!

With the unit at 100% power and rod control in automatic, an inadvertant dilution causes Tavg to begin increasing. The protection signal that is designed to mitigate this transient without causing a reactor trip is:

- a. C-1, IR high flux level rod stop.
- b. C-2, Overpower rod stop.
- c. C-3, OT delta T turbine runback and rod stop.
- d. C-4, OP delta T turbine runback and rod stop.

A: C

R: FSAR CH.17, W-HOUSE PROCESS, T.S., PG. B 2-5  
EB#: LO-SS-98000-01-25

Point Value: 1.00

=====

END OF SECTION KEY

END OF TEST KEY

## PLANT VOGTLE TRAINING DEPT.

QUESTION USE LIST for EXAM: SR-925-92-03.AS

Total Points: 25.00

FILE NO: C92-05-008

Page 1

Assembled by LEON RAY on 06/05/92 in MANUAL mode.

<u>ITEM</u>	<u>EB NUMBER</u>	<u>REVISION</u>	<u>DESCRIPTION</u>
1.01	LO-SS-05000-01-01	10 05/18/92	Determination of cause and effect
1.02	LO-SS-05000-01-02	14 05/18/92	Analysis of Plant Conditions
1.03	LO-SS-05000-01-04	13 01/18/92	Assessment of Plant Conditions
1.04	LO-SS-05000-01-05	10 01/18/92	Determination of Plant Status
1.05	LO-SS-05000-01-06	14 05/18/92	Analysis of Plant Conditions
1.06	LO-SS-05000-01-07	14 05/18/92	CVCS lineups
1.07	LO-SS-05000-01-08	9 02/06/91	Tech Spec Interpretation
1.08	LO-SS-06000-01-18	00 / /	Boration calculation for stuck rods
1.09	LO-SS-05000-01-12	6 01/15/92	RTB status when at power
1.10	LO-SS-98000-01-05	15 03/03/92	Describe CVCS flowpath when operati
1.11	LO-SS-98000-01-02	5 05/18/92	High Rad effects on CVI
1.12	LO-SS-92000-01-04	7 05/19/92	Refueling Tech Specs

=====  
END OF SECTION

PLANT VOGTLE TRAINI: DEPT.

QUESTION USE LIST for EXAM: SR-925-92-03.AS

Total Points: 25.00

FILE NO: C92-05-008

Page 1

Assembled by LEON RAY on 06/05/92 in MANUAL mode.

<u>ITEM</u>	<u>EB NUMBER</u>	<u>REVISION</u>	<u>DESCRIPTION</u>
2.01	LO-SS-21000-01-01	8 03/02/92	Knowledge of system operating modes
2.02	LO-SS-21000-01-02	11 03/02/92	COPs
2.03	LO-SS-21000-01-03	11 06/04/92	SSPS operation
2.04	LO-SS-21000-01-05	8 03/02/92	Operation of P/A converter
2.05	LO-SS-21000-01-07	6 03/02/92	VCT M/U controls
2.06	LO-SS-21000-01-08	7 03/02/92	CR HVAC response to a SI
2.07	LO-SS-21000-01-11	9 03/02/92	Excess letdown flowpath post SI
2.08	LO-SS-21000-01-12	5 06/05/92	SLI response to SG depressurization
2.09	LO-SS-21000-01-13	5 03/02/92	Event diagnosis
2.10	LO-SS-21000-01-14	8 06/04/92	Loss of ACCW effects on the RCPs
2.11	LO-SS-98000-01-60	10 03/04/92	Safety limit curve
2.12	LO-SS-98000-01-30	13 03/03/92	Low temperature overpressure protec
2.13	LO-SS-98000-01-25	12 03/03/92	Protection provided by the OTdT Run

=====

END OF SECTION

END OF QUESTION LIST

Exam/Quiz Tracking Sheet

Originator: Greg Kilpatrick Course No.: SE-925-92-03

Test No.: SE-925-92-03 3 Date Test Was Given: 06/22/92

Designated Reviewer: \_\_\_\_\_

EB No.: LD - 02 - 12101 - 19 - 01 Question No. 8

Problem: Possible answers off by a factor of 10.

Recommended Disposition For Grading Purposes:

- ① change as follows:
  - a 1200 gpm (+/- 50 gpm)
  - b 1000 gpm (+/- 50 gpm)
  - c 750 gpm (+/- 50 gpm)
  - d 600 gpm (+/- 50 gpm)
- ② change "b" to the correct answer

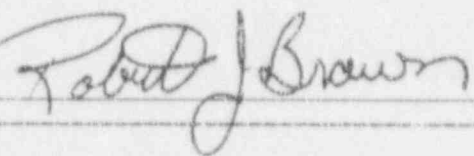
Recommended Exam Bank Changes:

Incorporate these changes

Instructor:  Date: 06/22/92

Resolution:  Approved  Disapproved

Change as Recommended.

Training Supt./Supv.:  Date: 6/22/92

Exam Bank Change:

\_\_\_\_\_  
EB Administrator Date

EXAM KEY

8. Q: The reactor was shutdown at 0100 on January 3rd. While operating at midloop, a complete loss of RHR occurs at 0700 on January 6th and cannot be corrected. Within a few minutes, core exit thermocouples begin to indicate >200 degrees F. The Unit Shift Supervisor orders a charging pump started to remove the decay heat. The minimum flow rate required under these conditions is:

- a. 120<sup>0</sup> GPM (+/- 5<sup>0</sup>gpm)
- b. 100<sup>0</sup>gpm (+/- 5<sup>0</sup>gpm)
- c. 75<sup>0</sup>gpm (+/- 5<sup>0</sup>gpm)
- d. 60<sup>0</sup>gpm (+/- 5<sup>0</sup>gpm)

A: c<sup>✓</sup> b

R: 18019-1,R10,PG. 15, FIGURE 1,  
EB#: LO-OR-12101-19-01

Point Value: 1.00

9. Q: Following a Unit 2 reactor trip and SI, S/G #1 is immediately identified as being ruptured and is isolated. #1 S/G level is approximately 40% WR level (below the narrow range) and increasing rapidly. Choose ONE of the below which properly describes AFW flow control to the ruptured S/G.

Secure AFW flow to the ruptured S/G...

- a. ...when NR level is restored above 10% to ensure that the ruptured S/G level is above the U-tubes.
- b. ...when NR level is restored above 65% level to ensure even cooldown of the plant.
- c. ...immediately because the rapidly rising WR level indicates that S/G #1 will overflow if feed is continued.
- d. ...immediately because it is not necessary to feed the ruptured S/G.

A: a.

R: 19030-C,R12,PG. 5,  
EB#: LO-OR-37002-04-03

Point Value: 1.00

GEORGIA POWER COMPANY  
VOGTLE ELECTRIC GENERATING PLANT  
TRAINING DEPARTMENT  
EXAMINATION COVER SHEET

COURSE TITLE: Licensed Operator Requalification Annual Written Exam

COURSE / EXAM #: SR-925-92-03.S

EXAMINER: RAY

DATE ADMINISTERED: Week of 6/22/92

APPROVED: *Ramsey*

EXAM TYPE: CLASSROOM , SIMULATOR , BIENNIAL , OTHER

INSTRUCTIONS TO STUDENT:

USE SHEET PROVIDED FOR ANSWERS. STAPLE EXAMINATION COVER SHEET ON TOP OF THE ANSWER SHEET(S). IF NEEDED, THE INSTRUCTOR WILL PROVIDE ANY ADDITIONAL INSTRUCTIONS. POINTS FOR EACH QUESTION ARE INDICATED NEXT TO THE QUESTION. PASSING REQUIRES A FINAL GRADE OF AT LEAST 70% OVERALL.

\*\* PRINT NEATLY \*\*

NAME (Last, First, MI)

SOCIAL SECURITY #

DEPARTMENT

COMPANY

ALL WORK DONE ON THIS EXAM IS MY OWN. I HAVE NEITHER GIVEN NOR RECEIVED AID.

STUDENT SIGNATURE

TOTAL POINTS	POINTS MISSED	RAW SCORE	FINAL GRADE
<u>25</u>	_____	_____	_____

GRADED BY: \_\_\_\_\_

REVIEWED BY: \_\_\_\_\_



C92-05-002

PLANT VOGTLE TRAINING DEPT.

M A S T E R     K E Y

FOR

EXAM: SR-925-92-03.S

Total Points: 25.00

ASSEMBLED IN MANUAL MODE.

## EXAM KEY

- =====
1. Q: While withdrawing Shutdown Bank "A" during 12001-C, an RPI Urgent Failure Alarm, General Warning LED for rod M-2, and a Data A failure 1-2-3 LED's were received. Rod M-2 indicated 6 steps on DRPI with the rest of Shutdown Bank A indicating 24 steps withdrawn.

What initial action must be taken by the operator if the unit is in Mode 4?

- a. The operator should select DATA A ONLY on the DRPI selector switch.
- b. The operator should select DATA B ONLY on the DRPI selector switch.
- c. Immediately open the reactor trip breakers.
- d. Immediately notify Reactor Engineering.

A: b.

R: 17010-C,R21,PG. 31, T.S. 3.1.3.3,  
EB#: LO-OR-27201-06-01

Point Value: 1.00

=====

## EXAM KEY

- =====
2. Q: Which of the statements below is correct concerning the containment isolation valves associated with the containment H2 monitors while in modes 1 thru 4 ?
- a) Tech Specs do not apply when valves 1HV-2790A and 1HV-2791A are opened at the same time for surveillance testing of the H2 monitor.
  - b) All Containment Hydrogen Monitor valves are exempt from the action requirements of T.S. 3.6.3, since they are required to be open under post-accident conditions.
  - c) Opening 1HV-2792A, 1HV-2792B and 1HV-2791B at power requires entry into T.S. 3.0.3 and generation of an LER.
  - d) T.S. 3.6.3 requires at least one of the ORC valves (1HV-2791A or 1HV-2791B) at each penetrations be operable OR restored operable within 6 hours or be in Cold Shutdown within the following 30 hours.

A: c

R: T.S. 3.6.3,  
EB#: LO-OR-30210-03-02

Point Value: 1.00

=====

3. Q: Given that a Vogtle technical specification LCO action statement which requires "suspension of all core alterations" has been entered, which one of the following MAY proceed?
- a. Removal of any neutron sources from the reactor core area.
  - b. The lifting of the upper internals from the core as long as the fuel bundles remain undisturbed.
  - c. Shuffling of the control rods and burnable poison assemblies, provided that Keff is less than or equal to .95.
  - d. Completion of a component movement to a safe position within the reactor pressure vessel.

A: d.

R: TS DEF. 1.9,  
EB#: LO-OR-39202-02-01

Point Value: 1.00

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KEY CONTINUED ON NEXT PAGE

## EXAM KEY

- =====
4. Q: Unit 1 has just shutdown for a refueling outage. Mechanical maintenance is waiting to loosen the reactor vessel head bolts. Which ONE of the following condition(s) must be met before the head bolts are loosened?
- a. RCS boron concentration must be great enough to achieve a SDM of 5.0% delta K/K.
  - b. As a minimum, one source range monitor must be OPERABLE and providing audible & visual indications in the Main Control Room.
  - c. The reactor shall be subcritical for greater than or equal to 100 hours.
  - d. K-eff must be less than or equal to .95 or RCS boron concentration must be greater than or equal to 2000 ppm (whichever is more restrictive).

A: d.

R: T.S. DEFINITIONS, T.S. 3.9.1,  
EB#: LO-OR-39202-02-03

Point Value: 1.00

=====

5. Q: The control room is being evacuated with control being established at the B Train shutdown panel (PSDB). Choose the ONE correct response to complete the following statement.

When LOCAL/REMOTE transfer switches on PSDB are placed in LOCAL automatic functions of those controls:

- a. May be operated only from the switch on the QMCB.
- b. Will function only if a valid ESF actuation occurs.
- c. Are defeated and will not function in most cases.
- d. Must be reset using the remote function reset pushbutton located on the QMCB.

A: c.

R: 18038-1,R14,PG. 20,  
EB#: LO-OR-60327-02-01

Point Value: 1.00

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## EXAM KEY

- =====
6. Q: Which one of the following conditions would result in the core becoming uncovered in the shortest period of time if a total loss of RHR occurred 120 hours after shutdown? (Assume no operator action taken)
- Refueling pool filled to Tech Spec level with fuel movement in progress in the containment building.
  - RCS at midloop with all SG primary manways removed. No nozzle dams are installed.
  - RCS at midloop with all SG primary manways removed. Hot leg nozzle dams are installed and there have been no vent paths established.
  - RCS at midloop with all SG primary manways removed. Hot leg nozzle dams are installed and the pressurizer manway has been removed.

A: c.

R: VOGTLE TEXT, 18019-C,R12,PG. 1,  
EB#: LO-OR-12101-15-02

Point Value: 1.00

=====

7. Q: During RCS drain down conditions, the RCS sightglass level indication system must be continuously monitored if:
- RCS level is stable below a pressurizer level of 15% (207 ft. elev.)
  - RCS level is being changed below a pressurizer level of 15% (207 ft. elev.)
  - RCS temporary level detectors in the control room indicate level at or below the reactor vessel flange.
  - RCS temporary level detectors in the control room indicate level at or below the top of the hot leg.

A: b.

R: 12006-C,R23,PG. 36, 13005-1,R22,PG. 2,  
EB#: LO-OR-12101-16-01

Point Value: 1.00

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KEY CONTINUED ON NEXT PAGE

EXAM KEY

8. Q: The reactor was shutdown at 0100 on January 3rd. While operating at midloop, a complete loss of RHR occurs at 0700 on January 6th and cannot be corrected. Within a few minutes, core exit thermocouples begin to rapidly increase. The Unit Shift Supervisor orders a charging pump started to remove the decay heat. The minimum flow rate required under these conditions to maintain RCS temperature < 195 degrees F is:

- a. 1200 GPM (+/- 50 gpm)
- b. 1000 gpm (+/- 50 gpm)
- c. 750 gpm (+/- 50 gpm)
- d. 600 gpm (+/- 50 gpm)

A: b.

R: 18019-1,R12,STEPB13, FIGURE 1,  
EB#: LO-OR-12101-19-01

Point Value: 1.00

9. Q: Following a Unit 2 reactor trip and SI, S/G #1 is immediately identified as being ruptured and is isolated. #1 S/G level is approximately 40% WR level (below the narrow range) and increasing rapidly. Choose ONE of the below which properly describes AFW flow control to the ruptured S/G.

Secure AFW flow to the ruptured S/G...

- a. ...when NR level is restored above 10% to ensure that the ruptured S/G level is above the U-tubes.
- b. ...when NR level is restored above 65% level to ensure even cooldown of the plant.
- c. ...immediately because the rapidly rising WR level indicates that S/G #1 will overflow if feed is continued.
- d. ...immediately because it is not necessary to feed the ruptured S/G.

A: a.

R: 19030-C,R11,PG. 5,  
EB#: LO-OR-37002-04-03

Point Value: 1.00



## EXAM KEY

10. Q: 19030-C (SGTR) step 3 (Isolate flow from ruptured S/Gs) directs the operator to "adjust the ruptured S/G ARV controller setpoint to 1160 psig". After performing this action the RO observes that Ruptured S/G pressure is 1190 psig, and the Ruptured S/G's ARV is opening automatically. Because he wants to minimize radiological release from the ruptured S/G, he places its ARV in "manual" and closes it.

Do you agree with the operators action? Why or why not?

- a. Yes. The operator should shut the ARV since neither the ARV nor the MS safety valves can be isolated if required.
- b. Yes. The operator can't control the S/G ARV locally if a release is in progress so placing it in manual was correct.
- c. No. The ARV is set higher to keep it from lifting. But if pressure does increase you want the ARV to lift vs. the MS safety valve.
- d. No. Manual operation of ARV's is not called for in the procedure therefore it should not be placed in manual.

A: c.

R: 19030-C,R9,PG. 3, WOG BACKGROUND DOC.,  
EB#: LO-OR-37311-07-04

Point Value: 1.00

11. Q: A 38 gpm leak is detected from the RCS. AOP 18004-1 is entered. The leak is within the capacity of normal charging.

In accordance with the station emergency plan, the event is:

- a. not a classifiable event
- b. an NOUE
- c. an Alert
- d. a Site Area Emergency

A: b.

R: 91001-1,R8,PG. 7, 18004-1,R6,PG.,  
EB#: LO-OR-40101-13-02

Point Value: 1.00

KEY CONTINUED ON NEXT PAGE

## EXAM KEY

12. Q: The control room operators are responding to a Loss of All AC power. Excess Letdown was in service prior to the event and mistakenly not isolated during verification of RCS isolation. Both of these valves are left open.

If left uncorrected during performance of subsequent steps, this excess letdown valve misalignment could create a leak path to the

- a. PRT via the letdown line relief valve. RCS inventory loss could increase, reducing the time to PRT overfill / rupture.
- b. PRT via the RCP seal return relief valve. RCS inventory loss could increase, reducing the time to core uncover.
- c. RCDT via the RCP controlled leakage seals. RCS inventory loss could increase, possibly leading to core uncover.
- d. RCDT, increasing the RCS leakage rate until it is terminated by automatic isolation upon PZR low level.

A: b.

R: 19100-C,R9,PG. 3, GREB 000-055-008,  
EB#: LO-OR-37031-06-01

Point Value: 1.00

13. Q: Which ONE of the following events does not require a ONE HOUR notification per 10 CFR 50?

- a. The plant is in a condition NOT covered by operating and emergency procedures.
- b. The loss of the off-site notification system.
- c. A valid automatic initiation of the Reactor Protection System.
- d. A shutdown was commenced because the plant was in violation of the Technical Specifications.

A: c.

R: 00152-C,R10,PG. 32,  
EB#: LO-OR-40101-17-04

Point Value: 1.00

EXAM KEY

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14. Q: A loss of secondary heat sink has occurred. The operating team is implementing 19231-C. IAW Step 6, attempts are being taken to restore a main feed pump but the crew cannot get either pump reset.

The following unit conditions exist:

- All RCP's are stopped.
- SG levels (WR) are all 19% and decreasing.
- Core exit TC temperatures are increasing.
- RCS pressure has begun to increase rapidly and is now above 2400 psig.

What action(s) are required to be taken by the operating crew?

- a. Immediately initiate feed and bleed per step 11 of 19231-C
- b. Initiate Safety Injection and transition to 19000-C, step 1.
- c. Immediately open all PORV's and turn off all heaters to reduce RCS pressure.
- d. Start ECCS pumps as needed and continue with attempts to restore feedwater flow to all S/G's.

A: a.

R: WOG BACKGROUND DOC., 19231-C, R15, PG. 3,  
EB#: LO-OR-37051-08-03

Point Value: 1.00  
=====

EXAM KEY

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15. Q: 19121-C, Uncontrolled Depressurization of All Steam Generators is in effect.

The following conditions occur:

- TDAFW Pump 1-1302-P4-001 trips on overspeed and can not be reset.
- "A" MDAFW Pump 1-1302-P4-003 is tagged out.
- "B" MDAFW Pump 1-1302-P4-002 trips on overcurrent.
- Offsite power is lost, with both D/G's reenergizing it's respective 4160 VAC bus
- All SG levels are below the NR.

The Operating team should:

- a. Remain in 19121-C
- b. Transition to 19005 Rediagnosis
- c. Transition to 19100-C
- d. Transition to 19231-C

A: d.

R: 19200-C, K9, PG. 6,  
EB#: LO-OR-37002-07-09

Point Value: 1.00

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## EXAM KEY

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16. Q: The unit is in Mode 1 at 100% power, when the following indications/alarms are observed.

- SERVICE AIR HDR LO PRESS annunciator is alarming
- Instrument air supply pressure reading 78 psig and decreasing at 3 psig/minute
- All air compressors are verified running on the QMCB
- Service Air Header Isolation Valve PV-9375 is verified closed

What action(s) must the control room operators take within the next 5 minutes if the above conditions continue?

- a. Trip the turbine and allow the plant to stabilize on the Steam Dump Control System at 40% reactor power.
- b. Secure the TWO CHAMBER/FULL FLOW mode of the instrument air dryers since the leakage appears to be increasing.
- c. Trip the reactor and enter 19000-C when instrument air pressure drops to less than 70 psig and is not recoverable.
- d. Stop two air compressors and isolate the UNIT 2 crosstie which will slow the header depressurization.

A: c.

R: 18028-C,R11,PG. 5,  
EB#: LO-OR-02110-15-01

Point Value: 1.00

=====



EXAM KEY

=====  
17. Q: Due to the loss of main feedwater pumps, the steam generators decrease below the low-low level trip setpoint, but no reactor trip occurs. The USS carries out the action of 19211. Reactor power is now less than 5% with a negative SUR. At the completion of 19211, a RED path condition exists for HEAT SINK. Which procedure should the USS go to next.

- a. Reenter 19000-C at step 3.
- b. Reenter 19000-C at the beginning.
- c. Enter 19231-C.
- d. Enter 19001-C.

A: C

R: 19200-C, R9, PG. 2,  
EB#: LO-OR-37002-08-07

Point Value: 1.00  
=====

18. Q: Unit 1 is operating at 100 percent power when a control rod drops into the core. The reactor does not trip. Operators take actions to stabilize the plant. Reactor power is 95% and Tavg is matched to Tref. The USS then has the extra operator perform a QPTR calculation. During recovery actions, QPTR is determined to be 1.05. What procedural restrictions are placed on power operation over the next several hours?

- a. Power must be lowered to 80% within 2 hours.
- b. Power range hi flux trip setpoints must be lowered to 85% within the next 4 hours.
- c. Unit must be shutdown with a QPTR of greater than 1.02.
- d. Power must be reduced to below 85% within the next two hours.

A: d.

R: 18003-C, T.S.3.1.3.1,  
EB#: LO-OR-39205-03-03

Point Value: 1.00  
=====



EXAM KEY

19. Q: After stabilizing the plant following a steam generator tube rupture, the operating crew transitioned to EOP 19031-C to cooldown the plant to cold shutdown. RCS subcooling was 68 degrees F and RCS pressure was 1000 psig at the time of the transition. Two hours after the cooldown was started, RCS pressure was 485 psig and core exit thermocouple readings were 251 degrees F.

Are the operators performing steps within the restrictions established by EOP 19031-C?

- a. Yes. Operators are maintaining all parameters (temp. and press.) within the allowed bands.
- b. Yes. Operators are within the limitations as set forth by the operators curve in 12006-C.
- c. No. Cooldown rate has exceeded 100 degrees per hour as limited by step 5.
- d. No. Pressure is too high for low pressure cooling systems to inject as required.

A: c.

R: WOG BACKGROUND DOC., 19031-C,R6,PG. 5,  
EB#: LO-OR-37312-02-01

Point Value: 1.00

## EXAM KEY

20. Q: The plant has stabilized following a major tube rupture in S/G #1. ECCS flow has been terminated and normal charging and letdown reestablished. A recovery procedure has not yet been selected. Auxiliary feedwater flow to the ruptured steam generator is isolated. The Balance of Plant Operator reports ruptured steam generator level is slowly rising. Reactor Operator reports pressurizer level at 18% and slowly trending down.

Based on these conditions what action(s) must be taken currently to stabilize both steam generator and pressurizer level?

- a. Increase PZR pressure above S/G pressure and increase charging flow to maintain PZR level.
- b. Reduce PZR pressure to less than or equal to S/G pressure and increase charging flow to maintain PZR level.
- c. Increase PZR pressure above S/G pressure and reduce charging flow to maintain PZR level.
- d. Reduce PZR pressure to less than or equal to S/G pressure and reduce charging flow to maintain PZR level.

A: E.

R: WOG BACKGROUND DOC., 19030-C,R9,PG. 10,  
EB#: LO-OR-37312-02-06

Point Value: 1.00

## EXAM KEY

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21. Q: A natural circulation cooldown is in progress in accordance with 19002-C, Natural Circulation Cooldown. The RCS is at 510 degrees F and 1900 psig. All CRDM cooling fans have tripped and cannot be restarted.

Without the CRDM fans in operation, which of the following is the greatest concern?

- a. Damage may occur to the CRDM coils because of overheating.
- b. NDT requirements are more likely to be exceeded for the reactor head flange welds.
- c. Damage may occur to the excore nuclear instrumentation because of overheating.
- d. The formation of a steam bubble in the reactor vessel head region.

A: d.

R: 19002-C.R10, PG. 7, GREB 002-010-001,  
EB#: LO-OR-37012-05-05

Point Value: 1.00  
=====

22. Q: The reactor is critical at  $1 \times 10E -8$  amps. Inverter 1AD111 output breaker trips open. This action causes a loss of 120 VAC vital panel 1AY1A.

This condition will result in which of the following?

- a. The loss of several NIS channels, but no change in reactor power.
- b. A reactor trip due to the deenergization of IR channel N35.
- c. A reactor trip due to the deenergization of IR channel N36.
- d. An SR high flux trip due to the deenergization of permissive P-6.

A: b.

R: 18032-1,R7, PG. 2, GREB 015-000-001,  
EB#: LO-OR-28102-02-01

Point Value: 1.00  
=====

EXAM KEY

- =====
23. Q: The Unit 1 fully withdrawn limit for the RCCA's has been changed from 228 steps to a range of 225 steps to 231 steps. Which ONE of the following explains why this is done?
- a. Distribute fretting wear over a larger area thus increasing the life of the RCCA's.
  - b. Limit peak power at the top of the core for different cycles, thus minimizing the possibility of fracture due to stress during an accident.
  - c. Decrease or lower the rod insertion limit so as to extend core life for different cycles.
  - d. Account for varying flow rates of the moderator from BOL to EOL without affecting the RCCA's adversely.

A: a.

R: 12004-C,R29,PG. 20, 13502-1,R13,PG. 8,  
EB#: LO-OR-61300-03-01

Point Value: 1.00

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24. Q: Which one of the following is a continuous action step?
- a. Check SG levels narrow range level in at least one SG - GREATER THAN 10%
  - b. Control feed flow to maintain S/G narrow range level between 10% and 65%
  - c. Transfer condenser steam dump to STEAM PRESSURE MODE
  - d. Determine if natural circulation cooldown is required

A: b.

R: WOG BACKGROUND DOC, 19001-C,R13,PG. 6,  
EB#: LO-OR-37002-04-01

Point Value: 1.00

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EXAM KEY

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25. Q: Step 12 of procedure 19251-C, Response to High Containment Pressure, directs the operator to perform a startup of the Hydrogen Recombiners. Given a containment pressure of 8 psig, Pre-LOCA containment temperature of 90 degrees, Post-LOCA temperature of 120 degrees F, and a hydrogen concentration of 4.6%, which ONE of the following is the pressure factor for the recombiner?

- a. 1.23 (+/- 0.03)
- b. 1.30 (+/- 0.03)
- c. 1.37 (+/- 0.03)
- d. 1.45 (+/- 0.03)

A: c.

R: 13130-C,R6,PG. 21, 19251-C,R6,PG. 10,  
EB#: LO-OR-29110-03-02

Point Value: 1.00



## PLANT VOGTLE TRAINING DEPT.

QUESTION USE LIST for EXAM: SR-925-92-03.S

Total Points: 25.00

FILE NO: C92-05-002

Page 1

Assembled by Steve Wilkerson on 06/19/92 in MANUAL mode.

<u>ITEM</u>	<u>EB NUMBER</u>	<u>REVISION</u>	<u>DESCRIPTION</u>
1.	LO-OR-27201-06-01	8 05/21/92	Actions required for DRPI Failure i
2.	LO-OR-30210-03-02	2 03/04/92	Action required for CIV inoperabilit
3.	LO-OR-39202-02-01	6 11/10/90	Application of "suspend core alts."
4.	LO-OR-39202-02-03	3 06/04/92	Requirements to enter Mode 6 - Refu
5.	LO-OR-60327-02-01	1 05/19/92	Effects of local operation at the S
6.	LO-OR-12101-15-02	13 05/19/92	Loss of RHR with the RCS at Mid-100
7.	LO-OR-12101-16-01	10 05/19/92	Monitoring the tygon tube for RCS d
8.	LO-OR-12101-19-01	00 / /	minimum charging flow for loss of R
9.	LO-OR-37002-04-03	7 06/11/92	Describe AFW flow control to the ru
10.	LO-OR-37311-07-04	6 06/04/92	SGTR ARV Setpoint Adjustment and re
11.	LO-OR-40101-13-02	5 11/13/90	Emergency Classification - Excessiv
12.	LO-OR-37031-06-01	3 04/22/92	What is the problem with not isolat
13.	LO-OR-40101-17-04	00 / /	Determine ONE HOUR notifications fo
14.	LO-OR-37051-08-03	11 04/22/92	Loss of heat sink - What to do if 3
15.	LO-OR-37002-07-09	9 05/25/92	Loss of Secondary Heat Sink FRP
16.	LO-CR-02110-15-01	2 04/22/92	What actions are required on decrea
17.	LO-OR-37002-08-07	2 06/11/92	Transition decision when exiting 19
18.	LO-CR-39205-03-03	8 06/05/92	Interpretation of AOP's and T.S. as
19.	LO-OR-37312-02-01	5 11/10/90	Determine subcooling & cooldown lim
20.	LO-OR-37312-02-06	7 05/18/92	SGTR recovery procedural applicatio
21.	LO-OR-37012-05-05	5 06/11/92	Concerns about NC cooldown without
22.	LO-OR-28102-02-01	4 05/21/92	Loss of vital 120 VAC on NIS

=====LIST CONTINUED ON NEXT PAGE=====



## QUESTION USE LIST

<u>ITEM</u>	<u>EB NUMBER</u>	<u>REVISION</u>	<u>DESCRIPTION</u>
23.	LO-OR-61300-03-01	3 05/19/92	Rod withdrawal limits.
24.	LO-OR-37002-04-01	13 05/25/92	EOP Usage - Continuous action steps
25.	LO-OR-29110-03-02	2 04/23/92	Determine pressure factor for Hydro

=====

END OF QUESTION LIST

GEORGIA POWER COMPANY  
VOGTLE ELECTRIC GENERATING PLANT  
TRAINING DEPARTMENT  
EXAMINATION COVER SHEET

Master  
Week 2  
Vogtle 92-301

COURSE TITLE: Licensed Operator Requalification Annual Written Exam

COURSE / EXAM #: SR-925-92-04.R

EXAMINER: RAY

DATE ADMINISTERED: Week of 6/29/92

APPROVED: *Rainald Berry*

EXAM TYPE: CLASSROOM , SIMULATOR , BIENNIAL , OTHER

INSTRUCTIONS TO STUDENT:

USE SHEET PROVIDED FOR ANSWERS. STAPLE EXAMINATION COVER SHEET ON TOP OF THE ANSWER SHEET(S). IF NEEDED, THE INSTRUCTOR WILL PROVIDE ANY ADDITIONAL INSTRUCTIONS. POINTS FOR EACH QUESTION ARE INDICATED NEXT TO THE QUESTION. PASSING REQUIRES A FINAL GRADE OF AT LEAST 70% OVERALL.

\*\* PRINT NEATLY \*\*

NAME (Last, First, MI)

SOCIAL SECURITY #

DEPARTMENT

COMPANY

ALL WORK DONE ON THIS EXAM IS MY OWN. I HAVE NEITHER GIVEN NOR RECEIVED AID.

STUDENT SIGNATURE

TOTAL POINTS	POINTS MISSED	RAW SCORE	FINAL GRADE
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25

8

GRADED BY: \_\_\_\_\_

REVIEWED BY: \_\_\_\_\_

C92-05-003

PLANT VOGTLE TRAINING DEPT.

M A S T E R     K E Y

FOR

EXAM: SR-925-92-04.R

Total Points: 25.00

ASSEMBLED IN MANUAL MODE.

EXAM KEY  
2R

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1. Q: The control room operators have initiated an emergency boration because control rod height is below the rod bank lo-lo limit, and the reactor is critical.

The operators can terminate emergency boration when

- a. A shutdown margin of at least 2.0% delta K/K has been established.
- b. At least 750 pcm of negative reactivity is inserted into the core.
- c. The control rod height is above the rod bank lo-lo limit.
- d. The control rods begin withdrawing with the rod control system in automatic.

A: c.

R: 17010-1,R12,PG.28, T.S. 3.1.3.6, GREB 000-024-006  
EB#: LO-OR-39206-03-04

Point Value: 1.00

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EXAM KEY  
2R

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2. Q: While the plant is operating at 85%, due to feedwater heater maintenance, the POWER RANGE CHANNEL DEVIATION annunciator and the ROD AT BOTTOM annunciator both alarm. One rod is verified on the bottom using DRPI. The QPTR is calculated and results in a QPTR of 1.03.

In response to this, the control room operators MUST perform which of the following?

- a. Calculate the QPTR each hour until it returns within its limits.
- b. Reduce thermal power to less than 50% within the next 2 hours.
- c. Reduce the Power Range Neutron Flux high trip setpoint to 91% within the next 4 hours.
- d. Immediately commence a power reduction and be in hot standby within 6 hours.

A: a.

R. T.S. 3/4.2.4, 18003-C,R6.PG. 4, GREB 015-000-006  
EB#: LO-OR-39206-03-06

Point Value: 1.00

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## EXAM KEY

2R

3. Q: Technical Specifications require two RHR trains to be operable and one to be operating during Cold Shutdown with loops filled. Certain equipment may be substituted for one of the RHR trains.

Which ONE statement below correctly describes the equipment that may be substituted?

- a. Two S/G's with secondary side water level greater than 17% wide range.
- b. One SI pump operable and the RWST greater than 66% level.
- c. Four filled RCS loops with two OPERABLE RCP's and one operable AFW pump along with the operating CST above 90% level.
- d. Four filled RCS loops with one OPERABLE RCP and one SI pump.

A: a.

R: T.S. 3.4.1.4.1,  
EB#: LO-OR-39208-03-07

Point Value: 1.00

4. Q: With Unit 2 operating at 98% power, S/G #1 develops a primary to secondary leak of 0.2 gpm. The following day the leak rate increases to 0.5 gpm.

Determine which ONE of the following actions must be taken due to this problem.

- a. Power must be reduced to less than 50% power within the next 1 hour.
- b. Place the unit in Mode 6 within the next 36 hours.
- c. Trip the reactor and initiate Safety injection.
- d. Reduce the leakage rate to within limits within 4 hours or be in Hot Standby in 6 hours and Cold Shutdown in the following 30 hours.

A: d.

R: T.S. 3.4.6.2,  
EB#: LO-OR-39208-03-08

Point Value: 1.00

KEY CONTINUED ON NEXT PAGE



EXAM KEY  
2R

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5. Q: Unit 1 is at 100% RTP when a fire occurs in a cable spreading room. Due to the large amount of smoke in the control room, it is decided by the Shift Superintendent to evacuate to the shutdown panels.

Select the ONE response below which describes the proper operating crew action for the given conditions?

- a. Evacuate the control room. Take an extra set of procedures so the USS and the RO have an extra set at PSDB and trip the reactor by opening the MG set breakers at 1NB08 and 1NB09.
- b. Announce over the PA system to evacuate the control room, proceed to the shutdown panels and trip the reactor from PSDB.
- c. Trip the reactor and safety inject prior to leaving the control room. Take an extra set of EOP's for the RO and BOP to use at the shutdown panels.
- d. Trip the reactor prior to leaving the main control room.

A: d.

R: 18038-1,R14,PG. 2,  
EB#: LO-OR-60328-07-01

Point Value: 1.00

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EXAM KEY  
2R

6. Q: Which one of the following conditions would result in the core becoming uncovered in the shortest period of time if a total loss of RHR occurred 120 hours after shutdown? (Assume no operator action taken)
- a. Refueling pool filled to Tech Spec level with fuel movement in progress in the containment building.
  - b. RCS at midloop with all SG primary manways removed. No nozzle dams are installed.
  - c. RCS at midloop with all SG primary manways removed. Hot leg nozzle dams are installed and there have been no vent paths established.
  - d. RCS at midloop with all SG primary manways removed. Hot leg nozzle dams are installed and the pressurizer manway has been removed.

A: c.

R: VOGTLE TEXT, 18019-C,R12,PG. 1,  
EB#: LO-OR-12101-15-02

Point Value: 1.00

7. Q: The plant is operating with the RCS at mid-loop. Which one of the following is true, with regards to the RCS sightglass level indicator, when all control room level indication is inoperable?
- a. It must be continuously monitored.
  - b. It must be monitored any time RCS level is changed.
  - c. It must be monitored once per shift and continuously monitored any time level is changed.
  - d. It must be monitored every 4 hours unless any level changes are being made.

A: a.

R: 12006-C,R23,PG. 37, 13005-1,R21,PG. 2,  
EB#: LO-OR-12101-16-02

Point Value: 1.00

EXAM KEY  
2R

8. Q: Unit 1 is in Mode 5. The RCS is at mid-loop with the following conditions:

- A RHR pump is in service at 3000 GPM.
- B RHR pump is in standby alignment.

Which ONE of the following action(s) would be the operator's first course of action if the A RHR pump motor amps start Fluctuating (indicative of pump cavitation).

- a. Initiate gravity feed to the RCS from the RWST by opening HV-8802A.
- b. Initiate makeup to the RCS by opening HV-0112D or HV-0112E on the suction of the CCP's.
- c. Reduce flow through the "A" RHR pump.
- d. Stop the "A" RHR pump.

A: c.

R: 18019-C,R12,PG. 3,  
EB#: LO-OR-12101-18-02

Point Value: 1.00

EXAM KEY  
2R

9. Q: A SGTR has occurred. An RCS cooldown is in progress, per Step 14, when the reactor operator reports pressurizer level is below 9% and decreasing rapidly.

The proper response is to:

- a. Stop the cooldown and depressurize the RCS to promote backfill flow from the ruptured steam generator to the RCS.
- b. Stop the cooldown, and transition to EOP 19131-C, per the foldout page action.
- c. Continue the cooldown, and concurrently depressurize the RCS to promote an increase in injection flow.
- d. Continue the cooldown, take no additional actions.

A: d.

R: WOG BACKGROUND DOC., 19030-C,R9,PG. 12,  
EB#: LO-OR-37311-07-02

Point Value: 1.00

10. Q: In 19030 (SGTR), if the ruptured SG's MSIVs and Bypasses can not be isolated, all remaining MSIV's and bypasses are closed and the secondary system 's isolated. If this action is taken, how will the operating team accomplish the rapid RCS cooldown of 19030-C?

- a. The cooldown will be accomplished by opening the intact S/G's ARV's.
- b. The cooldown will be accomplished by establishing maximum AFW flow to intact S/G's until S/G levels reach 95% wide range indication.
- c. The cooldown will be accomplished using the ruptured S/G, aligned to the condenser steam dumps.
- d. The cooldown will be accomplished via the intact S/G MSIV bypass valves realigned to the steam dump system.

A: a.

R: 19030-C,R9,PG. 4,  
EB#: LO-OR-37311-07-06

Point Value: 1.00

EXAM KEY  
2R

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11. Q: A loss of AC power to 1BA03 and 1AA02 has occurred. Steam is being released locally via the S/G ARVs in an effort to reduce S/G pressure to 300 psig. A low steamline pressure SI signal has been received. When steamline pressure reaches 315 psig and RCS cold leg temperatures are between 420 degrees F and 430 degrees F, the licensed operator monitoring the Critical Safety Functions informs you that the source range startup rate is reading +0.2 dpm with no indication as to why. Your action should be to:
- a. Begin emergency boration.
  - b. Secure dumping steam and heat up to add negative reactivity.
  - c. Continue to lower S/G pressure to 300 psig.
  - d. Try to start one RCP.

A: b.

R: 19100-C,R9,PG. 18,  
EB#: LO-OR-37031-08-06

Point Value: 1.00

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EXAM KEY  
2R

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12. Q: A loss of coolant accident is in progress. Control room operators are performing EOP 19222, "FR-C.2, Response to Degraded Core Cooling" in response to an ORANGE path on the CORE COOLING CSFST. Which one of the following statements is correct concerning transitions out of this procedure.

The operators would immediately transition to:

- a. EOP 19231-C, if the HEAT SINK CSFST indicates a RED path condition.
- b. EOP 19212-C, if the SUBCRITICALITY CSFST indicates a YELLOW path condition.
- c. EOP 19251-C, if the CONTAINMENT CSFST indicates an ORANGE path condition.
- d. EOP 19010-C, if the CORE COOLING CSFST changed to a GREEN path condition.

A: a.

R: WOG BACKGROUND FRG, 19200-C,R9,PG. 2,  
EB#: LO-OR-37002-07-08

Point Value: 1.00

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EXAM KEY  
2R

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13. Q: The plant is tripped and the operators are performing actions per 19231-C, Loss of Secondary Heat Sink. Due to the loss of heat sink, the crew initiated RCS feed and bleed. The operators are now preparing to terminate RCS feed and bleed because secondary heat sink has been restored and verified. The operators check if a CCP can be stopped. They are unable to stop a CCP because RCS subcooling is less than required.

Although RCS subcooling is insufficient when this step is first encountered, subcooling will begin to increase as RCS pressure increases due to subsequent:

- a. Closing of the PZR PORV's.
- b. Stopping of an SI pump.
- c. Establishment of normal charge flow.
- d. Closing of the PZR spray valves.

A: a.

R: 19231-C,R12,PG. 16, GREB 000-054-007,  
EB#: LO-OR-37051-08-04

Point Value: 1.00

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EXAM KEY  
2R

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14. Q: Unit 1 is being maintained at  $10E^{-8}$  amps on the IR to take critical data. Boron concentration is 1280 ppm, BOL, Control Bank "D" is at 120 steps. Assume all appropriate systems are in AUTO and function as designed.

Positive reactivity (+100 pcm) is added by rod withdrawal to establish a + 0.25 dpm SUR. Which ONE of the following would occur assuming no other operator action?

- a. Reactor power would continue to increase at a constant rate until a reactor trip occurred at approx. 10%.
- b. Reactor power would continue to increase at a constant rate until a reactor trip occurred at 25% power.
- c. Reactor power would increase above the POAH and stabilize.
- d. Reactor power would stabilize at the POAH.

A: c.

R: 12004-C,R24,PG. 29,  
EB#: LO-OR-33530-08-02

Point Value: 1.00

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EXAM KEY  
2R

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15. Q: The plant is operating at 100% power when a PZR PORV spuriously opens. The control room operators attempt to close the PORV but are unsuccessful. One minute after the PORV opens, the operators close the associated PORV block valve. The following conditions exist:

- \* Tavg is 570 degrees and decreasing
- \* PZR pressure is 1845 psig and lowering slowly
- \* PZR level is 80% and still rising
- \* Reactor power is 96%

The Shift Superintendent recommends that the operators begin a shutdown of the plant and be in hot standby in 6 hours. Do you agree or disagree with the Shift Superintendent's recommendation? Why?

- a. Agree. Tech. Specs. require that the plant be placed in hot standby within 6 hours for these conditions.
- b. Disagree. Tech. Specs. require that the plant be in hot standby in 1 hour .
- c. Disagree. Shutdown is not desired because it will further depressurize the RCS. RCS pressure and temperature should be restored to their normal bands.
- d. Disagree. An ATWT is in progress. A manual reactor trip should be attempted immediately, and 19000-C should be entered.

A: d.

R: 19211-C,R5, PG. 2, 10005-C,R4, PG. 5, GREB 000-029-005  
EB#: LO-OR-37041-07-02 Point Value: 1.00

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## EXAM KEY

2R

16. Q: Unit 1 has tripped from 100% power. While performing the immediate operator actions of E-0, the operating crew observes the following parameters:

- SI ACTUATED BPLP lit
- No SI annunciator lit
- RCS pressure is at 1190 psig
- Containment pressure is .5 psig
- All four S/G's are at 550 psig and lowering
- A small amount of steam flow is indicated on all 4 S/G's
- Tave on all four loops is approximately 530 degrees F
- No ECCS equipment has realigned

Select the ONE response below which describes the proper actions for the given conditions.

- a. Transition to 19001-C, Reactor Trip Response.
- b. Manually actuate SI and go on to next step.
- c. Transition to 19020-C, Faulted Steam Generator Isolation.
- d. Isolate AFW flow to all four S/G's

A: b.

R: 19000-C,R12,PG. 3,  
EB#: LO-OR-37011-15-01

Point Value: 1.00

EXAM KEY  
2R

- =====
17. Q: Placing the delta T defeat switch to a failed channel position will result in:
- a. The failed channel input to the Rod Insertion Limit computer will be removed.
  - b. The failed channel input to Rod Control will be removed.
  - c. The failed channel input to the Steam Dump Control system will be removed.
  - d. The failed channel input to the OT delta T calculation will be removed.

A: a.

R: 18001-C,R13,PG. 3, LOGICS,  
EB#: LO-OR-60301-08-01

Point Value: 1.00

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18. Q: Which ONE of the following statements concerning recovery of a dropped rod or misaligned rod is correct? (Assume reactor power is initially 75% power.)
- a. Upon starting recovery of the dropped rod, an URGENT FAILURE alarm will occur (except for Shutdown Banks CDE rods) because the lift coils for the rods in the other group have been disconnected.
  - b. The AFD "Dog House" limit is not applicable during a dropped rod malfunction and subsequent recovery.
  - c. If two or more rods have dropped, manually trip the reactor and proceed to 18003-C to handle the dropped rod recovery.
  - d. Recovery of the dropped rod will be facilitated if Tave is higher than T-ref prior to commencing withdrawal of the dropped rod.

A: a.

R: 18003-C,R8,PG. 5,  
EB#: LO-OR-60303-03-01

Point Value: 1.00

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EXAM KEY  
2R

17. Q: Placing the delta T defeat switch to a failed channel position will result in:
- The failed channel input to the Rod Insertion Limit computer will be removed.
  - The failed channel input to Rod Control will be removed.
  - The failed channel input to the Steam Dump Control system will be removed.
  - The failed channel input to the OT delta T calculation will be removed.

A: a.

R: 18001-C,R13,PG. 3, LOGICS,  
EB#: LO-OR-60301-08-01

Point Value: 1.00

18. Q: Which ONE of the following statements concerning recovery of a dropped rod or misaligned rod is correct? (Assume reactor power is initially 75% power.)
- Upon starting recovery of the dropped rod, an URGENT FAILURE alarm will occur (except for Shutdown Banks CDE rods) because the lift coils for the rods in the other group have been disconnected.
  - The AFD "Dog House" limit is not applicable during a dropped rod malfunction and subsequent recovery.
  - If two or more rods have dropped, manually trip the reactor and proceed to 18003-C to handle the dropped rod recovery.
  - Recovery of the dropped rod will be facilitated if Tave is higher than than T-ref prior to commencing withdrawal of the dropped rod.

A: a.

R: 18003-C,R8,PG. 5,  
EB#: LO-OR-60303-08-01

Point Value: 1.00



EXAM KEY  
2R

19. Q: The plant has stabilized following a major tube rupture in S/G #1. ECCS flow has been terminated and normal charging and letdown reestablished. A recovery procedure has not yet been selected. Auxiliary feedwater flow to the ruptured steam generator is isolated. The Balance of Plant Operator reports ruptured steam generator level is slowly rising. The Reactor Operator reports pressurizer level at 18% and slowly trending down.

Based on these conditions what action(s) must be taken currently to stabilize both steam generator and pressurizer level?

- a. Increase PZR pressure above S/G pressure and increase charging flow to maintain PZR level.
- b. Reduce PZR pressure to less than or equal to S/G pressure and increase charging flow to maintain PZR level.
- c. Increase PZR pressure above S/G pressure and reduce charging flow to maintain PZR level.
- d. Reduce PZR pressure to less than or equal to S/G pressure and reduce charging flow to maintain PZR level.

A: b.

R: WOG BACKGROUND DOC., 19030-C,R9,PG. 10,  
EB#: LO-OR-37312-02-06

Point Value: 1.00

EXAM KEY  
2R

20. Q: Which ONE of the following sets of conditions would allow an emergency start of the diesel generator?
- a. Local/remote switch in LOCAL position, D/G in OPERATIONAL mode, and loss of offsite power occurs.
  - b. Local/remote switch in REMOTE, D/G in OPERATIONAL mode, starting air pressure 110 psig, and a loss of offsite power occurs.
  - c. Local/remote switch in LOCAL, D/G in MAINTENANCE mode, and an SI occurs.
  - d. Local/remote switch in REMOTE, D/G in OPERATIONAL mode, starting air pressure is 225 psig, and an SI occurs.

A: d.

R: 13145-1, R29, PG. 3,  
EB#: LO-OR-11201-02-01

Point Value: 1.00

21. Q: A D/G was started due to a spurious SI signal. Which ONE of the following describes the action(s) that must be completed to permit a NORMAL STOP of the D/G?
- a. Reset the SI signal.
  - b. Reset the SI signal and depress the EMERG STOP RESET pushbutton.
  - c. Break the EMERG STOP break glass and place the UNIT/PARALLEL switch in the UNIT position.
  - d. Reset the SI and depress the RESET FROM LOCA/LOSP pushbutton.

A: d.

R: 13145-1, R29, PG. 22,  
EB#: LO-OR-11201-04-01

Point Value: 1.00

## EXAM KEY

2R

22. Q: A natural circulation cooldown per 19002-C is in progress because power has been lost to both 13.8KV busses. Two CRDM cooling fans are inoperable.

Which ONE of the following describes how the inoperability of the CRDM fans will affect the cooldown and depressurization?

- a. It has no affect because the amount of RCS heat removal from the operation of the two fans is insignificant compared to that heat removal from steaming the secondary plant.
- b. Less subcooling can be maintained and this will result in longer upper head cooling off time.
- c. Greater minimum subcooling must be maintained and the upper head cooldown rate will be less.
- d. The upper head will void since there is not enough cooling available with only two CRDM fans.

A: c.

R: 19002-C,R7,PG. 3,  
EB#: LO-OR-37012-05-07

Point Value: 1.00

23. Q: An operator missed taking the action specified in Step C6 of 180.2-C during a loss of 120V bus, 1BY1B. Explain what adverse effects that missing this step would have on any subsequent step(s) of the procedure.

- a. Normal letdown cannot be established.
- b. PZR heaters will remain energized and spray valves will open.
- c. A reactor trip will occur due to PZR low level.
- d. RCS pressure will eventually drop until the reactor trips, then an SI will occur from the ensuing pressure transient.

A: a.

R: VOGTLE TEXT, 18032-C, FSAR LOGIC 7.2.1-1  
EB#: LO-OR-60324-02-01

Point Value: 1.00

KEY CONTINUED ON NEXT PAGE

EXAM KEY  
2R

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24. Q: Which ONE of the following best describes the effects of an UNDERCOMPENSATED intermediate range channel following a reactor trip?
- a. The channel will indicate high, preventing P-6 from re-energizing the source range (required 2/2 coincidence not satisfied).
  - b. The channel will indicate low, prematurely energizing the source range (required 2/2 coincidence is satisfied).
  - c. The channel will indicate high, but the source range will be re-energized by the other channel (required 1/2 coincidence satisfied).
  - d. The channel will indicate low, but the source range will not re-energize until P-6 is supplied from the other channel (required 2/2 coincidence not satisfied).

A: a.

R: 18002-C, R5, PG. 4,  
EB#: LO-OR-17201-08-02

Point Value: 1.00

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EXAM KEY  
2R

25. Q: Unit 1 has tripped from 100% power and 19000-C (Reactor Trip or Safety Injection) has been entered and completed up to step 4 (check if SI has been actuated). SI has not been actuated as of yet. However, 19000-C requires the operator to review certain conditions and determine if SI is required.

Given the above scenario and the following conditions, assess what actions are required in accordance with 19000-C step 4 (Check if SI is Actuated).

Pressurizer pressure:	1880 psig (and increasing)
Containment pressure:	2 psig
RCS Tavg:	556 degrees F (and stable)
S/G steam flow:	None indicated
S/G levels:	10% (NR) on all S/G's (recovering)
PZR level	16% and increasing

No automatic alignment of ECCS equipment has occurred.

S/G steam pressures as follows:

1 S/G	900 psig
2 S/G	970 psig
3 S/G	985 psig
4 S/G	965 psig

- SI is not required, therefore the operator should transition to 19001-C.
- SI is not required, therefore the operator should continue with step 5 of 19000-C.
- SI is required, therefore the operator should manually SI and continue with 19000-C.
- SI is required, therefore the operators should manually SI and transition to 19010-C.

A: a.

R: 19000-C, R10, PG. 3,  
EB#: LO-OR-37011-06-03

Point Value: 1.00

## PLANT VOGTLE TRAINING DEPT.

QUESTION USE LIST for EXAM: SR-925-92-04.R

Total Points: 25.00

FILE NO: C92-05-005

Page 1

Assembled by LEON KAY on 05/18/92 in MANUAL mode.

ITEM	EB NUMBER	REVISION	DESCRIPTION
1.	LO-OR-39206-03-04	3 11/12/90	When can emergency boration be susp
2.	LO-OR-39206-03-06	5 05/18/92	OPERATOR RESPONSE TO QPTR OF 1.03
3.	LO-OR-39208-03-07	1 03/07/91	Use of T.S. in Cold Shutdown.
4.	LO-OR-39208-03-08	2 05/18/92	Actions required on a worsening S/G
5.	LO-OR-60328-07-01	2 05/25/92	Control Room Evacuation - operator
6.	LO-OR-12101-15-02	13 05/19/92	Loss of RHR with the RCS at Mid-loo
7.	LO-OR-12101-16-02	11 05/19/92	Monitoring requirements for mid loo
8.	LO-OR-12101-18-02	7 06/04/92	Operator actions if vortexing occur
9.	LO-OR-37311-07-02	8 11/10/90	SGTR response to loss of PZR level
10.	LO-OR-37311-07-06	6 05/18/92	How is the SGTR cooldown controlled
11.	LO-OR-37031-08-06	15 06/04/92	What to do with CSFST's while in 19
12.	LO-OR-37002-07-08	7 05/25/92	Use of the CSFST procedure 19200-C
13.	LO-OR-37051-08-04	2 11/09/90	Restoration of subcooling following
14.	LO-OR-33530-08-02	1 05/18/92	Affect of adding +100 pcm below the
15.	LO-OR-37041-07-02	5 05/18/92	Operator action on an ATWT.
16.	LO-OR-37011-15-01	1 04/22/92	SI initiation criteria
17.	LO-OR-60301-08-01	2 05/19/92	Function of the delta T defeat swit
18.	LO-OR-60303-03-01	1 02/13/91	Concerns over a dropped rod recover
19.	LO-OR-37312-02-06	7 05/18/92	SGTR recovery procedural applicatio
20.	LO-OR-11201-02-01	5 05/18/92	Initial condition requirements to e
21.	LO-OR-11201-04-01	3 05/19/92	D/G normal stop after an SI.
22.	LO-OR-37012-05-07	1 05/18/92	Problems associated with two CRDM f

=====LIST CONTINUED ON NEXT PAGE=====



## QUESTION USE LIST

<u>ITEM</u>	<u>EB NUMBER</u>	<u>REVISION</u>	<u>DESCRIPTION</u>
23.	LO-OR-60324-02-01	6 02/07/92	Consequences of failure to perform
24.	LO-OR-17201-08-02	1 01/30/91	Undercompensated intermediate range
25.	LO-OR-37011-06-03	8 05/18/92	SI requirement determination

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END OF QUESTION LIST

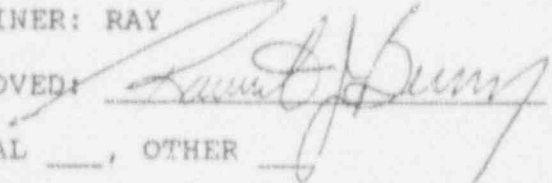
GEORGIA POWER COMPANY  
VOGTLE ELECTRIC GENERATING PLANT  
TRAINING DEPARTMENT  
EXAMINATION COVER SHEET

COURSE TITLE: Licensed Operator Regualification Annual Written Exam

COURSE / EXAM #: SP-925-92-04.5

EXAMINER: RAY

DATE ADMINISTERED: Week of 6/29/92

APPROVED: 

EXAM TYPE: CLASSROOM , SIMULATOR , BIENNIAL , OTHER

INSTRUCTIONS TO STUDENT:

USE SHEET PROVIDED FOR ANSWERS. STAPLE EXAMINATION COVER SHEET ON TOP OF THE ANSWER SHEET(S). IF NEEDED, THE INSTRUCTOR WILL PROVIDE ANY ADDITIONAL INSTRUCTIONS. POINTS FOR EACH QUESTION ARE INDICATED NEXT TO THE QUESTION. PASSING REQUIRES A FINAL GRADE OF AT LEAST 70% OVERALL.

\*\* PRINT NEATLY \*\*

NAME (Last, First, MI)

SOCIAL SECURITY #

DEPARTMENT

COMPANY

ALL WORK DONE ON THIS EXAM IS MY OWN. I HAVE NEITHER GIVEN NOR RECEIVED AID.

STUDENT SIGNATURE

TOTAL POINTS	POINTS MISSED	RAW SCORE	FINAL GRADE
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25

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GRADED BY: \_\_\_\_\_

REVIEWED BY: \_\_\_\_\_

C92-05-004

PLANT VOGTLE TRAINING DEPT.

M A S T E R    K E Y

FOR

EXAM: SR-925-92-04.S

Total Points: 25.00

ASSEMBLED IN MANUAL MODE.

## EXAM KEY

1. Q: The reactor is in Mode 3 with the shutdown banks fully withdrawn in preparation for reactor startup. The IR channel ACOT (14424) has just been completed. A review of the results indicates that the final as-left setting for the IR neutron flux trip for channel N36 is equivalent to 33% power.

Which of the following statements best describes the required actions for this situation?

- a. The startup may commence, however, the channel must be returned to service prior to exceeding the P-6 setpoint.
- b. The channel must be returned to operable status prior to entering Mode 2.
- c. Place channel N36 in the tripped condition prior to entering Mode 2.
- d. Startup may proceed if channel N36 is placed in the tripped condition within the next 2 hours.

A: b.

R: T.S. 2.2.1, GREB 012-000-001,  
EB#: LO-OR-39203-02-01

Point Value: 1.00

KEY CONTINUED ON NEXT PAGE

EXAM KEY

2. Q: Unit 1 is at 80% power. The plant has an inoperable DRPI indicator for Shutdown Bank "E" rod D-8. All Tech. Spec. requirements for the inoperable DRPI have been completed. While increasing turbine load to 100% power the following alarms and indications are received.

- RPI Urgent Alarm. On ALB 10
- Rod bottom light for H-8 in Control Bank D
- General Warning LEDs flashing for H-8 in Control Bank D
- RPI Urgent Alarm LEDs flashing

Which action should be taken?

- a. Apply Tech. Spec 3.0.3 because two (2) control rod position indications are inoperable.
- b. Immediately trip the reactor, since two (2) control rod positions cannot be determined.
- c. Continue operation provided the non-indicating rod positions are determined once per eight (8) hours by the incore detector system and immediately after any non-indicating rod motion >24 steps in one direction.
- d. Reduce thermal power to less than or equal to 50% rated thermal power within eight (8) hours, if the demand position indicators for the indicating rods are operable and within +/- Twelve (12) steps of the RPI system; if not immediately trip the reactor.

A: c.

R: 17010-C, T.S.3.1.3.2,  
EB#: LO-OR-39205-03-05

Point Value: 1.00

EXAM KEY

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3. Q: The control room operators have initiated an emergency boration because control rod height is below the rod bank lo-lo limit, and the reactor is critical.

The operators can terminate emergency boration when

- a. A shutdown margin of at least 2.0% delta K/K has been established.
- b. At least 750 pcm of negative reactivity is inserted into the core.
- c. The control rod height is above the rod bank lo-lo limit.
- d. The control rods begin withdrawing with the rod control system in automatic.

A: c.

R: 17010-1,R12,PC.28, T.S. 3.1.3.6, GREB 000-024-006  
EB#: LO-OR-39206-03-04

Point Value: 1.00

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## EXAM KEY

4. Q: While the plant is operating at 85%, due to feedwater heater maintenance, the POWER RANGE CHANNEL DEVIATION annunciator and the ROD AT BOTTOM annunciator both alarm. One rod is verified on the bottom using DRPI. The QPTR is calculated and results in a QPTR of 1.03.

In response to this, the control room operators MUST perform which of the following?

- a. Calculate the QPTR each hour until it returns within its limits.
- b. Reduce thermal power to less than 50% within the next 2 hours.
- c. Reduce the Power Range Neutron Flux high trip setpoint to 91% within the next 4 hours.
- d. Immediately commence a power reduction and be in hot standby within 6 hours.

A: a.

R: T.S. 3/4.2.4, 18003-C,R6.PG. 4, GREB 015-000-006

EB#: LO-OR-39206-03-06

Point Value: 1.00

KEY CONTINUED ON NEXT PAGE

EXAM KEY

5. Q: Unit 1 is at 100% RTP when a fire occurs in a cable spreading room. Due to the large amount of smoke in the control room, it is decided by the Shift Superintendent to evacuate to the shutdown panels.

Select the ONE response below which describes the proper operating crew action for the given conditions?

- a. Evacuate the control room. Take an extra set of procedures so the USS and the RO have an extra set at PSDB and trip the reactor by opening the MG set breakers at 1NB08 and 1NB09.
- b. Announce over the PA system to evacuate the control room, proceed to the shutdown panels and trip the reactor from PSDB.
- c. Trip the reactor and safety inject prior to leaving the control room. Take an extra set of EOP's for the RC and BOP to use at the shutdown panels.
- d. Trip the reactor prior to leaving the main control room.

A: d.

R: 18038-1, R14, PG. 2,  
EB#: LO-OR-60328-07-01

Point Value: 1.00

## EXAM KEY

6. Q: Which one of the following conditions would result in the core becoming uncovered in the shortest period of time if a total loss of RHR occurred 120 hours after shutdown? (Assume no operator action taken)
- a. Refueling pool filled to Tech Spec level with fuel movement in progress in the containment building.
  - b. RCS at midloop with all SG primary manways removed. No nozzle dams are installed.
  - c. RCS at midloop with all SG primary manways removed. Hot leg nozzle dams are installed and there have been no vent paths established.
  - d. RCS at midloop with all SG primary manways removed. Hot leg nozzle dams are installed and the pressurizer manway has been removed.

A: c.

R: VOGTLE TEXT, 18019-C,R12,PG. 1,  
EB#: LO-OR-12101-15-02

Point Value: 1.00

7. Q: The plant is operating with the RCS at mid-loop. Which one of the following is true, with regards to the RCS sightglass level indicator, when all control room level indication is inoperable?
- a. It must be continuously monitored.
  - b. It must be monitored any time RCS level is changed.
  - c. It must be monitored once per shift and continuously monitored any time level is changed.
  - d. It must be monitored every 4 hours unless any level changes are being made.

A: a.

R: 12006-C,R23,PG. 1, 13005-1,R21,PG. 2,  
EB#: LO-OR-12101-16-02

Point Value: 1.00

KEY CONTINUED ON NEXT PAGE

EXAM KEY

8. Q: The reactor was shutdown at 0100 on January 3rd. While operating at midloop, a complete loss of RHR occurs at 0700 on January 6th and cannot be corrected. Within a few minutes, core exit thermocouples begin to rapidly increase. The Unit Shift Supervisor orders a charging pump started to remove the decay heat. The minimum flow rate required under these conditions to maintain RCS temperature < 195 degrees F is:

- a. 1200 GPM (+/- 50 gpm)
- b. 1000 gpm (+/- 50 gpm)
- c. 750 gpm (+/- 50 gpm)
- d. 600 gpm (+/- 50 gpm)

A: b.

R: 18019-1,R12,STEPB13, FIGURE 1,  
EB#: LO-OR-12101-19-01

Point Value: 1.00

9. Q: A SGTR has occurred. An RCS cooldown is in progress, per Step 14, when the reactor operator reports pressurizer level is below 9% and decreasing rapidly.

The proper response is to:

- a. Stop the cooldown and depressurize the RCS to promote backfill flow from the ruptured steam generator to the RCS.
- b. Stop the cooldown, and transition to EOP 19131-C, per the foldout page action.
- c. Continue the cooldown, and concurrently depressurize the RCS to promote an increase in injection flow.
- d. Continue the cooldown, take no additional actions.

A: d.

R: WOG BACKGROUND DOC., 19030-C,R9,PG. 12,  
EB#: LO-OR-37311-07-02

Point Value: 1.00

EXAM KEY

10. Q: In 19030 (SGTR), if the ruptured SG's MSIVs and Bypasses can not be isolated, all remaining MSIV's and bypasses are closed and the secondary system is isolated. If this action is taken, how will the operating team accomplish the rapid RCS cooldown of 19030-C?
- a. The cooldown will be accomplished by opening the intact S/G's ARV's.
  - b. The cooldown will be accomplished by establishing maximum AFW flow to intact S/G's until S/G levels reach 95% wide range indication.
  - c. The cooldown will be accomplished using the ruptured S/G, aligned to the condenser steam dumps.
  - d. The cooldown will be accomplished via the intact S/G MSIV bypass valves realigned to the steam dump system.

A: a.

R: 19030-C, R9, PG. 4,  
EB#: LO-OR-37311-07-06

Point Value: 1.00

11. Q: With Unit 1 at 100% power, the A "RHR" pump is disassembled for maintenance. The reactor operator notes that the suction MOV on the "B" RHR pump (HV-8812B) is closed and cannot be reopened. Assuming it will take 10 hours to return the "A" RHR pump to service and the suction MOV HV-8812B on the "B" RHR cannot be opened, this event would be classified per the EPIP's as:
- a. Not a classifiable event
  - b. NOUE
  - c. Alert
  - d. Site Area Emergency

A: b.

R: LO-LP-39209-03, 91001-C, R8, PG. 7, T.S. 3.0.3  
EB#: LO-OR-40101-13-08

Point Value: 1.00

EXAM KEY

12. Q: A loss of AC power to 1BA03 and 1AA02 has occurred. Steam is being released locally via the S/G ARVs in an effort to reduce S/G pressure to 300 psig. A low steamline pressure SI signal has been received. When steamline pressure reaches 315 psig and RCS cold leg temperatures are between 420 degrees F and 430 degrees F, the licensed operator monitoring the Critical Safety Functions informs you that the source range startup rate is reading +0.2 dpm with no indication as to why. Your action should be to:

- a. Begin emergency boration.
- b. Secure dumping steam and heat up to add negative reactivity.
- c. Continue to lower S/G pressure to 300 psig.
- d. Try to start one RCP.

A: b.

R: 19100-C,R9,PG. 18,  
EB#: LO-OR-37031-08-06

Point Value: 1.00

13. Q: During a loss of offsite power event, the primary communications system for notifying the NRC is rendered inoperable. The backup method for contacting the NRC is via the:

- a. Emergency Notification Network (ENN)
- b. NOAA weather radio channel
- c. Commercial telephone system and the GPC microwave system
- d. MELITA AUTO-DIALER

A: c.

R: 91204-C,R12,PG. 3,  
EB#: LO-OR-40101-23-01

Point Value: 1.00



EXAM KEY

14. Q: A loss of coolant accident is in progress. Control room operators are performing EOP 19222, "FR-C.2, Response to Degraded Core Cooling" in response to an ORANGE path on the CORE COOLING CSFST. Which one of the following statements is correct concerning transitions out of this procedure.

The operators would immediately transition to:

- a. EOP 19231-C, if the HEAT SINK CSFST indicates a RED path condition.
- b. EOP 19212-C, if the SUBCRITICALITY CSFST indicates a YELLOW path condition.
- c. EOP 19251-C, if the CONTAINMENT CSFST indicates an ORANGE path condition.
- d. EOP 19010-C, if the CORE COOLING CSFST changed to a GREEN path condition.

A: a.

R: WOG BACKGROUND FRG, 19200-C,R9,PG. 2,  
EB#: LO-OR-37002-07-08

Point Value: 1.00

## EXAM KEY

15. Q: The plant is tripped and the operators are performing actions per 19231-C, Loss of Secondary Heat Sink. Due to the loss of heat sink, the crew initiated RCS feed and bleed. The operators are now preparing to terminate RCS feed and bleed because secondary heat sink has been restored and verified. The operators check if a CCP can be stopped. They are unable to stop a CCP because RCS subcooling is less than required.

Although RCS subcooling is insufficient when this step is first encountered, subcooling will begin to increase as RCS pressure increases due to subsequent:

- a. Closing of the PZR PORV's.
- b. Stopping of an SI pump.
- c. Establishment of normal charging flow.
- d. Closing of the PZR spray valves.

A: a.

R: 19231-C,R12,PG. 16, GREB 000-054-007,  
EB#: LO-OR-37051-08-04

Point Value: 1.00

EXAM KEY

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16. Q: Unit 1 is being maintained at  $10E^{-8}$  amps on the IR to take critical data. Boron concentration is 1280 ppm, BOL, Control Bank "D" is at 120 steps. Assume all appropriate systems are in AUTO and function as designed.

Positive reactivity ( +100 pcm) is added by rod withdrawal to establish a + 0.25 dpm SUR. Which ONE of the following would occur assuming no other operator action?

- a. Reactor power would continue to increase at a constant rate until a reactor trip occurred at approx. 10%.
- b. Reactor power would continue to increase at a constant rate until a reactor trip occurred at 25% power.
- c. Reactor power would increase above the POAH and stabilize.
- d. Reactor power would stabilize at the POAH.

A: c.

R: 12004-C,R24,PG. 29,  
EB#: LC-OR-33530-08-02

Point Value: 1.00

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EXAM KEY

17. Q: Due to the loss of main feedwater pumps, the steam generators decrease below the low-low level trip setpoint, but no reactor trip occurs. The USS carries out the action of 19211. Reactor power is now less than 5% with a negative SUR. At the completion of 19211, a RED path condition exists for HEAT SINK. Which procedure should the USS go to next.

- a. Reenter 19000-C at step 1.
- b. Reenter 19000-C at the step in effect.
- c. Enter 19231-C.
- d. Enter 19001-C.

A: C

R: 19200-C, 19211-C,  
EB#: LO-OR-37002-08-07

Point Value: 1.00

18. Q: Placing the delta T defeat switch to a failed channel position will result in:

- a. The failed channel input to the Rod Insertion Limit computer will be removed.
- b. The failed channel input to Rod Control will be removed.
- c. The failed channel input to the Steam Dump Control system will be removed.
- d. The failed channel input to the OT delta T calculation will be removed.

A: a.

R: 18001-C, R13, PG. 3, LOGICS,  
EB#: LO-OR-60301-08-01

Point Value: 1.00

EXAM KEY

19. Q: Which ONE of the following statements concerning recovery of a dropped rod or misaligned rod is correct? (Assume reactor power is initially 75% power.)
- a. Upon starting recovery of the dropped rod, an URGENT FAILURE alarm will occur (except for Shutdown Banks CDE rods) because the lift coils for the rods in the other group have been disconnected.
  - b. The AFD "Dog House" limit is not applicable during a dropped rod malfunction and subsequent recovery.
  - c. If two or more rods have dropped, manually trip the reactor and proceed to 18003-C to handle the dropped rod recovery.
  - d. Recovery of the dropped rod will be facilitated if Tave is higher than than T-ref prior to commencing withdrawal of the dropped rod.

A: a.

R: 18003-C, R8, PG. 5,  
EB#: LO-OR-60303-03-01

Point Value: 1.00

EXAM KEY

20. Q: The plant has stabilized following a major tube rupture in S/G #1. ECCS flow has been terminated and normal charging and letdown reestablished. A recovery procedure has not yet been selected. Auxiliary feedwater flow to the ruptured steam generator is isolated. The Balance of Plant Operator reports ruptured steam generator level is slowly rising. The Reactor Operator reports pressurizer level at 18% and slowly trending down.

Based on these conditions what action(s) must be taken currently to stabilize both steam generator and pressurizer level?

- a. Increase PZR pressure above S/G pressure and increase charging flow to maintain PZR level.
- b. Reduce PZR pressure to less than or equal to S/G pressure and increase charging flow to maintain PZR level.
- c. Increase PZR pressure above S/G pressure and reduce charging flow to maintain PZR level.
- d. Reduce PZR pressure to less than or equal to S/G pressure and reduce charging flow to maintain PZR level.

A: b.

R: WOG BACKGROUND DOC., 19030-C,R9,PG. 10,  
EB#: LO-OR-37312-02-06

Point Value: 1.00



EXAM KEY

21. Q: A natural circulation cooldown per 19002-C is in progress because power has been lost to both 13.8kV busses. Two CRDM cooling fans are inoperable.

Which ONE of the following describes how the inoperability of the CRDM fans will affect the cooldown and depressurization?

- a. It has no effect because the amount of RCS heat removal from the operation of the two fans is insignificant compared to that heat removal from steaming the secondary plant.
- b. Less subcooling can be maintained and this will result in longer upper head cooling off time.
- c. Greater minimum subcooling must be maintained and the upper head cooldown rate will be less.
- d. The upper head will void since there is not enough cooling available with only two CRDM fans.

A: c.

R: 19002-C, R7, PG. 3,  
EB#: LO-OR-37012-05-07

Point Value: 1.00

22. Q: An operator missed taking the action specified in Step C6 of 18032-C during a loss of 120V bus, 1BY1B. Explain what adverse effects that missing this step would have on any subsequent step(s) of the procedure.

- a. Normal letdown cannot be established.
- b. PZR heaters will remain energized and spray valves will open.
- c. A reactor trip will occur due to PZR low level.
- d. RCS pressure will eventually drop until the reactor trips, then an SI will occur from the ensuing pressure transient.

A: a.

R: VOGTLE TEXT, 18032-C, FSAR LOGIC 7.2.1-1  
EB#: LO-OR-60324-02-01

Point Value: 1.00

EXAM KEY

23. Q: Unit 1 has tripped from 100% power and 19000-C (Reactor Trip or Safety Injection) has been entered and completed up to step 4 (check if SI has been actuated). SI has not been actuated as of yet. However, 19000-C requires the operator to review certain conditions and determine if SI is required.

Given the above scenario and the following conditions, assess what actions are required in accordance with 19000-C step 4 (Check if SI is Actuated).

Pressurizer pressure: 1880 psig (and increasing)  
Containment pressure: 2 psig  
RCS Tavg: 556 degrees F (and stable)  
S/G steam flow: None indicated  
S/G levels: 10% (NR) on all S/G's (recovering)  
PZR level 16% and increasing

No automatic alignment of ECCS equipment has occurred.

S/G steam pressures as follows:

1 S/G 900 psig  
2 S/G 970 psig  
3 S/G 985 psig  
4 S/G 965 psig

- a. SI is not required, therefore the operator should transition to 19001-C.
- b. SI is not required, therefore the operator should continue with step 5 of 19000-C.
- c. SI is required, therefore the operator should manually SI and continue with 19000-C.
- d. SI is required, therefore the operators should manually SI and transition to 19010-C.

A: a.

R: 19000-C, R10, PG. 3,  
EB#: LO-OR-37011-06-03

Point Value: 1.00

EXAM KEY

24. Q: Electrical Maintenance would like to perform scheduled maintenance on inverter 1AD1111. When transferring the instrument bus fed by 1AD1111 to its alternate power supply, which of the below listed actuations are prevented by procedural guidelines.

1. Containment Ventilation Isolation (CVI)
  2. Containment Phase A Isolation (CIA)
  3. Control Room Isolation (CRI)
  4. Fuel Handling Building Isolation (FHBI)
- a. 1, 2, & 3 only
  - b. 2, 3, & 4 only
  - c. 1, 3, & 4 only
  - d. 1 & 4 only

A: c.

R: 13431-1,R5,PG. 6, LO-LP-60324-01,  
EB#: LO-OR-01103-03-02

Point Value: 1.00

25. Q: Which ONE of the following sets of conditions would allow an emergency start of the diesel generator?

- a. Local/remote switch in LOCAL position, D/G in OPERATIONAL mode, and loss of offsite power occurs.
- b. Local/remote switch in REMOTE, D/G in OPERATIONAL mode, starting air pressure 110 psig, and a loss of offsite power occurs.
- c. Local/remote switch in LOCAL, D/G in MAINTENANCE mode, and an SI occurs.
- d. Local/remote switch in REMOTE, D/G in OPERATIONAL mode, starting air pressure is 225 psig, and an SI occurs.

A: d.

R: 13145-1,R29,PG. 3,  
EB#: LO-OR-11201-02-01

Point Value: 1.00

END OF TEST KEY

PLANT VOGTLE TRAINING DEPT.

GRADING KEY for EXAM: SR-925-92-04.S  
ASSEMBLED IN MANUAL MODE.

Total Points: 25.00

Page 1

1. (1.00pt)  
b.
  2. (1.00pt)  
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  3. (1.00pt)  
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  17. (1.00pt)  
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EXAM KEY

- 18. (1.00pt)  
a.
  - 19. (1.00pt)  
a.
  - 20. (1.00pt)  
b.
  - 21. (1.00pt)  
c.
  - 22. (1.00pt)  
a.
  - 23. (1.00pt)  
a.
  - 24. (1.00pt)  
c.
  - 25. (1.00pt)  
d.
- =====

END OF TEST KEY

## PLANT VOGTLE TRAINING DEPT.

QUESTION USE LIST for EXAM: SR-925-92-04.S

Total Points: 25.00

FILE NO: C92-05-004

Page 1

Assembled by Steve Wilkerson on 06/25/92 in MANUAL mode.

<u>ITEM</u>	<u>EB NUMBER</u>	<u>REVISION</u>	<u>DESCRIPTION</u>
1.	LO-OR-39203-02-01	4 05/18/92	Out of spec. N36 level trip setpoint
2.	LO-OR-39205-03-05	4 03/13/90	Tech. Spec. interpretation - DRPI f
3.	LO-OR-39206-03-04	3 11/12/90	When can emergency boration be susp
4.	LO-OR-39206-03-06	5 05/18/92	OPERATOR RESPONSE TO QPTR OF 1.03
5.	LO-OR-60328-07-01	2 05/25/92	Control Room Evacuation - operator
6.	LO-OR-12101-15-02	13 05/19/92	Loss of RHR with the RCS at Mid-loo
7.	LO-OR-12101-16-02	11 05/19/92	Monitoring requirements for mid loo
8.	LO-OR-12101-19-01	2 06/22/92	minimum charging flow for loss of R
9.	LO-OR-37311-07-02	8 11/10/90	SGTR response to loss of PZR level
10.	LO-OR-37311-07-06	6 05/18/92	How is the SGTR cooldown controlled
11.	LO-OR-40101-13-08	6 11/13/90	EPIP USE & event reportability - RH
12.	LO-OR-37031-08-06	15 06/04/92	What to do with CSFST's while in 19
13.	LO-OR-40101-23-01	00 / /	ENS backup - SRO only
14.	LO-OR-37002-07-08	7 05/25/92	Use of the CSFST procedure 19200-C
15.	LO-OR-37051-08-04	2 11/09/90	Restoration of subcooling following
16.	LO-OR-33530-08-02	1 05/18/92	Affect of adding +100 pcm below the
17.	LO-OR-37002-08-07	1 06/21/92	Transition decision when exiting 19
18.	LO-OR-60301-08-01	2 05/19/92	Function of the delta T defeat swit
19.	LO-OR-60303-03-01	1 02/13/91	Concerns over a dropped rod recover
20.	LO-OR-37312-02-06	7 05/18/92	SGTR recovery procedural applicatio
21.	LO-OR-37012-05-07	1 05/18/92	Problems associated with two CRDM f
22.	LO-OR-60324-02-01	6 02/07/92	Consequences of failure to perform

=====LIST CONTINUED ON NEXT PAGE=====



QUESTION USE LIST

<u>ITEM</u>	<u>EB NUMBER</u>	<u>REVISION</u>	<u>DESCRIPTION</u>
23.	LO-CR-37011-0'-03	8 05/18/92	SI requirement determination
24.	LO-CR-01103-03-02	6 05/19/92	Loss of 1AY2A - What safeguards act
25.	LO-CR-11201-02-01	5 05/18/92	Initial condition requirements to e

=====

END OF QUESTION LIST

GEORGIA POWER COMPANY  
VOGTLE ELECTRIC GENERATING PLANT  
TRAINING DEPARTMENT  
EXAMINATION COVER SHEET

COURSE TITLE: Licensed Operator Requalification Annual Written Exam

COURSE / EXAM #: SR-925-92-04.AR

EXAMINER: RAY

DATE ADMINISTERED: Week of 6/29/92

APPROVED: [Signature]

EXAM TYPE: CLASSROOM , SIMULATOR , BIENNIAL , OTHER

INSTRUCTIONS TO STUDENT:

USE SHEET PROVIDED FOR ANSWERS. STAPLE EXAMINATION COVER SHEET ON TOP OF THE ANSWER SHEET(S). IF NEEDED, THE INSTRUCTOR WILL PROVIDE ANY ADDITIONAL INSTRUCTIONS. POINTS FOR EACH QUESTION ARE INDICATED NEXT TO THE QUESTION. PASSING REQUIRES A FINAL GRADE OF AT LEAST 70% OVERALL.

\*\* PRINT NEATLY \*\*

NAME (Last, First, MI) \_\_\_\_\_

SOCIAL SECURITY # \_\_\_\_\_

DEPARTMENT \_\_\_\_\_

COMPANY \_\_\_\_\_

ALL WORK DONE ON THIS EXAM IS MY OWN. I HAVE NEITHER GIVEN NOR RECEIVED AID.

STUDENT SIGNATURE \_\_\_\_\_

TOTAL POINTS	POINTS MISSED	RAW SCORE	FINAL GRADE
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25

8

GRADED BY: \_\_\_\_\_

REVIEWED BY: \_\_\_\_\_

C92-05-011

PLANT VOGTLE TRAINING DEPT.

M A S T E R     K E Y

FOR

EXAM: SR-925-92-04.AR

Total Points: 25.00

ASSEMBLED IN MANUAL MODE.

STATIC SIMULATOR - PART A 35-06  
SIMULATOR SETUP INSTRUCTIONS FOR SS-06

INITIALIZE TO: IC-8; 50% Pwr, BOL.

INSERT MALFUNCTIONS:

<u>NO.</u>	<u>NAME</u>	<u>ENTRY METHOD</u>
40D	HL NR TEMP RTD Failure	[1, 40D]
62A	PT-505 failed low	[2, 62A,0]
7D	N-44 fails	[3, 7D,0]

INSERT OVERRIDES:

<u>NAME</u>	<u>ENTRY METHOD</u>
TDAFW Stm supply SG #2	[1, HS3019/Close]
RWST to SI pump isol valve	[2, HS8806/Close]

SELECT THE FOLLOWING SWITCH POSITIONS:

<u>NUMBER</u>	<u>NAME</u>	<u>POSITION</u>
-1LS-459D	Pressurizer level CNTL selector	461/460
-1HS-8806A	RWST to SI pump isol valve B	ON
-Pull the control power fuses for N-44		
-Ensure the delta flux recorder is not positioned to N-44.		

START THE SCENARIO

PERFORM THE FOLLOWING ACTIONS:

Open all SG sample valves.

FREEZE THE SIMULATOR AT: C001

STATIC SIMULATOR - PART A SS-06  
SIMULATOR SETUP INSTRUCTIONS FOR SS-06

VERIFY THE FOLLOWING CONDITIONS:

<u>POWER:</u> ~ 50%	<u>ROD POSITION:</u> 133 on D
<u>BORON:</u> 1851 ppm	<u>PER LVL:</u> ~ 45%
<u>PER PRESS:</u> ~ 2235 psig	<u>TAVE:</u> ~ 570°F
<u>RCP STATUS:</u> Running	<u>ECCS STATUS:</u> Standby
<u>SG PRESS:</u> ~ 1025 psig	<u>SG LVL:</u> ~ 65% NR

OTHER CONDITIONS:

None

VERIFY THE FOLLOWING SWITCH POSITIONS:

TDAFW Steam supply from SG 2 (HV-3019) CLOSED.  
RWST to SI pump isolation valve (HV-8806) CLOSED.  
PRZR Level Control Selector Switch in the 461/460 position.  
Lockout switch for HV-8806 in the ON position.  
Rod Control in Manual.  
All PRZR heaters in Automatic.  
All SG sample valves open.  
Step counters at 133 on Bank D.

*Carry out ACP action*

SELECT THE FOLLOWING DISPLAYS:

ERF DISPLAY 1: Top level digital  
ERF DISPLAY 2: Trend 7, (Select CRT trend)  
ERF DISPLAY 3: Top level digital  
PROTEUS: RCS diagram



STATIC SIMULATOR - PART A SS-06  
INSTRUCTION TO EXAMINEES FOR SS-06

The plant is at approximately 50 percent power near BOL.  
Control rods are in manual with CBD at 133 steps.

The following instrument malfunctions have occurred:

1. N-44 failed 3 days ago, and all actions of the AOP have been completed.
2. PT-505 failed.
3. Loop 4 Tave instrument failed.



EXAM KEY  
R2.A

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1.01 Q: If Pressurizer level transmitter LT-461 failed low, which automatic action would NOT occur?

- a. LCV-459 would close.
- b. LCV-450 would close.
- c. Pzr backup heaters would turn off.
- d. All orifice isolation valves will close.

A: B

R: LO-LP-16301-00, FSAR LOGIC 7.2.1-1,  
EB#: LO-SS-06000-01-01

Point Value: 1.00

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EXAM KEY  
R2.A

1.02 Q: Which of the following best describes the loop 4 Tave input instrument failure?

- a. Tcold, low.
- b. Thot, low.
- c. Tcold, high.
- d. Thot, high.

A: D

R: LO-LP-16101-00,  
EB#: LO-SS-05000-01-07

Point Value: 1.00

1.03 Q: If a turbine runback occurred, the steam dumps:

- a. would open and control RCS temperature at Tref.
- b. error signal would increase but the valves would remain closed.
- c. would all go full open on the trip open bistables.
- d. would be armed but would have no demand signal.

A: C

R: LO-LP-21201-00, FSAR LOGIC 7.2.1-1,  
EB#: LO-SS-06000-01-03

Point Value: 1.00

KEY CONTINUED ON NEXT PAGE

EXAM KEY  
R2.A

---

1.04 Q: Which bistable associated with Loop 4 Tave is most limiting with respect to tripping time by Tech Specs?

- a. OT Delta T trip.
- b. Lo Lo Tave steam dump block.
- c. Lo Tave FW isolation.
- d. OP Delta T turbine runback.

A: C

R: LO-LP-39207-00, ACP 18001-C, Table,  
EB#: LC-SS-06000-01-05

Point Value: 1.00

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KEY CONTINUED ON NEXT PAGE

## EXAM KEY

R2.A

1.05 Q: Concerning the presence of the Rod Bank Lo-Lo Limit alarm, which of the following is true?

- a. Emergency boration should be started in accordance with Tech Specs.
- b. The alarm can be cleared by placing the Tave Defeat Sel switch to loop 4, and no emergency boration is required.
- c. The alarm can be cleared by placing the Delta T Defeat Sel switch to loop 4, and no emergency boration is required.
- d. The alarm can NOT be cleared, but no emergency boration is required.

A: C

R: LO-LP-16101-00, FSAR LOGIC 7.2.1-1,  
EB#: LO-SS-06000-01-06

Point Value: 1.00



EXAM KEY  
R2.A

---

1.06 Q: From the existing plant conditions calculate the dilution required to raise power to 100% with all rods out, disregarding Xenon changes. (Assume DBW = 7.7 pcm/ppm).

Which of the following is correct?

- a. 700 gal (+/- 100 gal)
- b. 1500 gal (+/- 100 gal)
- c. 2450 gal (+/- 100 gal)
- d. 3900 gal (+/- 100 gal)

A: B

R: LO-LP-33440-00, Plant Technical Dat,  
EB#: LO-SS-06000-01-08

Point Value: 1.00

---

1.07 Q: With regard to ALB-11, D-1, the best course of action to clear this alarm is to:

- a. Open HC-182 to decrease seal flow and increase charging headed flow.
- b. Open FV-121 to increase charging flow.
- c. Start a second CCP.
- d. Defeat TI-442.

A: D

R: LOGICS,  
EB#: LO-SS-06000-01-12

Point Value: 1.00

---

EXAM KEY  
R2.A

1.08 Q: If rods were placed in automatic they would:

- a. Step out due to the failed NR temperature instrument.
- b. Step in due to the failed Impulse pressure instrument.
- c. Not move due to the C-3 interlock.
- d. Not move due to the C-4 interlock.

A: B  
(Do not use with LO-SS-06000-01-14)

R: LOGICS,  
EB#: LO-SS-06000-01-11

Point Value: 1.00

1.09 Q: If the A MFP was tripped, which of the following would be true?

- a. AMSAC would actuate after a time delay.
- b. Both MDAFW pumps would start when SG level lowered to the low-low level setpoint.
- c. Both MDAFW pumps would automatically start, but the Blowdown and SG sample valves would stay open until the low-low level setpoint is reached.
- d. Both MDAFW pumps would automatically start, and at the same time the SG Blowdown and sample valves would shut.

A: D

R: LOGICS,  
EB#: LO-SS-06000-01-13

Point Value: 1.00



## EXAM KEY

R2.A

1.10 Q: If a loss of vital 120VAC bus 1AY1A occurred right now, which of the following is true?

- a. A reactor trip and SI would occur automatically, however, the Steam Dumps would not open.
- b. A reactor trip would occur, but Steam Dumps would not open.
- c. A reactor trip would occur, and Steam Dumps would stay open until they shut on P-12 interlock.
- d. A reactor trip and SI would occur automatically, and Steam Dumps would stay open until they shut on P-12 interlock.

A: C

R: LOGICS, ONE LINES,  
EB#: LO-SS-06000-01-15

Point Value: 1.00

1.11 Q: THIS QUESTION IS INDEPENDENT OF CURRENT PLANT CONDITIONS!!!

A Safety Injection occurred 15 minutes ago.

All pressurizer safeties and PORV's are closed and all air operated valves IRC have cycled to their failed positions.

The most probable cause of PRT level still increasing is:

- a. Seal return relief lifting.
- b. Letdown line relief lifting.
- c. RHR discharge relief lifting.
- d. CCP suction relief lifting.

A: A

R: 1X4DB114, 18004-C,R6,PG. 18,  
EB#: LO-SS-98000-01-08

Point Value: 1.00

KEY CONTINUED ON NEXT PAGE

EXAM KEY  
R2.A

1.12 Q: THIS QUESTION IS INDEPENDENT OF CURRENT PLANT CONDITIONS!!!

Subsequent to a LOCA on Unit 1, the Safety Injection System is being swapped over to the cold leg recirculation mode. HV-8814, "A" safety injection pump recirc to the RWST, will not close. The reactor operator reports the problem to the USS and states that the transfer to cold leg recirc cannot be completed. This statement is:

- a. Correct, because to do so would result in potential damage to the SI pump.
- b. Correct, because an electrical interlock will prevent completing the transfer to cold leg recirculation with this valve open.
- c. Incorrect, because with the LO-LO RWST level and SI signal present, satisfying other electrical interlocks is not required.
- d. Incorrect, because as long as the recirc header isolation valve (HV-8813) can be closed, the electrical interlocks will be satisfied.

A: D

R: 19013-C,R6,PG. 5, 1X4DB121,  
EB#: LO-SS-98000-01-20

Point Value: 1.00

=====

END OF SECTION KEY

STATIC SIMULATOR - PART A SS-28

SIMULATOR SETUP INSTRUCTIONS FOR SS-28

INITIALIZE TO: IC-20; 75% Power, EOL.

INSERT MALFUNCTIONS:

<u>NO.</u>	<u>NAME</u>	<u>ENTRY METHOD</u>
61a,	LT-459 Fails	[1,61a,0]
84,	SGTR on #1 S/G	[2,84,80,0003]
59c,	PT-457 FAILS	[3,59C,0]
14,	RTb - SWMT	[4,14]
462,	PCS Doors Ajar	[5,462,ON]

INSERT OVERRIDES:

<u>NAME</u>	<u>ENTRY METHOD</u>
HS-9378A, Inst Air CRMT Isol.	[1,HS-9378A/CLOSE]

SELECT THE FOLLOWING SWITCH POSITIONS:

<u>NUMBER</u>	<u>NAME</u>	<u>POSITION</u>
HS-274A	B CCP	P-T-L
LS-439D	Fzr Level Control	461/460

START THE SCENARIO

PERFORM THE FOLLOWING ACTIONS:

Wait 3 minutes to allow instrument air in containment to begin to bleed off, then:

Activate Remote Function RP-24,T (PT-458 bistable trip), to cause SI.

Activate Remote Function RP-4,T (Trip of Loop 4 OT delta T trip bistable).

Throttle AFW flow to 200 GPM to each S/G.

Shut 1A CCP Relief Isolation, HS-6509B.

Shut HC-182, (max. seal flow, 0% demand).

FREEZE THE SIMULATOR 0005

STATIC SIMULATOR - PART A SS-28  
SIMULATOR SETUP INSTRUCTIONS FOR SS-28

VERIFY THE FOLLOWING CONDITIONS:

POWER: 2 E-7 amps      ROD POSITION: ARI      BORON: N/A  
PZR LVL: - 25%      PZR PRESS: - 2000 PSIG      TAVE: 556°F  
RCP STATUS: 4 on      ECCS STATUS: Injecting  
SG PRESS: - 1080 psig      SG LVL: #1 - above #2,3 &4, (NR)

OTHER CONDITIONS:

ALB09-A4 lit. (If not, enter RUN.25 on Westinghouse terminal, and repeat as necessary until annunciator lit.)

VERIFY THE FOLLOWING SWITCH POSITIONS:

FV-121 - full open, (0% demand).  
HC-182 - full shut, (0% demand).

SELECT THE FOLLOWING DISPLAYS:

ERE DISPLAY 1: Top Level  
ERE DISPLAY 2: Top Level  
ERE DISPLAY 3: Containment CSFST  
PROTEUS: Any

STATIC SIMULATOR - PART A 88-28  
INSTRUCTION TO EXAMINEES FOR 88-28

The B CCP has been out-of-service for maintenance for 20 hours.

The plant had just completed a power reduction to 5% power to perform maintenance on a feed regulating valve.

After the power reduction, PZR level channel, LT-459, failed low. The operator then selected an alternate channel for control.

Five minutes later, PT-457 failed low. The AOP actions for the failed channel were in progress. While tripping bistables a SI was actuated.

During the performance of E-0, some additional problems were encountered, as evidenced by the indications on the control boards.



EXAM KEY  
R2.A

---

2.01 Q: Identify the ruptured S/G.

- a. #1 S/G
- b. #2 S/G
- c. #3 S/G
- d. #4 S/G

A: A

R: 19030-C,  
EB#: LO-SS-28000-01-01

Point Value: 1.00

---

2.02 Q: Concerning the PZR level instrument prior to the reactor trip, which one of the following annunciators cleared when the failed channel was removed from the level control logic.

- a. ALB 11, A01
- b. ALB 11, B01
- c. ALB 11, C01
- d. A3B 11, E01

A: B

R: 17011-1,  
EB#: LO-SS-28000-01-07

Point Value: 1.00

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EXAM KEY  
R2.A

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2.03 Q: When I&C was dispatched to place the PZR pressure bistables in a tripped condition, the I&C technician inadvertently tripped the bistables associated with PT-458. The bistables were tripped in the following order:

PS-458A, High Pressure Reactor Trip  
PS-458C, Low Pressure Reactor Trip  
PS-458D, Pressurizer Low Pressure SI  
TS-441C, OT delta T Trip

Which bistable, when placed in the tripped condition, caused the reactor to trip?

- a. PS-458A, High Pressure Reactor Trip.
- b. PS-458C, Low Pressure Reactor Trip.
- c. PS-458D, Pressurizer Low Pressure SI.
- d. TS-441C, OT delta T Trip.

A: C

R: LO-LP-28102-03, LOGICS,  
EB#: LO-SS-28000-01-03

Point Value: 1.00

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EXAM KEY  
K2.A

2.04 Which of the following is most correct regarding the reset of the SI signal under the present conditions?

- a. When the SI timer times out, both trains of SI can be reset. All automatic SI actuation signals will be blocked on both trains.
- b. All reactor trip and bypass breakers must be open, and the SI timer must be timed out in order to reset an SI signal under any plant conditions.
- c. If the SI timer is timed out and all reactor trip and bypass breakers are open, the SI can be reset. But to prevent any automatic reactivation, the SI signals must be manually blocked.
- d. When the SI timer times out, both trains of SI can be reset. However, automatic actuation of B train SI will not be blocked.

A: D

R: LOGICS,  
EB#: LO-SS-28000-01-05

Point Value: 1.00

2.05 Q: For the existing plant conditions, the steam dumps will perform in the following manner:

- a. Not operate due to the lack of a 'B' train P-4 signal.
- b. Begin to open when Tavg exceeds 557 degrees F.
- c. Begin to open when Tavg exceeds 559 degrees F.
- d. Not open until Tavg is below 550 degrees and the low Tavg interlock is bypassed.

A: C

R: LOGICS, SIM INDICATIONS,  
EB#: LO-SS-28000-01-06

Point Value: 1.00

EXAM KEY  
R2.A

---

- 2.06 Q: Which of following explains what would occur if an operator were to depress the STOP pushbutton (HS-4571B) on DG 1A at this time?
- a. The D/G would stop, but would re-start once the S/D system de-activated, (approximately 90 seconds later).
  - b. The D/G would stop and would stay shutdown in standby.
  - c. The D/G would stop and would stay shutdown and would require local operator action to place it in standby.
  - d. The D/G would continue to operate.

A: D

R: FSAR,  
EB#: LO-SS-28000-01-08

Point Value: 1.00

---

- 2.07 Q: What condition/signal started the motor-driven AFW pumps?
- a. S/G low-low level.
  - b. P-14.
  - c. AMSAC.
  - d. SI.

A: D

R: FSAR LOGICS,  
EB#: LO-SS-28000-01-09

Point Value: 1.00

---

EXAM KEY  
R2.A

---

2.08 Q: Which of the following Emergency D/G trips are NOT enabled at the present time?

- a. Engine overspeed.
- b. Generator differential.
- c. Low lube oil pressure.
- d. High crankcase pressure.

A: D

R: FSAR,  
EB#: LO-SS-28000-01-10

Point Value: 1.00

---

2.09 Q: Which one of the following is true?

- a. If FV-121 and HV-182 were both shut, seal injection flow would increase.
- b. If FV-121 and HV-182 were both opened, seal injection flow would increase.
- c. Regardless of what action is taken with FV-121 or HV-182, seal injection flow cannot be increased at the present time.
- d. If the handswitch for the P.D. pump, (HS-275), were taken to the start position, right now, you would expect to see an increase in seal injection flow.

A: C

R: 1X4DB116-1,  
EB#: LO-SS-28000-01-11

Point Value: 1.00

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EXAM KEY  
R2.A

---

- 2.10 Q: Select the response that correctly lists where the ECCS pumps are currently delivering discharge flow.
- a. A CCP to the RCS cold legs.  
SI pumps to the RCS cold legs.  
RHR pumps to the RCS cold legs.
  - b. A CCP to the RCS cold legs.  
SI pumps to the RCS hot legs.  
RHR pumps to the RWST.
  - c. A CCP to the RCS cold legs.  
SI pumps recirculating to the RWST.  
RHR pumps recirculating to their suction.
  - d. A CCP recirculating to the RWST.  
SI pumps recirculating to the RWST.  
RHR pumps are dead headed and have no flowpath.

A: C

R: P&IDS, 13201, OBJ.02, 13301, OBJ.02  
EB#: LO-SS-28000-01-12

Point Value: 1.00

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EXAM KEY  
R2.A

2.11 Q: THIS QUESTION IS INDEPENDENT OF CURRENT PLANT CONDITIONS!!!

Which of the following are interlocks required to open HV-8812A from the QMCB?

- a. RHR pump suction from the containment sump shut (8811A) and RHR to CCP suction shut (8804A).
- b. RHR to S. pump suction shut (8804B) and SI pump miniflows shut (8813, 8814 and 8920).
- c. RHR to CCP suction shut (8804A) and RHR to SI pump suction shut (8804B).
- d. SI pump miniflows shut (8813, 8814, and 8920) and F.R to CCP suction shut (8804A).

A: A

R: LO-LP-12101-08, 13011-1  
EB#: LO-SS-98000-01-23

Point Value: 1.00



EXAM KEY  
R2.A

---

2.12 Q: THIS QUESTION IS INDEPENDENT OF CURRENT PLANT CONDITIONS!!!

The unit is operating at 75% power with all control systems in AUTO when #1 SG level begins to increase at a rapid rate. The BOP notes that the main feedwater regulating valve for #1 SG is going OPEN and the other 3 main feedwater regulating valves are going CLOSED. Level in each of #2, #3, and #4 SGs is approximately 67%.

What is the most likely cause of this transient?

- a. PT505 (1st stage turbine pressure) failed high.
- b. FT512 (#1 SG controlling steam flow) failed high.
- c. FT510 (#1 SG controlling feed flow) failed high.
- d. LT551 (#1 SG controlling level) failed low.

A: B

P: 18001-C,R7,PG. 13, FSAR LOGIC 7.2.1-1, 1X4DB168  
EB#: LO-SS-98000-01-34

Point Value: 1.00

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EXAM KEY  
R2.A

2.13 Q: THIS QUESTION IS INDEPENDENT OF CURRENT PLANT CONDITIONS!!!

If the Cold Overpressure Protection System, COPS, was placed in service per 12006-C with Reactor Coolant System temperature at 360 degrees F and pressure at 570 psig, which of the following statements would be true?

- a. PV-455A would actuate to reduce pressure if a wide range Tcold channel failed low.
- b. PV-455A would actuate to reduce pressure if a wide range Thot channel failed low.
- c. PV-456 would actuate to reduce pressure if a wide range Tcold failed high.
- d. PV-456 would actuate to reduce pressure if PT-405 (WR pressure) failed high.

A: B

R: 12006-C,R17,PG. 21,  
EB#: LO-SS-98000-01-32

Point Value: 1.00

END OF SECTION KEY

END OF TEST KEY

## PLANT VOGTLE TRAINING DEPT.

QUESTION USE LIST for EXAM: SR-925-92-04.AR

Total Points: 25.00

FILE NO: C92-05-011

Page 1

Assembled by LEON RAY on 06/05/92 in MANUAL mode.

<u>ITEM</u>	<u>EB NUMBER</u>	<u>REVISION</u>	<u>DATE</u>	<u>DESCRIPTION</u>
1.01	LO-SS-06000-01-01	11	01/15/92	Pzr level interlocks
1.02	LO-SS-06000-01-07	6	06/11/91	Failure diagnosis
1.03	LO-SS-06000-01-03	9	03/02/92	Steam Dump Operation
1.04	LO-SS-06000-01-05	10	12/05/91	Tech Spec Application
1.05	LO-SS-06000-01-06	9	12/05/91	Emergency Boration Requirements
1.06	LO-SS-06000-01-08	15	05/18/92	Dilution calculation
1.07	LO-SS-06000-01-12	6	01/15/92	Event response to PZR low level
1.08	LO-SS-06000-01-11	5	02/25/92	Rod control response to instrument
1.09	LO-SS-06000-01-13	7	01/15/92	Event response to 2 MFP trips
1.10	LO-SS-06000-01-15	6	06/11/91	Event diagnosis during loss of 1AY1
1.11	LO-SS-98000-01-08	16	06/05/92	CVCS /PRT Interface /Leakage paths
1.12	LO-SS-98000-01-20	11	03/29/91	Cold leg recirculation transfer

=====  
END OF SECTION

## PLANT VOGTLE TRAINING DEPT.

QUESTION USE LIST for EXAM: SR-925-92-04.AR

Total Points: 25.00

FILE NO: C92-05-011

Page 1

Assembled by LEON RAY on 06/05/92 in MANUAL mode.

<u>ITEM</u>	<u>EB NUMBER</u>	<u>REVISION</u>	<u>DESCRIPTION</u>
2.01	LO-SS-28000-01-01	9 06/05/92	Identify the ruptured S/G
2.02	LO-SS-28000-01-07	11 01/25/92	annunciator response to restoration
2.03	LO-SS-28000-01-03	19 06/05/92	rx trip diagnostics
2.04	LO-SS-28000-01-05	12 03/16/92	SI reset logic
2.05	LO-SS-28000-01-06	16 03/16/92	Steam dump ops
2.06	LO-SS-28000-01-08	11 03/16/92	stopping D/G after an E start
2.07	LO-SS-28000-01-09	13 03/16/92	mdafw pump starts
2.08	LO-SS-28000-01-10	13 03/16/92	d/g E trips
2.09	LO-SS-28000-01-11	10 02/21/91	cvcs lineup during injection mode
2.10	LO-SS-28000-01-12	20 03/16/92	eccs pump dscharge flow paths
2.11	LO-SS-98000-01-23	13 10/30/91	RHR Valve Interlocks
2.12	LO-SS-98000-01-34	12 03/05/92	SGWLC operation following the loss
2.13	LO-SS-98000-01-32	10 03/03/92	The effects of Thot/Tcold failures

=====

END OF SECTION

END OF QUESTION LIST

GEORGIA POWER COMPANY  
VOGTLE ELECTRIC GENERATING PLANT  
TRAINING DEPARTMENT  
EXAMINATION COVER SHEET

COURSE TITLE: Licensed Operator Requalification Annual Written Exam

COURSE / EXAM #: ER-9-1-92-04.AS

EXAMINER: RAY

DATE ADMINISTERED: WEEK OF 6/29/92

APPROVED: Ray G. Brown

EXAM TYPE: CLASSROOM , SIMULATOR , BIENNIAL X, OTHER

INSTRUCTIONS TO STUDENT:

USE SHEET PROVIDED FOR ANSWERS. STAPLE EXAMINATION COVER SHEET ON TOP OF THE ANSWER SHEET(S). IF NEEDED, THE INSTRUCTOR WILL PROVIDE ANY ADDITIONAL INSTRUCTIONS. POINTS FOR EACH QUESTION ARE INDICATED NEXT TO THE QUESTION. PASSING REQUIRES A FINAL GRADE OF AT LEAST 70% OVERALL.

\*\* PRINT NEATLY \*\*

NAME (Last, First, MI)

SOCIAL SECURITY #

DEPARTMENT

COMPANY

ALL WORK DONE ON THIS EXAM IS MY OWN. I HAVE NEITHER GIVEN NOR RECEIVED AID.

STUDENT SIGNATURE

TOTAL POINTS	POINTS MISSED	RAW SCORE	FINAL GRADE
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25

3

GRADED BY: \_\_\_\_\_

REVIEWED BY: \_\_\_\_\_

C92-05-010

PLANT VOGTLE TRAINING DEPT.

M A S T E R     K E Y

FOR

EXAM: SR-925-92-04.AS

Total Points: 25.00

ASSEMBLED IN MANUAL MODE.



STATIC SIMULATOR - PART A SS-06  
SIMULATOR SETUP INSTRUCTIONS FOR SC-06

INITIALIZE TO: IC-8; 50% Pwr, BOL.

INSERT MALFUNCTIONS:

<u>NO.</u>	<u>NAME</u>	<u>ENTRY METHOD</u>
40D	HL NR TEMP RTD Failure	[1, 40D]
62A	PT-505 failed low	[2, 62A,0]
7D	N-44 fails	[3, 7D,0]

INSERT OVERRIDES:

<u>NAME</u>	<u>ENTRY METHOD</u>
TDAFW Stm supply SG #2	[1, HS3019/Close]
RWST to SI pump isol valve	[2, HSE806/Close]

SELECT THE FOLLOWING SWITCH POSITIONS:

<u>NUMBER</u>	<u>NAME</u>	<u>POSITION</u>
-1LS-459D	Pressurizer level CNTL selector	461/460
-1HS-8806A	RWST to SI pump isol valve B	ON
-Pull the control power fuses for N-44		
-Ensure the delta flux recorder is not positioned to N-44.		

START THE SCENARIO

PERFORM THE FOLLOWING ACTIONS:

Open all SG sample valves.

FREEZE THE SIMULATOR AT: 0001

STATIC SIMULATOR - PART A SS-06

SIMULATOR SETUP INSTRUCTIONS FOR SS-06

VERIFY THE FOLLOWING CONDITIONS:

POWER: ~ 50%	ROD POSITION: 133 on D
BORON: 1851 ppm	PER LVL: ~ 45%
PR PRESS: ~ 2235 psig	TEMP: ~ 570°F
RCP STATUS: Running	ECCS STATUS: Standby
SG PRESS: ~ 1025 psig	SG LVL: ~ 65% NR

OTHER CONDITIONS:

None

VERIFY THE FOLLOWING SWITCH POSITIONS:

TDAFW Steam supply from SG 2 (HV-3019) CLOSED.  
RWST to SI pump isolation valve (HV-8806) CLOSED.  
PRZR Level Control Selector Switch in the 461/460 position.  
Lockout switch for HV-8806 in the ON position.  
Rod Control in Manual.  
All PRZR heaters in Automatic.  
All SG sample valves open.  
Step counters at 133 on Bank D.

*Carry out ACP actions*

SELECT THE FOLLOWING DISPLAYS:

REF DISPLAY 1: Top level digital  
REF DISPLAY 2: Trend 7, (Select CRT trend)  
REF DISPLAY 3: Top level digital  
PROGMS: RCS diagram

STATIC SIMULATOR - PART A SS-06  
INSTRUCTION TO EXAMINEES FOR SS-06

The plant is at approximately 50 percent power near BOL.  
Control rods are in manual with CBD at 133 steps.

The following instrument malfunctions have occurred:

1. N-44 failed 3 days ago, and all actions of the ACP have been completed.
2. PT-505 failed.
3. Loop 4 Tave instrument failed.

EXAM KEY  
S2.A

=====

1.01 Q: If Pressurizer level transmitter LT-461 failed low, which automatic action would NOT occur?

- a. LCV-459 would close.
- b. LCV-460 would close.
- c. Pzr backup heaters would turn off.
- d. All orifice isolation valves will close.

A: B

R: LO-LP-16301-00, FSAR LOGIC 7.2.1-1,  
EB#: LO-SS-06000-01-01

Point Value: 1.00

=====

1.02 Q: 1HV-8806, RWST to SIP isolation, has been out of position for the last hour. Which of the following would apply if the valve remains out of position?

- a. The plant must be placed in cold shutdown within 36 hours.
- b. The plant must be placed in hot shutdown within 12 hours.
- c. The plant must be placed in hot shutdown within 83 hours.
- d. The plant must be placed in hot standby within 5 hours.

A: B

R: LO-LP-13201-00, TECH SPEC 1.5.2,  
EB#: LO-SS-06000-01-02

Point Value: 1.00

=====

EXAM KEY  
S2.A

---

1.03 Q: If a turbine runback occurred, the steam dumps:

- a. would open and control RCS temperature at Tref.
- b. error signal would increase but the valves would remain closed.
- c. would all go full open on the trip open bistables.
- d. would be armed but would have no demand signal.

A: C

R: LO-LP-21201-00, FSAR LOGIC 7.2.1-1,  
EB#: LO-SS-06000-01-03

Point Value: 1.00

---

1.04 Q: Which bistable associated with Loop 4 Tave is most limiting with respect to tripping time by Tech Specs?

- a. OT Delta T trip.
- b. Lo Lo Tave steam dump block.
- c. Lo Tave FW isolation.
- d. OP Delta T turbine runback.

A: C

R: LO-LP-39207-00, AOP 18001-C, Table,  
E3#: LO-SS-06000-01-05

Point Value: 1.00

---

EXAM KEY  
S2.A

---

1.05 Q: Concerning the presence of the Rod Bank Lo-Lo Limit alarm, which of the following is true?

- a. Emergency boration should be started in accordance with Tech Specs.
- b. The alarm can be cleared by placing the Tave Defeat Sel switch to loop 4, and no emergency boration is required.
- c. The alarm can be cleared by placing the Delta T Defeat Sel switch to loop 4, and no emergency boration is required.
- d. The alarm can NOT be cleared, but no emergency boration is required.

A: C

R: LO-LP-16101-00, FSAR LOGIC 7.2.1-1,  
EB#: LO-SS-06000-01-06

Point Value: 1.00

---



EXAM KEY  
S2.A

---

1.06 Q: NOTE: THIS QUESTION IS NOT RELATED TO CURRENT PLANT CONDITIONS!!

An automatic reactor trip occurred following a spurious turbine trip. The crew stabilized the plant and transitioned to 19001. The crew has noted the indication for rods D2 and D4 is 228 steps, the current ARO position. Assuming an RCS boron concentration of 1000 ppm and a Boric Acid Storage Tank concentration of 7000 ppm, which one of the following amounts of boric acid must be added to the RCS to compensate for the stuck rods.

- a. 0 gallons
- b. 1910 gallons
- c. 230 gallons
- d. 2400 gallons.

A: d

R: LO-LP-33440, PTDB  
EB#: LO-SS-06000-01-18

Point Value: 1.00

---

## EXAM KEY

S2.A

1.07 Q: (SRO ONLY)

Which of the following is true regarding the operation of the TDAFW pump?

- a. The pump is OPERABLE now, but would be inoperable if HV-3009 were shut.
- b. If HV-3009 were shut, the plant would have to be in Mode 3 within 6 hours.
- c. The current pump OPERABILITY status would not be affected by shutting HV-3009.
- d. HV-3009 must be stroke tested at least once per 31 days per Tech Specs regardless of its effects on pump operability.

A: C

R: LO-LP-20101-00, TECH SPEC 3.7.1.2,  
EB#: LO-SS-06000-01-09

Point Value: 1.00

KEY CONTINUED ON NEXT PAGE

EXAM KEY  
S2.A

1.08 Q: If rods were placed in automatic they would:

- a. Step out due to the failed NR temperature instrument.
- b. Step in due to the failed Impulse pressure instrument.
- c. Not move due to the C-3 interlock.
- d. Not move due to the C-4 interlock.

A: B  
(Do not use with LO-SS-06000-01-14)

R: LOGICS,  
EB#: LO-SS-06000-01-11 Point Value: 1.00

1.09 Q: If the A MFP was tripped, which of the following would be true?

- a. AMSAC would actuate after a time delay.
- b. Both MDAFV pumps would start when SG level lowered to the low-low level setpoint.
- c. Both MDAFW pumps would automatically start, but the Blowdown and SG sample valves would stay open until the low-low level setpoint is reached.
- d. Both MDAFW pumps would automatically start, and at the same time the SG Blowdown and sample valves would shut.

A: D

R: LOGICS,  
EB#: LO-SS-06000-01-13 Point Value: 1.00

EXAM KEY  
S2.A

---

1.10 Q: If a loss of vital 120VAC bus 1AY1A occurred right now, which of the following is true?

- a. A reactor trip and SI would occur automatically, however the Steam Dumps would not open.
- b. A reactor trip would occur, but Steam Dumps would not open.
- c. A reactor trip would occur, and Steam Dumps would stay open until they shut on P-12 interlock.
- d. A reactor trip and SI would occur automatically, and Steam Dumps would stay open until they shut on P-12 interlock.

A: C

R: LOGICS, ONE LINES,  
EB#: LO-S7-06000-01-15

Point Value: 1.00

---

1.11 Q: THIS QUESTION IS INDEPENDENT OF CURRENT PLANT CONDITIONS!!!

A Safety Injection occurred 15 minutes ago.

All pressurizer safeties and PORV's are closed and all air operated valves IRC have cycled to their failed positions.

The most probable cause of PRT level still increasing is:

- a. Seal return relief lifting.
- b. Letdown line relief lifting.
- c. RHR discharge relief lifting.
- d. CCP suction relief lifting.

A: A

R: 1X4DB114, 18004-C,R6,PG. 18,  
EB#: LO-SS-98000-01-08

Point Value: 1.00

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KEY CONTINUED ON NEXT PAGE

EXAM KEY  
S2.A

---

1.12 Q: THIS QUESTION DOES NOT RELATE TO THE CURRENT PLANT CONDITIONS!!!

Which of the following would NOT require suspension of Refueling Operations?

- a. Both the inside and outside containment isolation valves are opened to allow trouble shooting of an intact Containment H2 Monitor.
- b. With both RHR trains operable and RHR Train A in service, vessel level is inadvertently lowered to 22.5 feet above the vessel flange.
- c. The Input Error Inhibit switches on both trains of SSPS are positioned to INHIBIT.
- d. Power is removed from AY1A.

A: A

R: T.S. CLARIFICATIONS,  
EB#: LO-SS-92000-01-04

Point Value: 1.00

---

END OF SECTION KEY

STATIC SIMULATOR - PART A SS-28  
SIMULATOR SETUP INSTRUCTIONS FOR SS-28

INITIALIZE TO: IC-20; 75% Power, EOL.

INSERT MALFUNCTIONS:

<u>NO.</u>	<u>NAME</u>	<u>ENTRY METHOD</u>
61a,	LT-459 Fails	[1,61a,0]
84,	SGTR on #1 S/G	[2,84,80,0003]
59c,	PT-457 FAILS	[3,59C,0]
14,	RTB B SHUT	[4,14]
462,	PCS Doors Ajar	[5,462,ON]

INSERT OVERRIDES:

<u>NAME</u>	<u>ENTRY METHOD</u>
HS-9378A, Inst Air NMT Isol.	[1,HS-9378A/CLOSE]

SELECT THE FOLLOWING SWITCH POSITIONS:

<u>NUMBER</u>	<u>NAME</u>	<u>POSITION</u>
HS-274A	B CCP	P-T-L
LS-459D	Pzr Level Control	461/460

START THE SCENARIO

PERFORM THE FOLLOWING ACTIONS:

Wait 3 minutes to allow instrument air in containment to begin to bleed off, then:

Activate Remote Function RP-24,T (PT-458 bistable trip), to cause SI.

Activate Remote Function RP-4,T (Trip of Loop 4 OT delta T trip bistable).

Throttle AFW flow to 200 GPM to each S/G.

Shut 1A CCP Relief Isolation, HS-8509B.

Shut HC-182, (max. seal flow, 0% demand).

FREEZE THE SIMULATOR AT: 0005



STATIC SIMULATOR - PART A SS-28  
SIMULATOR SETUP INSTRUCTIONS FOR SS-28

VERIFY THE FOLLOWING CONDITIONS:

POWER: 2 E-7 amps      ROD POSITION: ARI      BORON: N/A  
PZR LVL: - 25%      PZR PRESS: - 2000 PSIG      TAVE: 556°F  
RCP STATUS: 4 on      ECCS STATUS: Injecting  
SG PRESS: - 1080 psig      SG LVL: #1 - above #2,3 &4, (NR)

OTHER CONDITIONS:

ALB09-A4 lit. (If not, enter RUN.25 on Westinghouse terminal, and repeat as necessary until annunciator lit.)

VERIFY THE FOLLOWING SWITCH POSITIONS:

FV-121 - full open, (0% demand).  
HC-182 - full shut, (0% demand).

SELECT THE FOLLOWING DISPLAYS:

ERF DISPLAY 1: Top Level  
ERF DISPLAY 2: Top Level  
ERF DISPLAY 3: Containment CSFST  
PROTEUS: Any

STATIC SIMULATOR - PART A #8-28  
INSTRUCTION TO EXAMINEES FOR 88-20

The B CCP has been out-of-service for maintenance for 20 hours.

The plant had just completed a power reduction to 5% power to perform maintenance on a feed regulating valve.

After the power reduction, PZR level channel, LT-459, failed low. The operator then selected an alternate channel for control.

Five minutes later, PT-457 failed low. The AOP actions for the failed channel were in progress. While tripping bistables a SI was actuated.

During the performance of E-0, some additional problems were encountered, as evidenced by the indications on the control boards.

EXAM KEY  
S2.A

---

2.01 Q: Identify the ruptured S/G.

- a. #1 S/G
- b. #2 S/G
- c. #3 S/G
- d. #4 S/G

A: ..

R: 19030-C,  
EB#: LO-SS-28000-01-01

Point Value: 1.00

---

2.02 Q: Under the current plant conditions, which one of the following Tech Spec actions, if any, must be taken as a result of the Pzr level instrument failure?

- a. 3.3.1
- b. 3.3.2
- c. 3.0.3
- d. None of the above are required to be implemented.

A: D

R: T.S. 3.3.1,  
EB#: LO-SS-28000-01-02

Point Value: 1.00

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EXAM KEY  
S2.A

---

2.03 Q: When I&C was dispatched to place the Pzr pressure bistables in a tripped condition, the I&C technician inadvertently tripped the bistables associated with PT-458. The bistables were tripped in the following order:

PS-458A, High Pressure Reactor Trip  
PS-458C, Low Pressure Reactor Trip  
PS-458D, Pressurizer Low Pressure SI  
TS-441C, OT delta T Trip

Which bistable, when placed in the tripped condition, caused the reactor to trip?

- a. PS-458A, High Pressure Reactor Trip.
- b. PS-458C, Low Pressure Reactor Trip.
- c. PS-458D, Pressurizer Low Pressure SI.
- d. TS-441C, OT delta T Trip.

A: C

R: LO-LP-28102-03, LOGICS,  
EB#: LO-SS-28000-01-03

Point Value: 1.00

---

EXAM KEY  
S2.A

---

2.04 Q: Which of the following is most correct regarding the reset of the SI signal under the present conditions?

- a. When the SI timer times out, both trains of SI can be reset. All automatic SI actuation signals will be blocked on both trains.
- b. All reactor trip and bypass breakers must be open, and the SI timer must be timed out in order to reset an SI signal under any plant conditions.
- c. If the SI timer is timed out and all reactor trip and bypass breakers are open, the SI can be reset. But to prevent any automatic reactivation, the SI signals must be manually blocked.
- d. When the SI timer times out, both trains of SI can be reset. However, automatic actuation of B train SI will not be blocked.

A: D

R: LOGICS,  
EB#: LO-SS-28000-01-05

Point Value: 1.00

---

2.05 Q: For the existing plant conditions, the steam dumps will perform in the following manner:

- a. Not operate due to the lack of a 'B' train P-4 signal.
- b. Begin to open when Tav<sub>g</sub> exceeds 557 degrees F.
- c. Begin to open when Tav<sub>g</sub> exceeds 559 degrees F.
- d. Not open until Tav<sub>g</sub> is below 550 degrees and the low Tav<sub>g</sub> interlock is bypassed.

A: C

R: LOGICS, SIM INDICATIONS,  
EB#: LO-SS-28000-01-06

Point Value: 1.00

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## EXAM KEY

S2.A

- 
- 2.06 Q: Which of following explains what would occur if an operator were to depress the STOP pushbutton (HS-4571B) on DG 1A at this time?
- a. The D/G would stop, but would re-start once the S/D system de-activated, (approximately 90 seconds later).
  - b. The D/G would stop and would stay shutdown in standby.
  - c. The D/G would stop and would stay shutdown and would require local operator action to place it in standby.
  - d. The D/G would continue to operate.

A: D

R: FSAR,  
EB#: LO-SS-28000-01-08

Point Value: 1.00

- 
- 2.07 Q: What condition/signal started the motor-driven AFM pumps?
- a. S/G low-low level.
  - b. P-14.
  - c. AMSAC.
  - d. SI.

A: D

R: FSAR LOGICS,  
ER#: LO-SS-28000-01-09

Point Value: 1.00



EXAM KEY  
S2.A

---

2.08 Q: Which of the following Emergency D/G trips are NOT enabled at the present time?

- a. Engine overspeed.
- b. Generator differential.
- c. Low lube oil pressure.
- d. High crankcase pressure.

A: D

R: FSAR,  
EB#: LO-SS-28000-01-10

Point Value: 1.00

---

2.09 Q: Which one of the following is true?

- a. If FV-121 and HV-182 were both shut, seal injection flow would increase.
- b. If FV-121 and HV-182 were both opened, seal injection flow would increase.
- c. Regardless of what action is taken with FV-121 or HV-182, seal injection flow cannot be increased at the present time.
- d. If the handswitch for the P.D. pump, (HS-275), were taken to the start position, right now, you would expect to see an increase in seal injection flow.

A: C

R: 1X4DB116-1,  
EB#: LO-SS-28000-01-11

Point Value: 1.00

---

EXAM KEY  
S2.A

---

2.10 Q: Select the response that correctly lists where the ECCS pumps are currently delivering discharge flow.

- a. A CCP to the RCS cold legs.  
SI pumps to the RCS cold legs.  
RHR pumps to the RCS cold legs.
- b. A CCP to the RCS cold legs.  
SI pumps to the RCS hot legs.  
RHR pumps to the RWST.
- c. A CCP to the RCS cold legs.  
SI pumps recirculating to the RWST.  
RHR pumps recirculating to their suction.
- d. A CCP recirculating to the RWST.  
SI pumps recirculating to the RWST.  
RHR pumps are dead headed and have no flowpath.

A: C

R: P&IDS, 13201, OBJ.02, 13301, OBJ.02  
EB#: LO-SS-28000-01-12

Point Value: 1.00

---

EXAM KEY  
S2.A

---

2.11 Q: Assume that the inoperable reactor trip breaker had been discovered while the reactor was at power. Which one of the following explains the limitations or conditions that would affect operating under this condition?

- a. The plant must be in Mode 3 in no longer than 6 hours from the time of discovery.
- b. Mode 1 operations are prohibited, in light of the incident that occurred at the Salem plant, the unit must be placed in mode 3 within 1 hour of discovery.
- c. Mode 1 operations may continue, but for no longer than 7 hours total from the point of discovery.
- d. Mode 1 operations may continue with no limitations.

A: A

R: TECH. SPEC.3.3.1,, TABLE 3.3.1,  
EB#: LO-SS-28000-01-14

Point Value: 1.00

---

EXAM KEY  
S2.A

---

2.12 Q: THIS QUESTION IS INDEPENDENT OF CURRENT PLANT CONDITIONS!!!

If the reactor vessel were to be subjected to a rapid cooldown followed by a repressurization to operating or above pressures, what type of metal failure would most likely occur?

- a. Brittle failure due to excess temperature induced tensile stresses on the inner wall of the reactor vessel.
- b. Brittle failure due to excess temperature induced compressive stresses on the inner wall of the reactor vessel.
- c. Brittle failure due to excess temperature induced tensile stresses on the outer wall of the reactor vessel.
- d. Brittle failure due to excess temperature induced compressive stresses on the outer wall of the reactor vessel.

A: A

R: VOGTLE TEXT, WOG PTS VOL 1,  
EB#: LO-SS-98000-01-62

Point Value: 1.00

---

EXAM KEY  
S2.A

---

2.13 Q: THIS QUESTION IS INDEPENDENT OF CURRENT PLANT CONDITIONS!!!

If the Cold Overpressure Protection System, COPS, was placed in service per 12006-C with Reactor Coolant System temperature at 360 degrees F and pressure at 570 psig, which of the following statements would be true?

- a. PV-455A would actuate to reduce pressure if a wide range Tcold channel failed low.
- b. PV-455A would actuate to reduce pressure if a wide range Thot channel failed low.
- c. PV-456 would actuate to reduce pressure if a wide range Tcold failed high.
- d. PV-456 would actuate to reduce pressure if PT-405 (WR pressure) failed high.

A: B

R: 12006-C,R17,PG. 21,  
EB#: LO-SS-98000-01-32

Point Value: 1.00

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END OF SECTION KEY

END OF TEST KEY

## PLANT VOGTLE TRAINING DEPT.

QUESTION USE LIST for EXAM: SR-925-92-04.AS

Total Points: 25.00

FILE NO: C92-05-010

Page 1

Assembled by LEON RAY on 6/05/92 in MANUAL mode.

ITEM	EB NUMBER	REVISION	DESCRIPTION
1	LO-SS-06000-01-01	1 01/15/92	Pzr level interlocks
1.02	LO-SS-06000-01-02	8 01/15/92	Tech Spec Application
1.03	LO-SS-06000-01-03	9 03/02/92	Steam Dump Operation
1.04	LO-SS-06000-01-05	10 12/05/91	Tech Spec Application
1.05	LO-SS-06000-01-06	9 12/05/91	Emergency Boration Requirements
1.06	LO-SS-06000	/ /	Boration calculation for stuck rods
1.07	LO-SS-06000	06/04/92	Tech Spec Application
1.08	LO-SS-06000-01-11	5 02/25/92	Rod control response to instrument
1.09	LO-SS-06000-01-13	7 01/15/92	Event response to 2 MFP trips
1.10	LO-SS-06000-01-15	6 06/11/91	Event diagnosis during loss of 1AY1
1.11	LO-SS-93000-01-08	16 06/05/92	CVCS /PRT Interface /Leakage paths
1.12	LO-SS-92000-01-04	7 05/19/92	Refueling Tech Specs

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END OF SECTION



## PLANT VOGTLE TRAINING DEPT.

QUESTION USE LIST for EXAM: SR-925-92-04.AS

Total Points: 25.00

FILE NO: C92-05-010

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Assembled by LEON RAY on 06/05/92 in MANUAL mode.

<u>ITEM</u>	<u>EB NUMBER</u>	<u>REVISION</u>	<u>DESCRIPTION</u>
2.01	LO-SS-28000-01-01	9 06/05/92	identify the ruptured S/G
2.02	LO-SS-28000-01-02	13 06/05/92	T.S. usage
2.03	LO-SS-28000-01-03	19 06/05/92	rx trip diagnostics
2.04	LO-SS-28000-01-05	12 03/16/92	SI reset logic
2.05	LO-SS-28000-01-06	16 03/16/92	Steam dump ops
2.06	LO-SS-28000-01-08	11 03/16/92	stopping D/C after an E start
2.07	LO-SS-28000-01-09	13 03/16/92	mdafw pump starts
2.08	LO-SS-28000-01-10	13 03/16/92	d/g E trips
2.09	LO-SS-28000-01-11	10 02/21/91	cvcs lineup during injection mode
2.10	LO-SS-28000-01-12	20 03/16/92	eccs pump discharge flow paths
2.11	LO-SS-28000-01-14	14 03/16/92	RTB tech spec usage
2.12	LO-SS-98000-01-62	14 06/05/92	Definition of metal failures due to
2.13	LO-SS-98000-01-32	10 03/03/92	The effects of Thot/Tcold failures

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END OF SECTION

END OF QUESTION LIST