U.S. NUCLEAR REGULATORY COMMISSION REGION I
OPERATOR LICENSING EXAMINATION REPORT

Report Nos.:	50-352/91-03 (OL) 50-353/91-03 (OL)
Docket Nos.:	50-352 50-353
License Nos.:	NPF-39 NPF-85
Licensee:	Philadelphia Electric Company P.O. Box A Sanatoga, Pennsylvania 19464
Facility Name:	Limerick Generating Station, Units 1 & 2
Examination At:	Sanatoga, Pennsylvania
Examination Dates:	January 24 - 25, 1991
Examiners:	S. Hansell, Operations Engineer M. Parrish, EG&G

CHIEF EXAMINER: SJ Conte Su — 2/25/91
Samuel L. Hansell, Operations Engineer — Date

APPROVED BY: Richard J. Conte — 2/25/91
Richard J. Conte, Chief, BWR Section — Date
Operations Branch, Division of Reactor Safety

EXAMINATION SUMMARY

Written examinations and operating tests were administered to one senior reactor operator (SRO) candidate and one reactor operator (RO) candidate. The SRO passed the operating test and the written test. The RO passed the operating test but did not pass the written test. The candidates were prepared for the licensing examinations with the following exceptions. The candidates demonstrated an unfamiliarity with the JPM exam process. The candidates exibited specific knowledge weaknesses in certain areas.

A simulator fidelity discrepancy occurred during the conduct of the examination. The licensee's simulator operator stated the problem was re-occurring. The appropriate paper work was initiated to correct the problem. The simulator discrepancy that occurred did not invalidate or impact the examination.

DETAILS

1.0 INTRODUCTION AND OVERVIEW

The NRC examiners administered replacement examinations to one senior reactor operator (SRO) upgrade candidate and one reactor operator (RO) candidate. The examinations were administered in accordance with NUREG 1021, Examiner Standards, Rev. 6, dated June 1, 1990.

Prior to administration of the written examinations, a pre-examination review was conducted at the Limerick Training Center. Present at the review were a member of training department staff, a shift manager (an SRO) and a member of the NRC examination team. The scenarios used for the examinations were run on the plant specific simulator, with the assistance of a facility supplied simulator operator, prior to being administered. All facility individuals involved with the review of the examination materials signed security agreements to ensure that there was no compromise of the examination.

2.0 PERSONS CONTACTED

2.1 U.S. Nuclear Regulatory Commission

*T. Kenny, Resident Inspector
*L. Bettenhausen, Chief Operations Branch
*S. Hansell, Operations Engineer
*H. Williams, Senior Operations Engineer
M. Parrish, Examiner, EG&G

2.2 Philadelphia Electric Company

*G. Leitch, Vice President - Limerick Generating Station
*J. Doering, Plant Manager - Limerick Generating Station
*L. Hopkins, Superintendent Operations
*J. Armstrong, Asst. Superintendent Operations
*V. Cwientniewicz, Superintendent Training
*R. Nunez, Supervisor Operations Training
*R. Monaco, Senior Instructor-LOT
*R. Helt, Supervisor Operations Training
*D. Moreau, Operations Instructor
*R. Lisko, Simulator Support Supervisor
*R. Kurich, Branch Head Licensing
*G. Stewart, Engineering - Supervisor, Licensing
S. Dufort, Operations Instructor

(*) Denotes those present at the exit interview on January 30, 1991.

3.0 EXAMINATION RELATED FINDINGS AND CONCLUSIONS

3.1 Examination Results

	RO Pass/Fail	SRO Pass/Fail
Written	0 / 1	1 / 0
Operating	1 / 0	1 / 0
Overall	0 / 1	1 / 0

3.2 Operating Examination

The following is a summary of generic strengths and weaknesses noted on the operating tests. This information is being provided to aid the licensee in upgrading the license training program. No licensee written response is required.

Strengths

- Crew communications.
- Use of Alarm Response Procedures.
- Crew briefings by the SROs during scenarios.

Weaknesses

- Diagnoses of a recirculation pump field breaker trip.
- Lack of familiarity with the JPM exam process.

3.3 Written Examination

The following is a summary of generic strengths and weaknesses noted from the grading of the SRO and RO written examinations. This information is being provided to aid the licensee in upgrading the license training program.

Strengths

- Ability to use the EHC pressure control logic diagram.
- Knowledge of 10 CFR 55.53 requirements to maintain an active license.

- Knowledge of failed surveillance test requirements.

- Knowledge of fire protection equipment and procedures.

- Knowledge of control rod drive system.

Weaknesses

- Knowledge of the reason power is reduced during a loss of instrument air.

- Knowledge of the basis for a main turbine trip during a loss of main condenser vacuum.

- Knowledge of the effect a total loss of instrument gas has on safety relief valve operation.

- Knowledge of drywell spray isolation valve operation during a LOCA.

- Knowledge of suppression chamber to drywell vacuum breaker failure during a LOCA.

- Knowledge of the main steam isolation valve solenoid power supplies.

- Knowledge of the recirculation pump seal purge valve automatic isolations.

SROs Only:

- Knowledge of ADS valve automatic operation.
- Ability to reset a scram during an ATWS.
- Knowledge of the authorized actions during an emergency condition that requires a departure from technical specifications.

ROs Only:

- Knowledge of water injection systems used during an ATWS.

- Knowledge of the basis for not starting a mechanical vacuum pump with main condenser vacuum decreasing.

- Knowledge of the requirement to reduce feedwater flow when a recirculation pump trips.

- Knowledge of the thermal limit that could be exceeded during a control rod withdrawal accident.

3.4 Reference Material

In preparation for the written examination, the Chief Examiner requested that the facility send the Reference Material in advance of the 60 day

required time period. The contractor preparing the written examination had asked the Chief Examiner if it was possible to have the facility send the material early, in order to ease a scheduling problem. The facility training department was extremely cooperative and delivered the Reference Material by October 29, 1990, three weeks before it was required.

4.0 Exit Interview

On January 8, 1991, a pre-examination review was conducted at the Limerick Training Center. The licensee was informed that comments on the written examination would be accepted. These comments were received at the exit meeting.

The exit meeting was conducted on January 30, 1991, at the facilities nuclear headquarters. The licensee representatives that attended the exit meeting are listed in section 2. of this report. The examination strengths and weaknesses identified in section 3.2 were discussed.

The control room staff was very cooperative in maintaining an environment conducive for operating test administration.

Facility access went smoothly with good support from Operations, Health Physics and Security.

The final results of the examinations were not presented at the exit meeting. The Chief Examiner stated that the results would be contained in the Examination Report and that every effort would be made to send the results in approximately 30 working days.

Attachments:
1. Senior Reactor Operator Written Examination and answer key
2. Reactor Operator Written Examination and answer key
3. Facility Comments on Written Examination
4. NRC Response to Facility Comments
5. Simulation Facility Report

ATTACHMENT 1
Senior Reactor Operator Written Examination and Answer Key

NRC Official Use Only

MASTER

Nuclear Regulatory Commission
Operator Licensing
Examination

This document is removed from
Official Use Only category on
date of examination.

NRC Official Use Only

U. S. NUCLEAR REGULATORY COMMISSION
SITE SPECIFIC EXAMINATION
SENIOR OPERATOR LICENSE
REGION 1

CANDIDATE'S NAME: _____

FACILITY: Limerick 1 & 2

REACTOR TYPE: BWR-GE4

DATE ADMINISTERED: 91/01/25

INSTRUCTIONS TO CANDIDATE:

Use the answer sheets provided to document your answers. Staple this cover sheet on top of the answer sheets. Points for each question are indicated in parentheses after the question. The passing grade requires a final grade of at least 80%. Examination papers will be picked up four (4) hours after the examination starts.

TEST VALUE	CANDIDATE'S SCORE	%
99.00	_____	____% TOTALS

FINAL GRADE

All work done on this examination is my own. I have neither given nor received aid.

_____
Candidate's Signature

A N S W E R S H E E T

Multiple Choice (Circle or X your choice)

If you change your answer, write your selection in the blank.

MULTIPLE CHOICE

001	a	b	c	d	___
002	a	b	c	d	___
003	a	b	c	d	___
004	a	b	c	d	___
005	a	b	c	d	___
006	a	b	c	d	___
007	a	b	c	d	___
008	a	b	c	d	___
009	a	b	c	d	___
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038	a	b	c	d	___
039	a	b	c	d	___
040	a	b	c	d	___
041	a	b	c	d	___
042	a	b	c	d	___
043	a	b	c	d	___
044	a	b	c	d	___
045	a	b	c	d	___

A N S W E R S H E E T

Multiple Choice (Circle or X your choice)

If you change your answer, write your selection in the blank.

046	a	b	c	d	___	069	a	b	c	d	___
047	a	b	c	d	___	070	a	b	c	d	___
048	a	b	c	d	___	071	a	b	c	d	___
049	a	b	c	d	___	072	a	b	c	d	___
050	a	b	c	d	___	073	a	b	c	d	___
051	a	b	c	d	___	074	a	b	c	d	___
052	a	b	c	d	___	075	a	b	c	d	___
053	a	b	c	d	___	076	a	b	c	d	___
054	a	b	c	d	___	077	a	b	c	d	___
055	a	b	c	d	___	078	a	b	c	d	___
056	a	b	c	d	___	079	a	b	c	d	___
057	a	b	c	d	___	080	a	b	c	d	___
058	a	b	c	d	___	081	a	b	c	d	___
059	a	b	c	d	___	082	a	b	c	d	___
060	a	b	c	d	___	083	a	b	c	d	___
061	a	b	c	d	___	084	a	b	c	d	___
062	a	b	c	d	___	085	a	b	c	d	___
063	a	b	c	d	___	086	a	b	c	d	___
064	a	b	c	d	___	087	a	b	c	d	___
065	a	b	c	d	___	088	a	b	c	d	___
066	a	b	c	d	___	089	a	b	c	d	___
067	a	b	c	d	___	090	a	b	c	d	___
068	a	b	c	d	___	091	a	b	c	d	___

A N S W E R S H E E T

Multiple Choice (Circle or X your choice)

If you change your answer, write your selection in the blank.

092 a b c d ___

093 a b c d ___

094 a b c d ___

095 a b c d ___

096 a b c d ___

097 a b c d ___

098 a b c d ___

099 a b c d ___

(********** END OF EXAMINATION **********)

NRC RULES AND GUIDELINES FOR LICENSE EXAMINATIONS

During the administration of this examination the following rules apply:

1. Cheating on the examination means an automatic denial of your application and could result in more severe penalties.

2. After the examination has been completed, you must sign the statement on the cover sheet indicating that the work is your own and you have not received or given assistance in completing the examination. This must be done after you complete the examination.

3. Restroom trips are to be limited and only one applicant at a time may leave. You must avoid all contacts with anyone outside the examination room to avoid even the appearance or possibility of cheating.

4. Use black ink or dark pencil ONLY to facilitate legible reproductions.

5. Print your name in the blank provided in the upper right-hand corner of the examination cover sheet and each answer sheet.

6. Mark your answers on the answer sheet provided. USE ONLY THE PAPER PROVIDED AND DO NOT WRITE ON THE BACK SIDE OF THE PAGE.

7. Before you turn in your examination, consecutively number each answer sheet, including any additional pages inserted when writing your answers on the examination question page.

8. Use abbreviations only if they are commonly used in facility literature. Avoid using symbols such as < or > signs to avoid a simple transposition error resulting in an incorrect answer. Write it out.

9. The point value for each question is indicated in parentheses after the question.

10. Show all calculations, methods, or assumptions used to obtain an answer to any short answer questions.

11. Partial credit may be given except on multiple choice questions. Therefore, ANSWER ALL PARTS OF THE QUESTION AND DO NOT LEAVE ANY ANSWER BLANK.

12. Proportional grading will be applied. Any additional wrong information that is provided may count against you. For example, if a question is worth one point and asks for four responses, each of which is worth 0.25 points, and you give five responses, each of your responses will be worth 0.20 points. If one of your five responses is incorrect, 0.20 will be deducted and your total credit for that question will be 0.80 instead of 1.00 even though you got the four correct answers.

13. If the intent of a question is unclear, ask questions of the examiner only.

14. When turning in your examination, assemble the completed examination with examination questions, examination aids and answer sheets. In addition, turn in all scrap paper.

15. Ensure all information you wish to have evaluated as part of your answer is on your answer sheet. Scrap paper will be disposed of immediately following the examination.

16. To pass the examination, you must achieve a grade of 80% or greater.

17. There is a time limit of four (4) hours for completion of the examination.

18. When you are done and have turned in your examination, leave the examination area (EXAMINER WILL DEFINE THE AREA). If you are found in this area while the examination is still in progress, your license may be denied or revoked.

QUESTION: 001 (1.00)

A failure to scram has occurred. All APRMs indicate 25%.

In order to initiate the timer to inject SBLC which additional condition must exist:

a. Reactor Pressure = 1050 psig.

b. Reactor vessel level = -45 inches.

c. One RRCS manual initiation button is armed and depressed.

d. Suppression pool temperature = 110 F.

QUESTION: 002 (1.00)

Which of the following conditions will result in indicated reactor vessel water level being LOWER than actual level?

a. A break occurs in the reference leg.

b. A 50 F decrease in drywell temperature occurs.

c. Narrow range level instrument is used when reactor pressure is 75 psig.

d. Reactor pressure is below saturation temperature for the drywell.

QUESTION: 003 (1.00)

Reactor vessel water level has decreased to -140 inches. Drywell pressure is 1.2 psig. RHR and Core Spray pumps are running.

ADS valves should open:

a. Immediately.

b. In 105 seconds.

c. In 420 seconds.

d. In 525 seconds.

QUESTION: 004 (1.00)

The reactor is at 50% power with the EHC Load Limit set at 65% and Maximum Combined Flow Limiter at 115%. An electrical failure occurs that causes the pressure set signal to decrease 10 psi.

Assume reactor pressure remains constant.

Refer to the attached drawing of the Electro-Hydraulic Control Logic (LOT-0590-6).

The EHC system will cause:

a. The TCV and bypass valves to remain in their present positions.

b. The TCVs will open to pass 60% flow and the bypass valve will remain closed.

c. The TCVs will open to pass 65% flow and the bypass valves will remain closed.

d. The TCVs will open to pass 65% flow and the bypass valves will open to pass 17-18% flow.

QUESTION: 005 (1.00)

An ATWS has occurred and reactor power is 25% on APRMs. Reactor water level is 20 inches and drywell pressure is 1.2 psig. All scram valves opened and the SDV vent and drain valves shut.

SELECT the correct statement concerning resetting of the scram to allow draining of the SDV.

a. The scram cannot be reset in this condition because the scram condition cannot be cleared.

b. The scram can be reset by placing the mode switch in SHUTDOWN and placing the CRD Discharge Volume Bypass switch in BYPASS.

c. The scram can be reset by placing the mode switch in RUN and placing the CRD Discharge Volume Bypass switch in BYPASS.

d. The scram can be reset by placing the mode switch in STARTUP and placing the CRD Discharge Volume Bypass switch in BYPASS.

QUESTION: 006 (1.00)

SELECT the statement identifying the reason reactor power goes down when reactor water level is lowered during a failure to scram (ATWS) event.

a. Lowering level below the moisture separator removes the flowpath thereby minimizing flow through the core.

b. Lowering level reduces the pressure in the core by reducing the head of water above the core.

c. Lowering level increases the differential pressure between outside the shroud and inside the core.

d. Lowering level reduces power by increasing the subcooling of the water entering the core.

QUESTION: 007 (1.00)

Which ONE of the following describes an independent verification requirement for restoring safety related or Technical Specification equipment to service, in accordance with Administrative Procedure A-41, "Control Of Plant Equipment"?

a. Independent verification need not be performed in areas of the plant where the Chief Operator (CO) determines significant exposure to radiation would result.

b. If it is necessary for more than one person to perform the verification only the person performing the final verification must sign the "VERIFICATION OF REMOVAL - BY" block on the permit.

c. Independent verification of all items marked on a blocking permit need not be completed prior to declaring the component or system operable.

d. Discrepancies noted during the independent verification shall be corrected immediately by the person performing the verification.

QUESTION: 008 (1.00)

Which ONE of the following describes the basis which allows the Technical Specification chloride limit to increase from 0.2 ppm during OPERATIONAL CONDITION 1 to 0.5 ppm during OPERATIONAL CONDITION 4?

a. The temperature necessary for stress cracking to occur in stainless steel is not present.

b. Oxidation of carbon steel components decreases as temperature decreases and chlorides increase.

c. The oxygen content of the reactor coolant is below that required for stress cracking to occur in stainless steel.

d. The stresses necessary for stress cracking to occur in stainless steel is not present in a depressurized system.

QUESTION: 009 (1.00)

Which ONE of the following must be completed by a licensed operator to maintain his/her license in an "active status" per the regulations of 10 CFR 55.53, "Conditions Of Licenses"?

The operator shall actively perform the functions for a minimum of:

a. Seven 8 hour shifts or five 12 hour shifts per calendar month.

b. Seven 8 hour shifts or five 12 hour shifts per calendar quarter.

c. Five 8 hour shifts or four 12 hour shifts per calendar month.

d. Five 8 hour shifts or four 12 hour shifts per calendar quarter.

QUESTION: 010 (1.00)

Which ONE of the following describes the constraints on physical location of licensed personnel in accordance with Administrative Procedure A-7, "Shift Operations"?

a. In Operational Condition 1 a single Reactor Operator may assume the "AT THE CONTROLS" position of both units for short periods of time during an emergency, provided conditions are stable on one unit.

b. In Operational Condition 1 the Chief Operator may assume the responsibility of the Control Supervisor for "short term relief."

c. In Operational Condition 2 the Chief Operator may access anywhere in the control room complex even if substituting for the Reactor Operator.

d. When both units are in Operational Condition 4 one Chief Operator may satisfy the control room Shift Supervision requirements for both units.

QUESTION: 011 (1.00)

A Plant Operator (PO) must operate a locked valve in the RHR system.

Which ONE of the following is correct in accordance with Administrative Procedure A-8, "Procedure For Control Of Locked Valves And Devices"?

The Plant Operator must:

a. Sign out a locked valve key from the Shift Manager.

b. Receive authorization from the Chief Operator prior to unlocking the valve.

c. Following valve operation relock the valve in the position to which it was changed.

d. Reapply the lock to some device other than the valve handwheel prior to operating the valve.

QUESTION: 012 (1.00)

A Temporary Circuit Alteration (TCA) installation is of such length that both ends are not visible when installed.

Which ONE of the following describes the proper tag installation in accordance with Administrative Procedure A-42, "Procedure For The Installation Of Temporary Circuit Alteration"?

a. Only one TCA tag is required and it can be on either end.

b. One information only tag at each end and a TCA control tag somewhere on the Jumper.

c. One end with a TCA control tag and one end with a information only tag, both with the same number.

d. TCA control tags with the same number on each tag at each end.

QUESTION: 013 (1.00)

A Licensed Reactor Operator has worked the following schedule during a refueling outage:

- Thursday scheduled day Off.
- Friday 7 am to 7 pm
- Saturday 7 am to 7 pm
- Sunday 7 am to 3 pm
- Monday 7 am to 3 pm
- Tuesday 7 am to 9 pm
- Wednesday 7 am to 3 pm

Which one of the following work schedules for the following Thursday is allowed without additional authorization in accordance with Administrative Procedure A-40, "Working Hour Restrictions"?

a. 7 am to 6 pm

b. 7 am to 5 pm

c. 7 am to 7 pm

d. 7 am to 9 pm

QUESTION: 014 (1.00)

A Troubleshooting Control Form (TCF) has been initiated in accordance with Administrative Procedure A-41.1, "Troubleshooting Safety Related/Tech Spec Equipment".

Which ONE of the following describes the nominal time the TCF is valid following Shift Supervision approval?

a. The remainder of that shift

b. 8 hours

c. 1 day

d. 7 days

QUESTION: 015 (1.00)

During performance of a HPCI surveillance test, rated flow is not achieved.

Which ONE of the following describes the required action of the Licensed Operator in accordance with Administrative Procedure A-43, "Surveillance Testing Program"?

a. Immediately notify shift supervision.

b. Immediately perform the test steps a second time.

c. Continue with the test and enter FAIL in the "results" section when complete.

d. Place the test on hold until I&C recalibrates the flow indication.

QUESTION: 016 (1.00)

Which ONE of the following describes the function of operator aids in accordance with Administrative Procedure A-95, "Operator Aids?"

Operator Aids:

a. Aid management personnel when observing control room operations.

b. Provide a substitute for alarm response procedures on in-plant panels.

c. Provide operating instructions for safety related equipment after approval by the Assistant Superintendent of Operations

d. Alert operations personnel to plant conditions when no other suitable means is available.

QUESTION: 017 (1.00)

A plant operator on a plant tour observes a custodian disposing of unused cleaning fluid in a floor drain.

Which ONE of the following describes the IMMEDIATE action required in accordance with administrative procedure A-96, "Control And Use Of Chemical Materials"?

a. Dilute the chemical with any available water source.

b. Inform the Radwaste Operator and turn off the sump pumps in the area.

c. Log the type of chemical, approximate quantity and floor drain number and inform the Chief Operator prior to shift turnover.

d. Notify Shift Supervision and Chemistry.

QUESTION: 018 (1.00)

Which ONE of the following is correct concerning Fire Watch responsibilities in accordance with Administrative Procedure A-12, "Ignition Source Control Procedure"?

a. The Dedicated Fire Watch is required to have an A/B/C fire extinguisher on hand at all times.

b. A single individual cannot serve as both the Dedicated Fire Watch and the Technical Specification Fire Watch.

c. A Dedicated Fire Watch inside a radiological controlled area shall not enclose the fire extinguisher operator in plastic.

d. The Dedicated Fire Watch must remain in the area at least 30 minutes after the last use of an ignition source.

QUESTION: 019 (1.00)

During operation an emergency situation arises for which no procedure is available; and an action which departs from Technical Specifications is required immediately to protect the health and safety of the public.

Which ONE of the following describes the course of action the Reactor Operator (RO) is authorized to take in accordance with Administrative Procedure A-7, "Shift Operations"?

a. RO immediately takes whatever action is required without further direction.

b. RO performs the required action then notifies the Control Supervisor of his action.

c. RO obtains approval from the Chief Operator and then performs the action.

d. RO obtains approval from the Shift Manager or Control Supervisor prior to taking any action.

QUESTION: 020 (1.00)

Which ONE of the following describes an ALERT emergency level classification event?

a. Events that involve major failures of plant functions needed for protection of the public.

b. Events that involve an actual substantial degradation of the level of safety of the plant.

c. Events that involve core degradation with possible loss of containment.

d. Events that indicate a potential degradation of the level of safety of the plant.

QUESTION: 021 (1.00)

A Unit 2 Emergency Response Facility Display System (ERFDS) parameter indicates in MACENTA.

Which ONE of the following describes the status of this parameter?

a. A system safety action has been demanded but has failed to complete within the allowed time.

b. A system safety action has been demanded and is not yet completed but the allowed time has not elapsed.

c. No system safety action has been demanded, the parameter is in its normal condition.

d. The parameter has an invalid data status or a system failure has occurred.

QUESTION: 022 (1.00)

A plant operator is required to enter a High Radiation Area to perform a valve lineup. The general area radiation level is 200 mRem/hr.

Assume the following specific information about the plant operator:

- 300 mRem exposure for the week.
- 625 mRem exposure for the current quarter.
- 25 year old male radiation worker.
- NRC Form 4 completed and on file.
- No specific additional approvals have been given.

Which ONE of the following is the maximum allowable stay time in this area without exceeding any LGS administrative OR NRC radiation exposure limits?

a. 1 hour.

b. 1.6 hours.

c. 2.4 hours.

d. 4 hours.

QUESTION: 023 (1.00)

Which ONE of the following is an indication of an uncoupled control rod when performing a control rod coupling integrity check at position 48?

a. Four rod display does not change from position 48 and the CONTROL ROD DRIFT annunciator alarms.

b. Four rod display indicates blanks and white rod backlighting on the full core display extinguishes.

c. Four rod display indicates blank and ROD OVERTRAVEL annunciator alarms.

d. Red backlight on the full core display extinguishes and ROD OVERTRAVEL annunciator alarms.

QUESTION: 024 (1.00)

Which ONE of the following would be a direct result of excessive "steam carryunder" during 100% power operation?

a. Recirculation pump NPSH decreases.

b. Main turbine efficiency decreases.

c. Steam quality exiting the reactor decreases.

d. Steam line radiation levels increase.

QUESTION: 025 (1.00)

Which ONE of the following plant conditions will cause recirculation pump seal purge valve, HV-46-115A, to automatically close?

a. The "A" recirculation pump discharge valve is fully closed.

b. The "A" recirculation pump suction valve is fully closed.

c. Either the "A" recirculation pump suction or discharge valve leaves the fully open position.

d. Three minutes after the "A" recirculation pump drive motor breaker trips.

QUESTION: 026 (1.00)

Which ONE of the following conditions will cause the 75% limiter in the recirculation flow control system to enforce recirculation motor generator speed limitations?

a. Reactor vessel level is +27 inches.

b. The "A" reactor feedwater pump trips.

c. Recirculation pump discharge valve F031B leaves its full open position.

d. Both "A" and "C" condensate pumps trip during full power operation.

QUESTION: 027 (1.00)

Which ONE of the following describes the power supplies to the control rod drive pump motors?

a. D11 and D12

b. D13 and D14

c. D21 and D22

d. D21 and D24

QUESTION: 028 (1.00)

Which ONE of the following describes the operation/configuration of the backup scram valves?

a. Two valves in series normally energized, one valve will de-energize, with each RPS channel de-energizing.

b. Two valves in series, one powered from each RPS trip channel, both valves must energize to vent the scram air header.

c. Require both RPS channels de-energized or one RPS channel and one ARI logic channel de-energized for both valves to actuate.

d. Two valves in series, normally de-energized, a check valve allows venting the pilot air header if the "B" valve fails to actuate.

QUESTION: 029 (1.00)

Which ONE of the following describes how the Rod Drive Control System (RDCS) detects a drifting control rod?

a. Withdraw signal sent to the directional control valves for a selected rod for greater than 2 seconds.

b. Insert signal sent to the directional control valves for a selected rod for greater than 1.5 seconds.

c. A non-selected rod moves off its latched even numbered position.

d. A selected rod settles to an even numbered position that has a failed reed switch.

QUESTION: 030 (1.00)

Determine the correct value for total core flow from the following indications.

Loop "A" total jet pump flow	- 45 millon lbm/hr
Loop "B" total jet pump flow	- 5 millon lbm/hr
"A" recirculation pump speed	- 1725 RPM
"B" recirculation pump speed	- 0 RPM
Reactor power	- 35%

a. 35 millon lbm/hr

b. 40 millon lbm/hr

c. 45 millon lbm/hr

d. 50 millon lbm/hr

QUESTION: 031 (1.00)

Which ONE of the following rod motion sequences does NOT open the settle valve, SV-20?

a. Normal insert cycle.

b. Continuous insert cycle.

c. Normal withdraw cycle.

d. Continuous withdraw cycle.

QUESTION: 032 (1.00)

During a Unit 1 plant shutdown reactor power decreases to 14% with the Rod Worth Minimizer (RWM) indicating two (2) insert errors.

Which ONE of the following describes the required actions necessary to continue the shutdown.

a. No action is necessary because three insert errors are allowed.

b. Raise reactor power above the LPSP and clear the insert errors.

c. Bypass the RWM and correct the rod pattern.

d. Bypass all rods in the group(s) that indicate errors.

QUESTION: 033 (1.00)

Which ONE of the following will generate a rod block with the reactor mode switch in "Refuel".

a. The refuel platform is over the spent fuel racks and is moving a fuel bundle.

b. The refuel platform is over the core, unloaded and one control rod is withdrawn.

c. The refuel platform is over the core d is raising a fuel bundle.

d. The refuel platform is over the spent fuel racks and the full-up light is lit.

QUESTION: 034 (1.00)

Which ONE of the following describes a properly orientated fuel bundle?

a. Orientation tab on the bail handle points away from the control rod.

b. The channel spacer buttons face the control rod.

c. Serial number on the bail handle is readable from outside edge of bundle in towards control rod.

d. Channel fastener is located on the outside edge 180 degrees away from fuel cell center.

QUESTION: 035 (1.00)

Each Main Steam Isolation Valve (MSIV) has two solenoids.

Which ONE of the following describes the power supply configuration of these solenoids?

a. One 120 volt AC from RPS and one 125 volt DC from Div 1 or Div 2.

b. 125 volt DC from Div 1 or Div 2 to both solenoids outside containment. 120 volt AC from UPS to both solenoids inside containment.

c. One 120 volt AC from UPS and one 125 volt DC from Div 1 or Div 2.

d. 125 volt DC from Div 1 to both solenoids outside containment. 125 volt DC from Div 2 to both solenoids inside containment.

QUESTION: 036 (1.00)

The plant has experienced a loss of the instrument air/instrument gas supply to the Main Steam Isolation Valves (MSIVs).

Which ONE of the following describes the expected response of the Main Steam Isolation Valves to this failure.

a. Outboard MSIVs close in 3 to 5 seconds, inboard MSIVs drift closed as the accumulators bleed down.

b. Outboard MSIVs drift close as the accumulators bleed down, inboard MSIVs close in 3 to 5 seconds.

c. Both outboard and inboard MSIVs close in 3 to 5 seconds.

d. Both outboard and inboard MSIVs drift closed as the accumulators bleed down.

QUESTION: 037 (1.00)

During the blowdown phase of a Design Basis LOCA one (1) suppression chamber to drywell vacuum breaker fails open.

Which ONE of the following describes the effect this would have on the peak primary containment pressures?

a. Increase suppression chamber pressure and drywell pressure.

b. Increase suppression chamber pressure with no effect on drywell pressure.

c. Increase drywell pressure with no effect on suppression chamber pressure.

d. Increase the time drywell pressure remains at its peak pressure with no effect on suppression chamber pressure.

QUESTION: 038 (1.00)

Which ONE of the following drywell unit cooler fan configurations requires entry into Technical Specification 3.6.6.2, "Drywell Hydrogen Mixing System" LCO because of inoperable LOCA fans?

a. Both fans on unit cooler "E" out of service.

b. One fan each on unit coolers "A" and "B" out of service.

c. Both fans on unit cooler "G" out of service.

d. One fan on unit cooler "H" and both fans on unit cooler "C" out of service.

QUESTION: 039 (1.00)

The plant is experiencing a Loss of Coolant Accident (LOCA) with the following current plant conditions:

- Drywell pressure 2.2 psig
- Reactor water level -40.0 inches
- Main steam line tunnel temperature (Reactor Enclosure) 175 degrees F

Which ONE of the following combinations of Primary Containment Isolation System (PCIS) groups should have received automatic isolation signals?

a. 1A, MSIVs and steam line drains.
IIA, shutdown cooling and head spray.
VIIIA, drywell chilled water.

b. III, RWCU.
VIA, containment purge and exhaust.
VIIA, containment instrument gas.

c. 1B, main steam and reactor water sample lines.
IIB, RHR heat exchanger sample lines.
IVB, HPCI turbine exhaust vacuum breaker lines.

d. IC, RHR heat exchanger vacuum breaker lines.
IVA, HPCI process lines.
VIC, containment sampling and recombiner lines.

QUESTION: 040 (1.00)

Which ONE of the following personnel access door actions would result in a main control room AIRLOCK SEAL BROKEN annunciator?

The annunciator will be received:

a. When reactor enclosure pressure exceeds 0.25 inches WG vacuum with one door open.

b. Immediately after opening both doors.

c. 10 seconds after the second door is opened.

d. By maintaining either door open for 10 seconds with the other closed.

QUESTION: 041 (1.00)

Which ONE of the following combinations of main steam line radiation monitor trips will cause a full Main Steam Isolation Valve (MSIV) closure?

a. Channel "A" -- High
Channel "D" -- High - High

b. Channel "B" -- Downscale
Channel "C" -- Inop

c. Channel "A" -- High - High
Channel "C" -- High - High

d. Channel "C" -- Inop
Channel "D" -- High - High

QUESTION: 042 (1.00)

The plant is at full power with reactor enclosure ventilation system aligned for normal operation. Both Div 1 and Div 2 reactor enclosure ventilation exhaust radiation monitor HI/HI trips are received.

Which ONE of the following will NOT occur from the resulting NSSS isolation signal?

a. Reactor enclosure supply and exhaust ventilation isolations.

b. Automatic start of standby gas treatment.

c. Automatic start of reactor enclosure recirculation.

d. Refuel floor supply and exhaust ventilation isolations.

QUESTION: 043 (1.00)

Which ONE of the following describes the use of water as a fire extinguishing agent?

a. Primary agent for extinguishing Class A fires and also effective on Class B and C fires.

b. Primary agent for extinguishing Class B fires and also effective on Class A and C fires.

c. Primary agent for extinguishing Class A and B fires but not effective on Class C fires.

d. Primary agent for extinguishing Class B and C fires but not effective on Class A fires.

QUESTION: 044 (1.00)

Which ONE of the following plant conditions will allow the "A" loop Drywell Spray Isolation Valves, HV-F016A and HV-F021A to be opened?

a. Reactor vessel level -135 inches, drywell pressure 2.0 psig and reactor pressure 600 psig.

b. Reactor vessel level -135 inches, drywell pressure 1.60 psig and reactor pressure 300 psig.

c. Reactor vessel level -115 inches, drywell pressure 1.60 psig and LPCI injection valves HV FO-17A and FO-17C open.

d. Reactor vessel level -115 inches, drywell pressure 2.0 psig and reactor pressure 300 psig.

QUESTION: 045 (1.00)

Unit 1 is at 100% power when a complete loss of Division I Safeguard 125/250 Volt DC occurs.

Which One of the following correctly describes the resultant effect on the unit?

a. RCIC cannot be initiated.

b. HPCI cannot be initiated.

c. Loss of "B" RPS and UPS inverter.

d. Loss of the main turbine emergency bearing oil pump.

QUESTION: 046 (1.00)

While operating at 100% power both containment instrument gas compressors fail.

Which ONE of the following describes the effect this has on the Safety Relief Valves (SRVs)?

a. All SRVs are automatically supplied with backup nitrogen from replaceable gas bottles and will still function in all modes.

b. The non-ADS valves will function only as safety valves. The ADS valves will isolate from the supply header and be supplied only from their accumulator volumes and function in all modes until that volume is exhausted.

c. The non-ADS valves will function only as safety valves. The ADS valves will automatically be supplied with backup nitrogen from replaceable gas bottles and function in all modes.

d. The non-ADS valves can be manually aligned to backup nitrogen from replaceable gas bottles. The ADS valves will automatically align to backup nitrogen from replaceable gas bottles. All valves will function in all modes.

QUESTION: 047 (1.00)

The plant is at 12% power with a startup in progress. Reactor vessel water level is being controlled by "C" Reactor Feed Pump (RFP) in AUTO, in single element control when feed flow detector FT-06-N002A fails downscale.

Which ONE of the following describes the expected automatic reactor vessel level control system response assuming no operator action taken.

a. The flow error signal demands more feed flow. Reactor water level begins to increase until the feed pumps trip.

b. The "C" RFP detects a loss of control signal removing power from the Motor Gear Unit (MGU). RFP "C" speed remains constant and level begins to decrease.

c. The flow error signal demands less feed flow. Reactor water level begins to decrease and stabilizes at a lower level.

d. The reduction in feed flow signal is not seen by the system. Reactor water level does not change.

QUESTION: 048 (1.00)

Unit 1 is refueling and Unit 2 is at full power.

Which ONE of the following plant parameters will result in SGTS starting?

a. Refueling ventilation exhaust = 2.35 mr/hr.

b. Reactor enclosure exhaust radiation level = 1.0 mr/hour.

c. Drywell pressure = 1.65 psig.

d. Reactor enclosure low differential pressure of + 0.1 "WG for 10 minutes.

QUESTION: 049 (1.00)

A "Recirc MG Speed Control Signal Failure" alarm has annunciated for the "B" recirculation pump. The effect on operation of the "B" recirculation pump is that:

a. The pump speed can only be varied by the individual controller in manual.

b. The pump speed will run to minimum due to the low output signal from the controller.

c. The pump speed will remain at its present value due to a scoop tube lock.

d. The pump speed will remain at its present value due to loss of power to the scoop tube positioning motor.

QUESTION: 050 (1.00)

The reactor is in cold shutdown with loop "A" of RHR in shutdown cooling. Loop "B" is inoperable. A break results in a loss of reactor coolant inventory.

Water level has decreased to -140 inches.

IDENTIFY the operator actions which would be REQUIRED to initiate loop "A" of RHR in the LPCI injection mode.

a. Close the pump suction valve (F006A), open the suction valve (F004A) from the suppression pool and restart the RHR pump.

b. Close the pump suction valve (F006A), open the suction from the suppression pool (F004A) and manually open the injection valve (F017A).

c. Arm and depress both LPCI initiation pushbuttons.

d. Close the pump suction valve (F006A) and open the suction (F004A) from the suppression pool.

QUESTION: 051 (1.00)

A loss of 125 VDC Bus "D" logic power has occurred.

IDENTIFY the status of HPCI with this condition.

a. The only HPCI operation available is manual initiation using control room switches.

b. HPCI will automatically initiate but automatic isolation of division 4 valves is unavailable.

c. HPCI could be operated, using control switches, ONLY from the remote shutdown room.

d. HPCI cannot be operated except through local manual operations and/or use of Temporary Circuit Alterations.

QUESTION: 052 (1.00)

IDENTIFY the BACKUP source of water used for the prevention of water hammer in the ECCS systems.

a. Condensate Storage and Transfer system.

b. Residual Heat Removal System pump suction piping.

c. Core Spray pump suction piping.

d. Demineralized Water Storage Tank.

QUESTION: 053 (1.00)

A reactor startup is to be performed.

Which of the following SRM combinations is acceptable to perform a reactor startup?

		SRM A	SRM B	SRM C	SRM D
a.	Counts	100	100	DWNSCL	100
	Inserted	Yes	Yes	Yes	No
b.	Counts	100	100	DWNSCL	DWNSCL
	Inserted	Yes	Yes	Yes	Yes
c.	Counts	100	100	BYP	100
	Inserted	Yes	No	Yes	Yes
d.	Counts	100	100	50	100
	Inserted	Yes	No	Yes	Yes

QUESTION: 054 (1.00)

APRM Channel "B" Meter Function Switch is in the Count position with a meter reading of 50.

IDENTIFY the number of LPRMs BYPASSED.

a. 10

b. 11

c. 12

d. 13

QUESTION: 055 (1.00)

During the initial stages of an automatic initiation, speed of the RCIC turbine is controlled by:

a. The difference between the actual speed and desired speed as determined by the controller.

b. The difference between the actual flow and desired flow as determined by the controller.

c. The ramp signal generated by the controller.

d. A signal which limits the RCIC to a constant speed below the overspeed trip.

QUESTION: 056 (1.00)

The Condensate Storage Tank (CST) level instrument fails high.

A Main Steam Line Isolation has occurred causing a RCIC initiation at -38 inches.

IDENTIFY the response of the RCIC Suppression Pool Suction Valves to extended RCIC operation.

a. The valves will not change position without operator action.

b. The valves will change position when suppression pool level exceeds 24 feet 1.5 inches.

c. The valves will change position when the RCIC initiation signal is received.

d. The suppression pool suction valves will automatically open when the CST suction valves are closed.

QUESTION: 057 (1.00)

Step S-1 of T-100, "Scram", is applied throughout the procedure. In order to indicate this step is applicable throughout the procedure, it is contained in a:

a. Solid box.

b. Dotted box.

c. Diamond shaped box.

d. Octagon.

QUESTION: 058 (1.00)

A loss of drywell cooling occurs. Drywell pressure increases to 2.5 psig. Drywell temperature increases to 150 F.

Identify which sections of the TRIP Procedures that would be entered.

a. All sections of T-102, "Primary Containment Control."

b. Primary Containment Pressure (PC/P) and Drywell Temperature (DW/T) sections of T-102, "Primary Containment Control."

c. Primary Containment Pressure (PC/P) and Drywell Temperature (DW/T) sections of T-102, "Primary Containment Control" and all sections of T-101, "RPV Control."

d. All sections of T-101, "RPV Control" and all sections of T-102, "Primary Containment Control."

QUESTION: 059 (1.00)

Step SP/L-7 states: "If while executing the following, Suppression Pool Level drops below 18 ft then irrespective of whether adequate core cooling is assured, secure HPCI".

This action is performed because operation of HPCI below this level will result in:

a. Primary containment being directly pressurized.

b. Loss of suction to HPCI if it were aligned to the suppression pool.

c. The vortex at the HPCI suction may be sufficiently large to draw "air" into the pump causing pump damage.

d. HPCI turbine damage due to mechanical overspeed.

QUESTION: 060 (1.00)

Which action is REQUIRED to be completed PRIOR to Main Control Room evacuation on Unit 2?

a. Verify all control rods fully inserted.

b. Arm and depress the RCIC Manual Initiation pushbutton.

c. Trip the Main Turbine.

d. Secure all operating condensate pumps.

QUESTION: 061 (1.00)

A fire has occurred which causes an isolation of the MSIVs. HPCI and RCIC automatically initiate. Immediately after auto initiation of HPCI and RCIC all Unit 1 Remote Shutdown Panel (RSP) Transfer Switches are placed in Emergency. The operator trips RCIC at the RSP when level reaches +54 inches.

Reactor water level will:

a. Decrease until both HPCI and RCIC automatically re-initiate.

b. Continue to increase due to HPCI injection.

c. Decrease until HPCI automatically re-initiates at the low level initiation setpoint.

d. Decrease until RCIC automatically re-initiates at the low level initiation setpoint.

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QUESTION #61 DELETED IN RESPONSE TO FACILITY COMMENT

QUESTION: 062 (1.00)

A loss of off-site power has occurred. All automatic actions have occurred.

IDENTIFY how drywell cooling is maintained/established in this condition.

a. Emergency service water is manually aligned to drywell coolers.

b. Emergency service water is manually aligned to the RECW coolers and RECW is manually aligned to the drywell coolers.

c. The drywell chillers continue to operate to maintain drywell cooling.

d. Emergency service water is manually aligned to the TECW coolers and TECW is manually aligned to the drywell coolers.

QUESTION: 063 (1.00)

A loss of 1A RPS UPS power has occurred. The operator is cautioned that the NSSSS isolation must be bypassed and the Instrument Gas System QUICKLY restored to the drywell.

IDENTIFY the reason for QUICKLY restoring instrument gas to the drywell.

a. Prevent MSIVs from drifting shut.

b. Allow operation of the ADS valves.

c. Reopen the drywell cooler chill water control valves.

d. Allow operation of the vacuum breakers.

QUESTION: 064 (1.00)

T-101, "RPV Control", directs the manual opening of SRVs to prevent uncontrolled SRV cycling.

Select the REASON why this step is required.

a. To prevent uncontrolled heat additions to the suppression pool.

b. To reduce uncontrolled power fluctuations during an ATWS.

c. To reduce the cyclic pressure transients on the primary containment.

d. To stabilize pressure prior to starting RCIC or HPCI for pressure control.

QUESTION: 065 (1.00)

OT-102, "Reactor High Pressure", directs an immediate reduction in reactor power to maintain reactor pressure less than 1020 psig.

IDENTIFY the reason 1020 psig was chosen as an upper limit for this procedure.

This pressure limit:

a. Coincides with the highest reactor pressure expected during normal EHC operation.

b. Ensures preventive measures are taken prior to the automatic scram at 1037 psig.

c. Forces positive corrective actions be taken well before the first SRV opens.

d. Is the reactor pressure LCO which is based on the analysis for SRV sizing in the FSAR.

QUESTION: 066 (1.00)

Unit 1 is in an ATWS condition and has deliberately lowered RPV water level to -161". T-117, "Level/Power Control", directs the operator to maintain reactor water level between this level (-161") and -190".

Additional level reductions below this band will:

a. Cause significant power oscillations.

b. NOT decrease the natural circulation core flow any further.

c. Adversely affect adequate core cooling.

d. Require extreme operator attention to level control.

QUESTION: 067 (1.00)

T-102, "Primary Containment Control", path PC/P, directs the primary containment to be vented by venting the drywell OR the suppression pool.

What determines which vent path is to be used?

a. The desired rate of primary containment depressurization.

b. Whether or not the "scrubbing" action of the suppression pool water is needed.

c. Current suppression pool water temperature.

d. Current suppression pool water level.

QUESTION: 068 (1.00)

While operating in T-102, "Primary Containment Control", the operator is directed to perform an emergency blowdown when plant conditions cannot be maintained on the safe side of curve SP/T-1, "Heat Capacity Temperature Limit (HCTL)."

What are the TWO plant conditions that must be evaluated to make this decision?

a. Suppression pool water level and RPV pressure.

b. Drywell pressure and drywell temperature.

c. Suppression pool water level and delta T hc.

d. RPV pressure and suppression pool temperature.

QUESTION: 069 (1.00)

While performing RCIC turbine testing with the reactor at 55% power, temperatures are allowed to exceed the normal maximum average temperature limit as specified in Unit 1 Technical Specifications.

What is the CRITERIA that must be met while exceeding this limit?

Suppression pool temperature must:

a. Be less than 95 degrees F within 12 hours.

b. NOT be allowed to exceed 100 degrees F.

c. NOT be allowed to exceed 105 degrees F.

d. Be less than 100 degrees F within 24 hours.

QUESTION: 070 (1.00)

An inadvertent reactivity addition due to a loss of feedwater heating has occurred.

Select the thermal limit that is of concern during these conditions.

a. Minimum Critical Power Ratio (MCPR)

b. Linear Heat Generation Rate (LHGR)

c. Average Planar Linear Heat Generation Rate (APLHGR)

d. Maximum Average Planar Ratio (MAPRAT)

QUESTION: 071 (1.00)

With Unit 2 at 100% rated power, what IMMEDIATE action is required if an unexplained reactivity addition occurs? (Assume the cause of reactivity addition is unknown and is not large enough to cause a scram.)

a. Place the Reactor Mode Switch in "shutdown".

b. Reduce power to approximately 850 MWe using recirculation flow per Reactor Maneuvering Shutdown Instruction.

c. Reduce power by 100 MWe with control rods per Reactor Maneuvering Shutdown Instruction.

d. Rapidly reduce core flow to 45%.

QUESTION: 072 (1.00)

Following a reactor scram and entry into T-101, "RPV Control", a determination must be made regarding continued execution of steps in the RC/Q section.

Which CRITERIA allows the operator to exit RC/Q?

a. All rods are fully inserted beyond position 02.

b. The 6 APRM channel "Downscale" alarms are illuminated.

c. All rods are inserted to or beyond position 04.

d. A Reactor Engineer calculates the reactor will remain shutdown with boron.

QUESTION: 073 (1.00)

In accordance with OT-117, "RPS Failures" identify the required action for the following conditions.

APRM channels "B" and "E" upscale trips are in solid with no response by RPS.

a. Place the mode switch to "shutdown" and enter T-101.

b. Perform a rapid plant shutdown per GP-4.

c. Place the mode switch in "shutdown" and enter T-100.

d. Perform a controlled plant shutdown per GP-4.

QUESTION: 074 (1.00)

OT-102, "Reactor High Pressure", provides power limits upon closure of Main Steam Isolation Valves. These limits are based on the number of unisolated steam lines following closure of one, or more, MSIVs.

Select the REASON why NO limits are given for one (1) unisolated steam line?

a. The reactor would have already scrammed from a Group I isolation on high steam flow through the one remaining steam line.

b. Operation under these conditions is not allowed due to excessive erosion damage of steam line components from the high steam flows.

c. The Reactor Protection System logic will not allow operation under these conditions unless the Reactor Mode Switch is not in "Run".

d. The generic GE analysis for operation with less than 2 steam lines in operation is not complete for late model BWR-4 designs.

QUESTION: 075 (1.00)

A low reactor water level of -38" is the automatic initiation signal for the Reactor Core Isolation Cooling (RCIC) system. What additional input does this water level signal provide to RCIC?

Low reactor water level (-38"):

a. Disables two of the RCIC system automatic isolations (High RCIC compartment temperature and low steam supply pressure).

b. Disables the RCIC system low suction pressure trip.

c. Enables the logic for the automatic suction swap from the Condensate Storage Tank to the Suppression Pool.

d. Enables the RCIC system manual isolation logic.

QUESTION: 076 (1.00)

Given the following table from T-116, "RPV Flooding" as a reference and the condensate system running and slowly injecting into the RPV.

TABLE RF-1 MINIMUM ALTERNATE FLOODING PRESSURE

Number of Open SRVs	Minimum Alternate Flooding Pressure
5	194
4	245
3	332
2	505
1	1025

What are the plant conditions that will CONFIRM adequate core cooling?

a. 4 SRVs open
RPV pressure is 120 psig

b. 5 SRVs open
RPV pressure is 425 psig

c. 2 SRVs open
RPV pressure is 300 psig

d. 1 SRV open
RPV pressure is 960 psig

QUESTION: 077 (1.00)

Which statement DESCRIBES the relationship between the Boron Injection Initiation Temperature (BIIT) and the Heat Capacity Temperature Limit (HCTL) curve?

a. The BIIT temperature limit and the HCTL curve combined, monitor the energy additions to the suppression pool to prevent exceeding the limits of the Pressure Suppression Pressure curve.

b. Operating by the BIIT temperature limit attempts to inject boron early enough to shutdown the reactor before the suppression pool reaches the limits of the HCTL curve.

c. Operating by either the BIIT temperature limit or the HCTL curve, whichever is most restrictive, ensures the limits of the Primary Containment Pressure Limit curve will not be reached.

d. The HCTL curve, based on reactor pressure, determines how long the operator has until the BIIT temperature limit is reached requiring boron injection.

QUESTION: 078 (1.00)

In accordance with Unit 2 Technical Specifications, the reactor was depressurized due to suppression pool water temperature being greater than 120 degrees F.

What CONDITIONS will allow a reactor startup?

Suppression pool temperature must be:

a. Less than 120 degrees F for 24 hours.

b. Less than 110 degrees F prior to exceeding 1% power.

c. Less than 105 degrees F prior to opening the MSIVs.

d. Less than 95 degrees F before changing Operational Conditions.

QUESTION: 079 (1.00)

Identify the REASON for NOT initiating drywell spray when operating outside the limits of the Drywell Spray Initiation Limit (PC/P-1) curve.

Initiating drywell spray will:

a. Cause extreme pressure drops exceeding the drywell negative design pressure resulting in possible failure of the primary containment.

b. Take RHR pumps away from the Low Pressure Coolant Injection (LPCI) mode, adversely affecting adequate core cooling.

c. Damage recirculation pumps, drywell coolers and other drywell equipment unnecessarily.

d. Draw air into the primary containment deinerting it, and with any hydrogen generation, possibly reaching combustion limits.

QUESTION: 080 (1.00)

The Hot Shutdown Boron Weight is the amount of boron that will shutdown the reactor with a complete control rod system failure, no Xenon in the core, no voids in the core, and RPV water level at:

a. 2/3 core height.

b. The Top of Active Fuel (TAF).

c. The low water level scram setpoint.

d. The high level trip setpoint.

QUESTION: 081 (1.00)

Following a trip of one recirculation pump from 80% power, select the condition REQUIRING a manual reactor scram.

a. The second recirculation pump trips approximately 10 seconds after the first pump trip.

b. Several LPRM downscale alarms are coming in and clearing every 2 to 4 seconds.

c. APRM power oscillations are 7% peak-to-peak on 4 channels and 8% on 2 channels and are diverging.

d. Multiple LPRM upscale and downscale alarms annunciate periodically.

QUESTION: 082 (1.00)

OT-112, "Recirculation Pump Trip", requires the operator tc reduce feedwater flow as an Immediate Action.

Identify the reason for this requirement.

This step provides positive operator control of feedwater addition rate:

a. To ensure it matches the new power level of 35% after control rod insertion.

b. To prevent possibility of the Level 8 protective actions/trips occurring.

c. To reduce the power increase from cold water addition to the reactor from the feedwater heating reduction.

d. To increase the margin to Minimum Critical Power Ratio (MCPR) during recirculation flow coastdown.

QUESTION: 083 (1.00)

What is the MINIMUM reactor power at which the plant can operate and still be assured of avoiding limit cycle oscillations or instabilities?

a. 35%

b. 40%

c. 45%

d. 50%

QUESTION: 084 (1.00)

OT-116, "Loss of Condenser Vacuum", directs a turbine trip if condenser vacuum reaches 22.2" Hg Vacuum.

During lowering condenser vacuum, this action is designed to prevent:

a. Overheating of the last row of turbine blading on the low pressure turbines.

b. Overpressurization of the condenser/turbine exhaust hood.

c. Rupturing of the flexible seals between the low pressure turbines and the condenser shells.

d. Excessive system flow rates from entering the off-gas system.

QUESTION: 085 (1.00)

Unit 2 is at 75% power and Unit 1 is at 100% power when a complete loss of Division 2 Safeguard 125/250 VDC bus 2FB occurs.

SELECT the statement that describes how this loss affects plant operation.

a. Loss of Unit 1 main turbine EBOP.

b. Unit 2 RCIC cannot be initiated.

c. Unit 2 HPCI cannot be initiated.

d. Loss of the Unit 1 "B" RPS and UPS inverter.

QUESTION: 086 (1.00)

UNIT 1 is operating at 85% power and experiences a problem with the main generator Stator Water Cooling System. Conditions are as follows:

"A" Stator Water Cooling Pump	- Tripped/in pull-to-lock
"B" Stator Water Cooling Pump	- Running
Stator Cooling outlet temperature	- 76 degrees Celsius
Stator Cooling water inlet pressure	- 11 psig
Stator Cooling Storage Tank level	- 4" below normal level and decreasing

SELECT the response of the main turbine from the choices below.

a. The main generator stator amps must be reduced below 7469 amps in 3.5 minutes or the main turbine will trip.

b. The main turbine will automatically trip 2 minutes after the Stator Cooling water inlet pressure drops below 11 psig.

c. The main turbine will trip 2 minutes after Stator Cooling outlet temperature reaches 81 degrees Celsius.

d. The main turbine will automatically trip if the "B" Stator Water Cooling Pump trips with a 3.5 minute time delay.

QUESTION: 087 (1.00)

What is the justification for having a main turbine trip at +54 inches (Level 8) reactor water level?

The main turbine trip:

a. Provides backup protection for steam line components should the high reactor water level trip of the feed pumps fail.

b. Causes a reactor water level "shrink" to help reduce level.

c. Isolates the turbine from moisture carryover from the reactor.

d. Causes a scram to shutdown the reactor before reactor water level reaches the moisture separators.

QUESTION: 088 (1.00)

In accordance with OT-110, "Reactor High Level", what conditions REQUIRE the MSIVs to be closed?

Reactor water level reaches:

a. +54 inches and the feed pumps do not trip.

b. +70 inches and ANY system is still feeding the vessel.

c. +100 inches and the level rise is not under control.

d. +118 inches and level "shrink" is not turning the level.

QUESTION: 089 (1.00)

While operating in Path DW/T in T-102, "Primary Containment Control", the operator is allowed to monitor ONLY TR57-*22 for drywell temperature based on plant conditions. Select the appropriate conditions that would REQUIRE use of this instrument.

a. Drywell temperature is 155 degrees F
Drywell pressure is 2.2 psig

b. Drywell temperature is 135 degrees F
Drywell pressure is 1.6 psig

c. Drywell temperature is 240 degrees F
Drywell pressure is 1.0 psig

d. Drywell temperature is 125 degrees F
Drywell pressure is 2.4 psig

QUESTION: 090 (1.00)

Path DW/T in T-102, "Primary Containment Control", states that RPV level will be affected by elevated drywell temperatures.

Which SPECIFIC level range is NOT allowed to be used during elevated drywell temperatures and why?

a. Upset range -- indicated level is unreliable and will be lower than actual level.

b. Wide range -- because indicated level will be higher than actual level.

c. Wide range -- because indicated level will be lower than actual level.

d. Upset range -- indicated level is unreliable and will be higher than actual level.

QUESTION: 091 (1.00)

Which of the following conditions REQUIRE the IMMEDIATE tripping of both Reactor Recirculation pumps 10 seconds apart during abnormal operation of the Reactor Enclosure Cooling Water (RECW) system?

The Recirculation pumps must be IMMEDIATELY tripped:

a. If RECW is lost due to an inadvertent Group VIII A isolation.

b. If Service Water is lost to the RECW heat exchangers for more than 10 minutes.

c. If recirculation pump seal water flow is oscillating.

d. If RECW cooling to the recirculation pump seals is not restored in 10 minutes.

QUESTION: 092 (1.00)

Step 2.4.1 of ON-119, "Loss of Instrument Air", requires a rapid power reduction to less than 45% if both instrument air compressor discharge pressures drop below 80 psig.

IDENTIFY the reason for this power reduction.

Power is reduced:

a. To ensure adequate feed flow to the reactor should the condensate or feed pump minimum flow valves drift open.

b. To limit the pressure and reactivity transient from the closure of the MSIVs on a complete loss of air.

c. To prevent violation of fuel thermal limits caused by unanalyzed control rod patterns as the rods start to drift into the core.

d. In anticipation of the loss of condenser vacuum as the steam jet air ejectors are affected by the loss of air.

QUESTION: 093 (1.00)

Given the following plant conditions:

-- Reactor startup and heatup in progress
-- Reactor pressure is 850 psig
-- One Control Rod Drive (CRD) pump is tagged out

The one remaining CRD pump trips and one CRD accumulator trouble alarm comes in immediately followed by a second, 3 minutes later.

What are the REQUIRED action(s) for these conditions?

a. Place the mode switch in SHUTDOWN if a CRD pump cannot be started within 20 minutes.

b. The mode switch should be placed in SHUTDOWN upon receiving the second accumulator trouble alarm.

c. Closely monitor the CRD temperatures due to the possibility of mechanism seal damage from loss of cooling.

d. Place the mode switch in SHUTDOWN if a third accumulator trouble alarm comes in prior to starting a CRD pump.

QUESTION: 094 (1.00)

Select the Unit 2 suppression pool volume that is an limiting condition for operation (LCO) for Technical Specifications.

a. 24' 4"

b. 24' 2"

c. 22' 1"

d. 23" 3"

QUESTION: 095 (1.00)

Why is the operator directed to terminate all injection into the RPV and primary containment from external sources when suppression pool level CANNOT be maintained on the SAFE side of SP/L-4 (suppression pool pressure vs. primary containment water level)?

Above this water level:

a. Drywell level indication is unreliable.

b. There is no guarantee of maintaining containment integrity.

c. Operation of the SRVs will result in SRV tailpipe and support damage.

d. The drywell vacuum breakers can longer be considered functional.

QUESTION: 096 (1.00)

When the plant is in Shutdown Cooling per Operating Procedure S51.8.B, "Shutdown Cooling Operation" (SDC) requires that reactor vessel level be maintained above 60 inches on LI-42-*R605 at *OC602.

What is the BASIS for this requirement?

a. Operating above this level will prevent cavitation of the RHR pumps.

b. This level provides an adequate margin to the Group II isolation.

c. This provides a large water volume to allow for level changes while starting and stopping the RHR pumps.

d. A water level above this point will enhance adequate core cooling by natural circulation.

QUESTION: 097 (1.00)

Following a complete Loss of Shutdown Cooling, temperature readings indicate a 1 degree F increase in bulk water temperature every 10 minutes. Assume the reactor vessel head is ON, no other parameters change and current temperature is 164 degrees F.

How much TIME is allowed before primary containment integrity MUST be established?

a. 160 minutes

b. 260 minutes

c. 360 minutes

d. 480 minutes

QUESTION: 098 (1.00)

A procedure step in the radiation control leg of T-103, "Secondary Containment Control", directs the operator to isolate systems discharging into the area (except systems required to suppress a fire."

Which ONE of the following describes why fire suppression systems are specifically exempted from isolation at this time?

a. They will be isolated at the point when their contribution to secondary containment sump levels becomes critical.

b. Loss of fire suppression capabilities is a Site Area Emergency by Emergency Plan Implementing Procedure EP-101, "Classification of Emergencies".

c. Isolation of these systems may result in much larger releases if a fire is affecting safety related equipment.

d. These systems do not contribute to the plant conditions being controlled by the Secondary Containment Control procedure.

QUESTION: 099 (1.00)

The refuel bridge operator was operating the bridge at 25 fpm towards the fuel pool wall to demonstrate/verify the automatic boundary zone interlock enforcement. The enforcement did not occur resulting in the refuel bridge mast being damaged because it collided with the fuel pool cask pit gate at 25 fpm.

SELECT the ONE statement that describes why the boundary zone computer interlock was not enforced.

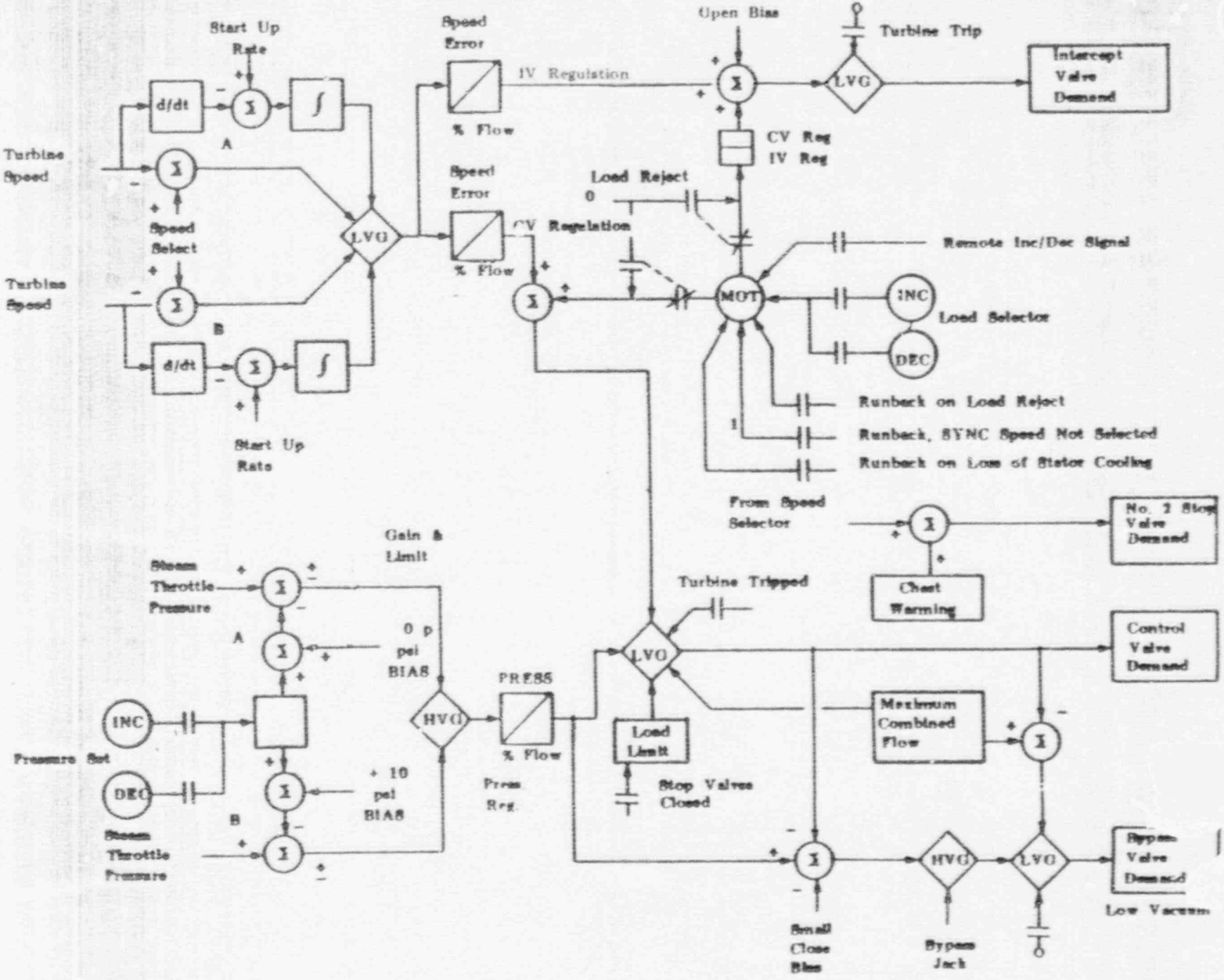
a. The boundary zone computer logic is manually bypassed to allow fuel movement into the cask pit area and assumes the gates are removed.

b. The boundary zone computer logic malfunctioned allowing bridge movement into the cask pit area at 25 fpm.

c. The boundary zone computer should have enforced a "Jog Zone" and coasted to a stop if the gates were not removed.

d. The boundary zone computer does not enforce exclusion zones or jog zones for movements into the cask pit canal regardless of whether or not the gates are installed.

(********** END OF EXAMINATION **********)



ELECTRO-HYDRAULIC CONTROL LOGIC T-LOT-0590-6

ANSWER: 001 (1.00)

b

REFERENCE:

LGS: LOT-310 p. 15
Learning objective 10

[4.2/4.2]
211000A308 ..(KA's)

ANSWER: 002 (1.00)

b

REFERENCE:

LGS: LOT-0050 p. 30 - 32
Learning objective 7
[3.6/3.8]
216000K507 ..(KA's)

ANSWER: 003 (1.00)

d

REFERENCE:

LGS: LOT-0330 p. 16. Figure 6.
Learning Objective 6.

[3.8/3.8]

218000K501 ..(KA's)

ANSWER: 004 (1.00)

d

REFERENCE:

LGS: LOT-0590 p. 6, 7, 8, 11-16
Learning objective 4.
[3.4/3.4]
241000A114 ..(KA's)

ANSWER: 005 (1.00)

a

REFERENCE:

LGS: LOT-0300 p. 9, 12.
Learning objective 4
[3.9/3.9]

212000A404 ..(KA's)

ANSWER: 006 (1.00)

a

REFERENCE:

LGS: T-117 Bases pg 1
LOT-1562 Learning Objective 2.

[4.1*/4.5*]
295037K303 264000K402 ..(KA's)

ANSWER: 007 (1.00)

b.

REFERENCE:

A-41 Section 5.3, pg. 10. LOT-1570 Obj. 3.
[3.9/4.5]
294001K102 ..(KA's)

ANSWER: 008 (1.00)

a.

REFERENCE:

Tech. Spec. Basis 3/4.4.4 pg 8 3/4 4-3. LOT 1010 Obj. 3
[2.9/3.4]
294001A114 ..(KA's)

ANSWER: 009 (1.00)

b.

REFERENCE:

10 CFR 55.53(e). LOT-1571 Obj. 3
[2.7/3.7]

294001A103 ..(KA's)

ANSWER: 010 (1.00)

d.

REFERENCE:

A-7 Sect 7.4. pg, 19. LOT-1571 Obj. 4.
[3.3/4.3]
294001A111 ..(KA's)

ANSWER: 011 (1.00)

d.

REFERENCE:

A-8 Sect. 5.0, pg 4. LOT-1570 Obj. 3
[3.7/3.7]
294001K101 ..(KA's)

ANSWER: 012 (1.00)

~~a.~~ d. (FACILITY COMMENT ACCEPTED)

REFERENCE:

A-42 Sect. 5.2.8 pg 7. LOT-1570 Obj. 3.0
[3.9/4.2]
294001K102 ..(KA's)

ANSWER: 013 (1.00)

b.

REFERENCE:

A-40 Sect 5.12, pg.5. LOT-1570 Obj. 3.
[2.7/3.7]
294001A103 ..(KA's)

ANSWER: 014 (1.00)

c.

REFERENCE:

A-41-1 Sect 7.13 pg. 4. LOT-1570 Obj. 3.
[3.9/4.2]

294001K102 ..(KA's)

ANSWER: 015 (1.00)

a.

REFERENCE:

A-43 Sect. 7.3.4, pg.10.
[4.2/4.2]
294001A102 ..(KA's)

ANSWER: 016 (1.00)

d.

REFERENCE:

A-95 Sect. 5.1, pg 2.
[4.2/4.2]
294001A102 ..(KA's)

ANSWER: 017 (1.00)

d.

REFERENCE:

A-96 Appendix 1 Sect. 3 pg.2
[3.1/3.4]
294001K110 ..(KA's)

ANSWER: 018 (1.00)

d.

REFERENCE:

A-12, Sect 7.3 pg. 7, appendix B.
[3.5/3.8]

294001K116 ..(KA's)

ANSWER: 019 (1.00)

d.

REFERENCE:

10 CFR 50.54 (x)&(y). A-7 Sect. 7.2.4, pg. 13.
[4.2/4.2]

294001A102 ..(KA's)

ANSWER: 020 (1.00)

b.

REFERENCE:

EP-101, pg 19. LOT-1520 Sect. IV.A.2, pg.9, Obj. 2.
[2.9/4.7]+++
294001A116 ..(KA's)

ANSWER: 021 (1.00)

d.

REFERENCE:

LOT-1871 Sect.VII.A. pg. 33 &33.
[3.2/3.4]+++
294001A115 ..(KA's)

ANSWER: 022 (1.00)

b.

REFERENCE:

LOT-1705 Sect. VII pg. 19. LOT-1760 OBJ. 2.
[3.3/3.8]+++
294001K103 ..(KA's)

ANSWER: 023 (1.00)

c. or d. (FACILITY COMMENT ACCEPTED)

REFERENCE:

LOT-0060, pg 11 Obj. 5.c.
[3.8/3.9]
201003K402 ..(KA's)

ANSWER: 024 (1.00)

a.

REFERENCE:

LOT-0010, pg 23, Obj 4.
[3.2/3.2]
290002K102 ..(KA's)

ANSWER: 025 (1.00)

b.

REFERENCE:

LOT-0030, pg 17. Obj. 4.
[3.0/3.1]
202001K404 ..(KA's)

ANSWER: 026 (1.00)

d.

REFERENCE:

LOT-0040, pg 9, Obj. 4.
[3.5/3.5]
202002K604 ..(KA's)

ANSWER: 027 (1.00)

b.

REFERENCE:

LOT-0660, pg 9 & 10, Obj. 4.c &4. d.
[2.9/3.1]
201001K201 ..(KA's)

ANSWER: 028 (1.00)

d.

REFERENCE:

LOT-0070, pg 24, Obj. 8.
[3.6/3.6]
201001K404 ..(KA's)

ANSWER: 029 (1.00)

c.

REFERENCE:

LOT-0080, pg 21, Obj. 2.
[3.6/3.6]
201002K403 ..(KA's)

ANSWER: 030 (1.00)

b.

REFERENCE:

LOT-0050, pg 24, Obj. 6.a&6.b.
[3.9/3.8]
202001A412 ..(KA's)

ANSWER: 031 (1.00)

b.

REFERENCE:

LOT-0080,pg 26, Obj. 5.
[3.2/3.2]
201002K408 ..(KA's)

ANSWER: 032 (1.00)

a. (FACILITY COMMENT ACCEPTED)

REFERENCE:

LOT-0095, pg,9, Obj. 3.a.
[3.2/3.3]
201006K511 ..(KA's)

ANSWER: 033 (1.00)

c.

REFERENCE:

LOT-0760, pg 16, Obj. 7.
[3.1/3.7]
234000A302 ..(KA's)

ANSWER: 034 (1.00)

b.

REFERENCE:

Lot-0760, pg 26, Obj. 9.
[3.0/3.7]
234000K505 ..(KA's)

ANSWER: 035 (1.00)

c.

REFERENCE:

LOT-0120, pg 17, Obj. 12.a.
[3.2/3.3]

239001K201 ..(KA's)

ANSWER: 036 (1.00)

a.

REFERENCE:

LOT-0120, pg 17, Obj. 12.b.
[3.2/3.2]
239001K602 ..(KA's)

ANSWER: 037 (1.00)

a.

REFERENCE:

LOT-0130, pg 11, Obj. 9.
[3.4/3.6]
223001K609 ..(KA's)

ANSWER: 038 (1.00)

c.

REFERENCE:

LOT-0140, pg 10, Obj. 3.
[3.3/4.1]
223001K609 ..(KA's)

ANSWER: 039 (1.00)

b.

REFERENCE:

LOT-0180, pgs 6-20, Obj.2.a. & 2.b.
[3.7/3.7]
223002A102 ..(KA's)

ANSWER: 040 (1.00)

c.

REFERENCE:

LOT-0190, pg 7, Obj. 2.

[3.5/3.8]
290001K401 ..(KA's)

ANSWER: 041 (1.00)

d.

REFERENCE:

LOT-0720, pg 9, Obj. 2.
[3.8/3.9]
272000A301 ..(KA's)

ANSWER: 042 (1.00)

d.

REFERENCE:

LOT-0720, pg 12, Obj. 2.
[3.7/4.1]
272000K402 ..(KA's)

ANSWER: 043 (1.00)

a.

REFERENCE:

LOT-0733, pg 4-6, Obj. 2.
[3.3/3.4]+++
286000K503 ..(KA's)

ANSWER: 044 (1.00)

a.

REFERENCE:

LOT-0370, pg. 18, Obj. 8.g and 9.a.
[3.6/3.8]+++

226001A101 ..(KA's)

ANSWER: 045 (1.00)

a.

REFERENCE:

LOT-0690, pp, 15-18 Obj. 6.
[3.4/3.8]+++

263000K103 ..(KA's)

ANSWER: 046 (1.00)

c.

REFERENCE:

LOT-0730, pg 19, LOT-0120 Obj. 12.b & c.
[3.1/3.3]
239002K105 ..(KA's)

ANSWER: 047 (1.00)

d.

REFERENCE:

LOT-0550, pg, 7 & 15, Obj. 7.b.
[3.1/3.1]
259002K604 ..(KA's)

ANSWER: 048 (1.00)

a.

REFERENCE:

LOT-0200 pg 21 & 31, Obj. 7.
[3.7/3.8]
261000K401 ..(KA's)

ANSWER: 049 (1.00)

c

REFERENCE:

LGS: LOT-0040 pg 19 and 23.
Learning Objective 10.

[3.7/3.7]

202002K306 ..(KA's)

ANSWER: 050 (1.00)

a. (FACILITY COMMENT ACCEPTED)

REFERENCE:

LGS: LOT-0370 pg 18, 19, 23.
Learning Objective 9.

[4.4/4.5]
203000A216 ..(KA's)

ANSWER: 051 (1.00)

b

REFERENCE:

LGS: LOT-0340 pg 33.
Learning Objective 3 and 14

[3.7/3.8]
206000K107 ..(KA's)

ANSWER: 052 (1.00)

c.

REFERENCE:

LOT-0350, "Core Spray", Page 10 of 23, Lesson Objective #13d

[3.0/3.2]
209001K402 ..(KA's)

ANSWER: 053 (1.00)

d

REFERENCE:

LOT: LGS 0240 pg 12.

[3.6/3.9]
215004G001 ..(KA's)

ANSWER: 054 (1.00)

c

REFERENCE:

LGS: LOT-0270 page 13 and Figure T-LOT-0270-2
Learning Objective 9, 12

[3.3/3.3]
215005A403 ..(KA's)

ANSWER: 055 (1.00)

c

REFERENCE:

LGS: LOT-0380 pg 12.
Learning Objective 10.

[3.7/3.7]
217000A401 ..(KA's)

ANSWER: 056 (1.00)

a

REFERENCE:

LGS: LOT-0380 pg 9.
Learning Objective 7, 12.

[3.5/3.5]
217000K604 ..(KA's)

ANSWER: 057 (1.00)

b

REFERENCE:

LGS: T-100 Bases. page 1.

[3.8*/4.4*]
295006G012 ..(KA's)

ANSWER: 058 (1.00)

d

REFERENCE:

LGS: T-101 Entry Conditions
LGS: T-102 Entry Conditions
LGS: T-101 Step RC-5
LGS: T-102 Step PCC-1

[4.3*/4.5*]
295024G011 ..(KA's)

ANSWER: 059 (1.00)

a

REFERENCE:

LGS: T-102 Primary Containment Control Bases pg. 10.

[3.5/3.7]
295030K302 ..(KA's)

ANSWER: 060 (1.00)

c.

REFERENCE:

SE-1,"Remote Shutdown", Page 1 of 34

LOT-1563, "Special Event Procedures", Lesson Objective #2

[3.8*/3.6*]
295016G010 ..(KA's)

ANSWER: 061 (1.00)

c

REFERENCE:

LGS: LOT-1563 pg 5 and 6.

[4.0/4.1]
295016A106 ..(KA's)

SCH 2/13/91 QUESTION #61 DELETED IN RESPONSE TO FACILITY COMMENT

ANSWER: 062 (1.00)

b

REFERENCE:

LGS: LOT-1566 pg 6.
Learning Objective 2.b

[4.4*/4.4*]
295003A103 ..(KA's)

ANSWER: 063 (1.00)

a

REFERENCE:

LGS: E-1AY160, Loss of 1A RPS UPS Power, pg 2.
LGS: LOT-1566 Learning Objective 4.

[3.7/3.7]
295003K306 ..(KA's)

ANSWER: 064 (1.00)

b.

REFERENCE:

T-101, "RPV Control" Bases, Page 19 of 24
LOT-1560, "Introduction to the LGS TRIP Procedures", Lesson Objective #5

[3.9/4.1]
295007A104 ..(KA's)

ANSWER: 065 (1.00)

d.

REFERENCE:

OT-102, "Reactor High Pressure" Bases, Page 1 of 4
LGS Unit 2 Tech Spec 3.4.6.2, Page 3/4 4-22
LOT-1540, "Operational Transient Procedures", Lesson Objective #5

[3.4/4.2]
295007G003 ..(KA's)

ANSWER: 066 (1.00)

c.

REFERENCE:

T-117, "Level/Power Control" Bases, Page 9 of 16

LOT-1560, "Introduction to the LGS TRIP Procedures", Lesson Objective #5

[3.3/3.4]
295009K105 ..(KA's)

ANSWER: 067 (1.00)

d.

REFERENCE:

T-102, "Primary Containment Control" Bases, Page 23 of 44
LOT-1560, "Introduction to the LGS TRIP Procedures", Lesson Objective #5

[3.8/4.0]
295010K301 ..(KA's)

ANSWER: 068 (1.00)

d.

REFERENCE:

T-102, "Primary Containment Control", Step SP/T-16
LOT-1560, "Introduction to the LGS TRIP Procedures", Lesson Objective SRO #1

[3.6/4.3]
295013G012 ..(KA's)

ANSWER: 069 (1.00)

c.

REFERENCE:

LGS Unit 1 Tech Spec 3.6.2.1, Page 3/4 6-12
LOT-1560, "Introduction to LGS Trip Procedures", Lesson Objective SRO #1

[3.8/4.0]
295013A201 ..(KA's)

ANSWER: 070 (1.00)

a.

REFERENCE:

OT-104, "Unexpected/Unexplained Reactivity Insertion" bases
LOT-1540, "Operational Transient Procedures", Lesson Objective #5
NRC BULLETIN NO. 88-07, SUPPLEMENT 1: Power Oscillations in Boiling Water Reactors

[3.7/4.2]
295014K202 ..(KA's)

ANSWER: 071 (1.00)

b.

REFERENCE:

OT-104, "Unexpected/Unexplained Reactivity Insertion", Page 1 of 5
Reactor Maneuvering Shutdown Instructions, App. B of RE-201, "Reactor Maneuvering Plan Approval", Page 12 of 19
LOT-1540, "Operational Transient Procedures", Lesson Objective #2

[3.6/3.8]
295014A102 ..(KA's)

ANSWER: 072 (1.00)

a.

REFERENCE:

LGS Unit 1 Tech Spec 3.1.1, "Shutdown Margin", Page 3/4 1-1 and Bases 3/4.1.1, Page B 3/4 1-1
T-101, "RPV Control" Bases, Page 5 of 24
LOT-1560, "Introduction to the LGS TRIP Procedures", Lesson Objective #5

[4.6/4.6]

295006A205 ..(KA's)

ANSWER: 073 (1.00)

a.

REFERENCE:

OT-117, "RPS Failures", Page 1 of 3
LOT-1540, "Operational Transient Procedures", Lesson Objective #2
[4.0/4.2]
295015A102 ..(KA's)

ANSWER: 074 (1.00)

c.

REFERENCE:

OT-102, "High Reactor Pressure" bases, Page 3 of 4
LOT-1540, "Operational Transient Procedures", Lesson Objective #5

[3.5/3.7]
295025G007 ..(KA's)

ANSWER: 075 (1.00)

d.

REFERENCE:

LOT-0380, "Reactor Core Isolation Cooling, Page 18 of 27, Lesson Objective 6

[4.0/4.1]
295031K204 ..(KA's)

ANSWER: 076 (1.00)

b.

REFERENCE:

T-116, "RPV Flooding" bases, Page 6 of 13
LOT-1560, "Introduction to LGS TRIP Procedures", Lesson Objective #5

[4.6/4.7]

295031K101 ..(KA's)

ANSWER: 077 (1.00)

b.

REFERENCE:

T-101, "RPV Control" bases, Page 9 of 24
LOT-1560, "Introduction to the LGS TRIP Procedures", Lesson Objective #5

[3.7/4.1]
295026K304 ..(KA's)

ANSWER: 078 (1.00)

d.

REFERENCE:

LGS Unit 2 Tech. Spec. 3.6.2.1, "Suppression Chamber", Page 3/4 6-12
LGS Unit 2 Tech. Spec. 3.0.4, Page 3/4 0-1
LOT-1840, "Technical Specifications - Selected LCOs", Lesson Objective SRO #1

[3.2/4.3]
295026G003 ..(KA's)

ANSWER: 079 (1.00)

a.

REFERENCE:

T-102, "Primary Containment Control" bases, Pages 21 & 22 of 44
LOT-1560, "Introduction to the LGS TRIP Procedures", Lesson Objective #5

[3.6/3.9]
295024G007 ..(KA's)

ANSWER: 080 (1.00)

d.

REFERENCE:

T-117, "Level/Power Control" bases, Page 15 of 16
LOT-1562, "LGS TRIP 110 Series Procedures", Lesson Objective #2

[3.4/3.6]
295037K104 ..(KA's)

ANSWER: 081 (1.00)

d.

REFERENCE:

OT-112, "Recirculation Pump Trip", Page 1 of 4
LOT-1540, "Operational Transient Procedures", Lesson Objective #7

[3.8/3.7]
295001G010 ..(KA's)

ANSWER: 082 (1.00)

b.

REFERENCE:

OT-112, "Recirculation Pump Trip", Bases, Page 2 of 10
LOT-1540, "Operational Transient Procedures", Lesson Objective #5

[3.6/3.7]
295001K203 ..(KA's)

ANSWER: 083 (1.00)

a.

REFERENCE:

Limerick Unit 2 Tech Specs, Figure 3.4.1.1-1, Page 3/4 4-3
OT-112, "Recirculation Pump Trip", Bases, Page 3 of 10
LOT-0040, "Recirculation Flow Control ", Lesson Objective #9b

[3.3/3.5]
295001K102 ..(KA's)

ANSWER: 084 (2 0)

b.

REFERENCE:

OT-116, "Loss of Condenser Vacuum", Bases, Page 2 of 5
LOT-1040, "Operational Transient Procedures", Lesson Objective #5

[3.2/3.2]
295002G007 ..(KA's)

ANSWER: 085 (1.00)

c.

REFERENCE:

E-2FB, "Loss of 2FB Safeguard 125/250V DC Bus", Page 1 of 2
LOT-0690, "DC Distribution", Lesson Objective #6

[3.8/4.1]
295004A102 ..(KA's)

ANSWER: 086 (1.00)

a.

REFERENCE:

LOT-0630, "Stator Water Cooling", Page 10 of 19, Lesson Objective #4
ON-114, "Loss of Stator Water Cooling Runback", Page 3 of 3

[3.6/3.6]
295005G009 ..(KA's)

ANSWER: 087 (1.00)

c.

REFERENCE:

LOT-0050, "Reactor Vessel Instrumentation", Page 19 of 38, No Lesson Objective Identified
LOT-1540, "Operational Transient Procedures", Lesson Objective #5

[3.4/3.5]
295008K301 ..(KA's)

ANSWER: 088 (1.00)

c.

REFERENCE:

OT-110, "Reactor High Level", Page 2 of 3
LOT-1540, "Operational Transient Procedures", Lesson Objective #5

[3.9/3.9]
295008A201 ..(KA's)

ANSWER: 089 (1.00)

a.

REFERENCE:

T-102 Primary Containment Control Bases, Page 26 of 44
LOT-1560, "Introduction to the LGS TRIP Procedures", Lesson Objective #5

[3.9/4.1]
295012A202 ..(KA's)

ANSWER: 090 (1.00)

d.

REFERENCE:

T-102 Primary Containment Control Bases, Page 27 of 44
LOT-1560, "Introduction to the LGS TRIP Procedures", Lesson Objective #4

[3.5/3.7]
295028K101 ..(KA's)

ANSWER: 091 (1.00)

ddd.

REFERENCE:

ON-113, "Loss of RECW", Page 3 of 3
LOT-1550, "Off Normal Procedures", Lesson Objective #3

[3.4/3.6]
295018K202 ..(KA's)

ANSWER: 092 (1.00)

a.

REFERENCE:

ON-119, "Loss of Instrument Air", Bases, 3 of 10
LOT-1550, "Off Normal Procedures", Lesson Objective #3

[3.2/3.3]
295019K203 ..(KA's)

ANSWER: 093 (1.00)

b.

REFERENCE:

ON-107, "Control Rod Drive System Problems", Page 2 of 3
LOT-1550, "Off Normal Procedures", Lesson Objective #3

[3.7/3.9]

295022K301 ..(KA's)

ANSWER: 094 (1.00)

a.

PEFERENCE:

Limerick Generating Station Unit 2 Technical Specifications, Page 3/4
3-12
LOT-1840, "Technical Specifications - Selected LCOs", Lesson Objective #2

[3.4/4.4]
295029G008 ..(KA's)

ANSWER: 095 (1.00)

b.

REFERENCE:

T-102, "Primary Containment Control" bases, Page 17 of 44
LOT-1560, "Introduction to LGS Trip Procedures", Lesson Objective #5

[3.4/3.7]
295029K101 ..(KA's)

ANSWER: 096 (1.00)

d.

REFERENCE:

S51.8.B pg 13

LOT-0370, "Residual Heat Removal System", Page 26 of 38, Lessor Objective #13.

[3.1/3.2]
295021K207 ..(KA's)

ANSWER: 097 (1.00)

c.

REFERENCE:

LOT-0370, Obj. 12. LOT-0130 Obj.5.a. Tech. Spec. Table 1.2, & 3.6.1.1
[3.5/3.6]
295021A201 ..(KA's)

ANSWER: 098 (1.00)

d.

REFERENCE:

T-103. LOT-1560, Obj. 5.
[3.8/3.9]
295032K303 ..(KA's)

ANSWER: 099 (1.00)

d.

REFERENCE:

LOT-0760 Obj. 10 and 11 and p 32 of 34 based on LER in the LOT
[3.4/3.8]

295023K302 ..(KA's)

(********** END OF EXAMINATION **********)

A N S W E R K E Y

MULTIPLE CHOICE

001	b
002	b
003	d
004	d
005	a
006	a
007	b
008	a
009	b
010	d
011	d
012	~~c~~ SLH 2/16/91 d. (FACILITY COMMENT ACCEPTED)
013	b
014	c
015	a
016	d
017	d
018	d
019	d
020	b
021	d
022	b
023	c or d. (FACILITY COMMENT ACCEPTED)
024	a
025	b
026	d
027	b
028	d
029	c
030	b
031	b
032	~~d~~ SLH 2/16/91 a. (FACILITY COMMENT ACCEPTED)
033	c
034	b
035	c
036	a
037	a
038	c
039	b
040	c
041	d
042	d
043	a
044	a
045	a

A N S W E R K E Y

046	c		069	c	
047	d		070	a	
048	a		071	b	
049	c		072	a	
050	~~d~~ SLH 2/13/91	a. (FACILITY COMMENT ACCEPTED)	073	a	
051	b		074	c	
052	c		075	d	
053	d		076	b	
054	c		077	b	
055	c		078	d	
056	a		079	a	
057	b		080	d	
058	d		081	d	
059	a		082	b	
060	c		083	a	
~~061~~	~~e~~ SLH 2/13/91	QUESTION DELETED IN RESPONSE TO FACILITY COMMENT.	084	b	
062	b		085	c	
063	a		086	a	
064	b		087	c	
065	d		088	c	
066	c		089	a	
067	d		090	d	
068	d		091	d	

A N S W E R K E Y

092 a

093 b

094 a

095 b

096 d

097 c

098 d

099 d

(********** END OF EXAMINATION **********)

S R O E x a m B W R R e a c t o r

O r g a n i z e d b y Q u e s t i o n N u m b e r

QUESTION	VALUE	REFERENCE
001	1.00	10008
002	1.00	10015
003	1.00	10018
004	1.00	10019
005	1.00	10022
006	1.00	14245
007	1.00	9000001
008	1.00	9000002
009	1.00	9000003
010	1.00	9000004
011	1.00	9000005
012	1.00	9000006
013	1.00	9000007
014	1.00	9000008
015	1.00	9000009
016	1.00	9000010
017	1.00	9000011
018	1.00	9000012
019	1.00	9000013
020	1.00	9000014
021	1.00	9000015
022	1.00	9000016
023	1.00	9000017
024	1.00	9000018
025	1.00	9000019
026	1.00	9000021
027	1.00	9000023
028	1.00	9000024
029	1.00	9000025
030	1.00	9000026
031	1.00	9000027
032	1.00	9000028
033	1.00	9000030
034	1.00	9000031
035	1.00	9000033
036	1.00	9000034
037	1.00	9000036
038	1.00	9000037
039	1.00	9000038
040	1.00	9000039
041	1.00	9000042
042	1.00	9000043
043	1.00	9000045
044	1.00	9000046
045	1.00	9000048
046	1.00	9000049

047	1.00	9000050
048	1.00	9000051
049	1.00	9000054

S R O E x a m B W R R e a c t o r

O r g a n i z e d b y Q u e s t i o n N u m b e r

QUESTION	VALUE	REFERENCE	
050	1.00	9000055	
051	1.00	900005[illegible]	
052	1.00	9000057	
053	1.00	9000058	
054	1.00	9000059	
055	1.00	9000060	
056	1.00	9000061	
057	1.00	9000062	
058	1.00	9000063	
059	1.00	9000064	
060	1.00	9000065	
~~061~~	~~1.00~~	~~9000066~~	SIM 2/18/91 QUESTION DELETED
062	1.00	9000067	
063	1.00	9000068	
064	1.00	9000069	
065	1.00	9000070	
066	1.00	9000071	
067	1.00	9000072	
068	1.00	9000073	
069	1.00	9000074	
070	1.00	9000075	
071	1.00	9000076	
072	1.00	9000077	
073	1.00	9000078	
074	1.00	9000079	
075	1.00	9000080	
076	1.00	900008[illegible]	
077	1.00	900[illegible]	
078	1.00	900 083	
079	1.00	9000084	
080	1.00	9000085	
081	1.00	9000086	
082	1.00	9000087	
083	1.00	9000088	
084	1.00	9000089	
085	1.00	9000090	
086	1.00	9000091	
087	1.00	9000092	
088	1.00	9000093	
089	1.00	9000094	
090	1.00	9000095	
091	1.00	9000096	
092	1.00	9000097	
093	1.00	9000098	
094	1.00	9000099	
095	1.00	9000101	

096	1.00	9000102
097	1.00	9000103
098	1.00	9000104

S R O E x a m B W R R e a c t o r

O r g a n i z e d b y Q u e s t i o n N u m b e r

QUESTION	VALUE	REFERENCE
099	1.00	9000105
	99.00	
	~~99.00~~ 98.00	SRH 2/13/91

S R O E x a m B W R R e a c t o r

O r g a n i z e d b y K A G r o u p

PLANT WIDE GENERICS

QUESTION	VALUE	KA
015	1.00	294001A102
019	1.00	294001A102
016	1.00	294001A102
009	1.00	294001A103
013	1.00	294001A103
010	1.00	294001A111
008	1.00	294001A114
021	1.00	294001A115
020	1.00	294001A116
011	1.00	294001K101
014	1.00	294001K102
012	1.00	294001K103
007	1.00	294001K102
022	1.00	294001K103
017	1.00	294001K110
018	1.00	294001K116
PWG Total	16.00	

PLANT SYSTEMS

Group I

QUESTION	VALUE	KA
049	1.00	202002
026	1.00	202002
050	1.00	203000A[illegible]
051	1.00	206000K107
052	1.00	209001K402
001	1.00	211000A308
005	1.00	212000A404
053	1.00	215004G001
054	1.00	215005A403
002	1.00	216000K507
055	1.00	217000A401
056	1.00	217000K604
003	1.00	218000K501
038	1.00	223001K609
037	1.00	223001K609
039	1.00	223002A102
044	1.00	226001A101

046	1.00	239002K105
004	1.00	241000A114
047	1.00	259002K604
048	1.00	261000K401

S R O E x a m B W R R e a c t o r

O r g a n i z e d b y K A G r o u p

PLANT SYSTEMS

Group I

QUESTION	VALUE	KA
040	1.00	290001K401
PS-I Total	22.00	

Group II

QUESTION	VALUE	KA
027	1.00	201001K201
028	1.00	201001K404
029	1.00	201002K403
031	1.00	201002K408
032	1.00	201006K511
030	1.00	202001A412
025	1.00	202001K404
033	1.00	234000A302
034	1.00	234000K505
045	1.00	263000K303
041	1.00	272000A301
042	1.00	272000K402
043	1.00	286000K503
PS-II Total	13.00	

Group III

QUESTION	VALUE	KA
023	1.00	201003K402
035	1.00	239001K201
036	1.00	239001K602
024	1.00	290002K102
PS-III Total	4.00	
PS Total	39.00	

EMERGENCY PLANT EVOLUTIONS

Group I

QUESTION	VALUE	KA		

S R O E x a m B W R R e a c t o r

O r g a n i z e d b y K A G r o u p

EMERGENCY PLANT EVOLUTIONS

Group I

QUESTION	VALUE	KA
062	1.00	295003A103
063	1.00	295003K306
072	1.00	295006A205
057	1.00	295006G012
064	1.00	295007A104
065	1.00	295007G003
066	1.00	295009K105
067	1.00	295010K301
069	1.00	295013A201
068	1.00	295013G012
071	1.00	295014A102
070	1.00	295014K202
073	1.00	295015A102
~~061~~	~~1.00~~	~~295016A106~~ SLA 2.1.3/9; QUESTION DELETED
060	1.00	295016G010
099	1.00	295023K302
079	1.00	295024G007
058	1.00	295024G011
074	1.00	295025G007
078	1.00	295026G003
077	1.00	295026K304
059	1.00	295030K302
076	1.00	295031K101
075	1.00	295031K204
080	1.00	295037K104
006	1.00	295037K303
EPE-I Total	26.00	

Group II

QUESTION	VALUE	KA
081	1.00	295001G010
083	1.00	295001K102
082	1.00	295001K203
084	1.00	295002G007
085	1.00	295004A102
086	1.00	295005G009
088	1.00	295008A201
087	1.00	295008K301

089	1.00	295012A202
091	1.00	295018K202
092	1.00	295019K203
097	1.00	295021A201

S R O E x a m B W R R e a c t o r

O r g a n i z e d b y K A G r o u p

EMERGENCY PLANT EVOLUTIONS

Group II

QUESTION	VALUE	KA
096	1.00	295021K207
093	1.00	295022K301
090	1.00	295028K101
094	1.00	295029G008
095	1.00	295029K101
098	1.00	295032K303
EPE-II Total	18.00	
EPE Total	44.00	
Test Total	~~99.00~~ 98.00	

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eqb.5 ~/GIVE  % *END
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ATTACHMENT 2
Reactor Operator Written Examination and Answer Key

NRC Official Use Only

MASTER

R.O.

Nuclear Regulatory Commission
Operator Licensing
Examination

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Official Use Only category on
date of examination.

NRC Official Use Only

U. S. NUCLEAR REGULATORY COMMISSION
SITE SPECIFIC EXAMINATION
REACTOR OPERATOR LICENSE
REGION 1

CANDIDATE'S NAME: _____

FACILITY: Limerick 1 & 2

REACTOR TYPE: BWR-GE4

DATE ADMINISTERED: 91/01/25

INSTRUCTIONS TO CANDIDATE:

Use the answer sheets provided to document your answers. Staple this cover sheet on top of the answer sheets. Points for each question are indicated in parentheses after the question. The passing grade requires a final grade of at least 80%. Examination papers will be picked up four (4) hours after the examination starts.

TEST VALUE	CANDIDATE'S SCORE	%
100.00	_____	____% TOTALS

FINAL GRADE

All work done on this examination is my own. I have neither given nor received aid.

_____
Candidate's Signature

A N S W E R S H E E T

Multiple Choice (Circle or X your choice)

If you change your answer, write your selection in the blank.

MULTIPLE CHOICE

001	a	b	c	d	____
002	a	b	c	d	____
003	a	b	c	d	____
004	a	b	c	d	____
005	a	b	c	d	____
006	a	b	c	d	____
007	a	b	c	d	____
008	a	b	c	d	____
009	a	b	c	d	____
010	a	b	c	d	____
011	a	b	c	d	____
012	a	b	c	d	____
013	a	b	c	d	____
014	a	b	c	d	____
015	a	b	c	d	____
016	a	b	c	d	____
017	a	b	c	d	____
018	a	b	c	d	____
019	a	b	c	d	____
020	a	b	c	d	____
021	a	b	c	d	____
022	a	b	c	d	____
023	a	b	c	d	____
024	a	b	c	d	____
025	a	b	c	d	____
026	a	b	c	d	____
027	a	b	c	d	____
028	a	b	c	d	____
029	a	b	c	d	____
030	a	b	c	d	____
031	a	b	c	d	____
032	a	b	c	d	____
033	a	b	c	d	____
034	a	b	c	d	____
035	a	b	c	d	____
036	a	b	c	d	____
037	a	b	c	d	____
038	a	b	c	d	____
039	a	b	c	d	____
040	a	b	c	d	____
041	a	b	c	d	____
042	a	b	c	d	____
043	a	b	c	d	____
044	a	b	c	d	____
045	a	b	c	d	____

A N S W E R S H E E T

Multiple Choice (Circle or X your choice)

If you change your answer, write your selection in the blank.

046	a	b	c	d	___	069	a	b	c	d	___
047	a	b	c	d	___	070	a	b	c	d	___
048	a	b	c	d	___	071	a	b	c	d	___
049	a	b	c	d	___	072	a	b	c	d	___
050	a	b	c	d	___	073	a	b	c	d	___
051	a	b	c	d	___	074	a	b	c	d	___
052	a	b	c	d	___	075	a	b	c	d	___
053	a	b	c	d	___	076	a	b	c	d	___
054	a	b	c	d	___	077	a	b	c	d	___
055	a	b	c	d	___	078	a	b	c	d	___
056	a	b	c	d	___	079	a	b	c	d	___
057	a	b	c	d	___	080	a	b	c	d	___
058	a	b	c	d	___	081	a	b	c	d	___
059	a	b	c	d	___	082	a	b	c	d	___
060	a	b	c	d	___	083	a	b	c	d	___
061	a	b	c	d	___	084	a	b	c	d	___
062	a	b	c	d	___	085	a	b	c	d	___
063	a	b	c	d	___	086	a	b	c	d	___
064	a	b	c	d	___	087	a	b	c	d	___
065	a	b	c	d	___	088	a	b	c	d	___
066	a	b	c	d	___	089	a	b	c	d	___
067	a	b	c	d	___	090	a	b	c	d	___
068	a	b	c	d	___	091	a	b	c	d	___

A N S W E R S H E E T

Multiple Choice (Circle or X your choice)

If you change your answer, write your selection in the blank.

092 a b c d ____

093 a b c d ____

094 a b c d ____

095 a b c d ____

096 a b c d ____

097 a b c d ____

098 a b c d ____

099 a b c d ____

100 a b c d ____

(********** END OF EXAMINATION **********)

NRC RULES AND GUIDELINES FOR LICENSE EXAMINATIONS

During the administration of this examination the following rules apply:

1. Cheating on the examination means an automatic denial of your application and could result in more severe penalties.

2. After the examination has been completed, you must sign the statement on the cover sheet indicating that the work is your own and you have not received or given assistance in completing the examination. This must be done after you complete the examination.

3. Restroom trips are to be limited and only one applicant at a time may leave. You must avoid all contacts with anyone outside the examination room to avoid even the appearance or possibility of cheating.

4. Use black ink or dark pencil ONLY to facilitate legible reproductions.

5. Print your name in the blank provided in the upper right-hand corner of the examination cover sheet and each answer sheet.

6. Mark your answers on the answer sheet provided. USE ONLY THE PAPER PROVIDED AND DO NOT WRITE ON THE BACK SIDE OF THE PAGE.

7. Before you turn in your examination, consecutively number each answer sheet, including any additional pages inserted when writing your answers on the examination question page.

8. Use abbreviations only if they are commonly used in facility literature. Avoid using symbols such as < or > signs to avoid a simple transposition error resulting in an incorrect answer. Write it out.

9. The point value for each question is indicated in parentheses after the question.

10. Show all calculations, methods, or assumptions used to obtain an answer to any short answer questions.

11. Partial credit may be given except on multiple choice questions. Therefore, ANSWER ALL PARTS OF THE QUESTION AND DO NOT LEAVE ANY ANSWER BLANK.

12. Proportional grading will be applied. Any additional wrong information that is provided may count against you. For example, if a question is worth one point and asks for four responses, each of which is worth 0.25 points, and you give five responses, each of your responses will be worth 0.20 points. If one of your five responses is incorrect, 0.20 will be deducted and your total credit for that question will be 0.80 instead of 1.00 even though you got the four correct answers.

13. If the intent of a question is unclear, ask questions of the examiner only.

14. When turning in your examination, assemble the completed examination with examination questions, examination aids and answer sheets. In addition, turn in all scrap paper.

15. Ensure all information you wish to have evaluated as part of your answer is on your answer sheet. Scrap paper will be disposed of immediately following the examination.

16. To pass the examination, you must achieve a grade of 80% or greater.

17. There is a time limit of four (4) hours for completion of the examination.

18. When you are done and have turned in your examination, leave the examination area (EXAMINER WILL DEFINE THE AREA). If you are found in this area while the examination is still in progress, your license may be denied or revoked.

QUESTION: 001 (1.00)

A failure to scram has occurred. All APRMs indicate 25%.

In order to initiate the timer to inject SBLC which additional condition must exist:

a. Reactor Pressure = 1050 psig.

b. Reactor vessel level = -45 inches.

c. One RRCS manual initiation button is armed and depressed.

d. Suppression pool temperature = 110 F.

QUESTION: 002 (1.00)

Which of the following conditions will result in indicated reactor vessel water level being LOWER than actual level?

a. A break occurs in the reference leg.

b. A 50 F decrease in drywell temperature occurs.

c. Narrow range level instrument is used when reactor pressure is 75 psig.

d. Reactor pressure is below saturation temperature for the drywell.

QUESTION: 003 (1.00)

A reactor startup is in progress with IRMs on range 2. The operator withdrawing SRM detectors inadvertently selects IRM detector "A" drive unit.

Which action will occur?

a. IRM "A" detector will not withdraw.

b. IRM "A" inop. scram signal is generated.

c. A rod block is generated when the detector begins to withdraw.

d. No action occurs because the range selector switch for IRM "A" is on range 2.

QUESTION: 004 (1.00)

Reactor vessel water level has decreased to -140 inches. Drywell pressure is 1.2 psig. RHR and Core Spray pumps are running.

ADS valves should open:

a. Immediately.

b. In 105 seconds.

c. In 420 seconds.

d. In 525 seconds.

QUESTION: 005 (1.00)

The reactor is at 50% power with the EHC Load Limit set at 65% and Maximum Combined Flow Limiter at 115%. An electrical failure occurs that causes the pressure set signal to decrease 10 psi.

Assume reactor pressure remains constant.

Refer to the attached drawing of the Electro-Hydraulic Control Logic (LOT-0590-6).

The EHC system will cause:

a. The TCV and bypass valves to remain in their present positions.

b. The TCVs will open to pass 60% flow and the bypass valve will remain closed.

c. The TCVs will open to pass 65% flow and the bypass valves will remain closed.

d. The TCVs will open to pass 65% flow and the bypass valves will open to pass 17-18% flow.

QUESTION: 006 (1.00)

An ATWS has occurred and reactor power is 25% on APRMs. Reactor water level is 20 inches and drywell pressure is 1.2 psig. All scram valves opened and the SDV vent and drain valves shut.

SELECT the correct statement concerning resetting of the scram to allow draining of the SDV.

a. The scram cannot be reset in this condition because the scram condition cannot be cleared.

b. The scram can be reset by placing the mode switch in SHUTDOWN and placing the CRD Discharge Volume Bypass switch in BYPASS.

c. The scram can be reset by placing the mode switch in RUN and placing the CRD Discharge Volume Bypass switch in BYPASS.

d. The scram can be reset by placing the mode switch in STARTUP and placing the CRD Discharge Volume Bypass switch in BYPASS.

QUESTION: 007 (1.00)

SELECT the statement identifying the reason reactor power goes down when reactor water level is lowered during a failure to scram (ATWS) event.

a. Lowering level below the moisture separator removes the flowpath thereby minimizing flow through the core.

b. Lowering level reduces the pressure in the core by reducing the head of water above the core.

c. Lowering level increases the differential pressure between outside the shroud and inside the core.

d. Lowering level reduces power by increasing the subcooling of the water entering the core.

QUESTION: 008 (1.00)

Which ONE of the following describes an independent verification requirement for restoring safety related or Technical Specification equipment to service, in accordance with Administrative Procedure A-41, "Control Of Plant Equipment"?

a. Independent verification need not be performed in areas of the plant where the Chief Operator (CO) determines significant exposure to radiation would result.

b. If it is necessary for more than one person to perform the verification only the person performing the final verification must sign the "VERIFICATION OF REMOVAL - BY" block on the permit.

c. Independent verification of all items marked on a blocking permit need not be completed prior to declaring the component or system operable.

d. Discrepancies noted during the independent verification shall be corrected immediately by the person performing the verification.

QUESTION: 009 (1.00)

Which ONE of the following must be completed by a licensed operator to maintain his/her license in an "active status" per the regulations of 10 CFR 55.53, "Conditions Of Licenses"?

The operator shall actively perform the functions for a minimum of:

a. Seven 8 hour shifts or five 12 hour shifts per calendar month.

b. Seven 8 hour shifts or five 12 hour shifts per calendar quarter.

c. Five 8 hour shifts or four 12 hour shifts per calendar month.

d. Five 8 hour shifts or four 12 hour shifts per calendar quarter.

QUESTION: 010 (1.00)

Which ONE of the following describes the constraints on physical location of licensed personnel in accordance with Administrative Procedure A-7, "Shift Operations"?

a. In Operational Condition 1 a single Reactor Operator may assume the "AT THE CONTROLS" position of both units for short periods of time during an emergency, provided conditions are stable on one unit.

b. In Operational Condition 1 the Chief Operator may assume the responsibility of the Control Supervisor for "short term relief."

c. In Operational Condition 2 the Chief Operator may access anywhere in the control room complex even if substituting for the Reactor Operator.

d. When both units are in Operational Condition 4 one Chief Operator may satisfy the control room Shift Supervision requirements for both units.

QUESTION: 011 (1.00)

A Plant Operator (PO) must operate a locked valve in the RHR system.

Which ONE of the following is correct in accordance with Administrative Procedure A-8, "Procedure For Control Of Locked Valves And Devices"?

The Plant Operator must:

a. Sign out a locked valve key from the Shift Manager.

b. Receive authorization from the Chief Operator prior to unlocking the valve.

c. Following valve operation relock the valve in the position to which it was changed.

d. Reapply the lock to some device other than the valve handwheel prior to operating the valve.

QUESTION: 012 (1.00)

A Licensed Reactor Operator has worked the following schedule during a refueling outage:

- Thursday scheduled day Off.
- Friday 7 am to 7 pm
- Saturday 7 am to 7 pm
- Sunday 7 am to 3 pm
- Monday 7 am to 3 pm
- Tuesday 7 am to 9 pm
- Wednesday 7 am to 3 pm

Which one of the following work schedules for the following Thursday is allowed without additional authorization in accordance with Administrative Procedure A-40, "Working Hour Restrictions"?

a. 7 am to 6 pm

b. 7 am to 5 pm

c. 7 am to 7 pm

d. 7 am to 9 pm

QUESTION: 013 (1.00)

During performance of a HPCI surveillance test, rated flow is not achieved.

Which ONE of the following describes the required action of the Licensed Operator in accordance with Administrative Procedure A-43, "Surveillance Testing Program"?

a. Immediately notify shift supervision.

b. Immediately perform the test steps a second time.

c. Continue with the test and enter FAIL in the "results" section when complete.

d. Place the test on hold until I&C recalibrates the flow indication.

QUESTION: 014 (1.00)

Which ONE of the following describes the function of operator aids in accordance with Administrative Procedure A-95, "Operator Aids?"

Operator Aids:

a. Aid management personnel when observing control room operations.

b. Provide a substitute for alarm response procedures on in-plant panels.

c. Provide operating instructions for safety related equipment after approval by the Assistant Superintendent of Operations

d. Alert operations personnel to plant conditions when no other suitable means is available.

QUESTION: 015 (1.00)

A plant operator on a plant tour observes a custodian disposing of unused cleaning fluid in a floor drain.

Which ONE of the following describes the IMMEDIATE action required in accordance with administrative procedure A-96, "Control And Use Of Chemical Materials"?

a. Dilute the chemical with any available water source.

b. Inform the Radwaste Operator and turn off the sump pumps in the area.

c. Log the type of chemical, approximate quantity and floor drain number and inform the Chief Operator prior to shift turnover.

d. Notify Shift Supervision and Chemistry.

QUESTION: 016 (1.00)

Which ONE of the following is correct concerning Fire Watch responsibilities in accordance with Administrative Procedure A-12, "Ignition Source Control Procedure"?

a. The Dedicated Fire Watch is required to have an A/B/C fire extinguisher on hand at all times.

b. A single individual cannot serve as both the Dedicated Fire Watch and the Technical Specification Fire Watch.

c. A Dedicated Fire Watch inside a radiological controlled area shall not enclose the fire extinguisher operator in plastic.

d. The Dedicated Fire Watch must remain in the area at least 30 minutes after the last use of an ignition source.

QUESTION: 017 (1.00)

During operation an emergency situation arises for which no procedure is available; and an action which departs from Technical Specifications is required immediately to protect the health and safety of the public.

Which ONE of the following describes the course of action the Reactor Operator (RO) is authorized to take in accordance with Administrative Procedure A-7, "Shift Operations"?

a. RO immediately takes whatever action is required without further direction.

b. RO performs the required action then notifies the Control Supervisor of his action.

c. RO obtains approval from the Chief Operator and then performs the action.

d. RO obtains approval from the Shift Manager or Control Supervisor prior to taking any action.

QUESTION: 018 (1.00)

Which ONE of the following describes an ALERT emergency level classification event?

a. Events that involve major failures of plant functions needed for protection of the public.

b. Events that involve an actual substantial degradation of the level of safety of the plant.

c. Events that involve core degradation with possible loss of containment.

d. Events that indicate a potential degradation of the level of safety of the plant.

QUESTION: 019 (1.00)

A Unit 2 Emergency Response Facility Display System (ERFDS) parameter indicates in MAGENTA.

Which ONE of the following describes the status of this parameter?

a. A system safety action has been demanded but has failed to complete within the allowed time.

b. A system safety action has been demanded and is not yet completed but the allowed time has not elapsed.

c. No system safety action has been demanded, the parameter is in its normal condition.

d. The parameter has an invalid data status or a system failure has occurred.

QUESTION: 020 (1.00)

A plant operator is required to enter a High Radiation Area to perform a valve lineup. The general area radiation level is 200 mRem/hr.

Assume the following specific information about the plant operator:

- 300 mRem exposure for the week.
- 625 mRem exposure for the current quarter.
- 25 year old male radiation worker.
- NRC Form 4 completed and on file.
- No specific additional approvals have been given.

Which ONE of the following is the maximum allowable stay time in this area without exceeding any LGS administrative OR NRC radiation exposure limits?

a. 1 hour.

b. 1.6 hours.

c. 2.4 hours.

d. 4 hours.

QUESTION: 021 (1.00)

Which ONE of the following is an indication of an uncoupled control rod when performing a control rod coupling integrity check at position 48?

a. Four rod display does not change from position 48 and the CONTROL ROD DRIFT annunciator alarms.

b. Four rod display indicates blanks and white rod backlighting on the full core display extinguishes.

c. Four rod display indicates blank and ROD OVERTRAVEL annunciator alarms.

d. Red backlight on the full core display extinguishes and ROD OVERTRAVEL annunciator alarms.

QUESTION: 022 (1.00)

Which ONE of the following would be a direct result of excessive "steam carryunder" during 100% power operation?

a. Recirculation pump NPSH decreases.

b. Main turbine efficiency decreases.

c. Steam quality exiting the reactor decreases.

d. Steam line radiation levels increase.

QUESTION: 023 (1.00)

Which ONE of the following plant conditions will cause recirculation pump seal purge valve, HV-46-115A, to automatically close?

a. The "A" recirculation pump discharge valve is fully closed.

b. The "A" recirculation pump suction valve is fully closed.

c. Either the "A" recirculation pump suction or discharge valve leaves the fully open position.

d. Three minutes after the "A" recirculation pump drive motor breaker trips.

QUESTION: 024 (1.00)

Which ONE of the following recirculation system components can be operated from the Remote Shutdown Panel, C201?

a. Loop "A" suction valve, F023A.

b. Loop "A" discharge valve, F031A.

c. Loop "B" suction valve, F023B.

d. Loop "B" discharge valve, F031B.

QUESTION: 025 (1.00)

Which ONE of the following conditions will cause the 75% limiter in the recirculation flow control system to enforce recirculation motor generator speed limitations?

a. Reactor vessel level is +27 inches.

b. The "A" reactor feedwater pump trips.

c. Recirculation pump discharge valve F031B leaves its full open position.

d. Both "A" and "C" condensate pumps trip during full power operation.

QUESTION: 026 (1.00)

Following a scram from 100% power the ball check valve for control rod 30-31 malfunctions and fails to shift position.

Which ONE of the following describes the effect this will have on that control rods scram function.

a. Rod will full scram, but faster than the remaining rods.

b. Rod will full scram, but slower than the remaining rods.

c. Rod will only partially insert.

d. Rod will fully insert the same as if the ball check valve shifts.

QUESTION: 027 (1.00)

Which ONE of the following describes the power supplies to the control rod drive pump motors?

a. D11 and D12

b. D13 and D14

c. D21 and D22

d. D21 and D24

QUESTION: 028 (1.00)

Which ONE of the following describes the operation/configuration of the backup scram valves?

a. Two valves in series normally energized, one valve will de-energize, with each RPS channel de-energizing.

b. Two valves in series, one powered from each RPS trip channel, both valves must energize to vent the scram air header.

c. Require both RPS channels de-energized or one RPS channel and one ARI logic channel de-energized for both valves to actuate.

d. Two valves in series, normally de-energized, a check valve allows venting the pilot air header if the "B" valve fails to actuate.

QUESTION: 029 (1.00)

Which ONE of the following describes how the Rod Drive Control System (RDCS) detects a drifting control rod?

a. Withdraw signal sent to the directional control valves for a selected rod for greater than 2 seconds.

b. Insert signal sent to the directional control valves for a selected rod for greater than 1.5 seconds.

c. A non-selected rod moves off its latched even numbered position.

d. A selected rod settles to an even numbered position that has a failed reed switch.

QUESTION: 030 (1.00)

Determine the correct value for total core flow from the following indications.

Loop "A" total jet pump flow	- 45 millon lbm/hr
Loop "B" total jet pump flow	- 5 millon lbm/hr
"A" recirculation pump speed	- 1725 RPM
"B" recirculation pump speed	- 0 RPM
Reactor power	- 35%

a. 35 millon lbm/hr

b. 40 millon lbm/hr

c. 45 millon lbm/hr

d. 50 millon lbm/hr

QUESTION: 031 (1.00)

During a Unit 1 plant shutdown reactor power decreases to 14% with the Rod Worth Minimizer (RWM) indicating two (2) insert errors.

Which ONE of the following describes the required actions necessary to continue the shutdown.

a. No action is necessary because three insert errors are allowed.

b. Raise reactor power above the LPSP and clear the insert errors.

c. Bypass the RWM and correct the rod pattern.

d. Bypass all rods in the group(s) that indicate errors.

QUESTION: 032 (1.00)

The Rod Worth Minimizer Low Power Alarm Point (LPAP) is sensed by:

a. The reference APRM.

b. Total steam flow.

c. Total feed flow.

d. Turbine first stage pressure.

QUESTION: 033 (1.00)

Which ONE of tne following will generate a rod block with the reactor mode switch in "Refuel".

a. The refuel platform is over the spent fuel racks and is moving a fuel bundle.

b. The refuel platform is over the core, unloaded and one control rod is withdrawn.

c. The refuel platform is over the core and is raising a fuel bundle.

d. The refuel platform is over the spent fuel racks and the full-up light is lit.

QUESTION: 034 (1.00)

Which ONE of the following describes a properly orientated fuel bundle?

a. Orientation tab on the bail handle points away from the control rod.

b. The channel spacer buttons face the control rod.

c. Serial number on the bail handle is readable from outside edge of bundle in towards control rod.

d. Channel fastener is located on the outside edge 180 degrees away from fuel cell center.

QUESTION: 035 (1.00)

When utilizing Reactor Water Cleanup (RWCU) for vessel level control in the "Blowdown Mode" the maximum system flow is limited.

Which ONE of the following describes the reason for limiting system flow.

a. Prevent exceeding filter-demineralizer differential pressure limitations.

b. Prevent automatic closure of RWCU dump valve, F033 on a high downstream pressure signal.

c. Prevent cavitation across the blowdown restricting orifice.

d. Prevent high filter demineralizer inlet temperature from closing RWCU outboard containment isolation valve, HV-1F004.

QUESTION: 036 (1.00)

Each Main Steam Isolation Valve (MSIV) has two solenoids.

Which ONE of the following describes the power supply configuration of these solenoids?

a. One 120 volt AC from RPS and one 125 volt DC from Div 1 or Div 2.

b. 125 volt DC from Div 1 or Div 2 to both solenoids outside containment. 120 volt AC from UPS to both solenoids inside containment.

c. One 120 volt AC from UPS and one 125 volt DC from Div 1 or Div 2.

d. 125 volt DC from Div 1 to both solenoids outside containment. 125 volt DC from Div 2 to both solenoids inside containment.

QUESTION: 037 (1.00)

The plant has experienced a loss of the instrument air/instrument gas supply to the Main Steam Isolation Valves (MSIVs).

Which ONE of the following describes the expected response of the Main Steam Isolation Valves to this failure.

a. Outboard MSIVs close in 3 to 5 seconds, inboard MSIVs drift closed as the accumulators bleed down.

b. Outboard MSIVs drift close as the accumulators bleed down, inboard MSIVs close in 3 to 5 seconds.

c. Both outboard and inboard MSIVs close in 3 to 5 seconds.

d. Both outboard and inboard MSIVs drift closed as the accumulators bleed down.

QUESTION: 038 (1.00)

Which ONE of the following conditions must be met to enable the Inboard Main Steam Isolation Valve Leakage Control System blower to start with the system initiation switch in "Operate"?

a. 10 minute post LOCA timer timed out.

b. Standby gas treatment system in operation.

c. Main steam line pressure greater than 0.5 psig.

d. Reactor pressure less than 35 psig.

QUESTION: 039 (1.00)

During the blowdown phase of a Design Basis LOCA one (1) suppression chamber to drywell vacuum breaker fails open.

Which ONE of the following describes the effect this would have on the peak primary containment pressures?

a. Increase suppression chamber pressure and drywell pressure.

b. Increase suppression chamber pressure with no effect on drywell pressure.

c. Increase drywell pressure with no effect on suppression chamber pressure.

d. Increase the time drywell pressure remains at its peak pressure with no effect on suppression chamber pressure.

QUESTION: 040 (1.00)

Which ONE of the following drywell unit cooler fan configurations requires entry into Technical Specification 3.6.6.2, "Drywell Hydrogen Mixing System" LCO because of inoperable LOCA fans?

a. Both fans on unit cooler "E" out of service.

b. One fan each on unit coolers "A" and "B" out of service.

c. Both fans on unit cooler "G" out of service.

d. One fan on unit cooler "H" and both fans on unit cooler "C" out of service.

QUESTION: 041 (1.00)

The plant is experiencing a Loss of Coolant Accident (LOCA) with the following current plant conditions:

- Drywell pressure 2.2 psig
- Reactor water level -40.0 inches
- Main steam line tunnel temperature (Reactor Enclosure) 175 degrees F

Which ONE of the following combinations of Primary Containment Isolation System (PCIS) groups should have received automatic isolation signals?

a. 1A, MSIVs and steam line drains.
IIA, shutdown cooling and head spray.
VIIIA, drywell chilled water.

b. III, RWCU.
VIA, containment purge and exhaust.
VIIA, containment instrument gas.

c. 1B, main steam and reactor water sample lines.
IIB, RHR heat exchanger sample lines.
IVB, HPCI turbine exhaust vacuum breaker lines.

d. IIC, RHR heat exchanger vacuum breaker lines.
IVA, HPCI process lines.
VIC, containment sampling and recombiner lines.

QUESTION: 042 (1.00)

Which ONE of the following personnel access door actions would result in a main control room AIRLOCK SEAL BROKEN annunciator?

The annunciator will be received:

a. When reactor enclosure pressure exceeds 0.25 inches WG vacuum with one door open.

b. Immediately after opening both doors.

c. 10 seconds after the second door is opened.

d. By maintaining either door open for 10 seconds with the other closed.

QUESTION: 043 (1.00)

The Rod Block Monitor (RBM) will prevent a control rod withdrawal from exceeding which ONE of the following thermal limits:

a. Average Planar Linear Heat Generation Rate (APLHGR)

b. Linear Heat Generation Rate (LHGR)

c. Minimum Critical Power Ratio (MCPR)

d. Maximum Fraction of Limiting Power Density (MFLPD)

QUESTION: 044 (1.00)

Operating Procedure S51.8.A, "Suppression Pool Cooling Operation", requires that all available suppression pool cooling should be used when the suppression pool exceeds normal operating temperature limits.

Select the condition that requires only one loop of RHR suppression pool cooling (one pump per loop) be placed in operation? Assume the plant is at full power.

a. When directed by the TRIP Procedures.

b. If suppression pool temperature cannot be maintained below 90 degrees F.

c. Suppression pool temperature is 80 degrees F while running the RCIC surveillance that adds heat to the suppression pool.

d. If temperature exceeds the Technical Specification limit of 95 degrees F.

QUESTION: 045 (1.00)

Which ONE of the following combinations of main steam line radiation monitor trips will cause a full Main Steam Isolation Valve (MSIV) closure?

a. Channel "A" -- High
   Channel "D" -- High - High

b. Channel "B" -- Downscale
   Channel "C" -- Inop

c. Channel "A" -- High - High
   Channel "C" -- High - High

d. Channel "C" -- Inop
   Channel "D" -- High - High

QUESTION: 046 (1.00)

The plant is at full power with reactor enclosure ventilaticn system aligned for normal operation. Both Div 1 and Div 2 reactor enclosure ventilation exhaust radiation monitor HI/HI trips are received.

Which ONE of the following will NOT occur from the resulting NSSS isolation signal?

a. Reactor enclosure supply and exhaust ventilation isolations.

b. Automatic start of standby gas treatment.

c. Automatic start of reactor enclosure recirculation.

d. Refuel floor supply and exhaust ventilation isolations.

QUESTION: 047 (1.00)

The Control Room Emergency Fresh Air Supply System is aligned in a normal configuration with train "A" in AUTO and train "B" in STBY when a high chlorine condition is sensed.

Which ONE of the following describes the expected automatic response of the system?

a. Train "A" starts immediately, train "B" starts after a 30 second time delay.

b. Both trains start immediately.

c. Train "A" starts after a 30 second time delay, train "B" remains in standby and does not start.

d. Train "A" starts after a 30 second time delay, train "B" starts after a 50 second time delay.

QUESTION: 048 (1.00)

Which ONE of the following describes the use of water as a fire extinguishing agent?

a. Primary agent for extinguishing Class A fires and also effective on Class B and C fires.

b. Primary agent for extinguishing Class B fires and also effective on Class A and C fires.

c. Primary agent for extinguishing Class A and B fires but not effective on Class C fires.

d. Primary agent for extinguishing Class B and C fires but not effective on Class A fires.

QUESTION: 049 (1.00)

Which ONE of the following plant conditions will allow the "A" loop Drywell Spray Isolation Valves, HV-F016A and HV-F021A to be opened?

a. Reactor vessel level -135 inches, drywell pressure 2.0 psig and reactor pressure 600 psig.

b. Reactor vessel level -135 inches, drywell pressure 1.60 psig and reactor pressure 300 psig.

c. Reactor vessel level -115 inches, drywell pressure 1.60 psig and LPCI injection valves HV FO-17A and FO-17C open.

d. Reactor vessel level -115 inches, drywell pressure 2.0 psig and reactor pressure 300 psig.

QUESTION: 050 (1.00)

Which ONE of the following describes the automatic opening and closing setpoints of the low pressure turbine exhaust hood spray valve, TCV*01?

a. 120 degrees F open
100 degrees F closed

b. 180 degrees F open
120 degrees F closed

c. 160 degrees F open
140 degrees F closed

d. 220 degrees F open
180 degrees F closed

QUESTION: 051 (1.00)

Unit 1 is at 100% power when a complete loss of Division I Safeguard 125/250 Volt DC occurs.

Which One of the following correctly describes the resultant effect on the unit?

a. RCIC cannot be initiated.

b. HPCI cannot be initiated.

c. Loss of "B" RPS and UPS inverter.

d. Loss of the main turbine emergency bearing oil pump.

QUESTION: 052 (1.00)

While operating at 100% power both containment instrument gas compressors fail.

Which ONE of the following describes the effect this has on the Safety Relief Valves (SRVs)?

a. All SRVs are automatically supplied with backup nitrogen from replaceable gas bottles and will still function in all modes.

b. The non-ADS valves will function only as safety valves. The ADS valves will isolate from the supply header and be supplied only from their accumulator volumes and function in all modes until that volume is exhausted.

c. The non-ADS valves will function only as safety valves. The ADS valves will automatically be supplied with backup nitrogen from replaceable gas bottles and function in all modes.

d. The non-ADS valves can be manually aligned to backup nitrogen from replaceable gas bottles. The ADS valves will automatically align to backup nitrogen from replaceable gas bottles. All valves will function in all modes.

QUESTION: 053 (1.00)

The plant is at 12% power with a startup in progress. Reactor vessel water level is being controlled by "C" Reactor Feed Pump (RFP) in AUTO, in single element control when feed flow detector FT-06-N002A fails downscale.

Which ONE of the following describes the expected automatic reactor vessel level control system response assuming no operator action taken.

a. The flow error signal demands more feed flow. Reactor water level begins to increase until the feed pumps trip.

b. The "C" RFP detects a loss of control signal removing power from the Motor Gear Unit (MGU). RFP "C" speed remains constant and level begins to decrease.

c. The flow error signal demands less feed flow. Reactor water level begins to decrease and stabilizes at a lower level.

d. The reduction in feed flow signal is not seen by the system. Reactor water level does not change.

QUESTION: 054 (1.00)

Unit 1 is refueling and Unit 2 is at full power.

Which ONE of the following plant parameters will result in SGTS starting?

a. Refueling ventilation exhaust = 2.35 mr/hr.

b. Reactor enclosure exhaust radiation level = 1.0 mr/hour.

c. Drywell pressure = 1.65 psig.

d. Reactor enclosure low differential pressure of + 0.1 "WG for 10 minutes.

QUESTION: 055 (1.00)

Which of the following IDENTIFIES the position of the CRD Flow Control Valve(FCV) and the reason for the Flow Control Valve position following a reactor scram, prior to resetting the scram.

a. FCV will close due to close signal from RPS.

b. FCV will fully open due to high charging flow.

c. FCV will open or close as necessary to maintain drive water pressure 260 psid above reactor pressure.

d. FCV will close due to the high flow in the charging header.

QUESTION: 056 (1.00)

Which of the following results from the use of the CONTINUOUS INSERT pushbutton.

a. Insert valves SV21 & 23 remain open until the button is released.

b. The settle valve opens to allow the rod to settle.

c. A rod drift alarm will NOT occur when using the continuous insert pushbutton.

d. The motion timer controls the opening and closing of the control valves.

QUESTION: 057 (1.00)

A "Recirc MG Speed Control Signal Failure" alarm has annunciated for the "B" recirculation pump. The effect on operation of the "B" recirculation pump is that:

a. The pump speed can only be varied by the individual controller in manual.

b. The pump speed will run to minimum due to the low output signal from the controller.

c. The pump speed will remain at its present value due to a scoop tube lock.

d. The pump speed will remain at its present value due to loss of power to the scoop tube positioning motor.

QUESTION: 058 (1.00)

The reactor is in cold shutdown with loop "A" of RHR in shutdown cooling. Loop "B" is inoperable. A break results in a loss of reactor coolant inventory.

Water level has decreased to -140 inches.

IDENTIFY the operator actions which would be REQUIRED to initiate loop "A" of RHR in the LPCI injection mode.

a. Close the pump suction valve (F006A), open the suction valve (F004A) from the suppression pool and restart the RHR pump.

b. Close the pump suction valve (F006A), open the suction from the suppression pool (F004A) and manually open the injection valve (F017A).

c. Arm and depress both LPCI initiation pushbuttons.

d. Close the pump suction valve (F006A) and open the suction (F004A) from the suppression pool.

QUESTION: 059 (1.00)

A loss of 125 VDC Bus "D" logic power has occurred.

IDENTIFY the status of HPCI with this condition.

a. The only HPCI operation available is manual initiation using control room switches.

b. HPCI will automatically initiate but automatic isolation of division 4 valves is unavailable.

c. HPCI could be operated, using control switches, ONLY from the remote shutdown room.

d. HPCI cannot be operated except through local manual operations and/or use of Temporary Circuit Alterations.

QUESTION: 060 (1.00)

IDENTIFY the BACKUP source of water used for the prevention of water hammer in the ECCS systems.

a. Condensate Storage and Transfer system.

b. Residual Heat Removal System pump suction piping.

c. Core Spray pump suction piping.

d. Demineralized Water Storage Tank.

QUESTION: 061 (1.0.

A reactor startup is to be performed.

Which of the following SRM combinations is acceptable to perform a reactor startup?

		SRM A	SRM B	SRM C	SRM D
a.	Counts	10?	100	DWNSCL	100
	Inserted	Yes	Yes	Yes	No
b.	Counts	10?	100	DWNSCL	DWNSCL
	Inserted	Ye?	Yes	Yes	Yes
c.	Counts	100	100	BYP	100
	Inserted	Yes	No	Yes	Yes
d.	Counts	100	100	50	100
	Inserted	Yes	No	Yes	Yes

QUESTION: 062 (1.00)

APRM Channel "B" Meter Function Switch is in the Count position with a meter reading of 50.

"NTIFY the number of LPRMs BYPASSED.

a. 10

b. 11

c. 12

d. 13

QUESTION: 063 (1.00)

During the initial stages of an automatic initiation, speed of the RCIC turbine is controlled by:

a. The difference between the actual speed and desired speed as determined by the controller.

b. The difference between the actual flow and desired flow as determined by the controller.

c. The ramp signal generated by the controller.

d. A signal which limits the RCIC to a constant speed below the overspeed trip.

QUESTION: 064 (1.00)

The Condensate Storage Tank (CST) level instrument fails high.

A Main Steam Line Isolation has occurred causing a RCIC initiation at -38 inches.

IDENTIFY the response of the RCIC Suppression Pool Suction Valves to extended RCIC operation.

a. The valves will not change position without operator action.

b. The valves will change position when suppression pool level exceeds 24 feet 1.5 inches.

c. The valves will change position when the RCIC initiation signal is received.

d. The suppression pool suction valves will automatically open when the CST suction valves are closed.

QUESTION: 065 (1.00)

A loss of drywell cooling occurs. Drywell pressure increases to 2.5 psig. Drywell temperature increases to 150 F.

Identify which sections of the TRIP Procedures that would be entered.

a. All sections of T-102, "Primary Containment Control."

b. Primary Containment Pressure (PC/P) and Drywell Temperature (DW/T) sections of T-102, "Primary Containment Control."

c. Primary Containment Pressure (PC/P) and Drywell Temperature (DW/T) sections of T-102, "Primary Containment Control" and all sections of T-101, "RPV Control."

d. All sections of T-101, "RPV Control" and all sections of T-102, "Primary Containment Control."

QUESTION: 066 (1.00)

Step SP/L-7 states: "If while executing the following, Suppression Pool Level drops below 18 ft then irrespective of whether adequate core cooling is assured, secure HPCI".

This action is performed because operation of HPCI below this level will result in:

a. Primary containment being directly pressurized.

b. Loss of suction to HPCI if it were aligned to the suppression pool.

c. The vortex at the HPCI suction may be sufficiently large to draw "air" into the pump causing pump damage.

d. HPCI turbine damage due to mechanical overspeed.

QUESTION: 067 (1.00)

Which action is REQUIRED to be completed PRIOR to Main Control Room evacuation on Unit 2?

a. Verify all control rods fully inserted.

b. Arm and depress the RCIC Manual Initiation pushbutton.

c. Trip the Main Turbine.

d. Secure all operating condensate pumps.

QUESTION: 068 (1.00)

A fire has occurred which causes an isolation of the MSIVs. HPCI and RCIC automatically initiate. Immediately after auto initiation of HPCI and RCIC all Unit 1 Remote Shutdown Panel (RSP) Transfer Switches are placed in Emergency. The operator trips RCIC at the RSP when level reaches +54 inches.

Reactor water level will:

a. Decrease until both HPCI and RCIC automatically re-initiate.

b. Continue to increase due to HPCI injection.

c. Decrease until HPCI automatically re-initiates at the low level initiation setpoint.

d. Decrease until RCIC automatically re-initiates at the low level initiation setpoint.

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QUESTION #68 DELETED IN RESPONSE TO THE UTILITIES COMMENTS

QUESTION: 069 (1.00)

A loss of off-site power has occurred. All automatic actions have occurred.

IDENTIFY how drywell cooling is maintained/established in this condition.

a. Emergency service water is manually aligned to drywell coolers.

b. Emergency service water is manually aligned to the RECW coolers and RECW is manually aligned to the drywell coolers.

c. The drywell chillers continue to operate to maintain drywell cooling.

d. Emergency service water is manually aligned to the TECW coolers and TECW is manually aligned to the drywell coolers.

QUESTION: 070 (1.00)

A loss of 1A RPS UPS power has occurred. The operator is cautioned that the NSSSS isolation must be bypassed and the Instrument Gas System QUICKLY restored to the drywell.

IDENTIFY the reason for QUICKLY restoring instrument gas to the drywell.

a. Prevent MSIVs from drifting shut.

b. Allow operation of the ADS valves.

c. Reopen the drywell cooler chill water control valves.

d. Allow operation of the vacuum breakers.

QUESTION: 071 (1.00)

T-101, "RPV Control", directs the manual opening of SRVs to prevent uncontrolled SRV cycling.

Select the REASON why this step is required.

a. To prevent uncontrolled heat additions to the suppression pool.

b. To reduce uncontrolled power fluctuations during an ATWS.

c. To reduce the cyclic pressure transients on the primary containment.

d. To stabilize pressure prior to starting RCIC or HPCI for pressure control.

QUESTION: 072 (1.00)

T-102, "Primary Containment Control", path PC/P, directs the primary containment to be vented by venting the drywell OR the suppression pool.

What determines which vent path is to be used?

a. The desired rate of primary containment depressurization.

b. Whether or not the "scrubbing" action of the suppression pool water is needed.

c. Current suppression pool water temperature.

d. Current suppression pool water level.

QUESTION: 073 (1.00)

An inadvertent reactivity addition due to a loss of feedwater heating has occurred.

Select the thermal limit that is of concern during these conditions.

a. Minimum Critical Power Ratio (MCPR)

b. Linear Heat Generation Rate (LHGR)

c. Average Planar Linear Heat Generation Rate (APLHGR)

d. Maximum Average Planar Ratio (MAPRAT)

QUESTION: 074 (1.00)

With Unit 2 at 100% rated power, what IMMEDIATE action is required if an unexplained reactivity addition occurs? (Assume the cause of reactivity addition is unknown and is not large enough to cause a scram.)

a. Place the Reactor Mode Switch in "shutdown".

b. Reduce power to approximately 850 MWe using recirculation flow per Reactor Maneuvering Shutdown Instruction.

c. Reduce power by 100 MWe with control rods per Reactor Maneuvering Shutdown Instruction.

d. Rapidly reduce core flow to 45%.

QUESTION: 075 (1.00)

Following a reactor scram and entry into T-101, "RPV Control", a determination must be made regarding continued execution of steps in the RC/Q section.

Which CRITERIA allows the operator to exit RC/Q?

a. All rods are fully inserted beyond position 02.

b. The 6 APRM channel "Downscale" alarms are illuminated.

c. All rods are inserted to or beyond position 04.

d. A Reactor Engineer calculates the reactor will remain shutdown with boron.

QUESTION: 076 (1.00)

In accordance with OT-117, "RPS Failures" identify the required action for the following conditions.

APRM channels "B" and "E" upscale trips are in solid with no response by RPS.

a. Place the mode switch to "shutdown" and enter T-101.

b. Perform a rapid plant shutdown per GP-4.

c. Place the mode switch in "shutdown" and enter T-100.

d. Perform a controlled plant shutdown per GP-4.

QUESTION: 077 (1.00)

OT-102, "Reactor High Pressure", provides power limits upon closure of Main Steam Isolation Valves. These limits are based on the number of unisolated steam lines following closure of one, or more, MSIVs.

Select the REASON why NO limits are given for one (1) unisolated steam line?

a. The reactor would have already scrammed from a Group I isolation on high steam flow through the one remaining steam line.

b. Operation under these conditions is not allowed due to excessive erosion damage of steam line components from the high steam flows.

c. The Reactor Protection System logic will not allow operation under these conditions unless the Reactor Mode Switch is not in "Run".

d. The generic GE analysis for operation with less than 2 steam lines in operation is not complete for late model BWR-4 designs.

QUESTION: 078 (1.00)

A low reactor water level of -38" is the automatic initiation signal for the Reactor Core Isolation Cooling (RCIC) system. What additional input does this water level signal provide to RCIC?

Low reactor water level (-38"):

a. Disables two of the RCIC system automatic isolations (High RCIC compartment temperature and low steam supply pressure).

b. Disables the RCIC system low suction pressure trip.

c. Enables the logic for the automatic suction swap from the Condensate Storage Tank to the Suppression Pool.

d. Enables the RCIC system manual isolation logic.

QUESTION: 079 (1.00)

Following a trip of one recirculation pump from 80% power, select the condition REQUIRING a manual reactor scram.

a. The second recirculation pump trips approximately 10 seconds after the first pump trip.

b. Several LPRM downscale alarms are coming in and clearing every 2 to 4 seconds.

c. APRM power oscillations are 7% peak-to-peak on 4 channels and 8% on 2 channels and are diverging.

d. Multiple LPRM upscale alarms annunciate periodically.

QUESTION: 080 (1.00)

OT-112, "Recirculation Pump Trip", requires the operator to reduce feedwater flow as an Immediate Action.

Identify the reason for this requirement.

This step provides positive operator control of feedwater addition rate:

a. To ensure it matches the new power level of 35% after control rod insertion.

b. To prevent possibility of the Level 8 protective actions/trips occurring.

c. To reduce the power increase from cold water addition to the reactor from the feedwater heating reduction.

d. To increase the margin to Minimum Critical Power Ratio (MCPR) during recirculation flow coastdown.

QUESTION: 081 (1.00)

What is the MINIMUM reactor power at which the plant can operate and still be assured of avoiding limit cycle oscillations or instabilities?

a. 35%

b. 40%

c. 45%

d. 50%

QUESTION: 082 (1.00)

OT-116, "Loss of Condenser Vacuum", directs a turbine trip if condenser vacuum reaches 22.2" Hg Vacuum.

During lowering condenser vacuum, this action is designed to prevent:

a. Overheating of the last row of turbine blading on the low pressure turbines.

b. Overpressurization of the condenser/turbine exhaust hood.

c. Rupturing of the flexible seals between the low pressure turbines and the condenser shells.

d. Excessive system flow rates from entering the off-gas system.

QUESTION: 083 (1.00)

Unit 2 is at 75% power and Unit 1 is at 100% power when a complete loss of Division 2 Safeguard 125/250 VDC bus 2FB occurs.

SELECT the statement that describes how this loss affects plant operation.

a. Loss of Unit 1 main turbine EBOP.

b. Unit 2 RCIC cannot be initiated.

c. Unit 2 HPCI cannot be initiated.

d. Loss of the Unit 1 "B" RPS and UPS inverter.

QUESTION: 084 (1.00)

UNIT 1 is operating at 85% power and experiences a problem with the main generator Stator Water Cooling System. Conditions are as follows:

"A" Stator Water Cooling Pump	- Tripped/in pull-to-lock
"B" Stator Water Cooling Pump	- Running
Stator Cooling outlet temperature	- 76 degrees Celsius
Stator Cooling water inlet pressure	- 11 psig
Stator Cooling Storage Tank level	- 4" below normal level and decreasing

SELECT the response of the main turbine from the choices below.

a. The main generator stator amps must be reduced below 7469 amps in 3.5 minutes or the main turbine will trip.

b. The main turbine will automatically trip 2 minutes after the Stator Cooling water inlet pressure drops below 11 psig.

c. The main turbine will trip 2 minutes after Stator Cooling outlet temperature reaches 81 degrees Celsius.

d. The main turbine will automatically trip if the "B" Stator Water Cooling Pump trips with a 3.5 minute time delay.

QUESTION: 085 (1.00)

What is the justification for having a main turbine trip at +54 inches (Level 8) reactor water level?

The main turbine trip:

a. Provides backup protection for steam line components should the high reactor water level trip of the feed pumps fail.

b. Causes a reactor water level "shrink" to help reduce level.

c. Isolates the turbine from moisture carryover from the reactor.

d. Causes a scram to shutdown the reactor before reactor water level reaches the moisture separators.

QUESTION: 086 (1.00)

In accordance with OT-110, "Reactor High Level", what conditions REQUIRE the MSIVs to be closed?

Reactor water level reaches:

a. +54 inches and the feed pumps do not trip.

b. +70 inches and ANY system is still feeding the vessel.

c. +100 inches and the level rise is not under control.

d. +118 inches and level "shrink" is not turning the level.

QUESTION: 087 (1.00)

Path DW/T in T-102, "Primary Containment Control", states that RPV level will be affected by elevated drywell temperatures.

Which SPECIFIC level range is NOT allowed to be used during elevated drywell temperatures and why?

a. Upset range -- indicated level is unreliable and will be lower than actual level.

b. Wide range -- because indicated level will be higher than actual level.

c. Wide range -- because indicated level will be lower than actual level.

d. Upset range -- indicated level is unreliable and will be higher than actual level.

QUESTION: 088 (1.00)

Which of the following conditions REQUIRE the IMMEDIATE tripping of both Reactor Recirculation pumps 10 seconds apart during abnormal operation of the Reactor Enclosure Cooling Water (RECW) system?

The Recirculation pumps must be IMMEDIATELY tripped:

a. If RECW is lost due to an inadvertent Group VIII A isolation.

b. If Service Water is lost to the RECW heat exchangers for more than 10 minutes.

c. If recirculation pump seal water flow is oscillating.

d. If RECW cooling to the recirculation pump seals is not restored in 10 minutes.

QUESTION: 089 (1.00)

Step 2.4.1 of ON-119, "Loss of Instrument Air", requires a rapid power reduction to less than 45% if both instrument air compressor discharge pressures drop below 80 psig.

IDENTIFY the reason for this power reduction.

Power is reduced:

a. To ensure adequate feed flow to the reactor should the condensate or feed pump minimum flow valves drift open.

b. To limit the pressure and reactivity transient from the closure of the MSIVs on a complete loss of air.

c. To prevent violation of fuel thermal limits caused by unanalyzed control rod patterns as the rods start to drift into the core.

d. In anticipation of the loss of condenser vacuum as the steam jet air ejectors are affected by the loss of air.

QUESTION: 090 (1.00)

Given the following plant conditions:

-- Reactor startup and heatup in progress
-- Reactor pressure is 850 psig
-- One Control Rod Drive (CRD) pump is tagged out

The one remaining CRD pump trips and one CRD accumulator trouble alarm comes in immediately followed by a second, 3 minutes later.

What are the REQUIRED action(s) for these conditions?

a. Place the mode switch in SHUTDOWN if a CRD pump cannot be started within 20 minutes.

b. The mode switch should be placed in SHUTDOWN upon receiving the second accumulator trouble alarm.

c. Closely monitor the CRD temperatures due to the possibility of mechanism seal damage from loss of cooling.

d. Place the mode switch in SHUTDOWN if a third accumulator trouble alarm comes in prior to starting a CRD pump.

QUESTION: 091 (1.00)

Select the suppression pool level that is an entry condition for T-102, "Primary Containment Control".

a. 21' 10"

b. 22' 3"

c. 24' 0"

d. 24' 3"

QUESTION: 092 (1.00)

When the plant is in Shutdown Cooling per Operating Procedure S51.8.B, "Shutdown Cooling Operation" (SDC) requires that reactor vessel level be maintained above 60 inches on LI-42-*R605 at *OC602.

What is the BASIS for this requirement?

a. Operating above this level will prevent cavitation of the RHR pumps.

b. This level provides an adequate margin to the Group II isolation.

c. This provides a large water volume to allow for level changes while starting and stopping the RHR pumps.

d. A water level above this point will enhance adequate core cooling by natural circulation.

QUESTION: 093 (1.00)

Following a complete Loss of Shutdown Cooling, temperature readings indicate a 1 degree F increase in bulk water temperature every 10 minutes. Assume the reactor vessel head is ON, no other parameters change and current temperature is 164 degrees F.

How much TIME is allowed before primary containment integrity MUST be established?

a. 160 minutes

b. 260 minutes

c. 360 minutes

d. 480 minutes

QUESTION: 094 (1.00)

A procedure step in the radiation control leg of T-103, "Secondary Containment Control", directs the operator to isolate systems discharging into the area "except systems required to suppress a fire."

Which ONE of the following describes why fire suppression systems are specifically exempted from isolation at this time?

a. They will be isolated at the point when their contribution to secondary containment sump levels becomes critical.

b. Loss of fire suppression capabilities is a Site Area Emergency by Emergency Plan Implementing Procedure EP-101, "Classification of Emergencies".

c. Isolation of these systems may result in much larger releases if a fire is affecting safety related equipment.

d. These systems do not contribute to the plant conditions being controlled by the Secondary Containment Control procedure.

QUESTION: 095 (1.00)

The refuel bridge operator was operating the bridge at 25 fpm towards the fuel pool wall to demonstrate/verify the automatic boundary zone interlock enforcement. The enforcement did not occur resulting in the refuel bridge mast being damaged because it collided with the fuel pool cask pit gate at 25 fpm.

SELECT the ONE statement that describes why the boundary zone computer interlock was not enforced.

a. The boundary zone computer logic is manually bypassed to allow fuel movement into the cask pit area and assumes the gates are removed.

b. The boundary zone computer logic malfunctioned allowing bridge movement into the cask pit area at 25 fpm.

c. The boundary zone computer should have enforced a "Jog Zone" and coasted to a stop if the gates were not removed.

d. The boundary zone computer does not enforce exclusion zones or jog zones for movements into the cask pit canal regardless of whether or not the gates are installed.

QUESTION: 096 (1.00)

Why does T-100, "Scram", direct the operator to "Reset PCIG GRP VII Isolation If Necessary"?

Resetting GRP VII will:

a. Allow restoration of the HPCI system as a source of high pressure of water.

b. Ensure the main condenser is not lost a heat sink following the scram.

c. Allow restoration of the RCIC system for reactor pressure control.

d. Ensure the Reactor Water Cleanup system is available for reducing inventory.

QUESTION: 097 (1.00)

Unit 1 is in an ATWS condition and has deliberately lowered RPV water level to -161". T-117, "Level/Power Control", directs the operator to use the following systems to maintain reactor water level:

-- Condensate/Feedwater
-- CRD
-- RCIC
-- HPCI (To feedwater only)

Why are these systems specifically designated for use in these conditions?

a. These systems all provide the cleanest source of water to inject into the reactor.

b. At this point in the ATWS, reactor pressure precludes use of other system.

c. Their point of injection into the reactor provides some "pre-heating" of the water.

d. They provide the operator with much more precise level control during an ATWS.

QUESTION: 098 (1.00)

T-102, "Primary Containment Control", path PC/P, cautions the operator to slowly throttle the drywell spray valve open.

What is the reason for this precaution?

a. A rapid depressurization may cause RHR pump damage from cavitation if the suppression pool water flashes.

b. Controlling the depressurization rate will prevent a suppression pool level "swell" up into the drywell vacuum breakers.

c. A rapid full opening of the valve will exceed the design flowrate of the RHR pumps putting them in "runout".

d. This will prevent an uncontrollable depressurization that could result in primary containment pressure going negative.

QUESTION: 099 (1.00)

In accordance with OT-116, "Loss of Condenser Vacuum", a follow-up action states "Do NOT start a Mechanical Vacuum Pump." SELECT the ONE statement that describes what occurs if the Vacuum Pump is started.

a. An excessive south stack release rate.

b. An excessive north stack release rate.

c. An unmonitored release path.

d. An isolation of the Off-Gas System.

QUESTION: 100 (1.00)

What is the limiting factor for primary containment water level exceeding 117 feet?

Above this water level:

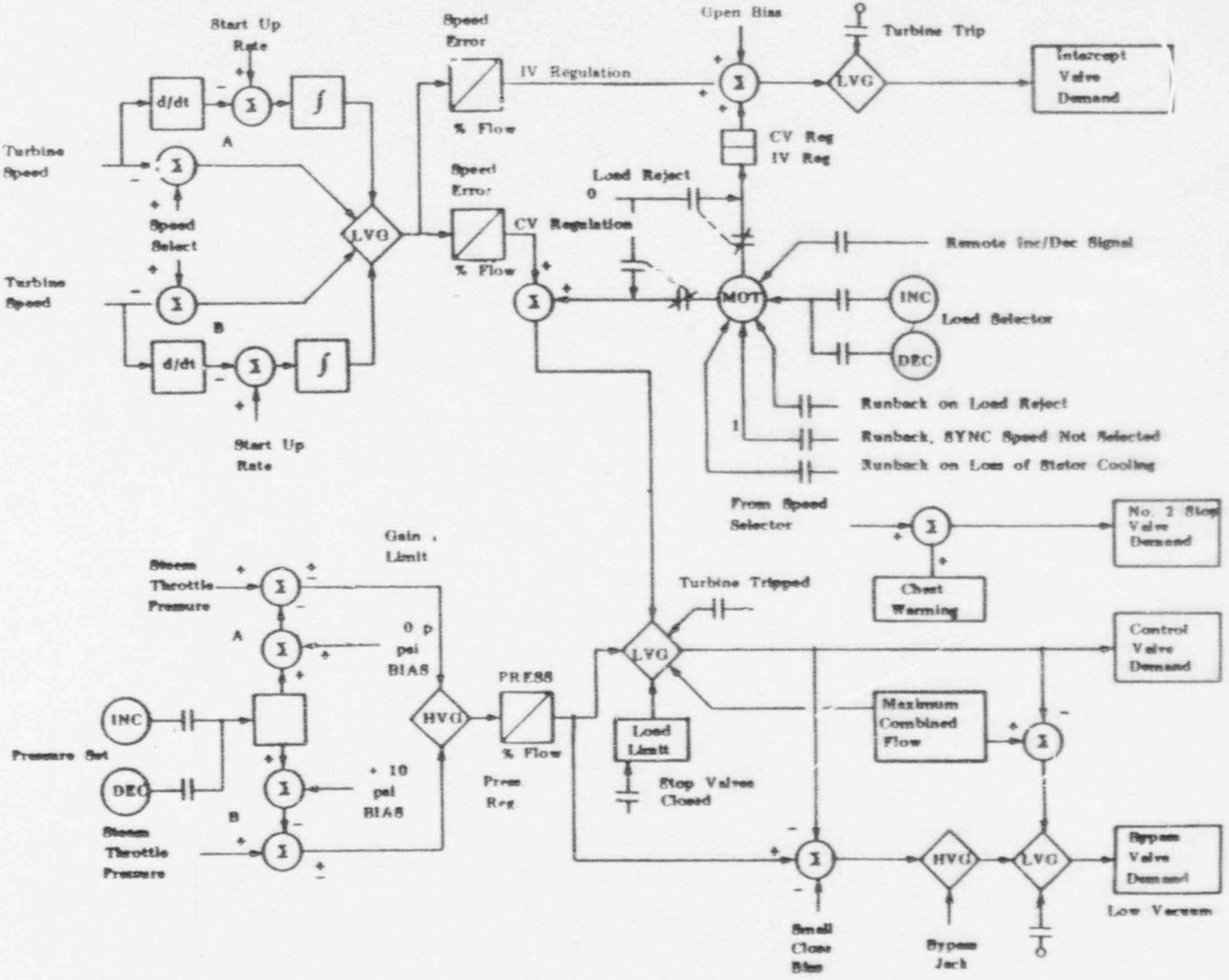
a. Drywell level indication is unreliable.

b. There is no guarantee of maintaining containment integrity.

c. Operation of the SRVs will result in SRV tailpipe and support damage.

d. The drywell vacuum breakers can longer be considered functional.

(********** END OF EXAMINATION **********)



ELECTRO-HYDRAULIC CONTROL LOGIC T-LOT-0590-6

ANSWER: 001 (1.00)

b

REFERENCE:

LGS: IOT-310 p. 15
Learning objective 10

[4.2/4.2]
211000A308 ..(KA's)

ANSWER: 002 (1.00)

b

REFERENCE:

LGS: LOT-0050 p. 30 - 32
Learning objective 7
[3.6/3.8]
216000K507 ..(KA's)

ANSWER: 003 (1.00)

c

REFERENCE:

LGS: LOT-0250 p. 11. Learning Objective 10.

[3.7/3.7]
215003K401 ..(KA's)

ANSWER: 004 (1.00)

d

REFERENCE:

LGS: LOT-0330 p. 16. Figure 6.
Learning Objective 6.

[3.8/3.8]

218000K501 ..(KA's)

ANSWER: 005 (1.00)

d

REFERENCE:

LGS: LOT-0590 p. 6, 7, 8, 11-16
Learning objective 4.
[3.4/3.4]
241000A114 ..(KA's)

ANSWER: 006 (1.00)

a

REFERENCE:

LGS: LOT-0300 p. 9, 12.
Learning objective 4
[3.9/3.9]

212000A404 ..(KA's)

ANSWER: 007 (1.00)

a

REFERENCE:

LGS: T-117 Bases pg 1
LOT-1562 Learning Objective 2.

[4.1*/4.5*]
295037K303 264000K402 ..(KA's)

ANSWER: 008 (1.00)

b.

REFERENCE:

A-41 Section 5.3, pg. 10. LOT-1570 Obj. 3.
[3.9/4.5]
294001K102 ..(KA's)

ANSWER: 009 (1.00)

b.

REFERENCE:

10 CFR 55.53(e). LOT-1571 Obj. 3
[2.7/3.7]

294001A103 ..(KA's)

ANSWER: 010 (1.00)

d.

REFERENCE:

A-7 Sect 7.4. pg, 19. LOT-1571 Obj. 4.
[3.3/4.3]
294001A111 ..(KA's)

ANSWER: 011 (1.00)

d.

REFERENCE:

A-8 Sect. 5.0, pg 4. LOT-1570 Obj. 3
[3.7/3.7]
294001K101 ..(KA's)

ANSWER: 012 (1.00)

b.

REFERENCE:

A-40 Sect 5.12, pg.5. LOT-1570 Obj. 3.
[2.7/3.7]
294001A103 ..(KA's)

ANSWER: 013 (1.00)

a.

REFERENCE:

A-43 Sect. 7.3.4, pg.10.
[4.2/4.2]
294001A102 ..(KA's)

ANSWER: 014 (1.00)

d.

REFERENCE:

A-95 Sect. 5.1, pg 2.
[4.2/4.2]
294001A102 ..(KA's)

ANSWER: 015 (1.00)

d.

REFERENCE:

A-96 Appendix 1 Sect. 3 pg.2
[3.1/3.4]
294001K110 ..(KA's)

ANSWER: 016 (1.00)

d.

REFERENCE:

A-12, Sect 7.3 pg. 7, appendix B.
[3.5/3.8]

294001K116 ..(KA's)

ANSWER: 017 (1.00)

d.

REFERENCE:

10 CFR 50.54 (x)&(y). A-7 Sect. 7.2.4, pg. 13
[4.2/4.2]

294001A102 ..(KA's)

ANSWER: 018 (1.00)

b.

REFERENCE:

EP-101, pg 19. LOT-1520 Sect. IV.A.2, pg.9, Obj. 2.
[2.9/4.7]+++
294001A116 ..(KA's)

ANSWER: 019 (1.00)

d.

REFERENCE:

LOT-1871 Sect.VII.A. pg. 32 &33.
[3.2/3.4]+++
294001A115 ..(KA's)

ANSWER: 020 (1.00)

b.

REFERENCE:

LOT-1705 Sect. VII pg. 19. LOT-1760 OBJ. 2.
[3.3/3.8]+++
294001K103 ..(KA's)

ANSWER: 021 (1.00)

c. OR d. (FACILITY COMMENT ACCEPTED)

REFERENCE:

LOT-0060, pg 11 Obj. 5.c.
[3.8/3.9]
201003K402 ..(KA's)

ANSWER: 022 (1 00)

a.

REFERENCE:

LOT-0010, pg 23, Obj 4.
[./3.2]
290002K102 ..(KA's)

ANSWER: 023 (1.00)

b.

REFERENCE:

LOT-0030, pg 17. Obj. 4.
[3.0/3.1]
202001K404 ..(KA's)

ANSWER: 024 (1.00)

a.

REFERENCE:

LOT-0030, pg 19, Obj. 8d.
[3.3/3.3]

202001K118 ..(KA's)

ANSWER: 025 (1.00)

d.

REFERENCE:

LOT-0040, pg 9, Obj. 4.
[3.5/3.5]
202002K604 ..(KA's)

ANSWER: 026 (1.00)

b.

REFERENCE:

LOT-0060, pg 25, Obj. 9.a & 9.b.
[3.8/3.8]
201001K405 ..(KA's)

ANSWER: 027 (1.00)

b.

REFERENCE:

LOT-0660, pg 9 & 10, Obj. 4.c &4. d.
[2.9/3.1]
201001K201 ..(KA's)

ANSWER: 028 (1.00)

d.

REFERENCE:

LOT-0070, pg 24, Obj. 8.
[3.6/3.6]
201001K404 ..(KA's)

ANSWER: 029 (1.00)

c.

REFERENCE:

LOT-0080, pg 21, Obj. 2.
[3.6/3.6]
201002K403 ..(KA's)

ANSWER: 030 (1.00)

b.

REFERENCE:

LOT-0050, pg 24, Obj. 6.a&6.b.
[3.9/3.8]
202001A412 ..(KA's)

ANSWER: 031 (1.00)

~~c.~~ Scott 2/1/91

a. (FACILITY COMMENT ACCEPTED)

REFERENCE:

LOT-0095, pg,9, Obj. 3.a.
[3.2/3.3]
201006K511 ..(KA's)

ANSWER: 032 (1.00)

b.

REFERENCE:

LOT-0095, pg.3, Obj. 4.
[3.1/3.2]
201006K104 ..(KA's)

ANSWER: 033 (1.00)

c.

REFERENCE:

LOT-0760, pg 16, Obj. 7.
[3.1/3.7]
234000A302 ..(KA's)

ANSWER: 034 (1.00)

b.

REFERENCE:

Lot-0760, pg 26, Obj. 9.
[3.0/3.7]
234000K505 ..(KA's)

ANSWER: 035 (1.00)

d.

REFERENCE:

LOT-0110, pg 21, Obj. 6.b.
[3.2/3.2]
204000A214 ..(KA's)

ANSWER: 036 (1.00)

c.

REFERENCE:

LOT-0120, pg 17, Obj. 12.a.
[3.2/3.3]

239001K201 ..(KA's)

ANSWER: 037 (1.00)

a.

REFERENCE:

LOT-0120, pg 17, Obj. 12.b.
[3.2/3.2]
239001K602 ..(KA's)

ANSWER: 038 (1.00)

d.

REFERENCE:

Lot-0125, pg 11, Obj. 6 & 7.
[3.1/3.3]
239003K406 ..(KA's)

ANSWER: 039 (1.00)

a.

REFERENCE:

LOT-0130, pg 11, Obj. 9.
[3.4/3.6]
223001K609 ..(KA's)

ANSWER: 040 (1.00)

c.

REFERENCE:

LOT-0140, pg 10, Obj. 3.
[3.3/4.1]
223001K609 ..(KA's)

ANSWER: 041 (1.00)

b.

REFERENCE:

LOT-0180, pgs 6-20, Obj.2.a. & 2.b.
[3.7/3.7]
223002A102 ..(KA's)

ANSWER: 042 (1.00)

c.

REFERENCE:

LOT-0190, pg 7, Obj. 2.

[3.5/3.8]
290001K401 ..(KA's)

ANSWER: 043 (1.00)

c.

REFERENCE:

LOT-0280, pg 17, Obj. 1.
[3.1/3.6]
215002K302 ..(KA's)

ANSWER: 044 (1.00)

c.

REFERENCE:

S51.8.A Sect. 8.1.8.a., pg 4. LOT-0370, Obj. 17.
[4.1/4.1]
219000A412 ..(KA's)

ANSWER: 045 (1.00)

d.

REFERENCE:

LOT-0720, pg 9, Obj. 2.
[3.8/3.9]
272000A301 ..(KA's)

ANSWER: 046 (1.00)

d.

REFERENCE:

LOT-0720, pg 12, Obj. 2.
[3.7/4.1]
272000K402 ..(KA's)

ANSWER: 047 (1.00)

c.

REFERENCE:

LOT-0450, pg 26, Obj. 3. CHECK @ FACILITY POSSIBLE ERROR IN REFERENCE.
[3.3/3.5]+++
290003A301 ..(KA's)

ANSWER: 048 (1.00)

a.

REFERENCE:

LOT-0733, pg 4-6, Obj. 2.
[3.3/3.4]+++
286000K503 ..(KA's)

ANSWER: 049 (1.00)

a.

REFERENCE:

LOT-0370, pg. 18, Obj. 8.g and 9.a.
[3.6/3.8]+++

226001A101 ..(KA's)

ANSWER: 050 (1.00)

b.

REFERENCE:

LOT-0520, pp, 11 & 13, Obj. 4.d.

[3.4/3.4]+++
256000G007 ..(KA's)

ANSWER: 051 (1.00)

a.

REFERENCE:

LOT-0690, pp, 15-18 Obj. 6.
[3.4/3.8]+++

263000K303 ..(KA's)

ANSWER: 052 (1.00)

c.

REFERENCE:

LOT-0730, pg 19, LOT-0120 Obj. 12.b & c.
[3.1/3.3]
239002K105 ..(KA's)

ANSWER: 053 (1.00)

d.

REFERENCE:

LOT-0550, pg, 7 & 15, Obj. 7.b.
[3.1/3.1]
259002K604 ..(KA's)

ANSWER: 054 (1.00)

a.

REFERENCE:

LOT-0200 pg 21 & 31, Obj. 7.
[3.7/3.8]
261000K401 ..(KA's)

ANSWER: 055 (1.00)

d

REFERENCE:

LGS: LOT-0070 pg 12 and 33.
Learning Objective 8.

[3.8/3.9]
201001A204 ..(KA's)

ANSWER: 056 (1.00)

a

REFERENCE:

LGS: LOT-0080, pg 25
Learning Objective 5.

[3.5/3.5]
201002K406 ..(KA's)

ANSWER: 057 (1.00)

c

REFERENCE:

LGS: LOT-0040 pg 19 and 23.
Learning Objective 10.

[3.7/3.7]

202002K306 ..(KA's)

ANSWER: 058 (1.00)

a. (FACILITY COMMENT ACCEPTED)

REFERENCE:

LGS: LOT-0370 pg 18, 19, 23.
Learning Objective 9.

[4.4/4.5]
203000A216 ..(KA's)

ANSWER: 059 (1.00)

b

REFERENCE:

LGS: LOT-0340 pg 33.
Learning Objective 3 and 14

[3.7/3.8]
206000K107 ..(KA's)

ANSWER: 060 (1.00)

c.

REFERENCE:

LOT-0350, "Core Spray", Page 10 of 23, Lesson Objective #13d

[3.0/3.2]
209001K402 ..(KA's)

ANSWER: 061 (1.00)

d

REFERENCE:

LOT: LGS 0240 pg 12.

[3.6/3.9]
215004G001 ..(KA's)

ANSWER: 062 (1.00)

c

REFERENCE:

LGS: LOT-0270 page 13 and Figure T-LOT-0270-2
Learning Objective 9, 12

[3.3/3.3]
215005A403 ..(KA's)

ANSWER: 063 (1.00)

c

REFERENCE:

LGS: LOT-0380 pg 12.
Learning Objective 10.

[3.7/3.7]
217000A401 ..(KA's)

ANSWER: 064 (1.00)

a

REFERENCE:

LGS: LOT-0380 pg 9.
Learning Objective 7, 12.

[3.5/3.5]
217000K604 ..(KA's)

ANSWER: 065 (1.00)

d

REFERENCE:

LGS: T-101 Entry Conditions
LGS: T-102 Entry Conditions
LGS: T-101 Step RC-5
LGS: T-102 Step PCC-1

[4.3*/4.5*]
295024G011 ..(KA's)

ANSWER: 066 (1.00)

a

REFERENCE:

LGS: T-102 Primary Containment Control Bases pg. 10.

[3.5/3.7]
295030K302 ..(KA's)

ANSWER: 067 (1.00)

c.

REFERENCE:

SE-1,"Remote Shutdown", Page 1 of 34

LOT-1563, "Special Event Procedures", Lesson Objective #2

[3.8*/3.6*]
295016G010 ..(KA's)

ANSWER: 068 (1.00)

c

QUESTION #68 DELETED IN RESPONSE TO FACILITY COMMENT

REFERENCE:

LGS: LOT-1563 pg 5 and 6.

[4.0/4.1]
295016A106 ..(KA's)

SCH
2/13/91

ANSWER: 069 (1.00)

b

REFERENCE:

LGS: LOT-1566 pg 6.
Learning Objective 2.b

[4.4*/4.4*]
295003A103 ..(KA's)

ANSWER: 070 (1.00)

a

REFERENCE:

LGS: E-1AY160, Loss of 1A RPS UPS Power, pg 2.
LGS: LOT-1566 Learning Objective 4.

[3.7/3.7]
295003K306 ..(KA's)

ANSWER: 071 (1.00)

b.

REFERENCE:

T-101, "RPV Control" Bases, Page 19 of 24
LOT-1560, "Introduction to the LGS TRIP Procedures", Lesson Objective #5

[3.9/4.1]
295007A104 ..(KA's)

ANSWER: 072 (1.00)

d.

REFERENCE:

T-102, "Primary Containment Control" Bases, Page 23 of 44
LOT-1560, "Introduction to the LGS TRIP Procedures", Lesson Objective #5

[3.8/4.0]
295010K301 ..(KA's)

ANSWER: 073 (1.00)

a.

REFERENCE:

OT-104, "Unexpected/Unexplained Reactivity Insertion" bases
LOT-1540, "Operational Transient Procedures", Lesson Objective #5
NRC BULLETIN NO. 88-07, SUPPLEMENT 1: Power Oscillations in Boiling Water Reactors

[3.7/4.2]
295014K202 ..(KA's)

ANSWER: 074 (1.00)

b.

REFERENCE:

OT-104, "Unexpected/Unexplained Reactivity Insertion", Page 1 of 5
Reactor Maneuvering Shutdown Instructions, App. B of RE-201, "Reactor Maneuvering Plan Approval", Page 12 of 19
LOT-1540, "Operational Transient Procedures", Lesson Objective #2

[3.6/3.8]
295014A102 ..(KA's)

ANSWER: 075 (1.00)

a.

REFERENCE:

LGS Unit 1 Tech Spec 3.1.1, "Shutdown Margin", Page 3/4 1-1 and Bases 3/4.1.1, Page B 3/4 1-1
T-101, "RPV Control" Bases, Page 5 of 24
LOT-1560, "Introduction to the LGS TRIP Procedures", Lesson Objective #5

[4.6/4.6]

295006A205 ..(KA's)

ANSWER: 076 (1.00)

a.

REFERENCE:

OT-117, "RPS Failures", Page 1 of 3
LOT-1540, "Operational Transient Procedures", Lesson Objective #2
[4.0/4.2]
295015A102 ..(KA's)

ANSWER: 077 (1.00)

c.

REFERENCE:

OT-102, "High Reactor Pressure" bases, Page 3 of 4
LOT-1540, "Operational Transient Procedures", Lesson Objective #5

[3.5/3.7]
295025G007 ..(KA's)

ANSWER: 078 (1.00)

d.

REFERENCE:

LOT-03 , "Reactor Core Isolation Cooling, Page 18 of 27, Lesson Objective 6

[4.0/4.1]
295031K204 ..(KA's)

ANSWER: 079 (1.00)

d.

REFERENCE:

OT-112, "Recirculation Pump Trip", Page 1 of 4
LOT-1540, "Operational Transient Procedures", Lesson Objective #2

[3.8/3.7]
295001G010 ..(KA's)

ANSWER: 080 (1.00)

b.

REFERENCE:

OT-112, "Recirculation Pump Trip", Bases, Page 2 of 10
LOT-1540, "Operational Transient Procedures", Lesson Objective #5

[3.6/3.7]
295001K203 ..(KA's)

ANSWER: 081 (1.00)

a.

REFERENCE:

Limerick Unit 2 Tech Specs, Figure 3.4.1.1-1, Page 3/4 4-3
OT-112, "Recirculation Pump Trip", Bases, Page 3 of 10
LOT-0040, "Recirculation Flow Control ", Lesson Objective #9b

[3.3/3.5]
295001K102 ..(KA's)

ANSWER: 082 (1.00)

b.

REFERENCE:

OT-116, "Loss of Condenser Vacuum", Bases, Page 2 of 5
LOT-1540, "Operational Transient Procedures", Lesson Objective #5

[3.2/3.2]
295002G007 ..(KA's)

ANSWER: 083 (1.00)

c.

REFERENCE:

E-2FB, "Loss of 2FB Safeguard 125/250V DC Bus", Page 1 of 2
LOT-0690, "DC Distribution", Lesson Objective #6

[3.8/4.1]
295004A102 ..(KA's)

ANSWER: 084 (1.00)

a.

REFERENCE:

LOT-0630, "Stator Water Cooling", Page 10 of 19, Lesson Objective #4
ON-114, "Loss of Stator Water Cooling Runback", Page 3 of 3

[3.6/3.6]
295005G009 ..(KA's)

ANSWER: 085 (1.00)

c.

REFERENCE:

LOT-0050, "Reactor Vessel Instrumentation", Page 19 of 38, Nc Lesson Objective Identified
LOT-1540, "Operational Transient Procedures", Lesson Objective #5

[3.4/3.5]
295008K301 ..(KA's)

ANSWER: 086 (1.00)

c.

REFERENCE:

OT-110, "Reactor High Level", Page 2 of 3
LOT-1540, "Operational Transient Procedures", Lesson Objective #5

[3.9/3.9]
295008A201 ..(KA's)

ANSWER: 087 (1.00)

d.

REFERENCE:

T-102 Primary Containment Control Bases, Page 27 of 44
LOT-1560, "Introduction to the LGS TRIP Procedures", Lesson Objective #4

[3.5/3.7]
295028K101 ..(KA's)

ANSWER: 088 (1.00)

ddd.

REFERENCE:

ON-113, "Loss of RECW", Page 3 of 3
LOT-1550, "Off Normal Procedures", Lesson Objective #3

[3.4/3.6]
295018K202 ..(KA's)

ANSWER: 089 (1.00)

a.

REFERENCE:

ON-119, "Loss of Instrument Air", Bases, 3 of 10
LOT-1550, "Off Normal Procedures", Lesson Objective #3

[3.2/3.3]
295019K203 ..(KA's)

ANSWER: 090 (1.00)

b.

REFERENCE:

ON-107, "Control Rod Drive System Problems", Page 2 of 3
LOT-1550, "Off Normal Procedures", Lesson Objective #3

[3.7/3.9]

295022K301 ..(KA's)

ANSWER: 091 (1.00)

a.

REFERENCE:

T-102, "Primary Containment Control" flowchart
LOT-1560, "Introduction to LGS Trip Procedures", Lesson Objective #3c

[4.2/4.5]
295029G011 ..(KA's)

ANSWER: 092 (1.00)

d.

REFERENCE:

S51.8.B pg 13

LOT-0370, "Residual Heat Removal System", Page 26 of 38, Lesson Objective #13.

[3.1/3.2]
295021K207 ..(KA's)

ANSWER: 093 (1.00)

c.

REFERENCE:

LOT-0370, Obj. 12. LOT-0130 Obj.5.a. Tech. Spec. Table 1.2, & 3.6.1.1
[3.5/3.6]
295021A201 ..(KA's)

ANSWER: 094 (1.00)

d.

REFERENCE:

T-103. LOT-1560, Obj. 5.
[3.8/3.9]
295032K303 ..(KA's)

ANSWER: 095 (1.00)

d.

REFERENCE:

LOT-0760 Obj. 10 and 11 and p 32 of 34 based on LER in the LOT
[3.4/3.8]

295023K302 ..(KA's)

ANSWER: 096 (1.00)

b.

REFERENCE:

T-100 Bases, "Scram", Page 4 of 7

LOT-1560, "Introduction to LGS Trip Procedures", Lesson Objective #5

[3.8/4.4]
295006G012 ..(KA's)

ANSWER: 097 (1.00)

c.

REFERENCE:

T-117, "Level/Power Control" Bases, Page 8 of 16

LOT-1560, "Introduction to the LGS TRIP Procedures", Lesson Objective #5

[3.8/4.4]
295009G012 ..(KA's)

ANSWER: 098 (1.00)

d.

REFERENCE:

T-102, "Primary Containment Control" Bases, Page 22 of 44

LOT-1560, "Introduction to the LGS TRIP Procedures", Lesson Objective #4

[3.8/4.0]
295010K301 ..(KA's)

ANSWER: 099 (1.00)

b.

REFERENCE:

OT-116 Bases pg. 1 fo 4

LOT-1540, Lesson Objective #5

[3.2/3.4]
295038K210 ..(KA's)

ANSWER: 100 (1.00)

b.

REFERENCE:

T-102, "Primary Containment Control" bases, Page 17 of 44

LOT-1560, "Introduction to LGS Trip Procedures", Lesson Objective #5

[3.4/3.7]
295029K101 ..(KA's)

(********** END OF EXAMINATION **********)

ANSWER KEY

MULTIPLE CHOICE

001	b	023	b
002	b	024	a
003	c	025	d
004	d	026	b
005	d	027	b
006	a	028	d
007	a	029	c
008	b	030	b
009	b	031	~~c~~ SCH CHANGE a. (FACILITY COMMENT ACCEPTED)
010	d	032	b
011	d	033	c
012	b	034	b
013	a	035	d
014	d	036	c
015	d	037	a
016	d	038	d
017	d	039	a
018	b	040	c
019	d	041	b
020	b	042	c
021	c OR d. (FACILITY COMMENT ACCEPTED)	043	c
022	a	044	c
		045	d

A N S W E R K E Y

046	d	069	b
047	c	070	a
048	a	071	b
049	a	072	d
050	b	073	a
051	a	074	b
052	c	075	a
053	d	076	a
054	a	077	c
055	d	078	d
056	a	079	d
057	c	080	b
058	~~d~~ SGA 2/13/91 a. (FACILITY COMMENT ACCEPTED)	081	a
059	b	082	b
060	c	083	c
061	d	084	a
062	c	085	c
063	c	086	c
064	a	087	d
065	d	088	d
066	a	089	a
067	c	090	b
~~068 c~~ SGA 2/13/91		(QUESTION DELETED) 091	a

A N S W E R K E Y

092 d

093 c

094 d

095 d

096 b

097 c

098 d

099 b

100 b

(********** END OF EXAMINATION **********)

RO Ex BWR Reac or
Organize b Question Number

QUESTION	VALUE	REFEPENCE
001	1.00	10008
002	1.00	10015
003	1.00	10017
004	1.00	10018
005	1.00	10019
006	1.00	10022
007	1.00	14245
008	1.00	9000001
009	1.00	9000003
010	1.00	9000004
011	1.00	9000005
012	1.00	9000007
013	1.00	9000009
014	1.00	9000010
015	1.00	9000011
016	1.00	9000012
017	1.00	9000013
018	1.00	9000014
019	1.00	900001
020	1.00	9000016
021	1.00	9000017
022	1.00	9000018
023	1.00	9000019
024	1.00	9000020
025	1.00	9000021
026	1.00	9000022
027	1.00	9000023
028	1.00	9000024
029	1.00	9000025
030	1.00	9000026
031	1.00	9000028
032	1.00	9000029
033	1.00	9000030
034	1.00	9000031
035	1.00	9000032
036	1.00	9000033
037	1.00	9000034
038	1.00	9000035
039	1.00	9000036
040	1.00	9000037
041	1.00	9000038
042	1.00	9000039
043	1.00	9000040
044	1.00	9000041
045	1.00	9000042
046	1.00	9000043

047	1.00	9000044
048	1.00	9000045
049	1.00	9000046

R O Exam BWR Reactor

Organized by Question Number

QUESTION	VALUE	REFERENCE	
050	1.00	9000047	
051	1.00	9000048	
052	1.00	9000049	
053	1.00	9000050	
054	1.00	9000051	
055	1.00	9000052	
056	1.00	9000053	
057	1.00	9000054	
058	1.00	9000055	
059	1.00	9000056	
060	1.00	9000057	
061	1.00	9000058	
062	1.00	9000059	
063	1.00	9000060	
064	1.00	9000061	
065	1.00	9000063	
066	1.00	9000064	
067	1.00	9000065	
~~068~~	~~1.00~~	~~9000066~~	QUESTION DELETED
069	1.00	9000067	
070	1.00	9000068	
071	1.00	9000069	
072	1.00	9000072	
073	1.00	9000075	
074	1.00	9000076	
075	1.00	9000077	
076	1.00	9000078	
077	1.00	9000079	
078	1.00	9000080	
079	1.00	9000086	
080	1.00	9000087	
081	1.00	9000088	
082	1.00	9000089	
083	1.00	9000090	
084	1.00	9000091	
085	1.00	9000092	
086	1.00	9000093	
087	1.00	9000095	
088	1.00	9000096	
089	1.00	9000097	
090	1.00	9000098	
091	1.00	9000100	
092	1.00	9000102	
093	1.00	9000103	
094	1.00	9000104	
095	1.00	9000105	

096	1.00	9000106
097	1.00	9000107
098	1.00	9000108

R O E x a m B W R R e a c t o r

O r g a n i z e d b y Q u e s t i o n N u m b e r

			QUESTION	VALUE	REFERENCE
			099	1.00	9000109
			100	1.00	9000110
				100.00	
				100.00	

R O E x a m B W R R e a c t o r

O r g a n i z e d b y K A G r o u p

PLANT WIDE GENERICS

QUESTION	VALUE	KA
013	1.00	294001A102
017	1.00	294001A102
014	1.00	294001A102
012	1.00	294001A103
009	1.00	294001A103
010	1.00	294001A111
019	1.00	294001A115
018	1.00	294001A116
011	1.00	294001K101
008	1.00	294001K102
020	1.00	294001K103
015	1.00	294001K110
016	1.00	294001K116
PWG Total	13.00	

PLANT SYSTEMS

Group I

QUESTION	VALUE	KA
055	1.00	201001A204
027	1.00	201001K201
028	1.00	201001K404
026	1.00	201001K405
029	1.00	201002K403
056	1.00	201002K406
057	1.00	202002K306
025	1.00	202002K604
058	1.00	203000A216
059	1.00	206000K107
060	1.00	209001K402
001	1.00	211000A308
006	1.00	212000A404
003	1.00	215003K401
061	1.00	215004G001
062	1.00	215005A403
002	1.00	216000K507
063	1.00	217000A401
064	1.00	217000K604
004	1.00	218000K501

039	1.00	223001K609
040	1.00	223001K609
041	1.00	223002A102
052	1.00	239002K105

R O E x a m B W R R e a c t o r

O r g a n i z e d b y K A G r o u p

PLANT SYSTEMS

Group I

QUESTION	VALUE	KA
005	1.00	211000A114
053	1.00	259002K604
054	1.00	261000K401
PS-I Total	27.00	

Group II

QUESTION	VALUE	KA
021	1.00	201003K402
032	1.00	201006K104
031	1.00	201006K511
030	1.00	202001A412
024	1.00	202001K118
023	1.00	202001K404
035	1.00	204000A214
043	1.00	215002K302
044	1.00	219000A412
049	1.00	226001A101
036	1.00	239001K201
037	1.00	239002K602
050	1.00	256000G007
051	1.00	263000K303
045	1.00	272000A301
046	1.00	272000K402
048	1.00	286000K503
042	1.00	290001K401
047	1.00	290003A301
PS-II Total	19.00	

Group III

QUESTION	VALUE	KA
033	1.00	234000A302
034	1.00	234000K505
038	1.00	239003K406
022	1.00	290002K102

PS-III Total	4.00
PS Total	50.00

R O E x a m B W R R e a c t o r

O r g a n i z e d b y K A G r o u p

EMERGENCY PLANT EVOLUTIONS

Group I

QUESTION	VALUE	KA
084	1.00	295005G009
075	1.00	295006A205
096	1.00	295006G012
071	1.00	295007A104
097	1.00	295009G012
098	1.00	295010K301
072	1.00	295010K301
074	1.00	295014A102
073	1.00	295014K202
076	1.00	295015A102
065	1.00	295024G011
077	1.00	295025G007
078	1.00	295031K204
007	1.00	295037K303
EPE-I Total	14.00	

Group II

QUESTION	VALUE	KA
079	1.00	295001G010
081	1.00	295001K102
080	1.00	295001K203
082	1.00	295002G007
069	1.00	295003A103
070	1.00	295003K306
083	1.00	295004A102
086	1.00	295008A201
085	1.00	295008K301
099	1.00	295038K210
~~068~~	~~1.00~~	~~295016A106~~ 7/3/91 QUESTION DELETED
067	1.00	295016G010
088	1.00	295018K202
089	1.00	295019K203
090	1.00	295022K301
087	1.00	295028K101
091	1.00	295029G011
100	1.00	295029K101
066	1.00	295030K302

EPE-II Total 19.00

Group III

R O E x a m B W R R e a c t o r

O r g a n i z e d b y K A G r o u p

EMERGENCY PLANT EVOLUTIONS

Group III

QUESTION	VALUE	KA
093	1.00	295021A201
092	1.00	295021K207
095	1.00	295023K302
094	1.00	295032K303
EPE-III Total	4.00	
EPE Total	37.00	
Test Total	~~100.00~~ 99.00	SWA 2/13/91

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eqb.5 ~/GIVE  % *END
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ATTACHMENT 3
Facility Comments on Written Examination

10CFR 55/Subpart E

PHILADELPHIA ELECTRIC COMPANY

LIMERICK GENERATING STATION
P. O. BOX A
SANATOGA, PENNSYLVANIA 19464
(215) 327-1200, EXT. 3000

January 30, 1991

Docket Nos. 50-352
50-353

License Nos. NPF-39
NPF-85

GRAHAM M. LEITCH
VICE PRESIDENT
LIMERICK GENERATING STATION

Mr. Thomas T. Martin, Regional Administrator
U. S. Nuclear Regulatory Commission
Region 1
475 Allendale Road
King of Prussia, PA 19406

SUBJECT: Limerick Generating Station Units 1 and 2
LO/SLO Written Exam Comments for NRC Inspection
50-352/91-003 and 50-353/91-003

Dear Mr. Martin:

Attached you will find the Limerick Operations and Nuclear Training Section responses to selected questions and answers associated with the NRC RO/SRO written examination administered on 1/25/91, at the Limerick Generating Station. These comments are being submitted using the guidance of NUREG 1021, to clarify areas where alternate correct answers should be considered. References have been indicated to justify the comments made.

The written examinations for both the RO and SRO candidates were comprehensive and thorough. The opportunity for the pre-exam review was beneficial in developing a thorough and fair examination.

If there are any questions concerning these comments, please contact V. J. Cwietniewicz, LGS Superintendent - Training, at 327-1200, extension 2080.

Very truly yours,

PTD:kml

Attachments

xc: L. H. Bettenhausen, Chief, Operations Branch, Region 1, NRC (w/attachments)
R. J. Conte, Operations Branch, Region 1, NRC "
S. Hansell, USNRC Region 1 "
T. J. Kenny, USNRC, Senior Resident Inspector, LGS (w/o attachments)
Document Control Desk, USNRC, Washington, D. C. " "

Question: 32 (SRO) Similar Question #31 (RO)

During a Unit 1 plant shutdown reactor power decreases to 14% with the Rod Worth Minimizer (RWM) indicating two (2) insert errors.

Which ONE of the following describes the required actions necessary to continue the shutdown.

a. No action is necessary because three (3)insert errors are allowed.

b. Raise reactor power above the LPSP and clear the insert errors.

c. Bypass the RWM and correct the rod pattern.

d. Bypass all rods in the group(s) that indicate errors.

ANSWER: 32 (SRO) 31 (RO)

c. c.

Reference: None provided

Request answer keys to be changed to read "a. No action is necessary because three (3)insert errors are allowed".

Reference: LOT-0090, Obj. #3.a, page 6; II.E.11.a

- -

Question: 50 (SRO) Similar Question: #58 (RO)

The Reactor is in cold shutdown with loop "A" of RHR in shutdown cooling. Loop "B" is inoperable. A break results in a loss of reactor coolant inventory.

Water level has decreased to -140 inches.

IDENTIFY the operator actions which would be REQUIRED to initiate loop "A" of RHR in the LPCI injection mode.

a. Close the pump suction valve (F006A), open the suction valve (F004A) from the suppression pool and restart the RHR pump.

b. Close the pump suction valve (F006A), open the suction from the suppression pool (F004A) and manually open the injection valve (F017A).

c. Arm and depress both LPCI initiation pushbuttons.

d. Close the pump suction valve (F006A) and open the suction (F004A) from the suppression pool.

ANSWER: 50 (SRO) 58 (RO)

d. d.

Reference: None Provided

Request answer keys to be changed to read "a. Close the pump suction valve (F006A) and open the suction (F004A) from the suppression pool and restart the RHR pump." as correct answer. (See Attachment A)

Reference: FP #8031-E-7-18-3
8031-E-360, Sh. 1 and 2
8031-M-E11-1040-E, Sh. 1, 3, 3A, 5, 6, and 21
LOT-0370, Obj. #6 and 11, page 17, IV.A.2.e

Question: 12 (SRO) No Similar RO Question

A Temporary Circuit Alteration (TCA) installation is of such length that both ends are not visible when installed.

Which ONE of the following describes the proper tag installation in accordance with Administrative Procedure A-42, "Procedure for the Installation of Temporary Circuit Alteration"?

a. Only one TCA tag is required and it can be on either end.

b. One information only tag at each end and a TCA control tag somewhere on the jumper.

c. One end with a TCA control tag and one end with a information only tag, both with the same number.

d. TCA control tags with the same number on each tag at each end.

ANSWER: 12

c.

Reference: None Provided

Request answer key to be changed to read "d. TCA control tags with the same number on each tag at each end," based on question wording. "One end with an information only tag", leads the candidate to believe that one end of the TCA installation will have an information tag attached and not a TCA tag as required. (See Attachment B, 7.2.20)

Reference: A-42, Rev. 14, page 11, 7.2.20

Question: 23 (SRO) Similar Question: #21 (RO)

Which ONE of the following is an indication of an uncoupled control rod when performing a control rod coupling integrity check at position 48?

a. Four (4) rod display does not change from position 48 and the CONTROL ROD DRIFT annunciator alarms.

b. Four (4) rod display indicates blanks and white rod backlighting on the full core display extinguishes.

c. Four (4) rod display indicates blank and ROD OVERTRAVEL annunciator alarms.

d. Red backlight on the full core display extinguishes and ROD OVERTRAVEL annunciator alarms.

ANSWER: 23 21 (RO)

c. c.

Reference: None Provided

Request alternate correct answers as "d. Red backlight on the full core display extinguishes and ROD OVERTRAVEL annunciatoı alarms." This indication is verified by operator when performing the rod overtravel surveillance test. (See Attachment C)

Reference: ST-6-107-730-1, Rev. 12, page 4, 6.3.3.c.
GEK-45745C, Position Indicator Probe, page 2-2, steps 2-8 and 2-9.
LOT-0060, Page 20, V.A.2

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Question: 61 (SRO) Similar Question #68 (RO)

A fire has occurred which causes an isolation of the MSIVs. HPCI and RCIC automatically initiate. Immediately after auto initiation of HPCI and RCIC all Unit 1 Remote Shutdown Panel (RSP) Transfer Switches are placed in Emergency. The operator trips RCIC at the RSP when level reaches +54 inches.

Reactor water level will:

a. Decrease until both HPCI and RCIC automatically reinitiate.

b. Continue to increase due to HPCI injection.

c. Decrease until HPCI automatically re-initiates at the low level initiation setpoint.

d. Decrease until RCIC automatically re-initiates at the low level initiation setpoint.

ANSWER: 61 68 (RO)

c. c.

Reference: None Provided

Request alternate correct answers as "b. Continue to increase due to HPCI injection", based on question wording. Question did not specify if HPCI initiation was spurious due to fire or a normal initiation. A spurious initiation would result in level continuing to increase. (See Attachment D)

Reference: SE-1, Rev. 18, page 7, Note above step 5.6

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Question: 44 (SRO) Similar Question #44 (RO)

Which ONE of the following plant conditions will allow the "A" loop Drywell Spray Isolation Valves, HV-F016A and HV-F021A to be opened?

a. Reactor vessel level -135 inches, drywell pressure 2.0 psig and reactor pressure 600 psig.

b. Reactor vessel level -135 inches, drywell pressure 1.60 prig and reactor pressure 300 psig.

c. Reactor vessel level -115 inches, drywell pressure 1.60 psig and LPCI injection valves HV FO-17A and FO-17C open.

d. Reactor vessel level -115 inches, drywell pressure 2.0 psig and reactor pressure 300 psig.

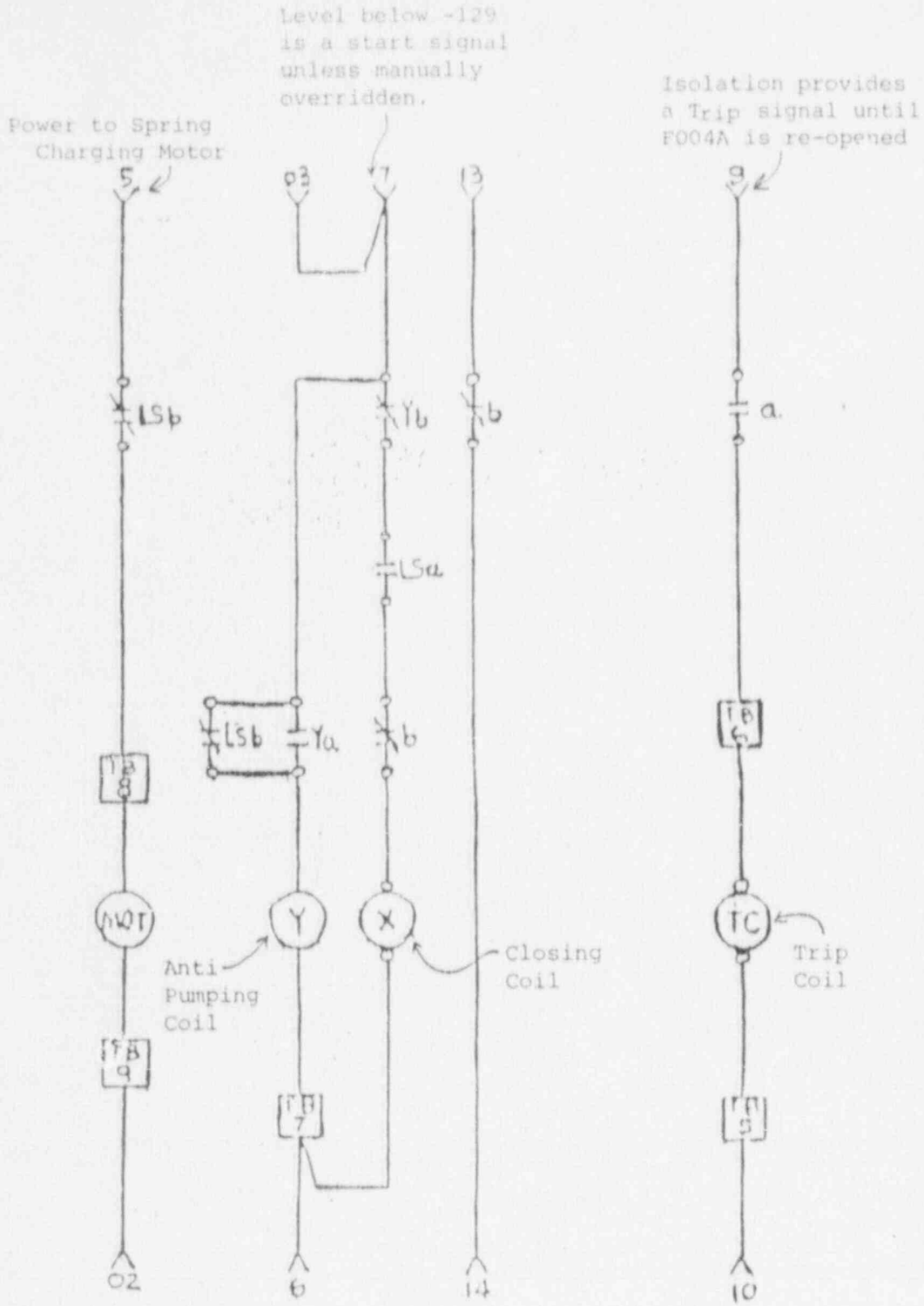
ANSWER: 44 (SRO) 44 (RO)

a. a.

Reference: None Provided

Request alternate correct answers as "d. Reactor vessel level -115 inches, drywell pressure 2.0 psig and reactor pressure 300 psig", based on question wording and direction provided by exam proctor. Both answers 'a' and 'd' provide conditions required for a valid LOCA signal but do not specify the position of the injection valves. Answer 'c' does specify the position of the injection valves, candidates asked about this and were told that all information necessary was provided in the question. Because answer 'd' did not specify that the injection valve was open the candidates assumed it was closed.

Reference: LOT-0370, Obj. #9.a, page 18, IV.B.3



Same as FP #8031-E-7-18

7.2.16.1 The TCA Control Form, with attached tags

7.2.16.2 10CFR50.59 Review Form

7.2.16.3 PORC Review/Approval Form (A-4, Form 1)

7.2.16.4 Technical Review check off list

7.2.17 If plant conditions require immediate installation of a TCA and a PORC quorum can not be obtained, installation approval may be made by the on-duty Shift Manager and a Licensed or Simulator certified Senior Engineer or above.

7.2.17.1 If this method was utilized, the TCA Control Form shall be marked as requiring immediate installation - PORC review to follow.

7.2.17.2 The Shift Clerk shall then make a copy of the TCA Control Form with Technical Review and 10CFR50.59 Review Form and forward both to the PORC Secretary for PORC review and Plant Manager or Designee approval.

7.2.18 PORC Review and Plant Manager's approval of the TCA is documented by attachment of a completed PORC Review/Approval Form (A-4, Form 1) and associated 10CFR50.59 Review Form to the TCA Control Form.

7.2.19 The Worker obtains the approved TCA Control Form and attached tags from the PORC.

7.2.20 TCA's that are of such length that both ends are not visible when installed shall have a TCA tag attached at each end with each tag bearing the same number. Only one tag is the Controlling TCA Tag. Secondary TCA tags shall be labelled INFORMATION ONLY and noted on the TCA Control Form as additonal Tags. (Ref. 3.1.6).

7.2.21 The Worker submits the TCA Control Form to the Shift Manager for installation approval. TCAs may be installed for up to 8 hours from the time of Shift Manager's approval. If a TCA is not installed within this time interval, installation re-approval by the Shift Manager shall be obtained.

7.2.22 The Shift Manager will also initial the AUTHORIZED BY on the controlling TCA Tag submitted by the Worker which is listed on the TCA Control Form.

4.7 IF any Control Rod has to be checked more than eight times in a week,
THEN use the blank columns on Table 1
OR obtain new surveillance test for recording additional checks.

5.0 PREREQUISITES

5.1 Unit in OPCON 1, 2, 4
OR 5.

5.2 Reactor Manual Control system operable.

6.0 PROCEDURE

NOTE: It is the responsibility of the person or persons performing this test to ensure all blanks are correctly and completely filled in.

6.1 PREPARATION — INITIALS

6.1.1 Verify all prerequisites are satisfied. ____ ____

6.2 SHIFT PERMISSION TO TEST

6.2.1 Obtain Shift Supervision's permission to start test. _____

6.2.2 Obtain Control Room Operator's permission to start test. _____
RO
_____/_____
Date/Time

6.3 COUPLING CHECK

6.3.1 IF the control rod is not fully withdrawn,
THEN while withdrawing control rods during this test, observe any indicated response of Nuclear Instrumentation.

6.3.2 WHEN a control rod is withdrawn to FULL OUT position
THEN, at panel 10C603, notch withdraw
OR continuous withdraw selected rod.

INITIALS

6.3.3 Verify:

a. At panel 108 REACTOR, annunciator ROD OVERTRAVEL remains clear.

b. At panel 10C603, individual rod selected indicates 48 on Four Rod Display, (ROD HEIGHT).

c. At panel 10C607, individual rod selected RED out light is on at the Full Core Display.

SU 6.3.4 Step 6.3.1 AND 6.3.3 a, b, c are all satisfactorily performed. Initial appropriate column/rod in Table 1. IF any step/substep is unsat, THEN refer to Precaution & Limitations 4.6 AND enter a comment in the Additional Action/Test Comment section.

7.0 RETURN TO NORMAL

7.1 Inform SSVN AND RO test is complete. _____

7.2 Turn this test in weekly (Saturdays) as completed AND start a re-issue of this test immediately. _____

signals required for proper operation is 25 position indications (the even numbers in the series 00 through 48), one full in signal, one full-out signal, one overtravel signal, and one odd indication for any accidental motion from a latched position, only 29 unique switching points are needed, and a product matrix consisting of 5 x 6 buses provides the required number of connections while using the least total number of wires (11). The connection diagram for this pattern and a summary of switch physical placement is shown in drawing 117C4742, the elementary diagram and pin connections are called out on drawing 117C4739, and the formal matrix is represented on schematic diagram 828E432AA.

2-6 Since the number of switches required to satisfy the logic scheme is 53, many switches share common tie points. Note that all odd (drift) position switches are connected between wire runs Nos. 3 and 7 to pins J1-/P2-4 and -8, respectively.

2-7 At the top of the probe, where the magnet housing in the CRD drive piston base normally rests when the collet latch seats in the bottom notch of the index tube (drive fully inserted), are located switches designated S51 and S52. As shown on assembly drawing 922D223, switch S52 is off-set at the centerline below S51 by 0.88 inch (2.245 cm). This off-set provides a margin for the full in indication when the CRD drive piston is extended the short distance beyond the last notch to stop against the spring washers on the stop piston. Switch S52 is also off-set, by 0.38 inch (0.97 cm), from the centerline indicator, switch S00, which is located on the opposite side of the beam. Redundant sensors are used at the top of the probe because of the importance of this indication in determining plant status after scram.

2-8 From the 00 position, 49 switches are installed at 3-inch intervals to the base of the support; the even switches on one side and the odd switches on the other. Switches S48 and S49 are exactly aligned to provide a dual indication for the full out position.

2-9 Switch S50 is located 2 inches below the full out position. This switch is actuated when the CRD drive piston drifts or is withdrawn to the CRD backseat (mechanical stop). The notch located at the top of the extendible index tube is beveled above and below, so that the collet fingers are passively cammed open as a result of any motion. Further withdrawal from this position is normally blocked by the resistance of the backseat flange of the control rod itself, as it seats upon the base of the guide tube. But if the coupling spud should disengage, the index tube is allowed to drift down and actuate the overtravel switch. The attempt to actively withdraw to this position is a test for proper coupling.

NOTE A screwdriver is required for the following step.

5.5.3 Unlock AND open terminal box *0TB49-*F007 (Unit 1: 402-R15-253, Unit 2: 475-R14-253).

5.5.4 Place manual transfer switch 43-CB22313 (located in terminal box *0TB49-*F007), in EMERGENCY.

5.5.5 At *0C201, place (INBOARD) HS-49-*07-2 to OPEN.

a. Ensure (INBOARD) HV-49-*F007 opens.

5.5.6 Lock open breaker D*14-R-C-31.

5.5.7 Return manual transfer switch 43-CB22313 to NORMAL.

5.5.8 Place RCIC in service per step 5.2.

CAUTION

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IF *0C647 is undamaged,
THEN HPCI auto-initiation
AND trip functions may cause HPCI to cycle between -38 to +54 inches Reactor level.

IF drywell temperature is rising,
THEN depressurization rates > 100 deg. F per hour may be required to prevent exceeding 340 deg. F drywell temperature (Drywell design maximum internal temperature).

x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x

NOTE: Reactor level increase without explanation may be caused by a spurious, fire caused HPCI initiation.

5.6 IF Reactor level is increasing above +54 inches AND continues to increase after RCIC flow is reduced, THEN place HS-56-*62 at *0C201 to OFF to trip HPCI.

5.6.1 IF HPCI injection signal is still present AND cabling has not failed due to fire, THEN HPCI flow can be restored by returning HS-56-*62 to NORMAL.

ATTACHMENT 4
NRC Response to Facility Comments

NRC Response to Facility Comments

Facility Comment: SRO Question #12

A Temporary Circuit Alteration (TCA) installation is of such length that both ends are not visible when installed.

Which ONE of the following describes the proper tag installation in accordance with Administrative Procedure A-42, "Procedure For The Installation Of Temporary Circuit Alteration"?

a. Only one TCA tag is required and it can be on either end.

b. One information only tag at each end and a TCA control tag somewhere on the Jumper.

c. One end with a TCA control tag and one end with a information only tag, both with the same number.

d. TCA control tags with the same number on each tag at each end.

*ANSWER
c.
*REFERENCE
A-42 Sect. 5.2.8 pg 7. LOT-1570 Obj. 3.0
K.A. #294001K102 [3.9/4.2]

Request answer key to be changed to read "d."

Reference: A-42, Rev. 14, page 11, 7.2.20

NRC Response: Comment accepted. Answer key will be changed accordingly.

Facility Comment: SRO Question #23 / RO Question #21

Which ONE of the following is an indication of an uncoupled control rod when performing a control rod coupling integrity check at position 48?

a. Four rod display does not change from position 48 and the CONTROL ROD DRIFT annunciator alarms.

b. Four rod display indicates blanks and white rod backlighting on the full core display extinguishes.

c. Four rod display indicates blank and ROD OVERTRAVEL annunciator alarms.

d. Red backlight on the full core display extinguishes and ROD OVERTRAVEL annunciator alarms.

*ANSWER
c.
*REFERENCE
LOT-0060, pg 11 Obj. 5.c.
K.A. #201003K402 [3.8/3.9]

Request alternate correct answer as "d." (See Attachment C)

Reference: ST-6-107-730-1, Rev. 12, page 4, 6.5.3.c.
GEK-45745C, page 2-2, steps 2-8 and 2-9.
LOT-0060, Page 20, V.A.2

NRC Response: Comment accepted. Answer keys will be changed accordingly.

Facility Comment: SRO Question #32 / RO Question #31

During a Unit 1 plant shutdown reactor power decreases to 14% with the Rod Worth Minimizer (RWM) indicating two (2) insert errors.

Which ONE of the following describes the required actions necessary to continue the shutdown.

a. No action is necessary because three insert errors are allowed.

b. Raise reactor power above the LPSP and clear the insert errors.

c. Bypass the RWM and correct the rod pattern.

d. Bypass all rods in the group(s) that indicate errors.

*ANSWER
c.
*REFERENCE
LOT-0095, pg,9, Obj. 3.a.
K.A. #201006K511 [3.2/3.3]

Request answer keys be changed to read "a."

Reference: LOT-0090, Obj. #3a, page 6; 2.E.11.a

NRC Response: Comment is accepted. Answer keys will be changed accordingly.

Facility Comment: SRO Question #44 / RO Question #49

Which ONE of the following plant conditions will allow the "A" loop Drywell Spray Isolation Valves, HV-F016A and HV-F021A to be opened?

a. Reactor vessel level -135 inches, drywell pressure 2.0 psig and reactor pressure 600 psig.

b. Reactor vessel level -135 inches, drywell pressure 1.60 psig and reactor pressure 300 psig.

c. Reactor vessel level -115 inches, drywell pressure 1.60 psig and LPCI injection valves HV F0-17A and F0-17C open.

d. Reactor vessel level -115 inches, drywell pressure 2.0 psig and reactor pressure 300 psig.

*ANSWER
a.
*REFERENCE
LOT-0370, pg. 18, Obj. 8.g and 9.a.
K.A. #226001A101 [3.6/3.8]

Request alternate correct answer "d."

Reference: LOT-0370, Obj. #9.a, page 18, 4.B.3

NRC Response: Comment not accepted. Answer "a." is correct without any assumptions. The candidates were informed during the exam that the information in part "d." was sufficient to determine the correct position for the LPCI injection valves HV-F0-17A and HV-F0-17C. Reactor Pressure in part "d" was below the open permissive setpoint for the LPCI injection valves HV-F0-17A and HV-F0-17C.

Facility Comment: SRO Question #50 / RO Question #58

The reactor is in cold shutdown with loop "A" of RHR in shutdown cooling. Loop "B" is inoperable. A break results in a loss of reactor coolant inventory.

Water level has decreased to -140 inches.

IDENTIFY the operator actions which would be REQUIRED to initiate loop "A" of RHR in the LPCI injection mode.

a. Close the pump suction valve (F006A), open the suction valve (F004A) from the suppression pool and restart the

RHR pump.

b. Close the pump suction valve (F006A), open the suction from the suppression pool (F004A) and manually open the injection valve (F017A).

c. Arm and depress both LPCI initiation pushbuttons.

d. Close the pump suction valve (F006A) and open the suction (F004A) from the suppression pool.

*ANSWER

d

*REFERENCE
LGS: LOT-0370 pg 18, 19, 23.
Learning Objective 9.
K.A. #203000A216 [4.4/4.5]

Request answer keys to be changed to read "a." (See Attachment A)

Reference: FP #8031-E-7-18-3
8031-E-360, Sh. 1 and 2
8031-M-E11-1040-E, Sh. 1, 3, 3A, 5, 6, and 21

NRC Response: Comment accepted. Answer keys will be changed accordingly.

Facility Comment: SRO Question #61 / RO Question #68

A fire has occurred which causes an isolation of the MSIVs. HPCI and RCIC automatically initiate. Immediately after auto initiation of HPCI and RCIC all Unit 1 Remote Shutdown Panel (RSP) Transfer Switches are placed in Emergency. The operator trips RCIC at the RSP when level reaches +54 inches.

Reactor water level will:

a. Decrease until both HPCI and RCIC automatically re-initiate.

b. Continue to increase due to HPCI injection.

c. Decrease until HPCI automatically re-initiates at the low level initiation setpoint.

d. Decrease until RCIC automatically re-initiates at the low level initiation setpoint.

*ANSWER
c
*REFERENCE
LGS: LOT-1563 pg 5 and 6.
K.A. #295016A106 [4.0/4.1]

Request alternate correct answer as "b." Question did not specify if HPCI initiation was spurious due to fire or normal initiation.

Reference: SE-1, Rev. 18, page 7, Note above step 5.6

NRC Response: Comment partially accepted. Question does not clearly state why HPCI automatically initiated. This question will be removed from the written examination.

ATTACHMENT 5

SIMULATION FACILITY REPORT

Facility Licensee: Philadelphia Electric Company
Limerick Generating Station, Units 1 & 2

Facility Docket Nos.: 50-352
50-353

Operating Tests Administered on: January 24, 1991

This form is to be used only to report observations. These observations do not constitute audit or inspection findings and are not, without further verification and review, indicative of non-compliance 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 in response to these observations.

During the preparation and administration of the operating tests, the following items were observed:

ITEM	DESCRIPTION
Emer. Diesel	The D11 Diesel Generator failed to start on the first attempt by the applicant. The applicant succesfully started the D11 Diesel on the second attempt. The simulator instructor informed the examiners that the diesel problem was re-occurring. The proper documentation was submitted to correct the diesel malfunction.
Malf.	The "Simulator Hardware/Software Materials" book, which includes malfunction cause and effects information, was not up to date. The annunciator alarm windows were labeled using a different format in the simulator/plant when compared to the simulator malfunction cause and effects book. An example is the "D11 D-G Diff/Ground Lockout alarm, malfunction #418a. The simulator malfunction cause and effects book lists the alarm as window 1AC861 (1-3), the simulator/plant labels this same annunciator as 1AC861 (C-1). The labeling difference occurs thoughout the entire simulator cause and effects book.