

U. S. NUCLEAR REGULATORY COMMISSION  
REGION I

DOCKET/REPORT NOS: 50-317/95-11 and 50-318/95-11  
LICENSEE: Baltimore Gas and Electric Company  
Baltimore, MD  
FACILITY: Calvert Cliffs Nuclear Plant, Units 1 and 2  
Lusby, MD  
EXAMINATION DATES: November 15-30, 1995  
EXAMINERS: J. H. Williams, Sr. Operations Engineer  
N. E. Maguire-Moffitt, NRC Contract Examiner  
J. R. Nickolaus, NRC Contract Examiner

CHIEF EXAMINER: *J. H. Williams* 1/23/96  
J. H. Williams, Sr Operations Engineer Date  
Operator Licensing and  
Human Performance Branch  
Division of Reactor Safety

APPROVED BY: *J. H. Williams (for)* 1/23/96  
Glenn W. Meyer, Chief Date  
Operator Licensing and  
Human Performance Branch  
Division of Reactor Safety

## EXAMINATION SUMMARY

### Examination Report 50-317/95-11 and 50-318/95-11 (OL)

Initial examinations were administered to three senior reactor operator (SRO) instant applicants, three senior reactor operator upgrade applicants, and two reactor operator (RO) applicants during the period of November 15-30, 1995, at the Calvert Cliffs Nuclear Plant.

#### OPERATIONS

All applicants passed the examination. The applicants were well prepared for the examinations.

## DETAILS

### 1.0 INTRODUCTION

The NRC administered initial examinations to three senior reactor operator (SRO) instant applicants, three senior reactor operator upgrade applicants, and two reactor operator (RO) applicants. The examinations were administered in accordance with NUREG-1021, "Examiner Standards," Revision 7.

### 2.0 PREEXAMINATION ACTIVITIES

The facility staff reviewed the written examinations during the week of October 30, 1995. The scenarios and job performance measures (JPMs) were reviewed by facility staff and validated by the NRC examiners during the week of November 13, 1995. The facility staff involved with these reviews and validations signed security agreements to help ensure that the examinations were not compromised.

The reference materials provided by the facility to the NRC and its contractor were in a form difficult to use and were missing some information. For example, lesson plans and other reference materials were not in notebooks. This made keeping the materials in order very difficult. The lesson plans were grouped by control panels, which were difficult to follow. Procedures were bound; but, when used, the binding came apart, resulting in loose or misplaced pages. No P&IDs were provided, and the FSAR figures that were provided were not always readable. These problems were discussed with the facility staff, and they were willing to provide any material requested. It was noted by the facility and acknowledged by the NRC examiners that a large amount of manpower had gone into preparation of the reference materials.

### 3.0 EXAMINATION RESULTS AND RELATED FINDINGS, OBSERVATIONS, AND CONCLUSIONS

#### 3.1 Examination Results

The results of the examinations are summarized below:

	SRO Pass/Fail	RO Pass/Fail
Written	6/0	2/0
Operating	6/0	2/0
Overall	6/0	2/0

The facility did not submit any formal comments on the written examinations.

#### 3.2 Facility Strengths and Weaknesses

No generic strengths or weaknesses were observed during the examination.

### Operating Examination

When the examiners and candidates were exiting the radiation control area, exam paperwork was monitored for radioactivity. Even though it was clean of radioactivity, some of the material was required to be monitored and released by another group before it could be taken off site. The radiation technicians appeared to be unclear on the policy for releasing papers that had been taken into the radiation control area and were inconsistent in applying the policy. The examiners brought this inconsistent practice to the facility management's attention. They indicated that they would evaluate this problem.

#### **4.0 EXIT MEETING**

An exit meeting was conducted on November 30, 1995. Preliminary observations were presented. The support given to the NRC examiners by all of the Calvert Cliffs personnel involved in this examination enabled the examination to be developed and administered very efficiently and effectively. Key facility staff persons attending the exit meeting included:

Michael Navin, General Supervisor, Nuclear Plant Operations  
Bob Niedziewski, Supervisor Initial Training

#### Attachments:

1. RO Examination and Answer Key
2. SRO Examination and Answer Key
3. Simulation Facility Report

ATTACHMENT 1  
RO EXAMINATION AND ANSWER KEY

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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  
REACTOR OPERATOR LICENSE  
REGION 1

CANDIDATE'S NAME: \_\_\_\_\_  
FACILITY: Calvert Cliffs 1 & 2  
REACTOR TYPE: PWR-CE  
DATE ADMINISTERED: 95/11/21/15

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.

<u>TEST VALUE</u>	<u>CANDIDATE'S SCORE</u>	<u>%</u>	
<u>100.00</u>	<u>FINAL GRADE</u>	<u>    </u> %	TOTALS

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

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

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## 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.

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(\*\*\*\*\* 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 will result in a denial of your application and could result in more severe penalties.
2. After you complete the examination, 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.
3. To pass the examination, you must achieve a grade of 80 percent or greater.
4. The point value for each question is indicated in parentheses after the question number.
5. There is a time limit of 4 hours for completing the examination.
6. Use only black ink or dark pencil to ensure legible copies.
7. Print your name in the blank provided on the examination cover sheet and the answer sheet.
8. Mark your answers on the answer sheet provided and do not leave any question blank.
9. If the intent of a question is unclear, ask questions of the examiner only.
10. Restroom trips are permitted, but only one applicant at a time will be allowed to leave. Avoid all contact with anyone outside the examination room to eliminate even the appearance or possibility of cheating.
11. When you complete the examination, assemble a package including the examination questions, examination aids, and answer sheets and give it to the examiner or proctor. Remember to sign the statement on the examination cover sheet.
12. After you have turned in your examination, leave the examination area as defined by the examiner.

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QUESTION: 001 (1.00)

Given the following:

- A Unit 1 reactor startup is in progress.
- The Reactor Operator is withdrawing Regulating Group 1 CEAs in the MANUAL GROUP mode.
- Regulating group 1 is at 120 inches.
- No CEA deviations exist.

WHICH ONE (1) of the following will be the FIRST to automatically stop CEA movement?

- a. Highest CEA reaches the Upper Group Stop (UCS).
- b. Lowest CEA reaches the Upper Group Stop (UCS).
- c. Highest CEA reaches the Upper Electrical Limit (UEL).
- d. Lowest CEA reaches the Upper Electrical Limit (UEL).

QUESTION: 002 (1.00)

Given the following:

- Unit 2 has been operating at 70% power with Group 5 CEAs at 79 inches withdrawn.
- It has been in this alignment since 2230 hrs.
- At 0330 hrs, the load dispatcher requests an estimate of the earliest time that the plant can return to 100% power.
- Assume power ascension starts immediately.
- Technical Specification 3.1.3.6 and COLR are attached.
- Assume all CEAs are OPERABLE and there are NO fuel preconditioning requirements for this power change.

WHICH ONE (1) of the following is the EARLIEST that the plant can return to 100% power?

- a. 0530 hours
- b. 0730 hours
- c. 0930 hours
- d. 1130 hours

QUESTION: 003 (1.00)

WHICH ONE (1) of the following inputs to Control Element Drive System is generated by the Reactor Protection System (RPS)?

- a. CWP (CEA Withdrawal Prohibit)
- b. LCS (Lower group stop)
- c. USP (Upper sequential permissive)
- d. CMI (CEA Motion Inhibit)

QUESTION: 004 (1.00)

Given the following:

- A Unit 1 plant heatup is in progress.
- RCS cold leg temperature increased from 470 degrees F. to 476 degrees F. in ten minutes.

WHICH ONE (1) of the following actions will result in the MAXIMUM allowable RCS heat up rate (HUR)?

- a. Increase HUR by 4 degrees F/hr.
- b. Increase HUR by 24 degrees F/hr.
- c. Decrease HUR by 6 degrees F/hr.
- d. Decrease HUR by 16 degrees F/hr.

QUESTION: 005 (1.00)

Given the following:

- The Subcooled Margin Monitor (SCMM) is in the "PRESS" mode and indicates 20 psia.

WHICH ONE (1) of the following does this indicate?

- a. RCS pressure is 20 psia.
- b. RCS pressure is 20 psia greater than the alarm setpoint.
- c. Pressure must rise 20 psia to reach saturation.
- d. Pressure must fall 20 psia to reach saturation.

QUESTION: 006 (1.00)

Given the following:

- Unit 2 RCS cold leg temperature is 273 degrees F. as indicated on SDC Temperature recorder 1-TR-351.
- Pressurizer level indicates 165 inches.
- RCS pressure is 300 psia.
- 21 LPSI is providing Shutdown Cooling.
- All RCPs are OFF.
- Steam Generator 21 secondary side water temperature has been verified locally to be 306 degrees F.

WHICH ONE (1) of the following statements describes the anticipated RCS pressure response and reason for that response when a Reactor Coolant Pump is started in the 21 Loop?

- a. Decreases due to higher temperature loop water being cooled as it passes through the cooler core region.
- b. Decreases due to greater cooling flow through the Shutdown Cooling Heat Exchangers caused by the RCP pressure differential.
- c. Increases due to heating RCS fluid as it passes through the Generators.
- d. Increases due to reduced cooling flow through the Shutdown Cooling Heat Exchangers caused by the RCP pressure differential.

QUESTION: 007 (1.00)

WHICH ONE (1) of the following would indicate an INCREASE in level due to leakage flow past the vapor seal of an RCP?

- a. Volume Control Tank (VCT)
- b. Reactor Coolant Drain Tank
- c. Quench Tank
- d. Containment sump

QUESTION: 008 (1.00)

Given the following:

- Unit 1 is at 100% power.

WHICH ONE (1) of the following conditions will result in flashing in the CVCS letdown line?

- a. Three charging pumps running with minimum letdown, and PIC 201 in AUTO at a setpoint of 500 psia.
- b. One charging pump running with maximum letdown, and PIC 201 in AUTO at a setpoint of 500 psia.
- c. Three charging pumps running with minimum letdown, and PIC 201 in AUTO at a setpoint of 400 psia.
- d. One charging pumps running with maximum letdown, and PIC 201 in AUTO at a setpoint of 400 psia.



QUESTION: 009 (1.00)

Given the following:

- Unit 1 is operating at 100% power.
- An inadvertent SIAS occurs.

WHICH ONE (1) of the following describes how RCP controlled bleed off is maintained?

- a. CVC-354-RV (Letdown Relief valve) opens and relieves to the Reactor Coolant Waste Receiving Tank (RCWRT)
- b. CVC-505-CV and CVC-506-CV (Controlled Bleed Off Isolation valves) open and flow is directed to the VCT.
- c. CVC-199-RV (Controlled Bleed Off Relief valve) opens and to the Reactor Coolant Drain Tank (RCDT).
- d. CVC-507-CV (Controlled Bleed Off Isolation valve) is closed to divert flow to the RCDT.

QUESTION: 010 (1.00)

WHICH ONE (1) of the following conditions will close ONLY Letdown Stop valve CVC 515-CV?

- a. Loss of control air.
- b. CVCIS actuation.
- c. Remote override control switch on panel 1C43 placed in CLOSE.
- d. High Regenerative heat exchanger outlet temperature.

QUESTION: 011 (1.00)

Given the following:

- SDC is being established on UNIT 2 per OI-3B, "Shutdown Cooling."
- Pressure is being monitored on PZR LO RANGE PRESS indicators PI-103 and 103-1.

WHICH ONE (1) of the following pressures is the MAXIMUM at which BOTH of the SDC Header Return Isolation valves (SI-651,652) can be opened?

- a. 230 psia
- b. 250 psia
- c. 270 psia
- d. 290 psia

QUESTION: 012 (1.00)

WHICH ONE (1) of the following valves will receive a CLOSE signal during an automatic SIAS actuation?

- a. LPSI header valves (SI-615,625,635,645).
- b. BAST gravity feed valves (CVC-508,509).
- c. Aux HPSI header valves (SI-617,627,637,647).
- d. CCW HX Saltwater inlet and outlet valves (SW-5160,5206).

QUESTION: 013 (1.00)

WHICH ONE (1) of the following describes the reason the SI pump recirculation MOVs (SI-659,660) are shut after an RAS actuation?

- a. It prevents an unmonitored release to the environment from the RWT vent.
- b. It ensures that LPSI flow is not diverted from containment spray during the recirculation phase.
- c. It ensures that the minimum RWT boron concentration limit will not be exceeded.
- d. It ensures that the LPSI pumps do not trip on low suction pressure.

QUESTION: 014 (1.00)

WHICH ONE (1) of the following is a possible source of inventory for the Quench Tank?

- a. Reactor coolant drain tank relief discharge.
- b. RCS loop drains.
- c. RCP controlled bleed off.
- d. Reactor vessel flange leak detector drain.

QUESTION: 015 (1.00)

Given the following:

- Unit 2 is at 100% power.
- The UNIT 2 CC RMS (Component Cooling Water Rad Monitoring) alarm on panel 1C22 is LIT.
- Activity in the CCW system is INCREASING.

WHICH ONE (1) of the following is the source of the alarm?

- a. Letdown heat exchanger.
- b. 11 liquid waste evaporator.
- c. Miscellaneous waste sample coolers.
- d. Degasifier vacuum pump accumulator.

QUESTION: 016 (1.00)

Given the following:

- Unit 1 tripped from 100% power due to a LOCA.
- SIAS, CIS and CSAS actuated.

WHICH ONE (1) of the following describes the response of the Component Cooling Water (CCW) system?

- a. 11 and 12 CCW pumps receive a start signal, the SDC HX outlet valves open, the CCW containment isolation valves close and the CCW isolation valves to the waste evaporators close.
- b. 11 and 12 CCW pumps receive a start signal, the SDC HX outlet valves close, and the CCW containment isolation valves close.
- c. ONLY the standby CCW pump receives a start signal, both CCW HX outlet valves close, and the SDC HX inlet valves open.
- d. ONLY the standby CCW pump receives a start signal, the CCW containment isolation valves close and the CCW isolation valves to the waste evaporators close.

QUESTION: 017 (1.00)

Given the following:

- Unit 1 is in MODE 3.
- RCS pressure is 2250 psia.
- Pressurizer Pressure Control System (PPCS) setpoint is at 2250 psia.
- RCS boron concentration is 500 ppm boron.
- Pressurizer boron concentration is 350 ppm boron.

WHICH ONE (1) of the following methods is used to equalize RCS boron concentration?"

- a. ENERGIZE all Pressurizer Backup Heaters and reduce pressurizer pressure controller setpoint to establish spray flow and maintain RCS at 2250 psia.
- b. ENERGIZE all Pressurizer Proportional Heaters and reduce pressurizer pressure controller setpoint to establish spray flow and maintain RCS at 2250 psia.
- c. RAISE Pressurizer Pressure Control System setpoint to 2300 psia AND energize Pressurizer Proportional Heaters to maintain Pressurizer Spray flow.
- d. RAISE Pressurizer Pressure Control System setpoint to 2300 psia AND allow pressurizer spray bypass flow to equalize the boron concentration.

QUESTION: 018 (1.00)

WHICH ONE (1) of the following banks of pressurizer backup heaters is available for RCS pressure control following a loss of off-site power?

- a. 11, 12
- b. 12, 13
- c. 13, 14
- d. 11, 13

QUESTION: 019 (1.00)

Given the following:

- Reactor power is at 100%.
- A transient has caused pressurizer level to DECREASE 14 inches below the programmed level.
- The Pressurizer Level Control System is in AUTOMATIC.
- The Charging Pump operational mode selector switch is in the 13 + 11 position.

WHICH ONE (1) of the following describes the response of the Pressurizer Level Control System?

- a. Charging pumps 11, 12, and 13 will be running and letdown flow will be isolated.
- b. ONLY the 13 charging pump will be running and letdown flow will be isolated.
- c. ONLY charging pumps 12 and 13 will be running with letdown flow at minimum.
- d. Charging pumps 11, 12 and 13 will be running with letdown flow at minimum.

QUESTION: 020 (1.00)

Given the following:

- Reactor power has been at 70% for 24 hours.
- The Pressurizer Level Control system (PLCS) is in MANUAL due to a controller failure.
- Repairs have been completed and the PLCS is being returned to AUTOMATIC control.
- Assume Tav<sub>g</sub> is on program for the current conditions.
- Pressurizer setpoint vs RCS temp figure is attached.

WHICH ONE (1) of the following program level setpoints should be the Pressurizer automatic level control signal setpoint for a bumpless transfer?

- a. 190 inches
- b. 194 inches
- c. 198 inches
- d. 205 inches

QUESTION: 021 (1.00)

WHICH ONE (1) of the following conditions will result in an INCREASE of the Thermal Margin/Low Pressure (TM/LP) trip setpoint? The plant is at 100% power.

- a. ASI changes from 0.0 to -0.1.
- b. Tcold loop 11 fails LOW.
- c. RCS pressure increases 25 psia.
- d. Delta-T power is reduced via the potentiometer.

QUESTION: 022 (1.00)

WHICH ONE (1) of the following would result from depressing ONE (1) of the two Manual Reactor Trip pushbuttons on panel 1C05?

- a. Trip Circuit Breakers 2 and 6 open and the reactor trips.
- b. Trip Circuit Breakers 2 and 3 open and the reactor trips.
- c. Trip Circuit Breakers 2 and 6 open but the reactor does NOT trip.
- d. Trip Circuit Breakers 2 and 3 open but the reactor does NOT trip.

QUESTION: 023 (1.00)

WHICH ONE (1) of the following MCCs can supply backup power to 1Y01 if its normal power supply is lost.

- a. MCC 104R
- b. MCC 114R
- c. MCC 204R
- d. MCC 214R



QUESTION: 024 (1.00)

Given the following:

- A LOCA has occurred.
- SIAS is being reset per procedure from the Control Room.
- Containment pressure is 2.0 psig.
- Pressurizer (PZR) pressure is 800 psia.

WHICH ONE (1) of the following sequence of actions is required to reset SIAS?

- a. Bypass the containment pressure SIAS signal and match the required hand switches.
- b. Locally reset the PZR pressure SIAS trips at the logic modules then match the required hand switches.
- c. Locally reset the Containment pressure SIAS trips at the logic modules and then depress both SIAS channel reset pushbuttons.
- d. Block the PZR pressure SIAS, match required hand switches, and then depress both SIAS channel reset pushbuttons.

QUESTION: 025 (1.00)

WHICH ONE (1) of the following CEA alarms is generated by Reed Switch Position Transmitters?

- a. PRIMARY POWER DEPENDENT INSERTION
- b. PRIMARY CEA POSITION DEVIATION
- c. DROPPED CEA
- d. CEA GROUP SEQUENCE

QUESTION: 026 (1.00)

WHICH ONE (1) of the following is an output from a Power Range Safety Channel?

- a. Actuates a DROPPED RCD NI alarm.
- b. Enables a high power trip signal at greater than 13% power.
- c. Disables ASI trip at greater than 13% reactor power.
- d. Enables a high rate trip signal at 13% power.

QUESTION: 027 (1.00)

WHICH ONE (1) of the following should be used as the PRIMARY power indication until the Linear Range Nuclear Instruments are adjusted after a power reduction?

- a. NI power.
- b. RPS Delta-T power.
- c. Generator electrical output.
- d. Plant computer indication.

QUESTION: 028 (1.00)

WHICH ONE (1) of the following is the MAXIMUM temperature at which a Core Exit Thermocouple (CET) output is valid?

- a. 708 degrees F.
- b. 1800 degrees F.
- c. 2300 degrees F.
- d. 3200 degrees F.

QUESTION: 029 (1.00)

Given the following:

- A LOCA has occurred inside containment resulting in a reactor trip and SIAS/CIS/CSAS actuation.
- All systems and components have performed as designed.

WHICH ONE (1) of the following is the speed and number of operating containment cooling fans?

- a. FAST speed - three (3) fans.
- b. SLOW speed - three (3) fans
- c. FAST speed - four (4) fans
- d. SLOW speed - four (4) fans

QUESTION: 030 (1.00)

WHICH ONE (1) of the following is the reason for maintaining Trisodium Phosphate (TSP) in containment?

- a. TSP washes iodine from containment walls during the recirculation phase of a LOCA.
- b. TSP prevents the sump pH from decreasing below 7.0 immediately after a LOCA.
- c. TSP minimizes the stress corrosion cracking of certain metallic components inside containment after a LOCA.
- d. TSP reduces the formation of hydrogen gas generation in the LOCA environment.

QUESTION: 031 (1.00)

WHICH ONE (1) of the following is the MAXIMUM hydrogen concentration allowed inside Containment before the Hydrogen Recombiners are required to be placed in service?

- a. 0.5%
- b. 2%
- c. 3%
- d. 4%

QUESTION: 032 (1.00)

WHICH ONE (1) of the following is the "LAST RESORT" for filling the Spent Fuel pool due to a low level?

- a. RWT
- b. Demineralized water
- c. Fire main system
- d. Service water system

QUESTION: 033 (1.00)

Given the following:

- Unit 1 has tripped from 100% power.
- Atmospheric Dump Valve (ADV) hand valves 3938A and 3939A are in position 2.
- ADV handvalves 3938B and 3939B have just been placed in Position 2.

WHICH ONE (1) of the following describes how the ADV controls are affected by the alignment?

- a. The ADDS are being controlled from the control room and there is NO quick open signal.
- b. The ADVs are being controlled from the control room and will respond to a quick open signal.
- c. The ADVs are being controlled from the remote shutdown panel and there is NO quick open signal.
- d. The ADVs are being controlled from the remote shutdown panel and will respond to a quick open signal.

QUESTION: 034 (1.00)

WHICH ONE (1) of the following describes Unit 1 Main Turbine operation when the Main Generator output breaker is CLOSED?

- a. Steam flow is controlled by the wobulator circuit to control turbine speed.
- b. Steam flow is controlled by the wobulator circuit to control generator load.
- c. Steam flow is controlled by the control valves to control turbine speed.
- d. Steam flow is controlled by the control valves to control generator load.

QUESTION: 035 (1.00)

Given the following:

- Two (2) Condensate pumps are in service.
- Two (2) Condensate Booster pumps are in service.
- All other plant systems are in their normal alignments for power operations.

WHICH ONE (1) of the following is the MAXIMUM recommended power level for this combination of condensate pumps?

- a. 25%
- b. 50%
- c. 70%
- d. 100%

QUESTION: 036 (1.00)

WHICH ONE (1) of the following is an input used in BOTH the high and low power modes for the Full Range Digital Feedwater Control System (FRDFCS)?

- a. Feedwater temperature
- b. Steam flow
- c. Steam generator level
- d. Feedwater flow

QUESTION: 037 (1.00)

WHICH ONE (1) of the following conditions will trip the 11 Steam Generator Feed Pump (SGFP) turbine? Assume any applicable time delays are met.

- a. Bearing oil pressure is 6 psig.
- b. Turbine speed is 5800 rpm.
- c. Loss of one lube oil pump.
- d. Suction pressure is 200 psig.

QUESTION: 038 (1.00)

Given the following:

- 12 CST volume is 150,000 gallons.
- RCS is in Hot Standby.
- A Loss of Offsite Power has occurred.
- Steam Generators are discharging steam to atmosphere to maintain RCS temperature.

WHICH ONE (1) of the following is the MAXIMUM length of time that CST 12 will be able to supply the AFW pumps?

- a. TWO (2) hours.
- b. FOUR (4) hours.
- c. SIX (6) hours.
- d. EIGHT (8) hours.

QUESTION: 039 (1.00)

Given the following:

- Unit 1 has tripped from 100% power.
- 11 SG pressure is stable at 815 psia.
- AFW is providing 150 gpm flow to 11 SG through both the turbine and motor driven pumps.
- A pipe has broken in the motor-driven train flowpath to 11 SG.
- The AFW 11 FLOW TO BREAK alarm is LIT.

WHICH ONE (1) of the following is the MAXIMUM pressure in the 11 AFW line?

- a. 640 psia
- b. 685 psia
- c. 740 psia
- d. 785 psia

QUESTION: 040 (1.00)

WHICH ONE (1) of the following prevents closing both of the 13 Component Cooling Water pump motor disconnects at the same time?

- a. The reset trip pushbutton.
- b. An electrical interlock relay.
- c. Procedural locked component administrative controls.
- d. A mechanical control switch key interlock.



QUESTION: 041 (1.00)

WHICH ONE (1) of the following is the MINIMUM length of time that the 125 VDC batteries are designed to supply vital AC and DC loads during a LOCA concurrent with a loss of AC power?

- a. Two (2) hours
- b. Four (4) hours
- c. Six (6) hours
- d. Eight (8) hours

QUESTION: 042 (1.00)

WHICH ONE (1) of the following describes the possible effect of closing the AC breaker on the reserve battery charger before the DC breaker is closed?

- a. Excessive current flow through the batteries.
- b. Damage to the charger rectifier stack or anode fuses.
- c. The high voltage shutdown relay can be damaged.
- d. Ignition of the hydrogen generated during battery charging.

QUESTION: 043 (1.00)

WHICH ONE (1) of the following will cause an Emergency Diesel Generator (EDG) to be inoperable?

- a. Voltage regulator is in AUTO.
- b. Jacket cooling water temperature is 120 degrees F.
- c. Service water control valve manual handwheel is engaged.
- d. EDG room ventilation system is in operation.

QUESTION: 044 (1.00)

Given the following:

- Both units were operating at 100% power when a Reactor Trip and SIAS occurred on Unit 1.
- Concurrent with this a Reactor Trip and Loss of the 24 Bus occurs on Unit 2.
- All electrical systems are in their normal alignments.

WHICH ONE (1) of the following describes the resulting Diesel Generator (DG)/4Kv Bus alignment?

DG 11 -----	DG 12 -----	DG 21 -----
a. Running Unloaded	Supplying Bus 21	Supplying Bus 24
b. Running Unloaded	Running Unloaded	Supplying Bus 24
c. Supplying Bus 11	Supplying Bus 14	Supplying Bus 21
d. Supplying Bus 11	Supplying Bus 21	Supplying Bus 24

QUESTION: 045 (1.00)

Given the following:

- OI-17C, "RC Waste Processing System," is being used to perform a liquid waste discharge.
- Chemistry has requested that the liquid waste discharge radiation monitor (RE-2201) be flushed with demineralized water prior to discharging the 11 RCW Monitor tank (RCWMT) to the Circulating water system.

To WHICH ONE (1) of the following locations is the flush water discharged?

- a. RCWMT 11.
- b. RCWMT 12.
- c. Waste evaporators.
- d. Miscellaneous waste receiver tank.

QUESTION: 046 (1.00)

WHICH ONE (1) of the following bypasses the Waste Gas Surge Tank and releases directly through a radiation monitor to the plant vent?

- a. VCT gas supply relief valve.
- b. 11 and 21 degasifier relief valves.
- c. Charging pump seal and flush system.
- d. Coolant waste evaporators.

QUESTION: 047 (1.00)

Given the following:

- A red light is LIT for an area radiation alarm on panel 1C22H, Process and Area Rad Monitor Status Panel.

WHICH ONE (1) of the following is the status of the monitor associated with the area radiation alarm.

- a. It has reached the TRIP 1 setpoint.
- b. It has reached the TRIP 2 setpoint.
- c. The OPERATOR SELECTOR SWITCH is in the OPERATE position.
- d. The input to the master alarm window is bypassed.

QUESTION: 048 (1.00)

Given the following:

- Containment Radiation Signal (CRS) for channel ZD is tripped.

WHICH ONE (1) of the following occurs when an internal fault causes the radiation monitor for CRS channel ZF to fail HIGH?

- a. Containment purge air sampling valves (RE-5291, 5292) close.
- b. Containment atmosphere sample valve (RE-5277) closes.
- c. Containment Air Coolers and Iodine filter units start.
- d. Containment air supply and exhaust fans stop and supply and exhaust isolation valves (CV-1410,11,12,13) close.

QUESTION: 049 (1.00)

WHICH ONE (1) of the following components is cooled by Service Water?

- a. Containment high energy pipeline penetration coolers.
- b. Containment air coolers.
- c. Containment cavity and CEDM coolers.
- d. ECCS pump room coolers.

QUESTION: 050 (1.00)

WHICH ONE (1) of the following is the fire protection provided for the Emergency Diesel Generator rooms?

- a. Halon
- b. Carbon Dioxide
- c. Water
- d. Foam

QUESTION: 051 (1.00)

Given the following:

- Fire header pressure is 92 psig with all system controls in AUTOMATIC.

WHICH ONE (1) of the following describes the Fire Protection system pump(s) expected to be running at this pressure?

- a. ONLY the jockey pump.
- b. ONLY the electric driven pump.
- c. The jockey pump, the electric driven pump and the diesel driven pump.
- d. BOTH the jockey pump and the electric pump.

QUESTION: 052 (1.00)

Given the following:

- A Unit 1 startup is in progress.
- CEAs are in MANUAL SEQUENTIAL.
- GROUP 3 CEAs were withdrawn from 50 to 60 inches.
- At 60 inches the operator returned the CEA control switch to the neutral position, but the GROUP 3 CEAs continued stepping out.

WHICH ONE (1) of the following actions is required to be performed FIRST per AOP-1B, "CEA Malfunction?"

- a. Trip the reactor and go to EOP-0, "Post Trip Immediate Actions."
- b. Initiate immediate boration per OI-02B, "CVCS Boration Operations."
- c. Attempt to stop CEA motion by placing CEDS control system in the OFF position.
- d. Hold the CEA manual control switch in the INSERT position and check for continued CEA motion.

QUESTION: 053 (1.00)

Given the following:

- Unit 2 power has DECREASED from 90% to 80%.
- CEAs #34 and #36 have slipped to 100 inches.
- All other Group 5 CEAs are at 135 inches.

WHICH ONE (1) of the following operator actions should be performed per AOP-1B, "CEA Malfunction?"

- a. Determine RCS Boron concentration is greater than that indicated in NEOP-23, Technical Data Book, "Shutdown Boron Concentration."
- b. MANUALLY trip the Reactor and implement EOP-0, "Post Trip Immediate Actions."
- c. Initiate boration to maintain Tcold on programmed value while withdrawing CEAs #34 and #36.
- d. Return reactor power to 90% by withdrawing CEAs #34 and #36.

QUESTION: 054 (1.00)

Given the following:

- Following a Unit 1 trip, three (3) CEAs did NOT fully insert.
- Boration has commenced per the alternate actions of EOP-0, "Post Trip Immediate Actions".
- RCS boron concentration is 600 ppm.

WHICH ONE (1) of the following is the MINIMUM amount that the RCS must be borated to?

- a. 800 ppm
- b. 1200 ppm
- c. 1800 ppm
- d. 2300 ppm

QUESTION: 055 (1.00)

Given the following:

- Unit 2 tripped from 100% power.
- EOP-0, "Post Trip Immediate Actions," are being performed.
- The Main Turbine did NOT trip as expected.

WHICH ONE (1) of the following actions should be performed per EOP-0, "Post Trip Immediate Actions," to trip/stop the turbine?

- a. Manually close both MSIVs.
- b. Manually open the Generator output breakers.
- c. Manually trip the Generator exciter field breaker.
- d. Locally trip the Turbine from the front standard.

QUESTION: 056 (1.00)

WHICH ONE (1) of the following parameters discriminates between a Pressurizer vapor space and a non-vapor space LOCA?

- a. RVLMS level.
- b. Quench tank pressure.
- c. Pressurizer pressure.
- d. Pressurizer level.

QUESTION: 057 (1.00)

Given the following:

- A LOCA has occurred on Unit 1.
- RCS pressure is 1000 psia.
- Containment pressure is 4.5 psig.

WHICH ONE (1) of the following prevents an operator from throttling HPSI flow?

- a. 11 SG level is 15 inches and increasing slowly.
- b. Pressurizer level is 110 inches and increasing.
- c. RCS Subcooling is 35 degrees F.
- d. RVLMS indicates 112 inches.



QUESTION: 058 (1.00)

Given the following:

- Unit 1 has tripped from 100% power and the CRS has diagnosed a LOCA and entered EOP-5, "Loss Of Coolant Accident."
- Pressurizer pressure is 1500 psia.
- RCS Tcold is 540 degrees F.
- Containment Pressure is 3.2 psig
- All automatic safety systems have actuated as designed.

WHICH ONE (1) of the following is the required operator action concerning the RCP trip strategy based on these conditions?

- a. Do not trip any RCPs.
- b. Trip ALL RCPs.
- c. Trip RCPs 11B and 12A.
- d. Trip RCPs 11A and 12B.

QUESTION: 059 (1.00)

WHICH ONE (1) of the following is the reason that a core flush is NOT established before eight (8) hours following a loss of coolant accident (LOCA)?

- a. Boron precipitation is not a problem before eight (8) hours due to the large steam flow through the break.
- b. To avoid possible entrainment of SI flow in the Hot Leg due to steam flow that is substantial before eight (8) hours.
- c. Maximum Cold Leg flow is needed to cool the core due to the high amount of decay heat before eight (8) hours.
- d. To allow time for vessel head cooling to prevent the possibility of void formation in the vessel head which would reduce core cooling.

QUESTION: 060 (1.00)

Given the following:

- Unit 1 is operating at 100% power.
- Total Component Cooling Water (CCW) flow is 220 gpm to RCP 11A.
- RCP 11A upper seal inlet pressure is 50 psia.
- RCP 11A middle seal inlet pressure is 1325 psia.
- RCP 11A lower seal temperature is 95 degrees F.
- RCP 11A controlled bleed off temperature is 115 degrees F.
- RCS pressure is 2250 psia.

WHICH ONE (1) of the following is the condition of RCP 11A?

- a. Low CCW flow exists.
- b. Controlled bleed off temperature is high.
- c. Middle seal failure has occurred.
- d. Upper seal failure has occurred.

QUESTION: 061 (1.00)

Given the following:

- The plant has been shutdown for three (3) days following 100 days of operating at 100% power.
- The RCS temperature is 150 degrees F.
- The RCS is drained to the bottom of the hot leg.
- A total loss of Shutdown Cooling (SDC) occurs.
- No core cooling is re-established.

WHICH ONE (1) of the following is the SHORTEST time expected for the RCS to reach saturation?

- a. 15 minutes
- b. 45 minutes
- c. 120 minutes
- d. 180 minutes

QUESTION: 062 (1.00)

Given the following:

- Unit 1 is operating at 100% power.
- Alarm 1C13, CC PP(S) DISCH PRESS LO, has actuated.

WHICH ONE (1) of the following RCP conditions requires the operator to trip both the reactor and the reactor coolant pump?

- a. Upper thrust bearing temperature is 197 degrees F.
- b. Controlled bleed off flow is 2.0 gpm.
- c. Guide Bearing temperature is 193 degrees F.
- d. Component cooling water outlet temperature at the RCP is 135 degrees F.

QUESTION: 063 (1.00)

Given the following:

- Unit 1 is operating at 100% power.
- A failure of the selected Pressurizer pressure controller caused pressure to decrease to 2220 psia.
- The selected Pressurizer pressure controller (PIC-100X) has been placed in MANUAL.

WHICH ONE (1) of the following describes the action required to increase the heat output of the proportional heaters to return pressure to 2250 psia?

- a. Increase the controller output.
- b. Decrease the controller output.
- c. Increase the pressure setpoint adjustment.
- d. Decrease the pressure setpoint adjustment.

QUESTION: 064 (1.00)

Given the following:

- Unit 1 is in MODE 4.
- RCS Pressure is 325 psia and temperature is 355 degrees F.
- PORV block valve RC-403 is open.
- PORV block valve RC-405 is closed
- PORV 402 MPT protection handswitch 1406 is in MPT enable.
- PORV 404 MPT protection handswitch 1408 is in Normal.
- PORV 402 OVERRIDE is in AUTO.
- PORV 404 OVERRIDE is in AUTO.

WHICH ONE (1) of the following describes MPT operation when PZR low range transmitter PT-103-1 fails HIGH?

- a. ERV-402 is enabled and opens.
- b. ERV-404 is enabled and opens.
- c. ERV-402 is enabled and does not open.
- d. ERV-404 is enabled and does not open.

QUESTION: 065 (1.00)

Given the following:

- The plant is operating at 100% power.
- Pressurizer level control channel "X" is selected.

WHICH ONE (1) of the following indicates the plant response when the output signal from Loop 11 Hot Leg control channel (TE-111-X) fails LOW.

	LETDOWN FLOW -----	B/U HEATERS -----	B/U CHARGING PUMP -----
a.	Increases	Deenergize	Starts
b.	Increases	Energize	Stops
c.	Decreases	Deenergize	Starts
d.	Decreases	Energize	Stops

QUESTION: 066 (1.00)

Given the following:

- A reactor startup is in progress on Unit 1.
- The reactor is critical.
- Panel 1C05 alarm D-33, SHUTDOWN MONITOR HI, is received.

WHICH ONE (1) of the following actions should be taken?

- a. Secure the Shutdown monitor by unplugging the output jack.
- b. Terminate the startup and implement AOP-1A, "Inadvertent Boron Dilution."
- c. Trip the reactor and implement EOP-0, "Post Trip Immediate Actions."
- d. Reset both the Shutdown Monitor alarm setpoint and alarm reset buttons.

QUESTION: 067 (1.00)

WHICH ONE (1) of the following nuclear instrumentation channels is affected when power has been lost to 120 VAC bus 2Y02?

- a. 1C15 channel D Wide Range.
- b. 1C15 channel B Linear Range.
- c. 2C43 channel A aux excore wide range.
- d. 1C43 channel A aux excore wide range.

QUESTION: 068 (1.00)

Given the following:

- Unit 1 is being shutdown due to a steam generator tube leak.

WHICH ONE (1) of the following indicates the MINIMUM conditions necessary for a reactor trip and entry into EOP-0, "Post Trip Immediate Actions?"

- a. When all available charging pumps are running and letdown has reached minimum flow.
- b. When all available charging pumps are running, letdown has been isolated, and pressurizer level can no longer be maintained above 101 inches.
- c. When letdown flow combined with the tube rupture flow exceeds 132 GPM with three (3) charging pumps running.
- d. When charging flow reaches 132 GPM.

QUESTION: 069 (1.00)

WHICH ONE (1) of the following criteria is used to determine which steam generator is to be isolated if BOTH are diagnosed with tube ruptures?

- a. The steam generator with the highest radiation levels.
- b. The steam generator with the lowest steam pressure.
- c. The steam generator with the highest feedwater flow.
- d. The steam generator with the lowest water level.

QUESTION: 070 (1.00)

Given the following:

- An Excessive Steam Demand Event (ESDE) event has occurred and BOTH steam generators are affected.

WHICH ONE (1) of the following parameters should be used to determine the steam generator to be isolated?

- a. The steam generator with the highest Tcold.
- b. The steam generator with the lowest steam pressure.
- c. The steam generator with the lowest <sup>AFW</sup>~~AFW~~ flow.
- d. The steam generator with the highest level.

QUESTION: 071 (1.00)

Given the following:

- A steam line break exists upstream of the 12 Steam Generator MSIV.
- SGIS has automatically actuated.

WHICH ONE (1) of the following conditions could result if a steaming flowpath from the unaffected steam generator is NOT established immediately following dryout of the affected steam generator?

- a. A rapid increase in T-cold of the unaffected loop resulting in an interruption in natural circulation.
- b. An increase in core exit temperatures resulting in an interruption of natural circulation.
- c. Inability to open the 12 S/G MSIV due to pressure difference created when the affected steam generator reaches dryout conditions.
- d. Rapid repressurization of the RCS and subsequent pressurized thermal shock (PTS) conditions.

QUESTION: 072 (1.00)

Given the following:

- Unit 1 Condenser vacuum is 27.5 inches Hg and has been slowly decreasing for 10 minutes.
- Reactor power is 35% and is lowered in accordance with AOP 7G, but is maintained above 270 MWe.

WHICH ONE (1) of the following is the condenser vacuum at which a Reactor/Turbine trip will FIRST be initiated per AOP-7G, "Loss of Condenser Vacuum?"

- a. 20 inches Hg.
- b. 22.5 inches Hg.
- c. 25 inches Hg.
- d. 26 inches Hg.

QUESTION: 073 (1.00)

Given the following:

- Unit 1 has tripped from 100% power and ALL feedwater is lost.
- Once through core cooling is in progress
- The 12 turbine driven AFW pump can be returned to service.
- The decision has been made to restore S/G feed.
- 11 S/G level is (-) 380 inches.
- 12 S/G level is (-) 395 inches.

WHICH ONE (1) of the following is the correct method for re-establishing feedwater flow to the steam generators?

- a. Initiate feedwater to the 11 and 12 S/Gs at 300 gpm each for the first five (5) minutes.
- b. Initiate feedwater to the 11 and 12 S/Gs at 150 gpm each for the first five (5) minutes.
- c. Initiate feedwater to the 12 S/G at 150 gpm for the first five (5) minutes.
- d. Initiate feedwater to the 11 S/G at of 150 gpm for the first five (5) minutes.



QUESTION: 074 (1.00)

Given the following:

- Unit 1 has tripped from 100% power and ALL feedwater is lost.
- Operators are performing EOP-3, "Loss of All Feedwater," and are tripping all reactor coolant pumps (RCPs).

WHICH ONE (1) of the following is the reason for tripping the RCPs?

- a. To reduce Reactor Coolant System pressure.
- b. To reduce steam flow from the steam generators.
- c. To minimize heat input into the reactor coolant system.
- d. To reduce tube to shell delta pressure in the steam generators.

QUESTION: 075 (1.00)

WHICH ONE (1) of the following methods is used to establish an RCS heat sink following a total loss of all AC power (Station Blackout)?

- a. Automatically by the Steam Bypass valves.
- b. Automatically by the Atmospheric Dump valves.
- c. Local manual operation of the Steam Bypass valves.
- d. Local manual operation of the Atmospheric Dump valves.

QUESTION: 076 (1.00)

Given the following:

- Unit 2 has tripped due to a loss of offsite power.
- Power has been restored per EOP-2, "Loss of Offsite Power."
- Preparations are being made to restart the 21 Reactor Coolant Pump (RCP).
- RCS subcooling and RCP minimum operating limits are met.

WHICH ONE (1) of the following is the MINIMUM criteria/conditions that satisfy the RCP restart requirements?

- a. PZR level is 175 inches and increasing.  
Tcold is 535 degrees F.  
RCP Controlled bleed-off temperature is 210 degrees F.  
Two steam generators are available for heat removal.
- b. PZR level is stable at 150 inches.  
Tcold is 522 degrees F.  
RCP Controlled bleed-off temperature is 190 degrees F.  
One steam generator is available for heat removal.
- c. PZR level is 150 inches and increasing.  
Tcold is 535 degrees F.  
RCP Controlled bleed-off temperature is 210 degrees F.  
Two steam generators are available for heat removal.
- d. PZR level is stable at 175 inches.  
Tcold is 522 degrees F.  
RCP Controlled bleed-off temperature is 190 degrees F.  
One steam generator is available for heat removal.

QUESTION: 077 (1.00)

Given the following:

- Unit 1 120VAC bus 1Y01 has been lost.
- Operators are being directed per AOP-7J, "Loss of 120 Vital AC Power," to shut Letdown Isolation Valves (CVC-515, 516).

WHICH ONE (1) of the following is the reason for closing these valves?

- a. They have no control indication available and placing them in the shut position is a conservative action.
- b. They will eventually lose control air because instrument air to containment is lost.
- c. To isolate any potential leakage flowpath while power is lost.
- d. To minimize transients on the loop charging inlet nozzles when power is restored.

QUESTION: 078 (1.00)

Given the following:

- Unit 2 is operating at 100% power.
- 11 125VDC bus has been lost.

WHICH ONE (1) of the following describes the impact on the plant?

- a. Unit 1 annunciation will be lost.
- b. RCP 21A and 22A will have to be tripped locally.
- c. Unit 2 main turbine will have to be tripped locally.
- d. RPS Channel C will lose indication.

QUESTION: 079 (1.00)

Given the following:

- A discharge of the Miscellaneous Waste Monitor Tank is in progress.

WHICH (1) ONE of the following conditions requires entry into AOP-6B, "Accidental Liquid Waste Release?"

- a. A Circulating Water Pump on the unit receiving the discharge trips.
- b. Liquid waste discharge valves (0-MWS-2201-CV and 0-MWS-2202-CV) fail to close due to a high liquid waste discharge alarm.
- c. Discharge activity exceeds the computer alarm setpoint.
- d. Discharge flow integrator is reset during the release.

QUESTION: 080 (1.00)

Given the following:

- The Unit 1 Main Steam Line Monitor Green "Safe-Reset" light is LIT.

WHICH ONE (1) of the following conditions/actions will cause the light to go out?

- a. The monitor is placed in the "Channel Test" position.
- b. An "Alert" alarm is received.
- c. The "High" alarm is pushed to check monitor setpoint.
- d. A circuit fault is detected by the fail safe circuit.

QUESTION: 081 (1.00)

Given the following:

- Unit 2 is operating at 100% power.

WHICH ONE (1) of the following is an indication that a reactor trip is required due to a loss of Instrument Air?

- a. Plant air to Instrument Air header cross connect valve PA-2061-CV has OPENED.
- b. Feedwater regulating valves have gone to their failed position.
- c. The Plant Air header isolation valve PA-2059-CV has SHUT.
- d. The Containment Instrument Air supply valve IA-2085-CV has SHUT.

QUESTION: 082 (1.00)

Given the following:

- A fire has occurred in the cable spreading room.

WHICH ONE (1) of the following reagents is used to extinguish the fire?

- a. Foam.
- b. Dry powder extinguisher.
- c. Halon.
- d. Water fog/spray.

QUESTION: 083 (1.00)

Given the following:

- A fire has occurred in the Control Room.
- The Shift Supervisor has ordered the control room evacuated.
- The reactor was tripped before leaving the control room.
- The main turbine did NOT trip from the control room.

WHICH ONE (1) of the following individuals is responsible for locally tripping the main turbine?

- a. The Reactor Operator (RO).
- b. The Control Room Operator (CRO).
- c. The Control Room Supervisor (CRS).
- d. The Turbine Building Operator (TBO).

QUESTION: 084 (1.00)

WHICH ONE (1) of the following is controlled from the Safe Shutdown panel (1C43)?

- a. Main steam isolation valves.
- b. Reactor coolant pumps 11B and 12B.
- c. 12 Auxiliary feedwater pump speed.
- d. Pressurizer proportional heaters 11 and 12.

QUESTION: 085 (1.00)

WHICH ONE (1) of the following conditions represents a loss of containment integrity per AOP-4A, "Loss of Containment Integrity?"

- a. One (1) of two (2) normally open redundant containment isolation valves fails CLOSED.
- b. An electrician opens the outer containment airlock to perform maintenance activities on the closed INOPERABLE inner containment door gasket.
- c. Prior to startup, a blind flange is installed to replace a containment isolation valve that failed to pass a surveillance test.
- d. While in MODE 6, the equipment hatch is closed but held in place by ONLY four (4) bolts.

QUESTION: 086 (1.00)

WHICH ONE (1) of the following safety functions has the HIGHEST priority and is required to be addressed FIRST when implementing EOP-8, "Functional Recovery Procedure?"

- a. Vital Auxiliaries
- b. RCS Pressure and Inventory Control
- c. Reactivity Control
- d. RCS and Core Heat Removal

QUESTION: 087 (1.00)

Given the following:

- Specific activity of the reactor coolant has exceeded 1.0 microcurie/gram DOSE EQUIVALENT I-131 for more than 100 hours in a continuous time interval.

WHICH ONE (1) of the following is the reason for the requirement to cooldown to below 500 degrees F. within six (6) hours?

- a. Reduces the amount of release, assuming a steam generator tube simultaneously ruptures.
- b. Increases reliability of the data collected for actual iodine determination.
- c. Minimizes the iodine spiking phenomena which occurs due to the large change in THERMAL POWER level caused by the plant shutdown.
- d. Increases coolant density sufficiently to enable self shielding thereby reducing on-site exposure.

QUESTION: 088 (1.00)

WHICH ONE (1) of the following methods should be used to touch equipment when checking for excessive temperature or vibration?

- a. Use your wrist.
- b. Use the tips of your fingers.
- c. Use the back of your hand.
- d. Use the palm of your hand.



QUESTION: 089 (1.00)

WHICH ONE (1) of the following is the LATEST time allowed to report to the NRC an upgrade in classification from an SITE AREA EMERGENCY to a GENERAL EMERGENCY which occurred at 1300?

- a. 1315
- b. 1330
- c. 1345
- d. 1400

QUESTION: 090 (1.00)

WHICH ONE (1) of the following defines the term "success path" as it applies to EOP-8, "Functional Recovery Procedure?"

- a. A course of action based on plant conditions which leads to the diagnosis of a single event.
- b. A course of action based on plant conditions used to address a safety function.
- c. A listing of components/methods available to fulfill each safety function.
- d. A method of evaluating the criteria used to determine function status.

QUESTION: 091 (1.00)

Given the following:

- A twenty five (25) year old Maintenance Contractor with complete exposure records has the following exposure record for the current calendar year:
  - Shallow Dose Equivalent - 2.55 REM
  - Committed Dose Equivalent - 0.75 REM
  - Deep Dose Equivalent - 2.13 REM
  - Lens Dose Equivalent - 3.08 REM
  - Committed Effective Dose Equivalent - 1.95 REM

WHICH ONE (1) of the following is this individuals Total Effective Dose Equivalent (TEDE) for the current calendar year?

- a. 2.88 REM
- b. 3.21 REM
- c. 4.08 REM
- d. 5.43 REM

QUESTION: 092 (1.00)

WHICH ONE (1) of the following evolutions requires the continuous use of a procedure by a qualified watchstander?

- a. Starting a Reactor Coolant Pump.
- b. Transfer between control modes of S/G Main Feedwater Regulating valve.
- c. Shifting switchgear room cooling fans.
- d. Adding hydrogen to the VCT.

QUESTION: 093 (1.00)

WHICH ONE (1) of the following defines how continuously monitored action steps are identified when using Emergency Operating Procedures?

- a. EOP placekeeper steps have an asterisk.
- b. EOP placekeeper steps have the letter "C".
- c. EOP procedural steps contain a bullet identification.
- d. EOP procedural steps are in bold letters.

QUESTION: 094 (1.00)

WHICH ONE (1) of the following defines the MINIMUM parameters for a high energy system that requires double valve isolation when preparing a clearance?

	Temperature (degrees F)	Pressure (psig)
a.	150	250
b.	175	450
c.	195	450
d.	225	500

QUESTION: 095 (1.00)

WHICH ONE (1) of the following tag colors identifies a "locked throttled" valve?

- a. yellow
- b. red
- c. green
- d. orange

QUESTION: 096 (1.00)

WHICH ONE (1) of the following is the MINIMUM required frequency for ensuring Control Room strip chart recorders are operating properly?

- a. Hourly.
- b. Once each shift.
- c. Twice a shift.
- d. Only during the Day shift.

QUESTION: 097 (1.00)

WHICH ONE (1) of the following identifies the reason why a magenta dot is attached to an annunciator window in the Control Room?

- a. It is a nuisance alarm.
- b. The alarm is part of or caused by a tag out.
- c. The alarm has been removed from service for a Maintenance Order.
- d. The alarm has multiple inputs, one of which may be removed from service while the annunciator remains in service.

QUESTION: 098 (1.00)

WHICH ONE (1) of the following locations requires radio transmitters to be turned off prior to entering?

- a. Switch gear rooms on the 45 foot level.
- b. Cable spreading rooms.
- c. Auxiliary Building West Penetration room on the 27 foot level.
- d. Letdown heat exchanger room.

QUESTION: 099 (1.00)

Given the following:

- Unit 1 is operating at 100% power.
- All positions are fully staffed per the requirements of NO-1-200, "Control of Shift Activities."

WHICH ONE (1) of the following individuals by title is responsible for assuming the duties of Interim Site Emergency Coordinator (SEC)?

- a. Control Room Supervisor
- b. Shift Supervisor
- c. Plant Watch Supervisor
- d. Assistant Shift Supervisor

QUESTION: 100 (1.00)

WHICH ONE (1) of the following is the required radiological posting for an area in which a person could receive a radiation dose of 100 mrem in an hour?

- a. Radiation area.
- b. High radiation area.
- c. Exclusion area.
- d. Very high radiation area.

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

### 3/4.1 REACTIVITY CONTROL SYSTEMS

#### 3/4.1.3 MOVABLE CONTROL ASSEMBLIES

##### Regulating CEA Insertion Limits

#### LIMITING CONDITION FOR OPERATION

3.1.3.6 The regulating CEA groups shall be limited to the withdrawal sequence and to the insertion limits provided in the COLR (regulating CEAs are considered to be fully withdrawn when withdrawn to at least 129.0 inches) with CEA insertion between the Long Term Steady State Insertion Limits and the Transient Insertion Limits restricted to:

- a.  $\leq$  4 hours per 24 hour interval,
- b.  $\leq$  5 Effective Full Power Days per 30 Effective Full Power Day interval, and
- c.  $\leq$  14 Effective Full Power Days per calendar year.

APPLICABILITY: MODES 1\* and 2 with  $K_{eff} \geq 1.0^*$ .

#### ACTION:

- a. With the regulating CEA groups inserted beyond the Transient Insertion Limits, except for surveillance testing pursuant to Specification 4.1:3.1.2, within two hours either:
  1. Restore the regulating CEA groups to within the limits, or
  2. Reduce THERMAL POWER to less than or equal to that fraction of RATED THERMAL POWER which is allowed by the CEA group position using the limits provided in the COLR.
- b. With the regulating CEA groups inserted between the Long Term Steady State Insertion Limits and the Transient Insertion Limits for intervals  $>$  4 hours per 24 hour interval, except during operations pursuant to the provisions of ACTION items c. and e. of Specification 3.1.3.1, operation may proceed provided either:
  1. The Short Term Steady State Insertion Limits provided in the COLR are not exceeded, or
  2. Any subsequent increase in THERMAL POWER is restricted to  $\leq$  5% of RATED THERMAL POWER per hour.

\* See Special Test Exceptions 3.10.2 and 3.10.4.

### 3/4.1 REACTIVITY CONTROL SYSTEMS

#### LIMITING CONDITION FOR OPERATION (Continued)

- c. With the regulating CEA groups inserted between the Long Term Steady State Insertion Limits and the Transient Insertion Limits for intervals > 5 EFPD per 30 EFPD interval or > 14 EFPD per calendar year, except during operations pursuant to the provisions of **ACTION** items c. and e. of Specification 3.1.3.1, either:
1. Restore the regulating groups to within the Long Term Steady State Insertion Limits within two hours, or
  2. Be in at least **HOT STANDBY** within 6 hours.

#### SURVEILLANCE REQUIREMENTS

4.1.3.6 The position of each regulating CEA group shall be determined to be within the Transient Insertion Limits at least once per 12 hours except during time intervals when the PDIL Alarm Circuit is inoperable, then verify the individual CEA positions at least once per 4 hours. The accumulated times during which the regulating CEA groups are inserted beyond the Steady State Insertion Limits but within the Transient Insertion Limits shall be determined at least once per 24 hours.

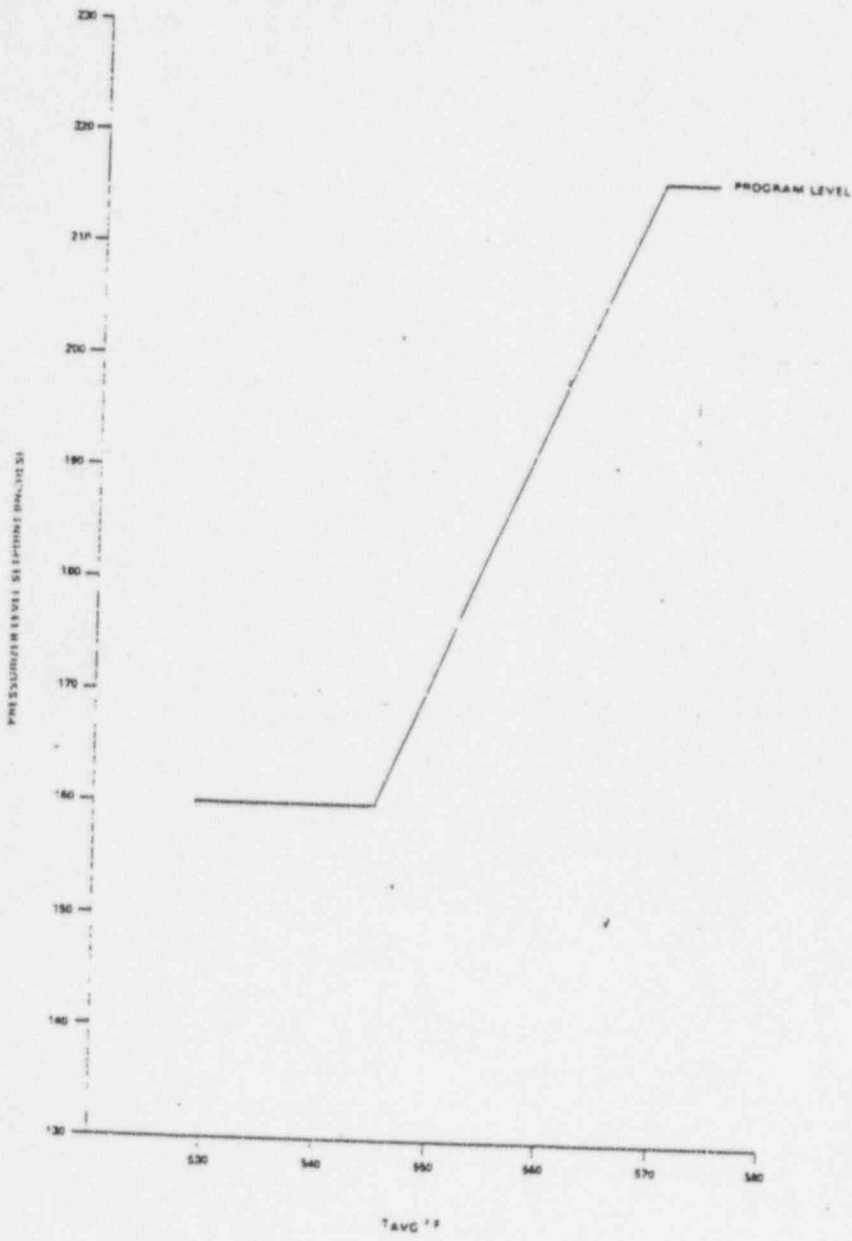


FIGURE 62-5  
 PRESSURIZER LEVEL SETPOINT AS A  
 FUNCTION OF REACTOR COOLANT  
 TEMPERATURE

Rev. 1, June 1984



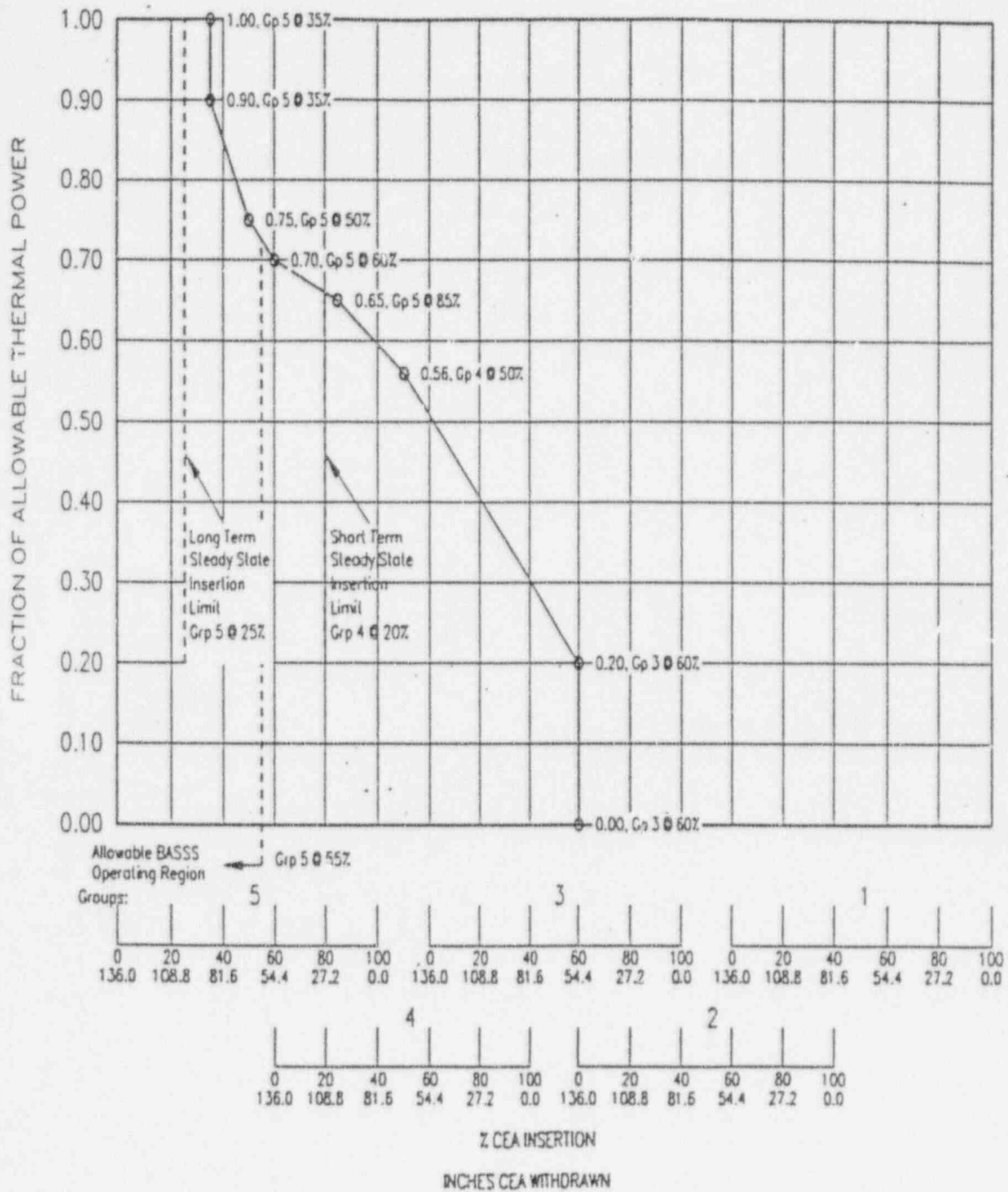


Figure 3.1.3-2  
CEA Group Insertion Limits vs. Fraction of Rated Thermal Power

ANSWER: 001 (1.00)

b. [+1.0]

REFERENCE:

LP#CRO-60-1-9, p. 43, LO 6 & 27.1  
KA 001000K407 (3.7/3.8)

001000K407 ..(KA's)

ANSWER: 002 (1.00)

c. [+1.0]

REFERENCE:

Technical Specification 3.1.3.6.b.2, p. 3/4 1-32.  
LP#CRO-60-1-9, LO 19.7  
KA 001000G005 (3.7/4.1)

001000G005 ..(KA's)

ANSWER: 003 (1.00)

a. [+1.0]

REFERENCE:

LP#CRO-60-1-9, LO 10.17  
KA 001000K105 (4.5/4.4)

001000K105 ..(KA's)

ANSWER: 004 (1.00)

b. [+1.0]

## REFERENCE:

LP#CRO-5-2-6, p. 12, LO 10  
OP-1, p. 11.  
KA 002000A103 (3.7/3.8)  
002000A103 .. (KA's)

ANSWER: 005 (1.00)

d. [+1.0]

## REFERENCE:

LP#CRO-62-1-6, 26. LO 10.  
KA 002000A408 (3.4/3.7)  
002000A408 .. (KA's)

ANSWER: 006 (1.00)

c. [+1.0]

## REFERENCE:

LP#CRO-106-1-6, p. 14.  
LP#CRO-5-2-4.SIM, LO 8  
KA 003000A107 (3.4/3.4)

003000A107 .. (KA's)

ANSWER: 007 (1.00)

d. [+1.0]

## REFERENCE:

LP#CRO-106-1-6, p. 11, LO 7.  
KA 003000A405 (3.1/3.0)

003000A405 .. (KA's)

ANSWER: 008 (1.00)

a. [+1.0]

REFERENCE:

Facility rewrite: System Engineering says for d. 460 psia sp provides 50 psi subcooling.

KA 004020K612 (2.9/3.1)

004020K612 ..(KA's)

ANSWER: 009 (1.00)

c. [+1.0]

REFERENCE:

LP#CRO-107-1-5, p. 36, LO 2.14

KA 004010A205 (4.1/4.3)

004010A205 ..(KA's)

ANSWER: 010 (1.00)

d. [+1.0]

REFERENCE:

LP#CRO-107-1-5, p. 13-14, LO 2.1.3

KA 004010K403 (3.1/3.6)

004010K403 ..(KA's)

ANSWER: 011 (1.00)

b. [+1.0]

REFERENCE:

OI-3B, p. 14.  
LP#CRO-7-1-7, LO 16.1  
KA 005000G010 (3.3/3.5)

005000G010 .. (KA'S)

ANSWER: 012 (1.00)

d. [+1.0]

REFERENCE:

EOP-ATT-1, Attachment 2.  
LP#CRO-7-1-7, LO 30.  
KA 006000A402 (4.0/3.8)

006000A402 .. (KA'S)

ANSWER: 013 (1.00)

a. [+1.0]

REFERENCE:

LP#CRO-7-1-7, p. 40  
KA 006020K404 (3.8/4.2)

006020K404 .. (KA'S)

ANSWER: 014 (1.00)

a. [+1.0]

## REFERENCE:

LP#CRO-5-2-6, LO 15.

SD-5, p. 26-27.

KA 007000A301 (2.7/2.9)

007000A301 ..(KA's)

ANSWER: 015 (1.00)

a. [+1.0]

## REFERENCE:

LP#CRO-113-5-7, LO 2 and 8.

KA 008000K104 (3.3/3.3)

008000K104 ..(KA's)

ANSWER: 016 (1.00)

a. [+1.0]

## REFERENCE:

LP#CRO-113-5-7, LO 5.

SD-40, p. 62-63

KA 008000K401 (3.1/3.3)

008000K401 ..(KA's)

ANSWER: 017 (1.00)

a. [+1.0]

## REFERENCE:

OP-1, p. 43.  
LP#CRO-5-2-4-SIM, p. 4, LO 2  
KA 010000A101 (2.8/2.9)

010000A101 ..(KA's)

ANSWER: 018 (1.00)

d. [+1.0]

## REFERENCE:

SD-62, p. 67  
LP#CRO-5-2-6, LO 14.  
KA 010000K201 (3.0/3.4)

010000K201 ..(KA's)

ANSWER: 019 (1.00)

d. [+1.0]

## REFERENCE:

LP#CRO-107-1-5, p. 41-42, LO 2.1.5  
KA 011000K101 (3.6/3.9)

011000K101 ..(KA's)

ANSWER: 020 (1.00)

b. [+1.0]

## REFERENCE:

SD-58, p. 12-13.  
LP#CRO-58-1-7, LO 4.1  
KA 01100A101 (3.5/3.6)

011000A101 ..(KA's)

ANSWER: 021 (1.00)

a. [+1.0]

## REFERENCE:

LP#CRO-59-1-9, p. 30, LO 5.03  
KA 012000K501 (3.3/3.8)

012000K501 ..(KA's)

ANSWER: 022 (1.00)

c. [+1.0]

## REFERENCE:

LP#CRO-59-1-9, p. 40, LO 8.04b, 8.02, 8.07b  
SD-59, p. 34-35.  
KA 012000K603 (3.1/3.5)

012000A401 ..(KA's)

ANSWER: 023 (1.00)

a. [+1.0]



## REFERENCE:

LP#CRO-63-1-6, LO 1.4  
SD 63 Figures 63-3.  
Modified 1993 Exam Question  
KA 013000K201 (3.6/3.8)

013000K201 ..(KA's)

ANSWER: 024 (1.00)

d. [+1.0]

## REFERENCE:

LP#CRO-63-1-5, OH-25  
LP#CRO-63-1-6, LO 1.7  
SD-63, p.43-49.  
KA 013000A402 (4.3/4.4)  
013000A402 ..(KA's)

ANSWER: 025 (1.00)

c. [+1.0]

## REFERENCE:

LP#CRO-60-1-9, p. 40-44, LO 10.  
KA 014000K101 (3.2/3.6)

014000K101 ..(KA's)

ANSWER: 026 (1.00)

a. [+1.0]

REFERENCE:

LP#CRO-57-1-9, p. 29-32, LO 4.1  
SD-57, p. 36-37.  
KA 015000K103 (3.1/3.1)

015000K103 ..(KA's)

ANSWER: 027 (1.00)

b. [+1.0]

REFERENCE:

OP-3, p. 20.  
LP#CRO-57-1-9, p. 43, LO 6.3 & 6.4.  
KA 015000A103 (3.7/3.7)

015000A103 ..(KA's)

ANSWER: 028 (1.00)

c. [+1.0]

REFERENCE:

LP#CRO-64-1-6.  
SD-64, p. 14.  
KA 017020K403 (3.1/3.3)

017020K403 ..(KA's)

ANSWER: 029 (1.00)

d. [+1.0]

## REFERENCE:

EOP-ATT-1, Attachment 2, p. 2.  
SD-43B, p. 16.  
LP#CRO-7-1-7, p. 64, LO 13 & 14.2  
KA 022000A301 (4.1/4.3)

022000A301 .. (KA's)

ANSWER: 030 (1.00)

c. [+1.0]

## REFERENCE:

LP#CRO-7-1-7, p. 68, LO# 28.14  
KA 026000K402 (3.1/3.6)

026000K402 .. (KA's)

ANSWER: 031 (1.00)

a. [+1.0]

## REFERENCE:

EOP-5, p. 16  
LP#CRO-7-1-7, p. 106, LO 28.9  
KA 028000A101 (3.4/3.8)

028000A101 .. (KA's)

ANSWER: 032 (1.00)

c. [+1.0]

REFERENCE:

AOP-6F, p. 10.  
LP#CRO-113-4-5, LO 3.0  
KA 033000A203 (3.1/3.5)

033000A203 ..(KA's)

ANSWER: 033 (1.00)

c. [+1.0]

REFERENCE:

LP#CRO-103-2-7, attachment 1, p. 14, LO 4.7.  
KA 041020A406 (2.9/3.1)

041020A406 ..(KA's)

ANSWER: 034 (1.00)

d. [+1.0]

REFERENCE:

LP#CRO-102-1-6, p. 2, LO 15.  
KA 045000A305 (2.6/2.9)

045000A305 ..(KA's)

ANSWER: 035 (1.00)

c. [+1.0]

REFERENCE:

LP#CRO-103-2-7, LO 1.4  
OI-11A, p. 6  
KA 056000G001 (2.6/2.8)

056000G001 ..(KA's)

ANSWER: 036 (1.00)

c. [+1.0]

REFERENCE:

LP#CRO-103-1-5, p. 9-16, LO 1.7.1.  
KA 059000K104 (3.4/3.4)

059000K104 ..(KA's)

ANSWER: 037 (1.00)

d. [+1.0]

REFERENCE:

SD-32, p.9  
LP#CRO-103-2-7, LO 3.5  
KA 059000K416 (3.1/3.2)

059000K416 ..(KA's)

ANSWER: 038 (1.00)

c. [+1.0]

## REFERENCE:

LP#CRO-34-2-6, p.7, LO 1 & 9.  
Technical Specification 3/4.7.1.3 Bases, p. B 3/4 7-2.  
Facility exam bank question  
KA 061000G006 (2.7/3.8)

061000G006 ..(KA's)

ANSWER: 039 (1.00)

a. [+1.0]

## REFERENCE:

LP#CRO-34-1-8, p. 24, LO 3.3  
KA 061000K404 (3.1/3.4)  
Note: Setpoint 100 gpm and 175 psid.

061000K404 ..(KA's)

ANSWER: 040 (1.00)

d. [+1.0]

## REFERENCE:

LP#CRO-53-1-3, p.16, LO 3.1  
KA 062000K403(2.8/3.1)

062000K403 ..(KA's)

ANSWER: 041 (1.00)

a. [+1.0]

REFERENCE:

LLP#CRO-54-1-2, p. 15, LO 5.0.  
KA 063000A101 (2.5/3.3)

063000A101 ..(KA's)

ANSWER: 042 (1.00)

b. [+1.0]

REFERENCE:

LP-54-1-2, LO 1.4  
OI-26A, p.10  
KA 063000G010 (3.1/3.2)

063000G010 ..(KA's)

ANSWER: 043 (1.00)

c. [+1.0]

REFERENCE:

OI-21, p. 10.  
LP#CRO-48-1-4, p. 42, LO 19.  
KA 064000G010 (3.4/3.6)

064000G010 ..(KA's)

ANSWER: 044 (1.00)

b. [+1.0]

REFERENCE:

LP#CRO-48-1-4/52-1-2, p. 19-24, LO 23.  
SD-52, p. 27-33.  
KA 064000K101 (4.1/4.4)

064000K101 ..(KA's)

ANSWER: 045 (1.00)

d.

REFERENCE:

LP#CRO-219-33, pg. 17, LO 5.6  
Modified 1994 exam question.  
KA 068000K107 (2.7/2.9)

068000K107 ..(KA's)

ANSWER: 046 (1.00)

a. [+1.0]

REFERENCE:

LP#CRO-134-1-6, LO 5.0  
SD-14A, p. 10.  
KA 071000K405 (2.7/3.0)

071000K405 ..(KA's)

ANSWER: 047 (1.00)

d. [+1.0]



REFERENCE:

LP#CRO-122-1-4, p. 15, LO 4.4  
KA 072000A401 (3.0/3.3)

072000A401 ..(KA's)

ANSWER: 048 (1.00)

d. [+1.0]

REFERENCE:

SD-63, Table 5-13, p. 172.  
LP#CRO-122-1-4, p. 16, LO 3.0  
KA 072000K301 (3.2/3.4)

072000K301 ..(KA's)

ANSWER: 049 (1.00)

b. [+1.0]

REFERENCE:

LP#CRO-113-3-7, p. 10, LO 2.8  
KA 076000K119 (3.6/3.7)

076000K119 ..(KA's)

ANSWER: 050 (1.00)

c. [+1.0]

REFERENCE:

SD-42, p. 19. (no LO available)  
KA 086000G007 (3.0/3.2)

086000G007 ..(KA's)

ANSWER: 051 (1.00)

d. [+1.0]

REFERENCE:

SD-42, p. 23-25.  
OI-20, p. 8.  
KA 086000K402 (3.0/3.4)

086000K402 ..(KA's)

ANSWER: 052 (1.00)

c. [+1.0]

REFERENCE:

AOP-1B, p. 6.  
LP#CRO-202-1B, LO 2.  
KA 000001G011 (4.0/4.1)

000001G011 ..(KA's)

ANSWER: 053 (1.00)

b. [+1.0]

## REFERENCE:

AOP-1B, p. 9.  
LP#CRO-202-1B, LO 1  
KA 000003G010 (3.9/3.8)

000003G010 ..(KA's)

ANSWER: 054 (1.00)

d. [+1.0]

## REFERENCE:

EOP-0, p. 8.  
LP#CRO-201-0-1.SIM, LO 1  
LP#SRO-201-0-5, LO 3.1  
KA 000005A203 (3.5/4.4)

000005A203 ..(KA's)

ANSWER: 055 (1.00)

a. [+1.0]

## REFERENCE:

EOP-0, p. 9  
LP#SRO-0-5, LO 10 & 14.3  
KA 000007G010 (4.2/4.1)

000007G010 ..(KA's)

ANSWER: 056 (1.00)

d. [+1.0]

## REFERENCE:

LP#CRO-201-5-1.SIM, LO 2.2  
LP#SRO-301-17-3, p. 25, LO 1.3.1  
KA 000008A212 (3.4/3.7)

000008A212 ..(KA's)

ANSWER: 057 (1.00)

b. [+1.0]

## REFERENCE:

EOP-5, p. 21  
LP#CRO-201-5-1.SIM, LO 2.2  
KA 000009A234 (3.6/4.2)  
Note: Harsh Containment parameters used.

000009A234 ..(KA's)

ANSWER: 058 (1.00)

b. [+1.0]

## REFERENCE:

EOP-5, p. 10  
LP#CRO-201-5-2.SIM, LO 5.2  
KA 000011A103 (4.0/4.0)

000011A103 ..(KA's)

ANSWER: 059 (1.00)

b. [+1.0]

## REFERENCE:

EOP-5, Basis Document, p. 79.  
LP#CRO-7-1-7.SIM, p. 14  
LP#CRO-201-5-1.SIM, LO 2.2  
LP#SRO-201-5-3, LO 8  
KA 000011K313 (3.8/4.2)

000011K313 ..(KA's)

ANSWER: 060 (1.00)

d. [+1.0]

## REFERENCE:

LP#CRO-106-1-6, p. 15, LO 7.  
OI-1A, p. 14-15.  
KA 000015A122 (4.0/4.2)

000015A122 ..(KA's)

ANSWER: 061 (1.00)

a. [+1.0]

## REFERENCE:

LP#CRO-203-5A-5, LOSDC Handout, p. 33, LO 5  
KA 000025G012 (3.3/3.5)  
Generic Letter 88-17 Note: This question reveals if the candidate is sufficiently sensitive to the issue of loss of SDC, and the very short time frame available to respond to same. Industry events have occurred where SDC has been lost at reduced inventory, and one key issue is the operators were often not aware how little time was available until saturation was reached in the core. The question does not require detailed knowledge of the saturation vs time curve due to the very large time frame of the incorrect distractors.

000025G012 ..(KA's)

ANSWER: 062 (1.00)

a. [+1.0]

REFERENCE:

AOP-7C, p. 7.  
LP#CRO-113-5-7, LO 9.2  
KA 000026G005 (3.3/3.4)

000026G005 .. (KA's)

ANSWER: 063 (1.00)

b. [+1.0]

REFERENCE:

SD-62, Fig. 62-15.  
LP#CRO-62-1-6, LO 7.2 & 9.2  
KA 000027K203 (2.6/2.8)

000027K203 .. (KA's)

ANSWER: 064 (1.00)

c. [+1.0]

REFERENCE:

LP#CRO-62-1-6, p. 21-24, LO 8.1 & 8.2.  
KA 000027A203 (3.3/3.4)

000027A203 .. (KA's)

ANSWER: 065 (1.00)

b. [+1.0]

## REFERENCE:

LP#CRO-58-1-7, p. 14, LO 5.0  
KA 000028A210 (3.3/3.4)

000028A210 ..(KA's)

ANSWER: 066 (1.00)

a. [+1.0]

## REFERENCE:

Alarm Panel 1C05 Window D-33  
LP#CRO-57-10, LO 3.1.4.  
KA 000032G009 (2.8/2.9)

000032G009 ..(KA's)

ANSWER: 067 (1.00)

d. [+1.0]

## REFERENCE:

LP-CRO-57-1-9, p. 17-18, LO 2.1  
KA 000033A101 (2.9/3.1)  
Modified 1994 exam question

000033A101 ..(KA's)

ANSWER: 068 (1.00)

b. [+1.0]

## REFERENCE:

AOP-2A, p. 28  
LP#CRO-202-@2A-4, LO 6.  
KA 000037A206 (4.3/4.5)

000037A206 ..(KA's)

ANSWER: 069 (1.00)

a. [+1.0]

## REFERENCE:

EOP-6, p. 19.  
LP#CRO-201-6-1.SIM, LO 1.5  
LP#SRO-6-3, p. 17, LO 2.0  
KA 000038A201 (4.1/4.7)

000038A201 ..(KA's)

ANSWER: 070 (1.00)

b. [+1.0]

## REFERENCE:

EOP-4, p. 11  
LP#SRO-201-4-4, p. 21, LO 6.  
LP#CRO-201-4-1.SIM, LO 2.2  
KA 000040K304 (4.5/4.7)

000040K304 ..(KA's)

ANSWER: 071 (1.00)

d. [+1.0]



## REFERENCE:

EOP-4, p. 18.  
LP#CRO-301-16-1, LO 2.  
KA 000040K106 (3.7/3.8)

000040K106 ..(KA's)

ANSWER: 072 (1.00)

b. [+1.0]

## REFERENCE:

AOP7G, p. 7.  
LP#CRO-202-7G, p. 10, LO 1.0  
KA 000051A202 (3.9/4.1)

000051A202 ..(KA's)

ANSWER: 073 (1.00)

c. [+1.0]

## REFERENCE:

EOP-3, p. 37, and bases page 41.  
LP#CRO-201-3-1.SIM, LO 2.2 & 2.5  
LP#SRO-201-3-4, LO 7.  
KA 000054A204 (4.2/4.3)

000054A204 ..(KA's)

ANSWER: 074 (1.00)

c. [+1.0]

## REFERENCE:

EOP-3 Bases, p. 19.  
LP#CRO-201-3-1.SIM, LO 2.2.  
KA 000054K304 (4.4/4.6)

000054K304 ..(KA's)

ANSWER: 075 (1.00)

d. [+1.0]

## REFERENCE:

EOP-7, p. 8-9.  
LP#SRO-201-7-3, LO 6.1  
LP#CRO-201-7-1.SIM, LO 2.2.  
KA 0000055A204 (3.7/4.1)

000055A204 ..(KA's)

ANSWER: 076 (1.00)

d. [+1.0]

## REFERENCE:

EOP-2, p. 37  
LP#SRO-201-2-4, LO 11.2  
LP#CRO-201-2-1.SIM, LO 5.2  
KA 000056A248 (4.3/4.4)

000056A248 ..(KA's)

ANSWER: 077 (1.00)

b. [+1.0]

REFERENCE:

LP#CRO-202-7J-1, p. 11, LO 1.2  
KA 000057K301 (4.1/4.4)

000057K301 ..(KA's)

ANSWER: 078 (1.00)

c. [+1.0]

REFERENCE:

AOP-7J, p. 42.  
LP#CRO-202-7J-1, OH-11, LO 4.1  
KA 000058A203 (3.5/3.9)

000058A203 ..(KA's)

ANSWER: 079 (1.00)

b. [+1.0]

REFERENCE:

AOP-6B, p. 4.  
LP CRO-219-1-0, LO 8.0  
Modified 1993 question.  
KA 000059G011 (3.4/3.8)

000059G011 ..(KA's)

ANSWER: 080 (1.00)

d. [+1.0]

## REFERENCE:

LP#CRO-122-1-4, p. 24. LO 2.5  
KA 000061A201 (3.5/3.7)

000061A201 ..(KA's)

ANSWER: 081 (1.00)

b. [+1.0]

## REFERENCE:

AOP-7D, p. 7 and note 2h.  
LP#CRO-202-7D-4, LO 6.1.1  
KA 000065A206 (3.6/4.2)

000065A206 ..(KA's)

ANSWER: 082 (1.00)

c. [+1.0]

## REFERENCE:

SD-42, p. 16.  
KA 000067A108 (3.4/3.7)

000067A108 ..(KA's)

ANSWER: 083 (1.00)

a. [+1.0]

## REFERENCE:

AOP-9A, p. 6  
LP#CRO-202-9A-5, LO 1.2.  
KA 000068G010 (4.1/4.2)

000068G010 ..(KA's)

ANSWER: 084 (1.00)

c. [+1.0]

REFERENCE:

AOP-9A, p. 15  
LP#CRO-202-9A-5, LO 12.3  
KA 000068K201 (3.9/4.0)

000068K201 ..(KA's)

ANSWER: 085 (1.00)

b. [+1.0]

REFERENCE:

AOP-4A, p. 4  
Technical Specification 3.6.1.3, p. 3/4 6-5  
KA 000069A201 (3.7/4.3)

000069A201 ..(KA's)

ANSWER: 086 (1.00)

c. [+1.0]

REFERENCE:

EOP-8 Bases, p. 26-40.  
LP#CRO-201-8.1.SIM, LO 2.6  
KA 000074G012 (4.3/4.3)

000074G012 ..(KA's)

ANSWER: 087 (1.00)

a. [+1.0]

REFERENCE:

LP#CRO-202-6A-2, p. 13-14, LO 3.2  
LP#CRO-212-1-1, LO 5.0  
KA 000076K306 (3.2/3.8)

000076K306 ..(KA's)

ANSWER: 088 (1.00)

c. [+1.0]

REFERENCE:

NO-1-200, p.20  
KA 194001K108 (3.5/3.4)  
RO Only

194001K108 ..(KA's)

ANSWER: 089 (1.00)

d. [+1.0]

REFERENCE:

ERPIP-105, Att. 1, p. 5  
LP# SRO-217-3.0-5, LO1.0  
KA 194001A116 (3.1/4.4)

194001A116 ..(KA's)

ANSWER: 090 (1.00)

b. [+1.0]

REFERENCE:

EOP-8 Bases, p. 3  
LP#CRO-201-8-1.SIM, LO 2.6.  
LP#SRO-8-3, LO 13  
KA 194001A102 (4.1/3.9)

194001A102 .. (KA's)

ANSWER: 091 (1.00)

c. [+1.0]

REFERENCE:

GOT-337-21-6, p. 21.8  
KA 194001K103 (2.8/3.4)  
TEDE = CEDE + DDE

194001K103 .. (KA's)

ANSWER: 092 (1.00)

a. [+1.0]

REFERENCE:

NO-1-201, p. 12, 41-42  
LO 2.1 & 3  
194001A101 (3.3/3.4)

194001A101 .. (KA's)

ANSWER: 093 (1.00)

b. [+1.0]

REFERENCE:

NO-1-201, p. 16.  
KA 194001A102 (4.1/3.9)

194001A102 ..(KA's)

ANSWER: 094 (1.00)

d. [+1.0]

REFERENCE:

NO-1-112, p.20  
KA 194001K102 (3.7/4.1)  
NOTE: >200 deg. or > 500psi

194001K102 ..(KA's)

ANSWER: 095 (1.00)

a. [+1.0]

REFERENCE:

NO-1-205, p. 9  
KA 194001K101 (3.6/3.7)

194001K101 ..(KA's)

ANSWER: 096 (1.00)

b. [+1.0]



REFERENCE:

NO-1-200, p. 15  
LP #SRO-204-140-1, LO 7.0.  
KA 194001A106 (3.4/3.4)

194001A106 ..(KA's)

ANSWER: 097 (1.00)

d. [+1.0]

REFERENCE:

NO-1-206, p. 9.  
LP# SRO-306-1, LO 6.1.  
KA 194001A113 (4.3/4.1)

194001A113 ..(KA's)

ANSWER: 098 (1.00)

b. [+1.0]

REFERENCE:

NO-1-113, p. 8-9.  
KA 194001A104 (3.0/3.2)

194001A104 ..(KA's)

ANSWER: 099 (1.00)

b. [+1.0]

REFERENCE:

NO-1-100, p. 10.  
ERPIP 3.0, p. 1.  
KA 194001A116 (3.1/4.4)

194001A116 ..(KA's)

ANSWER: 100 (1.00)

b. [+1.0]

REFERENCE:

GOT-337-22-5, p. 22-10, LO 18.  
KA 194001K103 (2.8/3.4)

194001K103 ..(KA's)

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

## A N S W E R   K E Y

## MULTIPLE CHOICE

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

## A N S W E R   K E Y

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

A N S W E R   K E Y

092   a  
093   b  
094   d  
095   a  
096   b  
097   d  
098   b  
099   c  
100   b

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

R O Exam P W R Reactor  
Organized by Question Number

QUESTION	VALUE	REFERENCE
001	1.00	8000001
002	1.00	8000002
003	1.00	8000003
004	1.00	8000006
005	1.00	8000007
006	1.00	8000004
007	1.00	8000005
008	1.00	8000009
009	1.00	8000010
010	1.00	8000011
011	1.00	8000052
012	1.00	8000021
013	1.00	8000022
014	1.00	8000051
015	1.00	8000048
016	1.00	8000049
017	1.00	8000035
018	1.00	8000036
019	1.00	8000038
020	1.00	8000039
021	1.00	8000042
022	1.00	8000043
023	1.00	8000012
024	1.00	8000013
025	1.00	8000016
026	1.00	8000014
027	1.00	8000015
028	1.00	8000028
029	1.00	8000017
030	1.00	8000019
031	1.00	8000050
032	1.00	8000047
033	1.00	8000053
034	1.00	8000054
035	1.00	8000027
036	1.00	8000025
037	1.00	8000026
038	1.00	8000023
039	1.00	8000024
040	1.00	8000044
041	1.00	8000029
042	1.00	8000030
043	1.00	8000040
044	1.00	8000041
045	1.00	8000032
046	1.00	8000031
047	1.00	8000033
048	1.00	8000034
049	1.00	8000056

R O Exam P W R Reactor  
Organized by Question Number

QUESTION	VALUE	REFERENCE
050	1.00	8000045
051	1.00	8000046
052	1.00	8000060
053	1.00	9000062
054	1.00	8000064
055	1.00	8000065
056	1.00	8000070
057	1.00	8000071
058	1.00	8000067
059	1.00	8000068
060	1.00	8000073
061	1.00	8000075
062	1.00	8000076
063	1.00	8000077
064	1.00	8000078
065	1.00	8000059
066	1.00	8000101
067	1.00	8000102
068	1.00	8000090
069	1.00	8000088
070	1.00	8000079
071	1.00	8000080
072	1.00	8000081
073	1.00	8000082
074	1.00	8000083
075	1.00	8000087
076	1.00	8000084
077	1.00	8000058
078	1.00	8000057
079	1.00	8000103
080	1.00	8000092
081	1.00	8000085
082	1.00	8000093
083	1.00	8000094
084	1.00	8000095
085	1.00	8000100
086	1.00	8000098
087	1.00	8000091
088	1.00	8000111
089	1.00	8000112
090	1.00	8000113
091	1.00	8000114
092	1.00	8000115
093	1.00	8000116
094	1.00	8000118
095	1.00	8000119
096	1.00	8000124
097	1.00	8000126
098	1.00	8000128

R O Exam PWR Reactor  
Organized by Question Number

QUESTION	VALUE	REFERENCE
099	1.00	8000129
100	1.00	8000130
	-----	
	100.00	
	-----	
	-----	
	100.00	



R O Exam PWR Reactor  
Organized by KA Group

## PLANT WIDE GENERICS

QUESTION	VALUE	KA
092	1.00	194001A101
093	1.00	194001A102
090	1.00	194001A102
098	1.00	194001A104
096	1.00	194001A106
097	1.00	194001A113
089	1.00	194001A116
099	1.00	194001A116
095	1.00	194001K101
094	1.00	194001K102
100	1.00	194001K103
091	1.00	194001K103
088	1.00	194001K108
	-----	
PWG Total	13.00	

## PLANT SYSTEMS

## Group I

QUESTION	VALUE	KA
002	1.00	001000G005
003	1.00	001000K105
001	1.00	001000K407
006	1.00	003000A107
007	1.00	003000A405
009	1.00	004010A205
010	1.00	004010K403
008	1.00	004020K612
024	1.00	013000A402
023	1.00	013000K201
027	1.00	015000A103
026	1.00	015000K103
028	1.00	017020K403
029	1.00	022000A301
035	1.00	056000G001
036	1.00	059000K104
037	1.00	059000K416
038	1.00	061000G006
039	1.00	061000K404
045	1.00	068000K107
046	1.00	071000K405
047	1.00	072000A401
048	1.00	072000K301
	-----	

R O Exam PWR Reactor  
Organized by KA Group

PLANT SYSTEMS

Group I

QUESTION	VALUE	KA	_____	_____
PS-I Total	23.00			

Group II

QUESTION	VALUE	KA	_____	_____
004	1.00	002000A103		
005	1.00	002000A408		
012	1.00	006000A402		
013	1.00	006020K404		
017	1.00	010000A101		
018	1.00	010000K201		
020	1.00	011000A101		
019	1.00	011000K101		
022	1.00	012000A401		
021	1.00	012000K501		
025	1.00	014000K101		
030	1.00	026000K402		
032	1.00	033000A203		
040	1.00	062000K403		
041	1.00	063000A101		
042	1.00	063000G010		
043	1.00	064000G010		
044	1.00	064000K101		
050	1.00	086000G007		
051	1.00	086000K402		
-----				
PS-II Total	20.00			

Group III

QUESTION	VALUE	KA	_____	_____
011	1.00	005000G010		
014	1.00	007000A301		
015	1.00	008000K104		
016	1.00	008000K401		
031	1.00	028000A101		
033	1.00	041020A406		
034	1.00	045000A305		
049	1.00	076000K119		
-----				
PS-III Total	8.00			
-----				
-----				

R O Exam PWR Reactor  
Organized by KA Group

## PLANT SYSTEMS

QUESTION	VALUE	KA	_____	_____
PS Total	51.00			

## EMERGENCY PLANT EVOLUTIONS

## Group I

QUESTION	VALUE	KA	_____	_____
054	1.00	000005A203		
060	1.00	000015A122		
062	1.00	000026G005		
064	1.00	000027A203		
063	1.00	000027K203		
071	1.00	000040K106		
070	1.00	000040K304		
072	1.00	000051A202		
075	1.00	000055A204		
077	1.00	000057K301		
082	1.00	000067A108		
083	1.00	000068G010		
084	1.00	000068K201		
085	1.00	000069A201		
086	1.00	000074G012		
087	1.00	000076K306		
-----				
EPE-I Total	16.00			

## Group II

QUESTION	VALUE	KA	_____	_____
052	1.00	000001G011		
053	1.00	000003G010		
055	1.00	000007G010		
056	1.00	000008A212		
057	1.00	000009A234		
058	1.00	000011A103		
059	1.00	000011K313		
061	1.00	000025G012		
066	1.00	000032G009		
067	1.00	000033A101		
068	1.00	000037A206		
069	1.00	000038A201		
073	1.00	000054A204		
074	1.00	000054K304		
078	1.00	000058A203		

R O Exam PWR Reactor  
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## EMERGENCY PLANT EVOLUTIONS

## Group II

QUESTION	VALUE	KA	_____	_____
079	1.00	000059G011		
080	1.00	000061A201		
	-----			
EPE-II Total	17.00			

## Group III

QUESTION	VALUE	KA	_____	_____
065	1.00	000028A210		
076	1.00	000056A248		
081	1.00	000065A206		
	-----			
EPE-III Total	3.00			
	-----			
EPE Total	36.00			
	-----			
	-----			
Test Total	100.00			

## A N S W E R   K E Y

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

## ANSWER KEY

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

A N S W E R   K E Y

- 092   a
- 093   b
- 094   d
- 095   a
- 096   b
- 097   d
- 098   b
- 099   b
- 100   b

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

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SITE SPECIFIC EXAMINATION  
SENIOR OPERATOR LICENSE  
REGION 1

CANDIDATE'S NAME:

FACILITY: Calvert Cliffs 1 & 2

REACTOR TYPE: PWR-CE

DATE ADMINISTERED: 95/11/27 15

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	<u>                    </u>	<u>                    </u> %	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 | ___ | 023 | a | b | c | d | ___ |
| 002 | a | b | c | d | ___ | 024 | a | b | c | d | ___ |
| 003 | a | b | c | d | ___ | 025 | a | b | c | d | ___ |
| 004 | a | b | c | d | ___ | 026 | a | b | c | d | ___ |
| 005 | a | b | c | d | ___ | 027 | a | b | c | d | ___ |
| 006 | a | b | c | d | ___ | 028 | a | b | c | d | ___ |
| 007 | a | b | c | d | ___ | 029 | a | b | c | d | ___ |
| 008 | a | b | c | d | ___ | 030 | a | b | c | d | ___ |
| 009 | a | b | c | d | ___ | 031 | a | b | c | d | ___ |
| 010 | a | b | c | d | ___ | 032 | a | b | c | d | ___ |
| 011 | a | b | c | d | ___ | 033 | a | b | c | d | ___ |
| 012 | a | b | c | d | ___ | 034 | a | b | c | d | ___ |
| 013 | a | b | c | d | ___ | 035 | a | b | c | d | ___ |
| 014 | a | b | c | d | ___ | 036 | a | b | c | d | ___ |
| 015 | a | b | c | d | ___ | 037 | a | b | c | d | ___ |
| 016 | a | b | c | d | ___ | 038 | a | b | c | d | ___ |
| 017 | a | b | c | d | ___ | 039 | a | b | c | d | ___ |
| 018 | a | b | c | d | ___ | 040 | a | b | c | d | ___ |
| 019 | a | b | c | d | ___ | 041 | a | b | c | d | ___ |
| 020 | a | b | c | d | ___ | 042 | a | b | c | d | ___ |
| 021 | a | b | c | d | ___ | 043 | a | b | c | d | ___ |
| 022 | 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 will result in a denial of your application and could result in more severe penalties.
2. After you complete the examination, 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.
3. To pass the examination, you must achieve a grade of 80 percent or greater.
4. The point value for each question is indicated in parentheses after the question number.
5. There is a time limit of 4 hours for completing the examination.
6. Use only black ink or dark pencil to ensure legible copies.
7. Print your name in the blank provided on the examination cover sheet and the answer sheet.
8. Mark your answers on the answer sheet provided and do not leave any question blank.
9. If the intent of a question is unclear, ask questions of the examiner only.
10. Restroom trips are permitted, but only one applicant at a time will be allowed to leave. Avoid all contact with anyone outside the examination room to eliminate even the appearance or possibility of cheating.
11. When you complete the examination, assemble a package including the examination questions, examination aids, and answer sheets and give it to the examiner or proctor. Remember to sign the statement on the examination cover sheet.
12. After you have turned in your examination, leave the examination area as defined by the examiner.

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QUESTION: 001 (1.00)

Given the following:

- A Unit 1 reactor startup is in progress.
- The Reactor Operator is withdrawing Regulating Group 1 CEAs in the MANUAL GROUP mode.
- Regulating group 1 is at 120 inches.
- No CEA deviations exist.

WHICH ONE (1) of the following will be the FIRST to automatically stop CEA movement?

- a. Highest CEA reaches the Upper Group Stop (UCS).
- b. Lowest CEA reaches the Upper Group Stop (UCS).
- c. Highest CEA reaches the Upper Electrical Limit (UEL).
- d. Lowest CEA reaches the Upper Electrical Limit (UEL).

QUESTION: 002 (1.00)

Given the following:

- Unit 2 has been operating at 70% power with Group 5 CEAs at 79 inches withdrawn.
- It has been in this alignment since 2230 hrs.
- At 0330 hrs, the load dispatcher requests an estimate of the earliest time that the plant can return to 100% power.
- Assume power ascension starts immediately.
- Technical Specification 3.1.3.6 and COLR are attached.
- Assume all CEAs are OPERABLE and there are NO fuel preconditioning requirements for this power change.

WHICH ONE (1) of the following is the EARLIEST that the plant can return to 100% power?

- a. 0530 hours
- b. 0730 hours
- c. 0930 hours
- d. 1130 hours

QUESTION: 003 (1.00)

Given the following:

- A Unit 1 plant heatup is in progress.
- RCS cold leg temperature increased from 470 degrees F. to 476 degrees F. in ten minutes.

WHICH ONE (1) of the following actions will result in the MAXIMUM allowable RCS heat up rate (HUR)?

- a. Increase HUR by 4 degrees F/hr.
- b. Increase HUR by 24 degrees F/hr.
- c. Decrease HUR by 6 degrees F/hr.
- d. Decrease HUR by 16 degrees F/hr.

QUESTION: 004 (1.00)

Given the following:

- Unit 2 is operating at 75% power and the latest computer leak rate data indicates the following:
  - 10.0 GPM - Total RCS leakage rate
  - 2.5 GPM - Leakage into the Quench Tank.
  - 1.8 GPM - Leakage into the Reactor Coolant Drain Tank
  - 1.5 GPM - Leakage past check valves from RCS to SI system.
  - 0.12 GPM - Total primary to secondary leakage. (Assume distributed over both S/Gs)
  - 2.7 GPM - Charging pump leakage

WHICH ONE (1) of the following RCS leakage types is exceeded?

- a. PRESSURE BOUNDARY LEAKAGE
- b. IDENTIFIED LEAKAGE
- c. UNIDENTIFIED LEAKAGE
- d. PRIMARY to SECONDARY LEAKAGE



QUESTION: 005 (1.00)

Given the following:

- Unit 2 RCS cold leg temperature is 273 degrees F. as indicated on SDC Temperature recorder 1-TR-351.
- Pressurizer level indicates 165 inches.
- RCS pressure is 300 psia.
- 21 LPSI is providing Shutdown Cooling.
- All RCPs are OFF.
- Steam Generator 21 secondary side water temperature has been verified locally to be 306 degrees F.

WHICH ONE (1) of the following statements describes the anticipated RCS pressure response and reason for that response when a Reactor Coolant Pump is started in the 21 Loop?

- a. Decreases due to higher temperature loop water being cooled as it passes through the cooler core region.
- b. Decreases due to greater cooling flow through the Shutdown Cooling Heat Exchangers caused by the RCP pressure differential.
- c. Increases due to heating RCS fluid as it passes through the Generators.
- d. Increases due to reduced cooling flow through the Shutdown Cooling Heat Exchangers caused by the RCP pressure differential.

QUESTION: 006 (1.00)

WHICH ONE (1) of the following would indicate an INCREASE in level due to leakage flow past the vapor seal of an RCP?

- a. Volume Control Tank (VCT)
- b. Reactor Coolant Drain Tank
- c. Quench Tank
- d. Containment sump

QUESTION: 007 (1.00)

Given the following:

- Unit 1 is at 100% power.

WHICH ONE (1) of the following conditions will result in flashing in the CVCS letdown line?

- a. Three charging pumps running with minimum letdown, and PIC 201 in AUTO at a setpoint of 500 psia.
- b. One charging pump running with maximum letdown, and PIC 201 in AUTO at a setpoint of 500 psia.
- c. Three charging pumps running with minimum letdown, and PIC 201 in AUTO at a setpoint of 400 psia.
- d. One charging pumps running with maximum letdown, and PIC 201 in AUTO at a setpoint of 400 psia.

QUESTION: 008 (1.00)

Given the following:

- Unit 1 is operating at 100% power.
- An inadvertent SIAS occurs.

WHICH ONE (1) of the following describes how RCP controlled bleed off is maintained?

- a. CVC-354-RV (Letdown Relief valve) opens and relieves to the Reactor Coolant Waste Receiving Tank (RCWRT)
- b. CVC-505-CV and CVC-506-CV (Controlled Bleed Off Isolation valves) open and flow is directed to the VCT.
- c. CVC-199-RV (Controlled Bleed Off Relief valve) opens and to the Reactor Coolant Drain Tank (RCDT).
- d. CVC-507-CV (Controlled Bleed Off Isolation valve) is closed to divert flow to the RCDT.

QUESTION: 009 (1.00)

Given the following:

- SDC is being established on UNIT 2 per OI-3B, "Shutdown Cooling."
- Pressure is being monitored on PZR LO RANGE PRESS indicators PI-103 and 103-1.

WHICH ONE (1) of the following pressures is the MAXIMUM at which BOTH of the SDC Header Return Isolation valves (SI-651,652) can be opened?

- a. 230 psia
- b. 250 psia
- c. 270 psia
- d. 290 psia

QUESTION: 010 (1.00)

WHICH ONE (1) of the following valves will receive a CLOSE signal during an automatic SIAS actuation?

- a. LPSI header valves (SI-615,625,635,645).
- b. BAST gravity feed valves (CVC-508,509).
- c. Aux HPSI header valves (SI-617,627,637,647).
- d. CCW HX Saltwater inlet and outlet valves (SW-5160,5206).

QUESTION: 011 (1.00)

WHICH ONE (1) of the following describes the reason the SI pump recirculation MOVs (SI-659,660) are shut after an RAS actuation?

- a. It prevents an unmonitored release to the environment from the RWT vent.
- b. It ensures that LPSI flow is not diverted from containment spray during the recirculation phase.
- c. It ensures that the minimum RWT boron concentration limit will not be exceeded.
- d. It ensures that the LPSI pumps do not trip on low suction pressure.

QUESTION: 012 (1.00)

Given the following:

- Unit 2 is at 100% power.
- The UNIT 2 CC RMS (Component Cooling Water Rad Monitoring) alarm on panel 1C22 is LIT.
- Activity in the CCW system is INCREASING.

WHICH ONE (1) of the following is the source of the alarm?

- a. Letdown heat exchanger.
- b. 11 liquid waste evaporator.
- c. Miscellaneous waste sample coolers.
- d. Degasifier vacuum pump accumulator.

QUESTION: 013 (1.00)

Given the following:

- Unit 1 is in MODE 3.
- RCS pressure is 2250 psia.
- Pressurizer Pressure Control System (PPCS) setpoint is at 2250 psia.
- RCS boron concentration is 500 ppm boron.
- Pressurizer boron concentration is 350 ppm boron.

WHICH ONE (1) of the following methods is used to equalize RCS boron concentration?"

- a. ENERGIZE all Pressurizer Backup Heaters and reduce pressurizer pressure controller setpoint to establish spray flow and maintain RCS at 2250 psia.
- b. ENERGIZE all Pressurizer Proportional Heaters and reduce pressurizer pressure controller setpoint to establish spray flow and maintain RCS at 2250 psia.
- c. RAISE Pressurizer Pressure Control System setpoint to 2300 psia AND energize Pressurizer Proportional Heaters to maintain Pressurizer Spray flow.
- d. RAISE Pressurizer Pressure Control System setpoint to 2300 psia AND allow pressurizer spray bypass flow to equalize the boron concentration.

QUESTION: 014 (1.00)

WHICH ONE (1) of the following is the MINIMUM Pressurizer heater capacity and power source required for operation in MODE 1 per Technical Specifications?

- a. 75 KW total from bus 12B or 13B.
- b. 75 KW total from bus 11B or 14B.
- c. 150 KW total from buses 12B and 13B.
- d. 150 KW total from buses 11B and 14B.

QUESTION: 015 (1.00)

Given the following:

- Reactor power is at 100%.
- A transient has caused pressurizer level to DECREASE 14 inches below the programmed level.
- The Pressurizer Level Control System is in AUTOMATIC.
- The Charging Pump operational mode selector switch is in the 13 + 11 position.

WHICH ONE (1) of the following describes the response of the Pressurizer Level Control System?

- a. Charging pumps 11, 12, and 13 will be running and letdown flow will be isolated.
- b. ONLY the 13 charging pump will be running and letdown flow will be isolated.
- c. ONLY charging pumps 12 and 13 will be running with letdown flow at minimum.
- d. Charging pumps 11, 12 and 13 will be running with letdown flow at minimum.

QUESTION: 016 (1.00)

Given the following:

- Reactor power has been at 70% for 24 hours.
- The Pressurizer Level Control system (PLCS) is in MANUAL due to a controller failure.
- Repairs have been completed and the PLCS is being returned to AUTOMATIC control.
- Assume Tav<sub>g</sub> is on program for the current conditions.
- Pressurizer setpoint vs RCS temp figure is attached.

WHICH ONE (1) of the following program level setpoints should be the Pressurizer automatic level control signal setpoint for a bumpless transfer?

- a. 190 inches
- b. 194 inches
- c. 198 inches
- d. 205 inches

QUESTION: 017 (1.00)

WHICH ONE (1) of the following conditions will result in an INCREASE of the Thermal Margin/Low Pressure (TM/LP) trip setpoint? The plant is at 100% power.

- a. ASI changes from 0.0 to -0.1.
- b. Tcold loop 11 fails LOW.
- c. RCS pressure increases 25 psia.
- d. Delta-T power is reduced via the potentiometer.

QUESTION: 018 (1.00)

WHICH ONE (1) of the following would result from depressing ONE (1) of the two Manual Reactor Trip pushbuttons on panel 1C05?

- a. Trip Circuit Breakers 2 and 6 open and the reactor trips.
- b. Trip Circuit Breakers 2 and 3 open and the reactor trips.
- c. Trip Circuit Breakers 2 and 6 open but the reactor does NOT trip.
- d. Trip Circuit Breakers 2 and 3 open but the reactor does NOT trip.

QUESTION: 019 (1.00)

WHICH ONE (1) of the following MCCs can supply backup power to 1Y01 if its normal power supply is lost.

- a. MCC 104R
- b. MCC 114R
- c. MCC 204R
- d. MCC 214R

QUESTION: 020 (1.00)

WHICH ONE (1) of the following CEA alarms is generated by Reed Switch Position Transmitters?

- a. PRIMARY POWER DEPENDENT INSERTION
- b. PRIMARY CEA POSITION DEVIATION
- c. DROPPED CEA
- d. CEA GROUP SEQUENCE



QUESTION: 021 (1.00)

WHICH ONE (1) of the following is an output from a Power Range Safety Channel?

- a. Actuates a DROPPED ROD NI alarm.
- b. Enables a high power trip signal at greater than 13% power.
- c. Disables ASI trip at greater than 13% reactor power.
- d. Enables a high rate trip signal at 13% power.

>  
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QUESTION: 022 (1.00)

WHICH ONE (1) of the following should be used as the PRIMARY power indication until the Linear Range Nuclear Instruments are adjusted after a power reduction?

- a. NI power.
- b. RPS Delta-T power.
- c. Generator electrical output.
- d. Plant computer indication.

QUESTION: 023 (1.00)

WHICH ONE (1) of the following is the MAXIMUM temperature at which a Core Exit Thermocouple (CET) output is valid?

- a. 708 degrees F.
- b. 1800 degrees F.
- c. 2300 degrees F.
- d. 3200 degrees F.

QUESTION: 024 (1.00)

Given the following:

- A LOCA has occurred inside containment resulting in a reactor trip and SIAS/CIS/CSAS actuation.
- All systems and components have performed as designed.

WHICH ONE (1) of the following is the speed and number of operating containment cooling fans?

- a. FAST speed - three (3) fans.
- b. SLOW speed - three (3) fans
- c. FAST speed - four (4) fans
- d. SLOW speed - four (4) fans

QUESTION: 025 (1.00)

Given the following:

- Unit 1 has been shutdown for maintenance.
- The entire Unit 1 Containment cooling system is to be shutdown for repairs.

WHICH ONE (1) of the following conditions prevents this evolution?

- a. Unit 1 is in Mode 3 and preparing to cooldown to Mode 5.
- b. All reactor cavity cooling fans are shutdown.
- c. All reactor coolant pumps are shutdown.
- d. Containment temperature is 85 degrees F.

QUESTION: 026 (1.00)

Given the following:

- A LOCA has occurred on Unit 1.
- All systems were in their normal alignment prior to the LOCA and no alarms were lit.
- SIAS/CIS/CSAS actuations have occurred.
- 11 CS pump SIAS BLOCKED AUTO START alarm is LIT.
- RWT level indicates 60 inches.

WHICH ONE (1) of the following is the cause of the 11 CS pump SIAS BLOCKED AUTO START alarm being lit?

- a. 11 Containment spray pump breaker charging springs are charged.
- b. Containment spray header isolation valve (SI-4150) has not opened.
- c. 11 Containment spray pump failed to start within one second of a <sup>SIAS</sup>~~CSAS~~ signal.
- d. RAS has actuated and the Containment Sump isolation valve (SI- 4144) has not opened.

QUESTION: 027 (1.00)

WHICH ONE (1) of the following is the MAXIMUM hydrogen concentration allowed inside Containment before the Hydrogen Recombiners are required to be placed in service?

- a. 0.5%
- b. 2%
- c. 3%
- d. 4%

QUESTION: 028 (1.00)

WHICH ONE (1) of the following is the "LAST RESORT" for filling the Spent Fuel pool due to a low level?

- a. RWT
- b. Demineralized water
- c. Fire main system
- d. Service water system

QUESTION: 029 (1.00)

Given the following:

- Unit 1 has tripped from 100% power.
- Atmospheric Dump Valve (ADV) hand valves 3938A and 3939A are in position 2.
- ADV handvalves 3938B and 3939B have just been placed in Position 2.

WHICH ONE (1) of the following describes how the ADV controls are affected by the alignment?

- a. The ADVS are being controlled from the control room and there is NO quick open signal.
- b. The ADVs are being controlled from the control room and will respond to a quick open signal.
- c. The ADVs are being controlled from the remote shutdown panel and there is NO quick open signal.
- d. The ADVs are being controlled from the remote shutdown panel and will respond to a quick open signal.

QUESTION: 030 (1.00)

WHICH ONE (1) of the following is indicated when the LOAD CHANNEL light on the UNIT 2 turbine control panel is LIT?

- a. A failure in the Impulse Pressure Feedback loop has occurred and the EHC system is in the IMP OUT mode.
- b. A failure in the Impulse Pressure Feedback loop has occurred and the EHC system is in the Turbine Manual mode.
- c. A failure of the Turbine Actual Reference counter has occurred and the EHC system is in the Turbine Manual mode.
- d. A failure of the Turbine Actual Reference counter has occurred and the EHC system is in the IMP OUT mode.

QUESTION: 031 (1.00)

Given the following:

- Two (2) Condensate pumps are in service.
- Two (2) Condensate Booster pumps are in service.
- All other plant systems are in their normal alignments for power operations.

WHICH ONE (1) of the following is the MAXIMUM recommended power level for this combination of condensate pumps?

- a. 25%
- b. 50%
- c. 70%
- d. 100%

QUESTION: 032 (1.00)

WHICH ONE (1) of the following is an input used in BOTH the high and low power modes for the Full Range Digital Feedwater Control System (FRDFCS)?

- a. Feedwater temperature
- b. Steam flow
- c. Steam generator level
- d. Feedwater flow

QUESTION: 033 (1.00)

Given the following:

- 12 CST volume is 150,000 gallons.
- RCS is in Hot Standby.
- A Loss of Offsite Power has occurred.
- Steam Generators are discharging steam to atmosphere to maintain RCS temperature.

WHICH ONE (1) of the following is the MAXIMUM length of time that CST 12 will be able to supply the AFW pumps?

- a. TWO (2) hours.
- b. FOUR (4) hours.
- c. SIX (6) hours.
- d. EIGHT (8) hours.

QUESTION: 034 (1.00)

Given the following:

- Unit 1 has tripped from 100% power.
- 11 SG pressure is stable at 815 psia.
- AFW is providing 150 gpm flow to 11 SG through both the turbine and motor driven pumps.
- A pipe has broken in the motor-driven train flowpath to 11 SG.
- The AFW 11 FLOW TO BREAK alarm is LIT.

WHICH ONE (1) of the following is the MAXIMUM pressure in the 11 AFW line?

- a. 640 psia
- b. 685 psia
- c. 740 psia
- d. 785 psia

QUESTION: 035 (1.00)

WHICH ONE (1) of the following prevents closing both of the 13 Component Cooling Water pump motor disconnects at the same time?

- a. The reset trip pushbutton.
- b. An electrical interlock relay.
- c. Procedural locked component administrative controls.
- d. A mechanical control switch key interlock.

QUESTION: 036 (1.00)

WHICH ONE (1) of the following is the MINIMUM length of time that the 125 VDC batteries are designed to supply vital AC and DC loads during a LOCA concurrent with a loss of AC power?

- a. Two (2) hours
- b. Four (4) hours
- c. Six (6) hours
- d. Eight (8) hours

QUESTION: 037 (1.00)

WHICH ONE (1) of the following will cause an Emergency Diesel Generator (EDG) to be inoperable?

- a. Voltage regulator is in AUTO.
- b. Jacket cooling water temperature is 120 degrees F.
- c. Service water control valve manual handwheel is engaged.
- d. EDG room ventilation system is in operation.



QUESTION: 038 (1.00)

Given the following:

- Both units were operating at 100% power when a Reactor Trip and SIAS occurred on Unit 1.
- Concurrent with this a Reactor Trip and Loss of the 24 Bus occurs on Unit 2.
- All electrical systems are in their normal alignments.

WHICH ONE (1) of the following describes the resulting Diesel Generator (DG)/4Kv Bus alignment?

DG 11 -----	DG 12 -----	DG 21 -----
a. Running Unloaded	Supplying Bus 21	Supplying Bus 24
b. Running Unloaded	Running Unloaded	Supplying Bus 24
c. Supplying Bus 11	Supplying Bus 14	Supplying Bus 21
d. Supplying Bus 11	Supplying Bus 21	Supplying Bus 24

QUESTION: 039 (1.00)

WHICH ONE (1) of the following is the fire protection provided for the Emergency Diesel Generator rooms?

- a. Halon
- b. Carbon Dioxide
- c. Water
- d. Foam

QUESTION: 040 (1.00)

Given the following:

- Fire header pressure is 92 psig with all system controls in AUTOMATIC.

WHICH ONE (1) of the following describes the Fire Protection system pump(s) expected to be running at this pressure?

- a. ONLY the jockey pump.
- b. ONLY the electric driven pump.
- c. The jockey pump, the electric driven pump and the diesel driven pump.
- d. BOTH the jockey pump and the electric pump.

QUESTION: 041 (1.00)

Given the following:

- A Unit 1 startup is in progress.
- CEAs are in MANUAL SEQUENTIAL.
- GROUP 3 CEAs were withdrawn from 50 to 60 inches.
- At 60 inches the operator returned the CEA control switch to the neutral position, but the GROUP 3 CEAs continued stepping out.

WHICH ONE (1) of the following actions is required to be performed FIRST per AOP-1B, "CEA Malfunction?"

- a. Trip the reactor and go to EOP-0, "Post Trip Immediate Actions."
- b. Initiate immediate boration per OI-02B, "CVCS Boration Operations."
- c. Attempt to stop CEA motion by placing CEDS control system in the OFF position.
- d. Hold the CEA manual control switch in the INSERT position and check for continued CEA motion.

QUESTION: 042 (1.00)

WHICH ONE (1) of the following reactor trips protects against an uncontrolled CEA withdrawal from a subcritical condition? Assume no operator action is taken.

- a. Rate of change of power (SUR).
- b. Axial power distribution (APD).
- c. High RCS pressure.
- d. Variable high power level (VOPT).

QUESTION: 043 (1.00)

Given the following:

- Unit 2 power has DECREASED from 90% to 80%.
- CEAs #34 and #36 have slipped to 100 inches.
- All other Group 5 CEAs are at 135 inches.

WHICH ONE (1) of the following operator actions should be performed per AOP-1B, "CEA Malfunction?"

- a. Determine RCS Boron concentration is greater than that indicated in NEOP-23, Technical Data Book, "Shutdown Boron Concentration."
- b. MANUALLY trip the Reactor and implement EOP-0, "Post Trip Immediate Actions."
- c. Initiate boration to maintain Tcold on programmed value while withdrawing CEAs #34 and #36.
- d. Return reactor power to 90% by withdrawing CEAs #34 and #36.

QUESTION: 044 (1.00)

Given the following:

- Unit 1 is operating at 100% power.
- A shutdown group CEA drops into the core (fully inserted).
- The reactor has NOT tripped.

WHICH ONE (1) of the following CEA status light indications will be illuminated for the dropped CEA on the CEA mimic display?

- a. Amber ONLY.
- b. Red, green, and white.
- c. Red, blue, and white.
- d. Amber, green, and blue.

QUESTION: 045 (1.00)

WHICH ONE (1) of the following describes the reason for the Transient Insertion Limits?

- a. Ensures a MAXIMUM shutdown margin assuming an excess steam demand accident at the beginning of core life.
  - b. Ensures a MAXIMUM shutdown margin assuming the failure of the highest reactivity worth single CEA.
  - c. Ensures that excessive axial peaking factors will not cause fuel damage.
  - d. Ensures the potential effects of a CEA ejection accident limited to acceptable levels.
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QUESTION: 046 (1.00)

Given the following:

- Following a Unit 1 trip, three (3) CEAs did NOT fully insert.
- Boration has commenced per the alternate actions of EOP-0, "Post Trip Immediate Actions."
- RCS boron concentration is 600 ppm.

WHICH ONE (1) of the following is the MINIMUM amount that the RCS must be borated to?

- a. 800 ppm
- b. 1200 ppm
- c. 1800 ppm
- d. 2300 ppm

QUESTION: 047 (1.00)

Given the following:

- Unit 2 tripped from 100% power.
- EOP-0, "Post Trip Immediate Actions," are being performed.
- The Main Turbine did NOT trip as expected.

WHICH ONE (1) of the following actions should be performed per EOP-0, "Post Trip Immediate Actions," to trip/stop the turbine?

- a. Manually close both MSIVs.
- b. Manually open the Generator output breakers.
- c. Manually trip the Generator exciter field breaker.
- d. Locally trip the Turbine from the front standard.

QUESTION: 048 (1.00)

Given the following:

- A Unit 1 reactor trip occurred due to a loss of offsite power.
- EOP-2, "Loss of Offsite Power," is being performed.
- Offsite power has been restored to 13 KV busses 12 and 22.
- Preparations are being made to restart the Reactor Coolant Pumps (RCPs).

WHICH ONE (1) of the following is used in conjunction with RCS pressure to ensure the RCPs are operated within limits?

- a. RCS Tcold.
- b. RCS Thot.
- c. RCS Tavg.
- d. Core Exit Thermocouple (CETs).

QUESTION: 049 (1.00)

WHICH ONE (1) of the following parameters discriminates between a Pressurizer vapor space and a non-vapor space LOCA?

- a. RVLMS level.
- b. Quench tank pressure.
- c. Pressurizer pressure.
- d. Pressurizer level.

QUESTION: 050 (1.00)

Given the following:

- A LOCA has occurred on Unit 1.
- RCS pressure is 1000 psia.
- Containment pressure is 4.5 psig.

WHICH ONE (1) of the following prevents an operator from throttling HPSI flow?

- a. 11 SG level is 15 inches and increasing slowly.
- b. Pressurizer level is 110 inches and increasing.
- c. RCS Subcooling is 35 degrees F.
- d. RVLMS indicates 112 inches.

QUESTION: 051 (1.00)

WHICH ONE (1) of the following indicates adequate core cooling exists via natural circulation during a small break LOCA?

- a. RCS Tcold is less than ten (10) degrees F. superheated.
- b. Thot and average CET temperatures are superheated.
- c. Thot minus Tcold is ten (10) degrees F.
- d. RCS subcooling is 20 degrees F.

QUESTION: 052 (1.00)

WHICH ONE (1) of the following is the reason that a core flush is NOT established before eight (8) hours following a loss of coolant accident (LOCA)?

- a. Boron precipitation is not a problem before eight (8) hours due to the large steam flow through the break.
- b. To avoid possible entrainment of SI flow in the Hot Leg due to steam flow that is substantial before eight (8) hours.
- c. Maximum Cold Leg flow is needed to cool the core due to the high amount of decay heat before eight (8) hours.
- d. To allow time for vessel head cooling to prevent the possibility of void formation in the vessel head which would reduce core cooling.

QUESTION: 053 (1.00)

Given the following:

- A large break LOCA has occurred.
- All components have responded properly to a Recirculation Actuation Signal (RAS) as verified by EOP Attachment 6, "RAS Verification."

WHICH ONE (1) of the following is MANUALLY performed to complete the system line up?

- a. Stop the LPSI pumps.
- b. Start the HPSI pumps.
- c. Close the RWT outlet (SI-4142, 4143) valves.
- d. Open the containment sump discharge (SI-4144, 4145) valves.



QUESTION: 054 (1.00)

Given the following:

- Unit 1 is operating at 100% power.
- Total Component Cooling Water (CCW) flow is 220 gpm to RCP 11A.
- RCP 11A upper seal inlet pressure is 50 psia.
- RCP 11A middle seal inlet pressure is 1325 psia.
- RCP 11A lower seal temperature is 95 degrees F.
- RCP 11A controlled bleed off temperature is 115 degrees F.
- RCS pressure is 2250 psia.

WHICH ONE (1) of the following is the condition of RCP 11A?

- a. Low CCW flow exists.
- b. Controlled bleed off temperature is high.
- c. Middle seal failure has occurred.
- d. Upper seal failure has occurred.

QUESTION: 055 (1.00)

Given the following:

- Unit 2 is drained down and SG nozzle dams are installed.
- #21 Shutdown Cooling loop is in service.
- #22 Shutdown cooling loop is operable.

WHICH ONE (1) of the following Shutdown Cooling System conditions/parameters is an indication requiring entry into AOP-3B, "Abnormal Shutdown Cooling Conditions?"

- a. 21 LPSI pump suction pressure is 10 psig.
- b. Component Cooling Water (CCW) flow to the SDC HX is 2000 gpm.
- c. SDC Return Header isolation valves (SI-651,652) are full OPEN.
- d. RVLMS sensors 5 through 8 are WET.

QUESTION: 056 (1.00)

Given the following:

- The plant has been shutdown for three (3) days following 100 days of operating at 100% power.
- The RCS temperature is 150 degrees F.
- The RCS is drained to the bottom of the hot leg.
- A total loss of Shutdown Cooling (SDC) occurs.
- No core cooling is re-established.

WHICH ONE (1) of the following is the SHORTEST time expected for the RCS to reach saturation?

- a. 15 minutes
- b. 45 minutes
- c. 120 minutes
- d. 180 minutes

QUESTION: 057 (1.00)

Given the following:

- Unit 1 is operating at 100% power.
- Alarm 1C13, CC PP(S) DISCH PRESS LO, has actuated.

WHICH ONE (1) of the following RCP conditions requires the operator to trip both the reactor and the reactor coolant pump?

- a. Upper thrust bearing temperature is 197 degrees F.
- b. Controlled bleed off flow is 2.0 gpm.
- c. Guide Bearing temperature is 193 degrees F.
- d. Component cooling water outlet temperature at the RCP is 135 degrees F.

QUESTION: 058 (1.00)

Given the following:

- Unit 1 is operating at 100% power.
- A failure of the selected Pressurizer pressure controller caused pressure to decrease to 2220 psia.
- The selected Pressurizer pressure controller (PIC-100X) has been placed in MANUAL.

WHICH ONE (1) of the following describes the action required to increase the heat output of the proportional heaters to return pressure to 2250 psia?

- a. Increase the controller output.
- b. Decrease the controller output.
- c. Increase the pressure setpoint adjustment.
- d. Decrease the pressure setpoint adjustment.

QUESTION: 059 (1.00)

Given the following:

- Unit 1 is in MODE 4.
- RCS Pressure is 325 psia and temperature is 355 degrees F.
- PORV block valve RC-403 is open.
- PORV block valve RC-405 is closed
- PORV 402 MPT protection handswitch 1406 is in MPT enable.
- PORV 404 MPT protection handswitch 1408 is in Normal.
- PORV 402 OVERRIDE is in AUTO.
- PORV 404 OVERRIDE is in AUTO.

WHICH ONE (1) of the following describes MPT operation when PZR low range transmitter PT-103-1 fails HIGH?

- a. ERV-402 is enabled and opens.
- b. ERV-404 is enabled and opens.
- c. ERV-402 is enabled and does not open.
- d. ERV-404 is enabled and does not open.

QUESTION: 060 (1.00)

Given the following:

- The plant is operating at 100% power.
- Pressurizer level control channel "X" is selected.

WHICH ONE (1) of the following indicates the plant response when the output signal from Loop 11 Hot Leg control channel (TE-111-X) fails LOW.

	LETDOWN FLOW -----	B/U HEATERS -----	B/U CHARGING PUMP -----
a.	Increases	Deenergize	Starts
b.	Increases	Energize	Stops
c.	Decreases	Deenergize	Starts
d.	Decreases	Energize	Stops

QUESTION: 061 (1.00)

Given the following:

- Unit 1 has received a Reactor Protection System input which requires a reactor trip.
- The Reactor has not tripped.
- The MANUAL reactor trip buttons have failed to actuate a reactor trip.

WHICH ONE (1) of the following methods is used NEXT to shutdown the reactor per EOP-0, "Post Trip Immediate Actions?"

- a. Trip the main turbine.
- b. De-energize the CEDM motor generator sets.
- c. Commence RCS boration using BAST gravity feed valves.
- d. MANUALLY drive the CEAs into the core.

QUESTION: 062 (1.00)

Given the following:

- Unit 1 is in MODE 6.
- Refueling activities are in progress.
- A fuel assembly has been fully withdrawn from its location in the Spent Fuel Pool (SFP) and is being moved for return to the reactor.
- A fuel handling incident occurs inside containment.

WHICH ONE (1) of the following locations should the fuel assembly be placed in the spent fuel pool, per AOP-6D, "Fuel Handling Incident?"

- a. Return the assembly to ANY location in the spent fuel pool.
- b. Place the assembly in the SFP upender leaving it in the vertical position.
- c. Transfer the assembly to the bottom of the Refueling Upender area and ungrapple it.
- d. Lower the assembly to the bottom of the SFP Upender area and leave it grappled.

QUESTION: 063 (1.00)

Given the following:

- Unit 1 is being shutdown due to a steam generator tube leak.

WHICH ONE (1) of the following indicates the MINIMUM conditions necessary for a reactor trip and entry into EOP-0, "Post Trip Immediate Actions?"

- a. When all available charging pumps are running and letdown has reached minimum flow.
- b. When all available charging pumps are running, letdown has been isolated, and pressurizer level can no longer be maintained above 101 inches.
- c. When letdown flow combined with the tube rupture flow exceeds 132 GPM with three (3) charging pumps running.
- d. When charging flow reaches 132 GPM.

QUESTION: 064 (1.00)

WHICH ONE (1) of the following is the PREFERRED method for cooling and depressurizing an isolated ruptured steam generator?

- a. Blowdown to the mixed waste system (MWS).
- b. Blowdown to the condenser.
- c. Backflow to the RCS and steaming to the condenser.
- d. RCS backflow and steaming to atmosphere.

QUESTION: 065 (1.00)

Given the following:

- An Excessive Steam Demand Event (ESDE) event has occurred and BOTH steam generators are affected.

WHICH ONE (1) of the following parameters should be used to determine the steam generator to be isolated?

- a. The steam generator with the highest Tcold.
- b. The steam generator with the lowest steam pressure.
- c. The steam generator with the lowest <sup>AFW</sup>~~EFW~~ flow.
- d. The steam generator with the highest level.

QUESTION: 066 (1.00)

Given the following:

- A steam line break exists upstream of the 12 Steam Generator MSIV.
- SGIS has automatically actuated.

WHICH ONE (1) of the following conditions could result if a steaming flowpath from the unaffected steam generator is NOT established immediately following dryout of the affected steam generator?

- a. A rapid increase in T-cold of the unaffected loop resulting in an interruption in natural circulation.
- b. An increase in core exit temperatures resulting in an interruption of natural circulation.
- c. Inability to open the 12 S/G MSIV due to pressure difference created when the affected steam generator reaches dryout conditions.
- d. Rapid repressurization of the RCS and subsequent pressurized thermal shock (PTS) conditions.

QUESTION: 067 (1.00)

Given the following:

- Unit 1 Condenser vacuum is 27.5 inches Hg and has been slowly decreasing for 10 minutes.
- Reactor power is 85% and is lowered in accordance with AOP 7G, but is maintained above 270 MWe.

WHICH ONE (1) of the following is the condenser vacuum at which a Reactor/Turbine trip will FIRST be initiated per AOP-7G, "Loss of Condenser Vacuum?"

- a. 20 inches Hg.
- b. 22.5 inches Hg.
- c. 25 inches Hg.
- d. 26 inches Hg.

QUESTION: 068 (1.00)

Given the following:

- Unit 1 has tripped from 100% power and ALL feedwater is lost.
- Once through core cooling is in progress.
- The 12 turbine driven AFW pump can be returned to service.
- The decision has been made to restore S/G feed.
- 11 S/G level is (-) 380 inches.
- 12 S/G level is (-) 395 inches.

WHICH ONE (1) of the following is the correct method for re-establishing feedwater flow to the steam generators?

- a. Initiate feedwater to the 11 and 12 S/Gs at 300 gpm each for the first five (5) minutes.
- b. Initiate feedwater to the 11 and 12 S/Gs at 150 gpm each for the first five (5) minutes.
- c. Initiate feedwater to the 12 S/G at 150 gpm for the first five (5) minutes.
- d. Initiate feedwater to the 11 S/G at 150 gpm for the first five (5) minutes.

QUESTION: 069 (1.00)

Given the following:

- Unit 1 has tripped from 100% power and ALL feedwater is lost.
- Operators are performing EOP-3, "Loss of All Feedwater," and are tripping all reactor coolant pumps (RCPs).

WHICH ONE (1) of the following is the reason for tripping the RCPs?

- a. To reduce Reactor Coolant System pressure.
- b. To reduce steam flow from the steam generators.
- c. To minimize heat input into the reactor coolant system.
- d. To reduce tube to shell delta pressure in the steam generators.



QUESTION: 070 (1.00)

Given the following:

- The plant tripped from 100% power.
- A station blackout is in progress.
- The Control Room Supervisor (CRS) has directed operators to verify open several 13 KV, 4KV normal supply and 4KV vital supply circuit breakers.

WHICH ONE (1) of the following is the reason for taking these actions?

- a. To prevent damage to equipment if inadvertently started without proper support systems.
- b. To avoid overloading the emergency diesel generators if one subsequently starts.
- c. To prevent operation of equipment with de-energized instrumentation.
- d. To extend emergency battery life.

QUESTION: 071 (1.00)

WHICH ONE (1) of the following methods is used to establish an RCS heat sink following a total loss of all AC power (Station Blackout)?

- a. Automatically by the Steam Bypass valves.
- b. Automatically by the Atmospheric Dump valves.
- c. Local manual operation of the Steam Bypass valves.
- d. Local manual operation of the Atmospheric Dump valves.

QUESTION: 072 (1.00)

Given the following:

- Unit 2 has tripped due to a loss of offsite power.
- Power has been restored per EOP-2, "Loss of Offsite Power."
- Preparations are being made to restart the 21 Reactor Coolant Pump (RCP).
- RCS subcooling and RCP minimum operating limits are met.

WHICH ONE (1) of the following is the MINIMUM criteria/conditions that satisfy the RCP restart requirements?

- a. PZR level is 175 inches and increasing.  
Tcold is 535 degrees F.  
RCP Controlled bleed-off temperature is 210 degrees F.  
Two steam generators are available for heat removal.
- b. PZR level is stable at 150 inches.  
Tcold is 522 degrees F.  
RCP Controlled bleed-off temperature is 190 degrees F.  
One steam generator is available for heat removal.
- c. PZR level is 150 inches and increasing.  
Tcold is 535 degrees F.  
RCP Controlled bleed-off temperature is 210 degrees F.  
Two steam generators are available for heat removal.
- d. PZR level is stable at 175 inches.  
Tcold is 522 degrees F.  
RCP Controlled bleed-off temperature is 190 degrees F.  
One steam generator is available for heat removal.

QUESTION: 073 (1.00)

Given the following:

- Unit 1 120VAC bus 1Y01 has been lost.
- Operators are being directed per AOP-7J, "Loss of 120 Vital AC Power," to shut Letdown Isolation Valves (CVC-515, 516).

WHICH ONE (1) of the following is the reason for closing these valves?

- a. They have no control indication available and placing them in the shut position is a conservative action.
- b. They will eventually lose control air because instrument air to containment is lost.
- c. To isolate any potential leakage flowpath while power is lost.
- d. To minimize transients on the loop charging inlet nozzles when power is restored.

QUESTION: 074 (1.00)

Given the following:

- Unit 2 is operating at 100% power.
- 11 125VDC bus has been lost.

WHICH ONE (1) of the following describes the impact on the plant?

- a. Unit 1 annunciation will be lost.
- b. RCP 21A and 22A will have to be tripped locally.
- c. Unit 2 main turbine will have to be tripped locally.
- d. RPS Channel C will lose indication.

QUESTION: 075 (1.00)

Given the following:

- Unit 2 is operating at 100% power.

WHICH ONE (1) of the following is an indication that a reactor trip is required due to a loss of Instrument Air?

- a. Plant air to Instrument Air header cross connect valve PA-2061-CV has OPENED.
- b. Feedwater regulating valves have gone to their failed position.
- c. The Plant Air header isolation valve PA-2059-CV has SHUT.
- d. The Containment Instrument Air supply valve IA-2085-CV has SHUT.

QUESTION: 076 (1.00)

Given the following:

- A fire has occurred in the cable spreading room.

WHICH ONE (1) of the following reagents is used to extinguish the fire?

- a. Foam.
- b. Dry powder extinguisher.
- c. Halon.
- d. Water fog/spray.

QUESTION: 077 (1.00)

Given the following:

- A fire has occurred in the Control Room.
- The Shift Supervisor has ordered the control room evacuated.
- The reactor was tripped before leaving the control room.
- The main turbine did NOT trip from the control room.

WHICH ONE (1) of the following individuals is responsible for locally tripping the main turbine?

- a. The Reactor Operator (RO).
- b. The Control Room Operator (CRO).
- c. The Control Room Supervisor (CRS).
- d. The Turbine Building Operator (TBO).

QUESTION: 078 (1.00)

WHICH ONE (1) of the following is controlled from the Safe Shutdown panel (1C43)?

- a. Main steam isolation valves.
- b. Reactor coolant pumps 11B and 12B.
- c. 12 Auxiliary feedwater pump speed.
- d. Pressurizer proportional heaters 11 and 12.

QUESTION: 079 (1.00)

Given the following:

- Unit 1 is in MODE 6.

WHICH ONE (1) of the following conditions represents a LOSS of Containment integrity?

- a. The equipment hatch is closed with ONLY four (4) bolts.
- b. One (1) air lock door is OPEN.
- c. A Containment purge is in progress.
- d. An electrical penetration's seals are removed for repairs.

QUESTION: 080 (1.00)

WHICH ONE (1) of the following is the reason for performing a rapid RCS cooldown to less than 465 degrees F. when a total loss of all feedwater occurs?

- a. Provides cooling to the reactor vessel head area so a void will not form.
- b. Allows the steam generators to be fed by the Condensate Booster pumps.
- c. It increases the amount of natural circulation flow.
- d. It prevents lifting the steam generator safety valves when the steam generators are isolated.

QUESTION: 081 (1.00)

Given the following:

- Unit 1 has tripped due to a loss of feedwater.
- EOP-8, "Functional Recovery Procedure," is being implemented.

WHICH ONE (1) of the following is the criteria for going to HR-4, "Once Through Cooling," to provide core cooling?

- a. RCS That is increasing uncontrollably.
- b. RCS pressure is increasing uncontrollably.
- c. RCS Tcold uncontrollably increases five (5) degrees F.
- d. BOTH steam generators levels are minus 250 inches.

QUESTION: 082 (1.00)

Given the following:

- Specific activity of the reactor coolant has exceeded 1.0 microcurie/gram DOSE EQUIVALENT I-131 for more than 100 hours in a continuous time interval.

WHICH ONE (1) of the following is the reason for the requirement to cooldown to below 500 degrees F. within six (6) hours?

- a. Reduces the amount of release, assuming a steam generator tube simultaneously ruptures.
- b. Increases reliability of the data collected for actual iodine determination.
- c. Minimizes the iodine spiking phenomena which occurs due to the large change in THERMAL POWER level caused by the plant shutdown.
- d. Increases coolant density sufficiently to enable self shielding thereby reducing on-site exposure.

QUESTION: 083 (1.00)

WHICH ONE (1) of the following is the MAXIMUM amount of time that charging flow should be allowed to continue if letdown is isolated while operating at 100% power?

- a. 30 seconds.
- b. 45 seconds.
- c. Three (3) minutes.
- d. Five (5) minutes.

QUESTION: 084 (1.00)

WHICH ONE (1) of the following is the responsibility of the Dedicated Supervisor with respect to an on going test or evolution?

- a. Briefs management on expected outcome of the test results.
- b. Approves restart when the test/evolution is temporarily suspended.
- c. Informs the Activity Coordinator of the test results.
- d. Directs activities of operators performing the test or evolution.

QUESTION: 085 (1.00)

WHICH ONE (1) of the following is the HIGHEST level of emergency that the interim Site Emergency Coordinator (SEC) is allowed to downgrade?

- a. Unusual Event
- b. Alert
- c. Site Area Emergency
- d. General Emergency



QUESTION: 086 (1.00)

Given the following:

- Unit 1 is in Mode 5 for a short outage.
- During a containment inspection, a Shift Supervisor notices a radiation barricade rope located near RCP 11A.
- A radiation sign on the ropes reads "Caution: High Radiation Area" and indicates a MAXIMUM radiation level of 900 mrem/hr inside the ropes.

WHICH ONE (1) of the following additional posting requirements and/or controls are required for this area in accordance with Technical Specification 6.12, "High Radiation Area"?

- a. The area should be kept locked and the keys kept under the administrative control of the Shift Supervisor.
- b. The area should be controlled by issuance of a Special Radiation Work permit.
- c. The area should have a flashing light in the immediate area as a warning device.
- d. The area should have a closed circuit TV monitor installed to provide radiation protection personnel with continuous monitoring capability.

QUESTION: 087 (1.00)

WHICH ONE (1) of the following defines the term "success path" as it applies to EOP-8, "Functional Recovery Procedure?"

- a. A course of action based on plant conditions which leads to the diagnosis of a single event.
- b. A course of action based on plant conditions used to address a safety function.
- c. A listing of components/methods available to fulfill each safety function.
- d. A method of evaluating the criteria used to determine function status.

QUESTION: 088 (1.00)

Given the following:

- A twenty five (25) year old Maintenance Contractor with complete exposure records has the following exposure record for the current calendar year:
  - Shallow Dose Equivalent - 2.55 REM
  - Committed Dose Equivalent - 0.75 REM
  - Deep Dose Equivalent - 2.13 REM
  - Lens Dose Equivalent - 3.08 REM
  - Committed Effective Dose Equivalent - 1.95 REM

WHICH ONE (1) of the following is this individuals Total Effective Dose Equivalent (TEDE) for the current calendar year?

- a. 2.88 REM
- b. 3.21 REM
- c. 4.08 REM
- d. 5.43 REM

QUESTION: 089 (1.00)

WHICH ONE (1) of the following evolutions requires the continuous use of a procedure by a qualified watchstander?

- a. Starting a Reactor Coolant Pump.
- b. Transfer between control modes of S/G Main Feedwater Regulating valve.
- c. Shifting switchgear room cooling fans.
- d. Adding hydrogen to the VCT.

QUESTION: 090 (1.00)

WHICH ONE (1) of the following defines how continuously monitored action steps are identified when using Emergency Operating Procedures?

- a. EOP placekeeper steps have an asterisk.
- b. EOP placekeeper steps have the letter "C".
- c. EOP procedural steps contain a bullet identification.
- d. EOP procedural steps are in bold letters.

QUESTION: 091 (1.00)

WHICH ONE (1) of the following identifies the time period, or conditions, that a working copy of a procedure is valid without any additional verification?

- a. 8 hours
- b. 24 hours
- c. Until the end of the shift the procedure was issued.
- d. Until the job the procedure was issued for is complete.

QUESTION: 092 (1.00)

WHICH ONE (1) of the following defines the MINIMUM parameters for a high energy system that requires double valve isolation when preparing a clearance?

	Temperature (degrees F)	Pressure (psig)
a.	150	250
b.	175	450
c.	195	450
d.	225	500

QUESTION: 093 (1.00)

WHICH ONE (1) of the following methods is acceptable for independently verifying the position of a throttled valve?

- a. Close and re-open the valve the prescribed number of turns.
- b. Open and re-close the valve the prescribed number of turns.
- c. Observe the chain and lock position on the valve.
- d. Observe the Operator position the valve.

QUESTION: 094 (1.00)

*Unit 1 operating*

WHICH ONE (1) of the following chemicals is used to promote a chemically reducing environment in the secondary system and to scavenge oxygen?

- a. Ammonia
- b. Ethanol Amine (ETA)
- c. Morpholine
- d. Hydrazine

QUESTION: 095 (1.00)

Given the following:

- A "Hot Work" permit has been issued for welding in the Auxiliary Building.
- A hot work fire watch has been established for the area involving the welding.

WHICH ONE (1) of the following is the MINIMUM time the fire watch is required to remain in the area following the completion of the hot work?

- a. 15 minutes
- b. 30 minutes
- c. 45 minutes
- d. 60 minutes

QUESTION: 096 (1.00)

Given the following:

- A fire protection related Technical Specification Action Statement has been entered, per SA-1-100, "Fire Prevention."

WHICH ONE (1) of the following actions, by itself, is acceptable for establishing OPERABILITY of a fire detection system as required by Technical Specification Action statements?

- a. Safety and Fire Protection personnel perform a direct inspection of the fire system.
- b. Verify there are no hanging alarms or trouble alarms on panel 1C24B for the detection zone under consideration.
- c. Ensure that there are no Temporary Alterations affecting the zone under consideration on panel 1C24B.
- d. Ensure the Surveillance Tests for the detection systems are current and conduct a Channel Functional Test on one detector in the affected area to verify it alarms in the Control Room.

QUESTION: 097 (1.00)

Given the following:

- .. On your rounds as a PWS, you discover the Rad Safety Technician's key ring in the hallway of the NSB.
- No other personnel are around.
- You have notified the Shift Supervisor.

WHICH ONE (1) of the following must also be notified?

- a. Plant General Manager.
- b. GS-NPO.
- c. Nuclear Security Shift Supervisor.
- d. AGS - Rad Control and Support.

QUESTION: 098 (1.00)

WHICH ONE (1) of the following identifies the reason why a magenta dot is attached to an annunciator window in the Control Room?

- a. It is a nuisance alarm.
- b. The alarm is part of or caused by a tag out.
- c. The alarm has been removed from service for a Maintenance Order.
- d. The alarm has multiple inputs, one of which may be removed from service while the annunciator remains in service.

QUESTION: 099 (1.00)

WHICH ONE (1) of the following would require the Shift Supervisor to assign the "Dedicated Supervisor" for an Infrequent Test or Evolution (ITOE)?

- a. Under all conditions.
- b. If not assigned previously by the Activity Manager.
- c. If not assigned previously by the Plant General Manager.
- d. If not assigned previously by the GS-NPO.

QUESTION: 100 (1.00)

Given the following:

- Unit 1 is operating at 100% power.
- All positions are fully staffed per the requirements of NO-1-200, "Control of Shift Activities."

WHICH ONE (1) of the following individuals by title is responsible for assuming the duties of Interim Site Emergency Coordinator (SEC)?

- a. Control Room Supervisor
- b. Shift Supervisor
- c. Plant Watch Supervisor
- d. Assistant Shift Supervisor

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

ANSWER: 001 (1.00)

b. [+1.0]

REFERENCE:

LP#CRO-60-1-9, p. 43, LO 6 & 27.1  
KA 001000K407 (3.7/3.8)

001000K407 ..(KA's)

ANSWER: 002 (1.00)

c. [+1.0]

REFERENCE:

Technical Specification 3.1.3.6.b.2, p. 3/4 1-32.  
LP#CRO-60-1-9, LO 19.7  
KA 001000G005 (3.7/4.1)

001000G005 ..(KA's)

ANSWER: 003 (1.00)

b. [+1.0]

REFERENCE:

LP#CRO-5-2-6, p. 12, LO 10  
OP-1, p. 11.  
KA 002000A103 (3.7/3.8)

002000A103 ..(KA's)

ANSWER: 004 (1.00)

c. [+1.0]



## REFERENCE:

Technical Specifications 3.4.6.2, p. 3/4 4-19

LP#CRO-5-2-6, LO 17.

KA 002000G005 (3.6/4.1)

Note:  $10.0 - (2.5 + 1.8 + 1.5 + 0.12 + 2.7) = 1.38$  gpm unidentified.

002000G005 .. (KA's)

ANSWER: 005 (1.00)

c. [+1.0]

## REFERENCE:

LP#CRO-106-1-6, p. 14.

LP#CRO-5-2-4.SIM, LO 8

KA 003000A107 (3.4/3.4)

003000A107 .. (KA's)

ANSWER: 006 (1.00)

d. [+1.0]

## REFERENCE:

LP#CRO-106-1-6, p. 11, LO 7.

KA 003000A405 (3.1/3.0)

003000A405 .. (KA's)

ANSWER: 007 (1.00)

a. [+1.0]

## REFERENCE:

Facility rewrite: System Engineering says for d. 460 psia sp provides 50 psi subcooling.

KA 004020K612 (2.9/3.1)

004020K612 ..(KA's)

ANSWER: 008 (1.00)

c. [+1.0]

## REFERENCE:

LP#CRO-107-1-5, p. 36, LO 2.14

KA 004010A205 (4.1/4.3)

004010A205 ..(KA's)

ANSWER: 009 (1.00)

b. [+1.0]

## REFERENCE:

CI-3B, p. 14.

LP#CRO-7-1-7, LO 16.1

KA 005000G010 (3.3/3.5)

005000G010 ..(KA's)

ANSWER: 010 (1.00)

d. [+1.0]

REFERENCE:

EOP-ATT-1, Attachment 2.  
LP#CRO-7-1-7, LO 30.  
KA 006000A402 (4.0/3.8)

006000A402 ..(KA's)

ANSWER: 011 (1.00)

a. [+1.0]

REFERENCE:

LP#CRO-7-1-7, p. 40  
KA 006020K404 (3.8/4.2)

006020K404 ..(KA's)

ANSWER: 012 (1.00)

a. [+1.0]

REFERENCE:

LP#CRO-113-5-7, LO 2 and 8.  
KA 008000K104 (3.3/3.3)

008000K104 ..(KA's)

ANSWER: 013 (1.00)

a. [+1.0]

REFERENCE:

OP-1, p. 43.  
LP#CRO-5-2-4-SIM, p. 4, LO 2  
KA 010000A101 (2.8/2.9)

010000A101 ..(KA's)

ANSWER: 014 (1.00)

d. [+1.0]

REFERENCE:

SD-62, p. 22.  
LP#CRO-5-2-6, LO 10.  
KA 010000G005 (3.2/3.8)

010000G005 ..(KA's)

ANSWER: 015 (1.00)

d. [+1.0]

REFERENCE:

LP#CRO-107-1-5, p. 41-42, LO 2.1.5  
KA 011000K101 (3.6/3.9)

011000K101 ..(KA's)

ANSWER: 016 (1.00)

b. [+1.0]

REFERENCE:

SD-58, p. 12-13.  
LP#CRO-58-1-7, LO 4.1  
KA 01100A101 (3.5/3.6)

011000A101 ..(KA's)

ANSWER: 017 (1.00)

a. [+1.0]

REFERENCE:

LP#CRO-59-1-9, p. 30, LO 5.03  
KA 012000K501 (3.3/3.8)

012000K501 ..(KA's)

ANSWER: 018 (1.00)

c. [+1.0]

REFERENCE:

LP#CRO-59-1-9, p. 40, LO 8.04b, 8.02, 8.07b  
SD-59, p. 34-35.  
KA 012000K603 (3.1/3.5)

012000A401 ..(KA's)

ANSWER: 019 (1.00)

a. [+1.0]

REFERENCE:

LP#CRO-63-1-6, LO 1.4  
SD 63 Figures 63-3.  
Modified 1993 Exam Question  
KA 013000K201 (3.6/3.8)

013000K201 ..(KA's)

ANSWER: 020 (1.00)

c. [+1.0]

REFERENCE:

LP#CRO-60-1-9, p. 40-44, LO 10.  
KA 014000K101 (3.2/3.6)

014000K101 ..(KA's)

ANSWER: 021 (1.00)

a. [+1.0]

REFERENCE:

LP#CRO-57-1-9, p. 29-32, LO 4.1  
SD-57, p. 36-37.  
KA 015000K103 (3.1/3.1)

015000K103 ..(KA's)

ANSWER: 022 (1.00)

b. [+1.0]

REFERENCE:

OP-3, p. 20.  
LP#CRO-57-1-9, p. 43, LO 6.3 & 6.4.  
KA 015000A103 (3.7/3.7)

015000A103 ..(KA's)

ANSWER: 023 (1.00)

c. [+1.0]

REFERENCE:

LP#CRO-64-1-6.  
SD-64, p. 14.  
KA 017020K403 (3.1/3.3)

017020K403 ..(KA's)

ANSWER: 024 (1.00)

d. [+1.0]

REFERENCE:

EOP-ATT-1, Attachment 2, p. 2.  
SD-43B, p. 16.  
LP#CRO-7-1-7, p. 64, LO 13 & 14.2  
KA 022000A301 (4.1/4.3)

022000A301 ..(KA's)

ANSWER: 025 (1.00)

a. [+1.0]

REFERENCE:

Tech Spec 3.6.2.2, p. 3/4 6-18  
KA 022000G013 (3.2/3.5)

022000G013 ..(KA's)

ANSWER: 026 (1.00)

c. [+1.0]

REFERENCE:

LP#CRO-7-1-7, p. 65-6, LO 31.15  
KA 026000G008 (3.6/3.7)

026000G008 ..(KA's)

ANSWER: 027 (1.00)

a. [+1.0]

REFERENCE:

EOP-5, p. 16  
LP#CRO-7-1-7, p. 106, LO 28.9  
KA 028000A101 (3.4/3.8)

028000A101 ..(KA's)

ANSWER: 028 (1.00)

c. [+1.0]

REFERENCE:

AOP-6F, p. 10.  
LP#CRO-113-4-5, LO 3.0  
KA 033000A203 (3.1/3.5)

033000A203 ..(KA's)

ANSWER: 029 (1.00)

c. [+1.0]

REFERENCE:

LP#CRO-103-2-7, attachment 1, p. 14, LO 4.7.  
KA 041020A406 (2.9/3.1)

041020A406 ..(KA's)

ANSWER: 030 (1.00)

a. [+1.0]



REFERENCE:

LP#CRO-102-2-5, p. 43 LO 10.  
KA 045000A305 (2.6/2.9)

045000A305 ..(KA's)

ANSWER: 031 (1.00)

c. [+1.0]

REFERENCE:

LP#CRO-103-2-7, LO 1.4  
OI-11A, p. 6  
KA 056000G001 (2.6/2.8)

056000G001 ..(KA's)

ANSWER: 032 (1.00)

c. [+1.0]

REFERENCE:

LP#CRO-103-1-5, p. 9-16, LO 1.7.1.  
KA 059000K104 (3.4/3.4)

059000K104 ..(KA's)

ANSWER: 033 (1.00)

c. [+1.0]

REFERENCE:

LP#CRO-34-2-6, p.7, LO 1 & 9.  
Technical Specification 3/4.7.1.3 Bases, p. B 3/4 7-2.  
Facility exam bank question  
KA 061000G006 (2.7/3.8)

061000G006 ..(KA's)

ANSWER: 034 (1.00)

a. [+1.0]

REFERENCE:

LP#CRO-34-1-8, p. 24, LO 3.3  
KA 061000K404 (3.1/3.4)  
Note: Setpoint 100 gpm and 175 psid.

061000K404 ..(KA's)

ANSWER: 035 (1.00)

d. [+1.0]

REFERENCE:

LP#CRO-53-1-3, p.16, LO 3.1  
KA 062000K403(2.8/3.1)

062000K403 ..(KA's)

ANSWER: 036 (1.00)

a. [+1.0]

REFERENCE:

LLP#CRO-54-1-2, p. 15, LO 5.0.  
KA 063000A101 (2.5/3.3)

063000A101 ..(KA's)

ANSWER: 037 (1.00)

c. [+1.0]

REFERENCE:

OI-21, p. 10.  
LP#CRO-48-1-4, p. 42, LO 19.  
KA 064000G010 (3.4/3.6)

064000G010 ..(KA's)

ANSWER: 038 (1.00)

b. [+1.0]

REFERENCE:

LP#CRO-48-1-4/52-1-2, p. 19-24, LO 23.  
SD-52, p. 27-33.  
KA 064000K101 (4.1/4.4)

064000K101 ..(KA's)

ANSWER: 039 (1.00)

c. [+1.0]

REFERENCE:

SD-42, p. 19. (no LO available)  
KA 086000G007 (3.0/3.2)

086000G007 ..(KA's)

ANSWER: 040 (1.00)

d. [+1.0]

REFERENCE:

SD-42, p. 23-25.  
OI-20, p. 8.  
KA 086000K402 (3.0/3.4)

086000K402 ..(KA's)

ANSWER: 041 (1.00)

c. [+1.0]

REFERENCE:

AOP-1B, p. 6.  
LP#CRO-202-1B, LO 2.  
KA 000001G011 (4.0/4.1)

000001G011 ..(KA's)

ANSWER: 042 (1.00)

d. [+1.0]

REFERENCE:

LP#SRO-301-17-3, p. 8-9. LO 1.4  
KA 000001K103 (3.9/4.0)

000001K103 ..(KA's)

ANSWER: 043 (1.00)

b. [+1.0]

REFERENCE:

AOP-1B, p. 9.  
LP#CRO-202-1B, LO 1  
KA 000003G010 (3.9/3.8)

000003G010 ..(KA's)

ANSWER: 044 (1.00)

d. [+1.0]

REFERENCE:

LP-RO-60-1-9, p. 39-40, LO 7.2  
KA 000003A201 (3.7/3.9)

000003A201 ..(KA's)

ANSWER: 045 (1.00)

d. [+1.0]

REFERENCE:

Technical Specification Bases 3/4.1.3, "Movable Control Assemblies", page B  
3/4 1-6.  
LP#CRO-60-1-9, p. 66, LO 20  
KA 000005K302 (3.6/4.2)

000005K302 ..(KA's)

ANSWER: 046 (1.00)

d. [+1.0]

REFERENCE:

EOP-0, p. 8.  
LP#CRO-201-0-1.SIM, LO 1  
LP#SRO-201-0-5, LO 3.1  
KA 000005A203 (3.5/4.4)

000005A203 ..(KA's)

ANSWER: 047 (1.00)

a. [+1.0]

REFERENCE:

EOP-0, p. 9  
LP#SRO-0-5, LO 10 & 14.3  
KA 000007G010 (4.2/4.1)

000007G010 ..(KA's)

ANSWER: 048 (1.00)

a. [+1.0]

REFERENCE:

EOP-2, p.35  
LP#SRO-201-2-4, LO 11  
KA 000007A103 (4.2/4.1)

000007A103 ..(KA's)

ANSWER: 049 (1.00)

d. [+1.0]

REFERENCE:

LP#CRO-201-5-1.SIM, LO 2.2  
LP#SRO-301-17-3, p. 25, LO 1.3.1  
KA 000008A212 (3.4/3.7)

000008A212 ..(KA's)

ANSWER: 050 (1.00)

b. [+1.0]

REFERENCE:

EOP-5, p. 21  
LP#CRO-201-5-1.SIM, LO 2.2  
KA 000009A234 (3.6/4.2)  
Note: Harsh Containment parameters used.

000009A234 ..(KA's)

ANSWER: 051 (1.00)

c. [+1.0]

REFERENCE:

EOP-5, p. 25 and 72.  
LP#SRO-5-3, LO 1.0  
KA 000009K101 (4.2/4.7)

000009K101 ..(KA's)

ANSWER: 052 (1.00)

b. [+1.0]

## REFERENCE:

EOP-5, Basis Document, p. 79.  
LP#CRO-7-1-7.SIM, p. 14  
LP#CRO-201-5-1.SIM, LO 2.2  
LP#SRO-201-5-3, LO 8  
KA 000011K313 (3.8/4.2)

000011K313 ..(KA's)

ANSWER: 053 (1.00)

c. [+1.0]

## REFERENCE:

EOP-5, p. 38  
LP#SRO-201-5-3, p 28, LO 2.  
KA 000011A111 (4.2/4.2)

000011A111 ..(KA's)

ANSWER: 054 (1.00)

d. [+1.0]

## REFERENCE:

LP#CRO-106-1-6, p. 15, LO 7.  
OI-1A, p. 14-15.  
KA 000015A122 (4.0/4.2)

000015A122 ..(KA's)

ANSWER: 055 (1.00)

a. [+1.0]



## REFERENCE:

AOP-3B, p. 5.  
LP#CRO-7-1-7, p. 97, LO 32.20  
KA 000025G011 (3.5/3.9)

000025G011 ..(KA's)

ANSWER: 056 (1.00)

a. [+1.0]

## REFERENCE:

LP#CRO-203-5A-5, LOSDC Handout, p. 33, LO 5  
KA 000025G012 (3.3/3.5)

Generic Letter 88-17 Note: This question reveals if the candidate is sufficiently sensitive to the issue of loss of SDC, and the very short time frame available to respond to same. Industry events have occurred where SDC has been lost at reduced inventory, and one key issue is the operators were often not aware how little time was available until saturation was reached in the core. The question does not require detailed knowledge of the saturation vs time curve due to the very large time frame of the incorrect distractors.

000025G012 ..(KA's)

ANSWER: 057 (1.00)

a. [+1.0]

## REFERENCE:

AOP-7C, p. 7.  
LP#CRO-113-5-7, LO 9.2  
KA 000026G005 (3.3/3.4)

000026G005 ..(KA's)

ANSWER: 058 (1.00)

b. [+1.0]

REFERENCE:

SD-62, Fig. 62-15.  
LP#CRO-62-1-6, LO 7.2 & 9.2  
KA 000027K203 (2.6/2.8)

000027K203 ..(KA's)

ANSWER: 059 (1.00)

c. [+1.0]

REFERENCE:

LP#CRO-62-1-6, p. 21-24, LO 8.1 & 8.2.  
KA 000027A203 (3.3/3.4)

000027A203 ..(KA's)

ANSWER: 060 (1.00)

b. [+1.0]

REFERENCE:

LP#CRO-58-1-7, p. 14, LO 5.0  
KA 000028A210 (3.3/3.4)

000028A210 ..(KA's)

ANSWER: 061 (1.00)

b. [+1.0]

REFERENCE:

EOP-0, p. 6.  
LP#SRO-201-0-5, LO 2.0  
KA 000029G010 (4.5/4.5)

000029G010 ..(KA's)

ANSWER: 062 (1.00)

d. [+1.0]

REFERENCE:

AOP-6D, p. 8.  
KA 000036A104 (3.1/3.7)

000036A104 ..(KA's)

ANSWER: 063 (1.00)

b. [+1.0]

REFERENCE:

AOP-2A, p. 28  
LP#CRO-202-@2A-4, LO 6.  
KA 000037A206 (4.3/4.5)

000037A206 ..(KA's)

ANSWER: 064 (1.00)

c. [+1.0]

REFERENCE:

LP#SRO-201-6-3, p. 24-25, LO 7.  
KA 000038A139 (3.6/3.7)

000038A139 ..(KA's)

ANSWER: 065 (1.00)

b. [+1.0]

REFERENCE:

EOP-4, p. 11  
LP#SRO-201-4-4, p. 21, LO 6.  
LP#CRO-201-4-1.SIM, LO 2.2  
KA 000040K304 (4.5/4.7)

000040K304 ..(KA's)

ANSWER: 066 (1.00)

d. [+1.0]

REFERENCE:

EOP-4, p. 18.  
LP#CRO-301-16-1, LO 2.  
KA 000040K106 (3.7/3.8)

000040K106 ..(KA's)

ANSWER: 067 (1.00)

b. [+1.0]

REFERENCE:

AOP7G, p. 7.  
LP#CRO-202-7G, p. 10, LO 1.0  
KA 000051A202 (3.9/4.1)

000051A202 ..(KA's)

ANSWER: 068 (1.00)

c. [+1.0]

REFERENCE:

EOP-3, p. 37, and bases page 41.  
LP#CRO-201-3-1.SIM, LO 2.2 & 2.5  
LP#SRO-201-3-4, LO 7.  
KA 000054A204 (4.2/4.3)

000054A204 ..(KA's)

ANSWER: 069 (1.00)

c. [+1.0]

REFERENCE:

EOP-3 Bases, p. 19.  
LP#CRO-201-3-1.SIM, LO 2.2.  
KA 000054K304 (4.4/4.6)

000054K304 ..(KA's)

ANSWER: 070 (1.00)

b. [+1.0]

REFERENCE:

EOP-7 Bases, p. 25.  
LP#SRO-201-7-3, LO 3  
KA 000055K302 (4.3/4.6)

000055K302 .. (KA's)

ANSWER: 071 (1.00)

d. [+1.0]

REFERENCE:

EOP-7, p. 8-9.  
LP#SRO-201-7-3, LO 6.1  
LP#CRO-201-7-1.SIM, LO 2.2.  
KA 000055A204 (3.7/4.1)

000055A204 .. (KA's)

ANSWER: 072 (1.00)

d. [+1.0]

REFERENCE:

EOP-2, p. 37  
LP#SRO-201-2-4, LO 11.2  
LP#CRO-201-2-1.SIM, LO 5.2  
KA 000056A248 (4.3/4.4)

000056A248 .. (KA's)

ANSWER: 073 (1.00)

b. [+1.0]

REFERENCE:

LP#CRO-202-7J-1, p. 11, LO 1.2  
KA 000057K301 (4.1/4.4)

000057K301 ..(KA's)

ANSWER: 074 (1.00)

c. [+1.0]

REFERENCE:

AOP-7J, p. 42.  
LP#CRO-202-7J-1, OH-11, LO 4.1  
KA 000058A203 (3.5/3.9)

000058A203 ..(KA's)

ANSWER: 075 (1.00)

b. [+1.0]

REFERENCE:

AOP-7D, p. 7 and note 2h.  
LP#CRO-202-7D-4, LO 6.1.1  
KA 000065A206 (3.6/4.2)

000065A206 ..(KA's)

ANSWER: 076 (1.00)

c. [+1.0]

REFERENCE:

SD-42, p. 16.

KA 000067A108 (3.4/3.7)

000067A108 .. (KA's)

ANSWER: 077 (1.00)

a. [+1.0]

REFERENCE:

AOP-9A, p. 6

LP#CRO-202-9A-5, LO 1.2.

KA 000068G010 (4.1/4.2)

000068G010 .. (KA's)

ANSWER: 078 (1.00)

c. [+1.0]

REFERENCE:

AOP-9A, p. 15

LP#CRO-202-9A-5, LO 12.3

KA 000068K201 (3.9/4.0)

000068K201 .. (KA's)

ANSWER: 079 (1.00)

d. [+1.0]



REFERENCE:

AOP-4A, p. 5.  
KA 000069A201 (3.7/4.3)

000069A201 ..(KA's)

ANSWER: 080 (1.00)

b. [+1.0]

REFERENCE:

EOP-3, Bases p. 24.  
LP#SRO201-3-4, p. 15, LO 4  
KA 000074K311 (4.0/4.4)

000074K311 ..(KA's)

ANSWER: 081 (1.00)

c. [+1.0]

REFERENCE:

EOP-8, p. 211  
LP#CRO-201-3-1.SIM, LO 2.5  
LP#SRO-3-4, LO 5  
KA 000074G011 (4.5/4.6)

000074G011 ..(KA's)

ANSWER: 082 (1.00)

a. [+1.0]

REFERENCE:

LP#CRO-202-6A-2, p. 13-14, LO 3.2  
LP#CRO-212-1-1, LO 5.0  
KA 000076K306 (3.2/3.8)

000076K306 .. (KA's)

ANSWER: 083 (1.00)

a. [+1.0]

REFERENCE:

OI-2A, p. 7  
LP#CRO-107-1-3, LO 1 & 2  
KA 000022K307 (3.0/3.2)

000022K307 .. (KA's)

ANSWER: 084 (1.00)

d. [+1.0]

REFERENCE:

NO-1-102, p. 11.  
LP#SRO-348-1-1, LO 7.2  
KA 194001A103 (2.5/3.4)

194001A103 .. (KA's)

ANSWER: 085 (1.00)

a. [+1.0]

REFERENCE:

ERPIP 3.0, Attachment 9, p. 2.  
LP#SRO-217-3.0-2, LO 10.4  
KA 194001A116 (3.1/4.4)

194001A116 ..(KA's)

ANSWER: 086 (1.00)

b. [+1.0]

REFERENCE:

Technical Specification 6.12, p. 6-29  
GOT-337-22-5, p. 22.10  
KA 194001K103 (2.8/3.4)  
SRO Only

194001K103 ..(KA's)

ANSWER: 087 (1.00)

b. [+1.0]

REFERENCE:

EOP-8 Bases, p. 3  
LP#CRO-201-8-1.SIM, LO 2.6.  
LP#SRO-8-3, LO 13  
KA 194001A102 (4.1/3.9)

194001A102 ..(KA's)

ANSWER: 088 (1.00)

c. [+1.0]

REFERENCE:

GOT-337-21-6, p. 21.8  
KA 194001K103 (2.8/3.4)  
TEDE = CEDE + DDE

194001K103 .. (KA's)

ANSWER: 089 (1.00)

a. [+1.0]

REFERENCE:

NO-1-201, p. 12, 41-42  
LO 2.1 & 3  
194001A101 (3.3/3.4)

194001A101 .. (KA's)

ANSWER: 090 (1.00)

b. [+1.0]

REFERENCE:

NO-1-201, p. 16.  
KA 194001A102 (4.1/3.9)

194001A102 .. (KA's)

ANSWER: 091 (1.00)

b. [+1.0]

## REFERENCE:

NO-1-201, p. 11  
LP# SRO-204-300-1, LO 3.  
KA 194001A101 (3.3/3.4)

194001A101 ..(KA's)

ANSWER: 092 (1.00)

d. [+1.0]

## REFERENCE:

NO-1-112, p.20  
KA 194001K102 (3.7/4.1)  
NOTE: >200 deg. or > 500psi

194001K102 ..(KA's)

ANSWER: 093 (1.00)

d. [+1.0]

## REFERENCE:

NO-1-200, p. 23.  
KA 194001K101 (3.6/3.7)

194001K101 ..(KA's)

ANSWER: 094 (1.00)

d. [+1.0]

## REFERENCE:

ENG-305-00, p. 17, LO 2.4  
KA 194001A114 (2.5/2.9)

194001A114 ..(KA's)

ANSWER: 095 (1.00)

b. [+1.0]

REFERENCE:

SA-1-100, p. 15  
KA 194001K116 (3.5/4.2)

194001K116 .. (KA's)

ANSWER: 096 (1.00)

d. [+1.0]

REFERENCE:

SA-1-100, p. 23.  
KA 194001K116 (3.5/4.2)

194001K116 .. (KA's)

ANSWER: 097 (1.00)

c. [+1.0]

REFERENCE:

NO-1-110, p. 12  
KA 194001K105 (3.1/3.4)

194001K105 .. (KA's)

ANSWER: 098 (1.00)

d. [+1.0]

REFERENCE:

NO-1-206, p. 9.  
LP# SRO-306-1, LO 6.1.  
KA 194001A113 (4.3/4.1)

194001A113 ..(KA's)

ANSWER: 099 (1.00)

d. [+1.0]

REFERENCE:

NO-1-102, p. 11  
KA 194001A103 (2.5/3.4)

194001A103 ..(KA's)

ANSWER: 100 (1.00)

b. [+1.0]

REFERENCE:

NO-1-100, p. 10.  
ERPIP 3.0, p. 1.  
KA 194001A116 (3.1/4.4)

194001A116 ..(KA's)

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

## A N S W E R   K E Y

## MULTIPLE CHOICE

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



## A N S W E R   K E Y

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

A N S W E R   K E Y

- 092    d
- 093    d
- 094    d
- 095    b
- 096    d
- 097    c
- 098    d
- 099    d
- 100    b

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

S R O Exam P W R Reactor  
Organized by Question Number

QUESTION	VALUE	REFERENCE
001	1.00	8000001
002	1.00	8000002
003	1.00	8000006
004	1.00	8000008
005	1.00	8000004
006	1.00	8000005
007	1.00	8000009
008	1.00	8000010
009	1.00	8000052
010	1.00	8000021
011	1.00	8000022
012	1.00	8000048
013	1.00	8000035
014	1.00	8000037
015	1.00	8000038
016	1.00	8000039
017	1.00	8000042
018	1.00	8000043
019	1.00	8000012
020	1.00	8000016
021	1.00	8000014
022	1.00	8000015
023	1.00	8000028
024	1.00	8000017
025	1.00	8000018
026	1.00	8000020
027	1.00	8000050
028	1.00	8000047
029	1.00	8000053
030	1.00	8000055
031	1.00	8000027
032	1.00	8000025
033	1.00	8000023
034	1.00	8000024
035	1.00	8000044
036	1.00	8000029
037	1.00	8000040
038	1.00	8000041
039	1.00	8000045
040	1.00	8000046
041	1.00	8000060
042	1.00	8000061
043	1.00	8000062
044	1.00	8000106
045	1.00	8000063
046	1.00	8000064
047	1.00	8000065
048	1.00	8000066
049	1.00	8000070

S R O Exam P W R Reactor  
Organized by Question Number

QUESTION	VALUE	REFERENCE
050	1.00	8000071
051	1.00	8000072
052	1.00	8000068
053	1.00	8000069
054	1.00	8000073
055	1.00	8000074
056	1.00	8000075
057	1.00	8000076
058	1.00	8000077
059	1.00	8000078
060	1.00	8000059
061	1.00	8000105
062	1.00	8000104
063	1.00	8000090
064	1.00	8000089
065	1.00	8000079
066	1.00	8000080
067	1.00	8000081
068	1.00	8000082
069	1.00	8000083
070	1.00	8000086
071	1.00	8000087
072	1.00	8000084
073	1.00	8000058
074	1.00	8000057
075	1.00	8000085
076	1.00	8000093
077	1.00	8000094
078	1.00	8000095
079	1.00	8000099
080	1.00	8000096
081	1.00	8000097
082	1.00	8000091
083	1.00	8000107
084	1.00	8000108
085	1.00	8000109
086	1.00	8000110
087	1.00	8000113
088	1.00	8000114
089	1.00	8000115
090	1.00	8000116
091	1.00	8000117
092	1.00	8000118
093	1.00	8000120
094	1.00	8000121
095	1.00	8000122
096	1.00	8000123
097	1.00	8000125
098	1.00	8000126

S R O Exam P W R Reactor  
Organized by Question Number

QUESTION	VALUE	REFERENCE
099	1.00	8000127
100	1.00	8000129
	-----	
	100.00	
	-----	
	-----	
	100.00	

S R O Exam P W R Reactor  
 O r g a n i z e d b y K A G r o u p

## PLANT WIDE GENERICS

QUESTION	VALUE	KA
089	1.00	194001A101
091	1.00	194001A101
090	1.00	194001A102
087	1.00	194001A102
099	1.00	194001A103
084	1.00	194001A103
098	1.00	194001A113
094	1.00	194001A114
100	1.00	194001A116
085	1.00	194001A116
093	1.00	194001K101
092	1.00	194001K102
086	1.00	194001K103
088	1.00	194001K103
097	1.00	194001K105
096	1.00	194001K116
095	1.00	194001K116
	-----	
PWG Total	17.00	

## PLANT SYSTEMS

## Group I

QUESTION	VALUE	KA
002	1.00	001000G005
001	1.00	001000K407
005	1.00	003000A107
006	1.00	003000A405
008	1.00	004010A205
007	1.00	004020K612
019	1.00	013000K201
020	1.00	014000K101
022	1.00	015000A103
021	1.00	015000K103
023	1.00	017020K403
024	1.00	022000A301
025	1.00	022000G013
026	1.00	026000G038
031	1.00	056000G001
032	1.00	059000K104
033	1.00	061000G006
034	1.00	061000K404
036	1.00	063000A101
	-----	

S R O Exam P W R Reactor  
 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	_____	_____
PS-I Total	19.00			

## Group II

QUESTION	VALUE	KA	_____	_____
003	1.00	002000A103		
004	1.00	002000G005		
010	1.00	006000A402		
011	1.00	006020K404		
013	1.00	010000A101		
014	1.00	010000G005		
016	1.00	011000A101		
015	1.00	011000K101		
018	1.00	012000A401		
017	1.00	012000K501		
027	1.00	028000A101		
028	1.00	033000A203		
035	1.00	062000K403		
037	1.00	064000G010		
038	1.00	064000K101		
039	1.00	086000G007		
040	1.00	086000K402		
	-----			
PS-II Total	17.00			

## Group III

QUESTION	VALUE	KA	_____	_____
009	1.00	005000G010		
012	1.00	008000K104		
029	1.00	041020A406		
030	1.00	045000A305		
	-----			
PS-III Total	4.00			
	-----			
	-----			
PS Total	40.00			

## EMERGENCY PLANT EVOLUTIONS

## Group I

S R O Exam P W R Reactor  
 O r g a n i z e d b y K A Group

## EMERGENCY PLANT EVOLUTIONS

## Group I

QUESTION	VALUE	KA
041	1.00	000001G011
042	1.00	000001K103
044	1.00	000003A201
043	1.00	000003G010
046	1.00	000005A203
045	1.00	000005K302
053	1.00	000011A111
052	1.00	000011K313
054	1.00	000015A122
057	1.00	000026G005
061	1.00	000029G010
066	1.00	000040K106
065	1.00	000040K304
067	1.00	000051A202
071	1.00	000055A204
070	1.00	000055K302
073	1.00	000057K301
076	1.00	000067A108
077	1.00	000068G010
078	1.00	000068K201
079	1.00	000069A201
081	1.00	000074G011
080	1.00	000074K311
082	1.00	000076K306
-----		
EPE-I Total	24.00	

## Group II

QUESTION	VALUE	KA
048	1.00	000007A103
047	1.00	000007G010
049	1.00	000008A212
050	1.00	000009A234
051	1.00	000009K101
083	1.00	000022K307
055	1.00	000025G011
056	1.00	000025G012
059	1.00	000027A203
058	1.00	000027K203
063	1.00	000037A206
064	1.00	000038A139
068	1.00	000054A204
069	1.00	000054K304



S R O Exam P W R Reactor  
 Organized by K A Group

EMERGENCY PLANT EVOLUTIONS

Group II

QUESTION	VALUE	KA	_____	_____
074	1.00	000058A203		
075	1.00	000065A206		
-----				
EPE-II Total	16.00			

Group III

QUESTION	VALUE	KA	_____	_____
060	1.00	000028A210		
062	1.00	000036A104		
072	1.00	000056A248		
-----				
EPE-III Total	3.00			
-----				
EPE Total	43.00			
-----				
-----				
Test Total	100.00			

## A N S W E R   K E Y

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

## A N S W E R   K E Y

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

A N S W E R   K E Y

092   d  
093   d  
094   d  
095   b  
096   d  
097   c  
098   d  
099   d  
100   b

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

ATTACHMENT 3

SIMULATION FACILITY REPORT

Facility License: DPR-53 and DRP-69

Facility Docket No: 50-317 and 50-318

Operating Test Administration: November 27-30, 1995

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 noncompliance with 10 CFR 55.45(b). These observations do not affect NRC certification or approval of the simulation facility other than to provide information that may be used in future evaluations. No licensee action is required in response to these observations.

ITEM

DESCRIPTION

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None