U.S. NUCLEAR REGULATORY COMMISSION

REGION III

REPORT NO. 50-456/OL-96-01(DRS)

FACILITY
Braidwood Nuclear Station

Licenses No. NPF-72; NPF-77

LICENSEE
Commonwealth Edison Company
1400 Opus Place
Downers Grove, IL 60515

DATES
April 1 through 5, 1996

EXAMINERS
J. Lennartz, Chief Examiner
E. Plettner, Examiner
M. Bielby, Examiner

APPROVED BY

Thomas M. Burdick
Thomas M. Burdick, Chief
Operator Licensing Section

4/23/96
Date

Examination Summary

Examination administered on week of April 1, 1996 (Report No. 50-456/OL-96-01(DRS))
Initial licensing written and operating examinations were administered to one reactor operator (RO) and four senior reactor operator (SRO) applicants. An exit meeting was held with plant management on April 5, 1996.

RESULTS

The applicants appeared well prepared for the examination and their overall performance was excellent. All five applicants passed both the written and operating examinations.

The following is a summary of examiner observations noted during examination development and administration:

Strength

- The applicants' effective use of communications during the dynamic simulator examinations (Section 5.c).

Weakness

- The applicants' knowledge of a recently installed modification which could be used to start the 1B Auxiliary Feedwater (AFW) pump locally with an existing low suction pressure condition (Section 5.a).

Examination Development Observations

- The sample plan used for examination development was identical to one which had been previously used at another PWR site within the company. Continued use of this practice would preclude examination development from a random sample of required operator knowledges and abilities (Section 3).

- The written examination level of difficulty was considered to be at the low end (Section 3.a).

REPORT DETAILS

1. Examiners

J. Lennartz, Chief Examiner
E. Plettner, Examiner
M. Bielby, Examiner

2. Persons Contacted

Licensee Representatives

T. Tulon, Station Manager
D. Cooper, Operations Manager
J. Walker, Training Director
L. Weber, Shift Operations Supervisor
T. Simpkin, Regulatory Assurance Supervisor
D. Myers, ILT Group Leader
P. Hippley, Training Exam Development
J. Lewand, Regulatory Assurance
C. Walrath, Operations Training Lead
R. Coon, Operations Staff Supervisor

U. S. Nuclear Regulatory Commission

C. Phillips, Senior Resident Inspector

3. Licensee Examination Preparation

The licensee volunteered to participate in a pilot program in which the NRC initial operator license examination was prepared by the licensee, and reviewed and approved by the NRC. The written portion of the examination was administered by the licensee, and the operating portion by the NRC.

Examination preparation and administration was prescribed by NUREG 1021, "Operator Licensing Examiner Standards," Revision 7, and superseded in part by Interim Pilot Examination Guidance approved by Nuclear Reactor Regulation/ Headquarters Operator Licensing Branch (NRR/HOLB).

The NRC examiners concluded the material developed for this examination was adequate and considered an improvement from other pilot program examination material it was compared to.

However, an identical sample plan was used for examination development that was recently used to develop an examination at another PWR site within the company. If this practice were to continue the same operator knowledges, abilities, and related plant system tasks would be continually tested on each subsequent examination. This would preclude examination development from a random sample of required operator knowledges and abilities.

The following information is provided for evaluation by the licensee via their SAT based training program. No response is required.

a. Written Examination

The written examination was a 100 point multiple choice format prepared by the licensee, reviewed and approved by RIII NRC, and administered by the licensee. The examination was technically accurate as evidenced by no post examination comments. However, examination level of difficulty was considered low.

The following examples of question deficiencies contributed to the low level of difficulty:

- Questions that contained implausible distractors.
- Distractors which could be eliminated without having to reference information in the question stem (i.e. two distractors that indicated exact opposite responses such as decrease and increase, one being the correct answer, along with two distractors not related).
- Distractors that referenced specific question stem information which could be used to eliminate that distractor as a possible choice without having to analyze all the given information.
- Specific plant conditions or events identified in the question stem instead of providing symptoms or parameters which would require analysis to determine plant or system status.

The facility incorporated the NRC review comments regarding the identified deficiencies. The NRC examiners concluded the examination met the examination standard guidance and would discriminate a competent from less than competent license applicant. However, while acceptable, the administered examination level of difficulty was still considered low.

b. Walkthrough

The walkthrough portion of the examination included an administrative section consisting of five functional areas each to be covered using two prescripted questions or one job performance measure (JPM), and also a ten JPM walkthrough consisting of seven control room JPMs and three in plant JPMs with each respective JPM incorporating two prescripted questions. This material was developed by the facility and approved and administered by the NRC.

There were a few "direct look up" questions submitted by the licensee which were not allowed by the exam guidance as JPM open reference questions. These questions were modified following NRC review to meet the examination development guidance.

c. Dynamic Simulator Scenarios

Dynamic simulator scenarios were developed by the facility and approved and administered by the NRC. Only minor changes were required to the scenarios following the NRC review and the NRC examiners considered the scenarios adequate.

A few dynamic scenarios contained some malfunctions that were not integrated with scenario conditions or subsequent events. These malfunctions did not affect event mitigation strategies and therefore resulted in scenarios developed at a lower level of difficulty then would be with integrated malfunctions and events. The examiners concluded that integration of scenario malfunctions needs improvement.

4. Simulator Fidelity

Two simulator discrepancies were noted during examination administration and are described in Enclosure 2, Simulation Facility Report.

5. Initial License Training Program Observations

This information is being provided as input to the licensee's system approach to training (SAT) process. No response is required.

a. Job Performance Measures (JPMs) and Administrative Topics

The NRC identified the following weakness in the applicants' knowledge during the post-examination review of the JPMs. The majority of the applicants failed to provide the expected response for the following knowledge area examined:

- A JPM question was developed to test knowledge regarding an AFW modification that was installed on Unit 1 during the last refueling outage (A1R05). A switch located on the Auxiliary Building 364' elevation was modified to allow a 1B AFW pump local start if a low suction pressure condition existed by placing the switch in the "Start with Bypass" position. These actions were proceduralized in the AFW operating procedure BwOP AF-7, Revision 12.

  One applicant incorrectly indicated the pump could be started with the given low suction pressure condition by placing the local switch in the "start" position. Two other applicants indicated the pump could be started if the suction pressure switch were bypassed by using jumpers and the 1B AFW pump control switch was taken to start. While a pump start could be accomplished by this method and would be considered technically correct it was apparent the applicants were unaware of the modification.

  The NRC examiners considered the applicants' knowledge regarding the installed modification to allow a 1B AFW pump start in a timely manner if a low suction pressure condition existed a weakness.

b. Dynamic Simulator Scenarios

The following strength in the applicants' abilities was observed during administration of the dynamic simulator scenarios:

- The applicants' communications amongst control room crew members and plant paging system use to keep support personnel outside the control room informed of plant status was excellent. Additionally, three way communication was effectively utilized during routine as well as abnormal plant conditions.

6. Exit Meeting

An exit meeting with plant management was held on April 5, 1996. Those that attended the meeting are listed in Section 2. Observed strengths and weaknesses were discussed.

Enclosure 2

SIMULATION FACILITY REPORT

Facility Licensee: Braidwood Nuclear Station

Facility Licensee Docket Nos. 50-456; 50-457

Operating Tests Administered On: Week of April 1, 1996

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.

While conducting the simulator portion of the operating tests, the following items were observed:

ITEM	DESCRIPTION
1. Simulator Failure	Immediately following initiation of a steam break inside containment with failure of an MSIV isolation the simulator computer lost communications with the simulator panels. The scenario had to be terminated and the examination was delayed approximately 30 minutes while the simulator software group recovered the simulator. A backup scenario was then utilized to complete the examination.
2. Digital MW Meter	The main generator digital MW output meter reading oscillated 50 MWs from actual generator output for no apparent reason. This had already been identified by the facility and was being investigated.

U. S. NUCLEAR REGULATORY COMMISSION
SITE-SPECIFIC
WRITTEN EXAMINATION

APPLICANT INFORMATION	
Name: MASTER EXAMINATION	Region: I / II / (III) / IV / V
Date: APRIL 1, 1996	Facility/Unit: BRAIDWOOD Unit 1 AND 2
License Level: (RO) / SRO	Reactor Type: (W) / CE / BW / GE

INSTRUCTIONS

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 percent. Examination papers will be picked up 4 hours after the examination starts.

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

_____
Applicant's Signature

RESULTS	
Examination Value	_____ Points
Applicant's Score	_____ Points
Applicant's Grade	_____ Percent

U. S. NUCLEAR REGULATORY COMMISSION
SITE-SPECIFIC
WRITTEN EXAMINATION

APPLICANT INFORMATION	
Name: MASTER EXAMINATION	Region: I / II / (III) / IV / V
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_____
Applicant's Signature

RESULTS	
Examination Value	_____ Points
Applicant's Score	_____ Points
Applicant's Grade	_____ Percent

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.

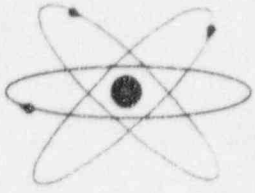
8. Mark your answers on the answer sheet provided and do not leave any question blank.

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.



BRAIDWOOD
ILT
NRC
WRITTEN
EXAM
1996
RO/SRO

ComEd

RO Q# 20 HIST M Used Tech Review exam #2
SRO Q# DIFF C Answer d.

The plant was operating at 50% power when an inadvertent safety injection occurred. At the time of the event, the 1B AFW pump was out of service and the 1A AFW pump would not start. The operators wish to regain control of the normal (Main) feedwater valves in order to feed the steam generators using the startup feedwater pump.

IDENTIFY the ORDER of actions necessary for the operators to be successful:

a. Reset SI, reset FW Isolation, cycle reactor trip breakers, reset FW Isolation Aux relays.

b. Reset FW Isolation, reset SI, cycle reactor trip breakers, reset FW Isolation Aux relays.

c. Reset SI, cycle reactor trip breakers, reset FW Isolation Aux relays, reset FW Isolation.

d. Reset SI, cycle reactor trip breakers, reset FW Isolation, reset FW Isolation Aux relays.

RO Sample Plan PS GRP I 013 K–A # 013000A4.02 * 4.3\4.4
SRO Sample Plan Reference Feedwater Notes FW-1

COMMENTS Stem and all distractors are different

RO Q# 32 HIST N Used
SRO Q# DIFF C Answer **d.**

UNIT 1 has just experienced a LOCA coincident with a Loss of Offsite Power. The crew is implementing EP-1, "Loss of Reactor or Secondary Coolant", and are at step 11 checking if DGs can be STOPPED.

If power CANNOT be restored to bus 144 by Offsite Power, which ONE of the following loads must be aligned MANUALLY to bus 142?

a. 1A Containment Chiller

b. 1C Circ Water Pump

c. Primary Water Makeup Pump OB

d. Pressurizer Heaters

RO Sample Plan PS GRP II 064 K–A # 064000K1.01 * 4.1 \ 4.4
SRO Sample Plan Reference EP-1 step 11

COMMENTS

RO Q# 33 HIST N Used
SRO Q# DIFF C Answer **a.**

The following plant conditions exist:

- The plant is at 50% power
- Normal at power electrical lineup
- A loss of DC Bus 111 has occurred

Assuming no operator action, which ONE of the following would occur?

a. Reactor trip from low-low SG level.

b. Loss of field flashing for 1B diesel generator.

c. Turbine trip due to loss of power to the 20-2/AST solenoid.

d. Loss of Power to Bus 159 following Main Generator Trip.

RO Sample Plan PS GRP II 063 K–A # 063000K3.02 3.5 \ 3.7
SRO Sample Plan Reference Sys CH 8a page 28

COMMENTS

RO Q# 37 HIST BR Used EMERGENCY OPS EXAM 11/16/95
SRO Q# DIFF M Answer **d.**

Rods are being withdrawn in manual during a reactor startup, with all systems operable.

For the Control Banks, which ONE of the following describes the status of the DRPI rod bottom lights at the moment the ROD AT BOTTOM annunciator alarm clears?

a. Banks A, B, C, & D -- OFF.

b. Banks A, B, C, & D -- ON.

c. Banks A, B, C -- OFF; Bank D -- ON.

d. Bank A -- OFF; Banks B, C, & D -- ON.

RO Sample Plan PS GRP II 014 K–A # 014000K4.03 3.2\3.4
SRO Sample Plan Reference RPI - Chap 29, GP 100-2

COMMENTS

RO Q# 45 HIST N Used
SRO Q# DIFF M Answer **b.**

In accordance with OA PRI-6 "Component Cooling Water System Malfunction", which ONE of the following actions must be taken if CC685 CLOSED on a high flow signal, resulting in a loss of CCW cooling to the RCP thermal barriers?

a. Reduce power and trip the RCPs within 30 minutes.

b. Monitor RCP Seal Outlet and RCP Lower Radial bearing temperatures.

c. Trip the reactor and then the RCP's immediately.

d. Declare CC685 INOPERABLE per T.S. 3.6.3, "Containment Isolation Valves".

RO Sample Plan PS GRP III 008 K–A # 008000K3.01 * 3.4\3.5
SRO Sample Plan Reference OA PRI-6

COMMENTS

RO Q# 47 HIST N Used
SRO Q# DIFF C Answer c.

The RHR system is aligned to CVCS letdown during solid plant operations with CV-131 in AUTO. Tripping the running RHR pump with NO subsequent operator action will result in which ONE of the following conditions?

a. The RHR pump discharge relief will lift.

b. The running CV pump will cavitate.

c. The RCS pressure will INCREASE.

d. The RCS pressure will DECREASE.

RO Sample Plan PS GRP III 005 K–A # 005000K5.05 2.7 \ 3.1

SRO Sample Plan Reference GP 100-1

COMMENTS

RO Q# 49 HIST M Used Zion Question
SRO Q# DIFF C Answer c.

A Safety Injection has occured on Unit 1 and BOTH DGs are running. 1B SX pump has failed to start. Which ONE the following describes the effect this failure will have on the 1B DG, assuming that NO operator action is taken.

a. If the 1B SX pump is not restored, the 1B DG will automatically trip on high Jacket Water temperature.

b. The 1B DG will be unaffected since the SX system is crosstied with the other Unit.

c. The 1B DG will be unaffected since the SX system is crosstied between trains.

d. If the 1B SX pump is not restored, the 1B DG will experience high Main Bearing temperatures.

RO Sample Plan PS GRP III 076 K–A # 076000K1.05 3.8\4.0
SRO Sample Plan Reference Sys LP CH 20, Page 48, Fig 20-1a

COMMENTS This is only conceptually similar to the Zion Question, we do not believe this is a modification

RO Q# 50 HIST N Used
SRO Q# DIFF C Answer **b.**

The following plant conditions exist:

- Reactor Power is at 80%
- A total loss of instrument air occurs

Which ONE of the following describes the result of these conditions?

a. Pressurizer level will DECREASE because 1CV121 fails CLOSED.

b. Pressurizer pressure will be controlled by the pressurizer PORV's.

c. Steam generator pressure will be controlled by the steam dumps.

d. Auxiliary feedwater flow will be ZERO because the AF005 valves fail CLOSED.

RO Sample Plan PS GRP III 078 K--A # 078000K3.02 3.4 \ 3.6
SRO Sample Plan Reference Sys LP CH 14, Page 26/28

COMMENTS

RO Q# 57 HIST M Used 93/95 Brwd exams
SRO Q# DIFF M Answer a.

According to the operator Action Summary Page of EP-0, "Reactor Trip or Safety Injection", which ONE of the following conditions would satisfy RCP Trip Criteria?

a. Containment Phase B actuation.

b. Containment Phase A actuation.

c. RCS Pressure 1250 psig with SI pump flow (FI-917) at 45 gpm, WITHOUT a controlled cooldown in progress.

d. RCS Pressure 1250 psig with SI pump flow (FI-917) at 200 gpm, WITH a controlled cooldown in progress.

RO Sample Plan EPE GRP I 015 * K–A # 000015EA2.10 3.7 \ 3.7
SRO Sample Plan Reference EP-0 OAS page

COMMENTS Stem and all distractors are different, but this question contains some similar conceptual elements. This question was not physically modified from previous questions.

RO Q# 62 HIST N Used
SRO Q# DIFF M Answer c.

The plant has experienced a large LOCA and the ECCS has been aligned for Cold Leg Recirculation. The containment spray pumps are being supplied by the RWST. Containment pressure is 18 psig.

Which ONE of the following RWST levels is the maximum (highest RWST level) at which the Containment Spray Pump suctions would be aligned to the Containment Recirc Sumps per ES-1.3 "Transfer to Cold Leg Recirculation"?

a. 46 %

b. 19 %

c. 5 %

d. 0%

RO Sample Plan EPE GRP II 000011 K–A # 000011SG.11 * 4.3\ 4.5

SRO Sample Plan Reference ES-1.3

COMMENTS

RO Q# 65 HIST N Used

SRO Q# DIFF C Answer a.

Unit 2 is at EOL with all rods out and rod control in MANUAL. During the last 2 shifts, with a constant turbine load, Tave has decreased due to an operator error in setting the Boric Acid Potentiometer resulting in a slow boration following VCT makeup. The following changes have occurred:

	Yesterday	Present
- Tave:	580°F	577°F
- Delta-I:	-2.0%	-1.0%

Delta-I has become LESS NEGATIVE because...? (select ONE of the following)

a. There is a larger density change in the top of the core. Therefore, there is a larger positive reactivity insertion in the top of the core.

b. There is a larger density change in the bottom of the core. Therefore, there is a larger positive reactivity insertion in the bottom of the core.

c. There is a larger density change in the top of the core. Therefore, there is a larger positive reactivity insertion in the bottom of the core.

d. There is a larger density change in the bottom of the core. Therefore, there is a larger positive reactivity insertion in the top of the core.

RO Sample Plan PS GRP I 001 K–A # 001000K5.29 3.7 \ 3.9

SRO Sample Plan Reference Fund Power Dist CH 2, Page 24

COMMENTS

RO Q# 80 HIST M Used Tech review # 2
SRO Q# DIFF C Answer d.

With Reactor Power at 85%, the following conditions are reported by the unit NSO:

- 125V DC Dist Panel 112/114 Volt Low Alarm - LIT
- MCB DC Bus 112 Voltage - NORMAL

Which ONE of the following describes the plant response to these conditions?

a. Decreasing Steam Generator Level due to the closure of all feedwater regulating valves.

b. 1B Charging pump cannot be started from the control room due to a loss of control power.

c. PMG breaker cannot be opened from the control room due to a loss of control power.

d. Increasing pressurizer level due to the loss of letdown.

RO Sample Plan EPE GRP II 000058 K–A # 000058EA2.03 3.5\ 3.9
SRO Sample Plan Reference CVCS notes CV-1 / 20-E-1-4030 CV29

COMMENTS Stem wording different, 2 distractors different

RO Q# 82 HIST N Used
SRO Q# DIFF A Answer c.

The following plant conditions exist:

- The reactor is at 100% power, with all controls in automatic
- Pressurizer level control channel selector switch is in the 461/460 position
- PZR Level channels indicate as follows:

  Level Channel 459 - 59%
  Level Channel 460 - 61%
  Level Channel 461 - 0%
  Level Channel 462 - 40%

WHICH ONE (1) of the following describes the plant response with no operator intervention?

a. Backup Heaters energize.

b. Charging flow reduces to minimum.

c. Reactor trips on HIGH PZR LEVEL.

d. Reactor trips on HIGH PZR PRESSURE.

RO Sample Plan EPE GRP III 000028 K–A # 000028EA2.02 3.4\3.8
SRO Sample Plan Reference Sys CH 14, Page 86

COMMENTS

RO Q# 85 HIST B Used Zion 1/96 exam
SRO Q# DIFF M Answer **a.**

The reactor coolant pumps are procedurally protected with starting duties. Which ONE of the statements below describes the bases for RCP starting duties?

Limiting the number of RCP starts in a short period of time prevents damage to the...?

a. ...RCP motor windings.

b. ...RCP seal package.

c. ...RCP motor bearings.

d. ...RCP breaker.

RO Sample Plan PS GRP I 003 K–A # 003000SG.10 * 3.3 \ 3.6
SRO Sample Plan Reference Sys LP CH 13, Page 58

COMMENTS ZION NRC QUESTION / Changed 1 distractor

RO Q# 88 HIST N Used
SRO Q# DIFF C Answer c.

The plant is shutdown with the following conditions:

- RCS Pressure is 1060 psig
- Seal injection flow is 6 gpm per pump.
- No. 1 Seal Leakoff isolation valves (CV8141 A-D) are OPEN.
- No. 1 Seal leakoff flow is 0.7 gpm on each RCP.
- RCP lower radial bearing temperatures are approaching 184 F.

Which ONE of the following statements is correct concerning operation of the No. 1 Seal Bypass valve (CV8142) ?

The valve can...

a. ...be OPENED since RCS Pressure is within the allowable range AND Seal Leakoff Isolation valves are OPEN.

b. ...be OPENED since Seal Injection AND Leakoff flows are within the allowable range

c. ...NOT be OPENED since RCS Pressure AND Seal Injection flow are NOT within the allowable range.

d. ...NOT be OPENED since Seal Leakoff flows are NOT within the allowable range AND Seal Leakoff Isolation valves are OPEN

RO Sample Plan PS GRP I 003 K–A # 003000A4.07 2.6 \ 2.6
SRO Sample Plan Reference OP RC-1 / Page 2

COMMENTS

RO Q# 89 HIST N Used
SRO Q# DIFF C Answer d.

Unit 1 is operating at power when the following indications are reported:

- Reactor power - 90% and slowly INCREASING
- Auct High Tavg - 576 F and slowly DECREASING
- RCS Pressure - 2210 psig and slowly DECREASING
- Turbine Load - 980 MWs and STABLE
- Steam Pressure - 940 psig and slowly DECREASING
- Containment Pressure - 1 psig and slowly INCREASING

Based on the reported parameters, there is a ...? (Select ONE of the following)

a. ...feedline break inside of containment.

b. ...RCS Leak inside containment.

c. ...Ejected control rod.

d. ...steamline break inside of containment.

RO Sample Plan EPE GRP I 000040 K–A # 000040A2.01 * 4.2 \ 4.7

SRO Sample Plan Reference WOG HP Background, E-2, Page 3, 4, 13

COMMENTS

RO Q# 90 HIST N Used
SRO Q# DIFF C Answer **d.**

A reactor startup is in progress with IR power at $3x10^{-11}$ amps. The source range High Flux Trip has NOT been blocked. Which ONE of the following describes the Reactor Protection System response if a CONTROL POWER fuse blows on N-31 with the source range Trip Bypass Switch (SR BYPASS) in the positions indicated?

	SR BYPASS: NORMAL	SR BYPASS: BYPASS
a.	no trip	no trip.
b.	reactor trip	no trip.
c.	no trip	reactor trip.
d.	reactor trip	reactor trip.

RO Sample Plan PS GRP I 015 K–A # 015000K6.04 * 3.1 \ 3.2
SRO Sample Plan Reference NI notes, NI-4

COMMENTS

RO Q# 91 HIST N Used

SRO Q# DIFF C Answer **d.**

A plant heatup was in progress in accordance with GP 100-1. The following RCS temperatures were observed at the given times:

TIME	TEMP
1000	362 F
1030	383 F
1050	400 F
1115	426 F

It is now 1130. Which ONE of the following is the MAXIMUM RCS temperature allowed per GP 100-1?

a. 476 F

b. 462 F

c. 438 F

d. 433 F

RO Sample Plan PS GRP II 002 K–A # 002000SG.05 * 3.6 \ 4.1

SRO Sample Plan Reference GP 100-1

COMMENTS

RO Q# 93 HIST N Used

SRO Q# DIFF C Answer **b.**

The plant is operating at power with all control systems in AUTO, and the following additional conditions noted.

- Letdown Hx Outlet Flow FI-132 75 gpm
- Charging Header Flow FI-121 87 gpm
- Total seal flow to RCPs FI-142-145 34 gpm

The Master PZR level controller output fails to zero (0) demand. Select the ONE answer below that describes the effect on total seal injection flow. (assuming NO operator action)

a. Total seal injection flow decreases to 0 gpm.

b. Total seal injection flow decreases to about 20 gpm.

c. Total seal injection flow remains about 34 gpm.

d. Total seal injection flow increases to 55 gpm.

RO Sample Plan PS GRP I 004 K–A # 004010A2.08 3.5 \ 3.7

SRO Sample Plan Reference Sys LP CH 14, Page 90 / Sys LP CH 15a, Page 48 / CVCS Notes, CV-1

COMMENTS

RO Q# 94 HIST N Used
SRO Q# DIFF C Answer **a.**

The following plant conditions exist on Unit 1:

- Reactor Power is 9%
- Main Turbine is at 1400 rpm with speed INCREASING

The Extra NSO reports erratic operation of the DEHC AUTO controller and selects TURBINE MANUAL mode of control.

In accordance with GP 100-3, "Power Ascension", which ONE of the following describes the correct actions required by these conditions, and the reason for those actions ?

a. TRIP the Main Turbine to ensure the AUTO curcuitry is reset to a stable state.

b. TRIP the Main Turbine because the MANUAL controller is not capable of performing turbine acceleration.

c. Remain in MANUAL at present conditions until STE/OAD verifies that turbine acceleration may continue in MANUAL.

d. Remain in MANUAL until the AUTO CONTROLLER RESET Pushbutton is LIT to ensure a Bumpless transfer back to AUTO control.

RO Sample Plan PS GRP III 041 K–A # 045050A2.10 2.7 \ 2.9
SRO Sample Plan Reference GP 100-3, Page

COMMENTS

RO Q# 95 HIST N Used

SRO Q# DIFF C Answer c.

The NSO reports that the Spray Additive Tank low-2 level light has just been received as a result of a Containment spray system actuation during a steam line break. Containment Pressure is currently 24 psig. Which ONE of the following is correct concerning this situation? (Assume CS Actuation signal has been RESET)

a. Allow the Containment spray system to operate AS-IS until containment pressure is < 15psig.

b. MANUALLY shift the Containment spray system lineup to the post accident recirculation lineup.

c. MANUALLY close the motor operated isolation valve between the eductor and the spray additive tank (CS019A/B).

d. STOP all containment spray pumps until the spray additive tank is filled and vented per OP CS-3.

RO Sample Plan PS GRP II 026 K–A # 026000SG.13 3.5 \ 3.7

SRO Sample Plan Reference EP-1, Step 8

COMMENTS

RO Q# 96 HIST B Used Zion 1/96 exam
SRO Q# DIFF C Answer c.

Unit 1 has experienced a Reactor Trip and Safety Injection due to a SGTR on the 1D SG. EP-3, "SGTR" is in effect and the crew is about to commence a cooldown at maximum rate. The following conditions exist:

- 1D SG Level is 74% Narrow Range and INCREASING
- PZR Pressure is 1900 psig
- Tavg is 547 F
- Main Condenser Vacuum is 13" Hg ABSOLUTE and STABLE
- 1B and 1C Circ Water Pumps are running

Which ONE of the following action(s) is/are necessary to commence cooldown in accordance with EP-3 ?

a. Take Steam Dumps to the Steam Pressure Mode and manually open Steam Dumps to commence cooldown.

b. Take Steam Dumps to the Steam Pressure Mode, take both Steam Dump Control Selector Switches momentarily to Bypass Interlock, and then manually open Steam Dumps to commence cooldown.

c. Commence cooldown using A/B/C Steam Generator PORV's .

d. Commence cooldown using B/C/D Steam Generator PORV's.

RO Sample Plan EPE GRP I 000051 K–A # 000051EK3.01 2.8\ 3.1
SRO Sample Plan Reference AR 1-BP-5.6 / EP-3, step 22

COMMENTS ZION EXAM / Modified for Brwd Nomenclature / changed stem conditions and changed 2 distractors.

RO Q# 97 HIST M Used NORMAL/ABNORMAL OPS EXAM 8/24/95
SRO Q# DIFF C Answer d.

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

- Tavg is 580°F
- PZR level is 63%.
- PZR pressure is 1845 psig.
- Reactor power is 98%.

Which ONE of he following actions should be taken ?

a. Commence plant shutdown and be in HOT STANDBY within 6 hours.

b. Commence plant shutdown and be in HOT STANDBY within 1 hour.

c. Restore RCS pressure to >2219 psig within 2 hours.

d. Manually trip the reactor and enter EP-0, "Reactor Trip or Safety Injection".

RO Sample Plan EPE GRP II 000029 K–A # 000029SG.11 * 4.4\4.6

SRO Sample Plan Reference AR 1-11-C3,1-BP-3.5 / RPS - Chap 60B

COMMENTS

RO Q# 98 HIST N Used
SRO Q# DIFF C Answer **d.**

The RCS is at 345 psig and 340°F. Shortly after placing the 1A Train of RHR in shutdown cooling mode, the NSO notices RCS wide range pressure and PZR level decreasing. The Equipment Attendant informs him that the 1B RH pump suction relief valve is lifting.

Which ONE of the following describes the cause of this event?
(Assume that 1RH8702A and B are closed)

a. The 1SI8809B, RH TRN to RCS Cold Leg Injection valve, was inadvertently closed.

b. The RC Loop A to RH Pump A Suction valve, 1RH8701A, inadvertently closed due to an instrument failure.

c. The Letdown Pressure Control valve, 1PCV-CV131, was left in AUTO for the 1A RH pump start.

d. BOTH RH Discharge Header X-Tie valves, 1RH8716A&B, were left open.

RO Sample Plan EPE GRP II 000025 K–A # 000025EA2.02 3.4 \ 3.8
SRO Sample Plan Reference OP RH-6, Page 6

COMMENTS

RO Q# 100 HIST N Used
SRO Q# DIFF C Answer **b.**

Unit 2 is operating at 50% power when 2PR06J, Gross Failed Fuel Rad Monitor, ALARMS. Chemistry has called in the following confirmed sample results:

- Dose Equivalent I-131 = 75 µci/gram
- Gross Activity = 30 µci/gram
- E-bar = 2.65

Using the attached LCO 3.4.8 "Specific Activity" and current plant conditions, which ONE of the following applies?

a. Plant may remain at this power level indefinitely.

b. Perform isotopic analysis for Iodine once per 4 hours.

c. Be in HOT STANDBY with Tave < 500 F within 6 hours.

d. Within 1 hour initiate action to place the unit in HOT STANDBY within the next 6 hours.

RO Sample Plan EPE GRP I 000076 K–A # 000076SG.03 2.6\3.5
SRO Sample Plan Reference T.S. 3.4.8

COMMENTS

RO Q# 1 HIST N Used
SRO Q# 1 DIFF M Answer **a.**

Which ONE of the following statements is correct concerning controls and entry to confined spaces in accordance with AP-1450-7 "Control and Entry of Confined Spaces"?

a. ALL spaces shall be considered Permit-Entry Confined Spaces until the Pre-Entry Procedures demonstrate otherwise.

b. ONE confined space attendant may only supervise ONE work group at the confined space.

c. Oxygen concentration >19.5% but <25.5% is acceptable air quality for a confined space.

d. A confined space attendant is required for Non-Permit confined space entry.

RO Sample Plan PWG K1.13 K–A # 194001K1.14 * 3.3\ 3.6
SRO Sample Plan PWG K1.13 Reference AP 1450-7, Page 3

COMMENTS

RO Q# 2 HIST N Used
SRO Q# 2 DIFF M Answer **b.**

A circle around data on a log sheet indicates...? (Select ONE of the following)

a. ...data missing for previous entry.

b. ...out of tolerance.

c. ...significant change.

d. ...suspect meter.

RO Sample Plan PWG A1.06 K–A # 194001A1.06 3.4 \ 3.4
SRO Sample Plan PWG A1.06 Reference AP 350-1, Page 5

COMMENTS

RO Q# 3 HIST N Used
SRO Q# 3 DIFF M Answer **d.**

The following plant conditions exist:

- Unit 1 is at 96% power.
- Unit 2 is SHUTDOWN with RCS Temp at 170°F and Pressure at 325 psig.

Which ONE of the following is the MINIMUM Shift Manning requirement for the Station under the conditions shown above per AP 320-1, "Shift Manning"?

	Field Supervisor	ROs	AOs	STAs
a.	0	3	6	1
b.	1	4	6	0
c.	0	3	8	2
d.	1	4	8	1

RO Sample Plan PWG A1.03 K–A # 194001A1.03 2.5\ 3.4
SRO Sample Plan PWG A1.03 Reference AP 320-1

COMMENTS

RO Q# 4 HIST M Used Zion 1/96 exam
SRO Q# 4 DIFF M Answer **a.**

In accordance with AP 300-1, "Conduct of Operations", which ONE of the following NON-LICENSED individuals can manipulate the controls of the reactor ?

a. Any individual under the direct supervision of the Reactor Operator provided that the individual is enrolled in the initial license training program .

b. Any System Engineer under the direct supervision of the Reactor Operator during surveillance testing.

c. Any on-shift Equipment Operator under the direct supervision of the Reactor Operator

d. Any individual under the direct supervision of the Shift Engineer.

RO Sample Plan PWG A1.03 K–A # 194001A1.03 2.5 \ 3.4
SRO Sample Plan PWG A1.03 Reference AP 300-1, Page 6

COMMENTS Zion Question - Modified 3 distractors, modified wording of answer

RO Q# HIST B Used Zion 1/96 exam
SRO Q# 5 DIFF C Answer **a.**

The following conditions exist following a LOCA on unit 2:

- CNMT Pressure.....18 psig and INCREASING.
- RCS Pressure.....2340 psig
- Core Exit TC's.....1255°F and INCREASING
- RCP's.....TRIPPED
- SG pressures.....750 psig STABLE

Based on the above conditions, Which ONE (1) of the following represents the scanning requirements for the CSF Status Tree's?

a. Continuously scan.

b. Scan at 10 minute intervals.

c. Scan at 20 minute intervals.

d. Scanning may be terminated.

RO Sample Plan K–A # 194001A1.11 2.8\ 4.1

SRO Sample Plan PWG A1.11 Reference AP 340-1, section C.2.c.4), page 9

COMMENTS Zion Question, modified two distractors

RO Q# **5** HIST **N** Used

SRO Q# **6** DIFF **M** Answer **a.**

In accordance with AP 350-2, "Daily Order Book", Which ONE of the following describes how LONG a Daily Order should be EFFECTIVE, AND WHO is responsible for ensuring that Daily Orders are dissiminated to Operating Personnel ?

a. ONE Week, Shift Engineer

b. ONE Week, Unit Operating Engineer.

c. ONE Month, Shift Engineer

d. ONE Month, Unit Operating Engineer.

RO Sample Plan PWG A1.03 K–A # 194001A1.03 2.5\ 3.4

SRO Sample Plan PWG A1.03 Reference AP 350-2, Page

COMMENTS

RO Q# 6 HIST N Used
SRO Q# 7 DIFF C Answer b.

The following plant conditions exist:

- Reactor Power is 85%
- Containment pressure is 0.6 psig
- Containment temperature is 125 °F

Bulk Power has requested a load ascension to 95% power.

A containment entry is required to search for a 0.3 gpm UNIDENTIFIED leak inside containment. Which ONE of the following is true regarding this entry ?

a. Reactor power must be reduced to<60% if entry inside the missile barrier is required.

b. Industrial Hygiene should be contacted for guidance on protective measures that may be required.

c. The requested load increase should stop at 90 % power.

d. A Containment Entry Checklist is NOT required for this entry.

RO Sample Plan PWG K1.05 K–A # 194001K1.05 3.1 \ 3.4
SRO Sample Plan PWG K1.05 Reference AP 1450-1, Page 5

COMMENTS

RO Q# 7 HIST N Used
SRO Q# 8 DIFF M Answer a.

In accordance with AP 330-7, "Control of Operator Aids", which ONE of the following statements is true regarding the use of "Operator Aids"?

a. They are valid for up to one year.

b. They are reviewed weekly by the SE.

c. They are reviewed and approved by the SOS.

d. They may be used instead of a caution card.

RO Sample Plan PWG A1.06 K–A # 194001A1.06 3.4 \ 3.4
SRO Sample Plan PWG A1.06 Reference AP 330-7, Page 6

COMMENTS

RO Q# 8 HIST N Used
SRO Q# 9 DIFF M Answer **b.**

The word "DANGER" by itself is assigned to which ONE of the following radiological signs per RP 5010-1?

a. Radiation Area

b. High Radiation Area

c. Very High Radiation Area

d. Airborne Radioactivity Area

RO Sample Plan PWG K1.03 K–A # 194001K1.03 2.8\ 3.4
SRO Sample Plan PWG K1.03 Reference RP 5010-1 page 3

COMMENTS

RO Q# **9** HIST **M** Used Emerg Ops Exam
SRO Q# **10** DIFF **M** Answer **c.**

Mechanical Maintenance has completed work on the 1B SI pump bearings and the pump is ready to be tested. The OOS is in the process of being cleared when it is discovered that the Personnel Protection Card has not been removed. All work is complete, but the lead workman has left the site and cannot be reached.

Which ONE of the following persons can AUTHORIZE the removal of the Personnel Protection Card?

a. Shift Engineer (SE).

b. Unit Supervisor (US).

c. Lead workman's supervisor.

d. Senior mechanic on the crew.

RO Sample Plan PWG K1.02 K–A # 194001K1.02 3.7 \ 4.1
SRO Sample Plan PWG K1.02 Reference AP 330-1T1, 330-1 page 14

COMMENTS

RO Q# 10 HIST N Used
SRO Q# 11 DIFF M Answer **b.**

What do the CLOSED BULLETS in the following step taken from EP-0, "Reactor Trip or Safety Injection", indicate?

[1.] **VERIFY REACTOR TRIP:**
- Rod bottom lights - LIT
- Reactor trip and bypass breakers - OPEN:
  - o RTA and BYA
  - o RTB and BYB
- Neutron flux - DECREASING

Manually trip the Reactor
- 1PM05J
- 1PM06J

IF the Reactor will NOT trip, THEN **GO TO** 1BwFR-S.1, RESPONSE TO NUCLEAR POWER GENERATION/ATWS, Step 1.

(Select ONE of the following)

a. Complete all steps in order.

b. Complete all steps in any order.

c. Complete applicable steps in order.

d. Complete applicable steps in any order.

RO Sample Plan PWG A1.02 K–A # 194001A1.02 4.1 \ 3.9
SRO Sample Plan PWG A1.02 Reference AP 340-1, Page 4

COMMENTS

RO Q# HIST N Used
SRO Q# 12 DIFF C Answer b.

An RP technician received the following exposures during the course of 1995:

- Shallow Dose Equivalent (SDE) = 925 mrem
- Deep Dose Equivalent (DDE) = 763 mrem
- Lens Dose Equivalent (LDE) = 814 mrem
- Committed Effective Dose Equivalent (CEDE) = 1016 mrem

What is a worker's Total Effective Dose Equivalent (TEDE)?

a. 1688 mrem

b. 1779 mrem

c. 2704 mrem

d. 3518 mrem

RO Sample Plan K–A # 194001K1.03 2.8\ 3.4

SRO Sample Plan PWG K1.03 Reference RP 5300-2, F.1.a.6

COMMENTS

RO Q# 11 HIST B Used Zion 1/96 exam
SRO Q# 13 DIFF C Answer c.

Unit 1 is in Cold Shutdown with the RCPs OFF. Mechanical Maintenance has just completed packing adjustments to valve 1CC685. Beginning at 0930, the maintenance department had 1CC685 cycled (opened, then closed) two (2) times to observe valve stem travel. Following the second cycling of 1CC685, the NSO immediately opened 1CC685 to clear the the RCP Thermal Barrier CC Water Flow Low Alarm.

It is now 0931 and maintenance has just requested that you cycle valve 1CC685 again. What should your response be? (Select ONE of the following)

a. Cycle valve 1CC685 per the maintenance department request.

b. Inform maintenance that additional cycling of 1CC685 may only be performed following a 10 minute wait.

c. Inform maintenance that additional cycling of 1CC685 may only be performed following a one-half hour wait.

d. You realize that the first two valve cycles exceeded motor operated valve guidelines, and tell maintenance that 1CC685 cannot be cycled until its operator is inspected.

RO Sample Plan PWG K1.07 K--A # 194001K1.07 3.6\ 3.7
SRO Sample Plan PWG K1.07 Reference AP 300-1, Page 16

COMMENTS ZION NRC QUESTION / Modified for Brwd Nomenclature

RO Q# HIST M Used Cas Ops Exam
SRO Q# 14 DIFF M Answer c.

Unit 1 has declared an ALERT due to a Steam Generator Tube Rupture. Offsite dose assessment is in progress. The shift engineer is the acting Station Director. Which ONE of the following responsibilities CAN NOT be delegated by the SE ?

a. Notification of offsite authorities of protective action recommendations.

b. Notify the NRC Operations Center via the ENS Red Phone.

c. Decision to issue thyroid blocking agents to onsite personnel.

d. Authorize exceeding 10CFR100 site boundary limits.

RO Sample Plan K–A # 194001A1.16 3.1 \ 4.4
SRO Sample Plan PWG A1.16 Reference ZP 1000-1

COMMENTS

RO Q# HIST M Used Zion 1/96 exam
SRO Q# 15 DIFF M Answer c.

An ALERT condition has been declared as a result of an RCS LOCA. Which ONE of the following represents the MINIMUM Emergency Response Facility(Facilities) which MUST be activated?

a. OSC

b. TSC

c. OSC and TSC

d. OSC, TSC, and EOF

RO Sample Plan K-A # 194001A1.16 3.1 \ 4.4

SRO Sample Plan PWG A1.16 Reference ZP 1000-1, page 3

COMMENTS Zion Question, modified by reversing stem and answers

RO Q# **12** HIST **N** Used

SRO Q# **16** DIFF **M** Answer **a.**

Which ONE of the following is NOT an acceptable method to verify that a valve is correctly positioned while performing a valve lineup?

Check the...?

a. ...demanded position signal for regulating valves.

b. ...position of the stem on a rising stem valve.

c. ...mechanical position indicator on the valve.

d. ...remote position indicator (limit switch lights) on the valve.

RO Sample Plan PWG K1.01 K–A # 194001K1.01 3.6\ 3.7

SRO Sample Plan PWG K1.01 Reference AP 100-18

COMMENTS

RO Q# 13 HIST N Used
SRO Q# 17 DIFF M Answer c.

Which ONE of the following describes the MINIMUM personnel requirements for containment entry during Mode 1 operation ?

a. Two (2) persons to enter containment, one of which MUST be a Health Physicist; plus one (1) backup remaining outside.

b. Two (2) persons to enter containment, plus one (1) backup remaining outside.

c. Two (2) persons to enter containment.

d. One (1) person to enter containment, plus one (1) Health Physicist remaining outside.

RO Sample Plan PWG K1.05 K–A # 194001K1.05 3.1 \ 3.4
SRO Sample Plan PWG K1.05 Reference AP 1450-1, Page 3

COMMENTS

RO Q# 14 HIST N Used
SRO Q# 18 DIFF C Answer **a.**

The following plant conditions exist:

- Unit 2 reactor power is 90%.
- Steam generator water level control is in AUTO.
- A leak develops on the VARIABLE leg of the controlling SG water level instrument on the 2D SG.

The plant response, WITHOUT operator action, is that...? (Select ONE of the following)

a. ...the 2D SG FW regulating valve will OPEN and a turbine trip will occur due to P-14 from the 2D SG.

b. ...the 2D SG FW regulating valve will OPEN and a higher SG level will be maintained.

c. ...the 2D SG FW regulating valve will CLOSE and a lower SG level will be maintained.

d. ...the 2D SG FW regulating valve will CLOSE and a reactor trip will actuate due to 2D SG LO-2 level.

RO Sample Plan PS GRP I 059 K–A # 059000A2.11 3.0\3.3
SRO Sample Plan PS GRP I 059 Reference SGWLC LP - CHAP 27

COMMENTS

RO Q# 15 HIST M Used Zion 1/96 exam
SRO Q# 19 DIFF C Answer **a.**

The following plant conditions exist:

- A FW control malfunction has caused 1A SG level to reach 82%

Assuming the plant responds AS DESIGNED, with NO operator action, which ONE of the following describes the current valve alignment ? (Assume all valves open prior to trip.)

	Main Feed Reg Valves	Main Feed Pump Discharge Valves	Feedwater Isolation Valves
a.	All Shut	All Shut	All Shut
b.	All Shut	All Open	All Shut
c.	All Open	All Shut	All Open
d.	All Open	All Open	All Shut

RO Sample Plan PS GRP I 013 K–A # 013000K4.13 * 3.7 \ 3.9
SRO Sample Plan PS GRP I 013 Reference AR 1-18-A1 / Sys LP CH 25, Page 112

COMMENTS Zion Question - modified stem wording, conditions, increased comprhension level, changed scope of answer, modified all distractors.

RO Q# 16 HIST M Used Tech review #2
SRO Q# 20 DIFF M Answer **d.**

Unit 1 is at 100% power and all systems are operable. The Chemical and Volume Control System (CVCS) is aligned for normal charging and letdown when a Reactor Trip and SI occur.

Which ONE of the following describes why the Volume Control Tank (VCT) is isolated under these conditions?

a. To prevent overpressurization of the VCT.

b. To enable makeup of the RWST using the RMCS.

c. To maintain adequate backpressure for the #2 RCP seals.

d. To prevent the charging pumps from becoming gas bound and cavitating.

RO Sample Plan PS GRP II 006 K–A # 006020K1.01 3.1 \ 3.2
SRO Sample Plan PS GRP II 006 Reference ECCS LP - CHAP 58, Page 16-17

COMMENTS Stem and all distractors different

RO Q# 17 HIST M Used Zion 1/96 exam/ Brwd 93 exam
SRO Q# 21 DIFF M Answer c.

Which ONE of the following indicate the interlocks associated with 1AR011J, Containment Fuel Handling Incident Train A Rad monitor ?

a. Starts 0VA04CA (Fuel Handling Building Charcoal Booster Fan), closes damper 0VA051Y (Charcoal Booster Bypass damper), opens dampers 0VA057Y and 060Y (Charcoal Booster Fan-Train A Isolation dampers).

b. Closes 1PR001A and 1PR001B (Containment Atmosphere to PR Outside Isolation Valves).

c. Closes 1VQ001A and 2A (Containment Purge Supply and Exhaust ISOLs) and 1VQ004A,5A, and 5C (Containment Mini-flow Purge Supply and Exhaust ISOLs).

d. Upward movement of Manipulator Crane hoist is inhibited. (lateral and downward movement is unaffected).

RO Sample Plan PS GRP I 072 K–A # 072000K4.01 3.3\ 3.6
SRO Sample Plan PS GRP I 072 Reference AR 4-1AR011J

COMMENTS Zion Question, - reversed stem and answer conditions, answer and all distractors changed from both previous versions. We disagree with the regions interpretation of this as a modified question.

RO Q# **18** HIST **N** Used

SRO Q# **22** DIFF **M** Answer **b.**

Which ONE of the following represents the MINIMUM RCS temperature, ABOVE WHICH, Component Cooling water flow to the RCP thermal barriers must be maintained if seal injection flow is lost ?

a. 135°F.

b. 150°F.

c. 180°F.

d. 200°F.

RO Sample Plan PS GRP I 003 K–A # 003000A1.09 * 2.8 \ 2.8

SRO Sample Plan PS GRP I 003 Reference GP 100-1

COMMENTS

RO Q# 19 HIST N Used
SRO Q# 23 DIFF C Answer b.

The following conditions exist with Unit 1 in MODE 5:

- Containment temperature - 88°F
- 2C RCP - RUNNING
- 2C RCFC - STOPPED

The adverse consequence of starting the 2C RCFC is that 2C RCP seal number ...?
(Select ONE of the following)

a. ...2 may CLOSE causing the number 1 seal leakoff flow indication to INCREASE.

b. ...2 may OPEN causing the number 1 seal leakoff flow indication to DECREASE

c. ...1 may OPEN causing the number 1 seal leakoff flow indication to INCREASE.

d. ...1 may CLOSE causing the number 1 seal leakoff flow indication to DECREASE.

RO Sample Plan PS GRP I 022 K–A # 022000SG.10 3.2\ 3.4
SRO Sample Plan PS GRP I 022 Reference OP VP-5, page 2

COMMENTS

RO Q# 21 HIST N Used
SRO Q# 24 DIFF C Answer d.

With Unit 1 in MODE 5, 1BwOS 7.1.2.1.a.1-2, "Diesel Driven AFW Pump Monthly Surveillance", is in progress with the following conditions noted with respect to the 1B AFW pump:

- Suction pressure.....17 psig
- Discharge pressure.....1900 psig
- Engine Speed.....1910 rpm
- Recirc Flowrate.....90 gpm
- ALL SG levels are slowly INCREASING.

Which ONE of the following describes the operator actions required by these conditions ?

a. Shut 1AF005 E/F/G/H to prevent water addition to the SGs.

b. Verify the SX suction valves 1AF006B and 1AF017B have OPENED.

c. Dispatch an operator to check the position of recirc valves and locally verify recirc flow.

d. Trip the 1B Diesel Driven AFW pump.

RO Sample Plan PS GRP I 061 K–A # 061000SG.10 3.5\ 3.6
SRO Sample Plan PS GRP I 061 Reference OP AF-7, Page 3

COMMENTS

RO Q# 22 HIST N Used
SRO Q# 25 DIFF A Answer **a.**

A normal Unit 1 heatup is in progress per GP 100-1 with the following plant conditions:

- RCS pressure 1850 psig
- RCS pressurization rate 15 psig/min
- RCS temperature 485°F
- RCS heat up rate 10°F/hr
- S/G pressure 575 psig

If the current trend continues, which ONE of the following occur FIRST?

a. MSIVs close.

b. PZR PORV opens.

c. SI Accumulator Isolation Valves open.

d. First group of steam dumps throttle open.

RO Sample Plan PS GRP I 013 K–A # 013000K4.03 3.9\ 4.4
SRO Sample Plan PS GRP I 013 Reference AR 1-11-D1, 1-BP-3.3, Stm Tables

COMMENTS

RO Q# 23 HIST N Used
SRO Q# 26 DIFF M Answer c.

The two conditions which will independently cause automatic closure of Liquid Radwaste Release Tank Pump Discharge Key Locked valves (WX353, WX896) are... ?

a. ...high radiation sensed in the circulating water blowdown flow, and high release header flow.

b. ...high radiation sensed in the release header, and high release header flow.

c. ...low circulating water blowdown flow, and high radiation sensed in the release header.

d. ...low circulating water blowdown flow, and high radiation sensed in the circulating water blowdown flow.

RO Sample Plan PS GRP I 068 K–A # 068000K6.10 2.5\2.9

SRO Sample Plan PS GRP I 068 Reference AR 1-0PR01J, 20E-0-4030WX040/179

COMMENTS

RO Q# HIST N Used
SRO Q# 27 DIFF C Answer **b.**

The following plant conditions exist on Unit 1:

- Rx Trip and SI due to a Large Steam Break inside Containment
- RCS Pressure 1480 psig and decreasing slowly
- Containment Pressure 22 psig and increasing

Which ONE of the following describes the reason the RCP's must be tripped ?

a. To prevent potential seal failure from incresing thermal barrier HX outlet temperatures.

b. To prevent motor bearing damage due to overheating.

c. To prevent potential seal failure due to a loss of seal water return flowpath.

d. To prevent potential motor damage from running in a high temperature environment.

RO Sample Plan PS GRP I 003 K–A # 003000K6.04 2.8 \ 3.1
SRO Sample Plan PS GRP I 003 Reference Sys LP CH 13, Page 44

COMMENTS

RO Q# **25** HIST **M** Used 11/93 NRC Exam Q# 83
SRO Q# **28** DIFF **C** Answer **d.**

Unit 1 is at 51% power when the "1B" RCP TRIPS. The plant responds in the following manner:

- Reactor Trips
- Tavg is at 559°F and DECREASING.
- The Main Turbine DID NOT trip.
- The First group of Steam Dump valves are throttled OPEN.
- SG NR levels are rapidly DECREASING

Based on these conditions, which ONE of the following PERMISSIVE circuits failed?

a. P-13

b. P-12

c. P-8

d. P-4

RO Sample Plan PS GRP I 015 K–A # 015000K4.07 3.7 \ 3.8
SRO Sample Plan PS GRP I 015 Reference AR 1-BP-3.1 / RPS Chap 60B

COMMENTS

RO Q# 26 HIST N Used
SRO Q# 29 DIFF C Answer **b.**

The following plant conditions exist:

- Reactor power 23%
- Gen MW.....208
- CB D rods.....130 steps
- Rod Control.....Automatic
- SGWLC.....Automatic

If turbine impulse pressure transmitter, PT-505, fails HIGH, the rods in control bank D will...?
(Select ONE of the following)

a. ...be inserted into the core (tripped) by a turbine trip signal.

b. ...move in the outward direction.

c. ...move in the inward direction.

d. ...not move.

RO Sample Plan PS GRP I 001 K–A # 001000A1.02 * 3.1 \ 3.4
SRO Sample Plan PS GRP I 001 Reference Rod Control - Chap 28, Page 66

COMMENTS

RO Q# 86 HIST N Used
SRO Q# 30 DIFF M Answer d.

Reactor operators must be cognizant of reactivity conditions in the reactor core at all times. Which ONE of the following parameters does the operator verify (each shift) to ensure that adequate shutdown margin exists when Keff is $\geq$ 1 (one)?

a. ΔI within limits.

b. QPTR within limits

c. RCS boron concentration.

d. Control rod bank position.

RO Sample Plan PS GRP I 001 * K–A # 001000K5.08 * 3.9\ 4.4
SRO Sample Plan PS GRP I 001 * Reference T.S. 3.1.1.1 / 3.1.3.6

COMMENTS

RO Q# 28 HIST B Used Zion 1/96 exam
SRO Q# 31 DIFF M Answer **a.**

Which ONE of the following statements is true concerning ALL of the rod control system rod stops?

a. With the rods in AUTOMATIC, OUTWARD rod motion is prevented, but INWARD rod motion is allowed.

b. With the rods in MANUAL, OUTWARD rod motion is prevented, but INWARD rod motion is allowed.

c. With the rods in MANUAL, BOTH OUTWARD and INWARD rod motion is prevented.

d. With the rods in AUTOMATIC, BOTH OUTWARD and INWARD rod motion is prevented.

RO Sample Plan PS GRP I 001 K–A # 001050K4.01 3.4 \ 3.8
SRO Sample Plan PS GRP I 001 Reference Rod Control Notes, RD-1

COMMENTS ZION QUESTION

RO Q# 29 HIST M Used Casualty Ops Exam
SRO Q# 32 DIFF C Answer **c.**

Unit 1 has exprienced a large steam break. The following conditions exist:

- Containment Pressure is 17 psig and INCREASING slowly.
- ESF Signals have NOT been RESET

With the CURRENT plant conditions, if a sudden pressure trip occurres on SAT 142-1, and ALL systems respond as designed, which ONE of the following loads will start FIRST?

a. 1A SX Pump

b. 1B CS Pump

c. 1B CC Pump

d. 1A AF Pump

RO Sample Plan PS GRP II 064 K–A # 064000K4.10 3.5\4.0
SRO Sample Plan PS GRP II 064 Reference DG Notes, DG-2

COMMENTS

RO Q# HIST B Used Zion 1/96 exam
SRO Q# 33 DIFF M Answer a.

A Plant heatup is in progress in accordance with GP 100-1. A GP 100-1 Precaution requires at least one of two Reactor Cavity Vent Fans operating whenever RCS temperature is greater than 135°F. The reason for this precaution is to ...? (Select ONE of the following)

a. ...ensure that Excore Nuclear Instrumentation will not be damaged by high temperatures.

b. ...ensure that the Containment temperature will not exceed the Tech Spec Limiting Condition for Operation for a Reactor Startup.

c. ...ensure that Pressurizer Level Instrumentation will not be adversely effected by reference leg heating.

d. ...ensure reactor vessel head cooling is provided to prevent exceeding CRDM maximum operating temperatures.

RO Sample Plan K–A # 022000K3.02 3.0\ 3.3
SRO Sample Plan PS GRP I 022 Reference GP 100-1

COMMENTS ZION EXAM / Modified for Brwd Nomenclature and setpoint

RO Q# HIST M Used Tech review #2
SRO Q# 34 DIFF C Answer a.

Which ONE of the following will result in a shift of Unit 1 Auxiliary Feedwater (AF) System suction from the Condensate Storage Tank to the Essential Service Water System ?

a. AF pump suction pressure of 17 psia coincident with a loss of offsite power.

b. AF pump suction pressure of 19 psia coincident with Lo-Lo level in ALL steam generators.

c. AF pump suction pressure of 17 psia coincident with Pressurizer pressure of 1850 psig.

d. AF pump suction pressure of 19 psia coincident with a phase B isolation.

RO Sample Plan K--A # 061000K4.01 3.9\ 4.2

SRO Sample Plan PS GRP I 061 Reference AR 1-3-E7

COMMENTS Stem and all distractors different

RO Q# 30 HIST N Used
SRO Q# 35 DIFF M Answer a.

The Unit has the following conditions:

- RCS temperature 98°F
- RCS pressure Ambient
- A, C, & D Loop Stop Isolation valves Open

Maintenance has been completed on the 'B' Steam generator and the loop is filled and ready to be returned to service. To OPEN the 'B' Hot Leg Isolation Valve on a Reactor Coolant Loop you must have the...? (Select ONE of the following)

a. ...Loop B Cold Leg Isolation Valve closed.

b. ...Loop B Bypass valve OPEN, AND Bypass flow of 75 gpm for 300 minutes.

c. ...Loop B Wide Range Hot Leg Temp within 20° from highest WR Hot Leg temp.

d. ...Loop B Bypass valve OPEN, AND Wide Range Hot Leg Temp within 20° from highest WR Hot Leg temp.

RO Sample Plan PS GRP II 002 K–A # 002000K4.09 3.2\ 3.2
SRO Sample Plan PS GRP II 002 Reference RCS - Chap 12, figure 12-29/30

COMMENTS

RO Q# HIST N Used
SRO Q# 36 DIFF M Answer **b.**

Which ONE of the following statements correctly describes the purpose of the interlocks associated with the RHR suction isolation valves (1RH8701A/B and 1RH8702A/B) while placing RHR in the shutdown cooling mode?

a. Prevent draining the RWST to the containment sump.

b. Prevent overpressurization of the RHR system.

c. Prevents exceeding RHR system design temperature.

d. Prevent contamination of the RWST via the CV pump suvtion.

RO Sample Plan PS GRP II 006 K–A # 006000K4.08 3.2 \ 3.5
SRO Sample Plan PS GRP II 006 Reference Sys LP CH 58, Page 44

COMMENTS

RO Q# 27 HIST N Used

SRO Q# 37 DIFF C Answer **d.**

Unit 2 is at 60% power when the 2B RCP trips resulting in a reactor trip. When plant conditions are STABLE after the trip, the 2B Steam Generator STEAM FLOW and PRESSURE will indicate as follows (with respect to the other three SGs): (Select ONE of the following)

a. Steam flow will be HIGHER; Pressure will be LOWER.

b. Steam flow will be LOWER; pressure will be HIGHER.

c. Steam flow will be HIGHER; pressure will be approximately the SAME.

d. Steam flow will be LOWER; pressure will be approximately the SAME.

RO Sample Plan PS GRP I 003 * K–A # 003000K3.02 * 3.5 \ 3.8

SRO Sample Plan PS GRP I 003 * Reference Fund Heat Xfer CH 7, Page 56

COMMENTS

RO Q# 34 HIST N Used
SRO Q# 38 DIFF M Answer **d.**

Given the following conditions:

- The plant was originally at 100% power
- A reactor trip has just occurred from improper gain adjustment on the power range instrumentation.
- Following the reactor trip, a fault and fire caused a loss of bus 143.

Which ONE of the following pieces of equipment would be affected ?

a. Unit 1 Station Air Compressor.

b. 1B Heater Drain Pump.

c. OA Fire Pump.

d. Unit 0 Station Air Compressor.

RO Sample Plan PS GRP II 062 K–A # 062000K2.01 3.3\ 3.42

SRO Sample Plan PS GRP II 062 Reference 20-E-1-4001A

COMMENTS

RO Q# 35 HIST N Used
SRO Q# 39 DIFF C Answer b.

The following plant conditions exist:

- Reactor Power 98%
- Rods AUTO
- SG water level control AUTO
- Tavg 584°F

Which ONE of the following conditions describes the effect on plant operation with a failure of the steam pressure compensation channel (PT-514) low ? PT-514 inputs to the CONTROLLING steam flow channel. (Assume NO operator action).

a. INCREASED feed flow results in a P-14 permissive actuation (Hi - Hi SG level).

b. DECREASED feed flow results in a Reactor trip on LO-LO SG level.

c. DECREASED feed flow results in SG swell, SG level stabilizes at a slightly lower level.

d. INCREASED feed flow results in a SG shrink, SG level stabilizes at a slightly higher level.

RO Sample Plan PS GRP II 035 K–A # 035010A2.03 3.4 \ 3.6

SRO Sample Plan PS GRP II 035 Reference Sys LP CH 23, Pages 32-35, Ch 27 Page 35

COMMENTS

RO Q# 36 HIST M Used Zion 1/96 exam / Brwd 93 exam
SRO Q# 40 DIFF A Answer **d.**

Unit 1 is stable at NOP/NOT following a loss of offsite power to both units and a subsequent plant trip. The control room operators decide to perform a natural circulation cooldown as per ES-0.2, "Natural Circulation Cooldown". The crew initiates RCS cooldown at an excessive rate. Temperature decreases to 540°F and pressure decreases RAPIDLY to 1750 psig. (Assume NO operator actions have occurred since the cooldown was commenced)

The crew should verify which ONE of the following actions occur?

a. The DG output breaker OPENS, RE-CLOSES, and all SAFE SHUTDOWN loads are sequenced on.

b. The DG output breaker OPENS, RE-CLOSES, and all ESF loads are sequenced on.

c. The DG output breaker remains CLOSED, load shedding occurs and all SAFE SHUTDOWN loads are sequenced on.

d. The DG output breaker remains CLOSED, and all non-running ESF loads are sequenced on.

RO Sample Plan PS GRP II 064 K–A # 064000A3.07 3.6 \ 3.7

SRO Sample Plan PS GRP II 064 Reference DG Notes, DG-2 / 20-E-1-4030
DG01,DG31,DG32,DG33,AP30

COMMENTS Zion Question - Modified stem conditions, increased difficulty
Brwd Question - Modified Stem conditions and 2 distractors

RO Q# HIST N Used
SRO Q# 41 DIFF C Answer c.

The following plant leakage conditions exist:

- Leakage into 1A SG is determined to be 0.3 gpm.
- Leakage into 1D SG is determined to be 0.05 gpm.
- Leakage from known sources other than SG leakage is determined to be 5.5 gpm.
- Other leakage which cannot be identified is determined to be 0.6 gpm.

With these conditions, Technical Specification leakage limits are...? (Select ONE of the following)

a. ...not exceeded.

b. ...exceeded due to identified leakage exceeding limits.

c. ...exceeded due to leakage into ONE SG exceeding limits.

d. ...exceeded due to the total leakage into ALL SGs exceeding limits.

RO Sample Plan K–A # 002000SG.05 3.6\ 4.1

SRO Sample Plan PS GRP II 002 Reference T.S. 3.4.6.2

COMMENTS

RO Q# 38 HIST N Used
SRO Q# 42 DIFF M Answer c.

The plant is operating at full power when a fire is detected in the 1A DG room. Which ONE of the following indications would be present in the control room ?

a. The jockey pumps and 0A fire pump indicate running, along with an open deluge valve indication.

b. The jockey pumps indicate OFF, 0A and 0B fire pump indicate running, along with the actuation of the pre-action sprinkler systems.

c. Fire detection/suppression alarms on the U1 Fire Protection Status Panel indicating a cardox CO2 actuation in the 1A DG room.

d. Fire detection/suppression alarms on the U1 Fire Protection Status Panel indicating a Halon fire suppression actuation in the 1A DG room.

RO Sample Plan PS GRP II 086 K–A # 086000A4.02 * 3.5 \ 3.5

SRO Sample Plan PS GRP II 086 Reference OP FP-49T1, Page 2
OP FP-27T35, Page 1

COMMENTS

RO Q# 39 HIST M Used 11/93 NRC Exam, SRO Q 31
SRO Q# 43 DIFF C Answer **a.**

The following plant conditions exist:

- Plant Startup and Power ascension are in progress.
- Reactor is at 22% power.
- Pressurizer pressure is 2180 psig and DECREASING.
- Pressurizer spray valve 1RY455C is OPEN and will not respond in AUTO or MANUAL.

Which ONE of the following actions is required ?

a. Trip the reactor and stop RCP 1C.

b. Trip the reactor and stop RCP 1D.

c. Stop RCP 1C and initiate a plant shutdown.

d. Stop RCP 1D and initiate a plant shutdown.

RO Sample Plan PS GRP II 010 K–A # 010000A2.02 3.9\ 3.9
SRO Sample Plan PS GRP II 010 Reference ES-0.1 step 7

COMMENTS

RO Q# **40** HIST **B** Used Zion 1/96 exam
SRO Q# **44** DIFF **A** Answer **d.**

The following Unit 1 conditions exist:

- Reactor and Turbine power are at 36%.
- The Pressurizer Master Level Controller is placed in MANUAL for troubleshooting of the AUTO circuitry.
- All other systems are normally aligned in AUTOMATIC.
- Letdown Flow is 120 gpm.
- Charging Flow is approximately 132 gpm and stable.
- Bulk Power Operations has requested a load increase to 100% power.

Assuming no operator action is taken regarding charging and letdown flow, what will be the status of Pressurizer Level at steady state 100% power operation ? (Select ONE of the following)

a. Pressurizer level will increase from its current level to the high level reactor trip setpoint.

b. Pressurizer level will decrease to 17%, then increase to the high level Reactor Trip setpoint.

c. Pressurizer level will be stable at approx. 38%.

d. Pressurizer level will be stable at approx. 60%.

RO Sample Plan PS GRP II 011 K–A # 011000K6.04 3.1 \ 3.1
SRO Sample Plan PS GRP II 011 Reference PZR - Chap 14

COMMENTS ZION QUESTION / Modified for Brwd Nomenclature and Setpoints

RO Q# 41 HIST B Used Zion 1/96 exam
SRO Q# 45 DIFF A Answer a.

The plant is at 80% power. Instrument air valve 1IA065 has failed CLOSED. Assuming a downpower at 5 MW/min is commenced with NO boration, AND rod control is in MANUAL, which ONE of the following is an expected response?

a. All backup heaters energize.

b. Spray valves modulate open to control pressure.

c. Variable heaters fully energize

d. Pressure increases to the reactor trip setpoint.

RO Sample Plan PS GRP II 010 K--A # 010000A2.02 3.9\ 3.9
SRO Sample Plan PS GRP II 010 Reference PZR - Chap 14

COMMENTS ZION EXAM / Modified for Brwd Nomenclature

RO Q# **42** HIST **B** Used Zion 1/96 exam
SRO Q# **46** DIFF **C** Answer **c.**

During a plant shutdown, the NSO reports that the Power Range Permissive P-10 and Turbine Power P-13 are lit on the Bypass Permissive Panel.

A local operator has just manually tripped the turbine due to excessive EH fluid system leakage. Which ONE of the following correctly reflects the status of the plant ?

a. P-7 light is OFF and reactor trip breakers are OPEN.

b. P-7 light is OFF and the reactor is CRITICAL.

c. P-7 light is ON and the reactor is CRITICAL.

d. P-7 light is ON and reactor trip breakers are OPEN.

RO Sample Plan PS GRP II 012 K–A # 012000K6.10 3.3\ 3.5
SRO Sample Plan PS GRP II 012 Reference AR 1-BP-3.5, 1-BP-3.7

COMMENTS ZION QUESTION / Modified for Brwd Nomenclature / Modified Dist b & c

RO Q# **43** HIST **BR** Used SYSTEMS EXAM 5/26/95
SRO Q# **47** DIFF **C** Answer **a.**

A Reactor Trip has just occurred on Unit 1. Following the generator trip, Automatic Bus Transfer failed to operate for Busses 156 and 157. Which ONE of the following describes the 6.9KV Bus AND RCP status?

a. All Feed and Load Breakers Open on Busses 156 and 157.
Only the 1A and 1B RCPs trip due to Bus Undervoltage.

b. All Load Breakers Open on Busses 156 and 157.
Only the 1A and 1B RCPs trip due to Bus Underfrequency.

c. All Load Breakers Open on Busses 156 and 157.
All RCPs trip due to Bus Undervoltage.

d. All Feed and Load Breakers Open on Busses 156 and 157.
All RCPs trip due to Bus Underfrequency.

RO Sample Plan PS GRP II 062 K–A # 062000K3.01 3.5\ 3.9
SRO Sample Plan PS GRP II 062 Reference AC Dist - Chap 4

COMMENTS

RO Q# 44 HIST B Used Zion 1/96 exam
SRO Q# 48 DIFF A Answer **b.**

The unit is operating at 60% power, steady state conditions. ALL applicable control systems are in automatic, control bank D rods are at 190 steps, when the following indications are observed:

- Tave decreases, then returns to the original value
- Steam Flow and Feed Flow increase then return to the original value
- Reactor Power increases then returns to the original value
- S/G Levels increase then return to the original value
- Control rods move out rapidly then step in to approximately their original position

Which ONE of the following failures will produce ALL these symptoms?

a. A SG PORV fails Open.

b. Main Turbine Governor Valve #4 fails Open.

c. HP Turbine Impulse Pressure Channel, PT-505, Fails High.

d. Inadvertent dilution of the Reactor Coolant System.

RO Sample Plan PS GRP II 035 K–A # 035C10K5.01 3.4\ 3.9
SRO Sample Plan PS GRP II 035 Reference DEHC LP, Pages 34/36

COMMENTS ZION EXAM / Modified for Brwd nomenclature and GV sequence

RO Q# **46** HIST **M** Used Zion 1/96 exam
SRO Q# **49** DIFF **A** Answer **c.**

Unit 1 is initially operating at 60% power, steady state conditions in the middle of core life with all parameters at their programmed values. The rod control system is in AUTO. A malfunction in the steam dump system causes three steam dump valves to fail OPEN, increasing reactor power to 70%. Assuming NO operator response and NO rod stops reached, when Tavg stabilizes, it should be...? (Select ONE of the following)

a. ...approximately equal to 580°F.

b. ...approximately equal to 576°F.

c. ...approximately equal to 572°F.

d. ...approximately equal to 568°F.

RO Sample Plan PS GRP III 041 K–A # 041020K5.07 3.1 \ 3.6
SRO Sample Plan PS GRP III 041 Reference Rod Control Sys LP

COMMENTS Zion NRC Exam - modified / Changed power levels, and added additional task of calculating temps which increases difficulty. (all distractors different)

RO Q# 48 HIST N Used
SRO Q# 50 DIFF M Answer **b.**

Which ONE of the following tools is ONLY used with the auxillary hook on the containment polar crane?

a. Portable Rod Cluster Control Change Tool

b. Irradiation Sampling Handling Tool

c. Burnable Poison Rod Assembly Handling Tool

d. Thimble Plug Handling Tool

RO Sample Plan PS GRP III 034 K–A # 034000SG.07 * 2.5\3.0
SRO Sample Plan PS GRP II 034 Reference Fuel Handling - Chap 52

COMMENTS

RO Q# **51** HIST **N** Used
SRO Q# **51** DIFF **A** Answer **d.**

Unit 1 is in MODE 1. All systems are lined up in their normal configuration and operating properly. A component cooling water system leak has occurred.

The following conditions are noted by the unit 1 NSO:

- The CC surge tank level is 53% and DECREASING
- VCT level is 65% and INCREASING

Which ONE of the following leakage sources would result in these conditions?

a. CC heat exchanger

b. Letdown heat exchanger

c. RHR heat exchanger

d. Seal water heat exchanger

RO Sample Plan PS GRP III 008 K–A # 00800K1.04 3.3\ 3.3
SRO Sample Plan PS GRP III 008 Reference OA PRI-6, pages 12 and 13

COMMENTS

RO Q# 52 HIST N Used
SRO Q# 52 DIFF A Answer **a.**

The following conditions exist on Unit 1:

- Reactor Power - 50%
- Auct High Tave = Tref
- Steam Dumps in Tave Mode

An instantaneous 20% load rejection AND simultaneous failure of Loop D Cold Leg RTD FAILED HIGH have occurred. Assuming NO operator action, which ONE of the following describes the response of the steam dump system ?

a. ALL twelve of the steam dump valves would actuate and OPEN until Tave decreases to 550°F which would block the steam dumps and stop the cooldown.

b. ONLY the first TWO groups of steam dump valves (6 valves) would actuate and OPEN until Tave decreased to 550°F which would block the steam dumps and stop the cooldown.

c. ONLY the first group of steam dump valves (3 valves) would actuate and OPEN until Tave decreased to 550°F which would block the steam dumps and stop the cooldown.

d. ALL twelve of the steam dump valves would actuate and OPEN and would continue to blowdown past actual indicated Tave of 550°F and RCS cooldown would not be stopped.

RO Sample Plan PS GRP III 041 K–A # 041020A4.08 3.0\ 3.1

SRO Sample Plan PS GRP III 041 Reference Stm Dumps - Chap 24, Rod Control Ch

COMMENTS

RO Q# **53** HIST **B** Used Zion 1/96 exam

SRO Q# **53** DIFF **A** Answer **d.**

Unit 2 was conducting a load ramp from 75% to 85% power. The 2C MFP has tripped and OA SEC-1, Secondary Pump Trip, Att. A, FW Pump Trip, has been entered. The turbine has been run back to 700 MWe using the Turbine Runback P/B. Rod Control was verified in AUTOMATIC and operators are now checking the status of the feedwater system. The following indications are observed:

- S/G Levels are all approximately 55% and INCREASING
- ROD BANK LOW INSERTION LIMIT annunciator is LIT
- ROD BANK LO-2 INSERTION LIMIT annunciator is LIT
- CD/CB PUMP AUTO START annunciator is LIT
- FW PUMP NPSH LOW annunciator has cleared

Which ONE of the following procedural actions are REQUIRED based on these indications?

a. Initiate a manual reactor trip and enter EP-0, Reactor Trip and Safety Injection.

b. Continue with OA SEC-1, Att. A, and concurrently enter OA SEC-1, Att. B, CD/CB Pump Trip.

c. Continue with OA SEC-1, Att. A, and concurrently commence Normal Boration per OP CV-6

d. Continue with OA SEC-1, Att. A and concurrently commence Emergency Boration per OA PRI-2.

RO Sample Plan EPE GRP I 000024 K–A # 000024EK3.01 4.1 \ 4.4

SRO Sample Plan EPE GRP I 000024 Reference OA PRI-2 / SEC-1

COMMENTS ZION EXAM - Modified stem and changed dist a and c

RO Q# 54 HIST B Used Zion 1/96 exam
SRO Q# 54 DIFF C Answer **c.**

The following events have occured:

- Unit One has experienced a Reactor Trip/Safety Injection
- 1A S/G Pressure is DECREASING rapidly
- 1A Steam Line indicates 2.5E^6 lbm/hr steam flow
- Containment Pressure is 8.5 psig and INCREASING
- All MSIV's and Bypass Valves are CLOSED

Assuming all ESF Equipment and Systems function properly, with NO Operator Action, WHICH Critical Safety Function is of the MOST concern?

a. Subcriticality

b. Heat Sink

c. RCS Integrity

d. Containment

RO Sample Plan EPE GRP I 000040 K–A # 000040EK1.01 4.1 \ 4.4
SRO Sample Plan EPE GRP I 000040 Reference WOG HP Background, FR-P.1, Page 1

COMMENTS ZION QUESTION

RO Q# HIST M Used Zion 1/96 exam
SRO Q# 55 DIFF A Answer c.

The following plant conditions exist:

- Reactor power.....100%
- Loop A Tcold NR RTD .....Failed Low
- Bistables for NR RTD Loop A.....Tripped

Pressurizer pressure channel PT-456 fails high. Which ONE of the following describes the actions required to be taken for these failures?

a. Trip the bistables associated with PT-456.

b. Trip the reactor and go to EP-0, "Reactor Trip and SI".

c. Restore at least one of the failed channels within 1 hour or be in HOT STANDBY within 6 hours.

d. Restore at least one of the failed channels within 1 hour or be in HOT SHUTDOWN within 12 hours.

RO Sample Plan K–A # 000027SG.03 3.1 \ 3.6
SRO Sample Plan EPE GRP II 000027 Reference T.S. 3.0.3 / 3.3.1 / OA-INST-2

COMMENTS Zion Question. Modified stem wording correct answer and one distractor

RO Q# **31** HIST **N** Used
SRO Q# **56** DIFF **C** Answer **d.**

The following plant conditions exist on Unit 2:

- Reactor power is 80%
- Rod Control is in MANUAL
- All other controls in AUTO

An Emergency Boration is performed for TWO (2) minutes.

Considerring steady-state to steady-state conditions, the parameter that will NOT change is...?
(Select ONE of the following)

a. ...RCS Tavg.

b. ...PZR Level.

c. ...S/G Pressure.

d. ...Reactor Power.

RO Sample Plan EPE GRP I 000024 K–A # 000024K1.02 * 3.6\3.9

SRO Sample Plan EPE GRP I 000024 Reference Sim LP OA PRI-2, Fund Rx Theory CH 2

COMMENTS

RO Q# 55 HIST BR Used SYSTEMS EXAM 6/9/95
SRO Q# 57 DIFF C Answer b.

The plant is operating at 100% power. The controlling PZR pressure transmitter, PT-455, fails high. As a result of this failure, HOW will the following PZR components INITIALLY respond? (Select ONE of the following)

	PZR PORV's	SPRAY VALVES	PZR B/U HEATERS
a.	Both will OPEN	Will CLOSE	Will DEENERGIZE
b.	One will OPEN	Will OPEN	Will DEENERGIZE
c.	One will OPEN	Will CLOSE	Will ENERGIZE
d.	Neither will OPEN	Will OPEN	Will DEENERGIZE

RO Sample Plan EPE GRP I 000027 K–A # 000027EA2.03 3.3\ 3.4
SRO Sample Plan EPE GRP II 000027 Reference OA INST-2

COMMENTS

RO Q# 56 HIST N Used

SRO Q# 58 DIFF C Answer b.

A large main steam line break in containment has occurred with a failure of MSIV's to close. As a result, the RCS cooled down to 425°F in 15 minutes following initiation of the event. Narrow range level in the steam generators is offscale low. Which ONE of the following describes the Auxiliary Feedwater Flow requirements under these conditions (per CA-2.1) and the basis for this flow requirement ?

Auxiliary feedwater flow shall be reduced to...?

a. ...500 gpm total to minimize RCS cooldown, but ensure adequate heat sink.

b. ...25 gpm to each SG to minimize the RCS cooldown and minimize the total amount of steam flow to Containment.

c. ...25 gpm to each SG to prevent thermal shock to the steam generator shell.

d. ...500 gpm total to terminate the RCS cooldown to prevent Pressurized Thermal Shock (PTS).

RO Sample Plan EPE GRP I 000040 K–A # 000040EK3.04 4.5 \ 4.7

SRO Sample Plan EPE GRP I 000040 Reference CA-2.1, WOG HP Background CA-2.1, Page 12/25

COMMENTS

RO Q# 58 HIST N Used

SRO Q# 59 DIFF C Answer **d.**

Unit 1 is operating at 83% power. Pressurizer pressure channel 1PT-455 was declared inoperable seven (7) hours ago with the associated bistables tripped per 1BwOA INST-2. The on-coming RO notes a concern during turnover that the P-11 bistable is NOT tripped because the bistable light on the TSLB is NOT lit. The off-going RO should...? (Select ONE of the following)

a. ...check the P-11 B/S light bulbs. If it is determined not to be a bulb problem, report the B/S tripping error to the Unit Supervisor.

b. ...inform the on-coming NSO that the P-11 bistable light is a 2 of 3 coincidence and Channel 1PT-455 is not an input.

c. ...check the P-11 B/S light bulbs. If it is determined not to be bulb problem, have the extra NSO trip the P-11 B/S.

d. ...inform the on-coming NSO that the P-11 bistable light is in the required state.

RO Sample Plan EPE GRP I 000027 K–A # 000027A2.16 3.6\ 3.9

SRO Sample Plan EPE GRP II 000027 Reference AR 1-BP-3.3

COMMENTS

RO Q# HIST N Used
SRO Q# 60 DIFF C Answer c.

The following conditions exist:

- Mode 3
- RCS pressure is 2235 psig
- Tave is being maintained by the steam dumps at 557°F.
- All four RCP's running

A complete Loss of Condenser Vacuum occurs.

With NO operator actions, RCS Tave should stabilize at which ONE of the following temperatures?

a. 550°F.

b. 557°F.

c. 561°F.

d. 564°F.

RO Sample Plan K-A # 000051EK3.01 2.8\ 3.1

SRO Sample Plan EPE GRP I 000051 Reference AR 1-BP-5.6 / Stm Dumps - Chap 24

COMMENTS

RO Q# 59 HIST B Used Zion 1/96 exam
SRO Q# 61 DIFF C Answer **b.**

Based upon time in core life, Which ONE of the following statements describes the transient expected during an ATWS?

a. At EOL conditions, the LESS Negative MTC results in HIGHER peak power.

b. At BOL conditions, the LESS Negative MTC allows HIGHER peak temperatures, and pressures.

c. At EOL conditions, the MORE Negative Doppler Coefficient allows HIGHER peak temperatures, and pressures.

d. At BOL conditions, the MORE Negative Doppler Coefficient results in HIGHER peak power.

RO Sample Plan EPE GRP II 000029 K–A # 000029EK1.01 2.8\ 3.1
SRO Sample Plan EPE GRP I 000029 Reference WOG HP Background FR-S.1, Page 5

COMMENTS ZION EXAM

RO Q# 60 HIST N Used
SRO Q# 62 DIFF C Answer a.

The following plant conditions exist:

- Turbine Load .....900 MWs
- Tave.....570°F
- DRPI rod bottom light for rod H8: LIT
- The following annunciators are LIT:

  - ROD AT BOTTOM
  - PR CHANNEL DETECTOR FLUX DEV
  - PR UPPER DETECTOR FLUX DEV
  - PR LOWER DETECTOR FLUX DEV
  - BANK D ROD STOP C-11

Which ONE of the following describes the required operator action to stabilize the plant?

a. Dilute to maintain Tave equal to Tref.

b. Insert Control Rods to maintain Tave equal to Tref.

c. Borate to maintain Tave equal to Tref.

d. Increase turbine load to maintain Tave equal to Tref.

RO Sample Plan EPE GRP II 000003 K–A # 000003EK3.04 3.8\4.1
SRO Sample Plan EPE GRP I 000003 Reference OA ROD-3

COMMENTS

RO Q# HIST B Used Zion 1/96 exam
SRO Q# 63 DIFF C Answer **b.**

The plant has experienced the following casualty:

- A steamline break inside containment has occurred.
- The reactor failed to trip automatically or manually.
- The crew has implemented FR-S.1, "Response to Nuclear Power Generation/ATWS".
- A loss of an ESF bus has occurred requiring local manual operation to isolate AFW to the faulted S/G.

At Step 5, "Verify Reactor Subcritical", of FR-S.1, the following conditions exist:

- Power Range Channels indicate 0%
- Intermediate Range SUR is + 0.2 dpm

Based on these conditions, what action is required ? (Select ONE of the following)

a. Return to procedure and step in effect (E-0, step 1).

b. Continue Emergency Boration and continue actions per FR-S.1.

c. Continue Emergency Boration, return to procedure and step in effect (E-0, step 1).

d. Return to procedure and step in effect, and implement actions of other E-Series procedures which do not cooldown or add positive reactivity.

RO Sample Plan K–A # 000029EK3.12 4.4 \ 4.7
SRO Sample Plan EPE GRP I 000029 Reference FR-S.1, Step 5

COMMENTS Zion Question

RO Q# 61 HIST B Used Zion 1/96 exam
SRO Q# 64 DIFF C Answer **b.**

With the plant operating normally at 88% power , the following symptoms occur:

- Reactor power INCREASING
- Tave GREATER than Tref.
- Pressurizer PORV OPEN.
- INCREASING pressurizer level.

Which ONE of the following would cause the above symptoms to occur ?

a. Turbine Runback.

b. Uncontrolled rod withdrawal.

c. Failed OPEN SG Safety valve.

d. Power range channel N-43 fails high.

RO Sample Plan EPE GRP II 000001 K–A # 000001EK1.06 4.0\ 4.2
SRO Sample Plan EPE GRP I 000001 Reference OA-ROD-1 / Sys LP CH 28, Page 66/67

COMMENTS Zion Question - modified stem wording and three distractors.

RO Q# **63** HIST **N** Used

SRO Q# **65** DIFF **M** Answer **a.**

During the rapid depressurization step in CA-0.0, "Loss of All AC Power", cooldown is performed at the maximum controllable rate without regard to Tech Spec cooldown rate limits. This is allowed because...? (Select ONE of the following)

a. ...RCS temperature should NOT drop far enough to challenge RCS integrity.

b. ...the maximum rate attainable with SG PORVs is less than the Tech Spec cooldown limit.

c. ...RCS pressure will be maintained at NOP to prevent challenging RCS integrity.

d. ...Tech Spec cooldown rate limits do NOT apply during accidents conditions.

RO Sample Plan EPE GRP I 000055 K–A # 000055EK3.02 4.3\ 4.6

SRO Sample Plan EPE GRP I 000055 Reference CA-0.0 Background, Page 86

COMMENTS

RO Q# **64** HIST **M** Used Systems Final
SRO Q# **66** DIFF **C** Answer **b.**

The Unit 2 reactor is critical at 10^3 CPS. Inverter 212 supply to Instrument Bus 212 output breaker trips OPEN. This action causes Instrument Bus 212 to be DEENERGIZED.

These conditions will result in which ONE of the following?

A reactor trip due to the loss of power to...?

a. ...SSPS Logic Cabinet (2PA09J).

b. ...SR channel N-32.

c. ...IR channel N-35.

d. ...PR channel N-42.

RO Sample Plan EPE GRP I 000057 K–A # 000057EA2.19 4.0\4.3
SRO Sample Plan EPE GRP I 000057 Reference NI Notes, NI-4

COMMENTS

RO Q# **66** HIST **N** Used

SRO Q# **67** DIFF **M** Answer **b.**

Which ONE of the following sets of indications are available on the Remote Shutdown Panel?

a. Auxiliary feedwater flow
Containment pressure
Charging flow

b. Emergency boration flow
Steam generator wide range level
RCS wide range temperature

c. Pressurizer level
Reactor trip breaker position
Steam generator pressure

d. Letdown flow
Main feedwater flow
Charging line pressure

RO Sample Plan EPE GRP I 000068 K–A # 000068EK2.01 3.9\ 4.0

SRO Sample Plan EPE GRP I 000068 Reference RSDP - Chap 62, Page 54

COMMENTS

RO Q# HIST M Used Casualty Ops exam
SRO Q# 68 DIFF C Answer **d.**

The plant is responding to a large-break LOCA. You have just transitioned to ES-1.3, "Transfer to Cold Leg Recirculation", because of low water level in the RWST. The following conditions are reported by the STA after SI is RESET in ES-1.3:

- An ORANGE path in Core Cooling due to Core Exit Thermocouples reading 845 F
- A RED Path in INTEGRITY due to RCS conditions to the LEFT of Limit A
- RH Pump 1B TRIPPED on overcurrent.

Based on the conditions listed above, you should...? (Select ONE of the following)

a. ...Immediately go to FR-P.1, Response to Response to Imminent Pressurized Thermal Shock Condition, Step 1.

b. ...Align RHR for recirculation (steps 1-6), and then go to FR-C.2, Response to Degraded Core Cooling, Step 1.

c. ...Immediately go to CA-1.1, Loss of Emergency Coolant Recirculation, Step 1.

d. ...Align RHR for recirculation (steps 1-6), and then go to FR-P.1, Response to imminent Pressurized Thermal Shock Condition.

RO Sample Plan K–A # 000011SG.12 3.5\ 3.5
SRO Sample Plan EPE GRP I 000011 Reference ES-1.3, Page 2 / AP 340-1, Page 7

COMMENTS

RO Q# 67 HIST B Used Zion 1/96 exam
SRO Q# 69 DIFF C Answer **c.**

The following plant conditions exist:

- A reactor trip and loss of offsite power occurred.
- Reactor power was initially at 100%.
- Tavg is 531°F.
- Tcold is at 527°F.
- Thot is at 534°F.
- Average of the ten (10) hottest CETC's is 538°F.
- Pressurizer pressure is at 2185 psig.

Which ONE of the following is the subcooling that currently exists?

a. 92°F.

b. 102°F.

c. 111°F.

d. 121°F.

RO Sample Plan EPE GRP I 000074 K–A # 000074EK1.01 4.3\ 4.7
SRO Sample Plan EPE GRP I 000074 Reference EP-0, Page 33, Steam Tables

COMMENTS ZION EXAM / Modified for Brwd Nomenclature, Temps Changed / Distractors Changed

RO Q# HIST N Used
SRO Q# 70 DIFF M Answer **a.**

While performing FR-C.2, Response to Degraded Core Cooling, you are asked to determine if core exit thermocouple temperatures are GREATER than 708°F. If temperatures are LESS than 708°F, a transition is made to the procedure and step in effect. Which ONE of the following describes the significance of this temperature limit ? (Select ONE of the following)

When core exit thermocouple temperatures are GREATER than 708°F...?

a. ...the fluid at the core exit is superheated.

b. ...the DNBR has decreased to less than 1.3.

c. ...the core is still covered.

d. ...significant fuel cladding failure has occurred.

RO Sample Plan K–A # 000074EK3.11 4.0\4.4

SRO Sample Plan EPE GRP I 000074 Reference WOG HP Background FR C.2, Page 9

COMMENTS

RO Q# 68 HIST BR Used Brwd 95 RO exam
SRO Q# 71 DIFF M Answer **d.**

Which ONE of the following describes the reason for the ECCS acceptance criterion which specifies 2200°F maximum peak cladding temperature ? (Select ONE of the following)

a. This is 500°F below the clad melt point of 2700°F.

b. This is 1000°F below the clad melt point of 3200°F.

c. Above this temperature, thermal conductivity of the clad decreases significantly.

d. Above this temperature, the zircalloy-water reaction is greatly accelerated.

RO Sample Plan PS GRP II 006 * K–A # 006000G.10 * 3.4 \ 3.7

SRO Sample Plan PS GRP II 006 * Reference Fund Power Dist CH 1, Page 20 / Sys CH 61, Page 84

COMMENTS Brwd 95 exam - Slight rewording of stem and answer plus one distractor are different

RO Q# 69 HIST N Used
SRO Q# 72 DIFF C Answer d.

The following plant conditions exist:

- A Reactor trip just occurred
- The Turbine DID NOT trip automatically
- The Output breakers for the main generator are CLOSED

Which ONE of the following describes the procedural action required for this situation AND the basis for this action?

a. Open generator output breakers to prevent motoring of main generator.

b. Manually trip turbine to prevent a loss of Heat Sink.

c. Open generator output breakers to actuate a turbine trip.

d. Manually trip turbine to prevent an uncontrolled RCS cooldown.

RO Sample Plan EPE GRP II 000007 K--A # 000007EK1.03 3.7 \ 4.0
SRO Sample Plan EPE GRP II 000007 Reference WOG HP Background E-0, Page 11

COMMENTS

RO Q# **70** HIST **M** Used Brwd 95 exam (deleted) / Zion 1/96 exam

SRO Q# **73** DIFF **C** Answer **c.**

Which ONE of the following represents the relief line temperature that would be indicated downstream of a leaking pressurizer PORV? (Assume an ideal thermodynamic process, pressurizer pressure of 2200 psig, and PRT pressure of 5 psig.)

a. 162 °F

b. 213 °F

c. 230 °F

d. 270 °F

RO Sample Plan EPE GRP II 000008 K–A # 000008EK1.01 3.2 \ 3.7

SRO Sample Plan EPE GRP II 000008 Reference Steam Tables

COMMENTS ZION QUESTION / 2 Distractors changed
Brwd question stem conditions significantly different and 3 distractors different.

RO Q# 71 HIST BR Used Cas Ops Exam / Tech Review
SRO Q# 74 DIFF M Answer **d.**

A small break LOCA has occurred on Unit 1. The crew has transitioned to EP-1, "Loss of Reactor or Secondary Coolant" and is evaluating SI termination criteria in step 6.

Which ONE of the following is used to determine if adequate core cooling exists?

a. RCS Wide Range Temperature.

b. ECCS injection flow rate.

c. RVLIS indication.

d. Subcooling margin.

RO Sample Plan EPE GRP II 000009 K–A # 000009EA1.16 4.2\ 4.2
SRO Sample Plan EPE GRP II 000009 Reference EP-1, Page 7

COMMENTS

RO Q# 72 HIST N Used
SRO Q# 75 DIFF C Answer **d.**

The following conditions exist on Unit 2:

- Plant is in MODE 1, following a reactor startup.
- Reactor is 8% power, ready to commence rolling the main turbine.
- Loop B narrow range T_{HOT} Fails HIGH.

Which ONE of the following describes the INITIAL plant response to this failure ? (Assume NO operator Action)

a. VCT level will INCREASE until 2CV112A diverts.

b. Steam dumps will OPEN.

c. Control rods will INSERT at maximum rate.

d. RCP Seal Injection Flow will INCREASE.

RO Sample Plan PS GRP I 004 K–A # 004000K1.01 3.6\ 4.0
SRO Sample Plan PS GRP I 004 Reference Sys LP CH 12, Page 86/88

COMMENTS

RO Q# 73 HIST N Used
SRO Q# 76 DIFF A Answer a.

Unit 1 is currently in MODE 5 with the 1B RH pump OOS. The following additional conditions are noted:

- RCS temperature - 140 F
- RCS pressure - 350 psig
- PZR Level - 90%
- RWST Level - 90%
- 1A RH pump is running in the S/D Cooling mode

The 1A RH pump trips on overcurrent and cannot be restarted. Which ONE of the following methods is the preferred means of establishing core cooling ?

a. Bleed and Feed using excess letdown through loop drains and normal charging.

b. Refueling cavity to fuel pool cooling.

c. Steaming the intact/non-isolated SGs.

d. Inventory addition via the RWST.

RO Sample Plan EPE GRP II 000025 K–A # 000025SG.05 3.6\ 3.6
SRO Sample Plan EPE GRP II 000025 Reference Sim LP PRI-10, OA PRI-10

COMMENTS

RO Q# 74 HIST M Used Tech review #2
SRO Q# 77 DIFF C Answer a.

During a reactor shutdown, the unit NSO reports that he believes ONE of the Intermediate Range NIs is OVERCOMPENSATED.

Which ONE of the following conditions would indicate an overcompensated IR NI?

a. Only the indication (amperes neutron level) for that channel will indicate erroneously LOW.

b. Only the indication (amperes neutron level) for that channel will indicate erroneously HIGH.

c. Indication (amperes neutron level) for that channel will indicate erroneously LOW AND permissive P-10 will NOT automatically deenergize when required.

d. Indication (amperes neutron level) for that channel will indicate erroneously HIGH AND permissive P-10 will NOT automatically deenergize when required.

RO Sample Plan EPE GRP II 000033 K–A # 000033EA2.02 3.3\ 3.6
SRO Sample Plan EPE GRP II 000033 Reference Sys LP CH 32, Page 12

COMMENTS Modified stem and two distractors.

RO Q# 75 HIST N Used
SRO Q# 78 DIFF C Answer c.

The plant is operating at 100% power. A RCS leak rate calculation indicates that there is a small amount of leakage present. The control room operators check the SGs for a tube leak and observe the following:

- A slight feedwater / steam flow mismatch exists on the A SG.
- The steam flow indication for the B SG is slightly less than the steam flow for the other SGs.
- The rad monitor associated with the C steamline indicates an activity level of about two times that indicated by the other steamlines.
- The feed flow for the D SG is slightly greater than the feed flow for the other SGs.
- ALL Main Steam Penetration Area Rad Monitors are indicating NORMAL.

Based on these indications, the steam generator that most likely has a tube leak is the...?
(Select ONE of the following)

a. ...A Steam Generator

b. ...B Steam Generator

c. ...C Steam Generator

d. ...D Steam Generator

RO Sample Plan EPE GRP II 000037 K–A # 000037EA2.13 4.1 \ 4.3
SRO Sample Plan EPE GRP II 000037 Reference OA SEC-8, Page 4

COMMENTS

RO Q# 76 HIST M Used Zion 1/96 exam
SRO Q# 79 DIFF C Answer **b.**

A SGTR has occurred in the 1C SG with the following plant conditions noted:

- RCS pressure - 1700 psig
- INTACT SG NR Levels - approx 30%
- Ruptured SG level (1C) - 75 %

Which ONE of the following is the basis for keeping 1C SG narrow range level above the top of the U-tubes?

a. To ensure the ruptured SG doesn't become a Hot Dry SG.

b. To ensure thermal stratification can occur in the ruptured steam generator.

c. To ensure sufficient heat sink for Reactor Coolant System cooldown.

d. To reduce releases by filtering the release through a layer of water.

RO Sample Plan EPE GRP II 000038 K–A # 000038EK3.06 4.2\4.5

SRO Sample Plan EPE GRP II 000038 Reference WOG HP Background EP-3, Page 60

COMMENTS Zion Question - Different stem wording, one different distractor, distractors worded differently.

RO Q# 77 HIST BR Used EMERGENCY OPS EXAM 11/29/95
SRO Q# 80 DIFF C Answer **b.**

The control room operators are responding to a SGTR. They have identified and isolated the ruptured S/G, cooled down and depressurized the RCS, and terminated SI.

Core exit temperatures, S/G pressures, and RCS hot leg temperatures are all decreasing. RCS cold leg temperatures are at the saturation temperature for the existing S/G pressures. RCS subcooling, based on core exit TC's, is 35°F. No RCP's are running.

During a crew discussion, the SRO states that because natural circulation is established, it is not necessary, nor is it desirable to establish forced reactor coolant circulation. Preparations for the cooldown should proceed. The RO states that forced reactor coolant circulation should be established, if conditions permit, before proceeding with the cooldown.

Which crew member is correct and why? (Select ONE of the following)

a. The RO -- because plant parameters DO NOT indicate natural circulation conditions have been established.

b. The RO -- because forced circulation will reduce susceptability to pressurized thermal shock and minimize boron dilution concerns.

c. The SRO -- because starting an RCP will increase the rate of S/G tube leakage.

d. The SRO -- because natural circulation will preclude any damage to the RCP's and minimize RCS pressure perturbations.

RO Sample Plan EPE GRP II 000038 K–A # 000038A2.17 3.8 \ 4.4
SRO Sample Plan EPE GRP II 000038 Reference WOG HP Background EP-3, Page 141

COMMENTS

RO Q# 78 HIST N Used
SRO Q# 81 DIFF C Answer b.

Due to a 300 gpm tube rupture affecting one SG, the operators are performing EP-3, SGTR. They have just completed the INITIAL cooldown of the RCS, PRIOR TO INITIAL depressurization.

Which ONE of the following indications should be expected to be seen by the crew at this point in the procedure?

a. RCS subcooling is NOT acceptable.

b. Ruptured SG pressure above that of intact SG's.

c. Level in the ruptured SG is STABLE.

d. RCS pressure within 100 psig of ruptured SG pressure.

RO Sample Plan EPE GRP II 000038 K–A # 000038EK3.06 4.2 \ 4.5

SRO Sample Plan EPE GRP II 000038 Reference WOG HP Background EP-3, Page 88

COMMENTS

RO Q# HIST N Used
SRO Q# 82 DIFF C Answer a.

A reactor trip has occurred with a failure of the AFW system resulting in a loss of Heat Sink. RCS bleed-and-feed was started 15 minutes ago. Maintenance has just restored the 1A AFW pump and the operators are preparing to restore AFW flow to S/G 1C. The following conditions exist:

- Core exit TC's: Approximately 628°F and INCREASING
- Loop C hot leg temperature: 605°F and INCREASING
- CNMT Pressure: 8 psig and INCREASING
- ALL S/G wide-range levels: 10% and DECREASING

Under these conditions, which ONE of the following AFW flow rates should be established to the 1C SG ?

a. Maximum rate attainable until hot leg temperature is < 550 F.

b. Maximum rate attainable until WR SG level is >40% in at least one SG.

c. Not to exceed 100 gpm until WR SG level is >40% in at least one SG.

d. Not to exceed 100 gpm until hot leg temperature is < 550 F.

RO Sample Plan K–A # 000054EK1.02 3.6 \ 4.2

SRO Sample Plan EPE GRP II 000054 Reference FR-H.1 Caution, WOG Background, page FR-H.1 52

COMMENTS

RO Q# 78 HIST B Used Zion 1/96 exam
SRO Q# 83 DIFF C Answer c.

Given the following:

- Reactor power is 90%.
- RCS Tavg is stable at 579°F on all 4 loops.
- RCS pressure is stable at 2235 psig.
- Containment Humidity is INCREASING.
- Containment Pressure is INCREASING.
- Steam Flow on each SG is 3.78 E^6 lbm/hr.
- 1C SG Feed Flow is pegged HIGH.
- 1C SG Main FW Reg Valve is full OPEN.
- 1C SG pressure is STABLE
- 1C SG level is DECREASING.

Which ONE of the following events is in progress?

a. Main FW Reg Valve failed OPEN.

b. Feed Flow Indicator failed HIGH.

c. Feed Line Break INSIDE Containment.

d. Main Feed Pump trip.

RO Sample Plan EPE GRP II 000054 K–A # 000054EK1.01 4.1 \ 4.3
SRO Sample Plan EPE GRP II 000054 Reference WOG HP Background EP-2, Page 3/13

COMMENTS ZION QUESTION / Modified for Brwd Nomenclature, Changed some stem conditions

RO Q# 81 HIST N Used Tech review #2
SRO Q# 84 DIFF A Answer b.

The following plant conditions exist:

- Reactor trip and SI.
- ALL SG levels are BELOW the narrow range.
- 1B AFW pump is OOS.
- Total AFW flow AVAILABLE is 350 gpm.

Which ONE of the following statements describes the BENEFITS of stopping the RCPs under these conditions?

Stopping the RCPs will...?

a. ...reduce reactor coolant inventory loss by reducing seal leak off.

b. ...conserve SG secondary inventory by reducing heat input to the RCS.

c. ...minimize the possibility of a tube rupture as AFW is restored to the SG's.

d. ...increase safety injection flow by decreasing RCS cold leg pressure.

RO Sample Plan EPE GRP II 000054 K–A # 000054EK3.04 4.4 \ 4.6
SRO Sample Plan EPE GRP II 000054 Reference WOG HP Background FR-H.1, Page 69

COMMENTS 2 distractors different.

RO Q# 83 HIST N Used
SRO Q# 85 DIFF C Answer c.

Unit 1 has experienced a fault on Bus 4 in the Switchyard, causing a Loss of Offsite Power condition. The following conditions are noted on the 1A Diesel Generator:

- Generator Output.....5935 KW
- Generator Current.....1000 amps
- Generator Voltage.....4180 volts

Which ONE of the following indicates the MAXIMUM amount of time that the 1A Diesel generator can operate under the given circumstances?

a. Shutdown immediately

b. 2 hours

c. 2000 hours

d. No limitation on run time

RO Sample Plan EPE GRP III 000056 K–A # 000056EA2.50 2.8\3.1

SRO Sample Plan EPE GRP III 000056 Reference ES-0.1 Step 9 Caution

COMMENTS

RO Q# 84 HIST N Used
SRO Q# 86 DIFF M Answer d.

A LOCA has occurred, core exit thermocouple temperatures are indicating 690°F and increasing rapidly.

Which ONE of the following is the expected response of the core exit thermocouples if core exit temperature continues to increase ? (ASSUME NO CORE COOLING IS PRESENT)

The incore thermocouples will ...?

a. ... provide SATISFACTORY indication at the SAME accuracy up to 2300°F.

b. ... become LESS accurate above 700°F and provide UNSATISFACTORY indication above 1200°F.

c. ... become LESS accurate above 1200°F and provide UNSATISFACTORY indication above 1800°F.

d. ... become LESS accurate above 1800°F and provide UNSATISFACTORY indication above 2300°F.

RO Sample Plan PS GRP I 017 K–A # 017020K6.01 2.7 \ 3.0
SRO Sample Plan PS GRP I 017 Reference Sys CH 34b, Page 35

COMMENTS

RO Q# HIST BR Used Tech review exam #2
SRO Q# 87 DIFF M Answer a.

While performing a plant heatup, the RCS heatup rate is regulated by controlling the _____ flow through the _____ side of the RHR heat exchanger. (Select ONE of the following)

a. Reactor Coolant, tube.

b. Reactor Coolant, shell.

c. Component Cooling Water, tube.

d. Component Cooling Water, shell.

RO Sample Plan K–A # 005000K6.03 2.5\2.6

SRO Sample Plan PS GRP III 005 Reference GP 100-1, Page 13 / M-62/66

COMMENTS

RO Q# 87 HIST N Used
SRO Q# 88 DIFF A Answer c.

The reactor is at $5X10^{-7}$ amps during a normal reactor startup. Individual rod position indications and group step counters show all control bank D rods at 120 steps.

When the operator begins inserting control rods, IR nuclear power suddenly drops by one-third decade and continues to decrease at a -0.25 dpm SUR. There is no significant change in Tavg. The control bank D step counters now read 119 steps, and the DRPI indicators for rods D-4, D-12, M-4, and M-12 indicate 0 steps. All other rod position indicators are unchanged.

Which ONE of the following can be deduced from these indications?

a. The individual rod position indicators have failed because more than one dropped rod would have caused an automatic reactor trip on negative rate.

b. The control bank D group 1 step counter has failed because it should read zero when all of the rods in this group are fully inserted.

c. The bank D step counters and the associated individual rod position indicators are consistent with a multiple-dropped-rod accident.

d. Either the bank D step counters or the individual rod position indicators have failed, but there is not enough information to determine which ones have failed.

RO Sample Plan K–A # 014000A2.03 3.6 \ 4.1
SRO Sample Plan PS GRP I 014 Reference Sim LP OA Rod-3, Page 2

COMMENTS

RO Q# **99** HIST **M** Used Zion 1/96 exam / Brwd 93 exam

SRO Q# **89** DIFF **C** Answer **a.**

The unit is at 100% power steady state NOP/NOT. The Unit NSO inadvertently changes the Pressurizer Pressure Master Controller setpoint to 2185 psig. Assume a step change in the setpoint and assume that pressurizer pressure control remains in automatic.

Which ONE of the following is the IMMEDIATE automatic response of the system?

a. Spray valves open, Variable Heaters deenergize

b. PORV 455A opens, Spray valves open, Variable Heaters energize.

c. Spray valves open, Variable Heaters energize.

d. Spray valves close, Variable Heaters deenergize.

RO Sample Plan PS GRP II 010 K–A # 010000A3.02 3.6\ 3.5

SRO Sample Plan PS GRP II 010 Reference Sys CH 14, Page 80/84

COMMENTS Zion Question, modified stem coditions, scope of failure adding difficulty, answer and all distrctors modified, Brwd - different stem conditions, all distractors are different.

RO Q# HIST N Used
SRO Q# 90 DIFF A Answer **a.**

The following plant conditions exist:

- Reactor Power - 8%
- 1B FWP - running
- Steam Dumps - Steam Pressure Mode
- 1A S/G level channel LT-517 - In test, Bistables are tripped
- Main Turbine - On the turning gear
- 1A Steam Generator Controlling Level channel LT-519 fails LOW

Which ONE of the following correctly describes the <u>INITIAL</u> plant response to this event ? (NOTE: Assume NO operator action)

a. P-4 Reactor Trip Signal is generated.

b. The WHPS actuates, closing all FW009's.

c. FW Regulating Valve FW510 receives a close signal.

d. P-14 Feedwater Isolation signal closes all Feed Water Regulating valves (FW510, 520, 530, 540).

RO Sample Plan K–A # 012000K4.01 * 3.7 \ 4.0

SRO Sample Plan PS GRP II 012 Reference Sys CH 60b, Fig 60b-9 / OA INST-2, Page 31

COMMENTS

RO Q# HIST M Used Zion 1/96 exam / Brwd 95 exam
SRO Q# 91 DIFF C Answer **d.**

The Unit was operating at 60% power when a control bank D rod dropped. The following conditions currently exist:

- RCS Tave decreased from 562°F to 555°F.
- PZR Pressure decreased from 2240 psig to 2180 psig.
- Remaining Bank D Control Rods are at 220 steps.

Based on these conditions, which ONE of the following statements correctly describes the actions required by Technical Specifications?

a. Drive control bank D to 0 steps and concurrently reduce Reactor power to < 40% to comply with rod insertion limits within 4 hours or be in HOT STANDBY within the next 6 hours.

b. Restore the Bank D control rod to operable status and realign with the group within 4 hours or be in HOT STANDBY within the next 6 hours.

c. Restore PZR Press to > 2219 psig within 2 hours or be in HOT SHUTDOWN within the next 4 hours.

d. Restore PZR Press to > 2219 psig within 2 hours or be < 5% power within the next 4 hours.

RO Sample Plan K–A # 000003SG.03 3.3\3.8
SRO Sample Plan EPE GRP I 000003 Reference T.S. 3.2.5

COMMENTS ZION EXAM - Modified stem conditions / changed 2 distractors
Brwd exam - different stem and all distractors.
Higher comprehension level

RO Q# HIST N Used
SRO Q# 52 DIFF C Answer c.

Unit 2 is at 80% power with all systems in AUTO, when the following events occur:

- Control Bank D rods begin to insert at 72 steps per minute.
- The RO places Rod Control in MANUAL and rod motion STOPS
- The Rod Bank Low Insertion Limit Alarm is LIT
- The Tave Control Deviation LOW Alarm is LIT

The Unit Supervisor has directed that NO further rod motion should be attempted until the cause of the rod control problem has been determined.

Which ONE of the following actions, ALONE, will cause BOTH of the above listed annunciators to CLEAR ?

a. RCS Boration

b. RCS Dilution

c. Turbine load DECREASE

d. Turbine load INCREASE

RO Sample Plan K–A # 000005EK3.06 3.9\ 4.2

SRO Sample Plan EPE GRP I 000005 * Reference OA ROD-1, Page 6 / Sys LP CH 12, Page 36 / Sys LP CH 28, Page 54/58

COMMENTS

RO Q# 92 HIST N Used
SRO Q# 93 DIFF C Answer **b.**

A Reactor Trip with SI occurs. The operators perform the immediate action steps, verify ECCS flow, and check AF flow. Minimum AF flow cannot be established, so the operators enter FR-H.1, "Response to Loss of Secondary Heat Sink". An operator checks RCS pressure; it is less than S/G pressure. The operators are directed by FR-H.1 to EP-1, "Loss of Reactor or Secondary Coolant".

Based on this information, select the ONE statement that correctly summarizes plant conditions:

a. Large Break LOCA in progress; secondary heat sink required.

b. Large Break LOCA in progress; secondary heat sink is not required.

c. Small Break LOCA in progress; secondary heat sink required.

d. Small Break LOCA in progress; secondary heat sink not required.

RO Sample Plan EPE GRP II 000011 K–A # 000011EA2.01 4.2 \ 4.7
SRO Sample Plan EPE GRP I 000011 Reference WOG HP Background FR-H.1, Page 63

COMMENTS

RO Q# HIST BR Used Emerg Ops Exam
SRO Q# 94 DIFF C Answer **d.**

The plant has experienced a large break LOCA. The operators have taken appropriate action in accordance with the Emergency Procedures. The ECCS pumps are now operating in the COLD LEG RECIRCULATION mode. RCS pressure is stable at approximately 100 psig.

In this mode, core decay heat is being removed primarily by...? (Select ONE of the following)

a. ...the condensation of reflux boiling in the S/G's.

b. ...heat transfer between the RCS and the S/G's due to Natural Circulation flow.

c. ...the injection of water from the RWST and the removal of steam/water out the break.

d. ...the injection of water from the recirculation sump and the removal of steam/water out the break.

RO Sample Plan K–A # 000011EA1.11 4.2\4.2

SRO Sample Plan EPE GRP I 000011 Reference WOG HP Background E-1, Page 30

COMMENTS

RO Q# HIST BR Used CASUALTY OPS EXAM 2/22/96
SRO Q# 95 DIFF M Answer c.

Per OA PRI-4, "High Reactor Coolant Activity", which ONE of the following would require the standby mixed bed demineralizer to be placed in service?

a. Chloride levels greater than 1.0 ppm.

b. Dose equivalent I-131 exceeds Tech Spec limits.

c. Decontamination factor less than 10 on the inservice demineralizer.

d. Gross Activity is > 100/ E Bar microcuries/gram.

RO Sample Plan K–A # 0000076SG.07 2.9\ 3.4
SRO Sample Plan EPE GRP I 000076 Reference OA PRI-4, Page 2

COMMENTS

RO Q# HIST N Used
SRO Q# 96 DIFF M Answer a.

In OA ELEC-2, "Loss of Instrument Bus", one of the subsequent action steps for restoring bus power requires closing of the constant voltage transformer feed breaker. Which ONE of the following describes the electrical feed from the constant voltage transformer?

a. An ESF ALTERNATE supply of power to instrument buses.

b. An ESF NORMAL supply of power to instrument buses.

c. A NON-ESF NORMAL supply of power to instrument buses.

d. A NON-ESF ALTERNATE supply of power to instrument buses.

RO Sample Plan K–A # 000057EK3.01 4.1 \ 4.4

SRO Sample Plan EPE GRP I 000057 Reference Sys LP CH 4, Page 66 / 20-E-1-4001A

COMMENTS

RO Q# 24 HIST N Used
SRO Q# 97 DIFF C Answer **a.**

Given the following:

- The plant is at 100% power.
- Instrument Inverter 112 AC Output breaker trips.
- AC Instrument Bus 112 has a fault on the bus and can not be reenergized.
- An inadvertant SI has occurred.
- RCS pressure is INCREASING

Which ONE of the following describes the component(s) which will mitigate the RCS pressure increase assuming NO operator action ?

a. PORV 455A

b. PORV 456

c. PORVs 455A and 456

d. PZR Sprays RY455B and 455C

RO Sample Plan EPE GRP I 000057 K–A # 000057A2.19 4.0\ 4.3
SRO Sample Plan EPE GRP I 000057 Reference OA ELEC-2, Page 13

COMMENTS

RO Q# HIST N Used
SRO Q# 98 DIFF C Answer b.

In accordance with the Technical Specifications, which ONE of the following conditions represents a loss of Primary Containment Integrity ?

a. While in MODE 1, an operator enters containment but leaves the inner airlock door OPEN.

b. While in MODE 3, during an inspection of an equipment hatch, it is determined that the equipment hatch is NOT closed.

c. While in MODE 4, Containment internal pressure is found to be 1.6 psig.

d. While in MODE 5, during performance of the Overall Integrated Containment Leakage Rate Test, containment leakage exceeds the maximum allowable Technical Specification leakage rates.

RO Sample Plan K–A # 000069EA2.01 3.7 \ 4.3

SRO Sample Plan EPE GRP I 000069 Reference T.S. 3.6.1 .1/2/3

COMMENTS

RO Q# HIST N Used

SRO Q# 99 DIFF C Answer b.

FR-C.1 "Response to Inadequate Core Cooling" has been entered due to a RED path in Core Cooling and temperatures are INCREASING. At step 7, the RO checks S/G NR levels and all are < 11%. Containment Pressure is 8 psig. The BOP reports that there is NO Feedwater/Aux Feedwater available. As SRO you should: (Select ONE of the following)

a. Go to FR-H.1, "Response to Loss of Secondary Heat Sink".

b. Start RCP's one at a time, until CETC's are < 1200°F.

c. Depressurize all intact S/G's to atmospheric pressure to dump accumulators to cool RCS.

d. Prepare to initiate RCS Bleed and Feed if WR level in any 3 S/G's are less than 60%.

RO Sample Plan K–A # 000074EK3.07 4.0\4.4

SRO Sample Plan EPE GRP I 000074 Reference FR-C.1, Page 12/20

COMMENTS

RO Q# HIST N Used
SRO Q# 100 DIFF C Answer d.

Unit 2 is at 90% power when a fault occurs on System Auxiliary Transformer 242-1.

Which ONE of the following describes the plant response to this event?

a. Both switchyard breakers, 14-15 and 11-14 remain closed, with the 2A DG re-energizing ESF Bus 241 and SAT 242-2 energizing ESF Bus 242.

b. Switchyard breaker 14-15 opens and 11-14 remains closed, with 2A DG re-energizing ESF Bus 241 and SAT 242-2 energizing ESF Bus 242.

c. Switchyard breaker 14-15 remains closed and 11-14 opens, with 2A and 2B DGs re-energizing ESF Buses 241 and 242.

d. Both Switchyard breakers, 14-15 and 11-14 open, with the 2A and 2B DGs re-energizing ESF Buses 241 and 242.

RO Sample Plan K–A # 000056EA2.46 4.2\4.4

SRO Sample Plan EPE GRP III 000056 Reference Sys LP CH 4 Pages 28/50/52, Fig 4-1

COMMENTS