

# EXAMINATION ANSWER KEY

CCNPP SRO NRC Exam - 12/08

76

ID: Q14502

Points: 1.00

The RCRO informs the Fuel Handling Supervisor (FHS) that 2 of the 3 operable source range NI channels are operating erratically. What are the required actions if a fuel assembly is ready to be inserted (i.e., has not been lowered) into the core during this condition?

- A. Refueling Machine Operator inserts the fuel assembly into the indexed core location, but does not ungrapple it, the FHS secures fuel movement and the Shift Manager contacts the NI System Engineer to investigate.
- B. The FHS directs that the fuel assembly be moved out of core area to a safe location, and refueling is secured. RCRO notifies the Shift Manager.
- C. FHS directs the Refueling Machine Operator to lower the fuel assembly to the hoist mechanical down stop and maintain this machine position until 3 NI channels are restored to operation.
- D. The FHS directs continuing with refueling operations while an I&C technician is dispatched to investigate the NI failure.

Answer: B

### Answer Explanation:

- A. Incorrect – T.S. requires immediate suspension of positive reactivity additions. Also, I&C would be contacted to investigate the failure prior to the system engineer being notified. Answer is plausible because these are the actions specified in AOP-6E, Fuel Handling Incident, for an incident in the Spent Fuel Pool.
- B. Correct – T.S. 3.9.2 Action A requires immediate suspension of positive reactivity additions, which includes inserting fuel into the core.
- C. Incorrect - T.S. requires only 2 source range NI channels to be operable.
- D. Incorrect - T.S. requires immediate suspension of positive reactivity additions.

Question 76 Info	
Cognitive Level	1.00
Tier/Group	Generic
SRO Importance:	3.9
CFR:	43.5
KA Number:	2.1.40 Knowledge of refueling administrative requirements.
Bank, new or modified?	Modified question
References provided to candidate	None
References:	T.S. 3.9.2, OP-7, Shutdown Operations
Cross Reference Number:	
User-Defined ID:	Q14502
Comments:	

# EXAMINATION ANSWER KEY

CCNPP SRO NRC Exam - 12/08

77

ID: Q14490

Points: 1.00

Given the following:

- Unit-1 is at 100% power
- RCS Pressure Control in AUTO
- RCS Pressure is 2250 PSIA
- PIC-100X is selected

What is the IMMEDIATE plant response if the selected Pressurizer Pressure controller setpoint fails to 2360 PSIA, what operator action is required and what Technical Specifications are affected?

- A. Spray valves open, proportional heaters output goes to maximum, and all backup heaters energize if in "AUTO".  
Place HIC-100 in manual with an output of 0%.  
LCO 3.4.9 must be entered for Pressurizer Heaters being inoperable.
- B. Spray valves shut, proportional heaters output goes to minimum, and all backup heaters deenergize if in "AUTO".  
Place HIC-100 in manual with an output of 50%.  
LCO 3.3.10 must be entered for Post Accident Monitoring Instrumentation inoperable.
- C. Spray valves open, proportional heaters output goes to minimum, and all backup heaters energize if in "AUTO".  
Shift Pressurizer Pressure Control to PIC-100Y.  
No LCO must be entered.
- D. Spray valves shut, proportional heaters output goes to maximum, and all backup heaters remain deenergized if in "AUTO".  
Shift Pressurizer Pressure Control to PIC-100Y.  
No LCO must be entered.

Answer: D

## Answer Explanation:

- A. Incorrect - Backup heaters energize at 2200 PSIA and deenergize at 2225 PSIA as indicated on the selected PZR PRESS control channel.
- B. Incorrect - Backup heaters energize at 2200 PSIA and deenergize at 2225 as indicated on selected control channel.
- C. Incorrect - Proportional heaters are on at full power at -25 PSIA and at minimum power +25 PSIA from setpoint on the selected PZR PRESS control channel.
- D. Correct - Spray valves begin to open on a + 50 PSIA from setpoint signal, fully open at +100 PSIA from selected PZR PRESS control channel. Proportional heaters are on at full power at -25 PSIA and at minimum power +25 PSIA from setpoint on the selected PZR PRESS control channel. Backup heaters energize at 2200 PSIA and deenergize at 2225 PSIA as indicated on the selected PZR PRESS control channel.

# EXAMINATION ANSWER KEY

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Question 77 Info	
Cognitive Level	2.00
Tier/Group	1/1
SRO Importance:	3.6
CFR:	43.5
KA Number:	027 Pressurizer Pressure Control System (PZR PCS) Malfunction: AA2. Ability to determine and interpret the following as they apply to the Pressurizer Pressure Control Malfunctions: <ul style="list-style-type: none"><li>• AA2.10 PZR heater energized/de-energized condition</li></ul>
Bank, new or modified?	Bank question
References provided to candidate	None
References:	SD-064D
Cross Reference Number:	LOI-064A2-1
User-Defined ID:	Q14490
Comments:	

# EXAMINATION ANSWER KEY

CCNPP SRO NRC Exam - 12/08

78

ID: Q51072

Points: 1.00

Unit-2 is operating at 100% power when 21 SGFP trips.

What trip criteria should the CRS provide the crew to avoid an automatic reactor trip?

- A. LO LVL SG pre-trip alarms in and S/G Level not recovering.
- B. PROT CH TRIP" alarm annunciates.
- C. "21 SGFP TRIP" annunciates and feed flow is less than steam flow.
- D. 22 SGFP speed exceeds 5100 RPM.

Answer: A

### Answer Explanation:

- A. Correct - S/G Low Level Pretrip without feedflow greater than steam flow generally indicates the transient is not under control such that an automatic trip cannot be avoided.
- B. Incorrect - This alarm will annunciate in close proximity to the automatic trip of the reactor and would not allow enough time to manually trip the reactor.
- C. Incorrect - There is enough time to reset the tripped SGFP and restore S/G level.
- D. Incorrect – 22 SGFP speed exceeding 5100 RPM requires corrective action, however, SGFP speed should not be established as trip criteria.

Question 78 Info	
Cognitive Level	2.00
Tier/Group	1/1
SRO Importance:	4.4
CFR:	43.5
KA Number:	APE: 054 Loss of Main Feedwater (MFW) AA2. Ability to determine and interpret the following as they apply to the Loss of Main Feedwater (MFW): <ul style="list-style-type: none"><li>• AA2.01 Occurrence of reactor and/or turbine trip</li></ul>
Bank, new or modified?	Bank question
References provided to candidate	None
References:	AOP-3G
Cross Reference Number:	
User-Defined ID:	Q51072
Comments:	

# EXAMINATION ANSWER KEY

CCNPP SRO NRC Exam - 12/08

79

ID: Q51073

Points: 1.00

Given references:

The following conditions exist on Unit-1:

- The time is 0330 On 12/06/08
- A plant startup is in progress
- The unit is in Mode 3
- Preparations are being made for entry into Mode 2
- It has been discovered the last channel check on the Containment High Range Area Radiation Monitors 1-RE-5317A and 1-RE-5317B was performed at 1200 on 10/23/08

Which ONE of the following describes the operability of the Containment High Range Area Monitors, and the action that will be taken?

1-RE-5317A and 1-RE-5317B are considered...

- A. The Containment High Range Area Monitors are operable; All surveillance requirements are current and plant startup to Mode 1 may proceed.
- B. The Containment High Range Area Monitors are operable; Surveillance completion may be delayed up to 24 hours (31 days with a risk evaluation). Plant startup to Mode 1 may proceed.
- C. The Containment High Range Area Monitors are inoperable; Plant startup may NOT proceed to Mode 1 until BOTH channels are restored to operable status.
- D. The Containment High Range Area Monitors are inoperable; Plant startup may NOT proceed to Mode 1 until AT LEAST ONE channel is restored to operability.

Answer: B

## Answer Explanation:

- A. Incorrect - Surveillance requirements are not met, because a 31 day interval plus 1.25 times the interval is 39 days. The surveillance was last performed 44 days ago. Plausible if candidate either miscounts or refers to surveillance for channel calibration.
- B. Correct - See TS section 3.0 for missed surveillance.
- C. Incorrect - TS section 3.0 refers to missed surveillances and allows operability to be maintained as long as the surveillance is completed within 24 hours. The action required does not have to be performed unless the channel is determined to be inoperable. Plausible because the candidate may assume that not meeting a required surveillance time means the channel is inoperable, and the actual TS does not exclude the LCO from TS 3.0.4 requirements.

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- D. Incorrect - Same as C. TS section 3.0 refers to missed surveillances and allows operability to be maintained as long as the surveillance is completed within 24 hours. The action required does not have to be performed unless the channel is determined to be inoperable. Plausible because the candidate may assume that not meeting a required surveillance time means the channel is inoperable, and the actual TS does not exclude the LCO from TS 3.0.4 requirements. In this case, the candidate may also fail to correctly read all of the action requirements and assume that at least 1 channel must be operable to continue.

Question 79 Info	
Cognitive Level	2.00
Tier/Group	2/2
SRO Importance:	4.6
CFR:	43.5
KA Number:	SYSTEM: 072 Area Radiation Monitoring (ARM) System 2.2.37 Ability to determine operability and/or availability of safety related equipment.
Bank, new or modified?	New question
References provided to candidate	T.S. 3.3.10
References:	T.S. 3.3.10 and Section 3.0 of the Tech Specs.
Cross Reference Number:	
User-Defined ID:	Q51073
Comments:	10CFR55.43 (b) item 2 is met because the candidate must be able to interpret TS action for missed surveillances.

# EXAMINATION ANSWER KEY

CCNPP SRO NRC Exam - 12/08

80

ID: Q51076

Points: 1.00

21 STM LINE RUPTURE alarm annunciates.

What indications are used to validate the alarm and what action is expected to be directed by the CRS?

- A. 21 S/G pressure less than or equal to 705 PSIA.  
Verify 21 MSIV and Main Feed MOV shut.
- B. 21 S/G pressure less than 22 S/G pressure by 115 PSIA or more.  
Verify AFW Block Valves shut to 21 S/G.
- C. Containment Pressure 2.8 PSIG or greater.  
Verify 21 and 23 HPSI Pumps start, Main and Aux HPSI Header MOVs open.
- D. 21 S/G level less than 22 S/G level by 20 inches or more.  
Verify 21 Main Feed Regulating Valve fails as is; ensure Bypass Feed Reg Valve controls S/G level.

Answer: B

### Answer Explanation:

- A. Incorrect - This is the SGIS setpoint with partial actions to be verified for SGIS.
- B. Correct - Setpoint is the same for this alarm and AFAS Block actuation, and actions per the Alarm Response Manual.
- C. Incorrect - This is the setpoint for SIAS, and partial actions to verify SIAS.
- D. Incorrect - At 20" an automatic transfer from high/low power FDWTR control is stopped. Action is for manual transfer per OI-12A.

Question 80 Info	
Cognitive Level	3.00
Tier/Group	2/1
SRO Importance:	4.3
CFR:	43.5
KA Number:	SYSTEM 013 Engineered Safety Features Actuation System (ESFAS) 2.1.45 Ability to identify and interpret diverse indications to validate the response of another indication.
Bank, new or modified?	New question
References provided to candidate	None
References:	2C03 Alarm Manual, NO-1-200
Cross Reference Number:	
User-Defined ID:	Q51076
Comments:	

# EXAMINATION ANSWER KEY

CCNPP SRO NRC Exam - 12/08

81

ID: Q51075

Points: 1.00

Given references:

The following conditions exist:

- A reactor trip occurred on Unit 2 at 0200
- The Crew has implemented EOP-1, Reactor Trip
- 500 KV Off-Site power is lost at 0217
- NEITHER EDG automatically starts
- The 2A EDG is started from the Control Room and aligned to 21 4KV Bus at 0227
- 2B EDG is locally started and aligned to 24 4KV Bus at 0231
- Off-Site power will be available in approximately 2 hours

Which ONE of the following describes the procedure that will be entered upon completion of rediagnosis, and the HIGHEST emergency classification achieved for this event?

- A. EOP-2, Loss of Off-Site Power/Loss of Forced Circulation; Unusual Event.
- B. EOP-2, Loss of Off-Site Power/Loss of Forced Circulation; Alert.
- C. EOP-8, Functional Recovery Procedure; Unusual Event.
- D. EOP-8, Functional Recovery Procedure; Alert.

Answer: A

**Answer Explanation:**

- A. Correct - EOP-2 is entered when loss of forced circulation occurs. UE declared because OFF-SITE power is lost > 15 minutes, although busses are reenergized from EDGs.
- B. Incorrect - Wrong classification. With both 4KV Vital busses supplied by their respective DGs the plant is NOT one loss away from a SBO. ALERT is plausible if the applicant misreads the EALs.
- C. Incorrect - Event does not necessitate implementation of EOP-8 because reassessment using the EOP-0 diagnostic instrument indicates EOP-2 as the correct choice. This distracter is plausible because there are multiple problems occurring – loss of forced circulation as well as loss of power. Requires applicant to understand EOP-2 takes into account the loss of power.
- D. Incorrect - Event does not necessitate implementation of EOP-8 because reassessment using the EOP-0 diagnostic instrument indicates EOP-2 as the correct choice. This distracter is plausible because there are multiple problems occurring – loss of forced circulation as well as loss of power. Requires applicant to understand EOP-2 takes into account the loss of power. ALERT is plausible if the applicant misreads the EALs.



# EXAMINATION ANSWER KEY

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Question 81 Info	
Cognitive Level	2.0
Tier/Group	1/1
SRO Importance:	4.6
CFR:	43.5
KA Number:	E02 Reactor Trip Recovery 2.4.41 Knowledge of the emergency action level thresholds and classifications.
Bank, new or modified?	New question
References provided to candidate	EAL Table
References:	EOP-0 Diagnostic Flow Chart, EALs, EOP-1 Contingency 1.1
Cross Reference Number:	
User-Defined ID:	Q51075
Comments:	

# EXAMINATION ANSWER KEY

CCNPP SRO NRC Exam - 12/08

82

ID: Q19089

Points: 1.00

Given a continuous CEA withdrawal event which of the following results in a higher peak nuclear power?

- A. Hot Zero Power, BOC.
- B. Hot Full Power, EOC.
- C. Hot Full Power, BOC.
- D. Hot Zero Power, EOC.

Answer: A

### Answer Explanation:

- A. Correct - Starting from low power gives a greater power overshoot following trip. A positive value for MTC at BOC conditions contributes to the higher peak power level achieved. UFSAR indicates power peak at approximately 127%.
- B. Incorrect - MTC has a much larger negative value at EOC which, when combined with a larger negative FTC, helps turn power limiting the peak value.
- C. Incorrect - Starting from full power gives a smaller power overshoot following trip. UFSAR indicates power peak at approximately 112%.
- D. Incorrect - MTC has a much larger negative value at EOC which, when combined with a larger negative FTC, helps turn power limiting the peak value.

Question 82 Info	
Cognitive Level	2.00
Tier/Group	1/2
SRO Importance:	4.3
CFR:	43.5
KA Number:	APE: 001 Continuous Rod Withdrawal AA2. Ability to determine and interpret the following as they apply to the Continuous Rod Withdrawal : <ul style="list-style-type: none"><li>• AA2.04 Reactor power and its trend</li></ul>
Bank, new or modified?	Bank question
References provided to candidate	None
References:	UFSAR Chapter 14 CEA Withdrawal event
Cross Reference Number:	LOR-348-01
User-Defined ID:	Q19089
Comments:	

# EXAMINATION ANSWER KEY

CCNPP SRO NRC Exam - 12/08

83

ID: Q51078

Points: 1.00

The following conditions exist:

- Unit 2 is at 65 % power
- A Group 5 CEA, CEA #34 dropped
- Recovery is in progress
- Group 5 is at 132 inches withdrawn
- Currently, CEA # 34 is at 100 inches withdrawn.
- While recovering CEA # 34, CEA # 40 (a Shutdown Group "A" CEA) drops into the core, indicating 6 inches withdrawn.

Which of the following describes the impact of this condition and the correct required action(s)?

- A. Power peaking limits may be exceeded if the conditions are allowed to continue. Manually trip the reactor and enter EOP-0, Post Trip Immediate Actions.
- B. Power peaking limits may be exceeded if the conditions are allowed to continue. Continue realigning CEA # 34, and then align CEA # 40 with their respective groups in accordance with AOP-1B, CEA Malfunction.
- C. Specified Acceptable Fuel Design Limits (SAFDLs) CANNOT be met in this condition. Realign CEA # 40, and then continue aligning CEA # 34 with their respective groups in accordance with AOP-1B, CEA Malfunction.
- D. PDIL is violated. Shutdown Margin requirements CANNOT be met in this condition. Manually trip the reactor and enter EOP-0, Post Trip Immediate Actions.

Answer: A

### Answer Explanation:

- A. Correct - Misaligned CEAs affect power distribution and peaking factors. With 2 or more CEAs misaligned by >15 inches, the reactor must be tripped IAW AOP-1B.
- B. Incorrect - Plausible because this is the action taken in accordance with AOP-1B if only 1 CEA were misaligned.
- C. Incorrect - Specified Acceptable Fuel Design Limits (SAFDLs) could be violated which is part of the basis for tripping the reactor for more than one dropped CEA.
- D. Incorrect - Plausible action because this is the action taken for two CEAs misaligned by > 15 inches. SDM requirements are not mentioned in the AOP-1B basis doc. See supporting info for choice "A".

# EXAMINATION ANSWER KEY

CCNPP SRO NRC Exam - 12/08

Question 83 Info	
Cognitive Level	1.00
Tier/Group	1/2
SRO Importance:	4.8
CFR:	43.5
KA Number:	APE: 003 Dropped Control Rod 2.4.1 Knowledge of EOP entry conditions and immediate action steps.
Bank, new or modified?	Bank question
References provided to candidate	None
References:	TS Bases, AOP-1B section V.A.1
Cross Reference Number:	
User-Defined ID:	Q51078
Comments:	<ul style="list-style-type: none"><li>• 10CFR55.43 (b) item 2 is met because the candidate must understand TS bases for CEA alignment.</li><li>• 10CFR55.43(b) item 5 is met because the candidate must determine that the abnormal condition requires EOP entry</li><li>• KA is met because conditions for EOP entry are met</li></ul>

# EXAMINATION ANSWER KEY

CCNPP SRO NRC Exam - 12/08

84

ID: Q51080

Points: 1.00

A Waste Gas Decay Tank Gaseous Release Permit is being issued for 12 Waste Gas Decay Tank. You are fulfilling the role of the CRS.

Which of the following choices describes your responsibility prior to signing the release permit?

- A. Understand the release criteria, ensure required plant systems are in operation and ensure the required plant configuration has been established.
- B. Understand the release criteria and verify pre-release source check and channel check have been completed.
- C. Understand the release criteria and verify radiation monitor setpoints are adjusted to the appropriate values.
- D. Understand the release criteria; verify termination criteria have been entered into the Plant Computer for high flow rate and high activity as indicated on the Release Permit.

Answer: A

#### Answer Explanation:

- A. Correct - Per CP-604, Att. 1, the SM/SRO signature verifies the release criteria are understood, that required plant systems are in operation and that the required plant configuration has been established.
- B. Incorrect - Plausible because the pre-release source check and channel checks are CRO actions.
- C. Incorrect - Plausible because verification of radiation monitor setpoints are CRO actions.
- D. Incorrect - Plausible because this is performed by Operations when initiating the release. It is incorrect because it is not part of pre-release verification.

Question 84 Info	
Cognitive Level	1.00
Tier/Group	Generic
SRO Importance:	3.8
CFR:	43.4
KA Number:	2.3.6 Ability to approve release permits.
Bank, new or modified?	New question
References provided to candidate	None
References:	CP-604, Attachment 1
Cross Reference Number:	
User-Defined ID:	Q51080
Comments:	

# EXAMINATION ANSWER KEY

CCNPP SRO NRC Exam - 12/08

85

ID: Q51079

Points: 1.00

Given the following conditions on Unit 1:

- Reactor power is 100%.
- A load reduction is planned to take the unit off-line over the next 6 hours.
- The crew is performing actions to commence the load reduction in accordance with OP-3, Normal Power Operation.

Which of the following describes the operational concern during the shutdown, and the actions taken in accordance with OP-3 to mitigate the consequences of this concern?

- A. ASI may exceed the negative limit if CEAs are inserted without RCS boration; CEAs are used for ASI control and maintaining Tcold on program during and after RCS boration.
- B. ASI may exceed the negative limit if CEAs are inserted without RCS boration; CEAs are used for ASI control and turbine load is adjusted to maintain Tcold on program during and after RCS boration.
- C. ASI may exceed the negative limit if RCS boration is used without CEA insertion; CEAs are used for ASI control and maintaining Tcold on program during and after RCS boration.
- D. ASI may exceed the negative limit if RCS boration is used without CEA insertion; CEAs are used for ASI control and turbine load is adjusted to maintain Tcold on program during and after RCS boration.

Answer: D

### Answer Explanation:

- A. Incorrect - ASI will trend in the positive direction as CEAs are inserted. They are inserted to 120 inches so that when RCS boration is initiated, the positive trend started by CEAs will somewhat offset the negative trend caused by boration. Tcold is maintained by Turbine load, ASI maintained by CEAs.
- B. Incorrect - ASI will trend in the positive direction as CEAs are inserted. They are inserted to 120 inches so that when RCS boration is initiated, the positive trend started by CEAs will somewhat offset the negative trend caused by boration. Correct use of CEAs and turbine load.
- C. Incorrect - Concern is correct, so option is plausible. Use of CEAs to maintain Tcold is incorrect, because withdrawing CEAs will exacerbate the problem with ASI going negative due to boration.
- D. Correct - ASI moves in the negative direction as power is reduced. Management of ASI is accomplished by use of an ASI plan and by maintaining RCS temperature using the guidance provided in OP-3.

# EXAMINATION ANSWER KEY

CCNPP SRO NRC Exam - 12/08

Question 85 Info	
Cognitive Level	3.00
Tier/Group	2/2
SRO Importance:	3.8
CFR:	43.4
KA Number:	SYSTEM: 015 Nuclear Instrumentation System (NIS) A2 Ability to (a) predict the impacts of the following malfunctions or operations on the NIS; and (b based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: <ul style="list-style-type: none"><li>• A2.04 Effects on axial flux density of control rod alignment and sequencing, xenon production and decay, and boron vs. control rod reactivity changes</li></ul>
Bank, new or modified?	New question
References provided to candidate	None
References:	OP-3, TS Basis 3.2.5
Cross Reference Number:	
User-Defined ID:	Q51079
Comments:	10CFR55.43(b) item 5 is met because the candidate must assess the concern (load reduction under normal circumstance) and select the appropriate procedure flowpath to mitigate the consequence (negative ASI)

# EXAMINATION ANSWER KEY

CCNPP SRO NRC Exam - 12/08

86

ID: Q24709

Points: 1.00

Match the Containment Radiation Monitor in column A with the Tech Spec purpose for the monitor in column B. (Purposes in column B may be used once, more than once, or not at all.)

COLUMN A	COLUMN B
<b>CONTAINMENT MONITORS</b>	<b>PURPOSE</b>
A. Containment Area Radiation Monitor (RE-5316A-D)	1. Monitor effluent noble gas content
B. Containment Gaseous Monitor (RE-5281)	2. Monitor containment radiation levels during accidents
C. Containment High Range Area Rad. Monitor (RE-5317A/B)	3. Detect RCS leakage
D. Containment Particulate Monitor (RE-5280)	4. Stop release of fission product activity during refueling

- A. 4,2,2,2
- B. 3,2,2,3
- C. 4,3,2,3
- D. 2,1,4,3

Answer: C

### Answer Explanation:

- A. Incorrect – RE-5281 and RE-5280 monitor RCS leakage. Plausible- partially correct - applicants may think they are also used to monitor for accident radiation levels in containment when they would be saturated.
- B. Incorrect – RE-5316A-D are used during refueling. RE-5281 monitors RCS leakage. Plausible – partially correct.
- C. Correct – RE-5316-A thru D function to secure Containment Purge on a high alarm signal (CRS) as required by T.S. 3.3.7, RE-5280 & RE-5281 function as leak detection systems required by T.S. 3.4.14 and RE-5317-A and B are Post Accident Monitoring Instrumentation required by T.S. 3.3.10.
- D. Incorrect – A and C are reversed, D is correct and B is incorrect. Plausible- partially correct – because it is a gaseous monitor applicants may think the Containment Gaseous Monitor (RE-5281) is used to monitor effluent noble gas content.



# EXAMINATION ANSWER KEY

CCNPP SRO NRC Exam - 12/08

Question 86 Info	
Cognitive Level	1.00
Tier/Group	Generic
SRO Importance:	3.1
CFR:	43.4
KA Number:	2.3.15 Knowledge of radiation monitoring systems, such as fixed radiation monitors and alarms, portable survey instruments, personnel monitoring equipment, etc.
Bank, new or modified?	Modified question
References provided to candidate	None
References:	T.S 3.3.7, 3.3.10 & 3.4.14
Cross Reference Number:	
User-Defined ID:	Q24709
Comments:	

# EXAMINATION ANSWER KEY

CCNPP SRO NRC Exam - 12/08

87

ID: Q51082

Points: 1.00

The following conditions exist:

- A Reactor startup is in progress on Unit-2
- Reactor Power is stable at approximately  $2 \times 10^{-4}\%$
- Channel B WRNI has failed low

How is Secondary PDIL affected and what actions are required to satisfy Technical Specifications?

- A. Secondary PDIL is enabled.  
Bypass RPS Trip Units 2, 3, and 7 and proceed with the startup.
- B. Secondary PDIL is enabled.  
Bypass RPS Trip Units 2, 3, and 7 and shutdown the reactor.
- C. Secondary PDIL is disabled.  
Bypass RPS Trip Units 2, 3, and 7 and proceed with the startup.
- D. Secondary PDIL is disabled.  
Bypass RPS Trip Units 2, 3, and 7 and shutdown the reactor.

Answer: A

### Answer Explanation:

- A. Correct - 4 out of 4 WRNI channels  $\leq 8 \times 10^{-5}\%$  are required to disable PDIL per note in ARM for window D-28 and LOI-78B-1-2 and T.S. 3.1.1 requires affected trip units (2, 3, & 7) be bypassed. Startup may proceed.
- B. Incorrect - 4 out of 4 WRNI channels  $\leq 8 \times 10^{-5}\%$  are required to disable PDIL per note in ARM for window D-28 and T.S. 3.1.1 requires affected trip units (2, 3, & 7) be bypassed. Startup may proceed.
- C. Incorrect - 4 out of 4 WRNI channels  $\leq 8 \times 10^{-5}\%$  are required to disable PDIL per note in ARM for window D-28 and T.S. 3.1.1 requires affected trip units (2, 3, & 7) be bypassed. Startup may proceed.
- D. Incorrect - 4 out of 4 WRNI channels  $\leq 8 \times 10^{-5}\%$  are required to disable PDIL per note in ARM for window D-28 and T.S. 3.1.1 requires affected trip units (2, 3, & 7) be bypassed. Startup may proceed.

Question 87 Info	
Cognitive Level	2.00
Tier/Group	1/2
SRO Importance:	4.3
CFR:	43.5
KA Number:	APE: 033 Loss of Intermediate Range Nuclear Instrumentation 2.4.20 Knowledge of the operational implications of EOP warnings, cautions, and notes.
Bank, new or modified?	New question
References provided to candidate	None
References:	Alarm Response Manual 1C05
Cross Reference Number:	LOI-78B-1-2
User-Defined ID:	Q51082
Comments:	

# EXAMINATION ANSWER KEY

CCNPP SRO NRC Exam - 12/08

88

ID: Q41651

Points: 1.00

Given the following:

- Unit-1 is at 100% power
- Main Generator output is slowly lowering
- Tcold is stable at 547.8°F

Which report from crew members would indicate the cause of the lowering Main Generator output and what procedure should be implemented?

- A. Main Turbine Control Valve-1 indicates 40% open;  
Implement AOP-7E.
- B. TBV 1-MS-3944-CV indicates 100% open;  
Implement AOP-7K.
- C. Suction CV on an idle CAR is not fully shut;  
Implement AOP-3G.
- D. Main Generator Cold Gas temperature is 51°C;  
Implement AOP-7E.

Answer: C

### Answer Explanation:

- A. Incorrect - Main Turbine CV normal position at 100% power is approximately 60%. If the valve went to 40% open, Tcold would rise.
- B. Incorrect - A TBV failing open would cause Tcold to lower.
- C. Correct - The open suction CV on an idle CAR has caused a decrease in Condenser Vacuum and is addressed in AOP-7G.
- D. Incorrect - Main Generator Cold gas temperature rising would not change MWe load.

Question 88 Info	
Cognitive Level	2.00
Tier/Group	1/2
SRO Importance:	2.7
CFR:	43.5
KA Number:	APE: 051 Loss of Condenser Vacuum AA2. Ability to determine and interpret the following as they apply to the Loss of Condenser Vacuum: <ul style="list-style-type: none"><li>• AA2.01 Cause for low vacuum condition</li></ul>
Bank, new or modified?	Modified question
References provided to candidate	None
References:	AOP-7G
Cross Reference Number:	
User-Defined ID:	Q41651
Comments:	

# EXAMINATION ANSWER KEY

CCNPP SRO NRC Exam - 12/08

89

ID: Q51083

Points: 1.00

What parameter would indicate an RCP Seal LOCA and what procedure would be used to manage this condition?

- A. RCP Bleedoff Flow indicates 3.0 GPM on the Plant Computer. Commence an Expeditious Power Reduction per OP-3.
- B. RCP Middle Seal Pressure indicates 2250 PSIA. Commence an Expeditious Power Reduction per OP-3.
- C. RCP Bleedoff flow indicates 0 GPM on the Plant Computer. Implement AOP-2A for RCS leakage.
- D. RCP Upper Seal Pressure indicates 2250 PSIA. Implement AOP-2A for RCS leakage.

Answer: C

### Answer Explanation:

- A. Incorrect - An RCP Bleedoff Flow of 3.0 GPM is indicative of a failure of the pressure breakdown function of one or more RCP Seals.
- B. Incorrect - An RCP Middle Seal Pressure of 2250 PSIA indicates failure of the Lower Seal.
- C. Correct - PER OI-1A and 1C06-ALM. "0" GPM RCP bleedoff flow indicates bleedoff flow is leaking by the Vapor Seal bypassing the bleedoff flow element.
- D. Incorrect - An RCP Upper Seal Pressure of 2250 PSIA indicates failure of both the Lower and Middle RCP Seals.

Question 89 Info	
Cognitive Level	2.00
Tier/Group	1/1
SRO Importance:	3.8
CFR:	43.5
KA Number:	APE: 015/017 Reactor Coolant Pump (RCP) Malfunctions 2.1.19 Ability to use plant computers to evaluate system or component status.
Bank, new or modified?	New question
References provided to candidate	None
References:	1C06-ALM, Windows E-51, E-55, E-59 & E-63
Cross Reference Number:	
User-Defined ID:	Q51083
Comments:	

# EXAMINATION ANSWER KEY

CCNPP SRO NRC Exam - 12/08

90

ID: Q51090

Points: 1.00

Given the following conditions on Unit 1:

- A Reactor Trip has occurred from 100% power.
- The crew is performing actions of EOP-1, Reactor Trip.
- The following alarms are acknowledged on the main control board:
  - 1C02, B-25, SHAFT LUBE OIL PP DISCH PRESS LO
  - 1C02, V-04, COOLANT – FLO – PRESS – TEMP
  - 1C03, C-30, 12 SGFPT TRIP
  - 1C22, B-4.1, UNIT 1 CNDSR OFF-GAS 11-14 CAR PPS

Which ONE of the following alarms will be the HIGHEST priority to address, and the reason the alarm is addressed?

- A. 1C02, B-25; Represents a degradation of plant conditions and potential damage to the main turbine.
- B. 1C02, V-04; Represents degradation of plant conditions and potential overheating of main generator.
- C. 1C03, C-30; Represents conditions that may require transition to another EOP.
- D. 1C22, B-4.1; Represents conditions that may require transition to another EOP.

Answer: D

## Answer Explanation:

- A. Incorrect - As the turbine slows down, shaft discharge pressure will decrease. Backup pump will start and supply lube oil. This is a concern if pressure does decrease, but lower priority with unit off-line than other alarms.
- B. Incorrect - Stator cooling temperature is a concern, but post trip, cooling requirements are significantly less. While this is an unusual condition, even post trip, it is a lower concern than either C or D.
- C. Incorrect - Only 1 SGFPT tripping still has 1 SGFPT running if no action was taken earlier to realign Feedwater, so transition based upon this pump tripping would not be required.
- D. Correct - This alarm would indicate a steam generator tube leak is occurring and transition to the SGTR ORP would be required upon rediagnosis.

# EXAMINATION ANSWER KEY

CCNPP SRO NRC Exam - 12/08

<b>Question 90 Info</b>	
Cognitive Level	3.00
Tier/Group	Generic
SRO Importance:	4.3
CFR:	43.5
KA Number:	2.4.45 Ability to prioritize and interpret the significance of each annunciator or alarm.
Bank, new or modified?	New question
References provided to candidate	None
References:	1C22-ALM, 1C02-ALM, 1C03-ALM and CNG-OP-1.01-1000
Cross Reference Number:	
User-Defined ID:	Q51090
Comments:	Meets criteria for 10CFR55,.43(b) item 5 because the candidate must assess status of alarms and prioritize in accordance with rules for Transient Alarm Response, in this case resulting in rediagnosis to another procedure (selection of procedures)

# EXAMINATION ANSWER KEY

CCNPP SRO NRC Exam - 12/08

91

ID: Q51094

Points: 1.00

Given the following Unit-1 plant conditions:

- A Reactor trip has occurred
- EOP-0 has been completed and EOP-5, Loss of Coolant Accident, has been entered
- RCS pressure is 1550 PSIA and lowering slowly
- RCS temperature is 515°F and stable
- Five minutes later, the following conditions are observed:
- 11 S/G pressure is indicating 450 PSIA and lowering
- RCS temperature is 440°F and lowering
- RCS pressure is 1350 PSIA and lowering

Which of the following describes the correct strategy for current plant conditions?

- A. Remain in EOP-5. ECCS flow is causing the RCS cooldown and the priority for operator action is to ensure core cooling prior to meeting HPSI throttle criteria
- B. Transition to the ESDE Optimal Recovery Procedure, EOP-4, to isolate 11 S/G and stabilize RCS temperature.
- C. Implement the Functional Recovery Procedure, EOP-8, and isolate 11 S/G using the appropriate RCS Pressure and Inventory Control Success Path.
- D. Implement the Functional Recovery Procedure, EOP-8, and isolate 11 S/G using the appropriate RCS Heat Removal Success Path.

Answer: D

## Answer Explanation:

- A. Incorrect - S/Gs are leading RCS temperature, because saturation temperature for the S/G is lower than RCS temperature. Plausible because this is a common occurrence during LOCA scenarios. 1350 PSIA is above shutoff head of the HPSI Pumps ... there would be NO ECCS injection flow.
- B. Incorrect - If no LOCA was in progress, would go to ESD, but since a LOCA is in progress, the crew will now have to mitigate 2 events. Going to the FRP is appropriate so that each event may be addressed using FRP success paths in appropriate safety functions.
- C. Incorrect - Heat Removal is the correct success path for this event. Inventory control is plausible because RCS pressure is lowering. Loss of RCS pressure is indicative of either a pressure or inventory control problem. In this case, the problem is being caused by excess heat removal, so that would be the correct success path.
- D. Correct - A second event has occurred making EOP-8 the correct procedure to implement. Heat Removal is the correct success path, to isolate 11 S/G, for this event.

# EXAMINATION ANSWER KEY

CCNPP SRO NRC Exam - 12/08

Question 91 Info	
Cognitive Level	2.00
Tier/Group	1/1
SRO Importance:	4.4
CFR:	43.5
KA Number:	APE: 040 Steam Line Rupture 2.4.23 Knowledge of the bases for prioritizing emergency procedure implementation during emergency operations.
Bank, new or modified?	New question
References provided to candidate	None
References:	SFSC for EOP-5, EOP-8 HR-2, Block steps A and C
Cross Reference Number:	
User-Defined ID:	Q51094
Comments:	<ul style="list-style-type: none"><li>• 10CFR55.43 (b) item 5 is met because the candidate must assess conditions (multiple events) and select the appropriate recovery procedure, and in this case, strategy.</li><li>• KA is met because understanding the basis, or reason for this action is implied by the fact that the candidate understands the problem and knows what success path is required to address it.</li></ul>



# EXAMINATION ANSWER KEY

CCNPP SRO NRC Exam - 12/08

92

ID: Q51095

Points: 1.00

Unit-2 is at 100% Power. The following conditions exist:

- 22 S/G has tube leakage of 7 GPD
- The SO-TSO has notified the SM that Solar Magnetic Disturbances of greater than K-7 are expected which could affect grid stability
- U-2 480V ESF U/V Trip, CC PPS DISCH PRESS LO, and RCP AUXILIARIES STATUS PANEL alarms have annunciated

What procedures should the CRS direct the crew to implement?

- A. AOP-2A, EXCESSIVE REACTOR COOLANT LEAKAGE;  
AOP-7I, LOSS OF 4KV, 480 VOLT OR 208/120 VOLT INSTR BUS POWER;  
EOP-0, POST TRIP IMMEDIATE ACTIONS.
- B. AOP-7A, LOSS OF SALTWATER COOLING;  
AOP-7M, MAJOR GRID DISTURBANCES;  
EOP-0, POST TRIP IMMEDIATE ACTIONS.
- C. AOP-10, ABNORMAL SECONDARY CHEMISTRY CONDITIONS;  
AOP-7M, MAJOR GRID DISTURBANCES;  
AOP-7C, LOSS OF COMPONENT COOLING WATER.
- D. AOP-2A, EXCESSIVE REACTOR COOLANT LEAKAGE;  
AOP-10, ABNORMAL SECONDARY CHEMISTRY CONDITIONS;  
AOP-7I, LOSS OF 4KV, 480 VOLT OR 208/120 VOLT INSTR BUS POWER.

Answer: C

### Answer Explanation:

- A. Incorrect - AOP-2A is not implemented for S/G Tube Leakage until it exceeds a value of 50 GPD.
- B. Incorrect - No indications of a Loss of Saltwater exist.
- C. Correct - AOP-10 is correct procedure to implement for S/G Tube leakage between 5 & 100 GPD, AOP-7M will be used to address the grid disturbance and AOP-7C addresses the CCW issue.
- D. Incorrect - AOP-2A is not implemented for S/G Tube Leakage until it exceeds a value of 50 GPD.

Question 92 Info	
Cognitive Level	2.00
Tier/Group	Generic
SRO Importance:	4.2
CFR:	43.5
KA Number:	2.4.11 Knowledge of abnormal condition procedures.
Bank, new or modified?	New question
References provided to candidate	None
References:	AOP-10, AOP-7M, AOP-7C
Cross Reference Number:	
User-Defined ID:	Q51095
Comments:	

# EXAMINATION ANSWER KEY

CCNPP SRO NRC Exam - 12/08

93

ID: Q51096

Points: 1.00

Given the following conditions on Unit-1:

- 1C13, K-19, 11 SRW HEAD TK LVL alarm is received and momentarily clears
- SRW Head Tank Level Control Valve, 1-SRW-1579-CV, is intermittently opening and closing
- 1C10-ALM, J-21, CNTMT NORMAL SUMP LVL HI alarm is received
- The crew enters the appropriate procedure to address the condition

Which of the following describes the source of the leak, and the action required in accordance with procedures and Technical Specifications?

- A. 11 or 12 CNTMT CLR's; isolate one cooler at a time and determine Head Tank level response; leave the leaking cooler isolated; NO Technical Specification action is required if only 1 CNTMT CLR is isolated.
- B. 11 or 12 CNTMT CLR's; isolate BOTH coolers and verify Head Tank level stabilizes; determine the leaking cooler by placing them in service one at a time; ONE Train of CNTMT Cooling must be declared inoperable.
- C. 13 or 14 CNTMT CLR's; isolate one cooler at a time and determine Head Tank level response; leave the leaking cooler isolated; NO Technical Specification action is required if only 1 CNTMT CLR is isolated.
- D. 13 or 14 CNTMT CLR's; isolate BOTH coolers and verify Head Tank level stabilizes; determine the leaking cooler by placing them in service one at a time; ONE Train of CNTMT Cooling must be declared inoperable.

Answer: B

## Answer Explanation:

- A. Incorrect - Plausible because isolation procedure is the backup to the actual isolation procedure. Incorrect - A train of cntmt cooling requires 2 coolers. 1 inoperable makes the train inoperable. Minimum safety function for containment cooling is still met, but 1 train must be declared inoperable.
- B. Correct - 11 SRW Head Tank Level is affected which is associated with 11 SRW Header which supplies 11 / 12 Cntmt Clrs. AOP-7B directs isolation of the coolers as a pair, unisolating one at a time. Isolation of one cooler removes a T.S. Train from service.
- C. Incorrect - Wrong combination of coolers, and plausible for same reasons as A.
- D. Incorrect - Wrong train of coolers.

# EXAMINATION ANSWER KEY

CCNPP SRO NRC Exam - 12/08

<b>Question 93 Info</b>	
Cognitive Level	2.00
Tier/Group	1/1
SRO Importance:	3.5
CFR:	43.5
KA Number:	APE: 062 Loss of Nuclear Service Water AA2. Ability to determine and interpret the following as they apply to the Loss of Nuclear Service Water: <ul style="list-style-type: none"><li>• AA2.01 Location of a leak in the SWS</li></ul>
Bank, new or modified?	New question
References provided to candidate	None
References:	AOP-7B, T.S. 3.6.6
Cross Reference Number:	
User-Defined ID:	Q51096
Comments:	<ul style="list-style-type: none"><li>• 10CFR55.43 (b) item 2 is met because the candidate must understand system alignments that result in TS LCO action statement compliance and inoperability of equipment.</li><li>• KA is matched because the candidate must determine where the leak is located based on conditions presented.</li></ul>

# EXAMINATION ANSWER KEY

CCNPP SRO NRC Exam - 12/08

94

ID: Q45189

Points: 1.00

Which one of the following AOPs would **NOT** require implementation of EOP-0 if the Reactor tripped during performance of the AOP?

- A. AOP-7C, Loss of Component Cooling.
- B. AOP-10, Abnormal Secondary Chemistry Conditions.
- C. AOP-9A, Control Room Evacuation and Safe Shutdown Due to a Severe Control Room Fire.
- D. AOP-3G, Malfunction Of Main Feedwater System.

Answer: C

### Answer Explanation:

- A. Incorrect - AOP-7C does not contain the specific steps required for monitoring / ensuring safety functions. It does contain steps that direct tripping of the reactor, if appropriate, and implementation of EOP-0.
- B. Incorrect - AOP-10 does not contain the specific steps required for monitoring / ensuring safety functions. It does contain steps that direct tripping of the reactor, if appropriate, and implementation of EOP-0.
- C. Correct - AOP-9A contains steps covering tripping the reactor, addressing safety functions and cooldown to Mode 4 without reference to any other procedures.
- D. Incorrect - AOP-3G does not contain steps required for monitoring / ensuring safety functions. It does contain steps that direct tripping of the reactor, if appropriate, and implementation of EOP-0.

Question 94 Info	
Cognitive Level	2.00
Tier/Group	Generic
SRO Importance:	4.6
CFR:	43.5
KA Number:	2.1.20 Ability to interpret and execute procedure steps.
Bank, new or modified?	Bank question
References provided to candidate	None
References:	AOP-9R
Cross Reference Number:	
User-Defined ID:	Q45189
Comments:	

# EXAMINATION ANSWER KEY

CCNPP SRO NRC Exam - 12/08

95

ID: Q25257

Points: 1.00

U-2 is at 100% power when the following conditions are observed:

- $T_{\text{COLD}}$  is 548.2°F and rising
- $T_{\text{AVE}} - T_{\text{REF}}$  alarm has annunciated
- Generator output is 850 MWe and lowering

What actions should the CRS direct?

- Direct an operator to obtain Alarm Response Manuals and evaluate all alarms; Direct use of CEAs and boration to maintain power constant per AOP-7E, MAIN TURBINE MALFUNCTION.
- Direct the RO to insert CEAs or borate to lower reactor power; Direct the CRO to raise turbine load to maintain condenser vacuum greater than 25 inches per AOP-7G, LOSS OF CONDENSER VACUUM.
- Direct an Expeditious power reduction to take the unit offline per OP-3, NORMAL POWER OPERATION; Notify the TS-SO the unit is being shutdown.
- Direct operation of the TBVs to control S/G pressure and  $T_{\text{COLD}}$ ; Direct use of CEAs and boration to reduce reactor power and restore  $T_{\text{COLD}}$  to program value per AOP-7F, LOSS OF LOAD.

Answer: D

## Answer Explanation:

- Incorrect - Power cannot be maintained constant with  $T_{\text{COLD}}$  above 548°F and comply with the T.S. limit.
- Incorrect - With a turbine valve malfunction attempting to adjust turbine load could make the problem worse.
- Incorrect - Performing an expeditious shutdown would require adjusting turbine load which could make the problem worse.
- Correct - The indications are of a loss of load due to a closure of a turbine valve. Actions are as stated in AOP-7F.

# EXAMINATION ANSWER KEY

CCNPP SRO NRC Exam - 12/08

Question 95 Info	
Cognitive Level	2.00
Tier/Group	2/2
SRO Importance:	2.9
CFR:	43.5
KA Number:	SYSTEM 045 Main Turbine Generator (MT/G) System A2 Ability to (a) predict the impacts of the following malfunctions or operation on the MT/G system; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: <ul style="list-style-type: none"><li>• A2.17 Malfunction of electrohydraulic control</li></ul>
Bank, new or modified?	Bank question
References provided to candidate	None
References:	AOP-7F
Cross Reference Number:	CRO-102-2-37
User-Defined ID:	Q25257
Comments:	

# EXAMINATION ANSWER KEY

CCNPP SRO NRC Exam - 12/08

96

ID: Q51097

Points: 1.00

Given the following conditions on Unit 1:

- Reactor power is 100%.
- Instrument Air pressure has been lowering slowly for approximately 10 minutes.
- Instrument Air header pressure is approximately 93 PSIG.
- Instrument Air Compressor discharge pressure is 105 PSIG.
- 12 IA Dryer Malfunction light is brightly lit.
- A small IA leak is identified on 12 IA Dryer Right Chamber.

Which of the following describes the status of 12 IA Dryer and the action that is required?

- A. De-energized with both chambers in service.  
Bypass 12 IA Dryer IAW AOP-7D, Loss of Instrument Air and refer to OI-19, Instrument Air, to shift to the standby dryer if desired.
- B. De-energized with both chambers in service.  
Ensure the PA to IA cross-connect valve, 1-PA-2061-CV, is open per the Alarm Response Manual.
- C. Energized with both chambers bypassed.  
Refer to OI-19, Instrument Air, to shift to the standby dryer if desired. Ensure the PA to IA cross-connect valve, 1-PA-2061-CV, is open per the Alarm Response Manual.
- D. Energized with both chambers bypassed.  
De-energize and isolate the Air Dryer IAW AOP-7D, Loss of Instrument Air.

Answer: A

## Answer Explanation:

- A. Correct - Per AOP-7D, Section V.B.3.
- B. Incorrect - Plausible because status is correct, but incorrect because the AOP directs isolating and bypassing the affected dryer. The action for cross-connect is reasonable, but not required (auto action does not occur) until IA pressure reaches 88 psig.
- C. Incorrect - Plausible because candidate may assume that a malfunction will bypass the dryer, failing to the safe position. The action for cross-connect is reasonable, but not required (auto action does not occur) until IA pressure reaches 88 psig. Shifting to standby dryer is correct action for the failure presented.
- D. Incorrect - Plausible because candidate may assume that a malfunction will bypass the dryer, failing to the safe position. The action is consistent with taking a malfunctioning unit out of service.

# EXAMINATION ANSWER KEY

CCNPP SRO NRC Exam - 12/08

Question 96 Info	
Cognitive Level	2.00
Tier/Group	2/1
SRO Importance:	2.9
CFR:	43.5
KA Number:	SYSTEM: 078 Instrument Air System (IAS) A2 Ability to (a) predict the impacts of the following malfunctions or operations on the IAS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: <ul style="list-style-type: none"><li>• A2.01 Air dryer and filter malfunctions</li></ul>
Bank, new or modified?	Modified question
References provided to candidate	None
References:	References: AOP-7D, pg 9/10
Cross Reference Number:	
User-Defined ID:	Q51097
Comments:	10CFR55.43 (b) item 5 is met because the candidate must assess conditions (status of a dryer with white light lit) and determines appropriate procedural direction in accordance with the relevant AOP.



# EXAMINATION ANSWER KEY

CCNPP SRO NRC Exam - 12/08

97

ID: Q51098

Points: 1.00

Given the following conditions on Unit-1:

- A Reactor trip has occurred.
- The crew is performing EOP-0, Post Trip Immediate Actions
- 11 S/G pressure indicates 800 PSIA and stable
- 12 S/G pressure indicates 660 PSIA and lowering
- 11 S/G level indicates -180 inches
- 12 S/G level indicates -210 inches
- NO operator action has been taken

Which of the following describes the approximate AFW flow rate to each SG, and the strategy for operation of AFW in the selected Optimal Recovery Procedure upon transition from EOP-0?

- A. 150 GPM to 11 S/G; 0 GPM to 12 S/G.  
Maintain flow to 11 S/G, initiate flow to 12 S/G to restore level to between -24 and +30 inches.
- B. 300 GPM to 11 S/G; 0 GPM to 12 S/G.  
Maintain flow to 11 S/G to restore level to between -24 and +30 inches, ensure AFW flow to 12 S/G remains isolated.
- C. 300 GPM to EACH S/G.  
Maintain flow to each S/G to restore levels to between -24 and +30 inches, maintain RCS temperature and cooldown rate within limits.
- D. 150 GPM to EACH S/G.  
Reduce flow to each S/G to minimum required to restore S/G levels to between -24 and +30 inches, maintain RCS temperature and cooldown rate within limits.

Answer: B

## Answer Explanation:

- A. Incorrect - Plausible because 12 S/G is below the limit for AFAS actuation, but AFAS is blocked on 12 S/G due to SG DP > 115 PSID. Additionally, the Motor Driven Train and Steam Driven Train will each be supplying 150 GPM of AFW Flow to 11 S/G for a total of 300 GPM.
- B. Correct - The crew will transition to EOP-4 (ESDE) and stabilize RCS temperature by use of steam dump and AFW on the unaffected S/G. The Motor Driven Train and Steam Driven Train will each be supplying 150 GPM of AFW Flow to 11 S/G for a total of 300 GPM.
- C. Incorrect - Plausible because AFAS initiation setpoint is exceeded for both S/Gs. Incorrect because DP is >115 PSID, which blocks AFW flow to the S/G with lower pressure.
- D. Incorrect - Plausible because AFAS initiation setpoint is exceeded for both S/Gs. Incorrect because DP is >115 PSID, which blocks AFW flow to the S/G with lower pressure and because the Motor Driven Train and Steam Driven Train will each be supplying 150 GPM of AFW Flow to 11 S/G for a total of 300 GPM.

# EXAMINATION ANSWER KEY

CCNPP SRO NRC Exam - 12/08

Question 97 Info	
Cognitive Level	2.00
Tier/Group	2/1
SRO Importance:	2.9
CFR:	43.5
KA Number:	SYSTEM: 061 Auxiliary / Emergency Feedwater (AFW) System A2 Ability to (a) predict the impacts of the following malfunctions or operations on the AFW; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: <ul style="list-style-type: none"><li>• A2.08 Flow rates expected from various combinations of AFW pump discharge valves</li></ul>
Bank, new or modified?	New question
References provided to candidate	None
References:	EOP-4, AFAS LP
Cross Reference Number:	LOI-036A-1
User-Defined ID:	Q51098
Comments:	10CFR55.43 (b) item 5 is met because the candidate must assess conditions based upon plant parameters given for a transient, and select the mitigation strategy that is required for the failure given.

# EXAMINATION ANSWER KEY

CCNPP SRO NRC Exam - 12/08

98

ID: Q51099

Points: 1.00

The Control Room Operator has requested CRS authorization for placing an intermittent (nuisance) alarm out of service.

Which of the following does the CRS Initials in the Alarm Annunciator/Recorder Point Out Of Service Log signify?

- A. Verification that the annunciator was correctly removed from service and the Blue Dot has been placed in the correct location.
- B. Approval of the reason for placing the annunciator out of service and concurrence with recommended compensatory actions.
- C. Verification the Shift Manager has been notified and concurrence with recommended compensatory actions.
- D. Approval of the reason for placing the annunciator out of service and verification the Blue Dot has been placed in the correct location.

Answer: B

### Answer Explanation:

- A. Incorrect - Plausible because there is a signature block for verifying the annunciator was correctly removed from service. The CRS is required to be informed when the Blue Dot is placed but has no signature associated with this action.
- B. Correct - When completing the Alarm Annunciator / Recorder Point Out Of Service Log, the CRS authorization follows completion of the blocks detailing the reason for taking the annunciator OOS and outlining required (if any) compensatory measures.
- C. Incorrect - Plausible because there is a signature block for the compensatory measures. The Shift Manager is required to be informed by the end of shift, but there is no signature associated with this action.
- D. Incorrect - Plausible because there is a signature block for the compensatory measures. The CRS is required to be informed when the Blue Dot is placed but has no signature associated with this action.

Question 98 Info	
Cognitive Level	1.00
Tier/Group	Generic
SRO Importance:	3.3
CFR:	43.5
KA Number:	2.2.43 Knowledge of the process used to track inoperable alarms.
Bank, new or modified?	New question
References provided to candidate	None
References:	References: CNG-OP-1.01-2003
Cross Reference Number:	
User-Defined ID:	Q51099
Comments:	

# EXAMINATION ANSWER KEY

CCNPP SRO NRC Exam - 12/08

99

ID: Q51100

Points: 1.00

Given the following conditions on Unit 1:

- The unit is in Mode 5.
- The PZR is solid.
- Shutdown Cooling is in service.
- Letdown Backpressure Regulator Valves CVC-201P and CVC-201Q are in service in MANUAL.
- RCS pressure is 230 PSIA.
- RCS temperature is 180°F.
- PZR PORV protection handswitches are selected to SINGLE MPT ENABLE.
- A loss of Component Cooling Water to the in-service Shutdown Cooling Heat Exchanger occurs.

Which of the following describes the response of the unit if the loss of Component Cooling Water continues, and the action that must be taken to mitigate the effect?

- A. PORVs will open at an RCS pressure of 480 PSIA;  
Direct the RO to lower the output of L/D PRESS controller, PIC-201, to maintain RCS pressure stable per OP-7, Shutdown Operations.
- B. PORVs will open at an RCS pressure of 250 PSIA;  
Direct the RO to lower the output of Letdown Flow controller, HIC-110 to maintain RCS pressure stable per OI-3B, Loss of Shutdown Cooling.
- C. PORVs will open at an RCS pressure of 410 PSIA;  
Direct the RO to raise the output of Letdown Flow controller HIC-110, to maintain RCS pressure stable per OI-3B, Loss of Shutdown Cooling.
- D. PORVs will open at an RCS pressure of 410 PSIA;  
Direct the RO to raise the output of output of L/D PRESS controller, PIC-201, to maintain RCS pressure stable per OP-7, Shutdown Operations.

Answer: D

### Answer Explanation:

- A. Incorrect - If CCW is lost, RCS temperature will rise. In a solid PZR, this will cause pressure to rise. This action will cause the back pressure control valves to shut, increasing RCS pressure. 480 PSIA is plausible because it is the lowest setpoint for PORV operation in VARIABLE MPT.
- B. Incorrect - The Letdown Control valves are fully open per OP-7, and 250 PSIA is the maximum pressure to initiate SDC, not the PORV opening setpoint.
- C. Incorrect - The Letdown Control valves are fully open per OP-7. Correct pressure setpoint in SINGLE MPT.
- D. Correct - Per the ARM, 410 PSIA is the single MPT setpoint for the PORVs. Increasing the output of the L/D pressure controller will open 2-CVC-201 P and Q to lower RCS pressure.

# EXAMINATION ANSWER KEY

CCNPP SRO NRC Exam - 12/08

Question 99 Info	
Cognitive Level	3.00
Tier/Group	2/1
SRO Importance:	3.7
CFR:	CFR: 43.5
KA Number:	SYSTEM: 005 Residual Heat Removal System (RHRS) A2 Ability to (a) predict the impacts of the following malfunctions or operations on the RHRS, and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: <ul style="list-style-type: none"><li>• A2.02 Pressure transient protection during cold shutdown</li></ul>
Bank, new or modified?	New question
References provided to candidate	None
References:	References: 1C06-ALM
Cross Reference Number:	
User-Defined ID:	Q51100
Comments:	10CFR55.43 (b) item 5 is met because the candidate must determine plant conditions based on a system failure, and direct appropriate action to mitigate the consequences of that failure.

# EXAMINATION ANSWER KEY

CCNPP SRO NRC Exam - 12/08

100

ID: Q51110

Points: 1.00

Given the following:

- Unit-1 is operating at 100% power
- RAD MON LVL HI alarm, at 1C07, has annunciated
- Plant Chemistry has validated the RMS readings

What direction should the CRS provide in response to this condition?

- Place Letdown in minimum with Purification in service per Oi 2-to reduce RCS activity and limit radiation levels in the Auxiliary Building.
- Commence a rapid power reduction per OP-3 to reduce reactor power to < 50% within one hour.
- Adjust the Letdown and Purification lineup to obtain maximum purification flow to reduce RCS Activity per AOP-6A.
- Perform an expeditious shutdown per OP-3 and be in Mode 3 with Tav<sub>g</sub> < 500°F within 6 hours.

Answer: C

### Answer Explanation:

- Incorrect - These actions will not maximize RCS cleanup.
- Incorrect - These actions are required, per AOP-2A, for a S/G tube leak in excess of 100 GPD with rising trends.
- Correct - per AOP-6A basis.
- Incorrect - A shutdown is not required until 100 hours operation above the limits specified in T.S. 3.4.15 (to provide time to accomplish RCS cleanup).

Question 100 Info	
Cognitive Level	2.00
Tier/Group	2/1
SRO Importance:	4.7
CFR:	CFR: 43.5
KA Number:	SYSTEM: 073 Process Radiation Monitoring (PRM) System 2.4.6 Knowledge of EOP mitigation strategies.
Bank, new or modified?	Modified question
References provided to candidate	None
References:	References: AOP-6A, 1C07-ALM, F-21
Cross Reference Number:	AOP-6A-03
User-Defined ID:	Q51110
Comments:	

# EXAMINATION ANSWER KEY

CCNPP RO NRC Exam - 12/08

1

ID: Q51150

Points: 1.00

Which of the following alarms would provide the first indication of an Instrument Air header leak on Unit-1 and what is the effect of the alarm?

- A. INSTR AIR COMPR(S);  
Plant Air to Instrument Air Cross-Connect 1-IA-2061-CV has opened.
- B. INSTR AIR SYS MALFUNCTION;  
Standby Instrument Air Compressor has started.
- C. BACK-UP IA INITIATED;  
Instrument Air Header is being supplied from the B/U I/A Storage Tanks or the nitrogen system.
- D. CNTMT IA ISOL 1-IA-2085-CV CLOSED;  
Containment Spray Header Isolation valves I-SI-4050 and 1-SI-4051 open.

Answer: B

## Answer Explanation:

- A. Incorrect - This alarm is not indicative of a leak. It monitors Instrument Air compressor parameters. Plant Air to Instrument Air cross-connect CV opens at 88 PSIG.
- B. Correct - This action occurs at 93 PSIG, so it would occur first.
- C. Incorrect - This indicates the backup system is being placed in service automatically which occurs at 87PSIG.
- D. Incorrect - This action occurs at an Instrument Air header pressure of 85 PSIG.

# EXAMINATION ANSWER KEY

CCNPP RO NRC Exam - 12/08

Question 1 Info	
Cognitive Level	2.00
Tier/Group	1/1
RO Importance:	2.9
CFR:	43.5 / 45.13
KA Number:	APE: 065 Loss of Instrument Air AA2. Ability to determine and interpret the following as they apply to the Loss of Instrument Air: <ul style="list-style-type: none"><li>• AA2.01 Cause and effect of low-pressure instrument air alarm</li></ul>
Bank, new or modified?	Modified question
References provided to candidate	None
References:	AOP-7D, OI-19, 1C13-ARM - Windows K-25 & K-26
Cross Reference Number:	LOR-020410301-003
User-Defined ID:	Q51150
Comments:	K/A Match Analysis: This question implicitly tests the K/A by requiring the applicant to understand the causes and effects of a loss of instrument air in order to answer the question. The question tests backward logic but this is deemed to be acceptable. The question was modified in order to prevent using the same bank question used on previous exams.



# EXAMINATION ANSWER KEY

CCNPP RO NRC Exam - 12/08

2

ID: Q26519

Points: 1.00

Which of the following is the basis for maintaining an upper subcooling margin limit of 140°F during EOP-5 and what action should be taken if subcooling exceeds 140°F?

- A. Prevents a pressurized thermal shock event occurrence;  
Increase steaming rate and maximize HPSI injection.
- B. Ensures an adequate volume of subcooled liquid is available for decay heat removal;  
Increase steaming rate and maximize HPSI injection.
- C. Ensures an adequate volume of subcooled liquid is available for decay heat removal;  
Secure Pressurizer Heaters.
- D. Prevents a pressurized thermal shock event occurrence;  
Secure Pressurizer Heaters.

Answer: D

## Answer Explanation:

- A. Incorrect - Not the basis for maintaining subcooled margin <140°F as stated in the basis doc for EOP-5. Maintaining a higher value of subcooling would maximize RCS leakage. Increasing steaming rate and maximizing HPSI injection would raise subcooling.
- B. Incorrect - Not the basis for maintaining subcooled margin <140°F, but is the basis for maintaining Pressurizer level as stated in the basis doc for EOP-5. Increasing steaming rate and maximizing HPSI injection would raise subcooling.
- C. Incorrect - Not the basis for maintaining subcooled margin < 140°F, but is the basis for maintaining Pressurizer level as stated in the basis doc for EOP-5. The volume of subcooled fluid does not have a direct correlation to the degree of subcooling.
- D. Correct - As explained in Step IV.J of the EOP-5 Basis Document, securing Pressurizer Heaters will lower RCS pressure, lowering subcooling.

Question 2 Info	
Cognitive Level	2.00
Tier/Group	1/1
RO Importance:	4.4
CFR:	41.5 / 41.10 / 45.6 / 45.13
KA Number:	EPE: 009 Small Break LOCA EK3 Knowledge of the reasons for the following responses as they apply to the small break LOCA: <ul style="list-style-type: none"><li>• EK3.26 Maintenance of RCS subcooling</li></ul>
Bank, new or modified?	Bank Question
References provided to candidate	
References:	EOP-5 Basis Document (Rev. 23), Step J
Cross Reference Number:	SRO-201-5-1-15
User-Defined ID:	Q26519
Comments:	

# EXAMINATION ANSWER KEY

CCNPP RO NRC Exam - 12/08

3

ID: Q26067

Points: 1.00

When the RO reports to the CRS that he is MONITORING a safety function, what is the current condition of this safety function?

- A. Safety function parameters are within acceptance criteria but positive trends have **NOT** been established.
- B. Safety function parameters are **NOT** meeting the final acceptance criteria but are meeting the intermediate Safety Function Status Check acceptance criteria.
- C. Safety function parameters are **NOT** within their acceptance criteria and alternate actions have **NOT** been taken.
- D. Safety function parameters are meeting acceptance criteria after alternate actions were taken.

Answer: A

### Answer Explanation:

- A. Correct - as specified in NO-1-201
- B. Incorrect - In this case the RO should report "The safety function cannot be met because..."
- C. Incorrect - In this case the RO should report "Taking alternate actions because..."
- D. Incorrect - In this case the RO should report the safety function as "Complete".

Question 3 Info	
Cognitive Level	1.00
Tier/Group	Generic
RO Importance:	3.9
CFR:	41.10 / 45.12 / 45.13
KA Number:	2.1.17 Ability to make accurate, clear, and concise verbal reports.
Bank, new or modified?	Bank Question
References provided to candidate	None
References:	NO-1-201
Cross Reference Number:	
User-Defined ID:	Q26067
Comments:	

# EXAMINATION ANSWER KEY

CCNPP RO NRC Exam - 12/08

4

ID: Q25313

Points: 1.00

Given the following:

- RCS Pressure is 150 PSIA
- Pressurizer level is 0 inches
- Containment Pressure has stabilized at approximately 27 PSIG
- The SM has declared an Alert for loss of the RCS Barrier

The RO observes a rapid unexplained drop in Containment pressure to approximately 0 PSIG.

Which of the following actions should the RO take?

- A. With concurrence of the CRS secure the operating Containment Spray Pumps.
- B. Notify the CRS that EOP-8 should be implemented.
- C. Notify the SM the Containment barrier has been lost and the ERPIP classification may be affected.
- D. Verify SIAS, CIS, and CSAS equipment operating per the EOP Attachments.

Answer: C

**Answer Explanation:**

- A. Incorrect - The Containment Spray Pumps should remain in operation until directed otherwise by the procedure.
- B. Incorrect - A recommendation to implement EOP-8 would be incorrect because a single event is in progress.
- C. Correct - This information is vital to the Shift Manager in ensuring the correct emergency actions are completed. Loss of a primary containment barrier meets EAL upgrade criteria.
- D. Incorrect - These actions will be driven by EOP-5 not by a sudden change in Containment pressure. This information is vital to the Shift Manager in ensuring the correct emergency actions are completed and loss of a fission product barrier meets EAL upgrade criteria.

# EXAMINATION ANSWER KEY

CCNPP RO NRC Exam - 12/08

<b>Question 4 Info</b>	
Cognitive Level	2.00
Tier/Group	1/1
RO Importance:	4.2
CFR:	41.5 / 43.5 / 45.12
KA Number:	EPE: 011 Large Break LOCA 2.2.44 Ability to interpret control room indications to verify the status and operation of a system, and understand how operator actions and directives affect plant and system conditions.
Bank, new or modified?	Bank Question
References provided to candidate	None
References:	EOP-5, NO-1-200
Cross Reference Number:	
User-Defined ID:	Q25313
Comments:	K/A Match Analysis: The second part of the question is tested by the nexus between the Emergency Plan (directives) and system conditions. The applicant has to verify that system conditions are appropriate for the correct classification.

# EXAMINATION ANSWER KEY

CCNPP RO NRC Exam - 12/08

5

ID: Q20393

Points: 1.00

A Unit-1 plant cooldown is in progress with the following conditions:

- Plant was shutdown 30 hours ago following an extended full power run
- Shutdown cooling is in service using 11 LPSI pump
- RCS temperature is 180°F
- RCS pressure is 120 PSIA with a bubble in the Pressurizer
- A component cooling leak has developed which has rendered both SDC heat exchangers unavailable

Which of the following is the **first** option that should be taken to control RCS temperature?

- A. Allow RCS to heat up and then control RCS temperature by bleeding steam from the S/Gs.
- B. Verify RCS pressure is less than 170 PSIG and align a Containment Spray pump for Shutdown Cooling.
- C. Start a HPSI pump and open the PORVs to provide core cooling.
- D. Start a charging pump and reestablish letdown to provide core cooling.

Answer: A

### Answer Explanation:

- A. Correct - Per AOP-3B.
- B. Incorrect - This alignment still relies on the SDC Heat Exchangers for heat removal.
- C. Incorrect - This results in needless containment contamination when S/Gs are available.
- D. Incorrect – These actions are not directed by the controlling procedure and 1 Charging pump may not provide sufficient flow for decay heat removal until 14 days after shutdown.

Question 5 Info	
Cognitive Level	2.00
Tier/Group	1/1
RO Importance:	3.9
CFR:	41.8 / 41.10 / 45.3
KA Number:	APE: 025 Loss of Residual Heat Removal System (RHRS) AK1. Knowledge of the operational implications of the following concepts as they apply to Loss of Residual Heat Removal System: <ul style="list-style-type: none"><li>• AK1.01 Loss of RHRS during all modes of operation</li></ul>
Bank, new or modified?	Bank Question
References provided to candidate	None
References:	AOP-3B
Cross Reference Number:	
User-Defined ID:	Q20393
Comments:	

# EXAMINATION ANSWER KEY

CCNPP RO NRC Exam - 12/08

6

ID: Q38715

Points: 1.00

Given the following:

- Unit-1 is at 100% power when a loss of offsite power occurred
- Component Cooling flow was **NOT** able to be restored during EOP-0
- The appropriate procedure has been implemented
- All Reactor Coolant Pump lower seal and Controlled Bleed-off temperatures indicate 180-190°F with the exception of 11A Reactor Coolant Pump, which has a lower seal temperature of 237°F

Which one of the following actions should be taken regarding the Reactor Coolant Pumps?

- A. An engineering evaluation should be performed before restoring Component Cooling flow to the Reactor Coolant Pumps.
- B. Component Cooling flow should not be restored because the Reactor Coolant Pumps seals must be rebuilt.
- C. Component Cooling flow should be restored to the Reactor Coolant Pumps by opening CC-3832-CV.
- D. Component Cooling flow should be restored to the Reactor Coolant Pumps by throttling flow with CC-284.

Answer: C

### Answer Explanation:

- A. Incorrect - An engineering evaluation is not required. Method for re-establishment of Component Cooling flow to the RCPs is dependent on RCP Controlled Bleed-off temperature.
- B. Incorrect - Seal rebuild is not required because Controlled Bleed-off temperature did not exceed 250°F.
- C. Correct - Seal temp stayed below 280°F which allows the operator to restore Component Cooling flow by opening the Containment isolation valves.
- D. Incorrect - Lower Seal temperatures did not exceed the criteria of > 280°F for restoration of Component Cooling by throttling a manual isolation valve.

Question 6 Info	
Cognitive Level	1.00
Tier/Group	1/1
RO Importance:	2.9
CFR:	41.7 / 45.7
KA Number:	APE : 015/017 Reactor Coolant Pump (RCP) Malfunctions AK2. Knowledge of the interrelations between the Reactor Coolant Pump Malfunctions (Loss of RC Flow) and the following: <ul style="list-style-type: none"><li>• AK2.07 RCP seals</li></ul>
Bank, new or modified?	Bank Question
References provided to candidate	None
References:	EOP-2, OI-1A, AOP-7C, IC07 A & B - ALM
Cross Reference Number:	LOR-020400302-003
User-Defined ID:	Q38715
Comments:	

# EXAMINATION ANSWER KEY

CCNPP RO NRC Exam - 12/08

7

ID: Q50730

Points: 1.00

Unit 1 is at 100% power when a major grid disturbance occurs.

Which of the following conditions would require a reactor trip?

- A. 11 Generator Frequency is currently 58.5 Hz.
- B. Terminal voltage cannot be maintained less than 23 KV.
- C. 4 KV Bus voltages cannot be maintained less than 4.31 KV.
- D. Grid disturbance causes frequency swings of plus or minus 2%.

Answer: A

### Answer Explanation:

- A. Correct - Per AOP-7M.
- B. Incorrect - Trip criteria is "Terminal Voltage cannot be maintained less than 26.5 KV" per AOP-7M, 23 KV is the trip limit for Unit-2.
- C. Incorrect - T.S. limits are 4.19 KV to 4.31 KV. There are no specific reactor trip limits based on 4KV bus voltages. 4 KV vital bus feeders would be tripped at 3.71 KV per AOP-7M.
- D. Incorrect - This condition requires notifying engineering and a 24 hour report to DOE/NERC. There are no trip criteria associated with this value.

Question 7 Info	
Cognitive Level	1.00
Tier/Group	1/1
RO Importance:	3.9
CFR:	41.4 / 41.5 / 41.7 / 41.10 / 45.
KA Number:	APE: 077 Generator Voltage and Electric Grid Disturbances AK2. Knowledge of the interrelations between Generator Voltage and Electric Grid Disturbances and the following: <ul style="list-style-type: none"><li>• AK2.06 Reactor power</li></ul>
Bank, new or modified?	New Question
References provided to candidate	None
References:	AOP-7M
Cross Reference Number:	
User-Defined ID:	Q50730
Comments:	

# EXAMINATION ANSWER KEY

CCNPP RO NRC Exam - 12/08

8

ID: Q40704

Points: 1.00

Which one of the following describes why an assessment of condensate inventory must be performed in EOP-7?

- A. The Technical Specification LCO for 12 CST level may need to be entered.
- B. Condensate inventory dictates how long a plant cooldown can be delayed.
- C. CST level is used to determine if the TBVs or ADVs will be used for cooldown.
- D. EAL classification depends on available AFW suction sources.

Answer: B

### Answer Explanation:

- A. Incorrect - While T.S. entry criteria may need to be considered the Scope & Basis document for EOP-7, Step IV.AB, states the basis for this assessment is to determine the need for a plant cooldown based on condensate inventory.
- B. Correct - Per EOP-7 Scope & Basis document, Step IV.AB.
- C. Incorrect - Per EOP-7 Scope & Basis document, Step IV.AB, assessment is to determine the need for a plant cooldown based on condensate inventory. Information is provided, detailing m/u requirements for cooldown with TBVs or ADVs, based on availability. It is unlikely TBVs would be available in an EOP-7 situation.
- D. Incorrect - There are no EAL classifications associated with the suction source for the AFW Pumps.

Question 8 Info	
Cognitive Level	1.00
Tier/Group	1/1
RO Importance:	4.3
CFR:	41.5 / 41.10 / 45.6 / 45.13
KA Number:	EPE: 055 Loss of Offsite and Onsite Power (Station Blackout) EK3 Knowledge of the reasons for the following responses as the apply to the Station Blackout: <ul style="list-style-type: none"><li>• EK3.02 Actions contained in EOP for loss of offsite and onsite power</li></ul>
Bank, new or modified?	Bank Question
References provided to candidate	None
References:	EOP-7
Cross Reference Number:	LOR-020290414-006
User-Defined ID:	Q40704
Comments:	



# EXAMINATION ANSWER KEY

CCNPP RO NRC Exam - 12/08

9

ID: Q50770

Points: 1.00

Using provided reference(s):

How would the loss of one Component Cooling Heat Exchanger affect continued operation of the plant in Mode 1?

- A. The plant would be placed in hot standby within 6 hours.
- B. The plant would be placed in hot standby within 72 hours.
- C. The plant would be placed in hot standby within 78 hours.
- D. Continued operation is permitted as the Component Cooling Heat Exchangers are cross-connected.

Answer: C

## Answer Explanation:

- A. Incorrect - T.S. 3.7.5 allows an out-of-service time of 72 hours followed by a requirement to be in Hot Standby within 6 hours.
- B. Incorrect - T.S. 3.7.5 allows an out-of-service time of 72 hours followed by a requirement to be in Hot Standby within 6 hours and Cold Shutdown within 36 hours.
- C. Correct - T.S. 3.7.5 allows an out-of-service time of 72 hours followed by a requirement to be in Hot Standby within 6 hours. Compliance with these conditions would require the plant be in Hot Standby within 78 hours.
- D. Incorrect - T.S. 3.7.5 requires two CCW loops operable.

Question 9 Info	
Cognitive Level	1.00
Tier/Group	1/1
RO Importance:	3.4
CFR:	41.10 / 43.2 / 43.5 / 45.3
KA Number:	APE: 026 Loss of Component Cooling Water (CCW) 2.2.40 Ability to apply Technical Specifications for a system.
Bank, new or modified?	Bank question
References provided to candidate	T.S. 3.7.5
References:	T.S. 3.7.5
Cross Reference Number:	CRO-113-5-5-20
User-Defined ID:	Q50770
Comments:	This question tests the basic RO tech spec level Knowledge. It requires the RO to identify the LCO and determine the correct action statement. This mirrors the actions that the RO would have to perform on shift in the plant.

# EXAMINATION ANSWER KEY

CCNPP RO NRC Exam - 12/08

10

ID: Q20385

Points: 1.00

Which one of the following represents how long the HPSI **AND** LPSI pumps are allowed to operate with no Component Cooling flow to their seal coolers?

- A. Continuously, as long as RCS temperature is maintained at or below 300°F for HPSI pumps and at or below 170°F for LPSI pumps.
- B. Continuously, provided the ECCS Pump Room Air Coolers remain in service with Salt Water flow.
- C. Continuously, as long as RCS temperature is maintained at or below 300°F for HPSI pumps and LPSI pumps.
- D. Continuously, as long as RCS temperature is maintained at or below 170°F for HPSI pumps and at or below 300°F for LPSI pumps.

Answer: D

## Answer Explanation:

- A. Incorrect - Values are swapped for the HPSI and LPSI Pumps.
- B. Incorrect - Not as described in OI-3A. Pumps must be declared OOS if their respective Room Air Cooler is OOS.
- C. Incorrect - Value is incorrect for HPSI Pumps.
- D. Correct - Per OI-3A, Precaution 5. P.

Question 10 Info	
Cognitive Level	1.00
Tier/Group	2/1
RO Importance:	3.8
CFR:	41.7 / 45.5
KA Number:	SYSTEM: 006 Emergency Core Cooling System (ECCS) A3 Ability to monitor automatic operation of the ECCS, including: <ul style="list-style-type: none"><li>• A3.04 Cooling water systems</li></ul>
Bank, new or modified?	Bank Question
References provided to candidate	None
References:	OI-3A
Cross Reference Number:	CRO-113-5-5-22
User-Defined ID:	Q20385
Comments:	

# EXAMINATION ANSWER KEY

CCNPP RO NRC Exam - 12/08

11

ID: Q50790

Points: 1.00

The Safety Injection Tank (SIT) Outlet MOVs (SI-614, 624, 634 and 644) have green and red indicating lights on Control Room panels 1(2)C08 and 1(2)C09.

What do the red indicating lights being lit signify?

- A. The MOV breakers are shut.
- B. The MOV keyswitches are in the open position.
- C. The MOVs are open; their breakers may be open or shut.
- D. The MOV keyswitches are in the open position AND the associated breakers are open.

Answer: C

**Answer Explanation:**

- A. Incorrect - Red lights are an indication of valve position only. They do not reflect supply breaker status. (1-E-76, sheet 75)
- B. Incorrect - Red lights are an indication of valve position only. They do not reflect keyswitch position. (1-E-76, sheet 75)
- C. Correct - Circuit is wired such that position indication remains available with the MOV de-energized (1-E-76, sheet 75). The red light indicates the MOV is open and does not reflect breaker position status.
- D. Incorrect - Red lights are an indication of valve position only. They do not reflect keyswitch or breaker position. (1-E-76, sheet 75)

# EXAMINATION ANSWER KEY

CCNPP RO NRC Exam - 12/08

<b>Question 11 Info</b>	
Cognitive Level	1.00
Tier/Group	2/1
RO Importance:	2.5
CFR:	41.7
KA Number:	SYSTEM: 006 Emergency Core Cooling System (ECCS) K2 Knowledge of bus power supplies to the following: <ul style="list-style-type: none"><li>• K2.02 Valve operators for accumulators</li></ul>
Bank, new or modified?	New question
References provided to candidate	None
References:	1-E-76 - sheet 75, OP-2
Cross Reference Number:	CRO-7-1-5-65B
User-Defined ID:	Q50790
Comments:	K/A match analysis: While this question does not explicitly test the bus power supplied to the MOVs, it tests the interpretation of the indicating lights. The knowledge of the bus power supplies is not as important as understanding what the control room indications actually mean. This is deemed to be an acceptable match and has the benefit of being operationally relevant.

# EXAMINATION ANSWER KEY

CCNPP RO NRC Exam - 12/08

12

ID: Q28472

Points: 1.00

A plant transient has occurred. EOP-0 has been completed and the appropriate Optimal Recovery Procedure has been implemented. The following conditions are noted:

- Tcold is 490°F and lowering
- RCS pressure is 1500 PSIA and lowering
- 11 S/G level is -352 inches and lowering
- 12 S/G level is -360 inches and lowering
- PZR level is 70 inches and lowering
- CETs indicate approximately 493°F and constant

What action is appropriate based on above conditions?

- Verify Condensate Booster Pump injection is occurring and slowly raise feed flow to approximately 300 GPM per S/G.
- Commence Once Through Core Cooling while continuing to pursue Condensate Booster Pump injection or restoring an AFW pump to operation.
- Initiate Auxiliary Spray to lower subcooling to approximately 40°F and pursue restoring an AFW pump to operation.
- Commence Once Through Core Cooling when an uncontrolled rise of 15°F occurs on the CETs and isolate the last S/G to reach -350 inches.

Answer: B

**Answer Explanation:**

- Incorrect - Booster Pump injection will not occur until approximately 500 PSIG in the S/G. At 490°F, S/G pressure will be greater than 600 PSIG. EOP-3 directs gradually raising S/G levels.
- Correct - Per EOP-3, Once Through Core Cooling shall be initiated when both S/G levels are less than -350".
- Incorrect - EOP-3 does not require controlling subcooling low in the 40-140°F band, EOP-5 and 6 do.
- Incorrect - Once Through Core Cooling is required if an uncontrolled rise of 5°F occurs. Each S/G is required to be isolated at -380".

# EXAMINATION ANSWER KEY

CCNPP RO NRC Exam - 12/08

<b>Question 12 Info</b>	
Cognitive Level	2.00
Tier/Group	1/1
RO Importance:	3.7
CFR:	41.5 / 41.10 / 45.6 / 45.13
KA Number:	APE: 054 Loss of Main Feedwater (MFW) CE E06 Loss of Feedwater <ul style="list-style-type: none"><li>• EK3.3 Manipulation of controls required to obtain desired operating results during abnormal and emergency situations.</li></ul>
Bank, new or modified?	Bank question
References provided to candidate	None
References:	EOP-3
Cross Reference Number:	SRO-201-3-1-25
User-Defined ID:	Q28472
Comments:	

# EXAMINATION ANSWER KEY

CCNPP RO NRC Exam - 12/08

13

ID: Q40701

Points: 1.00

Unit 1 is operating at 100% power when a 20 GPM RCS leak develops into the Component Cooling system. The leak is determined to be from 11A RCP.

Which of the following is the correct sequence of actions to be taken?

- A. Commence a rapid power reduction to shutdown the reactor, secure 11A RCP, and manually isolate Component Cooling to 11A RCP.
- B. Trip the reactor, perform Reactivity Control, stop all RCPs, and isolate Component Cooling to the Containment.
- C. Commence a rapid power reduction to shutdown the reactor, stop all RCPs, and isolate Component Cooling to the Containment.
- D. Trip the reactor, stop all RCPs, isolate Component Cooling to the Containment and implement EOP-0.

Answer: B

### Answer Explanation:

- A. Incorrect - AOP-2A guidance is to trip the unit and to isolate the Component Cooling System using the containment isolation valves.
- B. Correct - As specified in AOP-2A, Sect VI, Step E.10
- C. Incorrect - AOP-2A guidance is to trip the unit and to isolate the Component Cooling System using the containment isolation valves.
- D. Incorrect - AOP-2A directs completion of the Reactivity Safety Function prior to stopping the RCPs.

Question 13 Info	
Cognitive Level	2.00
Tier/Group	1/2
RO Importance:	3.0
CFR:	41.8 / 41.10 / 45.3
KA Number:	CE A16 Excess RCS Leakage AK1. Knowledge of the operational implications of the following concepts as they apply to the (Excess RCS Leakage) <ul style="list-style-type: none"><li>• AK1.2 Normal, abnormal and emergency operating procedures associated with (Excess RCS Leakage).</li></ul>
Bank, new or modified?	Bank question
References provided to candidate	None
References:	AOP-2A
Cross Reference Number:	LOR-020270302-001
User-Defined ID:	Q40701
Comments:	

# EXAMINATION ANSWER KEY

CCNPP RO NRC Exam - 12/08

14

ID: Q40348

Points: 1.00

A S/G tube rupture has occurred with the RVLMS inoperable. Which condition indicates the presence of a void in the RCS?

- A. RCS pressure increases with increasing Pressurizer level.
- B. RCS pressure increases with decreasing Pressurizer level.
- C. Steady or slowly decreasing RCS pressure with unexplained rapid lowering of Pressurizer level.
- D. Steady or slowly decreasing RCS pressure with unexplained rapid rise in Pressurizer level.

Answer: D

### Answer Explanation:

- A. Incorrect - This condition is not indicative of void formation. These conditions could be thought to occur if the bubble shifts to a hot reactor vessel head, but pressure does not increase.
- B. Incorrect - With void formation RCS pressure will not increase and Pressurizer level will not lower.
- C. Incorrect - This condition is indicative of a bigger leak or even void collapse.
- D. Correct - This is a good indication of void formation per EOP-6.

Question 14 Info	
Cognitive Level	2.00
Tier/Group	1/2
RO Importance:	3.4
CFR:	43.4 / 45.13
KA Number:	EPE: 074 Inadequate Core Cooling EA2 Ability to determine or interpret the following as they apply to a Inadequate Core Cooling: <ul style="list-style-type: none"><li>• EA2.06 Changes in PZR level due to PZR steam bubble transfer to the RCS during inadequate core cooling</li></ul>
Bank, new or modified?	Bank question
References provided to candidate	None
References:	EOP-6
Cross Reference Number:	LOR-6,8-S-05
User-Defined ID:	Q40348
Comments:	



# EXAMINATION ANSWER KEY

CCNPP RO NRC Exam - 12/08

15

ID: Q25068

Points: 1.00

Given references:

A reactor trip occurred on Unit-1. It was decided something more than an uncomplicated reactor trip had occurred for which a single event diagnosis was **NOT** possible (utilizing the diagnostic flowchart of EOP-0). The appropriate procedure was entered. At this time the following plant conditions exist:

- Offsite power is lost, all DGs inoperable, SMECO available
- Both 4KV vital busses are de-energized
- Startup Rate is  $\sim 3$  dpm
- WRNI power is  $10 \text{ E-}5\%$
- Pressurizer level is 85 inches and steady
- RCS subcooling is  $98^\circ\text{F}$
- Pressurizer Pressure is 1900 PSIA and slowly increasing
- All RVLMS indicating lights are green
- Both S/G levels are  $\sim 20$  inches
- AFW flow available with 11 AFW pump
- Thot minus Tcold is  $12^\circ\text{F}$  and rising
- Tcold is  $528^\circ\text{F}$  and rising
- Containment pressure 0.5 PSIG and steady
- Containment temperature  $100^\circ\text{F}$  and steady

Which one of the following groups of success paths should be used to verify the status of the safety functions?

- A. RC-1, VA-2, PIC-3, HR-1, CE-2, RLEC-2.
- B. RC-1, VA-3, PIC-4, HR-1, CE-1, RLEC-1.
- C. RC-1, VA-3, PIC-3, HR-1, CE-1, RLEC-1.
- D. RC-1, VA-3, PIC-3, HR-1, CE-2, RLEC-2.

Answer: C

# EXAMINATION ANSWER KEY

CCNPP RO NRC Exam - 12/08

## Answer Explanation:

- A. Incorrect - VA 2 requires a DG, CE-1 is available, CE-2 may be chosen if candidate justifies that containment pressure is less than 4.25 PSA, so it is applicable. No indications of radiation outside cntmt exist, RLEC-1 is appropriate. RLEC-2 may be chosen if candidate reads only the first line under Resource Conditions and determines he cannot determine if radiation is detected outside of containment because power is not available to some radiation monitors. This thought could be re-enforced by knowing that this safety function would not be met in EOP-0 due to loss of power effects.
- B. Incorrect - Charging pumps are not available for boration, PIC-4 is not an option, and SIAS has not initiated and is not available until power is restored.
- C. Correct - per conditions stated and assessment using the EOP-8 Resource Assessment Table.
- D. Incorrect - CE-1 is available, CE-2 may be chosen if candidate justifies that containment pressure is less than 4.25 PSA, so it is applicable. RLEC-2 may be chosen if candidate reads only the first line under Resource Conditions and determines he cannot determine if radiation is detected outside of containment because power is not available to some radiation monitors. This thought could be re-enforced by knowing that this safety function would not be met in EOP-) due to loss of power effects.

Question 15 Info	
Cognitive Level	2.00
Tier/Group	1/2
RO Importance:	4.2
CFR:	41.7 / 45.5 / 45.6
KA Number:	CE E09 Functional Recovery EA1. Ability to operate and / or monitor the following as they apply to the (Functional Recovery) <ul style="list-style-type: none"><li>EA1.1 Components and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.</li></ul>
Bank, new or modified?	Bank question
References provided to candidate	EOP-8 RAT
References:	EOP-8
Cross Reference Number:	201-6,8-S-05
User-Defined ID:	Q25068
Comments:	

# EXAMINATION ANSWER KEY

CCNPP RO NRC Exam - 12/08

16

ID: Q14420

Points: 1.00

Following a Unit-2 reactor trip from 100% power, all RCPs were tripped due to an inadvertent CIS that actuated after the trip. The following conditions now exist:

- That is 547°F and lowering
- Tcold is 534°F and lowering
- Condenser vacuum is 26" Hg

What response would the operator observe on the panel for the ADVs and TBVs with these plant conditions? Assume no operator action has been taken.

- A. ADVs - full shut;  
TBVs - modulate open.
- B. ADVs - full open;  
TBVs - full open.
- C. ADVs - modulate open;  
TBVs - full shut.
- D. ADVs - modulate open;  
TBVs - modulate open.

Answer: D

### Answer Explanation:

- A. Incorrect - With Tave > 535°F, the ADVs will modulate. The TBVs should be modulating to maintaining S/G pressure per the setpoint of the TBV controller. Plausible: if the applicant thinks that the ADVs are controlled by Tcold instead of Tave, they would be shut.
- B. Incorrect - With Tave > 535°F, the ADVs will modulate. The TBVs should be modulating to maintaining S/G pressure per the setpoint of the TBV controller.
- C. Incorrect - With Tave > 535°F, the ADVs will modulate. The TBVs should be modulating to maintaining S/G pressure per the setpoint of the TBV controller.
- D. Correct - With Tave > 535°F, the ADVs will modulate. The TBVs should be modulating to maintaining S/G pressure per the setpoint of the TBV controller.

Question 16 Info	
Cognitive Level	3.00
Tier/Group	1/2
RO Importance:	3.0
CFR:	41.7 / 45.7
KA Number:	CE A13 Natural Circulation Operations AK2. Knowledge of the interrelations between the (Natural Circulation Operations) and the following: <ul style="list-style-type: none"><li>• AK2.1 Components and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.</li></ul>
Bank, new or modified?	Bank question
References provided to candidate	None
References:	SD-56
Cross Reference Number:	
User-Defined ID:	Q14420

# EXAMINATION ANSWER KEY

CCNPP RO NRC Exam - 12/08

Comments:

17

ID: Q50810

Points: 1.00

A rapid downpower is in progress on Unit 1. RCS Tcold is being maintained within 0.5°F of program. At approximately 65% power, with no adjustment in turbine load, RCS temperature rises approximately 2°F.

What is the cause of the temperature change?

- A. Lowering of S/G level during High Power to Low Power transfer of DFWCS.
- B. Automatic closure of MSR second stage High Load MOVs.
- C. Closure of Turbine Bypass valves during the downpower.
- D. Automatic opening of the MSR 2<sup>nd</sup> Stage Drain Tank High Level Dump Valves

Answer: B

**Answer Explanation:**

- A. Incorrect - High power to low power transfer occurs at approximately 15% power.
- B. Correct - Per OP-3, Section 6.4.C
- C. Incorrect - With parameters given TBVs would not be open.
- D. Incorrect – Second stage drain tank HLDVs do not open until ~ 165 MWe (about 20% power) and do not affect RCS temperature.

Question 17 Info	
Cognitive Level	2.00
Tier/Group	2/1
RO Importance:	3.2
CFR:	41.5 / 45.5
KA Number:	SYSTEM: 039 Main and Reheat Steam System (MRSS) A1 Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the MRSS controls including: <ul style="list-style-type: none"><li>• A1.05 RCS Tave</li></ul>
Bank, new or modified?	New question
References provided to candidate	None
References:	OP-3, Unit 1
Cross Reference Number:	
User-Defined ID:	Q50810
Comments:	

# EXAMINATION ANSWER KEY

CCNPP RO NRC Exam - 12/08

18

ID: Q20174

Points: 1.00

The trip path K1 relay has failed to deenergize on a valid high Pressurizer Pressure reactor trip signal.

Which of the following will result?

- A. No Reactor Trip Circuit Breakers open.
- B. Four Reactor Trip Circuit Breakers open resulting in no reactor trip.
- C. A reactor trip occurs as power is interrupted to all CEAs.
- D. The Diverse Scram System will trip the reactor.

Answer: C

### Answer Explanation:

- A. Incorrect - Relays K-2 thru K-4 are unaffected and perform as designed deenergizing the Reactor Trip bus.
- B. Incorrect - Relays K-2 thru K-4 are unaffected and perform as designed deenergizing the Reactor Trip bus.
- C. Correct - Relays K-2 thru K-4 are unaffected and perform as designed deenergizing the Reactor Trip bus.
- D. Incorrect - The Diverse Scram System setpoint is 2450 PSIA. RPS will have tripped the reactor at 2385 PSIA.

Question 18 Info	
Cognitive Level	3.00
Tier/Group	1/1
RO Importance:	3.5
CFR:	41.7 / 45.7
KA Number:	EPE: 007 Reactor Trip CE E02 Reactor Trip Recovery EK2 Knowledge of the interrelations between a reactor trip and the following: <ul style="list-style-type: none"><li>• EK2.03 Reactor trip status panel</li></ul>
Bank, new or modified?	Bank question
References provided to candidate	None
References:	FSAR
Cross Reference Number:	CRO-59-1-5-47
User-Defined ID:	Q20174
Comments:	

# EXAMINATION ANSWER KEY

CCNPP RO NRC Exam - 12/08

19

ID: Q24719

Points: 1.00

Given the following:

- Unit-1 is in Mode 6
- A Containment Normal Purge is in progress
- Refueling operations are in progress
- A fuel assembly is dropped within the core
- Containment Area Radiation Monitors, 1-RE-5316A through D, are in alarm at 200 mrem/hr

What automatic actions occur?

- A. Containment Purge supply and exhaust CVs go SHUT, all Iodine Removal Units receive a START signal, and Hydrogen Purge Outlet Containment Isolation MOVs receive a SHUT signal.
- B. Containment Purge supply and exhaust CVs go SHUT, Containment Purge supply and exhaust fans STOP and Hydrogen Purge Outlet Containment Isolation MOVs receive a SHUT signal.
- C. Containment Purge exhaust CVs SHUT, Penetration Room Exhaust fans receive a START signal, and Hydrogen Purge Outlet Containment Isolation MOVs receive a SHUT signal.
- D. Containment Purge supply and exhaust fans STOP, Penetration Room Exhaust fans receive a START signal, and all Iodine Removal Units receive a START signal.

Answer: B

**Answer Explanation:**

- A. Incorrect - The IRUs do not receive a start signal when CRS actuates.
- B. Correct - A Containment Radiation Signal (CRS) is initiated by a 2/4 coincidence from RE-5316A thru D. These six components actuate to specified positions per LD-58A.
- C. Incorrect -The Purge Supply CV shuts and the Penetration Room Exhaust Fans do not receive an automatic signal when CRS actuates.
- D. Incorrect - The Purge Supply and Exhaust CVs shut and the Penetration Room Exhaust Fans and Iodine Removal Units do not receive an automatic signal when CRS actuates.

# EXAMINATION ANSWER KEY

CCNPP RO NRC Exam - 12/08

Question 19 Info	
Cognitive Level	1.00
Tier/Group	1/2
RO Importance:	3.4
CFR:	41.5 / 41.10 / 45.6 / 45.13
KA Number:	APE: 061 Area Radiation Monitoring (ARM) System Alarms AK3. Knowledge of the reasons for the following responses as they apply to the Area Radiation Monitoring (ARM) System Alarms: <ul style="list-style-type: none"><li>• AK3.02 Guidance contained in alarm response for ARM system</li></ul>
Bank, new or modified?	Bank question
References provided to candidate	None
References:	SD-15, 1C08-ALM, 1C22-ALM
Cross Reference Number:	CRO-122-1-3-23
User-Defined ID:	Q24719
Comments:	

# EXAMINATION ANSWER KEY

CCNPP RO NRC Exam - 12/08

20

ID: Q28825

Points: 1.00

Unit-1 is at 100% power. 11 MSIV is being partial stroke tested per the Surveillance Test Procedure. A system failure results in 11 MSIV shutting completely.

How will the plant respond?

- A. RCS pressure will rise due to less steam demand, a Pressurizer Pressure High reactor trip will occur and the PORVs will open.
- B. 11 S/G pressure will rise, 12 S/G pressure will lower due to the steam demand imbalance, resulting in an ASGT reactor trip.
- C. 12 S/G level will lower due to the steam demand imbalance, causing a Low S/G level reactor trip.
- D. RCS pressure will lower due to the increased steam demand from 12 S/G, resulting in a TM/LP reactor trip.

Answer: B

### Answer Explanation:

- A. Incorrect - FSAR Table 14.12-2 states this event will be terminated by ASGT in 2.7 seconds. Plausible – PORV setpoint is the same as the high pressure reactor trip setpoint – 2400 psig.
- B. Correct - FSAR Chapter 14.12.2.4 describes these exact conditions.
- C. Incorrect - FSAR Table 14.12-2 states this event will be terminated by ASGT in 2.7 seconds.
- D. Incorrect - FSAR Table 14.12-2 states this event will be terminated by ASGT in 2.7 seconds. Plausible because the ASGT trip drives the TM/LP setpoint high which results in a reactor trip. Some applicants may think that it is TM/LP that actually trips the reactor.

Question 20 Info	
Cognitive Level	2.00
Tier/Group	2/2
RO Importance:	3.2
CFR:	41.7 / 45.7
KA Number:	035 Steam Generator System (S/GS) K6 Knowledge of the effect of a loss or malfunction on the following will have on the S/GS: <ul style="list-style-type: none"><li>• K6.01 MSIVs</li></ul>
Bank, new or modified?	Bank question
References provided to candidate	None
References:	FSAR, Chapter 14
Cross Reference Number:	CR-103-2-4-61A
User-Defined ID:	Q28825
Comments:	



# EXAMINATION ANSWER KEY

CCNPP RO NRC Exam - 12/08

21

ID: Q28429

Points: 1.00

Unit-1 is operating at 100% power, with a burnup of 10,500 MWD/MTU, when an ADV fails open.

What is the effect on reactor power and what action(s) should be taken?

- A. Reactor trips on VOPT;  
Implement EOP-0.
- B. Reactor power rises but reactor does not trip;  
Dispatch operators to immediately manually isolate the ADV and Insert CEAs as necessary to control reactor power.
- C. Reactor power rises but reactor does not trip;  
Insert CEAs as necessary to control reactor power and reduce turbine load to restore Tcold to the program band.
- D. Reactor power lowers;  
Raise turbine load to restore Tcold to the program band.

Answer: C

## Answer Explanation:

- A. Incorrect - ADV will raise power approximately three percent which is below the VOPT setpoint.
- B. Incorrect - Steps to dispatch operators to manually isolate the ADV follow the correct action of reducing turbine load to return Tcold to program.
- C. Correct - Per AOP-7K, Section IV.
- D. Incorrect - Raising Turbine load would decrease Tcold further and cause reactor power to raise further. In addition, if the applicant thinks that 10,500 MWD/MTU burn up has a positive MTC, the applicant could pick D. A positive MTC only occurs at BOL, not MOL.

Question 21 Info	
Cognitive Level	3.00
Tier/Group	2/2
RO Importance:	3.1
CFR:	41.5 / 45.7
KA Number:	SYSTEM: 041 Steam Dump System (SDS)/Turbine Bypass Control K5 Knowledge of the operational implications of the following concepts as they apply to the SDS: <ul style="list-style-type: none"><li>• K5.07 Reactivity feedback effects</li></ul>
Bank, new or modified?	Bank question
References provided to candidate	None
References:	AOP-7K
Cross Reference Number:	AOP-7K-03-001
User-Defined ID:	Q28429
Comments:	