RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 1

A dropped rod while critical on Unit 2 has resulted in RCS Tavg lowering to 540.9°F, and the Rx remains critical.

Which of the following choices contains ONLY reasons why Tavg must be raised to at least 541° for the Rx to remain critical IAW Salem Tech Specs?

Raising Tavg to at least 541°F ensures...

1. MTC is within its analyzed band.
2. protective instrumentation is within its normal operating range.
3. the P-12 interlock is above its allowable setpoint.
4. minimum shutdown margin is maintained.
5. that Heat Flux Hot Channel Factor does not exceed its limits in the lower region of the core.
6. the PZR is able to be operable with a bubble established.

a. 1, 3, 5.

b. 1, 4, 6.

c. 2, 3, 6.

d. 2, 4, 5.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
c	R	Memory	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:		
000003K307	AK3.07	3.8*	3.9	EPE	2	2	55.43	☐

System/Evolution Title		
Dropped Control Rod		003

KA Statement: Knowledge of the reasons for the following responses as they apply to Dropped Control Rod:
Tech-Spec limits for T-ave

Explanation of Answers: 55.41(5,10) The Tech Spec Minimum Temperature for Criticality limit of at least 541°F (TSAS 3.1.1.4) Bases states that: 1. the moderator temperature coefficient is within its analyzed band, 2- the protective instrumentation is within its normal operating range, 3-the P-12 interlock is above it allowable setpoint, 4-the pressurizer is capable of being in an operable status with a steam bubble, and 5- the reactor pressure vessel is above its minimum RTNDT temperature. Of the 2 incorrect choices, #4 is plausible if the candidate thinks about negative MTC and positive reactivity addition causing a loss of SDM, and #5 is plausible since the colder Tc would tend to create higher power lower in the core, but Fq(Z) is a condition which is kept in its allowable range by maintaining acceptable power distribution limits as described in TSAS 3.2.2.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Salem Tech Specs	Salem Tech Specs	Bases	B3/4 1-2	Am 197

L.O. Number	Objectives
ABROD2E002	

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 2

Given the following conditions:

- Unit 2 is operating at 100% power.
- 21 SGFP trips, and a manual Rx trip is initiated based on lowering SG levels.
- The Rx operator confirms the Rx trip during performance of the immediate actions of EOP-TRIP-1, Rx Trip or Safety Injection.
- While performing the RCS Temperature Control section of EOP-TRIP-2, Rx Trip Response, the RO reports Tavg is ~551° and stable.

Which of the following describes why Tavg is ~551° F?

a. Reactor Trip Breaker A failed to open.

b. Reactor Trip Breaker B failed to open.

c. Main Steam Dump pressure setpoint is set too low on the control console.

d. Main Steam Dump pressure setpoint is set too high on the control console.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
b	R	Application	Salem 1 & 2	9/26/2011

KA:	RO Value:	SRO Value:	Section:	RO Group:	SRO Group:	
000007A203 EA2.03	4.2	4.4	EPE	1	1	55.43 ☐

System/Evolution Title Reactor Trip 007

KA Statement: Ability to determine and interpret the following as they apply to Reactor Trip:
Reactor trip breaker position

Explanation of Answers: 55.41(5,6,7) A manual Rx trip is initiated by the Rx Trip Handles. This sends a signal to BOTH Solid State Protection System Trains to open their respective reactor trip breakers. The P-4 signal is developed by the opening of each RTB. One of the functions of the P-4 signal is to arm the steam dumps (Train A) and place them in the Plant Trip mode of operation (Train B), to control RCS Tavg at 547°. Since the reactor trip was confirmed, at least one RTB opened. B is correct because the B P-4 signal not being present would result in the Main steam dumps controlling via the Load Reject Controller, which is designed to maintain Tavg ~ 5° above programmed Tavg of 547 at no load. A is incorrect because the load reject would arm the steam dumps, and Train B P-4 would place them in Plant Trip Mode and control at 547°. C and D are incorrect because steam dumps would have to be in MS Pressure Control mode for the setpoint on the control console to be the driving system signal. Both C and D are plausible if candidate does not know normal mode of steam dump operation at power, or function of Tavg Control.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Reactor Trip Response	2-EOP-TRIP-2	Bases Doc	14	27
Reactor Protection System Steam Dump Contro	221059			13

L.O. Number
TRP002E005
STDUMPE008
STDUMPE007

Objectives

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 3

Given the following conditions:

- Unit 1 is operating at 100% power.
- Spent Fuel Pool fuel moves are being performed IAW S1.OP-IO.ZZ-0010, Spent Fuel Pool Manipulations.
- PZR spray demand lowers.
- PZR level is rising very slowly.
- The CRS enters S1.OP-AB.PZR-0001, Pressurizer Pressure Malfunction.
- The crew identifies 1PR2, PZR Power Operated Relief Valve, is leaking.

Of the following choices, which is REQUIRED to be performed FIRST IAW Salem Tech Specs?

Assume 1PR2 cannot be restored to an OPERABLE condition.

a. Immediately suspend movement of irradiated fuel.

b. Within one hour initiate action to place the unit in Hot Shutdown.

c. Within one hour close 1PR7, PORV Block Valve, and maintain power to the valve.

d. Within one hour close 1PR7, PORV Block Valve, and remove power from the valve.

Answer	c	Exam Level	R	Cognitive Level	Application	Facility:	Salem 1 & 2	ExamDate:	9/26/2011

KA:	000008G239	2.2.39	RO Value:	3.9	SRO Value:	4.5	Section:	EPE	RO Group:	1	SRO Group:	1	55.43	☐

System/Evolution Title	Pressurizer Vapor Space Accident	008

KA Statement: Knowledge of less than or equal to one hour Technical Specification action statements for systems.

Explanation of Answers: 55.41(10) A is incorrect because there is no requirement to stop moving fuel for this condition, nor is there a general caveat that says stop moving fuel for any Abnormal Procedure entry. B is incorrect but plausible, since it is the 3.0.3 action when there is no specific TSAS which applies, and fits with the other one hour requirements. C is correct, and D incorrect, because power is maintained to the block valve IAW TSAS 3.4.3 action a for excessive seat leakage, whereas power is removed from the block valve if the PORV is inoperable from anything OTHER than seat leakage.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Salem Tech Specs		3/4.3		194
Pressurizer Pressure Malfunction	S1.OP-AB.PZR-0001			15
Spent Fuel Pool Manipulations	S1.OP-IO.ZZ-0010			21

L.O. Number
ABPZR1E002
FLUNCYE002

Objectives

Material Required for Examination

Question Source:	New	Question Modification Method:		Used During Training Program	☐

Question Source Comments

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 4

Given the following conditions:

- Unit 2 is operating at 100% power.
- 23 AFW pump is C/T.
- A 1,000 gpm LOCA occurs.
- The Rx is tripped and a Safety Injection initiated.
- NO AFW pumps automatically start.

Assuming that both MDAFW pumps could be manually started if demanded, which of the following describes the MINIMUM required AFW pump status, and the reason why that minimum is required IAW 2-EOP-LOCA-1, Loss of Reactor Coolant?

a. ONE MDAFW pump must be started to ensure a secondary heat sink is available.

b. TWO MDAFW pumps must be started to ensure a secondary heat sink is available.

c. ONE MDAFW pump must be started to provide a static head of water to prevent primary to secondary leakage.

d. TWO MDAFW pumps must be started to provide a static head of water to prevent primary to secondary leakage.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
a	R	Application	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:	
000009K328	EK3.28	4.5	4.5	EPE	1	1	55.43 ☐

System/Evolution Title Small Break LOCA 009

KA Statement: Knowledge of the reasons for the following responses as they apply to Small Break LOCA:
Manual ESFAS initiation requirements

Explanation of Answers: 55.41(4,10) A is correct because one MDAFW pump will provide at least 22E4 lbm/hr flow which is the minimum required to satisfy the Heat Sink CFST until at least one SG NR level is restored. Additionally, for a small to intermediate sized LOCA, this flow is required to ensure a secondary heat sink is available. The distracters all contain either 2 pumps or the incorrect reason, or both. The distracters which refer to the static head of water is the basis for a LBLOCA, not a SBLOCA. The distinction must be made that a SBLOCA is occurring, and apply that knowledge to arrive at the correct basis for the correct flow required. TWO AFW pumps is plausible because two AFW pumps are required during FRSM when >44E4 lbm/hr AFW flow is required.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Loss of Reactor Coolant Basis Document	2-EOP-LOCA-1		12	28

L.O. Number
LOCA01E009

Objectives

Material Required for Examination

Question Source: Facility Exam Bank **Question Modification Method:** Concept Used **Used During Training Program** ☐

Question Source Comments Vision Q80803 Used the concept of "why" AFW flow is required, and added "how much" and made it an operational type question instead of a simple "Why is.....required?"

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 5

Which of the following validated conditions will, by itself, require tripping the affected RCP(s) IAW S1.OP-AB.RCP-0001, Reactor Coolant Pump Abnormality, without delay?

a. #1 Seal Water Leakoff flow >6 gpm.

b. Seal Water Outlet temperature >160°F.

c. ALL charging pumps out of service for >5 minutes.

d. OHA D-22, 13 RCP BRG CLG WTR FLO LO, received 2 minutes ago.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
a	R	Memory	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:	
000015K207	AK2.07	2.9	2.9	EPE	1	1	55.43 ☐

System/Evolution Title Reactor Coolant Pump Malfunctions 015

KA Statement: Knowledge of the interrelations between Reactor Coolant Pump Malfunctions and the following:
RCP seals

Explanation of Answers: 55.43(3)C is incorrect because the loss of charging pumps, and hence seal injection flow, is not a RCP trip criteria, since thermal barrier flow is still established. AB.CVC will not direct stopping the RCPs either. A is correct because #1 Seal Leakoff flow of greater than or equal to 6 gpm is RCP trip criteria based on Att. 1 of AB.RCP. D is incorrect because the ARP for D-22 does not direct entry into AB.RCP unless accompanied by rising temp. B is incorrect because the setpoint for high seal outlet temp is 190°F.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Reactor Coolant Pump Abnormality	S1.OP-AB.RCP-0001			15
Loss of Charging	S1.OP-AB.CVC-0001			7

L.O. Number
ABRCP1E003

Objectives

Material Required for Examination

Question Source: Facility Exam Bank **Question Modification Method:** Editorially Modified **Used During Training Program** ☐

Question Source Comments Added "without delay" to stem to ensure choice c is incorrect.

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 6

During a total loss of charging event, what is the reason for closing the RCP seal injection isolation valves if RCP seal inlet temperature rises to 225 degrees?

a. To prevent runout of a charging pump when a charging pump is started.

b. The RCP seals and shafts may be damaged due to thermal shock when a charging pump is started.

c. To prevent steam binding of the charging pumps due to RCP seal leakoff flashing to steam when a charging pump is started.

d. The RCP thermal barrier heat exchangers may rupture due to thermal shock and water hammer when a charging pump is started.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
b	R	Memory	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:	
000022K101	AK1.01	2.8	3.2	EPE	1	1	55.43 ☐

System/Evolution Title Loss of Reactor Coolant Makeup 022

KA Statement: Knowledge of the operational implications of the following concepts as they apply to Loss of Reactor Coolant Makeup:
Consequences of thermal shock to RCP seals

Explanation of Answers: 55.41(10,7) AB.CVC provides guidance in Att 3 and CAS 5.0 to isolate RCP seal injection if any seal inlet temp is greater than or equal to 225°F. This guidance is consistent with the guidance contained in LOPA-1, basis document, page 32, which states, "Isolating the RCP seal injection lines prepares the plant for recovery while protecting the RCPs from seal and shaft damage that may occur when a charging pump is started as part of the recovery. With the RCP seal lines isolated, a centrifugal charging pump can be started in the normal charging mode without concern for cold seal injection flow thermally shocking the RCPs." A is incorrect but plausible since starting the first pump in a system has potential for runout after high points have drained back into system. C is incorrect but plausible since the high temperature in the seal area on an extended loss of seal cooling may cause flashing in the seal area, and the gas could be transported back to CVCS system, but is not why the seals are isolated. D is incorrect but plausible because the CCW thermal barrier return is isolated for this reason during a LOPA.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Loss of Charging	S2.OP-AB.CVC-0001			9
Loss of Power Accident	2-EOP-LOPA-1			26

L.O. Number

ABCVC1E003

LOPA00E003

Objectives

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 7

Given the following conditions:

- Unit 2 is in MODE 4 exiting a forced outage.
- The reactor has been shutdown for 96 hours.
- 23 RCP is in service.
- 21 RHR loop is in service supplying shutdown cooling.
- 22 RHR loop is aligned for ECCS.
- RHR HX inlet temperature is 290°F and stable.
- RCS pressure is 325 psig and stable.
- ALL MS-10's are set for 200 psig in AUTO.

The NCO trips 21 RHR pump due to indications of cavitation.

With NO operator action, determine how long it will take for MODE 3 will be reached?
Assume only heat added to RCS is decay heat.

References provided.

a. < 15 minutes.

b. 15-19 minutes.

c. 20-25 minutes.

d. > 25 minutes.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
b	R	Application	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:		
000025K101	AK1.01	3.9	4.3	EPE	1	1	55.43	☐

System/Evolution Title		
Loss of Residual Heat Removal System		025

KA Statement: Knowledge of the operational implications of the following concepts as they apply to Loss of Residual Heat Removal System:
Loss of RHRS during all modes of operation

Explanation of Answers: 55.41(10)The HUR will be determined using Attachment 5 of AB.RHR-1, page 2, with PZR level (RCPs are running). The 96 hour mark is 4 days, and the HUR will be ~3.8- 3.9°/minute. 60 degrees of temp change are needed to get from 290 to 350 (Mode 3) 60/3.8=15.8 minutes. 4°/minute would yield 15 minutes, but 4°/ minute is clearly above where the lines intersect on the graph. If the after core reload line is used this was a forced outage, not a refueling outage per stem), then the HUR would be 2.7/2.8 deg/min, which would take 21.4-22.2 minutes. If page 3 HUR is used, then the HUR would be 3.0, which would give 20 minutes. If the candidate uses the first page of attachment without checking to see if it is for the right conditions as stated in the stem, then they would use ~0.31° which would give over 3 hours. Modified distracters to make all plausible. Provided Attachment 4 in addition to correct Attachment 5 to make question harder.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Loss of RHR	S2.OP-AB.RHR-0001			17

L.O. Number	Objectives
ABRHR1E005	

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 8

Given the following conditions:

- Unit 2 is in MODE 3, NOP, NOT, returning from a refueling outage.
- 21 charging pump is in service.
- ALL CCW pumps trip due to a faulty electrical relay which was replaced on all CCW pumps during the outage.

Which of the following identifies an action that must be performed IAW S2.OP-AB.CC-0001, Component Cooling Abnormality, and the correct reason it must be performed?

a. Stop all RCPs to prevent seal package damage.

b. Isolate letdown and swap charging pump suction to the RWST to prevent the loss of RCP seal injection.

c. Place 23 charging pump in service since it is cooled by SW and both centrifugal charging pumps are cooled by CCW.

d. Initiate Surge Tank makeup as level drops due to system pressure decay to ensure air is not introduced to CCW pump suction .

Answer	b	Exam Level	R	Cognitive Level	Memory	Facility:	Salem 1 & 2	ExamDate:	9/26/2011

KA:	000026G132	2.1.32	RO Value:	3.8	SRO Value:	4.0	Section:	EPE	RO Group:	1	SRO Group:	1	55.43	☐

System/Evolution Title Loss of Component Cooling Water 026

KA Statement: Ability to explain and apply all system limits and precautions.

Explanation of Answers: 55.41(4,7,10) A is incorrect because while RCPs will be stopped, it is because there is no bearing cooling flow. The seal package is still receiving seal injection flow from charging system. B is correct because in a total loss of CCW scenario where the loss of cooling to the letdown and seal water return heat exchangers (in addition to the loss of cooling to the Thermal Barrier Heat Exchanger) leads to a rising VCT temperature, which ultimately results in the loss of RCP seal injection, and failure of the Reactor Coolant Pump Seals. C is incorrect because the charging pumps are reversed, the centrifugal pumps have SW cooling, and the PDP has CCW cooling, so no pump swap would be required in this case, but would be if the PDP (23) was in service. D is incorrect because surge tank M/U is initiated if a leak is present, not for a loss of all the pumps. The stem states the pumps tripped from an electrical fault, not because a system leak made them trip.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Component Cooling Abnormality	S2.OP-AB.CC-0001			14

L.O. Number

ABCC01E004

Objectives

Material Required for Examination

Question Source: New **Question Modification Method:** **Used During Training Program** ☐

Question Source Comments

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 9

Given the following conditions:

- Unit 1 is operating at 100% power.
- 13 Main Turbine Governor Valve fails shut.
- The PZR Master Pressure Controller output fails as is at 2235 psig before any response to the Governor Valve closure occurs.

Which of the following will occur naturally in the Pressurizer to help limit the magnitude of the resulting pressure transient on the primary system?

a. An outsurge cools the PZR. This allows some steam to condense to water and limits the resulting pressure increase in the RCS.

b. An insurge of hotter water heats the PZR. More liquid then flashes to steam helping to limit the resulting pressure drop in the RCS.

c. An outsurge causes the steam space to expand in the PZR. This allows some liquid to flash to steam and limits the resulting pressure drop in the RCS.

d. An insurge of cooler water compresses the steam space in the PZR. Steam is condensed to water helping to limit the overall pressure increase in the RCS.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
d	R	Memory	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:	
000027A103	AA1.03	3.6	3.5	EPE	1	1	55.43 ☐

System/Evolution Title Pressurizer Pressure Control Malfunction 027

KA Statement: Ability to operate and / or monitor the following as they apply to Pressurizer Pressure Control Malfunction:
Pressure control when on a steam bubble

Explanation of Answers: 55.41( ) A is incorrect because the outsurge cause lower pressure in the PZR, which causes more flashing to restore pressure. B is incorrect because an outsurge occurs, and if an insurge occurs it would be of colder water, not hotter. C is incorrect because an insurge would occur, but the action is correct. D is correct because the governor valve closing would cause an insurge based on the rising RCS pressure from the load reject. The insurge compresses the steam bubble, which cause condensing of the steam in the PZR, which acts to limit the pressure rise.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
PZR Pressure and Level Control Lesson Plan	NOS05PZRP&L-09			9

L.O. Number
ABPZR1E001

Objectives

Material Required for Examination

Question Source: Facility Exam Bank **Question Modification Method:** Editorially Modified **Used During Training Program** ☐

Question Source Comments 7/17/02 Braidwood NRC Exam, Vision Q73426

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 10

Given the following conditions:

- Unit 1 is operating at 100% power.
- 13 charging pump is in service.
- A manual Rx trip is initiated after 11BF19 fails shut.
- The Rx does not trip, and can NOT be tripped from the control room.

Which of the following would be an expected control console indication for the Charging Pumps after the Rapid Boration Initiation steps have been completed in 1-EOP-FRSM-1, Response to Nuclear Power Generation?

Assume Safety Injection is not actuated.

11 CVCS Pump_____ 12 CVCS Pump_____ 13 CVCS Pump_____

a. START, STOP, STOP.

b. STOP, START, START.

c. START, START, STOP.

d. START, START, START.

Answer d | **Exam Level** R | **Cognitive Level** Memory | **Facility:** Salem 1 & 2 | **ExamDate:** 9/26/2011

KA: 000029A204 | AA2.04 | **RO Value:** 3.2* | **SRO Value:** 3.3* | **Section:** EPE | **RO Group:** 1 | **SRO Group:** 1 | 55.43 ☐

System/Evolution Title Anticipated Transient Without Scram | 029

KA Statement: Ability to determine and interpret the following as they apply to Anticipated Transient Without Scram:
CVCS centrifugal charging pump operating indication

Explanation of Answers: 55.41(10) D is correct because FRSM-1 has operator start 11 and 12 charging pumps. 13 charging pump is normally operating. All three pumps will indicate START. A is plausible if the candidate thinks the procedure starts ONLY one centrifugal charging pump, and stops the PDP. B is plausible if the candidate sees 13 PDP is in service and thinks the procedure just needs at least one centrifugal charging pump in operation. C is plausible if the candidate thinks the procedure directs starting of either 11 AND 12 charging pumps and requires stopping 13 charging pump. Stopping the operating PDP charging pump is plausible because it is stopped in other EOPs and ABs.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Response to Nuclear Power Generation	1-EOP-FRSM-1			22

L.O. Number | **Objectives**

FRSM00E004

Material Required for Examination

Question Source: New | **Question Modification Method:** | **Used During Training Program** ☐

Question Source Comments

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 11

Given the following conditions:

- Salem Unit 2 is performing a Rx startup by control rods.
- The reactor is critical at 3000 cps in the source range.
- Control rods are withdrawn to raise power.
- No additional operator action is taken and a reactor trip eventually occurs.

If a Source Range Nuclear Instrument Discriminator voltage was lost immediately after the rod pull was complete, would a reactor trip occur sooner or later than if the loss of voltage did not occur, and why?

The Rx would trip…

a. later. The recovery period of the instrument following the rod pull becomes longer.

b. sooner. The recovery period of the instrument following the rod pull becomes shorter.

c. sooner. The gamma level is added to the neutron level since it is not being discriminated out.

d. later. The gamma level is deducted from the neutron level since it is not being discriminated out.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
c	R	Application	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:	
000032K101	AK1.01	2.5	3.1	EPE	2	2	55.43 ☐

System/Evolution Title Loss of Source Range Nuclear Instrumentation 032

KA Statement: Knowledge of the operational implications of the following concepts as they apply to Loss of Source Range Nuclear Instrumentation:
Effects of voltage changes on performance

Explanation of Answers:

55.41(1,6) SR discriminator "screens out" gamma radiation at low power levels because it is not proportional to Rx power. If this voltage was lost, the SR NI would see all those extra gammas, and would indicate a higher power level. This would bring the SR NI to the trip level sooner than if the voltage had not been lost. D is incorrect because the gamma radiation is added, not deducted. A is incorrect because the trip would come sooner. The Pulse Amplifier has 3 functions: to amplify the signal output from the Preamp, to eliminate, or "discriminate against" unwanted noise and gamma pulses and to permit testing

The BF3 Proportional Counter used in the SR produces pulses proportional to the energy of the ionization reaction in the chamber. A neutron will react with the B10 in the BF3 gas, to produce a large pulse. A gamma will react with the gas to produce a smaller pulse. The Discriminator portion of the Pulse Amplifier acts as a gate, to pass the large magnitude neutron pulses, and to reject the smaller amplitude gamma pulses. Because of its design, it will eliminate any pulses smaller than a neutron pulse, and so removes noise pulses, too.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Excore Nuclear Instrumentation Lesson Plan	NOS05EXCORE-09			9

L.O. Number	Objectives
EXCOREE005	

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 12

Given the following conditions:

- Unit 1 is performing a unit startup.
- Reactor power is 11%.
- The low power trips have NOT been blocked.
- Intermediate Range (IR) Channel I N35 previously failed and was removed from service IAW S1.OP-SO.RPS-0001, Nuclear Instrumentation Channel Trip / Restoration.

Predict what will occur if the High Voltage Power Supply for IR Channel II N36 fails.

a. The reactor will trip on high IR flux.

b. The reactor will NOT trip, 1N36 indication will drop to zero.

c. The reactor will NOT trip, but OHA F-25 SR FLUX HI will annunciate.

d. Both Source Range channels will automatically energize, and the reactor will trip on high SR flux.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
b	R	Comprehension	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:	
000033A201	AA2.01	3.0	3.5	EPE	2	2	55.43 ☐

System/Evolution Title Loss of Intermediate Range Nuclear Instrumentation 033

KA Statement: Ability to determine and interpret the following as they apply to Loss of Intermediate Range Nuclear Instrumentation:
Equivalency between source-range, intermediate-range, and power-range channel readings

Explanation of Answers: 55.41(7) This is a valid K/A match because the candidate is required to understand the relationship between where power is in the power range, the level at which automatic re-energization of the SR channels would occur from the IRNI's failing low and/or having their bistables tripped because of the channel failure, and what the significance of the 11% power in the power range has on NI automatic operation. This question requires knowledge of what levels in the 3 nuclear instruments would be present at 11% power range power, i.e. that the SR will be above the trip setpoint if they were to re-energize, which is one of the distracters, what the IR will read if they fail low and how that affects the SR instrumentation, and the P-10 permissive, which automatically blocks SR energization with Rx power >10% in the power range. Loss of Instrument power (high voltage DC 300-1500) to N36 will cause its indication to go low. The rx will NOT trip, because the automatic energization of P-10 permissive at 2/4 PRNI at 10% will already have occurred. (Stem 11% power). This will prevent the SRNIs from automatically reenergizing when the second IRNI channel lowers less than 7x10-11Amps. F-25 will not annunciate, and if it did it would trip the Rx.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
RPS Nuclear Instrumentation Permissives and	221053			8
Nuclear Instrumentation Channel Trip / Restorati	S1.OP-SO.RPS-0001			4
Overhead Annunciators Window F	S1.OP-AR.ZZ-0006			11

L.O. Number

EXCOREE007

EXCOREE009

EXCOREE010

Objectives

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 13

Which of the following identifies why the RCS is depressurized during the response to a SGTR IAW 2-EOP-SGTR-1, Steam Generator Tube Rupture?

a. Allow more rapid boron injection and refill the PZR.

b. Allow more rapid boron injection and minimize subcooling.

c. Terminate primary-to-secondary leakage and refill the PZR.

d. Terminate primary-to-secondary leakage and reduced secondary plant contamination.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
c	R	Memory	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:	55.43
000038K102	EK1.02	3.2	3.5	EPE	1	1	☐

System/Evolution Title Steam Generator Tube Rupture 038

KA Statement: Knowledge of the operational implications of the following concepts as they apply to Steam Generator Tube Rupture:
Leak rate vs. pressure drop

Explanation of Answers: 55.41(5,10) RCS depressurization is done to eliminate the pressure difference between the RCS and the ruptured SG, which stops the primary to secondary leakage. RCS pressure is actually reduced to LESS than ruptured SG pressure to allow backfill of the RCS (PZR)from that SG. While secondary plant contamination will be reduced by stopping the leakage into the SG and its transport to the secondary plant, it is not WHY the depressurization is performed. The boron injection distracters are plausible because as RCS pressure lowers, ECCS injection flow capability rises, and can provide more boron injection to ensure SDM remains adequate.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Steam Generator Tube Rupture	2-EOP-SGTR-1		40	27

L.O. Number SGTR01E007

Objectives

Material Required for Examination

Question Source: New **Question Modification Method:** **Used During Training Program** ☐

Question Source Comments

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 14

Which of the following identifies an automatic action and its correct initiating coincidence which will occur if a Main Steam piping rupture occurs at the Main Turbine inlet with NO operator action?

a. Main Steamline Isolation. 1/2 High Steam Flow on 2/4 SGs, with 2/4 RCS loops <543°F.

b. Main Steamline Isolation. 2/4 High Steam Flow on 2/4 SGs with 2/4 Steamline pressure <600 psig.

c. Safety Injection. 2/3 detectors on 1/4 SG 100 psig lower than corresponding detectors on 2/3 remaining SGs.

d. Safety Injection. 2/3 detectors on 1/4 SG 100 psig lower than corresponding detectors on 1/3 remaining SGs.

Answer	a	Exam Level	R	Cognitive Level	Application	Facility:	Salem 1 & 2	ExamDate:	9/26/2011

KA:	000040K201	AK2.01	RO Value:	2.6*	SRO Value:	2.5	Section:	EPE	RO Group:	1	SRO Group:	1	55.43	☐

System/Evolution Title	Steam Line Rupture	040

KA Statement: Knowledge of the interrelations between Steam Line Rupture and the following:
Valves

Explanation of Answers: 55.41(7) Main Steamline Isolation occurs as described in A. B is incorrect because the High steam Flow coincidence is 1/2, not 2/4. C is incorrect because there will be no Safety Injection on SG D/P because the rupture is downstream of the MSIVs and ALL SGs will have lowering pressure. C coincidence is correct. D is incorrect for the same reason as C, and additionally has the wrong coincidence for the remaining SGs.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
RPS Steam Generator Trip Signals	221056			8
Licensed Operator Fluency List	NOS05FLUNCY			7

L.O. Number
FLUNCYE002

Objectives

Material Required for Examination

Question Source: New | **Question Modification Method:** | **Used During Training Program** ☐

Question Source Comments

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 15

Which of the following describes the reason Main Steam dumps will be blocked from opening if Main Condenser vacuum degrades to 20" Hg?

a. To prevent damaging the condenser on overpressure.

b. To prevent further degradation of condenser vacuum.

c. To prevent exceeding condenser design temperature.

d. To prevent boiling circulating water which can damage condenser tubes.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
a	R	Memory	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:	
000051K301	AK3.01	2.8*	3.1*	EPE	2	2	55.43 ☐

System/Evolution Title Loss of Condenser Vacuum 051

KA Statement: Knowledge of the reasons for the following responses as they apply to Loss of Condenser Vacuum:
Loss of steam dump capability upon loss of condenser vacuum

Explanation of Answers: 55.41(4) All of the distracters are things that can occur on a loss of vacuum, but are not the reason for having Control Grade Interlock C-9 blocking steam dump operation. The condensers are not designed to operate at any pressure, and steam flow from the steam dump system (as well as a Main Turbine trip) occur at 20"Hg decreasing, since at this level it is clear that there is something significantly wrong with the condenser and it must be removed from service.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Loss of Condenser Vacuum	S2.OP-AB.COND-0001			15

L.O. Number
ABCONDE004

Objectives

Material Required for Examination

Question Source: Other Facility **Question Modification Method:** Editorially Modified **Used During Training Program** ☐

Question Source Comments Seabrook May 2003 NRC Exam

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 16

Given the following conditions:

- Unit 2 is operating at 35% power with both SGFPs in service.
- BOTH SGFPs trip simultaneously.

Which of the following describes the actions required in S2.OP-AB.CN-0001, Main Feedwater/Condensate System Abnormality, and why?

a. Trip the Rx and start all AFW pumps to maximize SG inventory.

b. Trip the Main Turbine and start all AFW pumps to maximize SG inventory.

c. Trip the Rx to ensure only decay heat and RCP heat are being added to the RCS.

d. Trip the Main Turbine to ensure only decay heat and RCP heat are being added to the RCS.

Answer	c	Exam Level	R	Cognitive Level	Memory	Facility:	Salem 1 & 2	ExamDate:	9/26/2011

KA:	000054K301	AK3.01	RO Value:	4.1	SRO Value:	4.4	Section:	EPE	RO Group:	1	SRO Group:	1	55.43	☐

System/Evolution Title Loss of Main Feedwater 054

KA Statement: Knowledge of the reasons for the following responses as they apply to Loss of Main Feedwater:
Reactor and/or turbine trip, manual and automatic

Explanation of Answers: 55.41(10) In many cases, when a condition arises which calls for removal of steam flow, the Main Turbine would be tripped if Rx power is <49% (P-9). The Loss of Main Feed is NOT one of those cases, since SG inventory would quickly be depleted without the removal of steam demand from the Main Turbine. For a loss of feed, the rx is tripped to ensure the only heat being added to the RCS is decay and RCP pump heat, which minimizes the amount of heat removal required from the SG's, and allows AFW system to restore SG inventory. Additionally, AFW pumps will have auto started upon the trip of both SGFPs, so manually starting them is not possible nor required, since the procedure knows they will already be running.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Main Feedwater/Condensate System Abnormalit	S2.OP-AB.CN-0001			26

L.O. Number ABCN01E003

Objectives

Material Required for Examination

Question Source: New **Question Modification Method:** **Used During Training Program** ☐

Question Source Comments

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 17

Given the following conditions:

- Unit 1 is operating at 100% power.
- All 3 Chillers have power, and are operating as expected for temperature conditions.
- 12 chilled water pump is in service.
- A loss of all off-site power occurs.

Which of the following identifies how the loss of off-site power will affect chiller and chilled water pump operation?

_____ Chillers will have their 460V breaker closed by their respective SEC, and _____ Chilled Water Pump(s) will be operating.

a. ALL, 11 and 12.

b. ALL, 12 ONLY.

c. NO, 11 and 12.

d. NO, 12 ONLY.

Answer a | **Exam Level** R | **Cognitive Level** Application | **Facility:** Salem 1 & 2 | **ExamDate:** 9/26/2011

KA: 000056A108 | AA1.08 | **RO Value:** 2.5* | **SRO Value:** 2.5 | **Section:** EPE | **RO Group:** 1 | **SRO Group:** 1 | 55.43 ☐

System/Evolution Title Loss of Off-Site Power | 056

KA Statement: Ability to operate and / or monitor the following as they apply to Loss of Off-Site Power:
HVAC chill water pump and unit

Explanation of Answers: 55.41(7) The SECs will shed then reclose the chiller 460 volt breakers on a MODE II (Blackout) SEC initiation following the EDG start. The SEC will close the Chiller 460V breakers and start both Chilled Water Pumps sequentially to satisfy the Chiller start permissive. This is unlike the ECAC interlock start, where the standby pump (11) starts only if the dedicated pump (12) fails to start.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Chilled Water System Lesson Plan	NOS05CHLWAT		23,34	10
No 1 & 2 Units Control Area AC Chilled Water P	228031			13
Safeguards Emergency Loading Sequence	203668			6

L.O. Number
CHLWATE008

Objectives

Material Required for Examination

Question Source: New | **Question Modification Method:** | **Used During Training Program** ☐

Question Source Comments

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 18

Given the following conditions:

- Unit 2 is operating at 100% power.
- The 125 VDC control power normal supply breaker to the 2E 4KV Group Bus trips.
- Prior to any action being taken in response to this breaker trip, a 200 gpm LOCA occurs.
- Operators respond IAW the EOP network.

Which of the following describes how this 125 VDC breaker failure will affect the mitigation of the LOCA?

a. Operators will have to locally trip 22 RCP breaker at its cubicle to stop forced RCS flow when RCS pressure lowers to 1350 psig in EOP-TRIP-1, Rx Trip or Safety Injection.

b. Operators will not be able to establish/maintain saturated PZR conditions if required in EOP-LOCA-2, Post LOCA Cooldown and Depressurization.

c. Operators will be required to adjust AFW flow to 22 SG lower than that supplied to the remaining 3 SGs in EOP-TRIP-1.

d. Operators will not be able to restore normal charging and letdown in EOP-LOCA-2.

Answer	c	Exam Level	R	Cognitive Level	Application	Facility:	Salem 1 & 2	ExamDate:	9/26/2011

KA:	000058G406	2.4.6	RO Value:	3.7	SRO Value:	4.7	Section:	EPE	RO Group:	1	SRO Group:	1	55.43	☐

System/Evolution Title	Loss of DC Power	058

KA Statement: Knowledge of EOP mitigation strategies.

Explanation of Answers: 55.41(10,4) Control power for operation of 4KV busses is supplied from the 125VDC system. A normal and emergency supply are provided, and must be manually transferred when the emergency supply is required. The 125VDC control power supplies power to the TRIP coils of the 4KV breakers, and the breaker cannot trip without that power. However, the 4KV group buses are supplied from the APT (Main Generator output) when the unit is operating at 100% power. The same lack of control power will prevent the 4KV Group Bus infeed breaker from tripping. With this breaker shut, the alternate power supply breaker from Station Power cannot shut, and the bus will become deenergized. This will cause 22 RCP to have no power, even though its 4KV breaker remains shut. Loss of forced flow in a RC loop cause less heat transfer in that loop, requiring less AFW flow to supply less steam flow. Distracter A is incorrect because forced flow has already been lost in 22 RC loop AND RCS pressure will not lower to 1350 requiring all RCPs to be tripped. B is incorrect because PZR heater busses are powered from E AND G 460V buses, and 1 group of backup heaters remains available if required for PZR heatup to saturation. D is incorrect because letdown is not restored in LOCA-2, although normal charging is. This is plausible if the correlation between PZR heaters/level/letdown is confused.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
2 Unit 125 VDC One Line	223720			33
Rx Trip or Safety Injection	EOP-TRIP-1			27
Post LOCA Cooldown and Depressurization	EOP-LOCA-2			25

L.O. Number	Objectives
DCELECE007	

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 19

The operating crew has entered S2.OP-AB.RAD-0001, Abnormal Radiation, due to RMS alarms on the plant vent. Operators have shifted both the Auxiliary Building and Fuel Handling Building Ventilation controls to HEPA PLUS CHARCOAL IAW their respective procedures.

Which statement describes the change, if any, in the release rate resulting from shifting the ventilation systems, if the problem is a stuck open relief valve on a Waste Gas Decay Tank (WGDT)?

a. None – the WGDT relief valves discharge to the plant vent.

b. The release rate is reduced by passing through the Auxiliary Building Ventilation System.

c. The release rate is reduced by passing through the Fuel Handling Building Ventilation System.

d. None – the WGDT relief valves discharge to the Auxiliary Building Ventilation exhaust fan suction plenum.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
a	R	Comprehension	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:	
000060K202	AK2.02	2.7	3.1	EPE	2	2	55.43

System/Evolution Title Accidental Gaseous Radwaste Release 060

KA Statement: Knowledge of the interrelations between Accidental Gaseous Radwaste Release and the following:
Auxiliary building ventilation system

Explanation of Answers: 55.41(13) The WGDT relief valves (205340 sheet 2, E-7) combine into a single header and go to (205322 sheet 1, G-3), which is the FHB Ventilation exhaust downstream of the exhaust fans. It then flows to the plant vent (205337 sheet 1, G-11 into the plant vent release point.
A – Release is detected by Plant Vent Monitors but does not pass through ventilation (B), (C), (D) Flowpath is not through filters nor would the filters be effective on the noble gases.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Waste Disposal - Gas	205340-2			36
Aux Bldg, EDG Room, and Fuel Handling Bldg v	205322-1			25
Auxiliary building Ventilation	205337-1			40

L.O. Number
ABRAD1E004

Objectives

Material Required for Examination

Question Source: Facility Exam Bank **Question Modification Method:** Direct From Source **Used During Training Program**

Question Source Comments Q78133

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 20

Given the following conditions:

- Unit 2 is operating at 65% power.
- 21 Charging pump is in service.
- #4 SW Bay has been isolated due to a bay leak IAW S2.OP-AB.SW-0003, Service Water Bay Leak.
- All #2 SW Bay pumps trip.

Which of the following describes an action that will be performed in S2.OP-AB.SW-0005, Loss of All Service Water, and why?

a. Isolate CVCS letdown. This prevents resin damage in the CVCS demineralizers when letdown temperature exceeds 136°.

b. Isolate CVCS letdown. This prevents heating of the fluid in the VCT to a temperature which will cause a loss of NPSH to the charging pumps.

c. Swap charging to 23 charging pump if it is available. This reduces the heat load on the CCW system and extends the time available to perform a controlled shutdown of the plant.

d. Swap charging to 23 charging pump if it is available. This maintains seal injection flow to the RCPs, which allows sufficient time to install temporary cooling hoses to centrifugal charging pumps prior to RCP seal temps rising >225 °.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
d	R	Memory	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:	
000062A206	AA2.06	2.8*	3.1*	EPE	1	1	55.43 ☐

System/Evolution Title Loss of Nuclear Service Water 062

KA Statement: Ability to determine and interpret the following as they apply to Loss of Nuclear Service Water:
The length of time after the loss of SWS flow to a component before that component may be damaged

Explanation of Answers: 55.41(10, 6,7) A and B are incorrect because while letdown is isolated, it is to minimize the heat input to the CCW system to prolong cooling to the Thermal Barriers and RCP seals. The CVCS demineralizers are automatically bypassed on high temperature at 136°F. C is incorrect because a swap to the PDP is made since it is cooled by CCW, and an immediate action in AB.SW-005 is to trip the Rx, there will be no controlled shutdown. D is correct because the basis document states that the transfer to the Positive Displacement pump is made because the PDP is cooled by CCW, not SW. This means seal injection flow should be able to be maintained by the PDP until temporary cooling hoses to the CCP's can be installed from the DM system.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Loss of All Service Water	S2.OP-AB.SW-0005			4

L.O. Number
ABSW04E004

Objectives

Material Required for Examination

Question Source: New **Question Modification Method:** **Used During Training Program** ☐

Question Source Comments

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 21

Given the following conditions:

- Unit 2 is in MODE 3, NOT and NOP.
- A total loss of all Control Air occurs.

Which of the following describes the basis for transferring the charging pump suction to the RWST IAW S2.OP-AB.CA-0001, Loss of Control Air?

a. The RCS must be borated to CSD conditions, and RWST water is at a higher concentration than the VCT, so boron will be added to RCS at a faster rate.

b. If a centrifugal charging pump is running, its recirc line back to the VCT will short circuit any boron addition and raise the time required to achieve CSD boron concentration.

c. CVCS letdown will be isolated, and VCT makeup is unavailable. This would cause a rapid depletion of VCT level and subsequent air induction to the CVCS charging header.

d. If the positive displacement charging pump is running, the minimum flow supplied at the low speed stop would not match the flow lost to the RCDT from the seal return relief valve lifting, and RCS inventory will be lost.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
a	R	Memory	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:	
000065K308	AK3.08	3.7	3.9	EPE	1	1	55.43 ☐

System/Evolution Title Loss of Instrument Air 065

KA Statement: Knowledge of the reasons for the following responses as they apply to Loss of Instrument Air:
Actions contained in EOP for loss of instrument air

Explanation of Answers: 55.41(10) AB.CA basis document states, "Prior to commencing a cooldown, the RCS must be borated to cold shutdown conditions. Without Control Air, there is no way to reduce RCS inventory. Thus, the amount of boron that can be added before the cooldown commences will depend on the available space in the PZR. Due to the slow rise in level, this may become limiting. Therefore, the charging pump suction is transferred to the RWST early in the event. This ensures that any addition to the RCS is at RWST concentration. C is incorrect because the charging pump suction will auto swap (MOV's) to the RWST on lo lo level in the VCT. B is incorrect because while the recirc line does go back to the VCT, it is not the basis for the transfer. D is incorrect because seal return is not isolated on loss of air.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Loss of Control Air	S2.OP-AB.CA-0001			16

L.O. Number
ABCA01E002

Objectives

Material Required for Examination

Question Source: Previous 2 NRC Exams **Question Modification Method:** Direct From Source **Used During Training Program** ☐

Question Source Comments "J" ILOT RO NRC Exam August 2008

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 22

Given the following conditions:

- The Unit 2 operating crew is responding to an Inadequate Core Cooling condition IAW 2-EOP-FRCC-1, Response to Inadequate Core Cooling.
- The crew is unable to re-initiate ECCS flow.
- All SG WR levels are ~5%.
- NO AFW pumps can be started.
- All core exit thermocouples indicate >1200F.

Prior to opening the PZR PORVs in an attempt to lower CET temperatures, how should RCPs be utilized?

a. RCPs will NOT be started since possible rupture of hot SG tubes could occur .

b. RCPs will NOT be started at this point since they are required later in the procedure.

c. Start ONLY one RCP in any RCS loop. Continue operation of ONLY one RCP until core exit thermocouples are less than 1200 deg.

d. Start one RCP in an available RCS loop. If core exit thermocouples remain > 1200F, start another RCP in an available loop. Continue until all available RCPs are running or CETs are <1200 deg.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
a	R	Memory	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:	
000074K201	EK2.01	3.6	3.8	EPE	2	2	55.43 ☐

System/Evolution Title Inadequate Core Cooling 074

KA Statement: Knowledge of the interrelations between Inadequate Core Cooling and the following:
RCP

Explanation of Answers: 55.41(10) With SG WR levels at ~5%, there is no secondary heat sink. At step 13/14 of FRCC-1, no SG level and no AFW flow directs operators to step 23. Step 25 caution states that RCP's are only to be started in loops with SG NR levels >9%, of which there are none. No RCPs can be started. It is NOT because that they will be needed later in procedure.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Response to Inadequate Core Cooling	2-EOP-FRCC-1			22

L.O. Number | **Objectives**

FRCC00E002

Material Required for Examination

Question Source: Facility Exam Bank **Question Modification Method:** Editorially Modified **Used During Training Program** ☐

Question Source Comments VISION Q 73445. Choices modified to remove extraneous info. Removed RVLIS level in stem. Added AFW pp status and SG WR levels in stem.

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 23

A small break LOCA has occurred on Unit 2. The actions of 2-EOP-LOCA-2, Post-LOCA Cooldown and Depressurization are being performed. With ONE Charging Pump and ONE SI Pump running, PZR level is stabilized at RCS pressure of 900 psig. With RCS subcooling at 9°F, the operator turns on a set of backup heaters.

Which of the following describes the result of turning on the backup heaters?

Break flow____. ECCS flow____.

a. rises. rises.

b. rises. lowers.

c. lowers. rises.

d. lowers. lowers.

Answer	b	Exam Level	R	Cognitive Level	Comprehension	Facility:	Salem 1 & 2	ExamDate:	9/26/2011

KA:	00WE03K101	EK1.1	RO Value:	3.4	SRO Value:	4.0	Section:	EPE	RO Group:	2	SRO Group:	2	55.43	☐

System/Evolution Title LOCA Cooldown and Depressurization E03

KA Statement: Knowledge of the operational implications of the following concepts as they apply to LOCA Cooldown and Depressurization: Components, capacity, and function of emergency systems.

Explanation of Answers: 55.41(8,5) With subcooling indicated in stem, turning on the PZR heaters will cause PZR pressure to rise. Increased pressure will cause break flow to rise, and ECCS flow will lower as the pumps have to pump against a higher head.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Post-LOCA Cooldown and Depressurization	2-EOP-LOCA-2			25

L.O. Number

LOCA02E005

Objectives

Material Required for Examination

Question Source: Facility Exam Bank **Question Modification Method:** Editorially Modified **Used During Training Program** ☐

Question Source Comments Vision Q73852

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 24

Given the following conditions:

- Unit 2 is attempting to identify and isolate a LOCA outside containment.
- 2-EOP-LOCA-6, LOCA Outside Containment, has just been entered.
- The source of the water is backleakage from the 23 cold leg injection line.

Assuming that any valves required to be operated during LOCA-6 operate correctly, which of the following leak locations would NOT be isolated while using 2-EOP-LOCA-6?

a. On the valve inlet flange on 22SJ49, RHR DISCH TO COLD LEGS.

b. On the valve outlet flange on 21SJ49, RHR DISCH TO COLD LEGS.

c. Between the 2RH20, RHR HX BYP VALVE and the 2RH26, HOT LEG ISOL VALVE.

d. Between the 2RH2, RHR COMMON SUCT VALVE, and 22RH4, RHR PMP SUCT VALVE.

Answer	b	Exam Level	R	Cognitive Level	Comprehension	Facility:	Salem 1 & 2	ExamDate:	9/26/2011

KA:	00WE04A102	EA1.2	RO Value:	3.6	SRO Value:	3.8	Section:	EPE	RO Group:	1	SRO Group:	1	55.43	☐

System/Evolution Title	LOCA Outside Containment	E04

KA Statement:	Ability to operate and / or monitor the following as they apply to LOCA Outside Containment: Operating behavior characteristics of the facility.

Explanation of Answers:	55.41(3,8) 2-EOP-LOCA-6 closes/checks closed the following valves: 2RH1 OR 2RH2, 21 and 22RH19s, 2RH26, 21 and 22SJ49s. Using drawing 205332-SIMP, it shows that any leak between the RH1/2 and the SJ49s will be isolated with the above valves closed. The only location which wouldn't be affected by those valve being closed in the downstream/outlet side of the SJ49 valves. The stem statement of proper valve operation was inserted to preclude a candidate from assuming a leaking valve may not close fully when operated.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
LOCA Outside Containment	2-EOP-LOCA-6			
RHR Simplified Drawing	205332-SIMP			2

L.O. Number	Objectives
LOCA06E005	

Material Required for Examination					
Question Source:	Facility Exam Bank	Question Modification Method:	Direct From Source	Used During Training Program	☐

Question Source Comments	J-ROC21

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 25

Given the following conditions:

- Unit 1 has experienced a LBLOCA.
- 11 RHR pump is C/T electrically by it's 4KV breaker only.
- RWST level is 14.8', and operators are performing 1-EOP-LOCA-3, Transfer to Cold Leg Recirculation.

Which of the following conditions will prevent transfer to CL recirc, and cause the crew to go to 1-EOP-LOCA-5, Loss of Emergency Recirculation?

a. 12SJ44, Cont Sump Suct Valve, does NOT open when its Sump Auto Arm PB is depressed.

b. 1RP4 Lockout Switch for 12RH4, RHR Pump Suction, is stuck in "Locked Out" position.

c. 12SJ44 open PB is depressed before the 12RH4 close PB is depressed.

d. 12RH4 can NOT be closed from control room OR locally.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
d	R	Application	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:	55.43
00WE11K201	EK2.1	3.6	3.9	EPE	1	1	☐

System/Evolution Title Loss of Emergency Coolant Recirculation E11

KA Statement: Knowledge of the interrelations between Loss of Emergency Coolant Recirculation and the following:
Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Explanation of Answers: A is incorrect because Unit 1 SJ44 valves do not have auto swap function like unit 2 has. C is incorrect because the close signal will remain to the SJ44 even though it is interlocked to not open until the RH4 is shut, and there is no lockout to prevent it opening. B is incorrect because there is no lockout switch for RH4s on RP5. D is correct because if the 12RH4 cannot be closed, the 12SJ44 cannot be opened, and recirc cannot be established, and procedure directs transition to LOCA-5.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Transfer to Cold Leg Recirculation	1-EOP-LOCA-3			28
No. 1 Unit 12SJ44, 12RH4, and 1RH1	211507-1			35

L.O. Number
LCA3U1E004
RHR000E006

Objectives

Material Required for Examination

Question Source: Facility Exam Bank **Question Modification Method:** Editorially Modified **Used During Training Program** ☐

Question Source Comments Vision Q122456, removed step number from distracter C since it is a non-existent step

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 26

Given the following conditions:

- Unit 2 has experienced an event which has resulted in 24 SG pressure rising to 1115 psig.
- A MSLI has been performed.

How many SG Safety Valves will be open on 24 SG if pressure remains at 1115 psig, and all safety valves operate when expected?

a. 5

b. 4

c. 3

d. 2

Answer	c	Exam Level	R	Cognitive Level	Memory	Facility:	Salem 1 & 2	ExamDate:	9/26/2011

KA:	00WE13A102	EA1.2	RO Value:	3.0	SRO Value:	3.2	Section:	EPE	RO Group:	2	SRO Group:	2	55.43 ☐

System/Evolution Title Steam Generator Overpressure E13

KA Statement: Ability to operate and / or monitor the following as they apply to Steam Generator Overpressure:
Operating behavior characteristics of the facility.

Explanation of Answers: 55.41(4,7) Each SG has 5 safeties, with lift setpoints of 1070, 1100, 1110, 1120, and 1125 psig.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Main, Reheat, and Turbine Bypass Steam	205303-2			61

L.O. Number

FRHS00E009

STMGENE008

Objectives

Material Required for Examination

Question Source: New **Question Modification Method:** **Used During Training Program** ☐

Question Source Comments

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 27

Given the following conditions:

- Salem Unit 2 experienced a LOCA with failed fuel.
- Containment pressure peaked at 18 psig, and is currently 3 psig and slowly lowering.
- Containment radiation level is 1.1 E5 R/hr and rising very slowly.
- The TSC has not given the control room any direction on use of Adverse numbers while in the EOPs.

Which of the following describes how containment conditions will affect use of "Adverse" numbers while in the EOP's?

Adverse numbers ____ in effect because ____.

a. ARE; containment pressure rose above 4 psig.

b. ARE; radiation levels have reached their threshold.

c. ARE NOT; the TSC has not provided any direction yet.

d. ARE NOT; they reset on lowering containment pressure and the radiation threshold has not been reached.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
b	R	Comprehension	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:	
00WE16A202	EA2.2	3.0	3.3	EPE	2	2	55.43 ☐

System/Evolution Title High Containment Radiation E16

KA Statement: Ability to determine and interpret the following as they apply to High Containment Radiation:
Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments.

Explanation of Answers: 55.41(9,12,10) Adverse containment numbers are used when containment pressure reaches 4 psig or containment radiation level reaches 1E5 R/hr. The Adverse condition resets when containment pressure lowers less than 4 psig, but does NOT reset on high radiation. The conditions in stem are such that Adverse numbers have are in effect based on the containment radiation threshold being exceeded.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Use of Procedures	OP-AA-101-111-1003			3

L.O. Number | **Objectives**

PROCEDE004

Material Required for Examination

Question Source: New **Question Modification Method:** **Used During Training Program** ☐

Question Source Comments Similar to NRC Exam questions from Sept 2001 Cook exam, Nov. 2002 Salem exam, Dec 2002 Beaver Valley exam.

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 28

Given the following conditions:

- Unit 2 is operating at 100% power.
- A failure in the automatic Rod Control circuit cause Bank D Control rods to step in at 72 steps per minute.
- Control rods insert 20 steps before the RO places rod control in manual and rod motion stops.

Which of the following describes the effect of the rod insertion with NO other operator action?

a. OHA E-8, ROD INSERT LMT LO will annunciate.

b. Main Generator MW load will lower and remain lower.

c. RCS pressure will lower and PZR Spray Valves will shut.

d. RCS temperature will lower to the RC Loops Tavg-Tref Deviation alarm setpoint of 1.5°F.

Answer	c	Exam Level	R	Cognitive Level	Application	Facility:	Salem 1 & 2	ExamDate:	9/26/2011

KA:	001000K302	K3.02	RO Value:	3.4*	SRO Value:	3.5	Section:	SYS	RO Group:	2	SRO Group:	2	55.43	☐

System/Evolution Title	Control Rod Drive System	001

KA Statement: Knowledge of the effect that a loss or malfunction of the Control Rod Drive System will have on the following:
RCS

Explanation of Answers: 55.41(5) A is incorrect because the RIL for 100% power is ~170 steps on Bank D, so 20 steps of insertion from 230 steps (ARO) will not cause this alarm. B is incorrect because Main Generator load will lower due to lower steam pressure, but it will not remain lower since the Governor valves will automatically open to restore Turbine Steamline pressure to the value corresponding to 100% power. C is correct because the rod insertion will cause a lowering of RCS pressure sufficient to full close the Spray valves, which are normally ~ 6% open due to maintaining one group of PZR B/U heaters in manual ON. D is incorrect because while temperature will lower, the setpoint of 1.5°F is wrong. 1.5° low Tavg=Tref is when auto rod outward motion would occur.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Continuous Rod Motion	S2.OP-AB.ROD-0003			21
Overhead Annunciator Window E	S2.OP-AR.ZZ-0005		11	19
Control Console CC2	S2.OP-AR.ZZ-0012		36	35

L.O. Number
ABROD3E003
RODS00E019

Objectives

Material Required for Examination

Question Source: New **Question Modification Method:** **Used During Training Program** ☐

Question Source Comments

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 29

Given the following conditions:

- Unit 2 was operating at 100% power when a 500 KV grid disturbance caused a Rx trip.
- 2H 4KV Group bus deenergized upon the Rx trip.
- 21 AFW tripped immediately upon starting.
- SGBD flow is zero to all SGs.
- All radiation monitors indicate as expected following a Rx trip.

During performance of EOP-TRIP-2, Reactor Trip Response, the RO reports that 21 SG NR level is 8% higher than the other 3 steam generators.

Which of the following identifies what has occurred?

a. A tube rupture has occurred on 21 SG.

b. Loss of 23 MAC Panel has caused SGFPs to supply uneven feed flow to the SGs.

c. 21 SG is steaming less than the other generators since its RCP is no longer running.

d. The loss of 21 AFW pump has caused Pressure Override Protection circuit activation on 22 AFW pump.

Answer	c	Exam Level	R	Cognitive Level	Comprehension	Facility:	Salem 1 & 2	ExamDate:	9/26/2011

KA:	003000K302	K3.02	RO Value:	3.5	SRO Value:	3.8	Section:	SYS	RO Group:	1	SRO Group:	1	55.43	☐

System/Evolution Title Reactor Coolant Pump System 003

KA Statement: Knowledge of the effect that a loss or malfunction of the Reactor Coolant Pump System will have on the following:
S/G

Explanation of Answers: 55.41(5) The loss of 2H bus, which supplies power to 21 RCP, will cause the steaming rate in that SG to go down. With AFW flow the same to all SGs, the level in 21 SG will rise markedly, as it will not be steaming. A tube rupture would be indicated if there were no other reason for the level rise, as the diagnostic step asks if SG NR level is rising uncontrollably. In this instance, it is not uncontrolled, since it is the natural reaction of the reduced steaming rate. SGBD flow was included in the stem to lend support to the SGTR distracter if the candidate does not realize the AFW pump auto start isolated blowdown. 23 MAC panel is powered from a different Group bus, and SGFP flow has been isolated by FWI at 554° Tavg following the trip anyway. The pressure override circuit only affects 2 SGs, in this case 21 and 22, and would be seen equally on each SG, and in the opposite direction since it acts to reduce flow to raise discharge pressure.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
1 Unit 4160V Buses One Line	203001			31

L.O. Number
RCPUMPE016

Objectives

Material Required for Examination

Question Source: New **Question Modification Method:** **Used During Training Program** ☐

Question Source Comments

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 30

Given the following conditions:

- Unit 2 is operating at 100% power.
- 2CC190, RCP THERM BAR CC OUTLET V, fails shut.

Which one of the following describes the effect on RCP temperatures, if any, as a result of this failure?

ALL RCP...

a. lower motor bearing temperatures will rise.

b. motor winding temperatures will rise.

c. #1 seal leakoff temperatures will rise.

d. bearing temperatures will remain the same.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
d	R	Application	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:	
003000K604	K6.04	2.8	3.1	SYS	1	1	55.43 ☐

System/Evolution Title Reactor Coolant Pump System 003

KA Statement: Knowledge of the of the effect of a loss or malfunction on the following will have on the Reactor Coolant Pump System:
Containment isolation valves affecting RCP operation

Explanation of Answers: 55.41(3) The CCW line supplying the RCPs is a single line supplying both bearing cooling and Thermal Barrier cooling. Once the line inside containment splits, the CCW from the Thermal Barriers has its own, separate return line, which is isolated by the 2CC190 (inside containment) and 2CC131 (outside containment.) The Thermal Barrier CCW flow acts to cool reactor coolant flowing upwards through the thermal barrier upon a loss of seal injection flow. With normal seal injection, the loss of CCW to the thermal barrier would not affect any RCP components.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Unit 2 Component Cooling	205331-3			35

L.O. Number

RCPUMPE004

RCPUMPE015

RCPUMPE016

Objectives

Material Required for Examination

Question Source: Facility Exam Bank **Question Modification Method:** Direct From Source **Used During Training Program** ☐

Question Source Comments J-ROC30

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 31

Which of the following would have the SMALLEST effect on CCW system heat load?

a. Terminating RHR during a plant heatup.

b. Starting a RCP in MODE 4 while on RHR Shutdown Cooling.

c. 1CV277, Letdown Isolation fails shut with normal letdown in service in MODE 2.

d. 1CV132, Excess Letdown FCV fails shut with Excess Letdown in service at maximum flow in MODE 4.

Answer	d	Exam Level	R	Cognitive Level	Application	Facility:	Salem 1 & 2	ExamDate:	9/26/2011

KA:	004000K629	K6.29	RO Value:	2.7	SRO Value:	3.1	Section:	SYS	RO Group:	1	SRO Group:	1	55.43	☐

System/Evolution Title	Chemical and Volume Control System	004

KA Statement: Knowledge of the of the effect of a loss or malfunction on the following will have on the Chemical and Volume Control System:
Reason for excess letdown and its relationship to CCWS

Explanation of Answers: 55.41(3,5) The K/A match for this was difficult as it seems to be asking for two different things which would make a very long question. Incorporated both the "effect of the malfunction" although there isn't a malfunction listed, of an Excess Letdown (CVCS) malfunction and its effect on the CCW system. B is incorrect because the RCP pump heat is a large load on the RHR system AND cooling load on the CCW system (bearing and winding coolers). C is incorrect because normal letdown flow is 75 gpm, and its loss would be seen as less than the (max) 32 gpm Excess letdown flow loss. A is incorrect because it would have a large effect on total heat load.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Chemical and Volume Control	205228-2			81
Component Cooling Water	205231-1,2,3			66,44,45

L.O. Number
CVCS00E015

Objectives

Material Required for Examination

Question Source: New | **Question Modification Method:** | **Used During Training Program** ☐

Question Source Comments

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 32

Given the following conditions:

- Unit 2 is operating at 100% power.
- 21 RHR pump is C/T to repair an oil leak.
- 22 SG Main Steamline ruptures in containment.
- The crew trips the Rx, initiates a MSLI, and initiates a Safety Injection.

30 minutes after the Rx was tripped, which of the following locked in alarms would be consistent with plant conditions?

a. OHA E-5, SR DET VOLT TRBL.

b. OHA C-5, 21 CFCU WTRFLO TRBL.

c. Console alarm RWST CH III (IV) LEVEL LO.

d. Console alarm CCW OUTLET FLOW LO for 21 RHR HX.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
d	R	Comprehension	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:	
005000G446	2.4.46	4.2	4.2	SYS	1	1	55.43 ☐

System/Evolution Title Residual Heat Removal System 005

KA Statement: Ability to verify that the alarms are consistent with the plant conditions.

Explanation of Answers: 55.41(7,10) D is correct because the CCW lo flow alarm would be present since the RHR HX CCW flow isolation valve CC16 will be shut, so the CCW lo flow alarm will be locked in, as it normally is. A is incorrect because the SR will energize 20 minutes following a trip. E-5 would be in alarm until the SR energized, then clear. B is incorrect because it indicates the CFCU is running in low speed, which it would be following a SEC signal. C is incorrect because RWST level will not be at 15.2' when the initiating casualty is a single SG blowing down in containment.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Overhead Annunciator Window E	S2.OP-AR.ZZ-0005			19
Control Console 2CC1	S2.OP-AR.ZZ-0011			57

L.O. Number

RHR000E008

Objectives

Material Required for Examination

Question Source: New **Question Modification Method:** **Used During Training Program** ☐

Question Source Comments

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 33

Under which of the following Unit 2 conditions would an automatic start of the standby CCW pump be expected?

a. RWST level reaches 15.2' while during a LOCA.

b. SW system pumps in service are reduced from 3 to 2.

c. CCW system is split during operations in the EOP network.

d. 2RH20, BYPASS VALVE is opened to raise total RHR system flow with 21 RHR loop operating in Shutdown Cooling mode.

Answer	a	Exam Level	R	Cognitive Level	Application	Facility:	Salem 1 & 2	ExamDate:	9/26/2011

KA:	005000K101	K1.01	RO Value:	3.2	SRO Value:	3.4	Section:	SYS	RO Group:	1	SRO Group:	1	55.43	☐

System/Evolution Title	Residual Heat Removal System	005

KA Statement: Knowledge of the physical connections and/or cause-effect relationships between Residual Heat Removal System and the following:
CCWS

Explanation of Answers: 55.41(7) At 15.2' RWST level on Unit 2, the 21 and 22CC16 valves will automatically open in anticipation of placing the RCS on clod leg recirc. The large (~8,000) gpm additional CCW flow required will auto start the CCW pump in auto. By the time this level is reached, the SI signal would have been reset, restoring automatic operation of the pumps auto start circuit at 70 psig system pressure. B is incorrect but plausible if the reduced SW flow were though to have a large impact on CCW system parameters. The CCW flow would remain the same through the CCW HX's, and automatic SW valves would open to maintain SW system flow through CCHX. C is incorrect because the splitting of CCW system headers in LOCA-3 occurs after the transfer to CLR has been performed, and does not add to system flow nor reduce system pressure. D is incorrect because operation of the RH20 increases the flow bypassing the RHR HX, so there would be less cooling required, and would not cause system pressure to lower.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Transfer to Cold Leg Recirculation	EOP-LOCA-3			29

L.O. Number
CCW000E008
RHR000E008

Objectives

Material Required for Examination

Question Source:	New	Question Modification Method:		Used During Training Program	☐

Question Source Comments

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 34

Given the following conditions:

- During a SBLOCA in MODE 1, a Safety Injection signal is actuated successfully.
- RCS pressure is 2,000 psig and lowering slowly.

Which of the following describes how the Safety Injection pumps are prevented from overheating?

a. A portion of discharge flow is recirculated back to the RWST.

b. Injection flow from the RWST into the RCS passes through the pump.

c. Injection flow from the RWST into the RHR system passes through the pump.

d. A small portion of discharge flow is recirculated to the suction of the pump through a Recirculation Flow HX.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
a	R	Application	Salem 1 & 2	9/26/2011

KA:	RO Value:	SRO Value:	Section:	RO Group:	SRO Group:	
006000K406 K4.06	2.7	3.1	SYS	1	1	55.43 ☐

System/Evolution Title Emergency Core Cooling System 006

KA Statement: Knowledge of Emergency Core Cooling System design feature(s) and or interlock(s) which provide for the following:
Recirculation of minimum flow through pumps

Explanation of Answers: 55.41(8) Each SI pump has an orificed 1 1/2" line off its pump discharge piping, which connect into a common 2" line. The common line passes through 2 normally open and deactivated MOVs (SJ67 and SJ68) and return to the RWST. The flow through the pump cools it until the shutoff head for the SI pumps ~1560 psig is reaches as RCS pressure lowers during the LOCA. B is incorrect but plausible if the 2,000 psig condition in the stem is ignored, as it is the normal flowpath when RCS pressure lowers to shutoff head of the pumps. C is incorrect but plausible if injection flowpath is thought to join the RHR injection flow path, as it is where ECCS accumulators also join RHR system into RCS cold legs. D is incorrect but plausible, since there is no recirculation cooler, but other pumps (specifically AFW) have recirculation coolers.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Unit 2 Safety Injection	205334-1			58
ECCS Simplified Drawing	205350-SIMP			4

L.O. Number
ECCS00E008

Objectives

Material Required for Examination

Question Source: New **Question Modification Method:** **Used During Training Program** ☐

Question Source Comments

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 35

Which of the following relief valves lifting would cause a rise in Pressurizer Relief Tank temperature or level?

a. RHR HX outlet.

b. SI pump discharge.

c. Seal Water Return line.

d. Containment Spray Pump discharge.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
c	R	Memory	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:	
007000A301	A3.01	2.7*	2.9	SYS	1	1	55.43 ☐

System/Evolution Title Pressurizer Relief Tank/Quench Tank System | 007

KA Statement: Ability to monitor automatic operations of the Pressurizer Relief Tank/Quench Tank System including:
Components which discharge to the PRT

Explanation of Answers: 55.41(3) The 3 distracters are components which used to be directed to the PRT but were re-routed to the containment trench during a DCP.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
No 2 Unit Reactor Coolant	205301-1			59

L.O. Number

Objectives

PZRPRTE008

PZRPRTE003

Material Required for Examination

Question Source: Facility Exam Bank | **Question Modification Method:** Significantly Modified | **Used During Training Program** ☐

Question Source Comments Vision Q61390, inputs to PRT, changed correct answer and all distracters.

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 36

Given the following conditions:

- Unit 2 is operating at 65% power.
- An intersystem leak develops between the CCW system and the Spent Fuel Pool Heat Exchanger.
- CCW Console Alarm SURGE TANK LEVEL HI-LO alarms on 2CC1.

Which of the following describes the action required IAW S2.OP-AR.ZZ-0011 Control Console 2CC1?

a. Open local valves 2CC145 OR 2CC146, CC M/U VALVES to restore CC surge tank level.

b. Open 2DR107, MAKE UP TO CC SURGE TANK from the Control Room to restore CC surge tank level.

c. Close 2CC149 CC SURGE TK VENT to prevent CCW from being introduced into the ventilation system.

d. Drain the CCW surge tank from local drain valve to a 55 gallon drum to prevent overflowing tank to the in-service WHUT.

Answer	b	Exam Level	R	Cognitive Level	Application	Facility:	Salem 1 & 2	ExamDate:	9/26/2011

KA:	008000K408	K4.08	RO Value:	2.9	SRO Value:	2.7	Section:	SYS	RO Group:	1	SRO Group:	1	55.43	☐

System/Evolution Title	Component Cooling Water System	008

KA Statement: Knowledge of Component Cooling Water System design feature(s) and or interlock(s) which provide for the following:
Operation of the surge tank, including the associated valves and controls

Explanation of Answers: 55.41(7,8) The first thing that must be deduced is which way the leak will go. In this case, the SFP HX will be at a lower pressure than the CCW system, so the leak will be OUT of the CCW system. This causes surge tank level to go DOWN. The second part of the question requires the operator to know that CCW surge tank makeup is performed from the control console by opening the M/U valve. The local manual valves are normally aligned with one of them open so that remote operation can fill the CCW surge tank. Actual K/A is K4.02 not 4.08. Wording is correct for 4.02, and that's what sample plan says.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Component Cooling Water	205331-1			52
Control Console 2CC1	S2.OP-AR.ZZ-0011			57

L.O. Number
CCW000E008
CCW000E012

Objectives

Material Required for Examination

Question Source:	Facility Exam Bank	Question Modification Method:	Direct From Source	Used During Training Program	☐

Question Source Comments VISION Q50370

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 37

Given the following conditions:

- Unit 2 was operating at 75% power.
- Both pressurizer PORV block valves (2PR6 and 2PR7) have been closed for several weeks due to seat leakage past the PORVs (2PR1 and 2PR2).
- The PORVs are being maintained in MANUAL, with ALL Tech Spec required actions for the leaks complete.
- Plant conditions develop which required a shutdown and depressurization.
- RCS pressure is being maintained at 800 psig due to problems with isolating the SI accumulators.
- The RCS cooldown continues to below 312°F.

Which of the following describes the effect if the operator were to arm the Pressurizer Overpressure Protection System (POPS) under these conditions?

a. 2PR6 and 2PR7 would OPEN; 2PR1 and 2PR2 would OPEN

b. 2PR6 and 2PR7 would OPEN; 2PR1 and 2PR2 would remain CLOSED

c. 2PR6 and 2PR7 would remain CLOSED; 2PR1 and 2PR2 would OPEN

d. 2PR6 and 2PR7 would remain CLOSED; 2PR1 and 2PR2 would remain CLOSED

Answer a | **Exam Level** R | **Cognitive Level** Application | **Facility:** Salem 1 & 2 | **ExamDate:** 9/26/2011

KA: 010000A403 | A4.03 | **RO Value:** 4.0 | **SRO Value:** 3.8 | **Section:** SYS | **RO Group:** 1 | **SRO Group:** 1 | 55.43 ☐

System/Evolution Title Pressurizer Pressure Control System | 010

KA Statement: Ability to manually operate and/or monitor in the control room:
PORV and block valves

Explanation of Answers: 55.41(7) With pressure above 375 and temperature < 312, arming POPS would cause the PR1,2,5,6 to open, regardless of the MANUAL selected for PR1 and 2.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
PR1,2 PZR PORVs	231357			14

L.O. Number
PZRP&LE006

Objectives

Material Required for Examination

Question Source: Facility Exam Bank | **Question Modification Method:** Direct From Source | **Used During Training Program** ☐

Question Source Comments Vision Q87628

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 38

With Unit 2 operating normally at 100% power, what would be the effect on RCS pressure if the controlling PZR pressure channel instrument were to fail LOW, with no operator action?

RCS pressure will...

a. rise until ONE PORV opens.

b. lower until the Rx trips on OT / DT.

c. lower until the Rx trips on Low PZR pressure.

d. rise until PZR spray valves open further to restore pressure to 2235 psig.

Answer	a	Exam Level	R	Cognitive Level	Application	Facility:	Salem 1 & 2	ExamDate:	9/26/2011

KA:	010000K301	K3.01	RO Value:	3.8	SRO Value:	3.9	Section:	SYS	RO Group:	1	SRO Group:	1	55.43	☐

System/Evolution Title	Pressurizer Pressure Control System	010

KA Statement: Knowledge of the effect that a loss or malfunction of the Pressurizer Pressure Control System will have on the following:
RCS

Explanation of Answers: 55.41(7) PZR pressure controller will see a low pressure condition from the failed instrument. This will cause spray valves to close fully, and all PZR heaters to energize. Actual RCS pressure will rise in response to the heaters being on, and will continue to rise until reaching the PZR PORV setpoint of 2335 psig. Only ONE PORV will open. PORV actuation coincidence is 2/2 channels > 2335. Since one of the channels is failed low, its PORV cannot open. B is incorrect because pressure would rise, but the trip is correct if pressure were to lower. C is incorrect because pressure would rise, and OT/DT would actuate first to trip the Rx. D is incorrect because the spray valves will shut on the channel failure, and be unable to respond to the rising pressure.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Pressurizer Pressure Malfunction	S2.OP-AB.PZR-0001	Attachment 2	22	18

L.O. Number
ABPZR1E001

Objectives

Material Required for Examination

Question Source:	Facility Exam Bank	Question Modification Method:	Editorially Modified	Used During Training Program	☐

Question Source Comments Vision Q80493, replaced two distracters so that all choices did not include rising RCS pressure. Correct answer remains the same.

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 39

For each of the listed PZR heaters, identify their 460V bus power supply.

11 control group _____

11 B/U group NORMAL _____

11 B/U group EMERGENCY _____

12 B/U group NORMAL _____

12 B/U group EMERGENCY _____

a. E, G, C, E, A.

b. G, G, C, E, A.

c. E, E, A, G, C.

d. G, E, A, G, C.

Answer	b	Exam Level	R	Cognitive Level	Memory	Facility:	Salem 1 & 2	ExamDate:	9/26/2011

KA:	011000K202	K2.02	RO Value:	3.1	SRO Value:	3.2	Section:	SYS	RO Group:	2	SRO Group:	2	55.43	☐

System/Evolution Title Pressurizer Level Control System 011

KA Statement: Knowledge of bus power supplies to the following:
PZR heaters

Explanation of Answers: 55.41(3,7)The distracters all contain the possible busses, but in incorrect orders.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
No. 1 Unit 1GP 480V bus PZR heaters controlle	203347-1			13
No 1 Unit Backup Group 11	203348-1			9
No 1 & No 2 Units Group 12/22 backup groups	247992-1			3

L.O. Number
PZRP&LE005

Objectives

Material Required for Examination

Question Source: Facility Exam Bank **Question Modification Method:** Direct From Source **Used During Training Program** ☐

Question Source Comments 0801 C39

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 40

Which of the following identifies why a Safety Injection signal on Unit 2 is reset early in the EOPs after transition out of EOP-TRIP-1, Rx Trip or Safety Injection, following a LOCA?

SI is reset because...

a. the Phase A signal must be reset to allow the ECCS pumps suction valves to be realigned from the RWST to the VCT after SI termination criteria have been met, and Phase A cannot be reset until the SI signal is reset.

b. it allows operators to regain control over plant equipment and prevents any equipment from automatically repositioning when RWST reaches 15.2'.

c. the Phase A signal must be reset to allow sampling of the SGs and RCS, and Phase A cannot be reset until the SI signal is reset.

d. it allows operators to regain control over plant equipment and restore a sustained compressed air supply to containment.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
d	R	Memory	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:	
012000G406	2.4.6	3.7	4.7	SYS	1	1	55.43 ☐

System/Evolution Title Reactor Protection System 012

KA Statement: Knowledge of EOP mitigation strategies.

Explanation of Answers: 55.41(7)The Phase A signal CAN be reset without resetting SI as it has a retentive memory circuit. See Note 10 on 221057. Bases document states that the SI reset function is so that equipment can be aligned, and to restore a sustained, compressed air supply to allow control of air operated equipment in containment (e.g., charging and letdown valves, PZR PORV's, etc.) A is wrong both because the reason and the Phase A reset logic is incorrect. B is incorrect because it does not remove the standing "S" signal which will reposition the SJ113 crossover valves and the CC16 CCHX outlet valves automatically since they are "armed" at power

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Reactor Protection Signal Safeguards actuation	221057			22
Loss of Reactor Coolant Bases Document	2-EOP-LOCA-1		18	28

L.O. Number RXPROTE024

Objectives

Material Required for Examination

Question Source: New **Question Modification Method:** **Used During Training Program** ☐

Question Source Comments

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 41

During a power ascension from an initial power level of 4%, Permissive P-10 does not actuate when expected.

Which of the following describes the effect of this malfunction on the Reactor Protection System if the power ascension were to continue to 14% Rx power?

a. A valid OT/DT signal would NOT trip the Rx.

b. High Steam Flow Safety Injection will remain blocked.

c. A Loss of Off-Site power would NOT initially cause the RPS to trip the Rx.

d. The low power Rx trips could NOT be blocked until P-13 energized during Main Turbine startup.

Answer	c	Exam Level	R	Cognitive Level	Comprehension	Facility:	Salem 1 & 2	ExamDate:	9/26/2011

KA:	012000K406	K4.06	RO Value:	3.2	SRO Value:	3.5	Section:	SYS	RO Group:	1	SRO Group:	1	55.43	☐

System/Evolution Title	Reactor Protection System	012

KA Statement:	Knowledge of Reactor Protection System design feature(s) and or interlock(s) which provide for the following: Automatic or manual enable/disable of RPS trips

Explanation of Answers: 55.41(7) D is incorrect because the low power trips can NOT be blocked until P-10 is actuated. C is correct because the "at power" Rx trips (which are different from the "low power" trips) are not unblocked until P-7 is actuated, which gets its input from either P-10(which is not actuated) or P-13, (which is not actuated because the turbine is not online at 15% power). At 10% power the AFW pumps will have been secured, and while the loss of off site power will cause a loss of the SGFPs, the SGs will not shrink to the lo lo level Rx trip initially. A is incorrect because OT/DT action is always available. B is incorrect because the hi Stm Flo SI is unblocked >543 (P-12.)

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
RPS logic	221053			8
RPS logic	221054			10

L.O. Number

RXPROTE028

RXPROTE027

Objectives

Material Required for Examination

Question Source: Facility Exam Bank **Question Modification Method:** Direct From Source **Used During Training Program** ☐

Question Source Comments 0801 C41

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 42

Given the following conditions:

- Unit 1 Rx power is 8.1%.
- Power is being raised slowly in preparation for rolling the Main Turbine.
- 11 SGFP is in service supplying FW to SGs.
- 12 SGFP is latched and at idle speed.
- ALL AFW pumps are aligned for normal standby operation.

11 SGFP trips.

Which of the following describes the effect, if any, this will have on the AFW pumps with NO operator action?

a. The MDAFW pumps and the TDAFW pump will start when SG levels drop to the lo lo level setpoint.

b. The MDAFW pumps will start when 11 SGFP trips. The TDAFW pump will start when SG levels lower following the Rx trip.

c. ALL AFW pumps will remain in standby. Sufficient steam will be supplied through the 11-14MS18s, MS STOP BYP VALVES to supply 12 SGFP.

d. ALL AFW pumps will remain in standby. 12 SGFP will remain in service since at this power level it is being supplied with steam from the Heating Steam System.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
a	R	Application	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:	
013000A104	A1.04	3.4	3.6	SYS	1	1	55.43 ☐

System/Evolution Title Engineered Safety Features Actuation System 013

KA Statement: Ability to predict and/or monitor changes in parameters associated with operating the Engineered Safety Features Actuation System controls including:
S/G level

Explanation of Answers: 55.41(4,7,8)D is incorrect because the operating SGFP(s) will be placed on Main steam supply prior to exceeding 5% power (IOP-3, step 5.4.10), and 12 SGFP will not provide sufficient discharge pressure at 1100 rpm (idle speed), and the stem states with no operator action so speed will not be raised. A is correct because the MDAFW pumps and TDAFW will start on lo lo level in SGs as the source of FW is lost, and the SGs continue to steam. C is incorrect because the MS18s could provide sufficient steam flow to an operating SGFP at 8% power, but the speed will not rise on 12 SGFP. B is incorrect because the auto start signal for the MDAFW pumps is a trip of BOTH SGFPs.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
RPS AFW Pumps Start Up	221064			8

L.O. Number AFW000E015

Objectives

Material Required for Examination

Question Source: Facility Exam Bank **Question Modification Method:** Editorially Modified **Used During Training Program** ☐

Question Source Comments Vision Q85462. Modified stem from MSLI to trip of operating SGFP with other SGFP latched. Correct answer remains the same. Enhanced distracters.

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 43

Given the following conditions:

- Unit 2 is operating at 4% power during a startup.
- A RCS leak causes PZR pressure and level to lower rapidly.
- The operating crew initiates a Rx trip and Safety Injection.
- When the SI is initiated, a loss of off-site power occurs.

One minute after the loss of off-site power, which of the following describes a condition which indicates a failure of equipment to actuate as expected, if no further operator action is taken?

a. NO CCW pumps are running.

b. 24 SW pump running and 23 SW pump stopped.

c. Charging Systems SI Flowmeter reads 100 gpm.

d. 21 ABV Supply Fan running, 22 ABV Supply Fan NOT running.

Answer c | **Exam Level** R | **Cognitive Level** Comprehension | **Facility:** Salem 1 & 2 | **ExamDate:** 9/26/2011

KA: 013000A401 | A4.01 | **RO Value:** 4.5 | **SRO Value:** 4.8 | **Section:** SYS | **RO Group:** 1 | **SRO Group:** 1 | 55.43 ☐

System/Evolution Title Engineered Safety Features Actuation System | 013

KA Statement: Ability to manually operate and/or monitor in the control room:
ESFAS-initiated equipment which fails to actuate

Explanation of Answers: 55.41(7) CCW pumps are not started during MODE III (Accident plus Blackout). 24 SW pump is designated as the Lead SW pump on B 4KV bus, and only one pump per bus is started. 23 receives power from B bus also. 22 ABV Supply Fan is administratively locked out, and is what causes the B bus sequence not complete to occur on every SI initiation. The Charging systems SI flowmeter is BIT flow. 2 centrifugal charging pumps should have started, and even if RCS pressure were normal, which its not, the flow through the BIT would be significantly higher. Either there is a problem with the flowpath, i.e. SJ12 and SJ13 BIT outlet valves did not stroke full open, or less than 2 charging pumps started. TRIP-1 page 1, and TRIP-2 page 2 flowcharts, page 1, each Table A shows Accident Loads and Blackout loads respectively.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Rx Trip or Safety Injection	2-EOP-TRIP-1		F1	27
Rx Trip Response	2-EOP-TRIP-2		F1	27

L.O. Number
SEC000E004

Objectives

Material Required for Examination

Question Source: New | **Question Modification Method:** | **Used During Training Program** ☐

Question Source Comments

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 44

Given the following conditions:

- Salem Unit 1 is operating at 100% power.
- A small LOCA (300 gpm) occurs, and a Rx trip and Safety Injection are initiated.
- A loss of off-site power occurs when the Main Turbine trips.
- NONE of the CFCUs start in Low Speed.

How will the failure of the CFCUs affect containment instrumentation readings?

Containment _____ will be reading _____ than it would be expected to read with all CFCUs in service

a. Pressure; lower.

b. Radiation; higher.

c. Dew Point; lower.

d. CFCU Leak Detection; higher.

Answer b | **Exam Level** R | **Cognitive Level** Application | **Facility:** Salem 1 & 2 | **ExamDate:** 9/26/2011

KA: 022000K302 | K3.02 | **RO Value:** 3.0 | **SRO Value:** 3.3 | **Section:** SYS | **RO Group:** 1 | **SRO Group:** 1 | 55.43 ☐

System/Evolution Title Containment Cooling System | 022

KA Statement: Knowledge of the effect that a loss or malfunction of the Containment Cooling System will have on the following:
Containment instrumentation readings

Explanation of Answers: 55.41(5,7)The CFCU HEPA filter, which is in service following accident initiation, is designed to remove minute radioactive particulate matter from the atmosphere so that offsite doses do not exceed the limits set by 10CFR100. A is incorrect because the lack of cooling function provided by the CFCU will cause the pressure to rise. C is incorrect because the Dew Point will rise due to higher temperature in containment. D is incorrect because the leak detection system will rise as condensation occurs on its cooling coils during an accident, not lower.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Containment and Support Lesson Plan	NOS05CONTMT			11
Containment Ventilation Operation	S2.OP-SO.CBV-0001			32

L.O. Number
CONTMTE003

Objectives

Material Required for Examination

Question Source: New | **Question Modification Method:** | **Used During Training Program** ☐

Question Source Comments

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 45

Given the following conditions:

- Unit 1 has experienced a LOCA.
- Control room operators have progressed to the point where the SEC has been reset.
- Containment pressure was 4.5 psig when the SECs were reset.

Which of the following describes the containment spray system response should a hi-hi containment pressure signal be generated at this point in the accident?

CS system valves...

a. would realign for spray, the CS pumps would be started by the SEC.

b. would realign for spray, the CS pumps would have to be manually started.

c. must be manually realigned for spray, the CS pumps would be started by the SEC.

d. must be manually realigned for spray, the CS pumps would have to be manually started.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
b	R	Application	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:	
026000A301	A3.01	4.3	4.5	SYS	1	1	55.43 ☐

System/Evolution Title Containment Spray System 026

KA Statement: Ability to monitor automatic operations of the Containment Spray System including:
Pump starts and correct MOV positioning

Explanation of Answers: 55.41(7) The SEC controller operates the CS pumps at 2 different point in the sequence UNTIL the SEC is reset. The SEC ONLY controls the CS pumps, not the CS valves. The valves realign on the hi-hi cont pressure signal whenever it is received, but once the SEC is reset it will not start the CS pumps since the sequencer is no longer active.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
RPS Safeguards Actuation Signal	221057			22
Safeguards Emergency Loading Sequence	203668			6
SEC Lesson Plan (CS pump start seq explanati	NOS05-SEC000		17	6

L.O. Number

CSPRAYE008

CSPRAYE009

Objectives

Material Required for Examination

Question Source: Facility Exam Bank **Question Modification Method:** Direct From Source **Used During Training Program** ☐

Question Source Comments VISION Q80567

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 46

Which of the following identifies the coincidence required for manual Containment Spray actuation?

a. 1/2 keyswitches on BOTH safeguards trains.

b. 2/2 keyswitches on BOTH safeguards trains.

c. 1/2 keyswitches on EITHER safeguards train.

d. 2/2 keyswitches on EITHER safeguards train.

Answer d | **Exam Level** R | **Cognitive Level** Memory | **Facility:** Salem 1 & 2 | **ExamDate:** 9/26/2011

KA: 026000A401 | A4.01 | **RO Value:** 4.5 | **SRO Value:** 4.3 | **Section:** SYS | **RO Group:** 1 | **SRO Group:** 1 | 55.43 ☐

System/Evolution Title Containment Spray System | 026

KA Statement: Ability to manually operate and/or monitor in the control room:
CSS controls

Explanation of Answers: 55.41(7) Salem has two safeguards trains, either of which performs its safety related function. Containment Spray requires 2/2 keyswitches turned simultaneously to the operate position to activate containment spray, due to the severe consequences which would occur if it were inadvertently actuated without it being required. Either train of safeguards will perform actuation. 2/2 keyswitches on EITHER train.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
RPS Safeguards Actuation Signal	221057			22

L.O. Number
CSPRAYE008

Objectives

Material Required for Examination

Question Source: Facility Exam Bank | **Question Modification Method:** Concept Used | **Used During Training Program** ☐

Question Source Comments VISION 61822 concept used.

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 47

Of the following, which one describes how the Spent Fuel Pool level will be lowered if required, IAW S1.OP-SO.SF-0001, Fill and Transfer of the Spent Fuel Pool?

a. Gravity drained to the RWST.

b. Pumped with Spent Fuel Pool Cooling pump to RWST.

c. Pumped with Refueling Water Purification pump to in service CVCS HUT.

d. Drained via the Spent Fuel Pool Skimmer loop to the Drain Header to the in service CVCS HUT.

Answer	b	Exam Level	R	Cognitive Level	Memory	Facility:	Salem 1 & 2	ExamDate:	9/26/2011

KA:	033000K105	K1.05	RO Value:	2.7*	SRO Value:	2.8*	Section:	SYS	RO Group:	2	SRO Group:	2	55.43	☐

System/Evolution Title Spent Fuel Pool Cooling System | 033

KA Statement: Knowledge of the physical connections and/or cause-effect relationships between Spent Fuel Pool Cooling System and the following: RWST

Explanation of Answers: 55.41(8,13,4) The RWST normal level is ~41'. The puts the water level at 141'. The Spent Fuel Pool is ~128'. There can be no gravity drain TO the RWST, although it will work coming FROM the RWST to the SFP. Transferring water from the SFP to the RWST is done by manipulating valves within the SFP Cooling system, and pumping the water with the Spent Fuel Pool pumps to the RWST. The other method is to drain it to the CVCS HUT. The Refueling Water Purification pump cannot take a suction on the spent Fuel Pool system, but it could physically discharge to the SFP system. Draining via the SFP Skimmer Loop cannot be performed by procedure, and it would drain to the Fuel Handling Bldg sump, not the CVCS HUT.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Fill and Transfer of the Spent Fuel Pool	S1.OP-SO.SF-0001			19
Unit 1 Spent Fuel Cooling	205223			26
Tank Capacity Data	S1.OP-TM.ZZ-0002			8

L.O. Number

SFP000E010

Objectives

Material Required for Examination

Question Source: New | **Question Modification Method:** | **Used During Training Program** ☐

Question Source Comments

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 48

Unit 1 is performing a plant startup to full power.

Which of the following identifies how SG NR level is programmed?

a. From 0-20% power NR level will rise from 33% to 44%. From 20-100% power, NR level will rise to 48%.

b. From 0-20% power NR level will rise from 33% to 44%. From 20-100% power, NR level will remain at 44%.

c. From 0-40% power NR level will rise from 33% to 44%. From 40-100% power, NR level will rise to 48%.

d. From 0-40% power NR level will rise from 33% to 44%. From 40-100% power, NR level will remain at 44%.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
a	R	Memory	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:	55.43
035000A101	A1.01	3.6	3.8	SYS	2	2	☐

System/Evolution Title Steam Generator System 035

KA Statement: Ability to predict and/or monitor changes in parameters associated with operating the Steam Generator System controls including: S/G wide and narrow range level during startup, shutdown, and normal operations

Explanation of Answers: 55.41(4) There are 2 parts to the Unit 1 SG NR level program. 0-20% it rises from 33-44. 20-100 it rises from 44-48. On Unit 2, it rises from 33-44% as described above, then remains at 44%.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Main Feedwater/Condensate System Abnormalit	S1.OP-AB.CN-0001		21	18
Main Feedwater/Condensate System Abnormalit	S2.OP-AB.CN-0001		21	26

L.O. Number

STMGENE007

ADFWCSE015

Objectives

Material Required for Examination

Question Source: Facility Exam Bank **Question Modification Method:** Concept Used **Used During Training Program** ☐

Question Source Comments

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 49

Given the following conditions:

- Unit 2 is operating at 50% power.
- 24MS167, Main Steam Isolation Valve Fast Close PB is depressed on the control console.

Assuming the reactor does NOT trip, which of the following describes the initial response of RCS Delta-T and SG pressure in the AFFECTED loop?

a. RCS Delta-T rises and SG steam pressure rises.

b. RCS Delta-T rises and SG steam pressure lowers.

c. RCS Delta-T lowers and SG steam pressure rises.

d. RCS Delta-T lowers and SG steam pressure lowers.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
c	R	Comprehension	Salem 1 & 2	9/26/2011

KA:			RO Value:	SRO Value:	Section:	RO Group:	SRO Group:	
039000A106	A1.06		3.0	3.1	SYS	1	1	55.43 ☐

System/Evolution Title Main and Reheat Steam System 039

KA Statement: Ability to predict and/or monitor changes in parameters associated with operating the Main and Reheat Steam System controls including:
Main steam pressure

Explanation of Answers: 55.41(5) The unaffected SG's and therefore RCS loops provide the same amount of energy to the turbine - raising RCS D/T and lowering SG steam pressure. In the affected loop, RCS D/T lowers to zero and SG steam pressure rises because heat removal is minimal. At least one of the conditions is incorrect in each distracter is wrong.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision

L.O. Number | **Objectives**

MSTEAME015

Material Required for Examination

Question Source: Facility Exam Bank **Question Modification Method:** Direct From Source **Used During Training Program** ☐

Question Source Comments Vision Q80672

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 50

Which of the following describes why Main Steam lines are drained prior to admitting steam into the headers?

a. Ensures a vacuum pathway to the Main Condenser is available free of potential loop seals.

b. Removes any collected corrosion products or impurities to ensure Main Turbine blading is not impinged.

c. Preheats susceptible components such as steam traps prior to exposing them to full system temperature.

d. Prevents pressurized steam from forcing residual water in the piping to cause water hammer on downstream components.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
d	R	Memory	Salem 1 & 2	9/26/2011

KA:	RO Value:	SRO Value:	Section:	RO Group:	SRO Group:	
039000K501 K5.01	2.9	3.1	SYS	1	1	55.43 ☐

System/Evolution Title Main and Reheat Steam System 039

KA Statement: Knowledge of the operational implications of the following concepts as they apply to the Main and Reheat Steam System:
Definition and causes of steam/water hammer

Explanation of Answers: 55.41(4,10) The steam lines are designed to pass 99.25% quality steam at full power. Water which has accumulated in the piping during cooldown would be transported downstream, where it would impact inner piping walls and turbine blades if not removed. A is incorrect because the vacuum path would be from the condenser back through turbine control and stop valves which would be shut. B is incorrect because while it remove anything in the condensed steam in the piping, it is not the reason why. C is incorrect because it is not why steam lines are drained, and would be cold water, not warm/hot

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Main, Reheat, Turbine bypass Steam Warmup.	S2.OP-SO.MS-0001		14	22

L.O. Number
MSTEAME013
WATHAME006

Objectives

Material Required for Examination

Question Source: New **Question Modification Method:** **Used During Training Program** ☐

Question Source Comments

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 51

Given the following conditions:

- Unit 2 is operating at 100% power.
- Main Steam Dumps are in MS Pressure Control - AUTO, set at 1005 psig.
- 2PT-505, Main Turbine Steamline Inlet Pressure Channel, fails LOW.

Which of the following identifies how the Main Steam Dumps will respond to this failure prior to any Reactor Protection System response?

Main Steam Dump valves will...

a. remain shut throughout the event.

b. ALL trip open and then modulate in the closed direction in response to lowering Tavg.

c. ALL trip open and remain open until they automatically shut when Tavg lowers to 543 °F.

d. initially remain shut, then modulate open as steam pressure rises from the load reduction.

Answer	a	Exam Level	R	Cognitive Level	Application	Facility:	Salem 1 & 2	ExamDate:	9/26/2011

KA:	041000K603	K6.03	RO Value:	2.7	SRO Value:	2.9	Section:	SYS	RO Group:	2	SRO Group:	2	55.43 ☐

System/Evolution Title	Steam Dump System and Turbine Bypass Control	041

KA Statement: Knowledge of the of the effect of a loss or malfunction on the following will have on the Steam Dump System and Turbine Bypass Control:

Controller and positioners, including ICS, S/G, CRDS

Explanation of Answers: 55.41(5,6,7) When the Main Steam Dumps are placed in MS Pressure Control Mode, that "arms" them, and they are set up to respond to a deviation from its setpoint, which in the stem is stated as 1005 psig. That is, until Steam Pressure as sensed by a different steam pressure detector (PT-507, Steam Header Pressure, not PT-505 Steamline Inlet Pressure) rises above 1005 psig, the steam dumps will remain closed. 100% power steam pressure is ~ 800 psig, and it would rise as a load reduction occurred. However, when PT-505 fails low, this causes automatic rod insertion at maximum rate, which will lower RCS temperature, and correspondingly, secondary side steam pressure.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
RPS Steam Dump Control	221059			13

L.O. Number

STDUMPE007

STDUMPE008

Objectives

Material Required for Examination

Question Source: New **Question Modification Method:** **Used During Training Program** ☐

Question Source Comments

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 52

Which of the following identifies how a Main Turbine trip is confirmed in the EOP network IAW OP-AA-101-111-1003, Use of Procedures?

a. OHA F-32, DEHC Trip.

b. Auto Stop Oil Pressure <45 psig.

c. ALL Main Turbine Stop Valves shut.

d. Main Turbine speed <1800 and lowering.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
c	R	Memory	Salem 1 & 2	9/26/2011

KA:	RO Value:	SRO Value:	Section:	RO Group:	SRO Group:	
045000A406 A4.06	2.8	2.7	SYS	2	2	55.43 ☐

System/Evolution Title Main Turbine Generator System 045

KA Statement: Ability to manually operate and/or monitor in the control room:
Turbine stop valves

Explanation of Answers: 55.41(4,10) A is incorrect because it is a result of the Turbine Trip, but is not used for trip confirmation. F-32 is plausible because one of the conditions which causes it to alarm is the correct answer(All main Turbine Stop Valves shut) but because other things (9 to be exact) also cause this F-32 to alarm, it is not a TT confirmation. B is incorrect because while it is available to the operator on RP4 right next to the Turbine Stop Valve indication, it is not used to confirm the TT. It only show that's the oil pressure which has been keeping the stop valves open is gone, and the valves should have shut. C is correct as per OP-AA-101-111-1003. D is incorrect because speed less than 1800 rpm indicates the Main Generator is no longer connected to the grid, and speed lowering indicates no steam supply for an unloaded turbine, it is not the definition of confirming the turbine trip.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Use of Procedures	OP-AA-101-111-1003		13	3
Overhead Window F	S2.OP-AR.ZZ-0006		37	14

L.O. Number
MNTURBE008

Objectives

Material Required for Examination

Question Source: New **Question Modification Method:** **Used During Training Program** ☐

Question Source Comments

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 53

Given the following conditions:

- Unit 2 is operating at 80% power, steady state.
- Power was reduced 2 days ago when 21 Condensate Pump tripped.
- 21 Condensate Pump remains O/S.
- The Condensate Polisher is in service with full flow.

Which of the following identifies the initial concern if 22 Condensate Pump were to trip, and the action which would be performed in response to that concern?

a. Lowering SG NR level. Open 21-23CN108 Polisher Bypass Valves.

b. Lowering SGFP suction pressure. Open 21-23CN108 Polisher Bypass Valves.

c. Lowering SG NR level. Initiate rapid load reduction at up to 5% / min to <49% power.

d. Lowering SGFP suction pressure. Initiate rapid load reduction at up to 15% / min to <30% power.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
b	R	Memory	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:	
056000A204	A2.04	2.6	2.8*	SYS	1	1	55.43 ☐

System/Evolution Title Condensate System 056

KA Statement: Ability to (a) predict the impacts of the following on the Condensate System and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:
Loss of condensate pumps

Explanation of Answers: 55.41(4,10)The limit per AB.CN for 2 cond pump and 3 HDP's in service is 85%power. When the second pump trips as in the stem above, the power limitation is 30%. SGFP suction pressure will rapidly lower. SG NR levels will lower, but the SGFP will speed up and the BF19s will open, which will tend to restore level but degrade SGFP suction pressure more. The polisher is bypassed, then the HP heater strings are bypassed in an effort to restore suction pressure. A load reduction will be performed, but it will be to <30%, not 49%, which is the limit for tripping the MT vs. having to trip the Rx, and at up to 5% per minute, not 15%.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Main Feedwater/Condensate system Abnormalit	S2.OP-AB.CN-0001		10	26

L.O. Number
ABCN01E004

Objectives

Material Required for Examination

Question Source: New **Question Modification Method:** **Used During Training Program** ☐

Question Source Comments

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 54

Given the following conditions:

- Unit 1 is performing a load reduction at 1% per minute due to lowering condenser vacuum.
- With turbine power at 75%, OHA G-7, ADFCS SWITCH TO MANUAL annunciates, and the PO reports 11BF19, SG FEEDWATER CONT VALVE, has swapped to manual.
- The load reduction continues to 70% power, where it is terminated.

Which of the following describes how this failure will affect 11 SG NR water level, and how will it be corrected IAW S1.OP-AB.CN-0001, Main Feedwater/Condensate System Abnormality?

11 SG NR level will be.....

a. lower than all other SGs. Manually adjust 11BF19 in the OPEN direction to lower 11 SG NR level.

b. greater than all other SGs. Manually adjust 11BF19 in the CLOSED direction to lower 11 SG NR level.

c. greater than all other SGs. Place SGFP Master Speed Controller in MANUAL and lower SGFP speed. Unaffected SG BF19s will respond and move in the open direction to re-establish equilibrium conditions.

d. lower than all other SGs. Place SGFP Master Speed Controller in MANUAL and raise SGFP speed. Unaffected SG BF19s will respond and move in the closed direction to re-establish equilibrium conditions.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
b	R	Application	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:	
059000A212	A2.12	3.1*	3.4*	SYS	1	1	55.43 ☐

System/Evolution Title Main Feedwater System 059

KA Statement: Ability to (a) predict the impacts of the following on the Main Feedwater System and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:
Failure of feedwater regulating valves

Explanation of Answers: 55.41(5,7,10) OHA G-7 will swap the valve to manual, and control will still be available to the operator. AB.CN states that if a BF19 has swapped to manual, you are to establish control over the valve and stabilize SG NR level IAW SG Programmed Level (Att. 2). The valve failing as is at a higher power level that the other BF19s are currently controlling(75 vs 70 %) will cause 11 SG NR level to rise, since feed flow is > steam flow. Lowering SGFP speed would work as described, but it would not be done to pertubate the entire system to respond instead of using one valve in manual.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Main Feedwater/Condensate system Abnormalit	S1.OP-AB.CN-0001		12	18

L.O. Number
ADFWCSE012

Objectives

Material Required for Examination

Question Source: New **Question Modification Method:** **Used During Training Program** ☐

Question Source Comments

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 55

Given the following conditions:

- Unit 2 tripped from 100% power.
- Neither MDAFW pump started or could be started.
- Total AFW flow is 23E4 lbm/hr.
- SG NR level on all SGs is 14% and rising slowly.

Which of the following describes the effect on 23 AFW pump when the PO lowers AFW flow to the SGs by throttling shut the 21-24AF11, AUX FEED - S/G LEVEL CONTROL VALVES?

23 AFW pump....

a. speed demand will lower to maintain stable discharge pressure.

b. speed demand will raise to maintain stable discharge pressure.

c. discharge pressure will lower and remain lower.

d. discharge pressure will rise and remain higher.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
d	R	Comprehension	Salem 1 & 2	9/26/2011

KA:	K5.03	RO Value:	SRO Value:	Section:	RO Group:	SRO Group:	55.43
061000K503		2.6	2.9*	SYS	1	1	☐

System/Evolution Title Auxiliary / Emergency Feedwater System 061

KA Statement: Knowledge of the operational implications of the following concepts as they apply to the Auxiliary / Emergency Feedwater System:
Pump head effects when control valve is shut

Explanation of Answers: 55.41(5,4) 23 AFW pump Terry Turbine has its governor set to maintain a certain speed, not discharge pressure. As the AF11 valves are throttled shut, the discharge pressure of the pump will rise, and remain at the new higher pressure as less work is required of the turbine. A and B are incorrect because speed demand will remain constant, and discharge pressure will rise. C is incorrect because discharge pressure will rise.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Auxiliary Feedwater System operation	S2.OP-SO.AF-0001		19	35
In Service Testing - 23 AFW Pump	S2.OP-ST.AF-0003			48
AFW System Lesson Plan	NOS04AFW0000		38-39	9

L.O. Number	Objectives
AFW000E004	
AFW000E008	

Material Required for Examination

Question Source: New **Question Modification Method:** **Used During Training Program** ☐

Question Source Comments

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 56

Given the following conditions:

- Unit 2 is operating at 100% power.
- 2C Vital 4KV Bus is aligned to 24SPT (breaker 24CSD closed).
- Power is lost to 2C Vital 125 VDC Bus.
- Prior to restoring power to the 2C DC Bus, 24 SPT is deenergized.

Which of the following describes the status of 2C 4KV Vital Bus for these conditions?

a. Energized from the 2C EDG.

b. Deenergized with all in-feed breakers tripped.

c. Energized from 23SPT (breaker 23CSD closed).

d. Deenergized with in-feed breaker 24CSD closed.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
d	R	Comprehension	Salem 1 & 2	9/26/2011

KA:	RO Value:	SRO Value:	Section:	RO Group:	SRO Group:	
062000K103 K1.03	3.5	4.0	SYS	1	1	55.43 ☐

System/Evolution Title A.C. Electrical Distribution 062

KA Statement: Knowledge of the physical connections and/or cause-effect relationships between A.C. Electrical Distribution and the following:
DC distribution

Explanation of Answers: 55.41(7) DC power is required to operate relays and contacts for the 4KV vital bus breakers. When DC power is lost, breakers will remain "as is". The EDG breaker can not close onto the bus even though it is deenergized because one of the interlocks to shut the EDG output breaker is both infeed breakers open. The other (23) SPT cannot close its infeed breaker to the bus because it has an interlock which requires the other SPT's in feed breaker to be open.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
1C 4160 VAC Emergency Diesel Generator	203036			29

L.O. Number
DCELECE013

Objectives

Material Required for Examination

Question Source: Previous 2 NRC Exams **Question Modification Method:** Editorially Modified **Used During Training Program** ☐

Question Source Comments "J" ILOT RO NRC Exam - August 2008. Added "breaker" and "closed" to original distracter b, and swapped places with distracter c due to its being longer now. Added words to lessen confusion and make it the same style as found

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 57

Which of the following choices identifies an adverse effect of a ground on a 125VDC bus/battery, and the method in which operators perform ground isolation IAW S2.OP-SO.125-0004, 125VDC Ground Detection?

A ground...

a. on the bus causes a higher level of current to flow in the system. Individually deenergize each load on the bus, then re-energize if that load is not the source of the ground.

b. on the battery associated with the bus causes a higher level of current to flow in the system. Transfer to the backup battery charger to determine if the I/S charger is the cause of the ground.

c. on the bus causes voltage reading on the bus to become unreliable due to the excessive current flow. Transfer to the backup battery charger to determine if the I/S charger is the cause of the ground.

d. on the battery associated with the bus causes voltage reading on the bus to become unreliable due to the excessive current flow. Individually deenergize each load on the bus, then re-energize if that load is not the source of the ground.

Answer	a	Exam Level	R	Cognitive Level	Memory	Facility:	Salem 1 & 2	ExamDate:	9/26/2011

KA:	063000A201	A2.01	RO Value:	2.5	SRO Value:	3.2*	Section:	SYS	RO Group:	1	SRO Group:	1	55.43	☐

System/Evolution Title D.C. Electrical Distribution 063

KA Statement: Ability to (a) predict the impacts of the following on the D.C. Electrical Distribution and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:
Grounds

Explanation of Answers: 55.41(7) The ground detection procedure has operators isolate individual loads. The ARP for low battery voltage has operators transfer to the standby battery charger if bus voltage is low, and battery current is present, so these are plausible distracters. The bus voltage is higher than the battery voltage, so a ground on the battery would not cause bus current to rise.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
125VDC Ground Detection	S2.OP-SO.125-0004			13
B Window Alarm Response	S2.OP-AR.ZZ-0002			35

L.O. Number DCELECE008

Objectives

Material Required for Examination

Question Source: Previous 2 NRC Exams **Question Modification Method:** Editorially Modified **Used During Training Program** ☐

Question Source Comments New for "J" ILOT RO Exam - August 2008 Reordered distracters based on length of answer.

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 58

Given the following conditions:

- Salem Unit 1 is in MODE 3, NOT, NOP.
- A 500 KV grid disturbance causes a SEC MODE II actuation.
- During the electrical bus realignment, the 2A 4KV vital bus to 460VAC bus breaker trips.

Which of the following describes how this will affect 2A EDG operation, if NO corrective action is taken?

2A EDG will...

a. run until 22 Diesel Fuel Oil Storage Tank is empty.

b. trip because its fuel oil supply pressure was lost when the EDG Fuel Oil Pumps lost power.

c. trip because its lube oil supply pressure was lost when the EDG Lube Oil pumps lost power.

d. run until its Fuel Oil Day Tank empties due to the loss of power to the Diesel Fuel Oil Transfer Pumps.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
a	R	Application	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:	
064000K202	K2.02	2.8*	3.1	SYS	1	1	55.43 ☐

System/Evolution Title Emergency Diesel Generators 064

KA Statement: Knowledge of bus power supplies to the following:
Fuel oil pumps

Explanation of Answers: 55.41(7,8) A is correct because there are 2 Diesel Fuel Oil Transfer pumps, powered from A and B Vital 230V, each of which supplies fuel oil to all three EDGs. The loss of power to 2A DFO xfer pump, even if selected as the Lead Pump, will not affect EDG operation as the second pump has power from 2B bus, and will start on lo level. The DFOSTs have cross connect capability, but the cross connect is always shut. B is incorrect because the EDG Fuel Oil Pumps are shaft mounted, mechanically driven pumps. C is incorrect because while there is an electric Pre-Lube pump which is in operation when the EDG is shutdown to facilitate EDG starting, the Lube Oil pumps for operation are shaft driven mechanical pumps. D is incorrect because there is still power to one DFO xfer pump, which will fill all the EDG Day tanks based on level signals.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
1 & 2 Units Diesel Engine Auxiliaries	205241-1			42
1 & 2 Units Diesel Generator Fuel Oil	211306			11
Fuel Oil	211307			22

L.O. Number
EDG000E013
EDG000E005

Objectives

Material Required for Examination

Question Source: New **Question Modification Method:** **Used During Training Program** ☐

Question Source Comments

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 59

Given the following conditions:

- Unit 2 is operating at 100% power when OHA C-1 GAS ANLY TRBL is received in the control room.
- The NEO sent to investigate reports local alarm B-3 OXYGEN HIGH/LOW on Waste Disposal Gas Analyzer PNL 110 is in alarm.
- Local indication for in service Waste Gas Decay Tank (WGDT) O2 concentration is 4.1%.

IAW Tech Specs, which choice describes what action is REQUIRED to be performed, and why?

a. Place the Standby GDT in service and commence preparations to release the affected GDT.

b. Place the second Waste Gas Compressor in service to raise the total volume of gas in the WGDT in order to dilute the O2 concentration to below 2%.

c. Reduce the oxygen concentration of the in service WGDT without delay to prevent potential releases of radioactive materials due to explosion of the GDT.

d. Immediately suspend all additions to the in service WGDT since the O2 concentration is above the 2% required to sustain combustion when mixed with hydrogen.

Answer	c	Exam Level	R	Cognitive Level	Memory	Facility:	Salem 1 & 2	ExamDate:	9/26/2011

KA:	071000K504	K5.04	RO Value:	2.5	SRO Value:	3.1	Section:	SYS	RO Group:	2	SRO Group:	2	55.43	☐

System/Evolution Title	Waste Gas Disposal System	071

KA Statement: Knowledge of the operational implications of the following concepts as they apply to the Waste Gas Disposal System:
Relationship of hydrogen/oxygen concentrations to flammability

Explanation of Answers:

55.41(13) Tech Spec 3.11.2.5 requires the O2 concentration in the waste gas holdup system to be <2%. The action for 2-4% O2 is to reduce the O2 concentration to <2% in 48 hours.
Distracter D is incorrect because while the immediate suspension of additions to the waste gas system is REQUIRED when >4% O2, the flammability percentage is wrong.
Distracter A is incorrect because the flammable concentration would be reduced before actions are taken to prepare the tank for release.
C is the correct answer because the Tech Spec REQUIRES the reduction of O2 from 2-4% to less that 2% without delay. Also, the bases section for this tech specs describes that a potential explosion and release of radioactive materials from this explosion would not be IAW GDC 60, 10CFR50 Appx.A.
Distracter A is incorrect because the TS states to immediately stop additions to the WG HU system.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Salem Tech Specs		3.11.2.5	3/4 11-15	282

L.O. Number
WASGASE009

Objectives

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 60

Which of the following Area Radiation Monitors (ARM) will cause a ventilation system alignment change when it reaches its High Radiation Alarm setpoint?

a. 2R1A, Control room.

b. 2R9, New Fuel Storage

c. 2R32A, Fuel Handling Crane.

d. 2R52, Liquid PASS Room.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
b	R	Memory	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:	
072000K403	K4.03	3.2*	3.6*	SYS	2	2	55.43 ☐

System/Evolution Title Area Radiation Monitoring System 072

KA Statement: Knowledge of ARM system design feature(s) and or interlock(s) which provide for the following:
Plant ventilation systems

Explanation of Answers: 55.41(11) A is incorrect because it has no automatic function. It is plausible if it is confused with the 2R1B, which is a process monitor which realigns control room ventilation on high radiation. B is correct because it realigns FHB ventilation through the charcoal filters and starts both FHB Exhaust fans. C is incorrect but plausible because its auto function is to prevent Fuel Crane motion except in downward direction. D is incorrect since it only has alarm light outside the PASS room which activates, but plausible because of the high radiation levels which would be expected in that area of the aux building following an accident

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
S2.OP-AB.RAD-0001	Abnormal Radiation	Attachment 5 RMS cha	16-18	28

L.O. Number RMS000E005

Objectives

Material Required for Examination

Question Source: New **Question Modification Method:** **Used During Training Program** ☐

Question Source Comments

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 61

Given the following conditions:

- Both Salem Units are operating at 100% power.
- 2R1B-1, Unit 2 Intake Duct Rad Monitor Channel 1 loses power.
- BOTH Salem units Control Area Ventilation (CAV) systems remain in NORMAL Mode.

Which of the following identifies the status of the CAV systems, and how will the Control Rooms respond to the loss of power?

The CAV systems...

a. are designed to remain in Normal Mode upon a loss of power to a single duct radiation monitor. No actions other than normal Corrective Action Program actions to troubleshoot and repair the power supply are required, with no specific time limitation.

b. are designed to remain in Normal Mode upon a loss of power to a single duct radiation monitor. The 2R1B-1 must be restored to operable status within its allowable Action Time, or CAV must be placed in Accident Pressurized (AP) Mode on BOTH Units.

c. should have swapped to AP Mode. Initiate AP Mode of operation by depressing initiating pushbutton on 2RP3 IAW S2.OP-SO.CAV-0001, Control Area Ventilation Operation.

d. should have swapped to AP Mode. Initiate AP Mode of operation by aligning individual system components to their correct positions on 2RP3 IAW S2.OP-SO.CAV-0001.

Answer	c	Exam Level	R	Cognitive Level	Application	Facility:	Salem 1 & 2	ExamDate:	9/26/2011

KA:	073000A201	A2.01	RO Value:	2.5	SRO Value:	2.9*	Section:	SYS	RO Group:	1	SRO Group:	1	55.43	☐

System/Evolution Title Process Radiation Monitoring System 073

KA Statement: Ability to (a) predict the impacts of the following on the Process Radiation Monitoring System and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:
Erratic or failed power supply

Explanation of Answers: 55.41(7) Any R1B channel losing power will automatically initiate Accident Pressurized Mode on BOTH Units. B is incorrect but plausible because the Tech Spec for R1B says if one channel is inoperable, you have 14 days to restore before placing CAV in AP Mode. C is correct because manual initiation of AP Mode is accomplished by depressing the Accident pushbutton on RP3. D is incorrect because individual components are not aligned, still plausible if the candidate thinks the failure has affected the whole system.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Control Area Ventilation Operation	S2.OP-SO.CAV-0001		6,23	38
Salem Tech Specs		3.3.3.1	3/4 3-38	282

L.O. Number
RMS000E003

Objectives

Material Required for Examination

Question Source: New **Question Modification Method:** **Used During Training Program** ☐

Question Source Comments

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 62

Given the following conditions:

- Unit 1 is operating at 25% power.
- 1B EDG is running in parallel with station power on 1B 4KV Vital Bus.
- 13 and 16 SW pumps are in service, 11 SW pump is in AUTO.
- 1A 4KV Vital bus becomes deenergized due to a Bus Differential signal.

1 minute after the 1A 4KV Vital bus deenergizes, with NO operator action, which of the following contains ALL the SW pumps which will be running?

a. 11, 13.

b. 11, 15.

c. 13, 16.

d. 15, 16.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
a	R	Application	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:	
076000K201	K2.01	2.7*	2.7	SYS	1	1	55.43 ☐

System/Evolution Title Service Water System 076

KA Statement: Knowledge of bus power supplies to the following:
Service water

Explanation of Answers: 55.41(7) A bus powers 15, and 16 SW pumps. On a single bus UV as described in the stem, only that bus would load in blackout loading. A bus is locked out on Bus Differential (deenergized), and the loss of 16 SW pump would cause header pressure to lower to where the auto pump (11) would start. Only one SW pump is aligned for AUTO which is the normal at power configuration for the SW pumps, one in auto, and the rest in manual. 12 SW pump would never start unless 11 pump did not on a SEC initiation, that is why it is not listed in any of the choices. 14 SW pump would not start since B bus never loses power, which is why it isn't listed in any of the choices. There can be confusion about the running EDG and the loss of A vital bus causing a MODE II (Blackout), which would strip busses and load the primary SW pump on each bus.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Service Water Pump Operation	S1.OP-SO.SW-0001			26
Unit 1 4KV Vital Buses One line	203002			34

L.O. Number
SWBAYSE005

Objectives

Material Required for Examination

Question Source: Facility Exam Bank **Question Modification Method:** Significantly Modified **Used During Training Program** ☐

Question Source Comments J-ROC61 Changed which pump is in auto (11 instead of 15) and that makes a different choice correct.

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 63

Given the following conditions:

- All 3 Station Air Compressors have become unavailable.
- The NORMAL cooling water supply to the Unit 1 Emergency Control Air Compressor (ECAC) has been lost.

Describe the status of the Unit 1 ECAC.

Operation of the Unit 1 ECAC...

a. can continue since cooling water will automatically swap to Service Water through a check valve.

b. can continue since cooling water will automatically swap to Demineralized Water through a check valve.

c. must be discontinued until cooling water can be manually aligned through a spool piece from Service Water.

d. must be discontinued until cooling water can be manually aligned through a spool piece from Demineralized Water.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
c	R	Application	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:	
078000K104	K1.04	2.6	2.9	SYS	1	1	55.43 ☐

System/Evolution Title Instrument Air System 078

KA Statement: Knowledge of the physical connections and/or cause-effect relationships between Instrument Air System and the following:
Cooling water to compressor

Explanation of Answers: 55.41(4)The normal source of cooling water to the ECAC is the Chilled Water system. Upon a loss or unavailability of the Chilled Water system, SERVICE WATER can be supplied by MANUALLY installing a supply and a return spool piece. Demin water is plausible because it is as a backup cooling system for other systems (SI and charging pumps when normal cooling is lost.)

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
No. 1 & 2 Units Chilled Water	205216-3			58
Control Air System Operation	S1.OP-SO.CA-0001			13

L.O. Number
CONAIRE007

Objectives

Material Required for Examination

Question Source: Facility Exam Bank **Question Modification Method:** Direct From Source **Used During Training Program** ☐

Question Source Comments Vision Q80700

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 64

Given the following conditions:

- Salem Unit 1 is operating at 100% power.
- OHA A-15 FIRE PUMP 1/2 RUN, and OHA A-23 FIRE PUMP 1/2 TRBL alarm in the control room.
- NO other fire system alarms are received.
- An NEO dispatched to the Fire Pump House reports fire main header pressure is 132 psig, and both fire pumps are operating.
- Fire Protection reports there are NO fire system actuations.

Which of the following choices identifies the cause of the condition described above?

a. Trip of the Fire Protection Jockey Pump.

b. Major fire protection header piping rupture.

c. Loss of control power to BOTH Fire Pumps.

d. Momentary (1 second) drop in Fire Protection header pressure to 70 psig.

Answer	c	Exam Level	R	Cognitive Level	Application	Facility:	Salem 1 & 2	ExamDate:	9/26/2011

KA:	086000A302	A3.02	RO Value:	2.9	SRO Value:	3.3	Section:	SYS	RO Group:	2	SRO Group:	2	55.43	☐

System/Evolution Title Fire Protection System 086

KA Statement: Ability to monitor automatic operations of the Fire Protection System including:
Actuation of the FPS

Explanation of Answers: 55.41(7)Fire pumps will BOTH auto start upon a loss of power to their battery chargers. Losing the power from the ATS, supplied from #1 and #2 Misc yard panels will cause loss of both battery chargers. Distracter D is incorrect because a momentary drop in pressure will start the #1 pump, and the #2 pump has a time delay. Distracter A is incorrect in that the #1 pump will start as header pressure lowers, and the #2 pump will not start. Distracter B is wrong because a major piping rupture will cause header pressure to lower well below the 132 psig given in the stem. Pumps are rated to 135 psig.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Fire Pump House Diesel Engine Control	203776			9
Alarm Response Window A	S1.OP-AR.ZZ-0001			
Fire Protection	205222-4			59

L.O. Number	Objectives
FIRPROE007	
FIRPROE008	
FIRPROE009	

Material Required for Examination

Question Source: Facility Exam Bank **Question Modification Method:** Direct From Source **Used During Training Program** ☐

Question Source Comments Vision Q67854

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 65

Given the following conditions:

- Unit 1 is operating at 100% power.
- Charging flow rose 1 gpm in 5 minutes and is now steady at 88 gpm.
- Computer trends show the increased RCS leakage started 10 minutes ago.
- The CRS enters S1.OP-AB.RC-0001, Reactor Coolant System Leak.
- Based on elevated 1R11A indications coincident with the rise in charging flow, the crew determines a small RCS leak in containment is occurring.

Which of the following describes an action that will be performed IAW S1.OP-AB.RC-0001 based on the determination of the leak location and size, and why?

a. Place 2 CFCUs in slow speed and 2 CFCUs in high speed to prevent containment pressure from rising to the automatic Safety Injection setpoint.

b. Place a centrifugal charging pump in service to ensure sufficient charging flow margin is available to maintain PZR level stable should the leak rate rise.

c. Place 2 CFCUs in slow speed and 2 CFCUs in high speed to minimize the rise in containment humidity and prevent equipment damage from elevated moisture levels.

d. Place a centrifugal charging pump in service to allow additional flow through the Mixed Bed Demineralizers to minimize the potential off-site release from containment.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
a	R	Memory	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:	
103000A101	A1.01	3.7	4.1	SYS	1	1	55.43 ☐

System/Evolution Title Containment System 103

KA Statement: Ability to predict and/or monitor changes in parameters associated with operating the Containment System controls including: Containment pressure, temperature, and humidity

Explanation of Answers: 55.41(9) AB.RC-1 Attachment 1, Continuous Action Summary, 4.0, states that at any time if leak is suspected to be in containment, then place 2 CFCUs in slow and 2 in fast. The Technical Bases Document, page 3, states that this is "to prevent an automatic Safety Injection and minimize the potential for off-site releases when the leak is in Containment." B is incorrect because while it has the right action, the reason is wrong. Distracter C is incorrect but plausible, because a centrifugal charging pump is placed in service if PZR level cannot be maintained stable or rising, not as a pre-emptive action for possible future leak rate rises. C is incorrect because of the wrong reason for CFCU operation. D is incorrect as per B above, while additional flow through the demins would reduce RCS activity levels, it is performed in AB.RC-2, High RCS Activity.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Reactor Coolant System Leak	S1.OP-AB.RC-0001		13, BASE	9

L.O. Number

CONTMTE003

ABRC01E003

Objectives

Material Required for Examination

Question Source: Facility Exam Bank **Question Modification Method:** Concept Used **Used During Training Program** ☐

Question Source Comments Vision Q85538

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 66

Of the following, which would be considered a Core Alteration IAW S2.OP-IO.ZZ-0007, Cold Shutdown to Refueling?

a. When the first stud (during first pass of Reactor Head detensioning process) is detensioned.

b. When the RPV Head is lifted (1-2') to check for CRDM drive dis-engagement.

c. Insertion of a camera to the level of the RPV flange prior to fuel movement.

d. Lifting of the first fuel bundle in the RPV.

Answer	d	Exam Level	R	Cognitive Level	Memory	Facility:	Salem 1 & 2	ExamDate:	9/26/2011

KA:	194001G136	2.1.36	RO Value:	3.0	SRO Value:	4.1	Section:	PWG	RO Group:	1	SRO Group:	1	55.43	☐

System/Evolution Title GENERI

KA Statement: Knowledge of procedures and limitations involved in core alterations.

Explanation of Answers: 55.41(10,13) D is correct because "CORE ALTERATION shall be the movement of any fuel, sources, or reactivity control components, within the reactor vessel with the vessel head removed and fuel in the vessel." A is incorrect because it is when MODE 6, Refueling, is officially entered. B is incorrect because Core Alts cannot occur until the vessel head has been removed. C is incorrect because "Refueling activities that would constitute a CORE ALTERATION do NOT include the movement or manipulation of devices such as lights, mast, cameras or servicing equipment used to examine Reactor Pressure Vessel components, except when these devices would result in the movement or manipulation of fuel, sources, or reactivity control components within the Reactor Pressure Vessel.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
S2.OP-SO.SF-0009	Refueling Operations			16
S2.OP-IO.ZZ-0007	COLD SHUTDOWN TO REFUELI			17
SC.MD-FR.FH-0004	PREPARATION FOR REACTOR			31

L.O. Number

REFUELE012

IOP007E004

Objectives

Material Required for Examination

Question Source: New **Question Modification Method:** **Used During Training Program** ☐

Question Source Comments

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 67

Given the following conditions:

- Unit 2 is operating at 66% power.
- Power was reduced when 22 SGFP tripped 2 days ago, and has remained at this level for 2 days.
- Operators are preparing to start a Main Turbine power ascension using dilution and automatic rod control to maintain Tavg and AFD on program.
- Tavg-Tref deviation is 0°F.

IAW OP-AA-300, Reactivity Management, how should the power ascension be started?

Assume this is a normal power ascension with all equipment available.

a. The crew concurrently initiates the Main Turbine load ascension and a RCS dilution.

b. The crew initiates a RCS dilution. As soon as the dilution is in progress the Main Turbine load ascension is initiated.

c. The crew initiates a RCS dilution and waits until a RCS temperature rise is detected. Then the Main Turbine load ascension is initiated.

d. The crew initiates the Main Turbine load ascension and waits until a RCS temperature lowering is detected. Then the RCS dilution is initiated.

Answer	c	Exam Level	R	Cognitive Level	Memory	Facility:	Salem 1 & 2	ExamDate:	9/26/2011

KA:	194001G137	2.1.37	RO Value:	4.3	SRO Value:	4.6	Section:	PWG	RO Group:	1	SRO Group:	1	55.43	☐

System/Evolution Title GENERI

KA Statement: Knowledge of procedures, guidelines, or limitations associated with reactivity management.

Explanation of Answers: 55.41(5,10) Listed under the responsibilities of the Reactor Operator, page 8, 4.6.5, "Typically, during planned load changes where dilution or boration is required, start with the dilution or boration. The initial effects (RCS temperature change) of the reactivity change should be seen prior to initiating the load change." All the distracters have the correct actions in the wrong order.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Reactivity Management	OP-AA-300		8	4

L.O. Number

RXOPERE018

RXOPERE020

Objectives

Material Required for Examination

Question Source: New **Question Modification Method:** **Used During Training Program** ☐

Question Source Comments

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 68

Given the following conditions:

- On your shift today, a component's normal monthly surveillance item is determined to have been scheduled incorrectly, and it has been 34 days since it was last performed.

Which of the following statements describes the status of the affected component?

a. The component must be declared INOPERABLE at the time of discovery because the 24 hour time limit allowed past the normal surveillance interval has been exceeded.

b. The component remains OPERABLE because Technical Specifications allow a 25% time extension of the normal surveillance interval for surveillance completion, which has not been exceeded.

c. The component remains OPERABLE ONLY for the next 24 hours after discovery, during which a SAT surveillance must be performed to ensure OPERABILITY, otherwise the component must be declared INOPERABLE.

d. The component must be declared INOPERABLE at the time of discovery ONLY if any redundant structure, system, or component (SSC) is also INOPERABLE for the system in which the affected component is required to be OPERABLE.

Answer	b	Exam Level	R	Cognitive Level	Application	Facility:	Salem 1 & 2	ExamDate:	9/26/2011

KA:	194001G212	2.2.12	RO Value:	3.7	SRO Value:	4.1	Section:	PWG	RO Group:	1	SRO Group:	1	55.43	☐

System/Evolution Title GENER

KA Statement: Knowledge of surveillance procedures.

Explanation of Answers:

55.41(10) Tech Spec 4.0.2 states that... " Each Surveillance Requirement shall be performed within the specified surveillance interval with a maximum allowable extension not to exceed 25 percent of the specified surveillance interval." Tech Spec 4.0.3 states that..." If it is discovered that a Surveillance was not performed within its specified frequency, then compliance with the requirement to declare the Limiting Condition for Operation not met may be delayed, from the time of discovery, up to 24 hours or up to the limit of the specified frequency, whichever is greater. This delay period is permitted to allow performance of the Surveillance. If the Surveillance is not performed within the delay period, the Limiting Condition for Operation must immediately be declared not met and the applicable Actions must be entered." A is incorrect because the 25% "Grace Period" (which is 7.75 days for a 31 day monthly surveillance) has not been exceeded. C is incorrect (and different from Distracter A) because the 24 hour time limit is incorrect AND it says it would be applied from time of discovery, not added to the normal surveillance interval. D is incorrect because there is no requirement to check other SSC of that system with regards to how it affects the component which has exceeded its monthly surveillance interval.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Salem Tech Specs		Surveillance Requirem	3/4 0-3	279

L.O. Number
TECHSPE014

Objectives

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 69

Given the following conditions on Unit 2:

- Reactor power is 75%.
- A RCS leak rate surveillance indicates the following:
  - Total Corrected Volume leak rate is 4.0 gpm.
  - Leakage to PRT is 2.0 gpm.
  - Leakage to the Reactor Coolant Drain Tank is 1.3 gpm.
  - Total primary to secondary leakage is 0.125 gpm.

Which one, if any, of the following Technical Specification leakage limits has been exceeded?

a. None.

b. Identified.

c. Unidentified.

d. Primary-to-Secondary.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
c	R	Application	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:		
194001G222	2.2.22	4.0	4.7	PWG	1	1	55.43	☐

System/Evolution Title GENERI

KA Statement: Knowledge of limiting conditions for operations and safety limits.

Explanation of Answers: 55.41(5,10) Modified stem conditions to make a distracter (primary-to-secondary)correct, and the former correct (unidentified) answer incorrect. Salem TSAS 3.4.7.2 states the limits on RCS leakage to be 1 gpm for unidentified leakage, 10 gpm for identified leakage, and 150 gallons per day through any one steam generator. The 0.125 gpm pri-to-sec leakage is 180 gpd. PRT leakage is identified, so while it is >1 gpm, its limit is 10 gpm. RCDT leakage is unidentified, so since it is >1 gpm, its limit is exceeded.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Salem Tech Specs		3.4.7.2	3/4 4-17	282

L.O. Number TECHSPE015

Objectives

Material Required for Examination

Question Source: Facility Exam Bank | **Question Modification Method:** Significantly Modified | **Used During Training Program** ☐

Question Source Comments Salem 2002 RO NRC Exam (4 NRC Exams ago)

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 70

Which of the following Unit 2 conditions will require entry into an ACTIVE Tech Spec LCO Action?

With Unit 2 in...

a. MODE 1, 26 SW pump is C/T, ALL other SW pumps remain OPERABLE.

b. MODE 5, performing a shutdown, 2N32 Source Range NI control power supply fuses blow.

c. MODE 3, 21AF21 AUX FEED - S/G LEVEL CONTROL VALVE is discovered in the jacked shut position.

d. MODE 4, 2PR3 PZR Code Safety Valve is declared INOPERABLE with 2PR4 and 2PR5, PZR Code Safety Valves OPERABLE.

Answer	c	Exam Level	R	Cognitive Level	Application	Facility:	Salem 1 & 2	ExamDate:	9/26/2011

KA:	194001G242	2.2.42	RO Value:	3.9	SRO Value:	4.6	Section:	PWG	RO Group:	1	SRO Group:	1	55.43 ☐

System/Evolution Title | GENERI

KA Statement: Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications.

Explanation of Answers: 55.41(10) In MODE 4, only ONE PZR Code Safety is required to be OPERABLE. 3.4.2 In MODE 1, 2 independent SW loops are required. An OPERABLE SW loop consists of one pump from each vital bus plus 2 pumps per bay. 3.7.4. SO.SW-0005, Att 2 page 1 of 36. In MODE 3,4,5 only ONE SR is required. 3.3.1.1 Table 3.3-1.6.b. ALL 3 AFW pumps and flow paths are required to be OPERABLE in MODES 1-3. 3.7.1.2

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Salem Tech Specs				
Service Water System Operation	S2.OP-SO.SW-0005			40

L.O. Number
TECHSPE015

Objectives

Material Required for Examination

Question Source: Facility Exam Bank | **Question Modification Method:** Direct From Source | **Used During Training Program** ☐

Question Source Comments J-ROC69

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 71

Given the following conditions:

- Units 1 and 2 are at 100% power.
- Unit 2 has experienced several fuel pin failures.
- A leak must be repaired on a pipe in the Aux. Bldg. pipe tunnel.
- The general area dose rate in the location of the repair is 600 mrem/hr.
- In order to reach the location of the repair the worker must transit through a 6 Rem/hr high radiation area for 2 minutes and return via the same path.
- The worker currently has an accumulated annual dose of 400 mrem.

Calculate the MAXIMUM allowable time that the worker can participate in the repairs AT THE JOB SITE and NOT exceed the Current Annual TEDE Administrative Dose Control Level at PSEG Nuclear LLC.

a. 70 minutes.

b. 120 minutes.

c. 140 minutes.

d. 160 minutes.

Answer: b | **Exam Level:** R | **Cognitive Level:** Application | **Facility:** Salem 1 & 2 | **ExamDate:** 9/26/2011

KA: 194001G304 | 2.3.4 | **RO Value:** 3.2 | **SRO Value:** 3.7 | **Section:** PWG | **RO Group:** 1 | **SRO Group:** 1 | 55.43 ☐

System/Evolution Title | GENERI

KA Statement:

Knowledge of radiation exposure limits under normal or emergency conditions.

Explanation of Answers:

55.41(12) B is correct because: The Current Annual TEDE Administrative Dose Control Level is 2000 mrem for PSEG Nuclear LLC. Transient exposure is 400 mrem (6000mrem/hr x 4/60hr). (transit to and from the job). (Current) 400 mrem + (transit) 400 mrem = 800 mrem. ADL of 2000 mrem - 800 mrem = 1200 mrem allowable before reaching the Annual TEDE Administrative Dose Control Level. 1200 mrem /600 mrem/hr = 2 hours. A is incorrect, based on using limit of 1500 versus correct ADL (2000); C is incorrect - Based on calculating using a one-way transit dose; D is incorrect - Based on using the Annual TEDE Administrative Dose Control Level (2000) and NO transit dose.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Exposure Control and Authorization	RP-AA-203			5

L.O. Number

RADCONE002

Objectives

Material Required for Examination

Question Source: Facility Exam Bank | **Question Modification Method:** Direct From Source | **Used During Training Program** ☐

Question Source Comments Vision Q44899

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 72

Given the following conditions:

- Unit 1 is in Mode 2, with all Shutdown Banks withdrawn.
- Unit 2 is at 100% power
- All Unit 1 & 2 Circulating Pumps are in service
- 21,23 & 26 Service Water Pumps are running
- 21 CVCS Monitor Tank is being released via 22 CCW Hx to the Circulating Water System

Choose the condition that would require termination of the liquid release.

a. Unit 1 Rx trips.

b. 21 CCW Pump trips.

c. The 11A & 11B Circulators trip.

d. 23 Service Water Pump trips and header pressure drops from 115 to 105 psig.

Answer	c	Exam Level	R	Cognitive Level	Application	Facility:	Salem 1 & 2	ExamDate:	9/26/2011

KA:	194001G311	2.3.11	RO Value:	3.8	SRO Value:	4.3	Section:	PWG	RO Group:	1	SRO Group:	1	55.43	☐

System/Evolution Title GENERI

KA Statement: Ability to control radiation releases.

Explanation of Answers: 55.41(13) S2.OP-SO.WL-0001 states at step 5.5.9 that the released is to be terminated upon loss of dilution water flow. 22 SW header discharges into the outlet of 11A and 11B circulators. A Unit 1 trip does not constitute an "emergency", so the requirements of OP-SA-106-101-2001 Operating with an Emergency on the Opposite Unit is not applicable. Normal SW header pressure is 105-125, the SW flow from the remaining 2 pumps in service will maintain flow to the CCHX. Trip of an operating CCW pump would result in an auto start of the standby pump and the CCW system remains in service.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
RELEASE OF RADIOACTIVE LIQUID WASTE	S2.OP-SO.WL-0001			24

L.O. Number

WASLIQE012

Objectives

Material Required for Examination

Question Source: Facility Exam Bank **Question Modification Method:** Direct From Source **Used During Training Program** ☐

Question Source Comments VISION Q119138

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 73

Given the following conditions:

- Unit 2 has experienced a steam line break inside containment.
- Operators have entered 2-EOP-FRTS-1, Response to Imminent Pressurized Thermal Shock.

Why will the operators be instructed to terminate SI and start a RCP if possible?

a. The soak required by FRTS-1 requires SI to be secured and a RCP to be running to provide ability to use spray to depressurize primary.

b. The soak required by FRTS-1 requires SI to be secured. A RCP should be started to equalize boron concentration throughout the primary to ensure proper shutdown margin as the RCS cools.

c. Safety Injection flow is a significant contributor to any cold leg temperature decrease or overpressure condition and must be terminated. A RCP is started to minimize temperature gradient across S/G tube sheets.

d. Safety Injection flow is a significant contributor to any cold leg temperature decrease or overpressure condition and must be terminated. A RCP is started to provide mixing of cold SI and warm reactor coolant water.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
d	R	Memory	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:	
194001G418	2.4.18	3.3	4.0	PWG	1	1	55.43 ☐

System/Evolution Title GENERI

KA Statement: Knowledge of the specific bases for EOPs.

Explanation of Answers: 55.41(10) A is incorrect because the purpose for RCP operation is not the priority in FRTS-1, and the soak is not the basis for terminating SI. B is incorrect because the soak is not the basis for terminating SI. C is incorrect because the SI basis correct but the basis for RCP start is not correct. D is correct because Basis Document states for step 9 starting a RCP..."in order to mix the cold incoming ECCS water and the warm reactor coolant water, and therefore decrease the likelihood of a PTS condition, an RCP start is attempted." Additionally SI is termination is desired if inventory and subcooling are adequate because "ECCS flow may have contributed to the RCS cooldown or mat prevent a subsequent reduction in RCS pressure."

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Response to Pressurized Thermal Shock	2-EOP-FRTS-1			25

L.O. Number FRTS00E007

Objectives

Material Required for Examination

Question Source: Other Facility **Question Modification Method:** Editorially Modified **Used During Training Program** ☐

Question Source Comments 5/30/2003 Seabrook NRC exam

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 74

Given the following conditions:

Unit 2 is operating at 100% power.
OHA A-7, FIRE PROT FIRE, annunciates.
Panel 2RP5 is checked and indicates the following:
- Zone 59 - Air and Water Deluge, Containment El. 100 Panel 335 is lit.
- Zone 74 - Smoke and Fire Detector, Containment El. 100 Panel 335 is lit.

Which of the following describes how the Control Room crew should respond?

a. Verify OHA A-15, FIRE PUMP 1/2 RUN is in alarm signifying a Diesel Fire Pump has auto started to supply Fire Protection water to associated deluge valves in containment.

b. Dispatch a NEO to open the associated deluge valves at their outside containment penetration location.

c. Dispatch a NEO to open the 2FP147, FP CONTAINMENT IV.

d. Open the 2FP147 from the control room.

Answer	d	Exam Level	R	Cognitive Level	Memory	Facility:	Salem 1 & 2	ExamDate:	9/26/2011

KA:	194001G427	2.4.27	RO Value:	3.4	SRO Value:	3.9	Section:	PWG	RO Group:	1	SRO Group:	1	55.43	☐

System/Evolution Title GENERI

KA Statement: Knowledge of "fire in the plant" procedures.

Explanation of Answers: 55.41(10) Overhead alarm A-7 states that if both zones 59 and 74 are received, then open 2FP147. This is controlled from the control room on 2RP5. B is incorrect because the deluge valves are automatic and in containment. C is incorrect because the FP147 is opened from the control room. A is incorrect because the Fire Pumps will not have auto started since the FP147 has to be opened, and is not an action contained in the ARP.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
No. 1 & 2 Units Fire Protection	205222-2			60
Overhead Annunciators - Window A	S2.OP-AR.ZZ-0001		22	51

L.O. Number
FIRPROE004
FIRPROE008

Objectives

Material Required for Examination

Question Source: Facility Exam Bank | **Question Modification Method:** Editorially Modified | **Used During Training Program** ☐

Question Source Comments Vision Q69805, modified stem to make it what would control room crew do instead of what is the status of the FP system. Modified choices and added valve identifiers.

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic RO 75

An Alert has been declared at Salem.

Which of the following identifies the PRIMARY method which the Primary Communicator will use to make notifications to the States of Delaware and New Jersey, and how long from the Alert declaration do they have to make those notifications IAW Attachment 6, Primary Communicator Log of the Salem ECG?

a. NETS phones within 15 minutes.

b. NETS phones within 30 minutes.

c. ESSX phones within 15 minutes.

d. ESSX phones within 30 minutes.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
a	R	Memory	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:	
194001G443	2.4.43	3.2	3.8	PWG	1	1	55.43 ☐

System/Evolution Title GENER

KA Statement: Knowledge of emergency communications systems and techniques.

Explanation of Answers: 55.41(10) Salem ECG, lists the communications systems in order of preference. The NETS (Nuclear Emergency Telecommunications System) is the primary closed circuit communication system for off-site notifications. The ESSX is also a closed circuit system, which is used as a backup for NETS. The notifications to the Sates must be made within 15 minutes of the declaration of an Emergency.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Salem ECG - Attachment 6				55
Emergency Preparedness Training Communicat	NEPCOMMDTYSC			04

L.O. Number GENISSE013

Objectives

Material Required for Examination

Question Source: New **Question Modification Method:** **Used During Training Program** ☐

Question Source Comments

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic SRO 1

Given the following conditions:

- Unit 2 is in MODE 4, performing a RCS heatup and pressurization IAW S2.OP-IO.ZZ-0002, Cold Shutdown to Hot Standby.
- RCS Tavg is 210°F.
- RCS pressure is 310 psig.
- 23 RCP is in service.
- 21 Charging pump is in service.
- 23 CCW pump is C/T.
- 2A and 2C 4KV Vital buses are powered from 24 SPT.
- 2B 4KV vital bus is powered from 23 SPT.
- 24 SPT loses power, and NEITHER 2A nor 2C 4KV vital buses transfer to alternate power due to faulty power available relay for 23 SPT.
- 2A vital bus locks out on bus differential.
- 2B EDG fails to start.

Which of the following describes how the control room will respond?

The CRS will...

a. enter S2.OP-AB.RCP-0001 and trip 23 RCP 5 minutes after the receipt of OHA's D20-D23 21(22,23,24) RCP BRG CLG WTR FLO LO.

b. enter S2.OP-AB.RCP-0001, Reactor Coolant Pump Abnormality, and trip 23 RCP based on the loss of seal injection and thermal barrier flow to RCPs.

c. enter S2.OP-AB.CVC-0001, Loss of Charging, and check 22 charging pump has started to supply adequate seal injection to allow continued RCP operation.

d. enter S2.OP-AB.CVC-0001, and take actions to start 22 charging pump prior to 23 RCP seal package temperature rising to the point where seal injection flow is prohibited and 23 RCP trip is required.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
b	S	Application	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:		
000015A210	AA2.10	3.7	3.7	EPE	1	1	55.43	☑

System/Evolution Title Reactor Coolant Pump Malfunctions 015

KA Statement: Ability to determine and interpret the following as they apply to Reactor Coolant Pump Malfunctions:
When to secure RCPs on loss of cooling or seal injection

Explanation of Answers: 55.43(5)The initial electrical lineup, combined with the conditions occurring in the stem, will result in only 2C 4KV vital bus having power. With the RCS temperature < 312°, all charging pumps except one are C/T. 21 charging pump is powered from 2B 4KV vital bus. NO CCW pumps will be running since the only powered 4KV vital bus CCW pump is C/T. With the only operating (or available) charging pump tripped, there is no seal injection flow to RCPs and no CCW flow to RCP thermal barriers. The CAS action in AB.RCP is to trip RCPs. B is correct. A is incorrect because while AB.RCP states that if CCW flow is not restored within 5 minutes of the alarms annunciating, go to Attachment 2, Tripping RCPs, the loss of both seal injection AND CCW directs RCP trip without any time delay. C is incorrect because while AB.CVC will be entered on the trip of 21 charging pump, 22 charging pump will not have auto started due to its power supply being C/T. D is incorrect because while the action will be taken to restore a charging to available status, the CAS action of AB.RCP will be the priority, and seal package temperature will not stop that action.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Reactor Coolant Pump Abnormality	S2.OP-AB.RCP-0001			21
Loss of Charging	S2.OP-AB.CVC-0001			9

L.O. Number	Objectives
ABRCP1E003	

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic SRO 2

Given the following conditions:

- Unit 2 is in Mode 5 with 21 Residual Heat Removal (RHR) pump and HX in service for cooling.
- The RO reports that Pressurizer (PZR) level is slowly lowering unexpectedly.
- NO Overhead Annunciator alarms have been received.
- Refueling Water Storage Tank (RWST) level is stable.
- 21 Waste Hold Up Tank level is rising slowly.

Which of the following identifies the procedure which will be used and the action(s) taken in that procedure which will isolate this leak?

a. S2.OP-AB.RHR-0001, Loss of RHR. Close 2CV8, RHR Letdown.

b. S2.OP-AB.LOCA-1, Shutdown LOCA. Close 2CV8, RHR Letdown.

c. S2.OP-AB.RHR-0001, Loss of RHR. Place 22 RHR pump and HX in service and isolate 21 RHR loop.

d. S2.OP-AB.LOCA-1, Shutdown LOCA. Place 22 RHR pump and HX in service and isolate 21 RHR loop.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
a	S	Application	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:		
000025G406	2.4.6	3.7	4.7	EPE	1	1	55.43	☑

System/Evolution Title Loss of Residual Heat Removal System 025

KA Statement: Knowledge of EOP mitigation strategies.

Explanation of Answers: 55.43(5) The 2 AB.LOCA distracters are incorrect because AB.LOCA is applicable in MODE 3 with Accumulators isolated or MODE 4. With MODE 5 indicated in stem, it is the wrong procedure, although it has the correct action in distracter B. A is correct because the 2CV8 will be isolated and it is the correct action for a leak which is causing the WHUT leve to rise. Distracter C is incorrect because it has the wrong action, with the right procedure. The action in the AB.RHR is to remove BOTH loops from service and isolate BOTH loops in an attempt to stop the leak, then continue to try and identify specifically where the leak is.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Loss of Residual Heat Removal	S2.OP-AB.RHR-0001			17
Shutdown LOCA	S2.OP-AB.LOCA-0001			8

L.O. Number
ABRHR1E005
ABRHR1E004

Objectives

Material Required for Examination

Question Source: Facility Exam Bank **Question Modification Method:** Significantly Modified **Used During Training Program** ☐

Question Source Comments Salem 2003 SRO NRC Exam. (5 NRC Exams ago) Modified to include which procedure to use.

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic SRO 3

Given the following conditions:

- Unit 2 is operating at 21% power.
- Turbine load is being raised at 10% per hour.
- Operators observe the following:
  - OHA E-28 PZR HTR ON PRESS LO alarms.
  - PZR level is 28% and lowering slowly.
  - Control Rods begin stepping out in automatic at 8 spm.
  - OHA C-38 CFCU LK DET HI alarms.
  - Rx power is rising at 0.35% per minute.

Which of the following identifies how these conditions will be addressed?

a. Enter S2.OP-AB-RC-0001, Reactor Coolant System Leak. If VCT level cannot be maintained 11%, swap charging pump suction to the RWST and trip the Rx, confirm the Rx trip, initiate Safety Injection, GO TO EOP-TRIP-1, Reactor Trip Response

b. Enter S2.OP-AB.STM-0001, Excessive Steam Flow. Trip the Turbine, initiate AFW, lower power to <5% IAW S2.OP-IO.ZZ-0005, Minimum Load to Hot Standby, close all MSIVs.

c. Enter S2.OP-AB-RC-0001. If PZR level cannot be maintained stable or rising. trip the Rx and initiate Safety Injection, GO TO EOP-TRIP-1.

d. Enter S2.OP-AB.STM-0001. Trip the Reactor, confirm the Rx trip, initiate MSLI, initiate Safety Injection, GO TO EOP-TRIP-1.

Answer:	d	Exam Level:	S	Cognitive Level:	Application	Facility:	Salem 1 & 2	ExamDate:	9/26/2011

KA:	000040A202	AA2.02	RO Value:	4.6	SRO Value:	4.7	Section:	EPE	RO Group:	1	SRO Group:	1	55.43	☑

System/Evolution Title Steam Line Rupture 040

KA Statement: Ability to determine and interpret the following as they apply to Steam Line Rupture:
Conditions requiring a reactor trip

Explanation of Answers: 55.43(5) D is correct because the indications in the stem are of a steam leak in containment. Rx power is rising at ~21% per hour, while the turbine load increase is at 10% per hour. AB.STM states that if Rx power is rising uncontrollably, take the actions as described in D above. A is incorrect because only some of the indications present in stem would be present for aa RCS leak, and the action is incorrect also. B is incorrect because the actions described would be taken if the steam leak were outside containment and rx power was stable

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Excessive Steam Flow	S2.OP-AB.STM-0001			9
Reactor Coolant System Leak	S2.OP-AB.RC-0001			10

L.O. Number
ABSTM1E004

Objectives

Material Required for Examination

Question Source: New **Question Modification Method:** **Used During Training Program** ☐

Question Source Comments

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic SRO 4

Given the following conditions:

- 21 CVCS Monitor Tank is in recirc.
- 21 CVCS Monitor tank will be released via the Waste Discharge Cross Connection to Unit 1 Liquid Radwaste system IAW S2.OP-SO.WL-0001, Release of Radioactive Liquid Waste from 21 CVCS Monitor Tank.

Which of the following describes an action which would result in an unmonitored Radioactive Liquid Release if it was performed AFTER the Liquid Release was started, and require operator action to stop the release?

a. Unit 1 CRS authorizes a tagging request which results in the 1R18, Liquid Waste Disposal Rad monitor losing its power source.

b. Unit 2 CRS authorizes a tagging request which results in the 2R18, Liquid Waste Disposal Rad monitor losing its power source.

c. Unit 1 CRS authorizes a tagging request which results in the 2FR1064, Rad Waste Liquid Monitor Pumps Discharge flowmeter losing its power source.

d. Unit 2 CRS authorizes a tagging request which results in the 2FR1064, Rad Waste Liquid Monitor Pumps Discharge flowmeter losing its power source.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
d	S	Memory	Salem 1 & 2	9/26/2011

KA:	RO Value:	SRO Value:	Section:	RO Group:	SRO Group:	55.43
000059G236 2.2.36	3.1	4.2	EPE	2	2	☑

System/Evolution Title Accidental Liquid Radwaste Release 059

KA Statement: Ability to analyze the effect of maintenance activities, such as degraded power sources, on the status of limiting conditions for operations.

Explanation of Answers: 55.43(4) The Salem ODCM is a supporting document to the Unit 1 and Unit 2 Technical Specifications. The previous LCOs that were contained in Radiological Effluent Tech Specs are now included in the ODCM. Using ODCM 3.3.3.8, IAW Salem Tech Specs 6.8.4.1.g.1, and Table 3.3-12 on page 19, the R18 and the FR1064 required to be operable. The R18 is interlocked with the WL51 so that if the R18 loses power, the WL51 will shut, preventing an unmonitored release, and no operator action would be required to stop the flow of water overboard. The Flow recorders (FR1064) are also required for releases. There is no comparable interlock between the flow recoder and the WL51, so the release would be considered unmonitored based on the fact that a required component was not available, and the release is ongoing. Loss of the flow recorder during the release requires operators to close the 2WL51 IAW step 5.5.9. The Unit 1 distracters require knowledge of the flow path for a release which is directed through the cross connect line.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Salem ODCM				26
RELEASE OF RADIOACTIVE LIQUID WASTE	S2.OP-SO.WL-0001			24
Waste Disposal WL51	203679			18

L.O. Number

WASLIQE009

Objectives

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic SRO 5

Given the following conditions:

- Unit 1 is operating at 100% power.
- 21, 24 and 26 SW pumps are in service.
- 21 and 22 SW header pressures are 108 psig.
- The following OHAs annunciate within 10 seconds of each other in this order:
  - B-13, 21 SW HDR PRESS LO
  - B-14, 22 SW HDR PRESS LO
  - B-15, TURB AREA SW HDR PRESS LO.
  - B-48, SW VLV RM FLOODED.

The standby SW pump starts automatically, and OHAs B-13, B-14, and B-15 clear.

Which of the following describes the status of the SW system, and which procedure will provide direct actions which will mitigate the event?

a. A SW leak upstream of the 2ST901, TURB LO CLR ST RET V has occurred. S2.OP-AB.SW-0002, Loss of Service Water-Turbine Header.

b. A SW leak upstream of the 2ST901, TURB LO CLR ST RET V has occurred. S2.OP-SO.SW-0001, Loss of Service Water Header Pressure.

c. A SW leak in the CFCU piping in the 78' Mechanical Penetration Area has occurred. S2.OP-AB.SW-0002, Loss of Service Water-Turbine Header.

d. A SW leak in the CFCU piping in the 78' Mechanical Penetration Area has occurred. S2.OP-SO.SW-0001, Loss of Service Water Header Pressure.

Answer	d	Exam Level	S	Cognitive Level	Application	Facility:	Salem 1 & 2	ExamDate:	9/26/2011

KA:	000062A202	AA2.02	RO Value:	2.9	SRO Value:	3.6	Section:	EPE	RO Group:	1	SRO Group:	1	55.43	☑

System/Evolution Title	Loss of Nuclear Service Water	062

KA Statement:	Ability to determine and interpret the following as they apply to Loss of Nuclear Service Water: The cause of possible SWS loss

Explanation of Answers: 55.43(5) The leak location could be in the TGA with the conditions in the stem except for the SW valve room flooding. Knowledge of where the SW valve room and what piping is there is needed to answer question. The 2ST901 would respond on a TGA leak, and depending on leak size could cause a restoration of header pressures. If the leak is determied to be in the TGA, the AB.SW-2 procedure would be used. Although AB.SW-1 is entered for all the conditions in the stem, it does NOT provide direct actions (as called for in stem) for a TGA leak, it merely says to go to AB.SW-2 for the TGA leak.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Loss of SW Header Pressure	S2.OP-AB.SW-0001			16
Loss of SW- Turbine Header	S2.OP-AB.SW-0002			11
Overhead Annunciator Window B	S2.OP-AR.ZZ-0002			35

L.O. Number

ABSW01E005

Objectives

Material Required for Examination

Question Source: New **Question Modification Method:** **Used During Training Program** ☐

Question Source Comments

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic SRO 6

Given the following conditions:

- Unit 2 is in MODE 6 entering a Refueling Outage.
- No fuel assemblies have been removed from the Rx.
- Rx cavity level is 26' above the PRV flange.
- 21 RHR loop is in service in Shutdown Cooling.
- 22 RHR loop is O/S.

Which one of the following would prevent initiation of Rx defueling on Unit 2?

a. Loss of Control Air to containment.

b. Loss of Plant Page capability in containment.

c. Racking down the 22 RHR pump 4KV breaker.

d. Only one of the two SRNI's can provide audible indication in the Control Room.

Answer	a	Exam Level	S	Cognitive Level	Memory	Facility:	Salem 1 & 2	ExamDate:	9/26/2011

KA:	000065G136	2.1.36	RO Value:	3.0	SRO Value:	4.1	Section:	EPE	RO Group:	1	SRO Group:	1	55.43	☑

System/Evolution Title Loss of Instrument Air 065

KA Statement: Knowledge of procedures and limitations involved in core alterations.

Explanation of Answers: 55.43(7, 6) The requirement for SRNI's is BOTH operable and provideing VISUAL indication in the Control room, with ONE providing AUDIBLE indication in the control room. The manipulator crane is air powered for gripping, so the loss of air to containment would preclude being able to perform core alts. Onlt ONE RHR loop is required to be in operation in MODE 6. 2 RHR loops are required to be OPERABLE when <23' level above the flange.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Refueling Operations	S2.OP-IO.ZZ-0107		13	17
Reac Pene Area & Cont Control Air	205347-1,3			42,36

L.O. Number

IOP009E002

REFUELE007

Objectives

Material Required for Examination

Question Source: New **Question Modification Method:** **Used During Training Program** ☐

Question Source Comments

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic SRO 7

Given the following conditions:

- Unit 1 has experienced a large Main Steamline Break (MSLB) inside containment from 100% power.
- Safety Injection was initiated.
- MSLI has failed to shut ANY MS167 and they remain open.
- 11 AFP is C/T.
- 12 and 13 AFP's tripped after starting.
- RCS pressure is 700 psig.
- ALL RCPs have been tripped.
- Containment pressure is 18 psig and rising.
- ALL Wide Range SG levels are 35% and dropping.
- ALL SG pressures are 120 psig and dropping.
- RCS Tc's have dropped from 540°F to 230°F in 20 minutes.

Evaluate the data and select the procedure to be entered and action to be taken upon transition out of 1-EOP-TRIP-1, Reactor Trip Response.

a. 1-EOP-FRTS-1, Response to Imminent Pressurized Thermal Shock Conditions; shut all MS10's and steam dump valves.

b. 1-EOP-FRHS-1, Response to Loss of Seconday Heat Sink; initiate feed and bleed immediately.

c. 1-EOP-FRHS-1, initiate feed and bleed ONLY when 3/4 SG WR levels have dropped <32%.

d. 1-EOP-FRTS-1, reset Safeguards Actuation and restore normal charging and letdown.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
b	S	Application	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:		
00WE05G406	2.4.6	3.7	4.7	EPE	1	1	55.43	☑

System/Evolution Title		
Loss of Secondary Heat Sink		E05

KA Statement: Knowledge of EOP mitigation strategies.

Explanation of Answers: 55.43(5) B is correct because the conditions given in stem would transition to FRHS-1 due to a a RED path of no AFW flow and <9% NR level. The Bleed and Feed initiation criteria are when S/G WR levels are <36%(adverse), NOT 32% as in distracter c. Distracters A&D are incorrect because it is a lower priority RED path, though it's action is correct for the procedure.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Response to Loss of Seconday Heat Sink	1-EOP-FRHS-1			24
Response to Imminent Pressurized Thermal Sh	1-EOP-FRTS-1			25
Critical Safety Function Status Trees	1-EOP-CFST-1			25

L.O. Number
FRHS00E005
FRHS00E013

Objectives

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic SRO 8

Given the following conditions:

- A Rx trip and SI were initiated based on a LOCA 1 hour ago.
- Operators have transitioned out of EOP-TRIP-1, Reactor Trip or Safety Injection.
- RCS pressure is 350 psig and lowering very slowly.
- All RCPs are stopped.
- RCS highest CET is 290°F and lowering very slowly.
- Rx power is 300 cps and stable.
- RVLIS Full Range is 95% and stable.
- 21-23 SG NR levels are 33% and stable, and 24 SG NR level is 0%.
- Containment radiation levels are 500 mr/hr and stable.
- Containment pressure is 5 psig and lowering very slowly.
- Containment Sump level is 46% and stable.

Which of the following identifies the highest priority CFST for these conditions, and actions taken in that associated EOP?

Reference provided.

a. Yellow Path Core Cooling. Isolate ECCS accumulators, depressurize SGs to atmospheric pressure.

b. Purple Path Containment Environment. Isolate Containment Pressure Relief flowpath (2VC5, 2VC6) and return to procedure in effect.

c. Purple Path Containment Environment. Isolate fluid sources from outside containment which have corroborating indications of lower than expected levels.

d. Yellow Path Core Cooling. Check ECCS flow for current RCS conditions as expected or start pumps and align flow paths, and ensure PZR PORVs and RPV Head Vents are shut.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
d	S	Application	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:		
00WE07A201	EA2.1	3.2	4.0	EPE	2	2	55.43	☑

System/Evolution Title	
Saturated Core Cooling	E07

KA Statement: Ability to determine and interpret the following as they apply to Saturated Core Cooling:
Facility conditions and selection of appropriate procedures during abnormal and emergency operations.

Explanation of Answers: 55.43(5) Core Cooling is the highest priority based on: All RCPs off and no subcooling and CETs <700° with RVLIS level >39%. The actions in FRCC-3 check first if you need to be in a different procedure (SGTR-4 or AB.RHR-1), then has you reset safeguards, check ECCS flow vs RCS pressure and align valves if less than expected. Then it checks proper PZR PORV and RPV head vents shut. The CFST Tables for subcooling HAVE to be provided since they HAVE to be used to determine subcooling. Purple Path for CF can be either >15 psig or Cont Sump >75% (adverse). The Yellow path for CF on cont rad is > 2R/hr. FRCE-2 actions are correct. FRCE-1 actions are partially correct, in that you would isolate VC5 and 6 and return to procedure in effect, but the conditions for entering FRCE-1 were never met so you wouldn't be in procedure < 15 psig cont pressure.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Critical Safety Function Status Trees	2-EOP-CFST-1			25
Response to Saturated Core Cooling conditions	2-EOP-FRCC-3			20

L.O. Number	Objectives
FRCC00E002	

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic SRO 9

Given the following conditions:

- Unit 2 was operating at 15% power prior to synchronizing the Main Generator.
- A Main Steamline rupture occurred that resulted in multiple Steam Generators depressurizing in containment before 2 steam generators could be isolated from the 2 faulted SGs.
- The 2 faulted SGs Tcs are reading 270°F and lowering.
- The intact 2 SG Tcs are 330°F and stable.
- RCS pressure is 500 psig and slowly lowering.
- Containment pressure is 16 psig and slowly lowering.
- All SG NR levels are <9%.
- Total AFW flow is 24E4 lbm/hr.
- Source Range NIs are NOT energized.
- Intermediate Range SUR is 0.0 DPM.

With CFST's in effect, which of the following identifies the procedure entry required, and actions which will be performed in that procedure?

a. 2-EOP-FRTS-1, Response to Imminent Pressurized Thermal Shock Conditions. Maintain AFW flow >22E4 lbm/hr until at least ONE intact SG NR level is >15%, stop all ECCS pumps except 21 or 22 charging pump.

b. 2-EOP-FRSM-2, Response to Loss of Core Shutdown. Energize Source Range channels and verify SR SUR is 0 or negative.

c. 2-EOP-FRTS-1. Isolate any faulted SGs, depressurize RCS with ONE PORV to within 100°/hr Cooldown Curve.

d. 2-EOP-FRSM-2. Establish AFW flow >44E4 lbm/hr, borate RCS until IR SUR is negative.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
a	S	Application	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:		
00WE08A201	EA2.1	3.4	4.2	EPE	1	1	55.43	☑

System/Evolution Title		
Pressurized Thermal Shock		E08

KA Statement: Ability to determine and interpret the following as they apply to Pressurized Thermal Shock:
Facility conditions and selection of appropriate procedures during abnormal and emergency operations.

Explanation of Answers: 55.43(5) A is correct because the stem conditions result in a PURPLE path on FRTS. Actions for maintaining AFW flow (Step 3.5) and ECCS pump reduction (Step 12) are correct. C is incorrect because depressurizing the RCS to restore conditions withn the 100°F/hr curve is performed in FRTS-2 in response to a Yellow Priority Condition. FRTS-1 is entered from either RED or PURPLE conditions, and with SG NR levels <9% (which means you're less than 15% adverse) you are directed to maintain AFW flow > 22E4 lbm/hr. With the SR NIs not energized, IR SUR is required to be more negative than -0.2 dpm, or a YELLOW path exists for FRSM-2. The FRTS is a higher priority, and is a PURPLE path. B is incorrect because it is the wrong procedure with the correct actions of that procedure. D is incorrect because it is the wrong procedure, and the actions are performed in FRSM-1.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Critical Safety Function Status Trees	2-EOP-CFST-1			25
Response to Imminent Pressurized Thermal Sh	2-EOP-FRTS-1			25
Response to Loss of Core Shutdown	2-EOP-FRSM-2			20

L.O. Number

FRTS00E002

Objectives

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic SRO 10

Given the following:

- Unit 2 is in Mode 3 following a shutdown after a 200 day run.
- All RCP's are in operation.
- Main steam dumps are in MS PRESSURE CONTROL-AUTO @ 1005 psig.
- 21-24MS10 setpoints are 1015 psig.
- A transformer fault results in the total loss of off-site power.

- 15 minutes after the transformer fault, with NO operator action, the following indications are present:
- All RCS WR Thot's are 559°F and rising slowly.
- All RCS WR Tcold's are 549°F and stable.
- All SG pressures are 1015 psig and stable.
- All SG NR levels are 39% and stable.
- PZR level is 23% and rising slowly.

Which of the following identifies the action that must be performed?

a. Lower 21-24MS10 setpoints to establish CET's stable or lowering IAW S2.OP-IO.ZZ-0008, Maintaining Hot Standby.

b. Lower 21-24MS10 setpoints to establish CET's stable or lowering IAW S2.OP-AB.RC-0004, Natural Circulation.

c. Lower Main Steam Dump pressure setpoint to stabilize or reduce RCS Thots IAW S2.OP-AB.RC-0004.

d. Lower Main Steam Dump pressure setpoint to stabilize or reduce RCS Thots IAW S2.OP-IO.ZZ-0008.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
b	S	Application	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:		
00WE09G411	2.4.11	4.0	4.2	EPE	1	1	55.43	☑

System/Evolution Title Natural Circulation Operations E09

KA Statement: Knowledge of abnormal condition procedures.

Explanation of Answers: 55.43(5) The loss of off-site power will cause all RCPs and Circulators to stop. Loss of the circulators will cause a loss of Steam Dumps Permissive and all steam dump valves will shut. Steam dumping will transfer to MS10s at 1015 psig from Steam Dumps at 1005 psig. C and D are incorrect because steam dumps will have no effect. A is incorrect with right action but wrong procedure. Ab.RC-4 is entered on a loss of forced circulation in MODES 3 and 4. The stem shows nat cir is NOT present, so the correct answer has to be increase steam flow, but knowing how is required, with the correct procedure.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Natural Circulation	S2.OP-AB.RC-0004			7

L.O. Number
ABRC04E001
ABRCP1E004

Objectives

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic SRO 11

Given the following conditions:

- Salem Unit 1 is operating at 30% power, performing a shutdown at 30% per hour.
- The shutdown is being driven by Tech Spec 3.0.3 being entered when BOTH ECCS subsystems were declared inoperable.
- The unit is required to be in MODE 3 within the next 2 hours.

Which of the following describes the effect on the Rx if a loss of off-site power occurs, and how will operators perform the required cooldown?

The Rx...

a. WILL NOT trip. Operators will perform a rapid cooldown IAW 1-EOP-TRIP-6, Natural Circulation Rapid Cooldown with RVLIS.

b. WILL trip. Operators will perform a rapid cooldown IAW 1-EOP-TRIP-6, Natural Circulation Rapid Cooldown with RVLIS.

c. WILL NOT trip. Operators will perform a normal cooldown IAW 1-EOP-TRIP-4, Natural Circulation Cooldown.

d. WILL trip. Operators will perform a normal cooldown IAW 1-EOP-TRIP-4, Natural Circulation Cooldown.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
b	S	Application	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:	
002000A203	A2.03	4.1	4.3	SYS	2	2	55.43 ☑

System/Evolution Title Reactor Coolant System 002

KA Statement: Ability to (a) predict the impacts of the following on the Reactor Coolant System and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:
Loss of forced circulation

Explanation of Answers: 55.43(5) The Rx will trip on the loss of forced flow, based on any of the rCP trips associated with losing at least 2 RCPs when >P-10 and < P-8. In order to prevent violating Tech Specs, the unit must be cooled down to <350 °F (MODE 4) within 6 hours of being in MODE 3. At the time MODE 3 is entered (on the Rx trip) Tavg is 547°F. 547-350=197° degrees of cooldown required in the next 6 hours, 197/6= 32.8°F/hr cooldown required. TRIP-4 maintains a maximum cooldown rate of 25 °F/hr, so the transition to TRIP-6 is made for a rapid cooldown with RVLIS, as it is powered from 115 VIB power.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Natural Circulation Rapid Cooldown with RVLIS	1-EOP-TRIP-6			22
Natural Circulation Cooldown	1-EOP-TRIP-4			22
RPS Primary Coolant System Trip Signals	221054			10

L.O. Number
RCS000E007
TRP004E001

Objectives

Material Required for Examination

Question Source: New **Question Modification Method:** **Used During Training Program** ☐

Question Source Comments

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic SRO 12

Given the following conditions:

- Salem Unit 1 has performed a Rx trip and SI based on rapidly lowering PZR pressure and level.
- The crew has transitioned to 1-EOP-LOCA-1, Loss of Reactor Coolant.

Which of the following describes why the first several steps of LOCA-1 check for reasons OTHER than a LOCA for being in LOCA-1?

LOCA-1 actions assume...

a. a loss of RCS inventory. If the ECCS injection flow is due to a Loss of Secondary Coolant, the event could be terminated by raising AFW flow.

b. a loss of RCS inventory. If the ECCS injection flow is due to a Loss of Secondary Coolant, the event could be terminated by isolating the faulted SG.

c. a SGTR is NOT causing the LOCA condition. If the ECCS injection flow is due to a SGTR, an uneccesary transition to LOCA-3, Transfer to Cold Leg Recirculation would be made.

d. a SGTR is NOT causing the LOCA condition. If the ECCS injection flow is due to a SGTR, the tube rupture must be addressed before returning to LOCA-1 to terminate ECCS flow.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
b	S	Memory	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:		
006000G422	2.4.22	3.6	4.4	SYS	1	1	55.43	☑

System/Evolution Title Emergency Core Cooling System 006

KA Statement: Knowledge of the bases for prioritizing safety functions during abnormal/emergency operations.

Explanation of Answers: 55.43(5) The Major Action Categories for LOCA-1 are : 1. Check for Subsequent Failure, 2. Monitor Plant Equipment for Optimal Mode of Operation, and 3. Determine optimal Method of Long-Term Plant Recovery. The first item checks that a faulted or ruptured SG is not the reason for ECCS injection, and either fixes it on the spot (faulted) or transitions to another more approriate procedure With a faulted SG being the cause of the ECCS flow, LOCA-1 has a "do loop" which will wait unril the SG has blown down to go to TRIP-3 SI Termination, vs staying in LOCA-1 until the transition to LOCA-2 is made. A transition to SGTR is performed to do actions which will terminate the primary to secondary leakage, which is not performed in LOCA-1. Additionally, there is no transition from SGTR-1 to LOCA-1.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Loss of Reactor Coolant	1-EOP-LOCA-1			25
Steram Generator Tube Rupture	1-EOP-SGTR-1			24
Loss of Secondary Coolant	1-EOP-LOSC-1			20

L.O. Number

LOCA01E005

SGTR01E003

LOSC01E002

Objectives

Material Required for Examination

Question Source: New **Question Modification Method:** **Used During Training Program** ☐

Question Source Comments

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic SRO 13

Given the following conditions:

- Unit 2 is operating at 100% power.
- 2PR1 fails open and remains open.

Which of the following identifies how this affects the PZR Master Pressure Controller (MPC) response, and what consequences, if any, are associated with the actions performed by the crew IAW S2.OP-AB.PZR-0001, Pressurizer Pressure Malfunction?

a. MPC output will LOWER. The unit may continue to operate indefinitely after the initial mitigative actions are completed.

b. MPC output will RISE. The unit may continue to operate indefinitely after the initial mitigative actions are completed.

c. MPC output will LOWER. A unit shutdown will be required if 2PR1 cannot be restored to operable status.

d. MPC output will RISE. A unit shutdown will be required if 2PR1 cannot be restored to operable status.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
c	S	Application	Salem 1 & 2	9/26/2011

KA:	RO Value:	SRO Value:	Section:	RO Group:	SRO Group:	
010000A203 A2.03	4.1	4.2	SYS	1	1	55.43 ☑

System/Evolution Title Pressurizer Pressure Control System 010

KA Statement: Ability to (a) predict the impacts of the following on the Pressurizer Pressure Control System and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:
PORV failures

Explanation of Answers: 55.43(2) This question is SRO level because of the Tech Spec knowledge required, and what actions TS directs for different PORV malfunctions. Additionally, while the question doesn't specifically ask what procedure to use (too easy for AB.PZR), it does require knowledge of the actions IN that procedure. The MPC raises output when actual pressure rises, and lowers as actual pressure lowers. As pressure lowers due to the open PORV, the output will lower to turn on heaters and close spray valves. When the PORV Block valve is shut to isolate the PORV in AB.PZR, Tech Spec 3.4.5 action b, if the PORV is not restored within 72 hours, shutdown is required. A PORV isolation that DOESN'T require shutdown if not fixed is a leaking PORV, which is isolated by its Block Valve with power maintained to the Block valve.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
S2.OP-AB.PZR-0001	Pressurizer Pressure Malfunction			18
Salem Tech Specs		3.4.5		

L.O. Number
ABPZR1E002
PZRP&LE010

Objectives

Material Required for Examination

Question Source: New **Question Modification Method:** **Used During Training Program** ☐

Question Source Comments

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic SRO 14

Given the following conditions:

- Unit 2 is operating at 100% power.
- 23 charging pump is in service.
- A control circuit malfunction has resulted in the 2CV3, 45 gpm Letdown Orifice opening, and cannot be shut from the control room.

Which of the following describes the impact this failure will have on operation of the PZR Level Control System, and how will operators respond?

a. 23 charging pump speed will rise. Isolate letdown and place Excess Letdown in service IAW S2.OP-SO.CVC-0003, Excess Letdown Flow.

b. 2CV55 will modulate in the open direction. Isolate letdown and place Excess Letdown in service IAW S2.OP-SO.CVC-0003, Excess Letdown Flow.

c. 23 charging pump speed will rise. Transfer to a centrifugal charging pump IAW PZR LEVEL LO alarm response in S2.OP-AR.ZZ-0012, Control Console CC2.

d. 2CV55 will modulate in the open direction. Transfer to a centrifugal charging pump IAW PZR LEVEL LO alarm response in S2.OP-AR.ZZ-0012, Control Console CC2.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
a	S	Application	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:		
011000A201	A2.01	3.2	3.1	SYS	2	2	55.43	☑

System/Evolution Title Pressurizer Level Control System 011

KA Statement: Ability to (a) predict the impacts of the following on the Pressurizer Level Control System and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:
Excessive letdown

Explanation of Answers: 55.43(5) Letdown orifii are Containment Isolation valves, and will require letdown isolation to isolate the CIV. For long term operation Excess Letdown must be placed in service. The 23 charging pump (PDP) is normally in service at power. It has a maximum flow of ~96 gpm. Normally, letdown flow is 75 gpm with one 75 gpm orifice in service. With the 45 gpm orifice in service, letdown flow will be ~110 gpm. The Master Flow Controller controls 23 charging pump speed when in service, and the CV55 when a centrifugal pump is in service. With a CCP O/S, the CV55 is in Manual open, and will not be affected by PZR level

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Control Console CC2	S2.OP-AR.ZZ-0012			35

L.O. Number
PZRP&LE007

Objectives

Material Required for Examination

Question Source: New **Question Modification Method:** **Used During Training Program** ☐

Question Source Comments

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic SRO 15

Given the following conditions:

- Unit 1 is operating at 100% power.
- 1PR5, PZR Safety Valve, fails open.

Which of the following identifies what will occur if NO operator action is taken until AFTER the Rx trips, and which procedure will be used upon the transition out of 1-EOP-LOCA-1, Loss of Reactor Coolant?

a. The Main Turbine will runback on OT/DT, then the Rx will trip on OT/DT. 1-EOP-LOCA-2, Post LOCA Cooldown and Depressurization.

b. The Main Turbine will runback on OT/DT, then the Rx will trip on OT/DT. 1-EOP-TRIP-3, Safety Injection Termination.

c. The Rx will trip on Low PZR Pressure. 1-EOP-LOCA-2, Post LOCA Cooldown and Depressurization.

d. The Rx will trip on Low PZR Pressure. 1-EOP-TRIP-3, Safety Injection Termination.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
a	S	Application	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:		
013000A203	A2.03	4.4	4.7	SYS	1	1	55.43	☑

System/Evolution Title Engineered Safety Features Actuation System 013

KA Statement: Ability to (a) predict the impacts of the following on the Engineered Safety Features Actuation System and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:
Rapid depressurization

Explanation of Answers: 55.43(5) The PZR Safety failing open will cause a SBLOCA. Pressure will rapidly lower, and an OT/DT runback will initiate before the OT/DT Rx trip. The Safety Injection will actuate, and pressure will stabilize ~ 985 psig. With no subcooling, the transition to TRIP-3 cannot be made, and LOCA-2 will initiate a cooldown. The distracters either contain the wrong procedure, the wrong Rx trip actuation signal, or both.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Post LOCA Cooldown and Depressurization	1-EOP-LOCA-2			23

L.O. Number
ESF000E021

Objectives

Material Required for Examination

Question Source: New **Question Modification Method:** **Used During Training Program** ☐

Question Source Comments

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic SRO 16

Given the following conditions:

- Unit 2 is in MODE 6.
- Core off-load is in progress and is 2/3 complete.
- A fuel assembly is in the transfer cart at the Spent Fuel Pool.
- The mast tube of the manipulator crane is empty.
- Refueling cavity level begins to drop rapidly, approximately 6 inches per minute.
- Radiation Protection reports flooding in the lower elevations of containment.

Which of the following describes how the Fuel Transfer Tube Gate Valve should be operated IAW S2.OP-AB.FUEL-0002, Loss of Refueling Cavity or Spent Fuel Pool Level, and the consequence of that operation?

a. START the transfer cart moving to containment, then shut the gate valve when the cart is clear. The fuel transfer cart will stop when the gate valve open limit is lost.

b. START the transfer cart moving to containment, then shut the gate valve when the cart is clear. The fuel transfer cart will continue until it reaches its normal travel stop on the containment side.

c. IMMEDIATELY shut the gate valve regardless of transfer cart position. If a fuel assembly is in the Spent Fuel Pool upender, transfer it to the Fuel Handling crane and place it into its designated SFP location.

d. IMMEDIATELY shut the gate valve regardless of transfer cart position. If a fuel assembly is in the Spent Fuel Pool upender, lower is to the horizontal position to reduce any radiation exposure due to dropping SFP level.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
a	S	Memory	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:	
034000G435	2.4.35	3.8	4.0	SYS	2	2	55.43 ☑

System/Evolution Title Fuel Handling Equipment System 034

KA Statement: Knowledge of local auxiliary operator tasks during an emergency and the resultant operational effects.

Explanation of Answers: 55.43(7) With a no fuel assembly in the mast tube and a fuel assembly in the transfer cart, the operator is directed to close the fuel pool gate valve at step 3.13 AFTER starting the cart to the containment side. The discussion section of S2.OP-AB.FUEL-0002 (2.4.C) states that the gate valve is not to be closed until the fuel handling cart is clear of the gate valve path. It also states that while the transfer cart may stop prior to reaching containment, it is acceptable because the water around the fuel with shield and cool it

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Loss of Refueling Cavity or Spent Fuel Pool Lev	S2.OP-AB.FUEL-0002			10

L.O. Number ABFUE2E002

Objectives

Material Required for Examination

Question Source: Facility Exam Bank **Question Modification Method:** Direct From Source **Used During Training Program** ☐

Question Source Comments Vision Q71988

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic SRO 17

Given the following conditions:

- Salem Unit 2 is responding to a loss of all off-site power.
- 2B EDG is supplying 2B 4KV vital bus.
- 2A and 2C EDGs have tripped.
- 2A and 2C SECs have been deenergized.
- A CO2 actuation occurs in 2B EDG room.

Which of the following identifies the effect the CO2 actuation will have on 2B EDG operation, and what action(s) will be performed?

2B EDG...

a. will automatically trip. Deenergize 2B SEC IAW 2-EOP-LOPA-1, Loss of All AC Power.

b. will NOT automatically trip. Deenergize 2B SEC IAW S2.OP-SO.DGV-0001, Diesel Generator Area Ventilation Operation.

c. will automatically trip. Place the 2B Diesel Generator Supply Fans Emerg Bypass of CO2 Shutdown Switch at 2RP5 in Emergency IAW 2-EOP-LOPA-1.

d. will NOT automatically trip. Place the 2B Diesel Generator Supply Fans Emerg Bypass of CO2 Shutdown Switch at 2RP5 to Emergency IAW S2.OP-SO.DGV-0001.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
d	S	Application	Salem 1 & 2	9/26/2011

KA:	RO Value:	SRO Value:	Section:	RO Group:	SRO Group:		
064000A222 A2.22	2.4	2.8*	SYS	1	1	55.43	☑

System/Evolution Title Emergency Diesel Generators 064

KA Statement: Ability to (a) predict the impacts of the following on the Emergency Diesel Generators and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:
Potential automatic safety sequences (water/CO2)and electrical damage (loose wires)

Explanation of Answers: There is no automatic EDG trip on CO2 actuation, either in the EDG control room or the EDG area. The sEC does not control the EDG Area/control room supply fan. The SEC deenergization of the unaffected SECs/EDGs in stem is to make the EDG trip plausible if the candidate thinks that the SEC would prevent an EDG trip, since there would be a standing Mode II SEC signal present with 2 vital buses deenergized. Bypassing the CO2 shutdown of the supply fans allows them to restart since their control switches remain in AUTO, an they operate based on room temperature. There is no exhaust fan for the EDG or Control rooms, but there is an exhaust fan for the EDG FO Storage area.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Diesel Generator Area Ventilation Operation	S2.OP-SO.DGV-0001			5

L.O. Number
EDG000E008

Objectives

Material Required for Examination

Question Source: New **Question Modification Method:** **Used During Training Program** ☐

Question Source Comments

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic SRO 18

Given the following conditions:

- Unit 2 is operating at 100% power.
- 25 SW pump is INOPERABLE for scheduled maintenance.
- The appropriate TSAS Tracking entry for TSAS 3.7.4 has been made in OP-SA-108-115-1001, Operability Assessment and Equipment Control Program.
- 23 SW pump strainer motor fails.

Which choice identifies the action that is required to be performed and the Bases for that action?

a. Exit the TSAS Tracking statement for 25 SW pump, and enter TSAS 3.7.4 as an ACTIVE entry due to 1 SW loop being INOPERABLE.

b. Exit the TSAS Tracking statement for 25 SW pump, and enter TSAS 3.7.4 as an ACTIVE entry due to 2 SW pumps being INOPERABLE.

c. Make a second, separate TSAS Tracking entry for 23 SW pump. Each 4KV vital bus requires only one OPERABLE SW pump to ensure full OPERABILITY of the SW system.

d. Make a second, separate TSAS Tracking entry for 23 SW pump. IF ANY other SW pump were to be declared INOPERABLE, THEN entry into active TSAS 3.7.4 is required since only one OPERABLE SW loop would remain.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
d	S	Memory	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:		
076000G237	2.2.37	3.6	4.6	SYS	1	1	55.43	☑

System/Evolution Title Service Water System 076

KA Statement: Ability to determine operability and/or availability of safety related equipment.

Explanation of Answers: 55.43(2) Each SW pump must have its strainer operable for the SW pump to be operable. (SO.SW-005, page 97). With 2 SW pumps inoperable on different vital buses AND in different SW bays as described in stem, then BOTH SW loops remain operable. The requirement for 2 operable SW LOOPS are: One operable pump on A bus, One operable pump on B bus, One operable pump on C bus, and 2 operable pumps per bay. The requirement for ONE operable SW loop is 2 operable pumps powered from different vital buses. D is correct because any other SW pump inoperable would not meet the 2 pumps per bay operable requirement for 2 operable SW loops. C is incorrect because the bases is wrong. If there were only one pump per vital bus, then there would only be one operable SW loop. A and B are wrong because entry into an active Tech Spec is not required for 2 SW pumps inop on different vital buses in different SW bays.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Salem Tech Specs		3.7.4		
Service Water System Operation	S2.OP-SO.SW-0005			40

L.O. Number SW0NUCE010

Objectives

Material Required for Examination

Question Source: Facility Exam Bank **Question Modification Method:** Significantly Modified **Used During Training Program** ☐

Question Source Comments Vision Q80615. Changed to a "2 and 2" question. Replaced 3 distracters with new distracters. Added bases section to each choice.

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic SRO 19

Given the following conditions:

- A heatup is in progress on Unit 2 IAW S2.OP-IO.ZZ-0002, Cold Shutdown to Hot Standby.
- All RCPs in operation.
- Seal injection flow is 6.0 gpm to each RCP
- During the heatup, VCT gas pressure is lowered from 35 psig to 15 psig.

Which of the below describes the effect on the plant of this evolution, and how will it be addressed?

a. Flow to the No. 2 RCP seal will lower. Fill the RCP standpipe when the low level alarm annunciates IAW S2.OP-AR.ZZ-0011, Control Console 2CC1.

b. A high RCP standpipe level alarm will actuate. Drain the RCP standpipe until the high level clears IAW S2.OP-AR.ZZ-0011, Control Console 2CC1.

c. A high RCP standpipe level alarm will actuate. If required, raise seal injection flow to maintain at least 6 gpm to each RCP IAW S2.OP-SO.CVC-0001.

d. Flow to the No. 2 RCP seal will lower. If required, raise seal injection flow to maintain at least 6 gpm to each RCP IAW S2.OP-SO.CVC-0001.

Answer	d	Exam Level	S	Cognitive Level	Comprehension	Facility:	Salem 1 & 2	ExamDate:	9/26/2011

KA:	194001G123	2.1.23	RO Value:	4.3	SRO Value:	4.4	Section:	PWG	RO Group:	1	SRO Group:	1	55.43	☑

System/Evolution Title GENERI

KA Statement: Ability to perform specific system and integrated plant procedures during all modes of plant operation.

Explanation of Answers: 55.43(5) Lowering the VCT pressure reduces the backpressure forcing flow to the #2 seal. With less backpressure, flow to the number 2 seal will lower (more of #1 seal leakoff is going to VCT) With less flow going to the #2 seal, number 2 seal leakoff will lower, and standpipe level cannot rise. The RCP standpipe will not lower to the alarm setpoint as long as there is any flow from the #2 seal leakoff.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Charging, Letdown, and Seal Injection	S2.OP-SO.CVC-0001			

L.O. Number

RCPUMPE008

Objectives

Material Required for Examination

Question Source: Facility Exam Bank **Question Modification Method:** Editorially Modified **Used During Training Program** ☐

Question Source Comments Vision Q85461

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic SRO 20

Given the following conditions:

- Salem Unit 1 is operating at 100% power with equilibrium core xenon-135.
- Power is lowered to 75% over a 15 minute period using the control rods.
- The NCO then adjusts control rod height as necessary to maintain average reactor coolant temperature constant.

What will be the rod position and directional trend 30 hours after the power change?

Reference provided.

a. Below the initial 75% position and inserting slowly.

b. Above the initial 75% position and inserting slowly.

c. Below the initial 75% position and withdrawing slowly.

d. Above the initial 75% position and withdrawing slowly.

Answer	a	Exam Level	S	Cognitive Level	Application	Facility:	Salem 1 & 2	ExamDate:	9/26/2011

KA:	194001G143	2.1.43	RO Value:	4.1	SRO Value:	4.3	Section:	PWG	RO Group:	1	SRO Group:	1	55.43	☑

System/Evolution Title | GENERI

KA Statement: Ability to use procedures to determine the effects on reactivity of plant changes, such as reactor coolant system temperature, secondary plant, fuel depletion, etc.

Explanation of Answers: 55.43(6) As Xenon builds in following the power reduction, control rods will have to be withdrawn. After the Xenon peak, Xenon will be burning out, and control rods will be inserted to offset the less negative reactivity due to Xenon. Xenon will continue to burnout to establish a new equilibrium level at 75% power, and the control rods will continue to be inserted past where they were inserted at 75%.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Curve Book	S1.RE-RA.ZZ-0016			3

L.O. Number
RXOPERE019

Objectives

Material Required for Examination SRO 20 S1.RE-RA.ZZ-0016

Question Source:	Facility Exam Bank	Question Modification Method:	Direct From Source	Used During Training Program	☐

Question Source Comments Vision 37077

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic SRO 21

Given the following conditions:

- Unit 1 is operating at 100% power.
- Operators have just satisfactorily completed SC.OP-PT.DG-0001 DIESEL GENERATOR MANUAL BARRING on 1B EDG.
- The only Tech Spec entered was 3.8.1.1.b for the 1B EDG being declared INOPERABLE when the LOCKOUT SW was C/T in the LOCKOUT position.

Which of the following identifies when the 1B EDG will be declared OPERABLE?

a. When the Acceptance Criteria in SC.OP-PT.DG-0001 is reviewed and signed off as SAT by the CRS.

b. When the LOCKOUT SW is released to the IN SERVICE position after successful completion of SC.OP-PT.DG-0001.

c. When the NCO is directed by procedure to log the EDGs availability for operability testing in the Control Room Narrative Log.

d. When the EDG has successfully met the acceleration, voltage and frequency Acceptance Criteria in the ST procedure used for the retest, and is synchronized to the Vital Bus.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
d	S	Memory	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:		
194001G223	2.2.23	3.1	4.6	PWG	1	1	55.43	☑

System/Evolution Title GENERI

KA Statement: Ability to track Technical Specification limiting conditions for operations.

Explanation of Answers: 55.43(2) The EDG becomes inoperable when the Lockout Switch is placed in the lockout position. The EDG remains inoperable during the performance of the barring. It cannot be declared operable until it has proved it meets the requirements for an operable EDG, since it has been affected by the barring operation. The requirements are successfully reaching rated speed, voltage and frequency requirements, AND being synchonized to the vital bus.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Diesel Generator Manual Barring	SC.OP-PT.DG-0001		15	18

L.O. Number

EDG000E010

Objectives

Material Required for Examination

Question Source: Facility Exam Bank **Question Modification Method:** Direct From Source **Used During Training Program** ☐

Question Source Comments "I" ILOT SRO CERT Exam 11/2006

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic SRO 22

A Hope Creek Station employee has received 1900 mrem routine TEDE for the current calendar year, ALL at Hope Creek Station.
The employee is expected to receive an additional dose of 450 mrem on his current job assignment at SALEM.

His lifetime exposure is 5500 mrem.

IAW RP-AA-203, Exposure Control and Authorization, and prior to performing the job, written approval for increasing his dose limit to 3000 mrem TEDE for the calendar year must be received from the work group supervisor and the ...

a. RP Manager ONLY.

b. Site Vice president ONLY.

c. RP Manager and Station Manager.

d. Station Manager and Site Vice President.

Answer	a	Exam Level	S	Cognitive Level	Memory	Facility:	Salem 1 & 2	ExamDate:	9/26/2011

KA:	194001G304	2.3.4	RO Value:	3.2	SRO Value:	3.7	Section:	PWG	RO Group:	1	SRO Group:	1	55.43	☑

System/Evolution Title GENERI

KA Statement: Knowledge of radiation exposure limits under normal or emergency conditions.

Explanation of Answers: 55.43(4) A is correct because the approval requirements are: Up to 3,000 mrem- RP Manager; up to 4,000 mrem- RP Manager and Station Manager, >4,000 Site Vice President. Distracters are all some form of combo of each of the positions.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Exposure Control and Authorization	RP-AA-203		4	5

L.O. Number

RADCONE002

Objectives

Material Required for Examination

Question Source: Previous 2 NRC Exams **Question Modification Method:** Direct From Source **Used During Training Program** ☐

Question Source Comments 08-01 Salem ILOT SRO Exam May 2010

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic SRO 23

Given the following conditions:

- Unit 2 is operating at 100% power.
- The operating crew entered S2.OP-AB.RC-0002, High Activity in Reactor Coolant System, when RMS channel 2R31, Letdown Line Monitor, went into WARNING.

Which of the following is the reason that Radiation Protection initiates surveys of plant areas?

a. Confirmation of 2R31 response.

b. Radiation levels may have changed access requirements.

c. 2R31 reads in CPM and therefore has no correlation to dose level changes.

d. Determination of radiation type (gamma vs. neutron) will narrow possible sources of the higher radiation levels.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
b	S	Memory	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:		
194001G314	2.3.14	3.4	3.8	PWG	1	1	55.43	☑

System/Evolution Title GENERI

KA Statement: Knowledge of radiation or contamination hazards that may arise during normal, abnormal, or emergency conditions or activities.

Explanation of Answers: 55.43(4) B is correct as described in S2.OP-AB.RC-002 basis, so that prompt identification and subsequent notification of plant personnel is ensured.
A is incorrect because chemistry sampling confirms 2R31 readings, not survey results. C is incorrect because rising counts does indicate dose level changes. D is incorrect because the radiation type won't be determined, as neutrons won't be found.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
High Activity in Reactor Coolant System	S2.OP-AB.RC-0002			8

L.O. Number ABRC02E003

Objectives

Material Required for Examination

Question Source: Facility Exam Bank | **Question Modification Method:** Direct From Source | **Used During Training Program** ☐

Question Source Comments Vision Q80303

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic SRO 24

Given the following conditions:

- Unit 2 has received a FIRE alarm for Zone 69, Fuel Handling Building (FHB).
- An operator in the area reports a fire in a bin of Protective Clothing in the FHB truck bay.

Which of the following identifies the correct procedure for this event, and the actions required?

a. S2.OP-AB.FIRE-0001, Control Room Fire Response, place Control Room Ventilation in FIRE OUTSIDE CONTROL AREA on both Unit 2 and Unit 1, and secure ALL Unit 2 ONLY FHB supply and exhaust fans.

b. S2.OP-AB.FIRE-0001, Control Room Fire Response, place Control Room Ventilation in FIRE OUTSIDE CONTROL AREA on Unit 2 ONLY, and secure BOTH units FHB supply fans ONLY.

c. S2.OP-AB.FIRE-0002, Fire Damage Mitigation, place Control Room Ventilation in FIRE OUTSIDE CONTROL AREA on both Unit 2 and Unit 1, and secure ALL Unit 2 ONLY FHB supply and exhaust fans.

d. S2.OP-AB.FIRE-0002, Fire Damage Mitigation, place Control Room Ventilation in FIRE OUTSIDE CONTROL AREA on Unit 2 ONLY, and secure BOTH units FHB supply fans ONLY.

Answer	Exam Level	Cognitive Level	Facility:	ExamDate:
a	S	Memory	Salem 1 & 2	9/26/2011

KA:		RO Value:	SRO Value:	Section:	RO Group:	SRO Group:		
194001G427	2.4.27	3.4	3.9	PWG	1	1	55.43	☑

System/Evolution Title GENERI

KA Statement: Knowledge of "fire in the plant" procedures.

Explanation of Answers: 55.43(5) S2.OP-AB.FIRE-02 is the incorrect procedure because it is used for an uncontrolled fire in the Aux Bldg or 78 electrical pen, not for a fire in the Fuel Handling Building. Steps 3.12 and 3.13 of S2.OP-AB.FIRE-01 places BOTH Units in fire outside, and 3.94 and 3.95 direct stopping FHB supply and Exhaust Fans. A is correct because it is the correct procedure and action. The incorrect distracters are all a combination of either incorrect action, procedure, or both.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Control Room Fire Response	S2.OP-AB.FIRE-0001			7

L.O. Number ABFP1E003

Objectives

Material Required for Examination

Question Source: Facility Exam Bank | **Question Modification Method:** Direct From Source | **Used During Training Program** ☐

Question Source Comments 07-01 SRO CERT Exam

Comment

RO SkyScraper | SRO Skyscraper | RO System/Evolution List | SRO System/Evolution List | Outline Changes

Question Topic SRO 25

Given the following conditions:

- Salem Unit 2 is experiencing an event which has resulted in an ALERT EAL being exceeded and recognized by the operating crew.
- After 5 minutes, the actions taken by the control room crew result in this ALERT EAL no longer being met.
- Conditions for an UNUSUAL EVENT are present.
- No emergency declaration has been made yet.

Which of the following identifies the actions required by the Emergency Coordinator?

a. Declare an ALERT, terminate the ALERT, declare an UNUSUAL EVENT.

b. Declare an ALERT, then reduce the Emergency Classification to an UNUSUAL EVENT.

c. Declare an UNUSUAL EVENT, and make a non-emergency After-The-Fact 1 hour report to document the ALERT EAL.

d. Declare an UNUSUAL EVENT, and ensure the ALERT EAL which was present for the 5 minutes is communicated to the NRC via the NRC Data Sheet.

Answer	b	Exam Level	S	Cognitive Level	Memory	Facility:	Salem 1 & 2	ExamDate:	9/26/2011

KA:	194001G438	2.4.38	RO Value:	2.4	SRO Value:	4.4	Section:	PWG	RO Group:	1	SRO Group:	1	55.43	☑

System/Evolution Title GENERI

KA Statement: Ability to take actions called for in the facility emergency plan, including supporting or acting as emergency coordinator if required.

Explanation of Answers: 55.43(5,1) Per the Salem ECG, Section I, page 8 of 10, Section IV, Event Classification Guide (ECG) Use, Subsection D.2, ..."Short duration events that occur will be assessed and emergency classifications made, if appropriate, within about 15 minutes of control room indications or the receipt of the information, indicating that an EAL, has or had been exceeded. This classification is to be made even if no EAL's are currently being exceeded, (i.e. actions have been taken to stabilize the Plant such that no EAL's currently applies.) So regardless of the fact that the ALERT EAL no longer applies, the ALERT must still be declared. NC.EP-EP.ZZ-0405, EMERGENCY TERMINATION – REDUCTION - RECOVERY, describes how to reduce the Emergency Classification if the emergency is not being terminated. Since the UE is still being met, the classification will be reduced, not terminated.

Reference Title	Facility Reference Number	Reference Section	Page No.	Revision
Salem ECG		i		07
EMERGENCY TERMINATION – REDUCTION -	NC.EP-EP.ZZ-0405			6

L.O. Number

ELO_29.e

Objectives

Material Required for Examination

Question Source: New **Question Modification Method:** **Used During Training Program** ☐

Question Source Comments

Comment