

RO questions

2. A valve four feet inside a valve room is producing a 600 mrem/hr field at 1 meter from the valve.

Which one of the following is the proper posting/method of control for this room?

- a. Radiation Area
- b. High Radiation Area
- c. Locked High Radiation Area
- d. Very High Radiation Area

Answer: c Lesson Plan

Procedure STA-650, "General Health Physics Plan," Section 4.8

Question Source: Bank # _____
Modified Bank # Test SRO 99
New _____

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	2.3.4	2.3.4
Importance Rating	2.5	3.1
Tier #	3	3
Group #	3	3
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

RO questions

3. Which of the following lists of personnel satisfies the requirement for the Fire Brigade complement in accordance with STA-727, "Fire Brigade?"
- a. One fire brigade leader (PEO), 2 maintenance mechanics (nozzlemen), 2 maintenance electricians (hosemen)
 - b. One fire brigade leader (Shift Manager), 2 plant equipment operators (nozzlemen), 2 security personnel (hosemen)
 - c. One fire brigade leader (PEO), 3 plant equipment operators (nozzlemen/hosemen), 1 safety services personnel (hoseman)
 - d. One fire brigade leader (Shift Manager), 2 security personnel (nozzlemen), 2 maintenance mechanics (hosemen)

Answer: c Lesson Plan (As available)

Procedure STA-727, "Fire Brigade," Section 6.2.2.2

Question Source: Bank # Test RO 98
 Modified Bank # _____
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge X
 Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	2.4.26	2.4.26
Importance Rating	2.9	3.3
Tier #	3	3
Group #	4	4
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

RO questions

10 CFR 55.43(b)

Master Reviewer Certification _____ (initials)

RO questions

7. Unit 1 is operating with a single diesel generator available due to mechanical problems with the remaining diesel. Which one of the answers below correctly describes the Technical Specification minimum capacity of diesel fuel oil system for a single diesel generator.
- a. Operate for five days at continuous full load rating
 - b. Operate for seven days at continuous full load rating
 - c. Operate for five days at maximum overload rating
 - d. Operate for seven days at maximum overload rating

Answer: b Lesson Plan OP51.SYS.ED1 pg 17

TS 3.8.3 Bases

Question Source: Bank # _____
 Modified Bank # Test RO 98
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge X
 Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	55EA1.06	55EA1.06
Importance Rating	4.1	4.5
Tier #	1	1
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

RO questions

9. A main steam line break occurs, resulting in a reactor trip and a safety injection.

Given the following conditions:

- ! RCS cold leg temperatures are 240°F and decreasing
- ! One SG level 0% narrow range and the other SGs at narrow range
- ! Adverse Containment
- ! Core exit TCs decreasing

Which one of the following describes the correct response to minimize pressurized thermal shock as required by Procedure FRP-0.1A, "Response to Imminent Pressurized Thermal Shock Condition"?

- a. Maintain total AFW flow 400 gpm
- b. Secure AFW flow to all S/Gs
- c. Secure ECCS, if RCS subcooling is 25°F
- d. Secure ECCS, if RCS subcooling is 110°F

Answer: d Lesson Plan (As available)

Procedure FRP-0.1A, "Response to Imminent Pressurized Thermal Shock Condition"

Question Source: Bank # _____
 Modified Bank #
 New X

Question Cognitive Level: Memory or Fundamental Knowledge
 Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	W/E08EK2.2	W/E08EK2.2
Importance Rating	3.6	4.0
Tier #	1	1
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

RO questions

10. The plant is operating at 100% power with all controls in automatic. Without warning, plant parameters are as follows:
- ! PRZR Level <17%
 - ! RCS Pressure = 1800 psig
 - ! Charging flow increases and PRZR heater de-energize
 - ! Normal letdown flow isolates
 - ! Containment pressure = 5.5 psig

What accident has occurred?

- a. Component cooling water leak inside containment
- b. Large break LOCA inside containment
- c. A leaking pressurizer safety valve
- d. Feedwater line break inside containment

Answer: b Lesson Plan LO21.MCO.TAA, Section F

Procedure EOP-1.0A, "Loss of Reactor or Secondary Coolant"

Question Source: Bank # _____
 Modified Bank # _____
 New X

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	11EA2.13	11EA2.13
Importance Rating	3.7	3.7
Tier #	1	1
Group #	2	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

RO questions

12. A release of radioactive waste to the outfall is in progress, and X-RE-5253, "Liquid Waste Processing Discharge Radiation Detector," fails. How would you determine that the detector failed.
- a. The PCS Operational Screen will show the Rad Monitor status box has turned red with a white (outline) around the box. (Check this distractor)
 - b. Annunciator 6B-4.7, "LWPS PNL TRBL" alarms and an operator will have to be dispatched to check the local panel for the detector failure. (Check this distractor)
 - c. On the PC-11 console, X-RE-5253 monitor will be magenta
 - d. On the PC-11 console, X-RE-5253 monitor will be blue

Answer: d Lesson Plan (As available)

Procedures:

- ALM 3200, "Alarm Procedure DRMS," Revision 3
- ALM 0301, "Alarm Procedure Liquid Waste Panel," Revision 5
- SOP 906, "Plant Process Computer System Guidelines," Revision 0

Question Source: Bank # _____
 Modified Bank # X_____

Question Cognitive Level: Memory or Fundamental Knowledge X____
 Comprehension or Analysis _____

Examination Outline Cross-reference:

	<u>RO</u>	<u>SRO</u>
Level		
K/A #	72A2.02	
Importance Rating	2.8	
Tier #	2	
Group #	1	
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

RO questions

15. The plant is operating at 100% power with all controls in automatic. Without warning, plant parameters are as follows:
- ! PRZR Level <17%
 - ! RCS Pressure = 1870 psig
 - ! Charging flow increases and PRZR heater de-energize
 - ! Normal letdown flow isolates
 - ! PC-11 alarms with high radiation indications from condenser off gas radiation monitor and steam generator blowdown line radiation monitors

Which of the following is the most likely cause of the plant response and the current indications?

- a. Main steamline break.
- b. Loss of heat sink due to loss of all FW.
- c. Steam Generator Tube Rupture.
- d. RCS cold leg break.

Answer: c

Procedure EOP-3.0A

Question Source: Bank # X_____

Modified Bank # _____

New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____

Comprehension or Analysis X_____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	76AK2.01	76AK2.01
Importance Rating	2.6	3.0
Tier #	1	1
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

RO questions

19. Which of the following identifies the Technical Specification minimum Spent Fuel Pool boron concentration when spent fuel is stored in the fuel pool?
- a. 2200 ppm
 - b. 2000 ppm
 - c. 750 ppm
 - d. 0 ppm

Answer: b Lesson Plan (As available)

TS Basis 3.7.16, "Fuel Storage Pool Boron Concentration"

Question Source: Bank #
 Modified Bank # Test SRO 98
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge X
 Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	33K4.05	
Importance Rating	3.1	
Tier #	2	
Group #	2	
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

RO questions

21. With the plant operating at 90% power with all control systems in automatic, an I&C technician causes a failure high of Feedwater Header Pressure Transmitter PT-508.

Assuming NO operator action is taken, which one of the following is correct regarding plant response to the failure?

- a. All SG levels will initially increase and then return to normal programmed level.
- b. All SG levels will initially decrease and then return to normal programmed level.
- c. All SG levels will increase and the unit will trip on a turbine trip > P-9.
- d. All SG levels will decrease and the unit will trip on Low-Low SG level.

Answer: d Lesson Plan/Reference (As available)

Procedure, ABN-709, Section 5.0 and Lesson OP51.SYS.SN1, pg 29

Question Source:	Bank #	Test SRO 98
	Modified Bank #	_____
	New	_____

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	X

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	16K3.12	16K3.12
Importance Rating	3.4	3.6
Tier #	2	2
Group #	2	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

RO questions

22. Unit 1 is operating at 100% power. A plant computer alarm occurs for RCP 1-01. The reactor operator observes the following parameters:

!	Motor Stator Winding Temperature	270°F
!	Motor Upper Radial Bearing Temperature	160°F
!	Motor Upper Thrust Bearing Temperature	163°F
!	Lower Seal Water Bearing Temperature	240°F
!	Shaft Vibration	12 mils
!	Frame Vibration	2 mils

Which of the following indicates the reason the operator must trip the reactor?

- a. Motor Stator Winding Temperature High
- b. Motor Upper Thrust Bearing Temperature High
- c. Lower Seal Water Bearing Temperature High
- d. Shaft Vibration High

Answer: c Lesson Plan/Reference (As available)

Procedure ABN-101, "Reactor Coolant Pump Trip/Malfunction," Section 3.3, step 4

Question Source: Bank # Test SRO 98
 Modified Bank # _____
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge X
 Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	03A1.02	03A1.02
Importance Rating	2.9	2.9
Tier #	2	2
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

RO questions

25. Unit 2 is operating at 75% power when the normal feeder breaker to 2EA1 trips open, initiating the blackout sequencer. The alternate feeder breaker fails to close. The diesel generator starts and energizes the bus.

What is the current status of the AFW system in this situation?

- a. Only Train A AFW pump is running with flow indicated to S/Gs 1 and 2.
- b. Both motor driven AFW pumps have started, but flow is only indicated to S/G 4.
- c. AFW flow is indicated to all four S/Gs.
- d. Both motor driven AFW pumps have started with flow indicated to S/Gs 1 and 4.

Answer: c Lesson Plan/Reference (As available)

Drawing M-2206

Question Source: Bank # Test SRO 99
 Modified Bank # _____
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	61K2.02	61K2.02
Importance Rating	3.7	3.7
Tier #	2	2
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

RO questions

26. Unit 1 is at 100% power with all controls in their normal operational alignment. Pressurizer Level Channel 460 failed to approximately 10%.

What is the plant response?

- a. Actual PZR level decreases.
- b. Actual PZR level remains the same.
- c. All PZR heaters deenergize.
- d. Charging Flow Control Valve FCV-121 goes open.

Answer: c Lesson Plan/Reference (As available)

Procedure ABN-706, "Pressurizer Level Instrumentation Malfunction," Step 2.2.b.2

Question Source: Bank # Test SRO 99
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	11A1.01	11A1.01
Importance Rating	3.5	3.6
Tier #	2	2
Group #	2	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

RO questions

30. In MODE 2, Shutdown Margin (SDM) is verified every 24 hours by performing a reactivity balance calculation. How do we ensure Technical Specification limits for SDM are satisfied for withdrawing control rods from CBO to the estimated critical position during a Reactor startup?
- a. SDM is calculated at least once every 15 minutes during rod withdrawal.
 - b. Predicted critical control bank position is verified within the limits specified in the COLR within four hours prior to achieving criticality.
 - c. SDM is continuously verified using an Inverse Count Rate Ratio (ICCR) during rod withdrawal.
 - d. Control rod position is verified within specifications at least once every 30 minutes during a reactor startup.

Answer: b Lesson Plan (As available)

Procedure IPO-002A, Section 5.2.10 and TS 3.1.6

Question Source: Bank # _____
 Modified Bank # X_____

Question Cognitive Level: Memory or Fundamental Knowledge X_____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	05 - 2.1.12	
Importance Rating	2.9	
Tier #	1	
Group #	1	
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

RO questions

37. During operation at power on Unit 1, the Balance of Plant (BOP) Operator responds to a HI-HI/LO alarm for CCW surge tank level. Present levels in the surge tanks are as follows:

- ! Train A surge tank level = 58% and steady
- ! Train B surge tank level = 55% and decreasing

Based on this information, which of the below answers should be investigated as the potential cause of this situation?

- a. A leak in the component cooling water heat exchanger
- b. A leak in the spent fuel pool heat exchanger
- c. A leak in the letdown regenerative heat exchanger
- d. A leak in the seal water heat exchanger

Answer: a Lesson Plan (As available)

Training Material OP51.SYS.CC1 and Procedure ABN-502, "Component Cooling Water System Malfunctions," Revision 5, Section 3.0

Question Source: Bank # _____
 Modified Bank # _____
 New X

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	26AA2.01	26AA2.01
Importance Rating	2.9	3.5
Tier #	1	1
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

RO questions

10 CFR 55.43(b)

Master Reviewer Certification _____ (initials)

RO questions

40. A loss of offsite power occurs and is simultaneously followed by a Large Break Loss of Coolant Accident on Unit 2. Systems operate per design except that 2 minutes into the event the Train B diesel generator catches fire. Which of the following is correct?
- a. Placing the Norm/Maintenance keyswitch in MAINTENANCE will stop the diesel.
 - b. Placing the Master Switch in MAINTENANCE will stop the diesel.
 - c. Only an overspeed condition or an 86-1 Lockout Trip will stop the diesel.
 - d. Place the control room EMER STOP/START switch in PULL-OUT.

Answer: d Lesson Plan (As available)

Procedure EOP-0.0B, Step 17 RNO

Question Source: Bank # X_____

 Modified Bank # _____

 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____

 Comprehension or Analysis X_____

Examination Outline Cross-reference:

	<u>RO</u>	<u>SRO</u>
Level		
K/A #	67AA2.17	67AA2.17
Importance Rating	3.5	4.3
Tier #	1	1
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

RO questions

46. During Mid Loop operations on Unit 2, the following alarms are received:

"RHRP 1/2 OVRLOAD TRIP" (ALB 4B-2.4)
"RHRP 1/2 TO CL INJ FLO LO" (ALB 4B-4.4)

The Reactor Operator determines the running RHR Pump (Train A) has tripped and is unable to start the Train B RHR Pump.

Which of the following contain actions which are appropriate for this condition?

- a. Isolate the RHR Hot Leg suction, and initiate Hot Leg Injection with an SIP.
- b. Ensure a Hot Leg vent path, and initiate Hot Leg injection with an SIP.
- c. Open PORV's, initiate Cold Leg injection with an SIP.
- d. Open PORV's, initiate Hot Leg injection with a CCP.

Answer: b Lesson Plan (As available)

Procedure ABN-104, "Residual Heat Removal System Malfunction," Revision 7, Section 8

Question Source: Bank # X_____

 Modified Bank # _____

 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____

 Comprehension or Analysis X_____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	25AK3.03	25AK3.03
Importance Rating	3.9	4.1
Tier #	1	1
Group #	2	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

RO questions

48. A steam generator tube rupture (SGTR) has occurred which initiated a reactor trip and safety injection. Operators have identified the affected steam generator, closed the affected MSIV, and completed an RCS cooldown. Which of the below is MOST correct regarding the next operator action(s) to take to generally mitigate the event?
- a. Recover pressurizer level with ECCS flow, then depressurize the RCS.
 - b. Depressurize the RCS to recover pressurizer level, then terminate ECCS flow.
 - c. Recover pressurizer level with ECCS flow, then depressurize the ruptured steam generator.
 - d. Depressurize the intact steam generators, then terminate ECCS flow.

Answer: b Lesson Plan (As available)

Procedure EOP-3.0A, "Steam Generator Tube Rupture," Revision 7

Question Source: Bank # X_____

 Modified Bank # _____

 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____

 Comprehension or Analysis X_____

Examination Outline Cross-reference:

	<u>RO</u>	<u>SRO</u>
Level		
K/A #	38EA1.09	38EA1.09
Importance Rating	3.2	3.3
Tier #	1	1
Group #	2	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

RO questions

49. Which method below can be used to restore core cooling in the event of a loss of all feedwater?
- a. Rapidly depressurize the RCS and lineup RHR for cooling.
 - b. Adjust the ARV setpoints to 1160 psig and use condensate flow to the SGs.
 - c. Initiate Safety Injection and open the PORVs.
 - d. Manual initiation of the positive displacement charging pump.

Answer: c Lesson Plan (As available)

Training Material LO21.MCO.MI4, Section III B

Question Source: Bank # _____
 Modified Bank # X_____

Question Cognitive Level: Memory or Fundamental Knowledge X_____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	54AA1.04	54AA1.04
Importance Rating	4.4	4.5
Tier #	1	1
Group #	2	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

RO questions

50. A Safety Injection has occurred on Unit 1. When EOP-0.0A is exited, the following set of conditions is observed relevant to three (3) critical safety functions (CSFs):

- ! Subcriticality: NI-41 through NI-44 are all less than 1%. Intermediate range startup rate is -0.2 DPM.
- ! Core Cooling: No RCPs are in service. Core exit TCs read 715°F. RCS subcooling based on core exit TCs is 7°F. RVLIS bottom light is lit.
- ! Heat Sink: All steam generator narrow range levels are off-scale low. Main feedwater pumps are tripped. Maximum attainable AFW flow is:

S/G 1-01	100 gpm
S/G 1-02	110 gpm
S/G 1-03	105 gpm
S/G 1-04	115 gpm

Select the procedure that should be implemented: (Assume no Adverse Containment)

- a. FRS-0.1A, Response to Nuclear Power Generation/ATWT
- b. FRC-0.2A, Response to Degraded Core Cooling
- c. FRH-0.1A, Response to Loss of Secondary Heat Sink
- d. FRH-0.5A, Response to Steam Generator Low Level

Answer: c Lesson Plan (As available)

Procedure FRH-0.1A, "Response to Loss of Secondary Heat Sink," Revision 7, Attachment 1

Question Source: Bank # _____
 Modified Bank # X_____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X_____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	W/E05EA2.1	W/E05EA2.1
Importance Rating	3.4	4.4
Tier #	1	1
Group #	2	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

RO questions

51. Given the following plant conditions for Unit 1:

- ! Mode 1
- ! No LCOs
- ! Charger BC1ED1-1 supply breaker is removed for breaker testing

Sometime later, Battery Charger BC1ED1-2 trips off and can not be recovered. What is the impact of the loss of BC1ED1-2 and what actions are required?

- a. The battery can supply all essential loads for up to 4 hours. Install temporary power from Plant Support AC power to Charger BC1ED1-1 and restore the DC electrical subsystem to operable status within 2 hours.
- b. The battery can supply all essential loads for up to 8 hours. Install temporary power from Plant Support AC power to Charger BC1ED1-1 and restore the DC electrical subsystem to operable status within 2 hours.
- c. The battery can supply all essential loads for up to 4 hours. Declare Train A DC electrical subsystem inoperable and restore the DC electrical subsystem to operable status within 2 hours.
- d. The battery can supply all essential loads for up to 8 hours. Declare Train A DC electrical subsystem inoperable and restore the DC electrical subsystem to operable within 2 hours.

Answer: c Lesson Plan (As available)

Training Material OP51.SYS.DC1 and TS 3.8.4

Question Source: Bank # _____
 Modified Bank # _____
 New X_____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X_____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	58AK1.01	58AK1.01
Importance Rating	2.8	3.1
Tier #	1	1
Group #	2	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

RO questions

53. The unit is in Mode 2 at NOP and NOT, with all control systems in normal automatic position when a malfunction occurs. No operator actions are taken, and the following events are observed to follow sequentially:

- ! Charging flow decreases to minimum
- ! PRZR level decreases
- ! Letdown isolates and heaters turns off
- ! PRZR level increases to the high level reactor trip

Which of the below was the probable cause?

- a. Reference PRZR level failed to the NO LOAD value
- b. PRZR level channel 459 reference leg leak
- c. Auctioneered Tave failed low due to a failed RTD
- d. Autioneered Tave failed high due to a failed RTD

Answer: b Lesson Plan (As available)

Training Material LO21.RLS.PP1

Question Source: Bank # X_____

 Modified Bank # _____

 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____

 Comprehension or Analysis X_____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	28AK1.01	28AK1.01
Importance Rating	2.8	3.1
Tier #	1	1
Group #	3	3
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

RO questions

56. Unit 2 is currently in Mode 5 and you were directed to take the plant to Mode 3 in accordance with IPO-001A, "Plant Heatup from Cold Shutdown to Hot Standby." How is oxygen level in the RCS controlled?
- a. Prior to entering Mode 4, Hydrazine is added to the RCS.
 - b. Prior to RCS and PRZR temperature exceeding 175°F, hydrogen peroxide is added to the RCS.
 - c. When VCT oxygen concentration is <5%, then establish a hydrogen overpressure of 15 to 18 psig in the VCT.
 - d. Prior to RCS temperature exceeding 160oF, lithium concentration should be >100 ppm.

Answer d: Lesson Plan (As available)

Procedure STA-609, "Reactor Coolant Water Chemistry Control"

Question Source: Bank # _____
Modified Bank # _____
New X_____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X_____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	04K4.01	
Importance Rating	2.8	
Tier #	2	
Group #	1	
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

RO questions

57. Following a Unit shutdown, MFP A is tripped and MFP B is in service. How is an ESF actuation avoided if MFP B will be tripped to shutdown the pump prior to removing the AFW auto start fuses?
- a. By resetting MFP A before MFP B is tripped.
 - b. By manually starting the MDAFW pumps.
 - c. By maintaining the AFW Flow Controllers in Manual.
 - d. By placing the MDAFW pumps in pull out.

Answer: a Lesson Plan (As available)

Procedure SOP-302A, "Feedwater System," Revision 13, Note 4.2 and IPO-009, "Plant Equipment Shutdown Following a Trip," Revision 9, Step 5.2.7E

Question Source: Bank # X_____

 Modified Bank # _____

 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____

 Comprehension or Analysis X_____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	13K4.04	13K4.04
Importance Rating	4.3	4.5
Tier #	2	2
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

RO questions

59. While recording Unit 1 critical data, a fault causes a loss of 118 Vac protection bus 1PC1. This condition will result in which of the following?
- a. Loss of power to IR NIS channel N36, resulting in a loss of P-6 permissive.
 - b. Loss of power to IR NIS channel N36, resulting in an intermediate range high flux reactor trip.
 - c. Loss of power to IR NIS channel N35, resulting in a loss of P-6 permissive.
 - d. Loss of power to IR NIS channel N35, resulting in an intermediate range high flux reactor trip.

Answer: d Lesson Plan (As available)

Procedure ABN-603, "Loss of Protection or Instrument Bus," Revision 6

Question Source: Bank # X_____

 Modified Bank # _____

 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____

 Comprehension or Analysis X_____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	15K1.01	15K1.01
Importance Rating	4.1	4.2
Tier #	2	2
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

RO questions

67. Select the BEST reason to explain why the SI Accumulators are isolated during a LOCA when at least two RCS Hot Leg Temperatures are <390°F.
- a. Saturation Pressure for 390°F corresponds to approximately 235 psig and thus the Accumulators would have discharged and repressurized the RCS appropriately, at this temperature.
 - b. Prevent overpressurization of Containment, which could occur if the nitrogen within the Accumulators was allowed to enter the RCS and exit via the break.
 - c. Ensures adequate volume of borated water and nitrogen have been injected to recover the Core with liquid and inert the hydrogen gas contained within the RCS and Containment.
 - d. Prevent further nitrogen injection into the RCS which could impede further RCS depressurization.

Answer: d Lesson Plan (As available)

Procedure EOP-1.0A, "Loss of Reactor or Secondary Coolant," Revision 7, Step 14 Basis

Question Source: Bank # X_____

 Modified Bank # _____

 New _____

Question Cognitive Level: Memory or Fundamental Knowledge X_____

 Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	06K1.02	06K1.02
Importance Rating	4.3	4.6
Tier #	2	2
Group #	2	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

RO questions

68. Unit 1 was initially at 100% equilibrium power with all systems in automatic. The PRZR Pressure Master Controller M/A has a setpoint of 2,235 psig. A plant transient caused Pressurizer level to increase to 62% and pressure to increase to 2310 psig.

Which one of the following describes the Pressurizer heaters and spray status for these conditions?

- a. Backup heaters OFF, Variable heaters ON, PORVs OPEN.
- b. Backup heaters OFF, Variable heaters OFF, PORVs OPEN.
- c. Backup heaters OFF, Variable heaters ON, Spray valves OPEN.
- d. Backup heaters OFF, Variable heaters OFF, Spray valves OPEN.

Answer: d Lesson Plan (As available)

Training Material OP51.SYS.PP1, Pressure Table

Question Source: Bank # _____
 Modified Bank # X_____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X_____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	10A1.07	10A1.07
Importance Rating	3.7	3.7
Tier #	2	2
Group #	2	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

RO questions

69. With a turbine runback in progress due to OT or OP-N16, the control rods:
- a. Must be controlled manually since rod motion is blocked.
 - b. Should be controlled manually to control Tave more quickly.
 - c. Should be controlled manually to avoid excessive rod motion.
 - d. Should be allowed to step in auto to control Tave.

Answer: d Lesson Plan (As available)

Procedure ALM-0064A, "Alarm Procedure 1-ALB-6D," Revision 6, Windows 2.13 and 3.14

Question Source: Bank # X_____

 Modified Bank # _____

 New _____

Question Cognitive Level: Memory or Fundamental Knowledge X_____

 Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	12K1.03	12K1.03
Importance Rating	3.7	3.8
Tier #	2	2
Group #	2	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

RO questions

71. During plant operation at 90% power, the L.P. Heater Bypass Valve (PV-2286) inadvertently opens. Assuming Xe equilibrium and rod control in manual, the long-term plant response to the transient is:
- a. N16 Power decreases, Tave increases, and Pressurizer level increases.
 - b. N16 Power decreases, Tave decreases, and Pressurizer level decreases.
 - c. N16 Power increases, Tave decreases, and Pressurizer level decreases.
 - d. N16 Power increases, Tave increases, and Pressurizer level increases.

Answer: c Lesson Plan (As available)

Procedure ABN-302, "Feedwater, Condensate, Heater Drain System Malfunction," Revision 9, Section 7

Question Source: Bank # X_____

 Modified Bank # _____

 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____

 Comprehension or Analysis X_____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	59K3.04	59K3.04
Importance Rating	3.6	3.8
Tier #	2	2
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

RO questions

72. Given the following conditions:

- ! Loss of all offsite power/Reactor tripped.
- ! Safety Injection initiated due to a LOCA outside Containment.
- ! Diesel Generator 1-01 running and tied to the bus.
- ! Diesel Generator 1-02 trips on overspeed.

What is the status of the Containment Spray Pumps?

- a. CSP 2 and 4 running, CSP 1 and 3 not running, CS Hxs Outlet Valves open.
- b. CSP 1 and 3 running, CSP 2 and 4 not running, CS Hxs Outlet Valves closed.
- c. CSP 1 and 3 running, CSP 2 and 4 not running, CS Hx #1 Outlet Valve open and CS Hx #2 Outlet Valve closed.
- d. CSP 1, 2, 3 and 4 not running

Answer: b Lesson Plan (As available)

Dwg E1-0004, Sheet A and OP51.SYS.CT1

Question Source: Bank # _____
 Modified Bank # X_____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X_____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	26K2.01	26K2.01
Importance Rating	3.4	3.6
Tier #	2	2
Group #	2	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

RO questions

74. If the steam dumps are armed and an N16 channel failure HIGH causes the steam dumps to open, which of the following actions are specified to close them quickly?
- a. Select the failed channel on the Tave channel defeat switch.
 - b. Select the failed channel on the N16 power channel defeat switch.
 - c. Select OFF on both steam dump interlock select switches.
 - d. Reset C7 with the STEAM DUMP MODE SELECT SWITCH.

Answer: c Lesson Plan (As available)

Procedure ABN-704, "Tc/N-16 Instrument Malfunction," Revision 10, Section 2.3

Question Source: Bank # X_____

 Modified Bank # _____

 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____

 Comprehension or Analysis X_____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	39A2.04	39A2.04
Importance Rating	3.4	3.7
Tier #	2	2
Group #	2	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

RO questions

77. Unit 1 is operating at 100% power and suddenly, 1ED1 bus is lost. What are the impacts to the plant for loss of 1ED1?
- a. DG 1-01 would start; TDAFW pump would automatically start; and, all steam dump valves would fail closed.
 - b. DG 1-01 would not start; TDAFW pump would automatically start; and, all steam dump valves would fail closed.
 - c. DG 1-01 would start but would not be able to automatically excite the generator or close it's output breaker and the steam dumps would fail open.
 - d. DG 1-01 would lose it's normal starting capability, with Emergency Start capability unaffected and the steam dumps would fail closed.

Answer: b Lesson Plan (As available)

Training Material OP51.SYS.DC1.LN, "Abnormal"

Question Source: Bank # _____
 Modified Bank # X_____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X_____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	64K1.04	
Importance Rating	3.6	
Tier #	2	
Group #	2	
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

RO questions

78. For the Steam Dump System to be armed on a turbine trip, which of the following interlocks must be met? (Assume 100% power operation).
- a. 1 of 4 circulating water pumps running and condenser vacuum > 21 in. Hg.
 - b. 1 of 4 circulating water pumps running and RCS temperature > LO-LO Tavg setpoint.
 - c. 2 of 4 circulating water pumps running and condenser vacuum greater than 12.3" Hg.
 - d. 2 of 4 circulating water pumps running and Tavg > No Load setpoint by more than 5°F.

Answer: c Lesson Plan (As available)

Training Material OP51.SYS.SD1

Question Source: Bank # X_____

 Modified Bank # _____

 New _____

Question Cognitive Level: Memory or Fundamental Knowledge X_____

 Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	75A2.03	
Importance Rating	2.5	
Tier #	2	
Group #	2	
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

RO questions

80. Due to maintenance, the Unit 1 RHR pump 1-02 seal cooler CCW supply and return valves are clearance tagged closed. If the plant receives an SI signal, which of the following statements best addresses this situation?
- a. Place RHR pump 1-02 in Pull-out as operation may not continue with no CCW flow to the seal cooler.
 - b. Align fire protection water to the RHR pump 1-02 seal cooler per ABN-502.
 - c. Align demin water to the RHR pump 1-02 seal cooler per ABN-502.
 - d. RHR Pump 1-02 may continue to operate - CCW flow to seal cooler not required.

Answer: d Lesson Plan (As available)

Procedure ABN-502, Section 3.3, step 8

Question Source: Bank # X_____

 Modified Bank # _____

 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____

 Comprehension or Analysis X_____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	5A2.03	5A2.03
Importance Rating	2.9	3.1
Tier #	2	2
Group #	3	3
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

RO questions

84. Select the correct action to be carried out if the hoist load decreases in excess of the Operator Load Limits prior to reaching bottom while lowering a fuel assembly into the core.
- a. If the hoist load decreased by more than 250 pounds, lower the hoist speed to jog and continue to insert the assembly.
 - b. If the hoist load decreased by more than 250 pounds, laterally position the crane hoist and slowly continue to insert the fuel assembly into the core location.
 - c. If the hoist load decreased by more than 250 pounds, the fuel assembly and adjacent assemblies shall be examined for evidence of damage prior to continuing.
 - d. If the hoist load decreased by more than 250 pounds, lower the hoist speed to jog and continue to insert the assembly. If the load decreased more than 500 pounds, then inspect the fuel assembly and adjacent assemblies for damage.

Answer: c Lesson Plan (As available)

Procedure RFO-302

Question Source: Bank # X_____

 Modified Bank # _____

 New _____

Question Cognitive Level: Memory or Fundamental Knowledge X_____

 Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	34A3.02	
Importance Rating	2.5	
Tier #	2	
Group #	3	
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

RO questions

85. Which one of the following actions is required if the main turbine does not trip automatically following a reactor trip and cannot be tripped from the MCB, per EOP-0.0 "Reactor Trip or Safety Injection"?
- a. Trip the Local Trip Valve at the Hydraulic Control Rack.
 - b. Secure the condenser vacuum pumps and break condenser vacuum.
 - c. Manually RUNBACK the turbine at maximum rate.
 - d. Open the main generator output breakers.

Answer: a Lesson Plan (As available)

Procedure EOP-0.0A, "Reactor Trip or Safety Injection," Revision 7, Step 2

Question Source: Bank # X_____

 Modified Bank # _____

 New _____

Question Cognitive Level: Memory or Fundamental Knowledge X_____

 Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	45K1.20	
Importance Rating	3.4	
Tier #	2	
Group #	3	
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

RO questions

89. Conditions exist that requires an automatic reactor scram; however, the reactor does not trip (ATWT)? When looking at the indicating lights for the reactor trip and bypass breakers, what positions do you expect the breakers to indicate.
- a. Reactor Trip Breakers A and B closed, Reactor Trip Bypass Breakers A and B disconnected.
 - b. Reactor Trip Breakers A and B open, Reactor Trip Bypass Breakers A and B closed.
 - c. Reactor Trip Breakers A and B closed, Reactor Trip Bypass Breakers A and B open.
 - d. All reactor trip and bypass breakers closed.

Answer: a Lesson Plan (As available)

Procedure OPT-447, "Modes 1,3,&4 Train A SSPS Actuation Logic Test," Section 9

Question Source: Bank # _____
 Modified Bank # X_____

Question Cognitive Level: Memory or Fundamental Knowledge X_____

Examination Outline Cross-reference:

	<u>RO</u>	<u>SRO</u>
Level		
K/A #	29EA2.07	29EA2.07
Importance Rating	4.2	4.3
Tier #	1	1
Group #	2	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

RO questions

91. The following conditions exist for a job to be performed on a system.

The general area radiation levels are 10 mrem/hr in the room.
The hot spot in the room is a pipe elbow that has radiation levels of 100 mrem/hr.
The job will be performed near the hot spot area.

(Assumptions: ALL 4 cases below have the same transition time to and from destinations. All shielding placement and removal is at 100 mrem/hr)

Choose the method that best reduces personnel exposure.

- a. Two Radiation Control personnel hang and remove 1 tenth thickness of lead shielding on the hot spot in 1.5 hours for the job. The job is performed after the lead shielding is in place by using 2 operators for 3 hrs each on the job.
- b. The job is performed by 3 operators for 1 hr each on the job at the hot spot and a fourth operator reading instructions in the general room area for 1 hr.
- c. The job is performed by 2 operators for 2 hrs each on the job at the hot spot and a third operator reading instructions in the general room area for 2 hrs.
- d. The job is performed by using 2 operators for 3 hrs each on the job at the hot spot.

Answer: b Lesson Plan (As available)

Rad Worker Training

Question Source: Bank # _____
 Modified Bank # X_____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis _____

Examination Outline Cross-reference:

	<u>RO</u>	<u>SRO</u>
Level		
K/A #	2.3.10	
Importance Rating	2.9	
Tier #	3	
Group #	3	
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

RO questions

92. The Gaseous Waste Processing System is operating with the Oxygen concentration >4% and the hydrogen concentration >4%. What is the concern with the system operating with the above parameters?
- a. Rapid depletion of the palladium catalyst
 - b. Increased radiation exposure to personnel in the area
 - c. Overheating of the gaseous recombiner electric heater elements
 - d. Flammability potential of the oxygen and hydrogen mixture

Answer: d Lesson Plan (As available)

Technical Requirements Manual 13.10.34

Question Source: Bank # _____
Modified Bank # X _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge X _____
Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	71K5.04	
Importance Rating	2.5	
Tier #	2	
Group #	1	
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

RO questions

93. Unit 1 is at 65% power with CEV 1-02 running, CEV 1-01 in standby, and CEV 1-03 off. Condenser vacuum is slowly lowering. It is discovered that 1CV-0235, "CNDSR VAC PMP 1-01 SUCT PRESS SW 2970A/2971A/2972A HP RT VLV" is closed, and the instrument air line between 1PS-2971A and 1CV-0235 is disconnected. If no changes are made to the current system lineup and vacuum continues to decrease, what will happen?

(Assume an additional CEV pump can overcome the loss of vacuum)

- a. CEV 1-01 will start at 24" Hg vacuum; 1-HV2956, "CNDSR VAC PMP 1-01 SUCT VLV" will open; and, condenser vacuum will recover.
- b. CEV 1-01 will start at 24" Hg vacuum; 1-HV2956, "CNDSR VAC PMP 1-01 SUCT VLV" will not open; and, condenser vacuum will decrease, with a main turbine trip at 21" Hg vacuum.
- c. CEV 1-01 will NOT start on low vacuum, and 1-HV-2956, "CNDSR VAC PMP 1-01 SUCT VLV" will not open.
- d. CEV 1-01 will start at 24" Hg vacuum; 1-HV2956, "CNDSR VAC PMP 1-01 SUCT VLV" will open; and, condenser vacuum will decrease, with a main turbine trip at 21" Hg vacuum.

Answer: b Lesson Plan (As available)

Procedure ALM-0091A, 1.12, "CNDSR ANY VAC PMP TRIP," and Training Material OP51.SYS.CV1

Question Source: Bank # _____
 Modified Bank # X_____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X_____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	55K3.01	55K3.01
Importance Rating	2.5	2.7
Tier #	2	2
Group #	2	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

RO questions

97. The containment design criteria are based on limiting the containment leakage rate under design basis accident conditions. During a design basis accident, with only ONE train of containment cooling system operating, what will happen to containment pressure?
- a. Containment pressure will exceed 50 psig for a short time, but the containment cooling systems will quickly reduce the pressure.
 - b. Initially, containment pressure will not exceed 50 psig. However, the analysis assumes a hydrogen burn that results in containment overpressure, which is ultimately controlled by the containment cooling systems.
 - c. The maximum containment pressure will cause a gross failure of the containment structure.
 - d. Containment pressure will not exceed 50 psig as long as a single train of containment cooling systems operates.

Answer: d Lesson Plan (As available)

ERG HP/LP

Question Source: Bank # _____
Modified Bank # Closed Bank 1 #288
New _____

Question Cognitive Level: Memory or Fundamental Knowledge X____
Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	103A1.01	103A1.01
Importance Rating	3.7	4.1
Tier #	2	2
Group #	3	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

SRO questions

1.

A licensed reactor operator worked one shift as a crew member at CPSES on each of the following days: March 18 through March 22, April 6, April 7, May 2, and May 3, 2001.

Based on the above, which of the following describes his status with regard to being "active" per 10CFR55?

- a. He currently is not in active status.
- b. He would have to complete three more shifts before July 1 to remain active.
- c. He would have to complete one more shift before July 1 to remain active.
- d. He should have been placed on shift in an under instruction position.

Answer: c Lesson Plan (As available)

Question Source: Bank # _____
Modified Bank # _____
New ___X___

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		2.1.4
Importance Rating		3.4
Tier #		3
Group #		1
10 CFR 55.43(b)		2

Master Reviewer Certification _____ (initials)

SRO questions

2.

What is the MAXIMUM power level authorized for each unit by the Facility Operating Licenses?

- a. Unit 1 and Unit 2 \leq 3411 megawatts thermal
- b. Unit 1 \leq 3411 megawatts thermal and Unit 2 \leq 3445 megawatts thermal
- c. Unit 1 and Unit 2 \leq 3445 megawatts thermal
- d. Unit 1 \leq 3445 megawatts thermal and Unit 2 \leq 3411 megawatts thermal

Answer: b Lesson Plan (As available)

Question Source: Bank # _____
Modified Bank # _____
New X_____

Question Cognitive Level: Memory or Fundamental Knowledge X____
Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		2.1.10
Importance Rating		3.9
Tier #		3
Group #		1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

SRO questions

6. If an OPT is suspended prior to completion:
- a. The operation or evolution must be started over again.
 - b. The operation or evolution may be continued at any time provided the same person is performing it.
 - c. The system must be declared inoperable until the procedure or evolution is completed.
 - d. The "Precautions" section shall be reviewed prior to resuming the procedure on the next shift.

Answer: d Lesson Plan

ODA-407, Section 6.2 B & C

Question Source: Bank # Test SRO 99
 Modified Bank # _____
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge X
 Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	2.2.12	2.2.12
Importance Rating	3.0	3.4
Tier #	3	3
Group #	2	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

SRO questions

7. Given the following:

- ! Safety injection has actuated during Mode 4.
- ! The ERGs have been referenced, but do NOT provide specific guidance for the situation.
- ! In order to stop the large radiation release, actions are required to depart from the procedure and Technical Specifications

Which of the following actions are acceptable at CPSES for approving actions to stop the release in this situation?

- a. The Unit Supervisor and Reactor Operator give prior approval and the NRC notified in one hour.
- b. The Shift Manager and Unit Supervisor give prior approval and the NRC notified in one hour.
- c. The Manager, Operations gives prior approval and the NRC notified in one hour.
- d. The Emergency Coordinator gives prior approval and the NRC is notified in one hour.

Answer: b Lesson Plan (As available)

Question Source: Bank # Test SRO 99
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		E02EA2.2
Importance Rating		4.0
Tier #		1
Group #		1
10 CFR 55.43(b)		1

Master Reviewer Certification _____ (initials)

SRO questions

10 CFR 55.43(b)

9. Which of the following best completes the statement regarding conditions associated with an ALERT emergency classification?

An event is in progress involving plant safety degradation and _____

- a. No releases are expected to occur.
- b. Releases are expected to be limited to a small fraction of EPA exposure levels.
- c. Releases will not exceed EPA exposure levels except within the site boundary.
- d. Releases can reasonably be expected to exceed EPA limits for more than the immediate site area.

Answer: b. Lesson Plan

EPP-201

Question Source: Bank # _____
Modified Bank # _____
New X

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		E03G2.4.41
Importance Rating		4.1
Tier #		1
Group #		2
10 CFR 55.43(b)		6

Master Reviewer Certification _____ (initials)

SRO questions

5. Unit 1 is operating with a single diesel generator available due to mechanical problems with the remaining diesel. Which one of the answers below correctly describes the Technical Specification minimum capacity of diesel fuel oil system for a single diesel generator.
- a. Operate for five days at continuous full load rating
 - b. Operate for seven days at continuous full load rating
 - c. Operate for five days at maximum overload rating
 - d. Operate for seven days at maximum overload rating

Answer: b Lesson Plan OP51.SYS.ED1 pg 17

TS 3.8.3 Bases

Question Source: Bank # _____
 Modified Bank # Test RO 98
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge X
 Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	55EA1.06	55EA1.06
Importance Rating	4.1	4.5
Tier #	1	1
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

SRO questions

19. The plant is operating at 100% power with all controls in automatic. Without warning, plant parameters are as follows:

- ! PRZR Level <17%
- ! RCS Pressure = 1870 psig
- ! Charging flow increases and PRZR heater de-energize
- ! Normal letdown flow isolates
- ! PC-11 alarms with high radiation indications from condenser off gas radiation monitor and steam generator blowdown line radiation monitors

Which of the following is the most likely cause of the plant response and the current indications?

- a. Main steamline break.
- b. Loss of heat sink due to loss of all FW.
- c. Steam Generator Tube Rupture.
- d. RCS cold leg break.

Answer: c

Procedure EOP-3.0A

Question Source: Bank # _____
Modified Bank # Test SRO 99
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X_____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	76AK2.01	76AK2.01
Importance Rating	2.6	3.0
Tier #	1	1
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

SRO questions

t. Unit 1 is operating at 100% power when the operators notice that Train A SSW radiation monitor 1RE-4269 indicates an unexpected increase in activity.

What is the most likely cause for this increased activity?

- a. Auxiliary feedwater back leakage
- b. A CCW HX tube leak
- c. A CRDM cooling HX tube leak
- d. A CCP bearing cooler tube leak

Answer: b Lesson Plan (As available)

Question Source: Bank # _____
Modified Bank # Test SRO 99
New _____

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		59 AK2.01
Importance Rating		2.8
Tier #		1
Group #		1
10 CFR 55.43(b)		4

Master Reviewer Certification _____ (initials)

SRO questions

27. Unit 1 is at 100% power with all controls in their normal operational alignment. Pressurizer Level Channel 460 failed to approximately 10%.

What is the plant response?

- a. Actual PZR level decreases.
- b. Actual PZR level remains the same
- c. All PZR heater de-energize.
- d. Charging Flow Control Valve FCV-121 goes open.

Answer: c Lesson Plan/Reference (As available)

Procedure ABN-706, "Pressurizer Level Instrumentation Malfunction," Step 2.2.b.2

Question Source: Bank # Test SRO 99
 Modified Bank # _____
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge X
 Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	11A1.01	11A1.01
Importance Rating	3.5	3.6
Tier #	2	2
Group #	2	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

SRO questions

30. A valve four feet inside a valve room is producing a 600 mrem/hr field at 1 meter from the valve.

Which one of the following is the proper posting/method of control for this room?

- a. Radiation Area
- b. High Radiation Area
- c. Locked High Radiation Area
- d. Very High Radiation Area

Answer: c Lesson Plan

Procedure STA-650, "General Health Physics Plan," Section 4.8

Question Source: Bank # _____
Modified Bank # Test SRO 99
New _____

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	2.3.4	2.3.4
Importance Rating	2.5	3.1
Tier #	3	3
Group #	3	3
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

SRO questions

34. While conducting a cooldown in accordance with EOS-0.2A, "Natural Circulation Cooldown", you have reached the step in EOS-0.2A to begin RCS depressurization. What is the procedural method of depressurizing the RCS under these conditions?
- a. If letdown is in service, use one PRZR PORV.
 - b. If letdown is in service, use auxiliary spray.
 - c. If auxiliary spray is not available, use CRDM fans and ambient cooling.
 - d. If a PRZR PORV is not available, use CRDM fans and ambient cooling.

Answer: b Lesson Plan (As available)

Procedure EOS-0.2A, "Natural Circulation Cooldown," Revision 7, Step 9

Question Source: Bank # X
 Modified Bank # _____
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge X_
 Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	W/E10EK1.1	W/E10EK1.1
Importance Rating	3.3	3.6
Tier #	1	1
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

SRO questions

35. During operation at power on Unit 1, the Balance of Plant (BOP) Operator responds to a HI-HI/LO alarm for CCW surge tank level. Present levels in the surge tanks are as follows:

- ! Train A surge tank level = 58% and steady
- ! Train B surge tank level = 55% and decreasing

Based on this information, which of the below answers should be investigated as the potential cause of this situation?

- a. A leak in the component cooling water heat exchanger
- b. A leak in the spent fuel pool heat exchanger
- c. A leak in the letdown regenerative heat exchanger
- d. A leak in the seal water heat exchanger

Answer: a Lesson Plan (As available)

Training Material OP51.SYS.CC1 and Procedure ABN-502, "Component Cooling Water System Malfunctions," Revision 5, Section 3.0

Question Source: Bank # _____
 Modified Bank # _____
 New X

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	26AA2.01	26AA2.01
Importance Rating	2.9	3.5
Tier #	1	1
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

SRO questions

37. A loss of offsite power occurs and is simultaneously followed by a Large Break Loss of Coolant Accident on Unit 2. Systems operate per design except that 2 minutes into the event the Train B diesel generator catches fire. Which of the following is correct?
- a. Placing the Norm/Maintenance keyswitch in MAINTENANCE will stop the diesel.
 - b. Placing the Master Switch in MAINTENANCE will stop the diesel.
 - c. Only an overspeed condition or an 86-1 Lockout Trip will stop the diesel.
 - d. Place the control room EMER STOP/START switch in PULL-OUT.

Answer: d Lesson Plan (As available)

Procedure EOP-0.0B, Step 17 RNO

Question Source: Bank # X_____

 Modified Bank # _____

 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____

 Comprehension or Analysis X_____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	67AA2.17	67AA2.17
Importance Rating	3.5	4.3
Tier #	1	1
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

SRO questions

39. To what value must steam generator pressure be adjusted in order to maintain a 200 degree F subcooling margin in the RCS, when RCS pressure is reduced to 1600 psig? (Assume ideal heat transfer conditions)
- a. 235 psig
 - b. 250 psig
 - c. 260 psig
 - d. 265 psig

Answer: b Lesson Plan (As available)

Training Material LO21.ERG.XD9 and Steam Tables

Question Source: Bank # _____
 Modified Bank # X_____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X_____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	74EK1.07	74EK1.07
Importance Rating	2.8	3.2
Tier #	1	1
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

SRO questions

40. The reactor is at 20% power with a power increase in progress. Control rods are in MANUAL with Control Bank D at 126 steps. The Reactor Operator begins withdrawing control rods and the following indications are observed:

- ! One DRPI rod bottom LED light on control bank D
- ! One DRPI rod at 113 steps and all other DRPI rods at 126 steps
- ! Power Range Channel Deviation and "ANY ROD at BOT" on ALB 6D begin alarming
- ! The reactor does not trip
- ! Tave is decreasing and is presently 5°F less than Tref

In response to these conditions, the operator should:

- a. Trip the turbine and stabilize reactor power
- b. Trip the reactor and go to EOP-0.0
- c. Perform a controlled shutdown to HOT SHUTDOWN within 12 hours.
- d. Adjust turbine load to match Tavg within 1 degree of Tref and recover the dropped rod.

Answer: b Lesson Plan (As available)

Procedure ABN-712, "Rod Control System Malfunction," Revision 6, Section 3.0

Question Source: Bank # _____
 Modified Bank # X_____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X_____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	03 - 2.1.20	03 - 2.1.20
Importance Rating	4.3	4.2
Tier #	1	1
Group #	2	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

SRO questions

42. During Mid Loop operations on Unit 2, the following alarms are received:

"RHRP ½ OVRLOAD TRIP" (ALB 4B-2.4)

"RHRP ½ TO CL INJ FLO LO" (ALB 4B-4.4)

The Reactor Operator determines the running RHR Pump (Train A) has tripped and is unable to start the Train B RHR Pump.

Which of the following contain actions which are appropriate for this condition?

- a. Isolate the RHR Hot Leg suction, and initiate Hot Leg Injection with an SIP.
- b. Ensure a Hot Leg vent path, and initiate Hot Leg injection with an SIP.
- c. Open PORV's, initiate Cold Leg injection with an SIP.
- d. Open PORV's, initiate Hot Leg injection with a CCP.

Answer: b Lesson Plan (As available)

Procedure ABN-104, "Residual Heat Removal System Malfunction," Revision 7, Section 8

Question Source: Bank # X_____

 Modified Bank # _____

 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____

 Comprehension or Analysis X_____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	25AK3.03	25AK3.03
Importance Rating	3.9	4.1
Tier #	1	1
Group #	2	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

SRO questions

45. Which method below can be used to restore core cooling in the event of a loss of all feedwater?
- a. Rapidly depressurize the RCS and lineup RHR for cooling.
 - b. Adjust the ARV setpoints to 1160 psig and use condensate flow to the SGs.
 - c. Initiate Safety Injection and open the PORVs.
 - d. Manual initiation of the positive displacement charging pump.

Answer: c Lesson Plan (As available)

Training Material LO21.MCO.MI4, Section III B

Question Source: Bank # _____
 Modified Bank # X_____

Question Cognitive Level: Memory or Fundamental Knowledge X_____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	54AA1.04	54AA1.04
Importance Rating	4.4	4.5
Tier #	1	1
Group #	2	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

SRO questions

- xx. Following a Unit shutdown, MFP A is tripped and MFP B is in service. How is an ESF actuation avoided if MFP B will be tripped to shutdown the pump prior to removing the AFW auto start fuses?
- a. By resetting MFP A before MFP B is tripped.
 - b. By manually starting the MDAFW pumps.
 - c. By maintaining the AFW Flow Controllers in Manual.
 - d. By placing the MDAFW pumps in pull out.

Answer: a Lesson Plan (As available)

Procedure SOP-302A, "Feedwater System," Revision 13, Note 4.2 and IPO-009, "Plant Equipment Shutdown Following a Trip," Revision 9, Step 5.2.7E

Question Source: Bank # X_____

 Modified Bank # _____

 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____

 Comprehension or Analysis X_____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	13K4.04	13K4.04
Importance Rating	4.3	4.5
Tier #	2	2
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

SRO questions

51. While recording Unit 1 critical data, a fault causes a loss of 118 Vac protection bus 1PC1. This condition will result in which of the following?
- a. Loss of power to IR NIS channel N36, resulting in a loss of P-6 permissive.
 - b. Loss of power to IR NIS channel N36, resulting in an intermediate range high flux reactor trip.
 - c. Loss of power to IR NIS channel N35, resulting in a loss of P-6 permissive.
 - d. Loss of power to IR NIS channel N35, resulting in an intermediate range high flux reactor trip.

Answer: d Lesson Plan (As available)

Procedure ABN-603, "Loss of Protection or Instrument Bus," Revision 6,

Question Source: Bank # X_____

 Modified Bank # _____

 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____

 Comprehension or Analysis X_____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	15K1.01	15K1.01
Importance Rating	4.1	4.2
Tier #	2	2
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

SRO questions

53. While performing an RCS cooldown and depressurization in EOS-1.2A, Post LOCA Cooldown and Depressurization, the TSC directs the crew to restore normal containment cooling in accordance with EOP-0.0A, Attachment 9.

Given the following conditions:

- a. Containment Pressure = 4.5 psig (peak)
- b. Containment Radiation = 1×10^2 R/hr and slowly lowering (peaked at 6×10^2 R/hr)

After resetting the SI Actuation Signal, what actions are required to restore containment cooling?

- a. A PEO will reclose the containment fan cooler supply breakers and at least three containment fan cooler fans will be started from the control board.
- b. A PEO will reclose the containment fan cooler supply breakers and will start at least three containment fan cooler fans from the local controller.
- c. At least three containment fan cooler fans will be started from the control board.
- d. At least three containment fan cooler fans will be started locally.

Answer: c Lesson Plan (As available)

Procedure EOP-0.0A, "Reactor Trip or Safety Injection," Revision 7, Attachment 9, Step 4 and EOS-1.2A, "Post LOCA Cooldown and Depressurization," Revision 7, Step 2 Caution.

Question Source: Bank # _____
 Modified Bank # X_____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X_____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	22A4.01	22A4.01
Importance Rating	3.6	3.6
Tier #	2	2
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

SRO questions

56. Given the following plant conditions:

- ! Unit 1 is in Mode 4
- ! Tave = 333°F
- ! Pressurizer safety valve testing shows the following results:
 - 1) Pressurizer Safety Valve 1-8010A lift pressure was 2506 psig
 - 2) Pressurizer Safety Valves 1-8010B lift pressure was 2512 psig
 - 3) Pressurizer Safety Valves 1-8010C lift pressure was 2450 psig

What action is required?

- a. Must have two safety valves operable or be in Mode 5.
- b. Continue on with testing and reset lift setpoints. Pressurizer safety valves are not required to be operable until Mode 3.
- c. All safety valve lift setpoints are within technical specification limits, proceed to Mode 3.
- d. Must be in Mode 4 with any RCS cold leg temp $\leq 320^\circ\text{F}$

Answer: d Lesson Plan (As available)

TS 3.4.10

Question Source: Bank # _____
 Modified Bank # _____
 New X_____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X_____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	02K6.12	02K6.12
Importance Rating	3.0	3.5
Tier #	2	2
Group #	2	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

SRO questions

57. Select the BEST reason to explain why the SI Accumulators are isolated during a LOCA when at least two RCS Hot Leg Temperatures are <390°F.
- a. Saturation Pressure for 390°F corresponds to approximately 235 psig and thus the Accumulators would have discharged and repressurized the RCS appropriately, at this temperature.
 - b. Prevent overpressurization of Containment, which could occur if the nitrogen within the Accumulators was allowed to enter the RCS and exit via the break.
 - c. Ensures adequate volume of borated water and nitrogen have been injected to recover the Core with liquid and inert the hydrogen gas contained within the RCS and Containment.
 - d. Prevent further nitrogen injection into the RCS which could impede further RCS depressurization.

Answer: d Lesson Plan (As available)

Procedure EOP-1.0A, "Loss of Reactor or Secondary Coolant," Revision 7, Step 14 Basis

Question Source: Bank # X_____

 Modified Bank # _____

 New _____

Question Cognitive Level: Memory or Fundamental Knowledge X_____

 Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	06K1.03	06K1.03
Importance Rating	4.2	4.3
Tier #	2	2
Group #	2	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

SRO questions

59. With a turbine runback in progress due to OT or OP-N16, the control rods:
- a. Must be controlled manually since rod motion is blocked.
 - b. Should be controlled manually to control Tave more quickly.
 - c. Should be controlled manually to avoid excessive rod motion.
 - d. Should be allowed to step in auto to control Tave.

Answer: d Lesson Plan (As available)

Procedure ALM-0064A, "Alarm Procedure 1-ALB-6D," Revision 6, Windows 2.13 and 3.14

Question Source: Bank # X_____

 Modified Bank # _____

 New _____

Question Cognitive Level: Memory or Fundamental Knowledge X_____

 Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	12K1.03	12K1.03
Importance Rating	3.7	3.8
Tier #	2	2
Group #	2	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

SRO questions

62. Given the following conditions:

- ! Loss of all offsite power/Reactor tripped.
- ! Safety Injection initiated due to a LOCA outside Containment.
- ! Diesel Generator 1-01 running and tied to the bus.
- ! Diesel Generator 1-02 trips on overspeed.

What is the status of the Containment Spray Pumps?

- a. CSP 2 and 4 running, CSP 1 and 3 not running, CS Hxs Outlet Valves open.
- b. CSP 1 and 3 running, CSP 2 and 4 not running, CS Hxs Outlet Valves closed.
- c. CSP 1 and 3 running, CSP 2 and 4 not running, CS Hx #1 Outlet Valve open and CS Hx #2 Outlet Valve closed.
- d. CSP 1, 2, 3 and 4 not running

Answer: b Lesson Plan (As available)

OP51.SYS.CT1

Question Source: Bank # _____
 Modified Bank # X_____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X_____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	26K2.01	26K2.01
Importance Rating	3.4	3.6
Tier #	2	2
Group #	2	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

SRO questions

	<u>RO</u>	<u>SRO</u>
Level		
K/A #	35A2.03	35A2.03
Importance Rating	3.4	3.6
Tier #	2	2
Group #	2	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

SRO questions

64. If the steam dumps are armed and an N16 channel failure HIGH causes the steam dumps to open, which of the following actions are specified to close them quickly?
- a. Select the failed channel on the Tave channel defeat switch.
 - b. Select the failed channel on the N16 power channel defeat switch.
 - c. Select OFF on both steam dump interlock select switches.
 - d. Reset C7 with the STEAM DUMP MODE SELECT SWITCH.

Answer: c Lesson Plan (As available)

Procedure ABN-704, "Tc/N-16 Instrument Malfunction," Revision 10, Section 2.3

Question Source: Bank # X_____

 Modified Bank # _____

 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____

 Comprehension or Analysis X_____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	39A2.04	39A2.04
Importance Rating	3.4	3.7
Tier #	2	2
Group #	2	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

SRO questions

67. Due to maintenance, the Unit 1 RHR pump 1-02 seal cooler CCW supply and return valves are clearance tagged closed. If the plant receives an SI signal, which of the following statements best addresses this situation?
- a. Place RHR pump 1-02 in Pull-out as operation may not continue with no CCW flow to the seal cooler.
 - b. Align fire protection water to the RHR pump 1-02 seal cooler per ABN-502.
 - c. Align demin water to the RHR pump 1-02 seal cooler per ABN-502.
 - d. RHR Pump 1-02 may continue to operate - CCW flow to seal cooler not required.

Answer: d Lesson Plan (As available)

Procedure ABN-502, Section 3.3, step 8

Question Source: Bank # X_____

 Modified Bank # _____

 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____

 Comprehension or Analysis X_____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	5A2.03	5A2.03
Importance Rating	2.9	3.1
Tier #	2	2
Group #	3	3
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

SRO questions

74. Conditions exist that requires an automatic reactor scram; however, the reactor does not trip (ATWT)? When looking at the indicating lights for the reactor trip and bypass breakers, what positions do you expect the breakers to indicate.
- a. Reactor Trip Breakers A and B closed, Reactor Trip Bypass Breakers A and B disconnected.
 - b. Reactor Trip Breakers A and B open, Reactor Trip Bypass Breakers A and B closed.
 - c. Reactor Trip Breakers A and B open, Reactor Trip Bypass Breakers A and B open.
 - d. All reactor trip and bypass breakers closed.

Answer: a Lesson Plan (As available)

Procedure OPT-447, "Modes 1,3,&4 Train A SSPS Actuation Logic Test," Section 9

Question Source: Bank # _____
 Modified Bank # X_____

Question Cognitive Level: Memory or Fundamental Knowledge X_____

Examination Outline Cross-reference:

	<u>RO</u>	<u>SRO</u>
Level		
K/A #	29EA2.07	29EA2.07
Importance Rating	4.2	4.3
Tier #	1	1
Group #	2	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

SRO questions

76. Unit 1 is at 65% power with CEV 1-02 running, CEV 1-01 in standby, and CEV 1-03 off. Condenser vacuum is slowly lowering. It is discovered that 1CV-0235, "CNDSR VAC PMP 1-01 SUCT PRESS SW 2970A/2971A/2972A HP RT VLV" is closed, and the instrument air line between 1PS-2971A and 1CV-0235 is disconnected. If no changes are made to the current system lineup and vacuum continues to decrease, what will happen?

(Assume an additional CEV pump can overcome the loss of vacuum)

- a. CEV 1-01 will start at 24" Hg vacuum; 1-HV2956, "CNDSR VAC PMP 1-01 SUCT VLV" will open; and, condenser vacuum will recover.
- b. CEV 1-01 will start at 24" Hg vacuum; 1-HV2956, "CNDSR VAC PMP 1-01 SUCT VLV" will not open; and, condenser vacuum will decrease, with a main turbine trip at 21" Hg vacuum.
- c. CEV 1-01 will NOT start on low vacuum, and 1-HV-2956, "CNDSR VAC PMP 1-01 SUCT VLV" will not open.
- d. CEV 1-01 will start at 24" Hg vacuum; 1-HV2956, "CNDSR VAC PMP 1-01 SUCT VLV" will open; and, condenser vacuum will decrease, with a main turbine trip at 21" Hg vacuum.

Answer: b Lesson Plan (As available)

Procedure ALM-0091A, 1.12, "CNDSR ANY VAC PMP TRIP," and Training Material OP51.SYS.CV1

Question Source: Bank # _____
 Modified Bank # X_____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X_____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	55K3.01	55K3.01
Importance Rating	2.5	2.7
Tier #	2	2
Group #	2	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

SRO questions

79. The containment design criteria are based on limiting the containment leakage rate under design basis accident conditions. During a design basis accident, with only ONE train of containment cooling system operating, what will happen to containment pressure?
- a. Containment pressure will exceed 50 psig for a short time, but the containment cooling systems will quickly reduce the pressure.
 - b. Initially, containment pressure will not exceed 50 psig. However, the analysis assumes a hydrogen burn that results in containment overpressure, which is ultimately controlled by the containment cooling systems.
 - c. The maximum containment pressure will cause a gross failure of the containment structure.
 - d. Containment pressure will not exceed 50 psig as long as a single train of containment cooling systems operates.

Answer: d Lesson Plan (As available)

Training Material OP51.SYS.CY1

Question Source: Bank # _____
 Modified Bank # X_____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X_____

Examination Outline Cross-reference:

	<u>RO</u>	<u>SRO</u>
Level		
K/A #	103A1.01	103A1.01
Importance Rating	3.7	4.1
Tier #	2	2
Group #	3	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

SRO questions

83. The reactor is steady at 85% power. Control rods are in AUTO with Control Bank D at 200 steps. One Control Bank D rod begins stepping out. Outward rod motion is stopped at 215 steps by placing rods in manual.

Which of the following describes the actions the operators must take?

- a. Determine that the rod is OPERABLE, AND verify SDM to be within the limits in the COLR within 1 hour, OR be in Mode 3 within 6 hours.
- b. Determine that the rod is not OPERABLE, AND Verify SDM to be within the limits in the COLR within 1 hour, OR be in Mode 3 within 6 hours.
- c. Determine that the rod is OPERABLE, Initiate boration to restore SDM to within limit, OR be in Mode 3 within 6 hours.
- d. Determine that the rod is not OPERABLE, AND Verify SDM to be within the limits in the COLR within 1 hour, AND be in Mode 3 within 6 hours

Answer: d Lesson Plan (As available)

Question Source: Bank # _____
 Modified Bank # _____
 New ___X___

Question Cognitive Level: Memory or Fundamental Knowledge __X__
 Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		001GK2.1.33
Importance Rating		4.0
Tier #		1
Group #		1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

SRO questions

84.

Unit 2 is operating at 95% power and responding to a failure of pressurizer spray valve 2-PCV-455B, RC LOOP 1 PRZR SPR VLV. The operators have contacted I & C to remove 2-PCY-0455B, PRZR PRESS CONTROL DRIVER CARD. From the list below

Which of the following is the reason for removing 2-PCY-0455B, PRZR PRESS CONTROL DRIVER CARD?

- a. This allows manual operation of the spray valve from the RSP.
- b. This allows manual operation of the spray valve from the process racks.
- c. This removes power from the controller which allows manual operation of the spray valve from the MCB.
- d. This removes power from the controller which fails the spray valve closed.

Answer: d Lesson Plan (As available)

ABN-705

Question Source: Bank # _____
 Modified Bank # _855 Open
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		027AA2.11
Importance Rating		4.0
Tier #		1
Group #		2
10 CFR 55.43(b)		5

Master Reviewer Certification _____ (initials)

SRO questions

85.

During unit operation an actual Safety Injection (low steam line pressure) occurs due to a steam leak outside containment. A complete SI and Phase A Isolation has been verified; no Phase B occurred. During mitigation of the event, the SI signal is reset.

Based on this information, which of the below actions, if any, is required for the CCW recirculation valves to automatically reposition?

- a. Reset both trains of Phase A Isolation
- b. Reset the valves at the auxiliary relay racks.
- c. Match CCW pump switch flags (CB-03)
- d. Reset both trains of Phase B Isolation and depress the recirc valve reset pushbuttons in sequence.

Answer: b Lesson Plan LO21.SO1.NC.OB103 (As available)

Procedure ABN-502

Question Source: Bank # 723
 Modified Bank #
 New

Question Cognitive Level: Memory or Fundamental Knowledge
 Comprehension or Analysis x

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		026AA2.03
Importance Rating		2.9
Tier #		1
Group #		1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

SRO questions

86.

During refueling the chemist reports that RCS boron concentration is 2200 ppm. Select the correct operator response.

- a. An emergency boration must be initiated until RCS boron concentration is > 2400 ppm.
- b. A normal boration must be initiated until RCS boron concentration is > 2400 ppm.
- c. No boration is required since the SDM is being met.
- d. No boration is required if Keff is verified less than 0.95.

Answer: a Lesson Plan OP51.SYS.SF1.OB25

TS 3.9.1

Question Source: Bank # 507 Open
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		G2.2.29
Importance Rating		3.8
Tier #		3
Group #		
10 CFR 55.43(b)		6

Master Reviewer Certification _____ (initials)

SRO questions

87. One of the Diesel Driven Fire suppression pumps is to be tagged Out of Service for maintenance. How long can the pump be out of service before a backup fire suppression system must be established?
- a. One hour
 - b. 24 hours if no compensatory actions are taken
 - c. 72 hours if no compensatory actions are taken
 - d. 7 days if no compensatory actions are taken

Answer: d Lesson Plan (As available)

Procedure STA-738, Att 8A

Question Source: Bank # Closed Bank 2, # 766
 Modified Bank # _____
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge X _____
 Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		086G2.2.17
Importance Rating		3.5
Tier #		2
Group #		2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

SRO questions

88. Given the following:

- ! A spent fuel assembly is being raised from its slot in the storage pool for return to the reactor.
- ! Gas bubbles are coming to the surface of the pool.
- ! Radiation levels in the Spent Fuel Pool area are increasing.

Which one of the following actions is required?

- a. Notify the control room to stop SFP Exhaust Fans.
- b. Immediately evacuate all personnel from the Fuel Handling Building.
- c. Ensure the fuel transfer cart is in the Fuel Building, then close the transfer tube gate valve.
- d. Move the fuel assembly into the containment and notify the control room to initiate containment isolation.

Answer: b Lesson Plan OP51.RFO.FH5 and ABN-908

Question Source: Bank # _____
 Modified Bank # 622
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge X
 Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		G2.3.10
Importance Rating		3.3
Tier #		1
Group #		3
10 CFR 55.43(b)		7

Master Reviewer Certification _____ (initials)

SRO questions

89. According to CPSES Technical Specification bases, the limits on NaOH concentration in the Containment Spray Chemical Additive Tank will ensure that the solution being recirculated within containment following a LOCA will have long term pH value between 8.5 and 10.5.

Which of the following describes the effect that NaOH has when injected?

- a. It reduces chloride stress corrosion of carbon steel components inside the containment.
- a. Ensures sufficient surface tension of the coolant in the containment to assist in cooling the containment liner.
- b. The acidic pH would ensure that the spray droplets entrain gaseous fission products, particularly iodines.
- c. The basic pH would ensure that the spray droplets entrain gaseous fission products, particularly iodines.

Answer: d Lesson Plan SYS.CT1.OB14

Question Source: Bank # _____
Modified Bank # _____
New X

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		026A2.05
Importance Rating		4.1
Tier #		2
Group #		1
10 CFR 55.43(b)		1

Master Reviewer Certification _____ (initials)

SRO questions

90.

A change to a safety related Special Test Procedure is given to the relief Shift Manager with a request that it be reviewed prior to its performance. The procedure has already been formally reviewed and presented to SORC.

In accordance with STA-205, which ONE (1) of the following shall the relief Shift Manager review to verify the procedure change does NOT introduce an Unreviewed Safety Question?

- a. STA-205-1 form "CPSES Procedure Change Form" Form has been completed with all questions resolved.
- b. The name of the procedure author to verify the person is knowledgeable in the subject matter.
- c. The specified plant initial conditions to verify NO plant entry into an LCO per Technical Specifications.
- d. Attachment 8.A to STA-205-1 "Change of Intent Guidelines" checklist has been attached with all review items identified.

Answer: a Lesson Plan N/A

Question Source: Bank # _____
Modified Bank # _____
New X

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		G2.2.8
Importance Rating		3.3
Tier #		3
Group #		
10 CFR 55.43(b)		3

Master Reviewer Certification _____ (initials)

SRO questions

91.

The reactor is operating at 100 percent power at end of cycle life, steady state, equilibrium xenon conditions, and the Rod Control System is in manual. What would occur to the axial flux peak if the reactor operator borates while reducing power to 80 percent?

- a. shift toward the top of the core if axial offset was initially negative.
- b. shift to the midplane of the core if axial offset was initially positive.
- c. shift toward the bottom of the core regardless of the initial axial offset.
- d. not be affected because the rods have not moved.

Answer: a Lesson Plan LO21.MCO.TA5.LN

Question Source: Bank # _____
Modified Bank # 515
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		015A2.04
Importance Rating		3.8
Tier #		2
Group #		1
10 CFR 55.43(b)		6

Master Reviewer Certification _____ (initials)

SRO questions

92.

A startup is in progress when annunciator DG 1 TRBL alarms. The Safeguards Building AO reports the cause is low starting air pressure (100 psig and slowly decreasing) on the #1 air receiver due to a leak on the discharge piping.

Which of the following actions should be taken?

- a. Declare #1 ED/G inoperable, continue the startup, and conduct surveillances required to show operability of the other ED/G.
- b. Declare #1 ED/G inoperable, terminate the startup, and perform required AC electrical power source surveillances.
- c. Place the plant in hot standby.
- d. Isolate air receiver #1; continue with startup; no Technical Specification action is required.

Answer: d Lesson Plan S09.ED2.OB101

Question Source: Bank # 779
 Modified Bank #
 New

Question Cognitive Level: Memory or Fundamental Knowledge
 Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		064K6.07
Importance Rating		2.9
Tier #		2
Group #		2
10 CFR 55.43(b)		5

Master Reviewer Certification _____ (initials)

SRO questions

93. Auxiliary Feedwater System T.S. LCO 3.7.5 is written as follows:

"Three AFW trains shall be OPERABLE."

"APPLICABILITY: MODES 1, 2, and 3."

Current plant conditions are as follows:

The unit is in MODE 4 with the RCS temperature at 340°F. Repairs are in progress on the Turbine Driven Auxiliary Feedwater Pump (TDAFWP) turbine governor, which will be completed in 4 hours. The TDAFWP will have to be run on greater than 532 psig secondary steam pressure to complete required post-maintenance testing.

Given these conditions, Which of the following is the correct statement?

- a. MODE 3 cannot be entered until the repairs are complete and surveillance testing must be performed within 24 hours of establishment of test conditions.
- b. MODE 3 may be entered now but the TDAFWP surveillance testing must be performed within 24 hours of establishment of test conditions regarding secondary pressure.
- c. MODE 3 cannot be entered until the associated SR 3.7.5.1 surveillance requirements are completed.
- d. MODE 3 may be entered because the LCO actions are complete and the specification allows continued operation for an unlimited period of time.

Answer: a Lesson Plan SYS.AF1.OB29

Question Source: Bank # _____
Modified Bank # 156
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		2.2.21
Importance Rating		3.5
Tier #		2
Group #		1
10 CFR 55.43(b)		1

Master Reviewer Certification _____ (initials)

SRO questions

94. Unit 1 is in MODE 3 when the following annunciators are received:

"INST AIR COMPR ½ TRIP"

"INST AIR HDR PRESS LO"

Attempts are made to restart an instrument air compressor without success. As air pressure decreases below 35 psig, the RO trips the reactor per procedure. Select the corrective actions to be taken.

- a. Dispatch a PEO to Containment to manually control letdown flow.
- b. Dispatch a PEO to the Turbine Building to isolate the steam dumps.
- c. Dispatch a PEO to the Aux Building to manually control charging flow.
- d. Dispatch a PEO to the Safeguards Building to locally close the MSIVs.

Answer: c Lesson Plan SYS.IA1.OB14

Question Source: Bank # _596 Open
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		2.1.7
Importance Rating		4.4
Tier #		1
Group #		2
10 CFR 55.43(b)		5

Master Reviewer Certification _____ (initials)

SRO questions

95. What is the operator action to be taken if all CCW flow is lost and attempts to start any available CCW pump fail?
- a. Trip the reactor and then trip all RCPs.
 - b. Isolate heat loads to minimize CCW heat exchanger outlet temperature.
 - c. Verify seal injection flow and maintain the plant stable until repairs can be made.
 - d. Verify SSW flow in at least one train.

Answer: a Lesson Plan S01.NC1.OB103

Question Source: Bank # 724
Modified Bank #
New

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		008A2.07
Importance Rating		2.8
Tier #		2
Group #		3
10 CFR 55.43(b)		5

Master Reviewer Certification _____ (initials)

SRO questions

96. Unit 1 has experienced a Reactor trip and Safety Injection and the operator has completed EOP-0.0A, "Reactor Trip and Safety Injection" and has transitioned to EOP-1.0A, "Loss of Reactor or Secondary Coolant". In EOP-1.0A, the operator checks if any Steam Generator is faulted at Step 2 of the procedure and remembers that the Steam Generators had just been checked prior to exiting EOP-.0.0A. Why does EOP-1.0A require checking for a faulted Steam Generator after having just performed the identical step in EOP-0.0A?
- b. To ensure that no more than one Steam Generator is isolated.
 - c. To ensure that there is at least one Steam Generator available for cooldown.
 - c. Alert the operator to a possible misdiagnosis or subsequent failure.
 - d. EOP-1.0A is entered from other ERGs which may not check for faulted Steam Generator.

Answer: c Lesson Plan LO21.SJ3.XG2.OB105

Question Source: Bank # 933 Open
 Modified Bank # _____
 New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
 Comprehension or Analysis X

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		G2.4.7
Importance Rating		3.8
Tier #		3
Group #		
10 CFR 55.43(b)		5

Master Reviewer Certification _____ (initials)

SRO questions

97. Technical Specifications, Section 2.0 Safety Limit:

“In MODES 1 and 2, the departure from nucleate boiling ratio (DNBR) shall be maintained \$ the 95/95 DNB criterion as specified in Section 5.6.5.”

If this limit is exceeded with the Unit operating in MODE 1, which of the below is the most correct action required?

- a. Place the unit in HOT STANDBY in five minutes.
- b. Be in HOT STANDBY within 1 hour.
- c. Ensure the unit is in MODE 3 in 24 hours.
- d. Be in HOT STANDBY within 6 hours.

Answer: b Lesson Plan RLS.SL2.OB104

Question Source: Bank #
Modified Bank # 672 Open
New _____

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		G2.1.11
Importance Rating		3.8
Tier #		3
Group #		
10 CFR 55.43(b)		5

Master Reviewer Certification _____ (initials)

SRO questions

99. What is the minimum number of Circulating Water Pumps required during all radioactive liquid batch releases?
- a. One
 - b. Two
 - c. Three
 - d. Four

Answer: b Lesson Plan ADM.XA8.OB06

Question Source: Bank # _____
Modified Bank # _82 Open
New _____

Question Cognitive Level: Memory or Fundamental Knowledge ___X___
Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		G2.3.6
Importance Rating		3.8
Tier #		3
Group #		
10 CFR 55.43(b)		5

Master Reviewer Certification _____ (initials)

SRO questions

100. With the unit operating in MODE 1, a Section 3.0 Technical Specification is exceeded while performing maintenance on a component such that a LCO 3.0.3 condition arises. If this specification is APPLICABLE in MODEs 1, 2 and 3, which of the below describes the ACTION required?
- a. Within 1 hour take action to place the unit in MODE 3 within 7 hours and MODE 4 within 13 hours.
 - b. Within 1 hour take action to place the unit in HOT STANDBY within 6 hours and HOT SHUTDOWN within the following 12 hours.
 - c. Within 1 hour take action to place the unit in HOT STANDBY within 6 hours, in HOT SHUTDOWN in the following 6 hours and in COLD SHUTDOWN in the subsequent 24 hours.
 - d. Within 1 hour take action to place the unit in MODE 3 within 6 hours.

Answer: a Lesson Plan RLS.SL3.OB102

Question Source: Bank # _____
Modified Bank # _679 Open
New _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis ___X_

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #		G2.2.24
Importance Rating		3.8
Tier #		3
Group #		
10 CFR 55.43(b)		2