1. During clearance or valve positioning activities, which ONE of the following activities would allow independent verification of equipment status to be waived in accordance with STA-694, “Station Verification Activities?”

   a. A valve verification would result in radiation exposure of 12 mrem.

   b. A clearance requires installation of a grounding strap on a non-safety related 480V breaker.

   c. A clearance requires removal of a gag on a main steam safety valve.

   d. A valve verification requires entry into containment during fuel movement and would result in a radiation exposure of 5 mrem.

Answer: a Lesson Plan (As available)

Procedure STA-694, “Station Verification Activities,” Section 6.3.1

Question Source:	Bank #	Test SRO 98 & SRO 99
	Modified Bank #	_____
	New	_____

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	2.2.13	2.2.13
Importance Rating	3.6	3.8
Tier #	3	3
Group #	2	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

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	RO	SRO
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)

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	RO	SRO
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)

4. During the performance of maintenance, an electrical maintenance technician calls the control room and requests permission to manually operate Diesel Generator Air Compressor 1-02. Is the technician authorized to operate the compressor and what procedure would you use to determine?

a. No, the Station Administrative Procedures

b. No, the Operations Work Instruction Procedures

c. Yes, the Maintenance Work Order

d. Yes, the Station Administrative Procedures

Answer: a Lesson Plan OPD1.ADM.XA1

Procedure STA-601, “Authority for Equipment Operation”, Section 6.3

Question Source:	Bank #	
	Modified Bank #	_____
	New	X

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	2.1.2	
Importance Rating	3.0	
Tier #	3	
Group #	1	
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

5. 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	RO	SRO
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)

6. The plant is operating at power and the following conditions exist:

- Reactor power = 56%
- RCS pressure = 2220 psig
- Average Tavg = 575°F
- S/G levels = 67%
- Turbine power = 640 MW
- Steam pressure = 1020 psig
- Containment pressure = 0.5 psi

Five minutes later, the plant conditions are as follows:

- Reactor power = 58%
- RCS pressure = 2212 psig
- Average Tavg = 570°F
- S/G levels = 69%
- Turbine power = 640 MW
- Steam pressure = 1000 psig
- Containment pressure = approximately 1.8 psig

Based on the indications listed above:

What is the most likely event in progress?

a. RCS leak inside containment

b. Feed line break inside containment

c. Steam line break inside containment

d. Steam line break outside containment

Answer: c Lesson Plan

EOP-0.0A and ALM-0031A, 4.6.

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	RO	SRO
K/A #	040AK3.06	040AK3.06
Importance Rating	3.4	3.9
Tier #	1	1
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

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	RO	SRO
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)

8. If a reactor trip were to occur from 100% power with all control systems in normal automatic alignment, which one of the below would disable operation of the steam dump system immediately after the trip?

a. A coincident failure of condenser vacuum switches PS-2043A/B output

b. A subsequent failure of main turbine first stage pressure PT-506 high

c. A coincident failure of main steam header pressure PT-507 high

d. A subsequent failure of main turbine first stage pressure PT-506 low

Answer: a | Lesson Plan | (As available)

ALM-0065, 1.4

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	51AK3.01	51AK3.01
Importance Rating	2.8	3.1
Tier #	1	1
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

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 240ºF and decreasing
- **!** One SG level 0% narrow range and the other SGs at 20% 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 25ºF

d. Secure ECCS, if RCS subcooling is 110ºF

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	RO	SRO
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)

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 heaters 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	RO	SRO
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)

11. Safety injection pump Train A has been tagged out for motor bearing replacement. A Safety Injection subsequently occurs due to a large break loss of coolant accident inside containment. Three hours later, the Train B pump fails. All other equipment functions as designed for the duration of the accident.

Based on the Emergency Response Guidelines, what must be done to mitigate the consequences of the accident?

a. A transition to EOS-1.1, Safety Injection Termination, will be required upon receipt of the RWST low-low level alarm.

b. Both trains of RHR will be aligned for hot leg injection per EOS-1.4, Transfer to HL Recirculation.

c. EOS-1.4, Transfer to HL Recirculation, provides for aligning one CCP for hot leg injection when neither SI pump is operable.

d. EOS-1.4, Transfer to HL Recirculation, provides for aligning two CCPs for hot leg injection when neither SI pump is operable.

Answer: b Lesson Plan (As available)

Procedure EOS-1.4, “Transfer to HL Recirculation,”

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	W/E11EK3.2	W/E11EK3.2
Importance Rating	3.5	4.0
Tier #	1	1
Group #	2	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

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.

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.

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_____
	New	_____

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

Examination Outline Cross-reference:

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

Master Reviewer Certification _____ (initials)

13. During operation at power, smoke is visible in the control room.

For this situation, which one of the following answers indicates the correct operator action in response to this condition?

a. Ensure the control room ventilation system automatically shifted to the "Emergency Recirculation Mode".

b. Manually shift the control room ventilation system to the "Emergency Recirculation Mode".

c. When the shift manager orders the control room evacuated, proceed to the Remote Shutdown Panel and trip the reactor and stop the RCPs.

d. When the shift manager orders the control room evacuated, trip the reactor and stop the RCPs, then proceed to the Remote Shutdown Panel.

Answer: d Lesson Plan (As available)

Procedure ABN-803A, "Response to a Fire in the Control Room or Cable Spreading Room," Section 2.3

Question Source:	Bank #		
	Modified Bank #	SRO 98	
	New	____	
Question Cognitive Level:	Memory or Fundamental Knowledge		X
	Comprehension or Analysis		_____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	68AK3.12	68AK3.12
Importance Rating	4.1	4.5
Tier #	1	1
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

14. Unit 1 is at 100% power and stable when the operators suspect a short in the master speed controller output to Main Feed Pump B. The operators place the individual controller for Main Feed Pump B in manual for trouble shooting after matching the speed signal. Main Feed Pump A is still operating in automatic on the master controller. Assuming no further operator action and assuming feed flow/steam flows were initially matched:

What will result from this action?

a. The automatic control signal for feed-steam dp would no longer affect the speed of Main Feed Pump B.

b. Main Feed Pump B will trip on overspeed.

c. The automatic control signal for level would no longer affect the speed of Main Feed Pump B.

d. Main Feed Pump A will trip on overspeed.

Answer: a Lesson Plan (As available)

Initial Training Material OP51.SYS.SN1

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	RO	SRO
K/A #	57AA1.06	57AA1.06
Importance Rating	3.5	3.5
Tier #	1	1
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

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 heaters 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	RO	SRO
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)

16. During operation at power with the reactor trip breakers (RTBs) closed a loss of 125 VDC control power to one of the RTBs occurs.

Which one of the following correctly describes how the RTB will be affected by loss of the 125 VDC control power?

a. It trips open due to loss of power to the shunt coil.

b. It trips open due to loss of power to the undervoltage coil.

c. It is not capable of tripping on a shunt trip.

d. It is not capable of tripping on an undervoltage trip.

Answer: c Lesson Plan (As available)

Drawing 7247D05, Sheet 1

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	RO	SRO
K/A #	01K2.02	
Importance Rating	3.6	
Tier #	2	
Group #	1	
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

17. Which one of the following is an operational implication of maintaining Shutdown and Control Bank Rod Insertion Limits?

a. Maintain proper axial flux distribution

b. Proper bank overlap is maintained

c. Effect of rod drops are minimized

d. Minimum shutdown margin is maintained

Answer: d

Lesson Plan/Reference (As available)
TS 3.1.6 Bases, Background

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	RO	SRO
K/A #	01K5.04	01K5.04
Importance Rating	4.3	4.7
Tier #	2	2
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

18. Unit 2 is in Mode 4. The pressurizer is solid when a complete loss of instrument air occurs.

Which one of the following describes the plant response with no operator action?

a. The RCS rapidly depressurizes with maximum letdown and no charging flow.

b. Charging flow decreases and RCS pressure decreases.

c. Charging flow increases and RCS pressure increases until a PZR PORV opens.

d. The RCS slowly depressurizes due to inventory loss through RCP seal leakoff.

Answer: c Lesson Plan/Reference OP51SYS.IA1, pg 40 of 48

ABN-301, IA System Malfunction, Attachment 1 (valve failure positions)

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	04K3.07	04K3.07
Importance Rating	3.8	4.1
Tier #	2	2
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

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

Master Reviewer Certification _____ (initials)

20. A refueling outage is in progress on Unit 2. A containment purge is in progress to prepare the containment environment for personnel entry when a SR SHTDN FLUX HI alarm is received in the control room.

With the detectors at minimum alarm setpoint, which one of the below conditions could be the cause of the alarm?

a. One source range instrument channel has increased to 4 times background.

b. One source range instrument channel has increased to 5 times background.

c. Both source range instrument channels have increased to 2 times background.

d. Both source range instrument channels have increased to 4 times background.

Answer: b Lesson Plan (As available)

Procedure ALM-0064, 2.1

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	RO	SRO
K/A #	29A4.04	29A4.04
Importance Rating	3.5	3.6
Tier #	2	2
Group #	2	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

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	RO	SRO
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)

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	270ºF
!	Motor Upper Radial Bearing Temperature	160ºF
!	Motor Upper Thrust Bearing Temperature	163ºF
!	Lower Seal Water Bearing Temperature	240ºF
!	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	RO	SRO
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)

23. Unit 1 is at 1% reactor power (stable) with AFW in service. Due to a mechanical maintenance error, air is isolated to the motor driven AFW flow control valve for #1 S/G. Select one of the answers below that best describes the response of #1 S/G water level and valve operation.

a. Level remains the same since the flow control valve fails as is.

b. Level increases since the flow control valve fails open.

c. Level decreases since the flow control valve fails closed.

d. Level remains the same since the flow control bypass valve will control level at this power.

Answer: b Lesson Plan/Reference (As available)

ABN-301, “Inst Air System Malfunction,” Attachment 1, pg 45

Question Source:	Bank #	Test RO 98	
	Modified Bank #	_____	
	New	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge		_____
	Comprehension or Analysis		X

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	61A2.07	
Importance Rating	3.4	
Tier #	2	
Group #	1	
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

24. A plant shut down is in progress when an instrument failure causes #3 S/G feedwater control valve (FCV-530) to begin closing. S/G 3 feed flow decreased to 450,000 lbm/hr before the operator took manual control and attempted to open the valve.

How will S/G 3 Feedwater Isolation Valve respond?

a. The valve will remain open providing feedwater temperature remains above 250°F.

b. The valve will remain open providing feedwater temperature remains above 200°F

c. The valve will close unless the feed isolation signal is reset.

d. The valve will remain open providing feedwater temperature delta-T remains greater than 10°F.

Answer: a Lesson Plan (As available)

Lesson OP51.SYS.MF1, EO401

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	RO	SRO
K/A #	59K1.04	
Importance Rating	3.4	
Tier #	2	
Group #	1	
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

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 and flow is indicated only 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	RO	SRO
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)

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	RO	SRO
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)

27. Unit 1 is operating at 45% reactor power for repairs on one of the main feedwater pumps. Instrument air is lost.

What is the plant/equipment response?

a. Charging flow increases.

b. The running main feedwater pump trips, causing a reactor trip on low S/G level.

c. The reactor trips and auxiliary feedwater isolates.

d. Most air operated valves fail as is.

Answer: a Lesson Plan/Reference (As available)

Procedure ABN-301, “Instrument Air System Malfunction”

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	RO	SRO
K/A #	78K3.02	78K3.02
Importance Rating	3.4	3.6
Tier #	2	2
Group #	3	3
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

28. A startup of Unit 2 Reactor is planned to begin within the next 10 minutes. An on-shift PEO, who is scheduled to attend a Replacement License Class beginning in two (2) weeks, has requested to perform the startup under the direct supervision of the Unit Reactor Operator. This PEO has previously been RO licensed at another power plant similar to CPSES and has attended the startup briefing. Would this PEO be allowed to perform the start up and why?

a. YES, but only if directly supervised by a senior licensed operator.

b. NO, the PEO has not successfully completed Emergency Response Guideline training.

c. YES, but only if approval is granted by the Operations Manager.

d. NO, the PEO is not currently enrolled in the replacement license program.

Answer: d Lesson Plan (As available)

Procedure ODA-102, Sect 6.24

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	2.1.9	2.1.9
Importance Rating	2.5	4.0
Tier #	3	3
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

29. As the reactor operator, you are directed to perform a containment purge.

Given the following conditions:

- Reactor is in Mode 4
- Containment pressure is 1.0 psig

What are the requirements before the Containment Purge Air Supply and Exhaust Valves can be operated?

a. Vent the containment; obtain a radioactive effluent release permit; and, restore electrical power and air supply to the valves

b. Be in Mode 5; vent the containment; obtain a radioactive effluent release permit; and restore electrical power and air supply to the vent valves

c. Be in Mode 5; vent the containment; obtain a radioactive effluent release permit; and, locally open the purge air supply and exhaust valves

d. Vent the containment; obtain a radioactive effluent release permit; and locally open the purge air supply and exhaust valves

Answer: b Lesson Plan (As available)

SOP-801A, Containment Ventilation System," Revision 9, T.S 3.6.3 and Lesson OP51.SYS.CL1, pages. 16 and 17

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	2.3.9	
Importance Rating	2.5	
Tier #	3	
Group #	3	
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

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 (ICRR) 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_____
	New	_____

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

Examination Outline Cross-reference:

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

Master Reviewer Certification _____ (initials)

31. Unit 2 is operating at 55% RTP when alarms are received on Reactor Coolant Pump (RCP) #1. Upon investigation, the Unit RO observes the following:

- **!** Shaft vibration 13 mils and increasing at 1 mil/hr
- **!** Frame vibration 4 mils and steady
- **!** #1 Seal leakoff 10 gpm and increasing 2 gpm/minute
- **!** Seal water outlet temperature 205°F and stable
- **!** Seal water bearing temperature 215°F and stable

What actions are required?

a. Reduce reactor power to less than 40% and stop the RCP within 30 minutes.

b. Commence unit shutdown, maintain RCP running as long as RCP parameters remain below operating limits.

c. Trip the reactor then stop the RCP.

d. Close #1 seal leakoff valve and maintain RCP in service until power can be reduced below 40%.

Answer: c Lesson Plan (As available)

Procedure ABN-101, Section 4.3

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	15/17AK3.03	15/17AK3.03
Importance Rating	3.7	4.0
Tier #	1	1
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

32. Control Room instrumentation qualified for Post Accident Monitoring is identified by:

a. orange labels with green lettering

b. green labels with black lettering

c. black labels with white lettering

d. white labels with black lettering

Answer: c Lesson Plan (As available)

Lesson Plan LO21.ERG.XDB

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	2.4.3	
Importance Rating	3.5	
Tier #	3	
Group #	4	
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

33. The Control Room operators are responding to a SGTR. In order to minimize radiological releases, what is the preferred method to cool down the RCS and establish subcooled margin.

a. Dump steam through the intact S/G(s) atmospheric dumps.

b. Adjusting feedflow to the faulted SG(s).

c. Dump steam to the condenser using the faulted S/G(s).

d. Dump steam to the condenser using the intact S/G(s).

Answer: d Lesson Plan (As available)

Procedure EOP-3.0A, “Steam Generator Tube Rupture,” pg 46

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	2.3.11	2.3.11
Importance Rating	2.7	3.2
Tier #	3	3
Group #	3	3
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

34. While moving a fuel assembly during a core offload, the containment airborne radiation alarm actuates. What is the proper storage location for the fuel assembly?

a. The upender while locked in the upright position

b. Against the core baffle with another assembly face-adjacent

c. In the Refueling Machine mast

d. The RCCA change fixture

Answer: d Lesson Plan (As available)

Procedure ABN-908, “Fuel Handling Accident,” page 5, Step 2.3.8.

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	2.2.28	
Importance Rating	2.6	
Tier #	3	
Group #	2	
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

35. Which one of the following is correct concerning when the SI accumulators must be placed in service during a plant startup?

a. RCS pressure greater than 700 psig but less than 1000 psig

b. RCS pressure greater than 800 psig but less than 1000 psig

c. RCS pressure greater than 800 psig but less than 1100 psig

d. RCS pressure greater than 700 psig but less than 900 psig

Answer: b Lesson Plan (As available)

Procedure IPO-001A, “Plant Heatup from Cold Shutdown to Hot Standby,” Revision 16, page 42

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	2.1.23	
Importance Rating	3.9	
Tier #	3	
Group #	1	
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

36. 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	RO	SRO
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)

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	RO	SRO
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)

38. Given the following plant indications:

- **!** Rx power = 100% (stable)
- **!** Annunciator 5B-3.5, “PRZR 1 of 4 Press Lo” annunciates
- **!** Pressure Channel Selector Switch (PS-455F) in position “455/456"
- **!** PRZR Pressure Channel 455 = 1700 psig
- **!** PRZR Pressure Channels 456, 457, and 458 = 2235 psig
- **!** PRZR level = 60%

What operator actions need to be taken:

a. Transfer pressure control to an alternate channel; verify automatic control restoring PRZR pressure; and, place PRZR Pressure Channel 455 in bypass.

b. Close PORV Block Valve, 1-8000A; transfer pressure control to an alternate channel; verify automatic control restoring PRZR pressure; and, place PRZR Pressure Channel 455 in trip (close).

c. Place 1-PK-455A (PRZR MASTER PRESS CTRL) in manual; adjust 1-PK-455A for current RCS pressure; transfer pressure control to an alternate channel; place 1-PK-455A in auto; verify automatic control restoring PRZR pressure; and place PRZR Pressure Channel 455 in trip (close).

d. Place 1-PK-455A (PRZR MASTER PRESS CTRL) in manual; adjust 1-PK-455A for current RCS pressure; transfer pressure control to an alternate channel; place 1-PK-455A in auto; verify automatic control restoring PRZR pressure; and place PRZR Pressure Channel 455 in bypass.

Answer: c Lesson Plan (As available)

Procedure ABN-705, “Pressurizer Pressure Malfunction,” Revision 11, Step 2.3 and TS 3.3.1, Condition M

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	27AA2.16	
Importance Rating	3.6	
Tier #	1	
Group #	1	
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

39. On a Safety Injection Signal, in addition to the standby station service water pump starting, which of the following describes the other expected equipment actuations?

a. The screenwash pumps auto stop and diesel generator SSW valves close.

b. The screenwash pumps auto stop and diesel generator SSW valves open.

c. The screenwash pumps auto start and diesel generator SSW valves close.

d. The screenwash pumps auto start and diesel generator SSW valves open.

Answer: b Lesson Plan (As available)

Training Material OP51.SYS.SW1, page 14

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	62AK3.02	62AK3.02
Importance Rating	3.6	3.9
Tier #	1	1
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

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:

Level	RO	SRO
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)

41. Given the following plant conditions:

- **!** Rx trip
- **!** SI Actuation Signal
- **!** Containment Spray Actuation Signal
- **!** Containment pressure 18.5 psig
- **!** Containment Sump level 814 ft
- **!** Containment radiation level 15 R/hr

What Emergency Response Guideline procedure should be entered?

a. FRZ-0.1A, “Response to High Containment Pressure”

b. FRZ -0.2A, Response to Containment Flooding”

c. FRZ-0.3A, “Response to High Containment Radiation Levels”

d. EOS-1.2A, “Post LOCA Cooldown and Depressurization”

Answer: a Lesson Plan (As available)

Procedure FRZ-0.1A, “Response to High Containment Pressure” Attachment 1

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	W/E14 -2.4.47	W/E14 -2.4.47
Importance Rating	3.4	3.7
Tier #	1	1
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

42. 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_____
New _____

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

Examination Outline Cross-reference:

Level	RO	SRO
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)

43. The plant is operating at 100% RTP with all control systems in AUTO. Switch 1-PS-505Z, "TURB IMP PRESS CHAN SELECT," is selected to BOTH. Which ONE of the choices below would result in continuous outward rod motion?

a. An NI power channel fails low

b. A Loop T-cold channel fails high

c. Turbine Impulse Pressure Channel PT-505 fails high

d. Turbine Impulse Pressure Channel PT-506 fails high

Answer: c Lesson Plan (As available)

Procedure ABN-709, "Stm Line, Stm Hdr and Turb 1st Stage Press and Feed Hdr Press Instr Malfunction," Revision 7, Section 4.0 and Training Material OP51.SYS.CR1, Section 2.10

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	01AK1.05	
Importance Rating	3.5	
Tier #	1	
Group #	2	
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

44. 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_____
	New	_____

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

Examination Outline Cross-reference:

Level	RO	SRO
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)

45. While performing actions to mitigate a LOCA, the operator is directed to ECA-1.2A, "LOCA Outside Containment." Following completion of ECA-1.2A, the operator observes the following:

- **!** Containment pressure 10 psig
- **!** PZR level (cold cal) increasing
- **!** RCS pressure increasing
- **!** Total AFW flow <460 gpm
- **!** SG 2, 3 level <5% (NR)

The correct action in this situation is to:

a. Proceed to EOP-1.0A, "Loss of Reactor or Secondary Coolant"

b. Proceed to EOS-1.2A, "Post LOCA Cooldown and Depressurization"

c. Proceed to ECA-1.1A, "Loss of Emergency Coolant Recirculation"

d. Proceed to FRZ-0.1A, "Response to High Containment Pressure"

Answer: a Lesson Plan (As available)

Procedure ECA-1.2A, “LOCA Outside Containment,” Revision 7, Step 3

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	W/E04EK1.2	W/E04EK1.2
Importance Rating	3.5	4.2
Tier #	1	1
Group #	2	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

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 directed by procedure for this condition?

a. Isolate the RHR Hot Leg suctions, 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	RO	SRO
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)

47. Which of the following is correct concerning the requirements for Source Range (SR) instrumentation during Reactor startup?

a. A minimum of 2 SR instrument indicating at least 2 cps.

b. A minimum of 1 SR instrument indicating at least 2 cps.

c. A minimum of 1 SR instrument indicating at least 1 cps.

d. A minimum of 2 SR instrument indicating at least 1 cps.

Answer: a Lesson Plan (As available)

Procedure IPO-002A, “Plant Startup from Hot Standby,” Revision 14, Step 5.1.6

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	32AK3.01	32AK3.01
Importance Rating	3.2	3.6
Tier #	1	1
Group #	2	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

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:

Level	RO	SRO
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)

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_____
	New	_____

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

Examination Outline Cross-reference:

Level	RO	SRO
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)

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. FRH-0.1A, Response to Loss of Secondary Heat Sink

b. FRC-0.2A, Response to Degraded Core Cooling

c. FRS-0.1A, Response to Nuclear Power Generation/ATWT

d. FRH-0.5A, Response to Steam Generator Low Level

Answer: a 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_____
	New	_____

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

Examination Outline Cross-reference:

Level	RO	SRO
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)

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	RO	SRO
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)

52. A high alarm occurs on RE-5895A, “CR Makeup Radiation Monitor”. What equipment actuations occur due to this high alarm?

a. Containment Vent Isolation and CR HVAC shifts to the Emergency Recirc

b. Containment Vent Isolation and CR HVAC shifts to the Isolation Mode

c. CR HVAC shifts to the Emergency Recirc

d. CR HVAC shifts to the Isolation Mode

Answer: c Lesson Plan (As available)

Procedure ALM-3200, “Alarm Procedure DRMS,” Revision 3, Attachment 3

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	61AA1.01	61AA1.01
Importance Rating	3.6	3.6
Tier #	1	1
Group #	2	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

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	RO	SRO
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)

54. Given the following:

- **!** A fuel assembly is being raised from the Unit 2 containment upender area for return to the reactor.
- **!** A grid strap snags on the upender and snaps.
- **!** Gas bubbles are coming to the surface of the cavity pool.
- **!** 2-RE-5503, “CNTMT AIR PIG GAS,” monitor radiation level increased slightly and is less than the alarm setpoint.

Which are the correct actions to take?

a. Immediately evacuate all personnel from containment.

b. Notify Radiation Protection to sound the Radiological Emergency Alarm and evacuate the containment fuel handling bridge.

c. Place the fuel assembly in a safe location, ensure the fuel transfer cart is in the Containment Building, then close the transfer tube gate valve.

d. Notify RP and continue with the refueling operations.

Answer: a Lesson Plan (As available)

Procedure ABN-908, “Fuel Handling Accident,” Revision 4 Section 2.3

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	36AK1.01	
Importance Rating	3.5	
Tier #	1	
Group #	3	
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

55. In procedure FRH-0.2, "Response to Steam Generator Overpressure", Step 2 requires verification that feedwater is isolated. Why is isolation of feedwater critical?

a. Excessive feedwater may be contributing to the overpressure condition.

b. Excessive feedwater can allow the steam generator(s) to become solid and damage the main steam isolation valves.

c. Excessive feedwater can cause excessive RCS cooldown and the possibility of loss of natural circulation.

d. Steam generator overpressure due to excessive feedwater can cause a steam generator tube rupture.

Answer: a Lesson Plan (As available)

Procedure FRH-0.2A, “Response to Steam Generator Overpressure,” Revision 7, Attachment 2, Bases.

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	W/E13EK1.3	W/E13EK1.3
Importance Rating	3.0	3.2
Tier #	1	1
Group #	3	3
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

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 160°F, lithium concentration should be >100 ppm.

Answer a: 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	RO	SRO
K/A #	04K4.01	
Importance Rating	2.8	
Tier #	2	
Group #	1	
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

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	RO	SRO
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)

58. What causes an ESF Containment Hi-3 pressure signal and what actuations occur?

a. 2/4 Hi containment pressure detectors sense pressure >3.2 psig which actuates containment spray and containment isolation phase B.

b. 2/4 Hi containment pressure detectors sense pressure > 18.2 psig which actuates containment spray and containment isolation phase B.

c. 2/4 Hi containment pressure detectors sense pressure > 3.2 psig which actuates containment spray and containment isolation phase A.

d. 2/4 Hi containment pressure detectors sense pressure > 18.2 psig which actuates containment spray and containment isolation phase A.

Answer: b Lesson Plan (As available)

Training Material OP51.SYS.ES1, “P Signal,” and Procedure ALM-0022A, “Alarm Procedure 1-ALB-2B,” Revision 8, Annunciator 3.10

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	13K5.02	
Importance Rating	2.9	
Tier #	2	
Group #	1	
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

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	RO	SRO
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)

60. Given the following conditions:

- PWR Range NI N41 = 80%
- PWR Range NI N42 = 80%
- PWR Range NI N43 = 80.2%
- PWR Range NI N44 = 79.8%
- Rod control in automatic

Sometime later, NI N41 spikes high and remains at 120%. What is the response of rod control system?

a. Rods move inward due to the power mismatch, until Tave/Tref mismatch stops inward rod movement.

b. Rods move inward due to the power mismatch, until operator action stops the inward rod motion.

c. Rods move inward due to the power mismatch; however, as Tave/Tref mismatch builds into the circuit, rods move back out to some lower position than before.

d. No rod movement since the Tave/Tref input is zero and acts to control Tave. The power mismatch signal controls rod speed.

Answer: a Lesson Plan (As available)

Training Material OP51.SYS.CR1 and Procedure ABN-703, “Power Range Instrumentation Malfunction,” Revision 8, Sections 2.2 and 2.3

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	15K3.02	
Importance Rating	3.3	
Tier #	2	
Group #	1	
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

61. During accident conditions, which of the below statements is most correct regarding precautions against using RCS cold leg temperature to determine core temperatures as an alternative when incore thermocouples (CETs) are failed?

a. Only T_{Hot} instrumentation is accident qualified.

b. SI flow interferes with T_{Cold} measurements.

c. Hot leg reflux flow affects T_{Cold} measurements.

d. T_{Hot} instrumentation CANNOT be used, use T_{cold} instrumentation.

Answer: b Lesson Plan (As available)

Training Material LO21.MCO.MI7, Section “Alternate Instrumentation” subsection “RCS Temperature”

Question Source:	Bank #	_____
	Modified Bank #	Closed Bank 1 Ques. 451
	New	_____

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	17A2.01	17A2.01
Importance Rating	3.1	3.5
Tier #	2	2
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

62. 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:

- **!** Containment Pressure = 4.5 psig (peak)
- **!** Containment Radiation = 1 x 10^2 R/hr and slowly lowering (peaked at 6 x 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_____
	New	_____

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

Examination Outline Cross-reference:

Level	RO	SRO
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)

63. With the plant operating in Mode 1 at 90%, the Low Pressure Heater Bypass Valve PV-2286 opens. What occurs in order to maximize main feed pump suction pressure?

a. Condensate Pump Reject Valve LV-2211/12 closes and no other system valves change positions.

b. Hotwell Makeup Valves LV2217A&B open and Condensate Pump Recirc Valve FV-2239 closes.

c. Condensate Reject Valve LV-2211/12 closes and Condensate Pump Recirc Valve FV-2239 closes.

d. Condensate Reject Valve LV-2211/12 closes and Condensate Pump Recirc Valve FV-2239 modulates based on MFP suction pressure.

Answer: c Lesson Plan (As available)

Procedure SOP-303A, “Condensate System,” Revision 9, Section 3.2

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	56K1.03	56K1.03
Importance Rating	2.6	2.6
Tier #	2	2
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

64. A release is being made from the plant effluent holdup and monitor tanks, when X-RE-5253, “Liquid Waste Processing Discharge Radiation Detector,” alarms high. What are the expected plant and/or operator responses?

a. Valve X-RV-5253 automatically closes.

b. Valve X-RV-5253 must be manually closed.

c. After verifying X-RE-5253 high radiation level on the PC-11, the reactor operator shuts X-RV-5253.

d. A radwaste operator is dispatched to check the local reading of X-RE-5253 and shuts X-RV-5253 if high radiation exists.

Answer: a Lesson Plan (As available)

Procedure ABN-903, “Accidental Release of Radioactive Liquid,” Revision 5 and Training Material OP51.SYS.WP1, “Abnormal Operations”

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	68A3.02	
Importance Rating	3.6	
Tier #	2	
Group #	1	
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

65. Which of the following signals will cause HCV-014, "Waste Gas Discharge Control Valve" to automatically close?

a. High radiation indicated on RE-5250, "WSTE GAS."

b. High radiation indicated on RE-5701, "AB VNT EXH."

c. Loss of sample flow on RE-6266, "WSTE EVAP RM."

d. Loss of sample flow on RE-5253, "LIQ WSTE EFF."

Answer: b Lesson Plan (As available)

Procedure ALM-3200,"Alarm Procedure DRMS," Revision 3

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	71K4.04	71K4.04
Importance Rating	2.9	3.4
Tier #	2	2
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

66. 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 ≤320°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	RO	SRO
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)

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	RO	SRO
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)

68. Unit 1 was initially at 100% equilibrium power with all systems in automatic. 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_____
New _____

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

Examination Outline Cross-reference:

Level	RO	SRO
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)

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	RO	SRO
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)

70. Given the following information:

- **!** Reactor trips due to a lightning strike
- **!** The supply breaker to Panel 1C1 opens - DRPI power supply

How is the reactor shutdown safety function verified?

a. The reactor trip and bypass breakers open, neutron flux decreasing, and emergency borate ≥3160 gallons of boric acid from the boric acid storage tanks.

b. The reactor trip and bypass breakers open, neutron flux decreasing, and re-energize DRPI through Panel 1C4 to verify all control rod bottom lights on.

c. The reactor trip and bypass breakers open, neutron flux decreasing and all control rod bottom lights on.

d. The reactor trip and bypass breakers open, neutron flux decreasing, and emergency borate ≥3160 gallons of boric acid from the refueling water storage tank.

Answer: a Lesson Plan (As available)

Procedure EOP-0.0A, "Reactor Trip or Safety Injection," Revision 7, Step 1 and Training Material OP51.SYS.RI1

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	14G2.4.21	14G2.4.21
Importance Rating	3.7	4.3
Tier #	2	2
Group #	2	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

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	RO	SRO
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)

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_____
	New	_____

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

Examination Outline Cross-reference:

Level	RO	SRO
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)

73. Unit 1 is operating at 100% power when the Reactor Operators notice the following indications:

Annunciator Alarms:
SG 2/ 1 of 4 LVL LO-LO (8A-2.14)

Plant Indications:

!	1-LI-529, SG 2 LVL (NR) CHAN I –>	67%
!	1-LI-552, SG 2 LVL (NR) CHAN II –>	67%
!	1-LI-528, SG 2 LVL (NR) CHAN III –>	67%
!	1-LI-527, SG 2 LVL (NR) CHAN IV –>	0%
!	1-FI-522A, SG 2 STM FLO –>	$3.6X10^6$ lbm/hr
!	1-FI-520A, SG 2 FW FLO –>	$3.6X10^6$ lbm/hr
!	1-PI-524A, MSL 2 PRESS CHAN I –>	1000 psig

Based on the above indication, select the correct response.

a. Due to the Steam Generator Level instrument failing low, within six (6) hours trip (close) the associated bistables and initiate equipment repair by contacting I&C and completing a Work Request.

b. Due to the Steam Generator Level instrument failing low, within six (6) hours bypass the associated bistables and initiate equipment repair by contacting I&C and completing a Work Request.

c. Due to the Steam Generator Level instrument failing low, take manual control of the both main feedwater pumps and adjust main feedwater pump speed to obtain the proper differential pressure. Select the alternate level channel, restore level, and then place main feedwater pumps in automatic.

d. Due to the Steam Generator Level instrument failing low, take manual control of the main feedwater control valve and adjust feedwater flow to maintain 67% steam generator level. Select the alternate level channel, restore level, and then place main feedwater control valve in automatic.

Answer: a Lesson Plan (As available)

Procedure ABN-710, “Steam Generator Level Instrumentation Malfunction,” Revision 10,

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

Master Reviewer Certification _____ (initials)

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

Examination Outline Cross-reference:

Level	RO	SRO
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)

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	RO	SRO
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)

75. Unit 1 is operating at 35% power in a normal system lineup. 1UT experiences a differential relay (87/1UT) trip. Determine the immediate resultant electrical bus status for Unit 1 assuming the unit is still at power. (Assume all systems functioned as designed and NO OTHER failures occur)

a. The non-safeguards 6.9 kv busses fast transfer to transformer 1ST and the safeguards 6.9 kv busses are energized by XST1.

b. The non-safeguards 6.9 kv busses fast transfer to transformer 1ST and the safeguards 6.9 kv busses are energized by XST2.

c. The non-safeguards 6.9 kv busses slow transfer to transformer 1ST and the safeguards 6.9 kv busses are energized by XST1.

d. The non-safeguards 6.9 kv busses slow transfer to transformer 1ST and the safeguards 6.9 kv busses are energized by XST2.

Answer: b Lesson Plan (As available)

Drawing E1-0022, Sheet A and E1-0032, Sheet 7

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	62K3.01	62K3.01
Importance Rating	3.5	3.9
Tier #	2	2
Group #	2	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

76. Which one of the following describes the relationship between battery chargers BC1ED1-1, BC1ED1-2 and the 125 VDC bus 1ED1?

a. Both chargers are normally aligned and supplying the same bus.

b. An electrical interlock on the chargers output breaker ensures only one battery charger supplies the bus.

c. A mechanical interlock on the chargers circuit breaker ensures only one battery charger supplies the bus.

d. ONLY procedural restrictions exist to prevent simultaneously aligning both chargers to the bus.

Answer: c Lesson Plan (As available)

Training Material OP51.SYS.DC1.LN, “Components”

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	63K4.02	63K4.02
Importance Rating	2.9	3.2
Tier #	2	2
Group #	2	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

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_____
	New	_____

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

Examination Outline Cross-reference:

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

Master Reviewer Certification _____ (initials)

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. 2 of 4 circulating water pumps running and condenser vacuum greater than 12.3" Hg.

b. 1 of 4 circulating water pumps running and RCS temperature > LO-LO Tavg setpoint.

c. 1 of 4 circulating water pumps running and condenser vacuum > 21" Hg.

d. 2 of 4 circulating water pumps running and Tavg > No Load setpoint by more than 5ºF.

Answer: a 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	RO	SRO
K/A #	75A2.03	
Importance Rating	2.5	
Tier #	2	
Group #	2	
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

79. A leak is discovered in piping delivering hydrogen gas to the main generator. The major safety concern related to this situation is that:

a. Hydrogen in the atmosphere can produce a fire or explosion hazard.

b. A hydrogen-rich atmosphere will not support respiration.

c. Hydrogen can react with nitrogen in the air to form ammonia, NH3.

d. The moisture and hydrogen react to form a weak acid, which can be a health hazard.

Answer: a Lesson Plan (As available)

Training Material OP51.SYS.MG1

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	86K5.04	
Importance Rating	2.9	
Tier #	2	
Group #	2	
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

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	RO	SRO
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)

81. If a CCW pump trips, the CCW HX outlet flow is verified <17,500 gpm to ensure that:

a. HX tubes are not damaged by erosion.

b. HX tubes are not damaged by vibration.

c. the affected pump has actually tripped.

d. the unaffected pump has not run out.

Answer: d Lesson Plan (As available)

DBD ME-229

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	8A1.01	
Importance Rating	2.8	
Tier #	2	
Group #	3	
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

82. Systems which are used to control the buildup of combustible gas inside the Containment Building are the:

a. Catalytic Hydrogen Recombiners and the Waste Gas Processing System.

b. Containment Preaccess Filtration and the Containment Purge Supply and Exhaust System.

c. Electric Hydrogen Recombiners and the Hydrogen Purge Supply and Exhaust System.

d. Containment Air Cooling and Recirculation System and the Containment Preaccess Filtration System.

Answer: c Lesson Plan (As available)

Training Material OP51.SYS.CY1.LN, pg 19

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	28G2.1.28	28G2.1.28
Importance Rating	3.2	3.3
Tier #	2	2
Group #	3	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

83. Which of the below plant indications would you NOT expect to observe if the #1 seal on RCP 4 were to fail with the unit operating in MODE 1?

a. RCP 4 seal #1 differential pressure increasing

b. RCP 4 seal injection flow increasing

c. RCP 4 seal #1 differential pressure decreasing

d. RCP 4 seal leakoff flow increasing

Answer: a Lesson Plan (As available)

Procedure ABN-101, “Reactor Coolant Pump Trip/Malfunction,” Revision 8, Section 4.0

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	03K6.02	
Importance Rating	2.7	
Tier #	2	
Group #	1	
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

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

Master Reviewer Certification _____ (initials)

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

Master Reviewer Certification _____ (initials)

86. An Alert has been declared. The TSC has not been manned yet, and you are directed to provide plant information via the Emergency Notification System (ENS). Where would you locate the ENS phone in the control room and who are you providing information to?

a. The ENS phone is located at the ROs desk and you are providing plant information to state officials.

b. The ENS phone is located near the Unit Supervisor's desk and you are providing plant information to state officials.

c. The ENS phone is located at the ROs desk and you are providing plant information to NRC personnel.

d. The ENS phone is located near the Unit Supervisor's desk and you are providing plant information to NRC personnel.

Answer: d Lesson Plan (As available)

Procedure EPP-202, "Emergency Communication Systems and Equipment," Revision 6.

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	2.4.43	2.4.43
Importance Rating	2.8	3.5
Tier #	3	3
Group #	4	4
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

87. Given the following conditions:

- All power range NI <5%
- Intermediate SUR = 0.2 dpm
- Containment Pressure = 3.2 psig
- Turbine tripped
- Reactor trip can not be verified

Based on the above indications, what is the FIRST action that must be taken?

a. Have an operator locally trip the reactor by opening the reactor trip and bypass breakers.

b. Manually initiate emergency boration via the refueling water storage tank.

c. Verify control rods inserting at >48 steps/minute.

d. Manually initiate emergency boration via the boric acid tanks.

Answer: c Lesson Plan (As available)

Procedure FRS-0.1A,"Response to Nuclear Power Generation/ATWT," Revision 7, Step 1

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	07EA2.04	07EA2.04
Importance Rating	4.4	4.6
Tier #	1	1
Group #	2	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

88. Given the following information:

- Rx trip
- SI Actuation Signal
- Pressurizer safety stuck open
- CCPs and SI pumps are not running
- RCS subcooling 30°F

What should be done with the operating RCPs?

a. Stop all RCPs to prevent core damage resulting from separation of phases upon subsequent loss of RCS flow.

b. Continue operation of the RCPs to provide core heat removal.

c. Continue operation of the RCPs until RCS subcooling is <25°F

d. Stop all RCPs to prevent pump damage resulting from operation under potential two-phase flow conditions.

Answer: b Lesson Plan (As available)

Procedure EOP-1.0A, "Loss of Reactor or Secondary Coolant," Revision 7, Step 1 and Bases

Question Source:

Bank #	_____
Modified Bank #	X_____
New	_____

Question Cognitive Level:

Memory or Fundamental Knowledge	_____
Comprehension or Analysis	X____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	09EA1.09	09EA1.09
Importance Rating	3.6	3.6
Tier #	1	1
Group #	2	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

89. Conditions exist that require an automatic reactor trip; 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_____
New _____

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

Examination Outline Cross-reference:

Level	RO	SRO
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)

90. How does Procedure FRZ-0.3A, “Response to High Containment Radiation Level,” direct containment radiation levels be lowered?

a. Place the containment preaccess filtration system in service.

b. Obtain a release permit and place the containment purge and supply exhaust system in service.

c. Initiate containment spray to “scrub” radioactive particles out.

d. Place all containment ventilation fans in service.

Answer: a Lesson Plan (As available)

Procedure FRZ-0.3A, “Response to High Containment Radiation Level,” Revision 7, Step 2

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	W/E16EK2.1	W/E16EK2.1
Importance Rating	3.0	3.3
Tier #	1	1
Group #	2	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

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_____
New _____

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

Examination Outline Cross-reference:

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

Master Reviewer Certification _____ (initials)

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

Master Reviewer Certification _____ (initials)

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_____
New _____

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

Examination Outline Cross-reference:

Level	RO	SRO
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)

94. A radioactive effluent release is in progress from PET2 when X-RE-5253 electrical supply breaker trips.

What occurs to the system?

a. X-RV-5253 automatically closes due to loss of X-RE-5253.

b. The release continues, but grab sample must be taken.

c. If power is not restored to X-RE-5253 within 10 minutes, X-RV-5253 will automatically close.

d. Alarms at Liquid Waste Processing Panel and operators must manually close X-RV-5253 due to loss of electrical power.

Answer: a Lesson Plan (As available)

Training Material OP51.SYS.WP1

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	73K3.01	
Importance Rating	3.6	
Tier #	2	
Group #	2	
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

95. Unit 1 is at 35% power and a turbine trip occurs. What is the initial expected response of the primary and secondary plant?

a. Rx trips, PRZR pressure increases, steam generator level increases, and steam pressure increases.

b. Rx trips, PRZR pressure increases, steam generator level decreases, and steam pressure increases.

c. Rx remains critical, PRZR pressure increases, steam generator level decreases, and steam pressure increases.

d. Rx remains critical, PRZR pressure increases, steam generator level increases, and steam pressure increases.

Answer: c Lesson Plan (As available)

Training Material OP51.SYS.SN1

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	35K5.03	35K5.03
Importance Rating	2.8	3.1
Tier #	2	2
Group #	2	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

96. While in the ERGs, AFW is required and the condensate storage tank level is slightly <10%, what actions are required?

a. Continue to feed with the condensate storage tank until level reaches 5%, then align station service water to the AFW system and feed to one steam generator.

b. Continue to feed with the condensate storage tank and immediately add fire protection water to the tank to feed two steam generators.

c. Immediately lineup service water to the AFW system and feed to two steam generators.

d. Immediately lineup service water to the AFW system and feed to one steam generator.

Answer: d Lesson Plan (As available)

Training Material OP51.SYS.SW1and Procedure ABN-305, “Auxiliary Feedwater System Malfunction,” Revision 5, Section 5.0

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	76A4.04	76A4.04
Importance Rating	3.7	3.7
Tier #	2	2
Group #	3	3
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

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	RO	SRO
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)

98. Given the following :

- **!** Both Units are at 100%
- **!** All systems are normally aligned
- **!** A loss of offsite power occurs

Which one of the following describes the response of the Containment Air Cooling and Recirculation System cooling units and fans?

a. The cooling units and fans are load shed and cannot be restarted.

b. The cooling units and fans are shed and must be manually reset.

c. The cooling units and fans are tripped and then sequenced onto the safety-related electrical buses.

d. Two (2) of the four (4) cooling units and fans are sequenced onto the safety-related electrical buses after all four (4) have been tripped.

Answer: c Lesson Plan (As available)

Training Material OP51.SYS.Cl1

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	22A3.01	22A3.01
Importance Rating	4.1	4.3
Tier #	2	2
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

99. A “High Radiation” alarm on the Auxiliary Building Duct Monitor will cause which of the following changes to the ventilation system?

a. The four ESF filtration trains will automatically start and the non-ESF filtration trains will trip.

b. The primary plant ventilation lineup will be changed to increase the negative pressure in the Auxiliary Building to minimize the release of radioactivity.

c. Valve X-HCV-0014, “GWPS Discharge to Vent Stack” closes.

d. No changes to the ventilation system lineup - alarm only.

Answer: c Lesson Plan (As available)

Procedure ABN-902, “Accidental Release of Radioactive Gas,” Revision 3 and Training Material OP51.SYS.HV3

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	72A3.01	72A3.01
Importance Rating	2.9	3.1
Tier #	2	2
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

100. An automatic reactor trip and safety injection has occurred on Unit 2 as a result of lowering RCS pressure. The operators note the following conditions:

- **!** Pressurizer pressure dropping prior to and following the SI
- **!** RCS average temperature stable prior to and following the SI
- **!** Pressurizer level rising prior to SI and rising following the SI
- **!** Reactor power stable prior to the SI and dropping following the SI

Initially, which one of the following accidents would result in these conditions?

a. Stuck open pressurizer safety valve

b. Double-ended hot leg break

c. Steamline break

d. 4 inch break on a RCS cold leg

Answer: a Lesson Plan (As available)

EOP-0,0A, “Reactor Trip or Safety Injection,” Step 20.

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	RO	SRO
K/A #	08AA2.20	08AA2.20
Importance Rating	3.4	3.6
Tier #	1	1
Group #	2	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

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	
	Comprehension or Analysis	X

Examination Outline Cross-reference:

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

Master Reviewer Certification _____ (initials)

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

a. Unit 1 and Unit 2 ≤ 3411 megawatts thermal

b. Unit 1 ≤ 3411 megawatts thermal and Unit 2 ≤ 3445 megawatts thermal

c. Unit 1 and Unit 2 ≤ 3445 megawatts thermal

d. Unit 1 ≤ 3441 megawatts thermal and Unit 2 ≤ 3465 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	RO	SRO
K/A #		2.1.10
Importance Rating		3.9
Tier #		3
Group #		1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

3. During clearance or valve positioning activities, which ONE of the following activities would allow independent verification of equipment status to be waived in accordance with STA-694, “Station Verification Activities?”

a. A valve verification would result in radiation exposure of 12 mrem.

b. A clearance requires installation of a grounding strap on a non-safety related 480V breaker.

c. A clearance requires removal of a gag on a main steam safety valve.

d. A valve verification requires entry into containment during fuel movement and would result in a radiation exposure of 5 mrem.

Answer: a Lesson Plan (As available)

Procedure STA-694, “Station Verification Activities,” Section 6.3.1

Question Source:	Bank #	Test SRO 98 & SRO 99
	Modified Bank #	_____
	New	_____

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	2.2.13	2.2.13
Importance Rating	3.6	3.8
Tier #	3	3
Group #	2	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

4. 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. Predicted critical control bank position is verified within the limits specified in the COLR within four hours prior to achieving criticality.

b. SDM is calculated at least once every 15 minutes during rod withdrawal.

c. SDM is continuously verified using an Inverse Count Rate Ratio (ICRR) during rod withdrawal.

d. Control rod position is verified within specifications at least once every 30 minutes during a reactor startup.

Answer: a Lesson Plan (As available)

Procedure IPO-002A, Section 5.2.10 and TS 3.1.6

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	05 - 2.1.12	05 - 2.1.12
Importance Rating	2.9	4.0
Tier #	1	1
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

5. 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	RO	SRO
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)

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	RO	SRO
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)

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

Master Reviewer Certification _____ (initials)

8. The plant is operating at power and the following conditions exist:

- Reactor power = 56%
- RCS pressure = 2220 psig
- Average Tavg = 575°F
- S/G levels = 67%
- Turbine power = 640 MW
- Steam pressure = 1020 psig
- Containment pressure = 0.5 psi

Five minutes later, the plant conditions are as follows:

- Reactor power = 58%
- RCS pressure = 2212 psig
- Average Tavg = 570°F
- S/G levels = 69%
- Turbine power = 640 MW
- Steam pressure = 1000 psig
- Containment pressure = approximately 1.8 psig

Based on the indications listed above:

What is the most likely event in progress?

a. RCS leak inside containment

b. Feed line break inside containment

c. Steam line break inside containment

d. Steam line break outside containment

Answer: c Lesson Plan

EOP-0.0A and ALM-0031A, 4.6.

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	RO	SRO
K/A #	040AK3.06	040AK3.06
Importance Rating	3.4	3.9
Tier #	1	1
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

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

Master Reviewer Certification _____ (initials)

10. 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	RO	SRO
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)

11. If a reactor trip were to occur from 100% power with all control systems in normal automatic alignment, which one of the below would disable operation of the steam dump system immediately after the trip?

a. A coincident failure of condenser vacuum switches PS-2043A/B output

b. A subsequent failure of main turbine first stage pressure PT-506 high

c. A coincident failure of main steam header pressure PT-507 high

d. A subsequent failure of main turbine first stage pressure PT-506 low

Answer: a Lesson Plan (As available)

ALM-0065, 1.4

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	51AK3.01	51AK3.01
Importance Rating	2.8	3.1
Tier #	1	1
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

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

Given the following conditions:

- **!** RCS cold leg temperatures are 240ºF and decreasing
- **!** One SG level 0% narrow range and the other SGs at 20% 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 25ºF

d. Secure ECCS, if RCS subcooling is 110ºF

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	RO	SRO
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)

13. 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 heaters 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	RO	SRO
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)

14. Safety injection pump Train A has been tagged out for motor bearing replacement. A Safety Injection subsequently occurs due to a large break loss of coolant accident inside containment. Three hours later, the Train B pump fails. All other equipment functions as designed for the duration of the accident.

Based on the Emergency Response Guidelines, what must be done to mitigate the consequences of the accident?

a. A transition to EOS-1.1, Safety Injection Termination, will be required upon receipt of the RWST low-low level alarm.

b. Both trains of RHR will be aligned for hot leg injection per EOS-1.4, Transfer to HL Recirculation.

c. EOS-1.4, Transfer to HL Recirculation, provides for aligning one CCP for hot leg injection when neither SI pump is operable.

d. EOS-1.4, Transfer to HL Recirculation, provides for aligning two CCPs for hot leg injection when neither SI pump is operable.

Answer: b Lesson Plan (As available)

Procedure EOS-1.4, “Transfer to HL Recirculation,”

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	W/E11EK3.2	W/E11EK3.2
Importance Rating	3.5	4.0
Tier #	1	1
Group #	2	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

15. In procedure FRH-0.2, "Response to Steam Generator Overpressure", Step 2 requires verification that feedwater is isolated. Why is isolation of feedwater critical?

a. Excessive feedwater may be contributing to the overpressure condition.

b. Excessive feedwater can allow the steam generator(s) to become solid and damage the main steam isolation valves.

c. Excessive feedwater can cause excessive RCS cooldown and the possibility of loss of natural circulation.

d. Steam generator overpressure due to excessive feedwater can cause a steam generator tube rupture.

Answer: a Lesson Plan (As available)

Procedure FRH-0.2A, “Response to Steam Generator Overpressure,” Revision 7, Attachment 2, Bases.

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	W/E13EK1.3	W/E13EK1.3
Importance Rating	3.0	3.2
Tier #	1	1
Group #	3	3
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

16. During operation at power, smoke is visible in the control room.

For this situation, which one of the following answers indicates the correct operator action in response to this condition?

a. Ensure the control room ventilation system automatically shifted to the "Emergency Recirculation Mode".

b. Manually shift the control room ventilation system to the "Emergency Recirculation Mode".

c. When the shift manager orders the control room evacuated, proceed to the Remote Shutdown Panel and trip the reactor and stop the RCPs.

d. When the shift manager orders the control room evacuated, trip the reactor and stop the RCPs, then proceed to the Remote Shutdown Panel.

Answer: d Lesson Plan (As available)

Procedure ABN-803A, "Response to a Fire in the Control Room or Cable Spreading Room," Section 2.3

Question Source:	Bank #		
	Modified Bank #	SRO 98	
	New	_____	
Question Cognitive Level:	Memory or Fundamental Knowledge		X
	Comprehension or Analysis		_____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	68AK3.12	68AK3.12
Importance Rating	4.1	4.5
Tier #	1	1
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

17. The unit is in the process of being heated and started up in accordance with Integrated Plant Operating Procedures (IPOs). In accordance with Technical Specifications, the nuclear instrumentation channels required to be OPERABLE to enter MODE 2 are:

___ source ranges, ___ intermediate ranges, and ___ power ranges.

a. 2, 1, 4

b. 2, 2, 3

c. 1, 2, 4

d. 1, 2, 3

Answer: b Lesson Plan (As available)

T/S 3.3.1

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #		33 AA2.08
Importance Rating		3.4
Tier #		1
Group #		2
10 CFR 55.43(b)		6

Master Reviewer Certification _____ (initials)

18. Unit 1 is at 100% power and stable when the operators suspect a short in the master speed controller output to the Main Feed Pump B. The operators place the individual controller for Main Feed Pump B in manual for trouble shooting after matching the speed signal. Main Feed Pump A is still operating in automatic on the master controller. Assuming no further operator action and assuming feed flow/steam flows were initially matched:

What will result from this action?

a. The automatic control signal for feed-steam dp would no longer affect the speed of Main Feed Pump B.

b. Main Feed Pump B will trip on overspeed.

c. The automatic control signal for level would no longer affect the speed of Main Feed Pump B.

d. Main Feed Pump A will trip on overspeed.

Answer: a Lesson Plan (As available)

Initial Training Material OP51.SYS.SN1

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	RO	SRO
K/A #	57AA1.06	57AA1.06
Importance Rating	3.5	3.5
Tier #	1	1
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

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 heaters 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	RO	SRO
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)

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

Master Reviewer Certification _____ (initials)

21. Which one of the following is an operational implication of maintaining Shutdown and Control Bank Rod Insertion Limits?

a. Maintain proper axial flux distribution

b. Proper bank overlap is maintained

c. Effect of rod drops are minimized

d. Minimum shutdown margin is maintained

Answer: d

Lesson Plan/Reference (As available)
TS 3.1.6 Bases, Background

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	RO	SRO
K/A #	01K5.04	01K5.04
Importance Rating	4.3	4.7
Tier #	2	2
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

22. Unit 2 is in Mode 4. The pressurizer is solid when a complete loss of instrument air occurs.

Which one of the following describes the plant response with no operator action?

a. The RCS rapidly depressurizes with maximum letdown and no charging flow.

b. Charging flow decreases and RCS pressure decreases.

c. Charging flow increases and RCS pressure increases until a PZR PORV opens.

d. The RCS slowly depressurizes due to inventory loss through RCP seal leakoff.

Answer: c Lesson Plan/Reference OP51SYS.IA1, pg 40 of 48

ABN-301, IA System Malfunction, Attachment 1 (valve failure positions)

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	04K3.07	04K3.07
Importance Rating	3.8	4.1
Tier #	2	2
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

23. A refueling outage is in progress on Unit 2. A containment purge is in progress to prepare the containment environment for personnel entry when a SR SHTDN FLUX HI alarm is received in the control room.

With the detectors at minimum alarm setpoint, which one of the below conditions could be the cause of the alarm?

a. One source range instrument channel has increased to 4 times background.

b. One source range instrument channel has increased to 5 times background.

c. Both source range instrument channels have increased to 2 times background.

d. Both source range instrument channels have increased to 4 times background.

Answer: b Lesson Plan (As available)

Procedure ALM-0064, 2.1

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	RO	SRO
K/A #	29A4.04	29A4.04
Importance Rating	3.5	3.6
Tier #	2	2
Group #	2	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

24. 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	RO	SRO
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)

25. 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	270ºF
!	Motor Upper Radial Bearing Temperature	160ºF
!	Motor Upper Thrust Bearing Temperature	163ºF
!	Lower Seal Water Bearing Temperature	240ºF
!	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	RO	SRO
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)

26. 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 and flow is indicated only 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	RO	SRO
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)

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	RO	SRO
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)

28. Unit 1 is operating at 45% reactor power for repairs on one of the main feedwater pumps. Instrument air is lost.

What is the plant/equipment response?

a. Charging flow increases.

b. The running main feedwater pump trips, causing a reactor trip on low S/G level.

c. The reactor trips and auxiliary feedwater isolates.

d. Most air operated valves fail as is.

Answer: a Lesson Plan/Reference (As available)

Procedure ABN-301, “Instrument Air System Malfunction”

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	RO	SRO
K/A #	78K3.02	78K3.02
Importance Rating	3.4	3.6
Tier #	2	2
Group #	3	3
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

29. While removing a fuel assembly from the core, an inadvertent movement of the refueling machine causes a separation of the fuel assembly top nozzle from several fuel pins.

What is the correct action for this event?

a. Stop the fuel movement and evacuate containment.

b. Lower the affected assembly into the core and continue the fuel movement.

c. Lower the affected assembly into the core and evacuate containment.

d. Stop the fuel movement and start the Primary Plant Exhaust Fans to increase purge flow.

Answer: c	Lesson Plan/Reference ABN-908		(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	RO	SRO
K/A #		34G2.2.28
Importance Rating		3.5
Tier #		2
Group #		2
10 CFR 55.43(b)		6

Master Reviewer Certification _____ (initials)

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	RO	SRO
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)

31. A startup of Unit 2 Reactor is planned to begin within the next 10 minutes. An on-shift PEO, who is scheduled to attend a Replacement License Class beginning in two (2) weeks, has requested to perform the startup under the direct supervision of the Unit Reactor Operator. This PEO has previously been RO licensed at another power plant similar to CPSES and has attended the startup briefing. Would this PEO be allowed to perform the start up and why?

a. YES, but only if directly supervised by a senior licensed operator.

b. NO, the PEO has not successfully completed Emergency Response Guideline training.

c. YES , but only if approval is granted by the Operations Manager.

d. NO, the PEO is not currently enrolled in the replacement license program.

Answer: d Lesson Plan (As available)

Procedure ODA-102, Sect 6.24

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	2.1.9	2.1.9
Importance Rating	2.5	4.0
Tier #	3	3
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

32. Unit 2 is operating at 55% RTP when alarms are received on Reactor Coolant Pump (RCP) #1. Upon investigation, the Unit RO observes the following:

- **!** Shaft vibration 13 mils and increasing at 1 mil/hr
- **!** Frame vibration 4 mils and steady
- **!** #1 Seal leakoff 10 gpm and increasing 2 gpm/minute
- **!** Seal water outlet temperature 205°F and stable
- **!** Seal water bearing temperature 215°F and stable

What actions are required?

a. Reduce reactor power to less than 40% and stop the RCP within 30 minutes.

b. Commence unit shutdown, maintain RCP running as long as RCP parameters are below operating limits.

c. Trip the reactor then stop the RCP.

d. Close #1 seal leakoff valve and maintain RCP in service until power can be reduced below 40%.

Answer: c Lesson Plan (As available)

Procedure ABN-101, Section 4.3

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	15/17AK3.03	15/17AK3.03
Importance Rating	3.7	4.0
Tier #	1	1
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

33. The Control Room operators are responding to a SGTR. In order to minimize radiological releases, what is the preferred method to cool down the RCS and establish subcooled margin.

a. Dump steam through the intact S/G(s) atmospheric.

b. Adjusting feedflow to the faulted SG(s).

c. Dump steam to the condenser using the faulted S/G(s).

d. Dump steam to the condenser using the intact S/G(s).

Answer: d Lesson Plan (As available)

Procedure EOP-3.0A, “Steam Generator Tube Rupture,” pg 46

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	2.3.11	2.3.11
Importance Rating	2.7	3.2
Tier #	3	3
Group #	3	3
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

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	RO	SRO
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)

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	RO	SRO
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)

36. On a Safety Injection Signal, in addition to the standby station service water pump starting, which of the following describes the other expected equipment actuations?

a. The screenwash pumps auto stop and diesel generator SSW valves close.

b. The screenwash pumps auto stop and diesel generator SSW valves open.

c. The screenwash pumps auto start and diesel generator SSW valves close.

d. The screenwash pumps auto start and diesel generator SSW valves open.

Answer: b Lesson Plan (As available)

Training Material OP51.SYS.SW1, page 14

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	62AK3.02	62AK3.02
Importance Rating	3.6	3.9
Tier #	1	1
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

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	RO	SRO
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)

38. Given the following plant conditions:

- Rx trip
- SI Actuation Signal
- Containment Spray Actuation Signal
- Containment pressure 18.5 psig
- Containment Sump level 814 ft
- Containment radiation level 15 R/hr

What Emergency Response Guideline procedure should be entered?

a. FRZ-0.1A, “Response to High Containment Pressure”

b. FRZ -0.2A, Response to Containment Flooding”

c. FRZ-0.3A, “Response to High Containment Radiation Levels”

d. EOS-1.2A, “Post LOCA Cooldown and Depressurization”

Answer: a Lesson Plan (As available)

Procedure FRZ-0.1A, “Response to High Containment Pressure” Attachment 1

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	W/E14 -2.4.47	W/E14 -2.4.47
Importance Rating	3.4	3.7
Tier #	1	1
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

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_____
New _____

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

Examination Outline Cross-reference:

Level	RO	SRO
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)

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 5ºF 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_____
	New	_____

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

Examination Outline Cross-reference:

Level	RO	SRO
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)

41. While performing actions to mitigate a LOCA, the operator is directed to ECA-1.2A, "LOCA Outside Containment." Following completion of ECA-1.2A, the operator observes the following:

- **!** Containment pressure 10 psig
- **!** PZR level (cold cal) increasing
- **!** RCS pressure increasing
- **!** Total AFW flow <460 gpm
- **!** SG 2, 3 level <5% (NR)

The correct action in this situation is to:

a. Proceed to EOP-1.0A, "Loss of Reactor or Secondary Coolant"

b. Proceed to EOS-1.2A, "Post LOCA Cooldown and Depressurization"

c. Proceed to ECA-1.1A, "Loss of Emergency Coolant Recirculation"

d. Proceed to FRZ-0.1A, "Response to High Containment Pressure"

Answer: a Lesson Plan (As available)

Procedure ECA-1.2A, “LOCA Outside Containment,” Revision 7, Step 3

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	W/E04EK1.2	W/E04EK1.2
Importance Rating	3.5	4.2
Tier #	1	1
Group #	2	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

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 directed by procedure for this condition?

a. Isolate the RHR Hot Leg suctions, 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	RO	SRO
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)

43. Which of the following is correct concerning the requirements for Source Range (SR) instrumentation during Reactor startup?

a. A minimum of 2 SR instrument indicating at least 2 cps.

b. A minimum of 1 SR instrument indicating at least 2 cps.

c. A minimum of 1 SR instrument indicating at least 1 cps.

d. A minimum of 2 SR instrument indicating at least 1 cps.

Answer: a Lesson Plan (As available)

Procedure IPO-002A, “Plant Startup from Hot Standby,” Revision 14, Step 5.1.6

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	32AK3.01	32AK3.01
Importance Rating	3.2	3.6
Tier #	1	1
Group #	2	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

44. 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:

Level	RO	SRO
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)

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_____
	New	_____

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

Examination Outline Cross-reference:

Level	RO	SRO
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)

46. 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 715ºF. RCS subcooling based on core exit TCs is 7ºF. 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. FRH-0.1A, Response to Loss of Secondary Heat Sink

b. FRC-0.2A, Response to Degraded Core Cooling

c. FRS-0.1A, Response to Nuclear Power Generation/ATWT

d. FRH-0.5A, Response to Steam Generator Low Level

Answer: a 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_____
	New	_____

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

Examination Outline Cross-reference:

Level	RO	SRO
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)

47. 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	RO	SRO
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)

48. A high alarm occurs on RE-5895A, “CR Makeup Radiation Monitor”. What equipment actuations occur due to this high alarm?

a. Containment Vent Isolation and CR HVAC shifts to the Emergency Recirc

b. Containment Vent Isolation and CR HVAC shifts to the Isolation Mode

c. CR HVAC shifts to the Emergency Recirc

d. CR HVAC shifts to the Isolation Mode

Answer: c Lesson Plan (As available)

Procedure ALM-3200, “Alarm Procedure DRMS,” Revision 3, Attachment 3

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	61AA1.01	61AA1.01
Importance Rating	3.6	3.6
Tier #	1	1
Group #	2	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

49. 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	RO	SRO
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)

50. 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	RO	SRO
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)

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	RO	SRO
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)

52. During accident conditions, which of the below statements is most correct regarding precautions against using RCS cold leg temperature to determine core temperatures as an alternative when incore thermocouples (CETs) are failed?

a. Only T_{Hot} instrumentation is accident qualified.

b. SI flow interferes with T_{Cold} measurements.

c. Hot leg reflux flow affects T_{Cold} measurements.

d. T_{Hot} instrumentation CANNOT be used, use T_{cold} instrumentation.

Answer: b Lesson Plan (As available)

Training Material LO21.MCO.MI7, Section “Alternate Instrumentation” subsection “RCS Temperature”

Question Source: Bank # _____
Modified Bank # Closed Bank 1 Ques. 451
New _____

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	17A2.01	17A2.01
Importance Rating	3.1	3.5
Tier #	2	2
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

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:

- **!** Containment Pressure = 4.5 psig (peak)
- **!** Containment Radiation = 1 x 10^2 R/hr and slowly lowering (peaked at 6 x 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_____
New _____

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

Examination Outline Cross-reference:

Level	RO	SRO
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)

54. With the plant operating in Mode 1 at 90%, the Low Pressure Heater Bypass Valve PV-2286 opens. What occurs in order to maximize main feed pump suction pressure?

a. Condensate Pump Reject Valve LV-2211/12 closes and no other system valves change positions.

b. Hotwell Makeup Valves LV2217A&B open and Condensate Pump Recirc Valve FV-2239 closes.

c. Condensate Reject Valve LV-2211/12 closes and Condensate Pump Recirc Valve FV-2239 closes.

d. Condensate Reject Valve LV-2211/12 closes and Condensate Pump Recirc Valve FV-2239 modulates based on MFP suction pressure.

Answer: c Lesson Plan (As available)

Procedure SOP-303A, "Condensate System," Revision 9, Section 3.2

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	56K1.03	56K1.03
Importance Rating	2.6	2.6
Tier #	2	2
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

55. Which of the following signals will cause HCV-014, "Waste Gas Discharge Control Valve" to automatically close?

a. High radiation indicated on RE-5250, "WSTE GAS."

b. High radiation indicated on RE-5701, "AB VNT EXH."

c. Loss of sample flow on RE-6266, "WSTE EVAP RM."

d. Loss of sample flow on RE-5253, "LIQ WSTE EFF."

Answer: b Lesson Plan (As available)

Procedure ALM-3200,"Alarm Procedure DRMS," Revision 3

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	71K4.04	71K4.04
Importance Rating	2.9	3.4
Tier #	2	2
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

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 ≤320°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	RO	SRO
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)

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 <390ºF.

a. Saturation Pressure for 390ºF 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	RO	SRO
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)

58. Unit 1 was initially at 100% equilibrium power with all systems in automatic. 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_____
	New	_____

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

Examination Outline Cross-reference:

Level	RO	SRO
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)

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	RO	SRO
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)

60. Given the following information:

- ! Reactor trips due to a lightning strike
- ! The supply breaker to Panel 1C1 opens - DRPI power supply

How is the reactor shutdown safety function verified?

a. The reactor trip and bypass breakers open, neutron flux decreasing, and emergency borate ≥3160 gallons of boric acid from the boric acid storage tanks.

b. The reactor trip and bypass breakers open, neutron flux decreasing, and re-energize DRPI through Panel 1C4 to verify all control rod bottom lights on.

c. The reactor trip and bypass breakers open, neutron flux decreasing and all control rod bottom lights on.

d. The reactor trip and bypass breakers open, neutron flux decreasing, and emergency borate ≥3160 gallons of boric acid from the refueling water storage tank.

Answer: a Lesson Plan (As available)

Procedure EOP-0.0A, "Reactor Trip or Safety Injection," Revision 7, Step 1 and Training Material OP51.SYS.RI1

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	14G2.4.21	14G2.4.21
Importance Rating	3.7	4.3
Tier #	2	2
Group #	2	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

61. 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	RO	SRO
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)

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_____
	New	_____

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

Examination Outline Cross-reference:

Level	RO	SRO
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)

63. Unit 1 is operating at 100% power when the Reactor Operators notice the following indications:

Annunciator Alarms:
SG 2/ 1 of 4 LVL LO-LO (8A-2.14)

Plant Indications:

!	1-LI-529, SG 2 LVL (NR) CHAN I –>	67%
!	1-LI-552, SG 2 LVL (NR) CHAN II –>	67%
!	1-LI-528, SG 2 LVL (NR) CHAN III –>	67%
!	1-LI-527, SG 2 LVL (NR) CHAN IV –>	0%
!	1-FI-522A, SG 2 STM FLO –>	$3.6X10^6$ lbm/hr
!	1-FI-520A, SG 2 FW FLO –>	$3.6X10^6$ lbm/hr
!	1-PI-524A, MSL 2 PRESS CHAN I –>	1000 psig

Based on the above indication, select the correct response.

a. Due to the Steam Generator Level instrument failing low, within six (6) hours trip (close) the associated bistables and initiate equipment repair by contacting I&C and completing a Work Request.

b. Due to the Steam Generator Level instrument failing low, within six (6) hours bypass the associated bistables and initiate equipment repair by contacting I&C and completing a Work Request.

c. Due to the Steam Generator Level instrument failing low, take manual control of the both main feedwater pumps and adjust main feedwater pump speed to obtain the proper differential pressure. Select the alternate level channel, restore level, and then place main feedwater pumps in automatic.

d. Due to the Steam Generator Level instrument failing low, take manual control of the main feedwater control valve and adjust feedwater flow to maintain 67% steam generator level. Select the alternate level channel, restore level, and then place main feedwater control valve in automatic.

Answer: a Lesson Plan (As available)

Procedure ABN-710, “Steam Generator Level Instrumentation Malfunction,” Revision 10,

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

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

Examination Outline Cross-reference:

Level RO SRO

Master Reviewer Certification _____ (initials)

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)

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	RO	SRO
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)

65. Unit 1 is operating at 35% power in a normal system lineup. 1UT experiences a differential relay (87/1UT) trip. Determine the immediate resultant electrical bus status for Unit 1 assuming the unit is still at power. (Assume all systems functioned as designed and NO OTHER failures occur)

a. The non-safeguards 6.9 kv busses fast transfer to transformer 1ST and the safeguards 6.9 kv busses are energized by XST1.

b. The non-safeguards 6.9 kv busses fast transfer to transformer 1ST and the safeguards 6.9 kv busses are energized by XST2.

c. The non-safeguards 6.9 kv busses slow transfer to transformer 1ST and the safeguards 6.9 kv busses are energized by XST1.

d. The non-safeguards 6.9 kv busses slow transfer to transformer 1ST and the safeguards 6.9 kv busses are energized by XST2.

Answer: b Lesson Plan (As available)

Drawing E1-0022, Sheet A and E1-0032, Sheet 7

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	62K3.01	62K3.01
Importance Rating	3.5	3.9
Tier #	2	2
Group #	2	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

66. Which one of the following describes the relationship between battery chargers BC1ED1-1, BC1ED1-2 and the 125 VDC bus 1ED1?

a. Both chargers are normally aligned and supplying the same bus.

b. An electrical interlock on the chargers output breaker ensures only one battery charger supplies the bus.

c. A mechanical interlock on the chargers circuit breaker ensures only one battery charger supplies the bus.

d. No interlocks exist to prevent simultaneously aligning both chargers to the bus.

Answer: c Lesson Plan (As available)

Training Material OP51.SYS.DC1.LN, “Components”

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	63K4.02	63K4.02
Importance Rating	2.9	3.2
Tier #	2	2
Group #	2	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

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	RO	SRO
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)

68. Systems which are used to control the buildup of combustible gas inside the Containment Building are the:

a. Catalytic Hydrogen Recombiners and the Waste Gas Processing System.

b. Containment Preaccess Filtration and the Containment Purge Supply and Exhaust System.

c. Electric Hydrogen Recombiners and the Hydrogen Purge Supply and Exhaust System.

d. Containment Air Cooling and Recirculation System and the Containment Preaccess Filtration System.

Answer: c Lesson Plan (As available)

Training Material OP51.SYS.CY1.LN, pg 19

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	28G2.1.28	28G2.1.28
Importance Rating	3.2	3.3
Tier #	2	2
Group #	3	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

69. FRS-0.1A, "Response to Nuclear Power Generation/ATWT," directs the operator to initiate Emergency Boration of RCS and includes direction to

"Check PRZR Pressure - LESS THAN 2335 PSIG"

Which ONE (1) of the following is the basis for the above check?

a. Indicates sufficient boron is flowing into the RCS.

b. Indicates that injected boron is lowering reactor power.

c. Verifies charging inventory is NOT being depleted via the charging pump miniflow lines.

d. Verifies that the pressurizer PORVs are operating properly.

Answer: a Lesson Plan LO21.SK4.XH1.OB104

REF: FRS-0.1A, Attachment 3, Rev. 7, page 17 REV DATE: 3/6/98

KSA:

OBJ: EST TIME:

TYPE:

Question Source: Bank # __232 Open2

Modified Bank # _____

New _____

Question Cognitive Level: Memory or Fundamental Knowledge __X_

Comprehension or Analysis _____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #		024G2.4.18
Importance Rating		3.6
Tier #		1
Group #		1
10 CFR 55.43(b)		5

Master Reviewer Certification _____ (initials)

70. A situation has arisen requiring significant personnel exposures. The Emergency Coordinator has decided NOT to allow any individual to exceed the maximum dose for protecting valuable property.

From the following list, select the number of individuals performing the task that meets both the Protective Action Guides for emergency workers and the ALARA guidelines.

a. Three individuals each receive a dose equivalent of 15 rems.

b. Five individuals each receive a dose equivalent of 12 rems.

c. Ten individuals each receive a dose equivalent of 9 rems.

d. Twenty individuals each receive a dose equivalent of 6 rems.

Answer: c Lesson Plan MCO.MIB.OB101

EPP-305; US EPA PAGs

Question Source: Bank # ___466 Open
Modified Bank # _____
New _____

Question Cognitive Level: Memory or Fundamental Knowledge ____
Comprehension or Analysis __X_

Examination Outline Cross-reference:

Level	RO	SRO
K/A #		G2.4.44
Importance Rating		4.0
Tier #		3
Group #		
10 CFR 55.43(b)		5

Master Reviewer Certification _____ (initials)

71. An Alert has been declared. The TSC has not been manned yet, and you are directed to provide plant information via the Emergency Notification System (ENS). Where would you locate the ENS phone in the control room and who are you providing information to?

a. The ENS phone is located at the ROs desk and you are providing plant information to state officials.

b. The ENS phone is located near the Unit Supervisor's desk and you are providing plant information to state officials.

c. The ENS phone is located at the ROs desk and you are providing plant information to NRC personnel.

d. The ENS phone is located near the Unit Supervisor's desk and you are providing plant information to NRC personnel.

Answer: d Lesson Plan (As available)

Procedure EPP-202, "Emergency Communication Systems and Equipment," Revision 6.

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	2.4.43	2.4.43
Importance Rating	2.8	3.5
Tier #	3	3
Group #	4	4
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

72. Given the following conditions:

- All power range NI <5%
- Intermediate SUR = 0.2 dpm
- Containment Pressure = 3.2 psig
- Turbine tripped
- Reactor trip can not be verified

Based on the above indications, what is the FIRST action that must be taken?

a. Have an operator locally trip the reactor by opening the reactor trip and bypass breakers.

b. Manually initiate emergency boration via the refueling water storage tank.

c. Verify control rods inserting at >48 steps/minute.

d. Manually initiate emergency boration via the boric acid tanks.

Answer: c Lesson Plan (As available)

Procedure FRS-0.1A,"Response to Nuclear Power Generation/ATWT," Revision 7, Step 1

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	07EA2.04	07EA2.04
Importance Rating	4.4	4.6
Tier #	1	1
Group #	2	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

73. Given the following information:

- **!** Rx trip
- **!** SI Actuation Signal
- **!** Pressurizer safety stuck open
- **!** CCPs and SI pumps are not running
- **!** RCS subcooling 30ºF

What should be done with the operating RCPs?

a. Stop all RCPs to prevent core damage resulting from separation of phases upon subsequent loss of RCS flow.

b. Continue operation of the RCPs to provide core heat removal.

c. Continue operation of the RCPs until RCS subcooling is <25ºF

d. Stop all RCPs to prevent pump damage resulting from operation under potential two-phase flow conditions.

Answer: b Lesson Plan (As available)

Procedure EOP-1.0A, “Loss of Reactor or Secondary Coolant,” Revision 7, Step 1 and Bases

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	09EA1.09	09EA1.09
Importance Rating	3.6	3.6
Tier #	1	1
Group #	2	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

74. Conditions exist that require an automatic reactor trip; 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_____
	New	_____

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

Examination Outline Cross-reference:

Level	RO	SRO
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)

75. How does Procedure FRZ-0.3A, “Response to High Containment Radiation Level,” direct containment radiation levels be lowered?

a. Place the containment preaccess filtration system in service.

b. Obtain a release permit and place the containment purge and supply exhaust system in service.

c. Initiate containment spray to “scrub” radioactive particles out.

d. Place all containment ventilation fans in service.

Answer: a Lesson Plan (As available)

Procedure FRZ-0.3A, “Response to High Containment Radiation Level,” Revision 7, Step 2

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	W/E16EK1.2	W/E16EK1.2
Importance Rating	2.7	3.2
Tier #	1	1
Group #	2	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

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_____
New _____

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

Examination Outline Cross-reference:

Level	RO	SRO
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)

77. Unit 1 is at 35% power and a turbine trip occurs. What is the initial expected response of the primary and secondary plant?

a. Rx trips, PRZR pressure increases, steam generator level increases, and steam pressure increases.

b. Rx trips, PRZR pressure increases, steam generator level decreases, and steam pressure increases.

c. Rx remains critical, PRZR pressure increases, steam generator level decreases, and steam pressure increases.

d. Rx remains critical, PRZR pressure increases, steam generator level increases, and steam pressure increases.

Answer: c Lesson Plan (As available)

Training Material OP51.SYS.SN1

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	35K5.03	35K5.03
Importance Rating	2.8	3.1
Tier #	2	2
Group #	2	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

78. While in the ERGs, AFW is required and the condensate storage tank level is slightly <10%, what actions are required?

a. Continue to feed with the condensate storage tank until level reaches 5%, then align station service water to the AFW system and feed to one steam generators.

b. Continue to feed with the condensate storage tank and immediately add fire protection water to the tank to feed two steam generators.

c. Immediately lineup service water to the AFW system and feed to two steam generators.

d. Immediately lineup service water to the AFW system and feed to one steam generator.

Answer: d Lesson Plan (As available)

Training Material OP51.SYS.SW1and Procedure ABN-305, “Auxiliary Feedwater System Malfunction,” Revision 5, Section 5.0

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	76A4.04	76A4.04
Importance Rating	3.7	3.7
Tier #	2	2
Group #	3	3
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

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_____
New _____

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

Examination Outline Cross-reference:

Level	RO	SRO
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)

80. Given the following :

- **!** Both Units are at 100%
- **!** All systems are normally aligned
- **!** A loss of offsite power occurs

Which one of the following describes the response of the Containment Air Cooling and Recirculation System cooling units and fans?

a. The cooling units and fans are load shed and cannot be restarted.

b. The cooling units and fans are shed and must be manually reset.

c. The cooling units and fans are tripped and then sequenced onto the safety-related electrical buses.

d. Two (2) of the four (4) cooling units and fans are sequenced onto the safety-related electrical buses after all four (4) have been tripped.

Answer: c Lesson Plan (As available)

Training Material OP51.SYS.CL1

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	22A3.01	22A3.01
Importance Rating	4.1	4.3
Tier #	2	2
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

81. A “High Radiation” alarm on the Auxiliary Building Duct Monitor will cause which of the following changes to the primary plant ventilation system?

a. The four ESF filtration trains will automatically start and the non-ESF filtration trains will trip.

b. The primary plant ventilation lineup will be changed to increase the negative pressure in the Auxiliary Building to minimize the release of radioactivity.

c. Valve X-HCV-0014, “GWPS Discharge to Vent Stack” closes.

d. No changes to the ventilation system lineup - alarm only.

Answer: c Lesson Plan (As available)

Procedure ABN-902, “Accidental Release of Radioactive Gas,” Revision 3 and Training Material OP51.SYS.HV3

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	72A3.01	72A3.01
Importance Rating	2.9	3.1
Tier #	2	2
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

82. An automatic reactor trip and safety injection has occurred on Unit 2 as a result of lowering RCS pressure. The operators note the following conditions:

- **!** Pressurizer pressure dropping prior to and following the SI
- **!** RCS average temperature stable prior to and following the SI
- **!** Pressurizer level rising prior to SI and rising following the SI
- **!** Reactor power stable prior to the SI and dropping following the SI

Initially, which one of the following accidents would result in these conditions?

a. Stuck open pressurizer safety valve

b. Double-ended hot leg break

c. Steamline break

d. 4 inch break on a RCS cold leg

Answer: a Lesson Plan (As available)

EOP-0,0A, “Reactor Trip or Safety Injection,” Step 20.

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	RO	SRO
K/A #	08AA2.20	08AA2.20
Importance Rating	3.4	3.6
Tier #	1	1
Group #	2	2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

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** (a or 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	RO	SRO
K/A #		001GK2.1.33
Importance Rating		4.0
Tier #		1
Group #		1
10 CFR 55.43(b)		

** 6 of 7 SRO candidates missed this question. A review of the T/S basis would indicate that the rod is still operable –> T/S Basis 3.1.4, Action B.1, “When a rod becomes misaligned, it can usually be moved and is still trippable (i.e., OPERABLE).” This would then make the correct answers, Answer a or c.

Master Reviewer Certification _____ (initials)

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	RO	SRO
K/A #		027AK2.03
Importance Rating		2.8
Tier #		1
Group #		2
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

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	RO	SRO
K/A #	026AA2.03	026AA2.03
Importance Rating	2.6	2.9
Tier #	1	1
Group #	1	1
10 CFR 55.43(b)		

Master Reviewer Certification _____ (initials)

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

Master Reviewer Certification _____ (initials)

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

Master Reviewer Certification _____ (initials)

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

Master Reviewer Certification _____ (initials)

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 with containment spray?

a. It reduces chloride stress corrosion of carbon steel components inside the containment.

b. Ensures sufficient surface tension of the coolant in the containment to assist in cooling the containment liner.

c. Minimizes lagging damage which could clog the containment sump suction strainers.

d. Ensures 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	RO	SRO
K/A #		026A2.05
Importance Rating		4.1
Tier #		2
Group #		1
10 CFR 55.43(b)		1

Master Reviewer Certification _____ (initials)

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. Form STA-205-1, "CPSES Procedure Change 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, the "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	RO	SRO
K/A #		G2.2.8
Importance Rating		3.3
Tier #		3
Group #		
10 CFR 55.43(b)		3

Master Reviewer Certification _____ (initials)

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

Master Reviewer Certification _____ (initials)

92. A startup is in progress when annunciator DG 1 TRBL alarms. The Safeguards Building PEO 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 EDG inoperable, continue the startup, and conduct surveillances required to show operability of the other EDG.

b. Declare #1 E/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	RO	SRO
K/A #		064K6.07
Importance Rating		2.9
Tier #		2
Group #		2
10 CFR 55.43(b)		5

Master Reviewer Certification _____ (initials)

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

Master Reviewer Certification _____ (initials)

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

Master Reviewer Certification _____ (initials)

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

Master Reviewer Certification _____ (initials)

96. Why does EOP-1.0A require checking for a faulted Steam Generator after having just performed the identical step in EOP-0.0A?

a. To ensure that no more than one Steam Generator is isolated.

b. 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	RO	SRO
K/A #		G2.4.7
Importance Rating		3.8
Tier #		3
Group #		
10 CFR 55.43(b)		2

Master Reviewer Certification _____ (initials)

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 for the DNB correlation(s) 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	RO	SRO
K/A #		G2.1.11
Importance Rating		3.8
Tier #		3
Group #		
10 CFR 55.43(b)		5

Master Reviewer Certification _____ (initials)

98. When cooling down the unit to COLD SHUTDOWN in accordance with Integrated Plant Operating Procedures (IPOs), which of the below precautions applies to the last running Reactor Coolant Pump (RCP)?

a. Stop the RCP when RHR flow is established.

b. Do not stop the RCP unless boron dilution paths are isolated.

c. Stop the RCP when RCS temperature is < 200°F.

d. The RCP may be stopped after entering MODE 4.

Answer:	b	Lesson Plan	IPO.XO4.OB900
Question Source:		Bank #	__390__
		Modified Bank #	_____
		New	_____
Question Cognitive Level:		Memory or Fundamental Knowledge	__X__
		Comprehension or Analysis	_____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #		G2.1.32
Importance Rating		3.8
Tier #		3
Group #		
10 CFR 55.43(b)		5

Master Reviewer Certification _____ (initials)

99. When making a Liquid Radwaste System release with inoperable monitoring instrumentation, what is required in order to perform the release to ensure NO inadvertent release of radioactive material to the environment?

a. Chemistry SHALL take samples every hour during the release.

b. Chemistry or Radiation Protection SHALL perform independent verifications of the discharge valve lineup.

c. Chemistry SHALL obtain a sample just prior to the termination of the release to verify gamma activity used on the pre-release calculations.

d. Chemistry or Radiation Protection SHALL perform two independent verifications of pre-release calculations.

Answer: d Lesson Plan (As available)

Procedure STA-603, “Control of Station Radioactive Effluents,” Rev 17

Question Source:	Bank #	_____
	Modified Bank #	Open Bank 1, Question 148
	New	_____

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #		G2.3.6
Importance Rating		3.8
Tier #		3
Group #		3
10 CFR 55.43(b)		4

Master Reviewer Certification _____ (initials)

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

Master Reviewer Certification _____ (initials)