

**WRITTEN RO EXAM
WITH ANSWERS**

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	<u>1</u>	<u> </u>
Group #	<u>1</u>	<u> </u>
K/A #	<u>008.AA2.01</u>	<u> </u>
Importance Rating	<u>3.9</u>	<u> </u>

Proposed Question:

1. Given the following:

- Unit 1 was operating at steady-state 100% power
- Reactor Trip and Safety Injection actuated from low pressurizer pressure
- RCS pressure decreased rapidly to 1150 psig and is now increasing very slowly
- Pressurizer level decreased to 8% initially and then increased rapidly to 100% indicated
- Reactor Containment Building process radiation monitors are alarming

Which ONE of the following Loss of Primary Coolant events is the cause for these indications?

- A. Pressurizer surge line rupture
- B. Pressurizer spray line rupture
- C. RCS cold leg rupture
- D. Incore lower guide tube rupture

Proposed Answer: B **Explanation:****Technical Reference:** LOT501.13 **Proposed references to be provided to applicants during examination:****Learning Objective:** 92023 **Question Source:** Bank # STP-419 Modified
New **Question History:** Last NRC Exam **Cognitive Level:** Memory or Fundamental Knowledge
 x Comprehension or Analysis**10 CFR Part 55 Content:** 55.41 5
 55.43 **Comments:**

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	<u>1</u>	<u> </u>
Group #	<u>1</u>	<u> </u>
K/A #	<u>009.EK1.01</u>	
Importance Rating	<u>4.2</u>	<u> </u>

Proposed Question:

2. A small break LOCA has occurred and SI injection is not adequate to remove all core decay heat. At what approximate value would the RCS cold leg temperatures be expected to stabilize, assuming a loss of offsite power occurs simultaneous to the LOCA?

- A. 571°F
- B. 651°F
- C. 668°F
- D. 682°F

Proposed Answer: A

Explanation:

Natural circulation and steam release from the SG PORVs will be required to remove excess decay heat. SG PORV setpoint is 1225 psig (1240 psia). Tsat for 1240 psia is about 571 degrees-F.

Technical Reference: LOT202.01, Rev 9, (Pg 13); OPOP05-EO-EO00 Rx Trip or Safety Injection (step 7 note); Steam Tables

Proposed references to be provided to applicants during examination:

Steam Tables

Learning Objective: 84041

Question Source: Bank # STP-519 Modified
New

Question History: Last NRC Exam

Cognitive Level: Memory or Fundamental Knowledge
 x Comprehension or Analysis

10 CFR Part 55 Content: **55.41** 5
55.43

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

1

Group #

1

K/A #

011.EA1.13

Importance Rating

4.1

Proposed Question:

3. Unit 1 is operating at 100% power when a Large Break LOCA occurs. Five minutes later, the Primary Operator notices the following:

- ECW Pump 1B is running
- ECW Train 1B Blowdown Isolation Valve is closed
- ECW Train 1B Screen Wash Booster Pump is running
- ECW Pump 1B Discharge Valve indicates intermediate position (red AND green lights lit)
- ECW Trains A and C are operating normally
- The yard watch reports the ECW Pump 1B Discharge Valve is 50% open

Which ONE of the following is true concerning ECW Train 1B?

- A. Safety Injection actuation has blocked the trip of the pump to allow the train to operate. The pump will continue to run even if the discharge valve is partially closed.
- B. Safety Injection Train B was reset prior to the discharge valve reaching full open. The discharge valve will open fully when the control switch is taken to OPEN.
- C. Safety Injection Train B did not actuate. Manually actuating Safety Injection will open the discharge valve fully.
- D. ECW Pump 1B did not receive a start signal from the sequencer. The pump was running prior to the Large Break LOCA.

Proposed Answer: A

Explanation:

Technical Reference: 9E-EW01-01 Rev 8, 9E-EW04-02 Rev 5

Proposed references to be provided to applicants during examination:

Learning Objective: 91193

Question Source: Bank # STP-19 Modified
New

Question History: Last NRC Exam

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

10 CFR Part 55 Content:	55.41	<u>5, 10</u>
	55.43	

Comments:

Examination Outline Cross-

Level

RO

SRO

Tier #

1

Group #

1

K/A #

015/017.AA1.21

Importance

4.4

Proposed Question:

4. Unit 2 is recovering from a Loss of Offsite Power with the following conditions:

- Reactor is tripped
- All Reactor Coolant Pumps (RCP) are off and cannot be started
- The Primary Reactor Operator is directed to verify natural circulation cooling exists

In which ONE of the following sets of conditions can natural circulation cooling be verified to exist?

	Time	Core Exit T/Cs (°F)	RCS Subcooling (°F)	T _H (°F)	T _C (°F)	S/G Press. (psig)
A.	0400	560	36	557	536	916
	0430	555	32	552	532	886
B.	0400	560	40	558	540	940
	0430	560	36	557	528	830
C.	0400	560	42	557	536	916
	0430	555	41	552	532	886
D.	0400	560	40	558	540	948
	0430	564	43	560	544	980

Proposed Answer:

C

subcooling >35 deg; P_{SG}, T_H, and core exit T/Cs are decreasing; and T_C is at the saturation temperature for SG pressure**Technical Reference:** 0POP05-EO-ES01 Rev 15 step 14 RNO, steam tables**Proposed references to be provided to applicants during examination:**

Steam Tables

Learning Objective: 92169**Question Source:**

Bank #

STP-12

Modified

New

Question History:

Last NRC Exam

Cognitive Level:

Memory or Fundamental Knowledge

X

Comprehension or Analysis

10 CFR Part 55 Content:

55.41 5

55.43

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	<u>1</u>	<u> </u>
Group #	<u>1</u>	<u> </u>
K/A #	<u>026.AK3.04</u>	<u> </u>
Importance Rating	<u>3.5</u>	<u> </u>

Proposed Question:

5. Given the following conditions:

- Unit 1 is in Mode 5
- CCW Trains A and C are in service
- CCW Train B is selected to STANDBY
- ALL ECW Trains are in service

CCW Pump A trips causing common header pressure to decrease to 70 psig. What is the effect on CCW Pump B? CCW Pump B will:

- A. start ONLY if the mode selector switch is placed in run.
- B. NOT start because ECW Trains A and C are still in service.
- C. start because the common header pressure is less than the low-pressure setpoint.
- D. NOT start because the common header pressure did not decrease to the low-pressure setpoint.

Proposed Answer: C

Explanation:

- A. INCORRECT - The pump will start if the mode select switch is placed in run, but will also start on low pressure.
- B. INCORRECT - The CCW pump will start on either a low CCW header pressure or low pressure in two ECW trains.
- C. CORRECT - Common header pressure is less than 76 psig and the train is selected to standby.
- D. INCORRECT - The auto start setpoint is 76 psig.

Technical Reference: LOT 201.12.LP Rev 7 section 4.3.3.C

Proposed references to be provided to applicants during examination:

Learning Objective: 57126

Question Source: Bank # STP-124 Modified
New

Question History: Last NRC Exam

Cognitive Level: Memory or Fundamental Knowledge
 X Comprehension or Analysis

10 CFR Part 55 Content: **55.41** 7, 8
55.43

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

Group #

1

K/A #

027.AK2.03

Importance Rating

2.6

Proposed Question:

6. The pressurizer master pressure controller has failed to zero output in AUTO.

With no operator action RCS pressure will:

- A. Decrease to the Reactor Trip setpoint.
- B. Increase to the Reactor Trip setpoint.
- C. Stabilize at Program setpoint
- D. Cycle at the PORV setpoint.

Proposed Answer: D

Explanation:

The master controller will close both spray valves and turn on all heaters, causing pressure to increase. PORV PCV-456 is controlled by a bistable not the master controller so that when pressure reaches 2235 psig it will open and control pressure.

Technical Reference:

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source: Bank # STP-674 Modified
New

Question History: Last NRC Exam

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

10 CFR Part 55 Content:	55.41	<u>5, 7</u>
	55.43	

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

1

Group #

1

K/A #

038.EA1.36

Importance Rating

4.3

Proposed Question:

7. Unit 1 was operating at 85% with SG Code Safety on SG "D" leaking by, when a SGTR occurred. The ruptured S/G has just been isolated. The following conditions exist:

- Containment pressure is 0.2 psig.
- Containment radiation levels are 1.6 R/hr.
- Containment integrated radiation dose is 0.0 RADS.

STEAM GENERATORPRESSURESTEAM LINE RADIATION

A

840 PSIG

4.56E-02

B

910 PSIG

3.78E+02

C

850 PSIG

3.45E-02

D

770 PSIG

2.97E-02

Based on the above plant conditions and using the attached cooldown chart from 0POP05-EO-EO30, "Steam Generator Tube Rupture," how far should the RCS be cooled down?

- A. 471°F
- B. 478°F
- C. 486°F
- D. 492°F

Proposed Answer:

C

Explanation:

Adverse Containment is not in effect, so the number not in brackets on step 7.a. of EOP is used based on the pressure in the ruptured SG (C=910 psig requires using the 900 psig row).

Technical Reference: 0POP05-EO-EO30 Steam Generator Tube Rupture

Proposed references to be provided to applicants during examination:

0POP05-EO-EO30 Steam Generator Tube Rupture: chart for step 7.a. (pg 12 of 40, rev.15)

Question Source:

Bank #

Modified

New

X

Question History:

Last NRC Exam

Cognitive Level:

Memory or Fundamental Knowledge

X

Comprehension or Analysis

10 CFR Part 55 Content:

55.41

10

55.43

Comments:

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED
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Step 7 continued from previous page.

- ___ a. DETERMINE required core exit temperature based on ruptured SG pressure (QDPS MAX QUAD T/C AVG):

RUPTURED SG PRESSURE (PSIG)	CORE EXIT TEMPERATURE (°F)
1285	533 [518]
1250	529 [514]
1200	524 [509]
1150	517 [502]
1100	512 [497]
1050	505 [490]
1000	499 [484]
950	492 [477]
900	486 [471]
850	478 [463]
800	471 [456]
750	463 [448]
700	454 [439]
650	446 [431]
600	437 [422]
550	427 [412]
500	416 [401]
450	403 [388]

Step 7 continued on next page.

Examination Outline Cross-reference:

Level

RO**SRO**

Tier #

1

Group #

1

K/A #

040.AK3.04

Importance Rating

4.5**Proposed Question:**

8. OPOP05-EO-EO20, Faulted Steam Generator Isolation, step 4 ensures isolation of Main and Auxiliary Feedwater to the affected SG(s).

Which ONE of the following is the reason for the actions of this step?

- A. Maintains at least two loops available for cooldown.
- B. Maximizes cooldown capability of the non-faulted SG(s) following a feedline break.
- C. Allows identification of the faulted SG(s).
- D. Allows identification of a tube rupture in the faulted SG(s).

Proposed Answer: B

Explanation:

Technical Reference: OPOP05-EO-EO20 Rev 3; 148--00039, WOG ERG E-2 Faulted SG Isolation Rev 1C, page 32

Proposed references to be provided to applicants during examination:

Learning Objective: 81264

Question Source:

Bank #

STP-2

Modified

New

Question History:

Last NRC Exam

Cognitive Level: Memory or Fundamental KnowledgeX

Comprehension or Analysis

10 CFR Part 55 Content:**55.41** 10**55.43** **Comments:**

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	<u>1</u>	<u> </u>
Group #	<u>1</u>	<u> </u>
K/A #	<u>054.AK1.02</u>	<u> </u>
Importance Rating	<u>3.6</u>	<u> </u>

Proposed Question:

9. The operators are responding to a loss of secondary heat sink event. All four SG wide range levels are below 9%. Feed and bleed is in effect and containment conditions are as follows:

- Containment pressure is 0.6 psig.
- Containment radiation levels are 0.5 R/hr.
- Containment integrated radiation dose is 0.6 RADS.

Which of the following conditions is the MINIMUM heat sink requirement that must be met to allow subsequent termination of feed and bleed?

- A. At least one SG narrow range level must be greater than 14%
- B. At least one SG narrow range level must be greater than 34%
- C. Total AFW flow must be greater than 576 gpm
- D. Total AFW flow must be greater than 1080 gpm

Proposed Answer: A

Explanation:

Technical Reference: 0POP05-EO-FRH1, Rev 14; WOG Background Document, FRH-0.1

Proposed references to be provided to applicants during examination:

Learning Objective: 83013

Question Source: Bank # STP-503 Modified
New

Question History: Last NRC Exam

Cognitive Level: Memory or Fundamental Knowledge
 X Comprehension or Analysis

10 CFR Part 55 Content: **55.41** 10
55.43

Comments:

Examination Outline Cross-reference:

Level

RO**SRO**

Tier #

1

Group #

1

K/A #

055.EK1.01

Importance Rating

3.3**Proposed Question:**

10. During a loss of all AC while performing 0POP05-EO-EC00, Loss of All AC, E1C11 battery is carrying it's design loads and emergency lighting.

Which ONE of the following is the MINIMUM time that E1C11 could be predicted to operate by design assuming the battery was fully charged initially?

A. 2 hours

B. 4 hours

C. 6 hours

D. 8 hours

Proposed Answer: A**Explanation:****Technical Reference:** _____**Proposed references to be provided to applicants during examination:** _____**Learning Objective:** _____**Question Source:**

Bank #

STP-915

Modified

New

Question History:

Last NRC Exam

Cognitive Level:X

Memory or Fundamental Knowledge

Comprehension or Analysis

10 CFR Part 55 Content:**55.41**8**55.43****Comments:**

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	<u>1</u>	<u> </u>
Group #	<u>1</u>	<u> </u>
K/A #	<u>056.AA1.09</u>	<u> </u>
Importance Rating	<u>3.3</u>	<u> </u>

Proposed Question:

11. A LOOP has occurred while the plant had been operating at 75% power. Prior to the LOOP, the CCW pump configuration had been as follows:

CCW Train	Pump Status	Train Mode Sw.	Local/Remote Sw.
A	Running	Run	Remote
B	Off	Off	Local
C	Off	Standby	Remote

Subsequent to proper response of the diesels and sequencers, the expected CCW Pump configuration should be:

ANSWER	CCW Pump 1A	CCW Pump 1B	CCW Pump 1C
A.	Running	NOT Running	NOT Running
B.	Running	Running	NOT Running
C.	Running	Running	Running
D.	Running	NOT Running	Running

Proposed Answer: D

Explanation:

Local/Remote switch in Local bypasses ALL automatic start signals, including LOOP.

Technical Reference: LOT 201.12

Question Source:

Bank # Modified
New X

Question History:

Last NRC Exam

Cognitive Level:

 Memory or Fundamental Knowledge
 X Comprehension or Analysis

10 CFR Part 55 Content:

55.41 7
55.43

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

1

Group #

1

K/A #

057.AA1.02

Importance Rating

3.8

Proposed Question:

12. A loss of 120 VAC Vital Distribution Panel DP001 has occurred and the crew has entered 0POP04-VA-001, "Loss of 120 VAC Class Vital Distribution." Various instrumentation has failed, including:

- Pressurizer Level Channel 0465 failed low
- Charging Flow Controller FK-0205 failed open

In accordance with OPOP04-VA-0001, and based on the failures noted, the operator is directed to control Pressurizer Level by:

- A. maintaining Pressurizer Level control in automatic.
- B. adjusting Excess Letdown flow and Seal Injection flow.
- C. adjusting Excess Letdown flow only.
- D. adjusting Seal Injection flow only.

Proposed Answer: B

Explanation:

Technical Reference: 0POP04-VA-001 “Loss of 120 VAC Class Vital Distribution”
Addendum 2, Step 8 and Addendum 10

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source: Bank # _____ Modified _____
New X

Question History: Last NRC Exam

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

10 CFR Part 55 Content:	55.41	10
	55.43	

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
Tier #	1		
Group #	1		
K/A #	058.AA2.03		
Importance Rating	3.5		

Proposed Question:

13. Unit 1 is in Mode 5.

- RCS Temperature: 170 °F
- RCS Pressure: 380 psig
- RHR Trains A and B in service

A problem occurs causing the RCS temperature to decrease. The Primary RO observes:

- .. Train A RHR Heat Exchanger Bypass Valve (FCV-0851) is full closed
- .. Train A RHR Heat Exchanger Flow Control Valve (HCV-0864) is full open
- .. RHR Train B operating normally

Which ONE of the following failures accounts for these indications?

- A. Loss of 125 VDC Bus E1A11.
- B. Loss of 125 VDC Bus E1D11.
- C. Loss of 480 MCC E1B1.
- D. Loss of Instrument Air to Containment.

Proposed Answer: A

Explanation:

Technical Reference: 0POP04-DJ-0001, R. 10

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source: Bank # STP-358 Modified
New

Question History: Last NRC Exam

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

10 CFR Part 55 Content:	55.41	7
	55.43	

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

1

Group #

1

K/A #

065.AK3.08

Importance Rating

3.7

Proposed Question:

15. Unit 1 has experienced a Reactor Trip and Safety Injection. The crew is currently performing 0POP05-EO-EO10, "Loss of Reactor or Secondary Coolant." Attempts to open the Instrument Air OCIV have failed. Which ONE of the below correctly describes the prescribed operator action and reason for that action as it relates to a loss of Instrument Air to Containment in this circumstance?

A. Operators should bypass the Instrument Air OCIV in order to regain control of the Pressurizer Auxiliary Spray Valve.

B. Operators should bypass the Instrument Air OCIV in order to regain control of the Charging Flow Control Valve.

C. Operators should open the Service Air OCIV in order to regain control of the Pressurizer Auxiliary Spray Valve.

D. Operators should open the Service Air OCIV in order to regain control of the Charging Flow Control Valve.

Proposed Answer: A

Explanation:

Technical Reference: OPOP05-EO-EO10, "Loss of Reactor or Secondary Coolant" and OPOP04-IA-0001, "Loss of Instrument Air"

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source: Bank # _____ Modified _____
New X

Question History: Last NRC Exam

Cognitive Level: X Memory or Fundamental Knowledge
Comprehension or Analysis

10 CFR Part 55 Content:	55.41	10
	55.43	

Comments:

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	<u>1</u>	<u> </u>
Group #	<u>1</u>	<u> </u>
K/A #	<u>E04.EK2.1</u>	
Importance Rating	<u>3.5</u>	<u> </u>

Proposed Question:

16. Unit 1 is operating at 100% power with all systems in their normal lineup. A small RCS leak develops in the Chemical and Volume Control System (CVCS) with the following Control Room indications:

- Pressurizer level indicates 50% and is decreasing
- RCS pressure indicates 2220 psig and is stable
- Containment pressure is normal
- LETDN HX OUTLET PRESSURE PI-0135 indicates 0 psig
- PRT PRESS HI alarm is illuminated
- LETDN HX OUTL FLOW HI/LO alarm is illuminated
- ICS Points (2) CVCS LTDN AREA TEMP TRN HI are in alarm

Considering these indications, which ONE of the following AUTOMATIC actions has taken place?

- A. TCV-0143, Letdown Temperature Divert Valve, positioned to the VCT.
- B. MOV-0023/0024, Letdown Line Containment Isolation Valves closed.
- C. FV-0011, Letdown Header Orifice Isolation Valve closed.
- D. PCV-0135, Letdown Pressure Control Valve opened.

Proposed Answer: B

Explanation:

MOV-0023/24 are designed to automatically close on high room temperature for high energy line break accident (HELBA) protection. The question stem indicates there is a small RCS leak present in the CVCS, however, there are no direct indications of leak location. The student must determine leak location and corresponding automatic actions by evaluating the given indications relative to the answers.

Technical Reference: 0POP04-CV-0004, Rev 2, Step 1 RNO d.; Logic 9-Z-42410, Rev 8

Proposed references to be provided to applicants during examination:

Learning Objective: 70174

Question Source: Bank # STP-22 Modified
New

Question History: Last NRC Exam 6/30/98

Cognitive Level: Memory or Fundamental Knowledge
X Comprehension or Analysis

10 CFR Part 55 Content: **55.41** 7
55.43

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

1

Group #

1

K/A #

E11.EA1.02

Importance Rating

3.5

Proposed Question:

17. The following have occurred:

- LOCA outside containment
- Transfer to Cold Leg Recirculation
- Transition to OPOP05-EO-EC11, Loss of Emergency Coolant Recirculation

0POPOP05-EO-EC11 provides instructions to stop backflow from the RWST to the containment sump to conserve RWST inventory.

Per 0POP05-EO-EC11 which ONE of the following is the correct sequence to stop the backflow?

- A.
 1. Stop the LHSI, HHSI and CS Pumps
 2. Close the Containment Sump Suction Valves
 3. Open the RWST to SI Suction Header Valves
 4. Open the SI Pump Mini Flow Valves
 5. Start the LHSI, HHSI and CS Pumps as necessary
- B.
 1. Stop the LHSI, HHSI and CS Pumps
 2. Open the RWST to SI Suction Header Valves
 3. Open the SI Pump Mini Flow Valves
 4. Close the Containment Sump Suction Valves
 5. Start the LHSI, HHSI and CS Pumps as necessary
- C.
 1. Stop the LHSI, HHSI and CS Pumps
 2. Open the RWST to SI Suction Header Valves
 3. Close the Containment Sump Suction Valves
 4. Open the SI Pump Mini Flow Valves
 5. Start the LHSI, HHSI and CS Pumps as necessary
- D.
 1. Stop the LHSI, HHSI and CS Pumps
 2. Open the SI Pump Mini Flow Valves
 3. Close the Containment Sump Suction Valves
 4. Open the RWST to SI Suction Header Valves
 5. Start the LHSI, HHSI and CS Pumps as necessary

Proposed Answer: A

Technical Reference: 0POP05-EO-EC11 Rev 7, LOT 201.10, Rev 8

Learning Objective: 82598

Question Source:

Bank #

STP-18

Modified

New

Question History:

Last NRC Exam

6/30/98

Cognitive Level:

X

Memory or Fundamental Knowledge

Comprehension or Analysis

10 CFR Part 55 Content:

55.41 10

55.43

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

1

Group #

1

K/A #

E05.EA1.1

Importance Rating

4.1

Proposed Question:

18. A complete loss of all feedwater has occurred on Unit 1 in conjunction with a feedline break inside containment on SG A. The following plant conditions currently exist:

- | | | |
|---|-------------------------|---------------------------|
| · | RCS Pressure | 1900 psig and INCREASING |
| · | Core Exit TCs | 578 °F and STABLE |
| · | RCS T _{HOT} | 575 °F and STABLE |
| · | RCS T _{avg} | 547 °F and STABLE |
| · | RCS T _{COLD} | 520 °F and STABLE |
| · | Pzr Level | 45% and SLOWLY INCREASING |
| · | Containment Pressure | 12 psig and DECREASING |
| · | Containment Temperature | 170 °F and STABLE |
| · | SG NR Levels | A=0%, B=0%, C=0%, D=0% |
| · | SG WR Levels | A=0%, B=30%, C=20%, D=25% |

OPOP05-EO-FRH1, Response to Loss of Secondary Heat Sink, has been entered and RCS Bleed and Feed has just been established. A report is received in the Control Room that the Turbine Driven Auxiliary Feedwater Pump is recovered and ready for use.

Which ONE of the following actions should be taken under these circumstances?

- A. Ensure total feed flow to the intact SGs is > 576 gpm.
- B. Feed SG A, B, C, AND D at a rate not to exceed 100 gpm until T_{HOT} is less than 550 °F.
- C. Feed SG A, B, C, OR D at a rate not to exceed 100 gpm until WR level reaches 73%.
- D. Maintain bleed and feed until T_{HOT} is less than 550 °F, then feed SG A, B, C, OR D.

Proposed Answer: A

Explanation:

Technical Reference: 0POP05-EO-FRH1, R11

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source: Bank # STP-225 Modified
New

Question History: Last NRC Exam

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

10 CFR Part 55 Content:	55.41	10
	55.43	

Comments:

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	<u>1</u>	<u> </u>
Group #	<u>2</u>	<u> </u>
K/A #	<u>024.AK2.03</u>	
Importance Rating	<u>2.6</u>	<u> </u>

Proposed Question:

19. Unit 1 was operating at 100% power with Boric Acid Pump 1A OOS for motor replacement. A feedwater control failure results in the crew manually tripping the unit. The crew has transitioned to 0POP05-EO-ES01, Reactor Trip Response. The following conditions exist:

- 2 Control Rods indicate 12 steps
- 1 Control Rod indicates 18 steps

The Reactor Operator attempts to Emergency Borate, but Boric Acid Pump 1B fails to start.

The following indications are observed:

- Both pump status lights (Green & Red) are extinguished
- Bypass/Inop 4M05/C2 BA XFER PUMP 1B is illuminated

Which ONE of the following PAIRS of Emergency Boration flowpaths are available to be used?

- A. 1-CV-0221 Manual Alternate Immediate Borate & Emergency Boration Via Gravity Feed.
- B. Emergency Boration from RWST & Emergency Boration Via Gravity Feed.
- C. Emergency Boration Through Normal Boration Flowpath & Emergency Boration from RWST
- D. Emergency Boration Through Normal Boration Flowpath & 1-CV-0221 Manual Alternate Immediate Borate

Proposed Answer: B

Explanation:

Technical Reference: 0POP04-CV-0003 Rev 5 Addenda 1-4

Proposed references to be provided to applicants during examination:

Learning Objective: 92108

Question Source: Bank # STP-86 Modified
New

Question History: Last NRC Exam

Cognitive Level: Memory or Fundamental Knowledge
X Comprehension or Analysis

10 CFR Part 55 Content: **55.41** 7, 10
55.43

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

1

Group #

2

K/A #

033.AK3.02

Importance Rating

3.6

Proposed Question:

20. Intermediate Range channel B instrument has failed high. The failed IR channel has been bypassed as directed by 0POP04-NI-0001 "Nuclear Instrument Malfunction." A reactor shutdown was commenced and reactor power has just dropped below the P-6 setpoint on the operable IR channel. At this point, 0POP04-NI-0001 directs the operator to "reset Source Range channels" because:

- A. Source Range channels automatically energize when an Intermediate Range Channel is bypassed during a Reactor Shutdown.
- B. Source Range channels automatically energize when an Intermediate Range Channel drops below 10^{-10} amps during a Reactor Shutdown.
- C. Source Range channels need to be manually energized if an Intermediate Range Channel stays above 10^{-10} amps during a Reactor Shutdown.
- D. Source Range channels must always be manually energized during a Reactor Shutdown.

Proposed Answer: C

Explanation:

Technical Reference: OPOP04-NI-0001 "Nuclear Instrument Malfunction," Rev.10, pg 41
of 68

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source: Bank # _____ Modified _____
New X

Question History: Last NRC Exam

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

10 CFR Part 55 Content:	55.41	6, 10
	55.43	

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

1

Group #

2

K/A #

037.AA1.08

Importance Rating

3.3

Proposed Question:

21. In response to Charging flow unexpectedly GREATER THAN letdown flow coincident with increasing secondary system radiation, OPOP04-RC-0004, Steam Generator Tube Leakage, was implemented. OPOP04-RC-0004 directs that if VCT level cannot be maintained >15% by ...

A. auto or manual makeup with CCP suction aligned to RWST, then trip the RX and initiate SI.

B. auto or manual makeup with CCP suction aligned to RWST, then increase letdown.

C. auto or manual makeup with CCP suction aligned to VCT, then trip the RX and initiate SI.

D. auto or manual makeup with CCP suction aligned to VCT, then shift CCP suction to RWST.

Proposed Answer: C

Explanation:

The reactor should be tripped if VCT level cannot be maintained via normal makeup.

Technical Reference: 0POP04-RC-0004, Steam Generator Tube Leakage, step 6

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source:

Bank #

Modified

New X

Question History:

Last NRC Exam

Cognitive Level:

X

Memory or Fundamental Knowledge

Comprehension or Analysis

10 CFR Part 55 Content:

55.41

10

55.43

Comments:

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	<u>1</u>	<u> </u>
Group #	<u>2</u>	<u> </u>
K/A #	<u>061.G2.3.4</u>	<u> </u>
Importance Rating	<u>2.5</u>	<u> </u>

Proposed Question:

22. Area Radiation Monitor RE-8052 in the In-Core Instrumentation Room is alarming HIGH at 1200 mrem/hr. Local surveys have confirmed that this radiation level is accurate. Due to his expertise, Jim Neutron, who was a contractor until he was hired by STP a few months ago, will need to enter the area to conduct repairs. Jim is 52 years old, has a lifetime TEDE of 40 rem to date, and has already accumulated 3.6 rem TEDE this year, 360 mrem of which was received at STP. The federal exposure limits imposed by 10 CFR Part 20 require that Joe's stay time for the job must not exceed _____ without authorization for a Planned Special Exposure.

- A. 0 minutes
- B. 20 minutes
- C. 57 minutes
- D. 70 minutes

Proposed Answer: D

Explanation:

The federal limit is 5 rem per year, so Jim has 1400 mrem left; so he must be limited to 70 minutes (1400 mrem).

Technical Reference: 10 CFR 20.1201

Proposed references to be provided to applicants during examination:

Learning Objective: _____**Question Source:**

Bank # Modified
New X

Question History:

Last NRC Exam

Cognitive Level:

 Memory or Fundamental Knowledge
 X Comprehension or Analysis

10 CFR Part 55 Content:

55.41 10, 11, 12
55.43

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

1

Group #

2

K/A #

074.EK2.03

Importance Rating

4.0

Proposed Question:

23. 0POP05-EO-FRC1, "Response to Inadequate Core Cooling", has been entered due to a red path on Critical Safety Function status tree. Current plant conditions are:

-Containment Pressure = 9 psig

-Containment Radiation Levels = 5×10^3 rad/hr

-Containment Integrated Radiation Dose = 3.7×10^4 rad

-NR SG Levels all <2%

Step 9 directs recovery of SG levels by controlling AFW flow...

A. >576 gpm until NR SG levels >14% in at least one SG.

B. >576 gpm until NR SG levels >14% in all intact SGs.

C. >576 gpm until NR SG levels >34% in at least one SG.

D. >576 gpm until NR SG levels >34% in all intact SGs.

Proposed Answer: C

Explanation:

34% is the target under adverse containment conditions (>5psig).

Technical Reference: 0POP05-EO-FRC1, "Response to Inadequate Core Cooling"

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source: Bank # _____ Modified _____
New X

Question History: Last NRC Exam

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

10 CFR Part 55 Content:	55.41	10
	55.43	

Comments:

Examination Outline Cross-reference:

Level

RO**SRO**

Tier #

1

Group #

2

K/A #

076.G2.4.10

Importance Rating

3.0**Proposed Question:**

24. Plant conditions:

- Operating in Mode 1 at 100% power.
- CVCS Letdown Failed Fuel Monitor is in High Alarm.
- Chemistry has determined that the inservice demineralizer is working properly.

Which ONE of the following operator actions could Chemistry recommend per OPOP04-RC-0001, High Reactor Coolant System Activity?

A. Reduce power

B. Isolate letdown

C. Increase letdown flow to between 220 gpm and 250 gpm

D. Initiate hourly sampling of the RCS

Proposed Answer: C**Explanation:****Technical Reference:** 0POP04-RC-0001**Proposed references to be provided to applicants during examination:****Learning Objective:** _____**Question Source:**

Bank #

STP-958

Modified

New

Question History:

Last NRC Exam

Cognitive Level:X

Memory or Fundamental Knowledge

Comprehension or Analysis**10 CFR Part 55 Content:****55.41**10**55.43****Comments:**

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	<u>1</u>	<u> </u>
Group #	<u>2</u>	<u> </u>
K/A #	<u>E02.EK1.2</u>	
Importance Rating	<u>3.4</u>	<u> </u>

Proposed Question:

25. A Small Break LOCA has occurred, primary plant conditions have been stabilized and the crew has transitioned to 0POP05-EO-ES11, SI Termination. The HHSI and LHSI pumps have been secured and returned to Auto. Subsequently, the following conditions are noted:

- RCS subcooling = 30°F and stable
- Pressurizer level = 15% and stable
- RCS Pressure = 1650 psig
- RCP's are all OFF
- Containment Pressure = 1.5 psig
- Containment Radiation Levels = 2×10^2 rad/hr
- Containment Integrated Radiation Dose = 6.7×10^2 rad

Based on these conditions, which ONE of the following actions will the operators perform?

- A. Start at least one RCP
- B. Manually start SI pumps
- C. Increase SG cooling
- D. Increase RCS pressure

Proposed Answer: B

Explanation:

Technical Reference: 0POP05-EO-ES11, Rev. 11, CIP

Proposed references to be provided to applicants during examination:

Learning Objective: 92226

Question Source: Bank # Modified
New X

Question History: Last NRC Exam

Cognitive Level: X Memory or Fundamental Knowledge
 Comprehension or Analysis

10 CFR Part 55 Content: **55.41** 10
55.43

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

1

Group #

2

K/A #

E15.EK1.3

Importance Rating

2.8

Proposed Question:

26. Under what condition is entry into OPOP05-EO-FRZ2, "Response to Containment Flooding," warranted?

- A. Containment water level is 68 inches.
- B. Containment Radiation is greater than 2.0×10^{-3} E R/HR.
- C. Containment Critical Safety function tree is in an Orange Condition.
- D. Containment Pressure is greater than 9.5 psig.

Proposed Answer: C

Explanation:

Technical Reference: POP05-EO-FRZ2

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source:

Bank #

STP-1068

Modified

New

Question History:

Last NRC Exam

Cognitive Level:

X

Memory or Fundamental Knowledge

Comprehension or Analysis

10 CFR Part 55 Content:

55.41

10

55.43

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

1

Group #

2

K/A #

E08.EK3.3

Importance Rating

3.7

Proposed Question:

27. Procedure 0POP05-EO-FRP1, "Response to Imminent Pressurized Thermal Shock Condition," has a step to terminate safety injection flow. However, if the safety injection termination criteria are not satisfied, a reactor coolant pump should be started. What is the reason for starting an RCP in this condition?

- A. Establishes forced flow to control the cooldown rate.
- B. Allows RCS depressurization via the pressurizer spray nozzle.
- C. Equalizes steam generator pressures to allow cooldown of all 4 loops.
- D. Mixes the incoming SI water and the RCS water to raise the temperature of the water entering the downcomer.

Proposed Answer: D

Explanation:

Technical Reference: POP05-EO-FRP1 background document

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source: Bank # STP-1046 Modified
New

Question History: Last NRC Exam

Cognitive Level:

_____	Memory or Fundamental Knowledge
X	Comprehension or Analysis

10 CFR Part 55 Content:	55.41	<u>5, 10</u>
	55.43	

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

2

Group #

1

K/A #

003.K4.07

Importance Rating

3.2

Proposed Question:

28. Which ONE of the following describes the RCP No. 2 Seal during normal at power operation?

- A. A film riding seal with a leakoff flow rate of 3 gph to the RCDT.
- B. A face rubbing seal with a leakoff flow rate of 3 gpm to the CCP suction.
- C. A film riding seal with a leakoff flow rate of 400 cc/hr to the Containment Sump and 400 cc/hr to the RCDT.
- D. A face rubbing seal with a leakoff flow rate of 3 gph to the RCDT.

Proposed Answer: D

Explanation:

Technical Reference: LOT201.05, section 2.7.2

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source: Bank # STP-146 Modified
New

Question History: Last NRC Exam

Cognitive Level: X Memory or Fundamental Knowledge
Comprehension or Analysis

10 CFR Part 55 Content:	55.41	3, 7
	55.43	

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

2

Group #

1

K/A #

004.A4.18

Importance Rating

4.3

Proposed Question:

29. Which ONE of the following Emergency Boration Flowpaths meet the requirements of 0POP04-CV-0003, Emergency Boration?

- A. Emergency Boration through MOV-0218 at 60 gpm (charging flowrate)
- B. Emergency Boration through Normal Boration (blender) Flowpath at 30 gpm (charging flowrate)
- C. Emergency Boration From RWST at 100 gpm (charging flowrate)
- D. Emergency Boration Via Gravity Feed at 35 gpm (charging flowrate)

Proposed Answer: A

Explanation:

Technical Reference: 0POP04-CV-0003, R6

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source: Bank # STP-273 Modified
New

Question History: Last NRC Exam

Cognitive Level: X Memory or Fundamental Knowledge
Comprehension or Analysis

10 CFR Part 55 Content:	55.41	<u>3, 6, 10</u>
	55.43	

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

2

Group #

1

K/A #

005.A1.01

Importance Rating

3.5

Proposed Question:

31. Which ONE of the following describes the parameter(s) that are varied to control RCS cooldown rate when using RHR?

- Both CCW flowrate and RHR flowrate passing through the RHR heat exchanger are varied.
- CCW flowrate through the RHR heat exchanger is varied, while maintaining RHR flowrate constant.
- RHR flowrate passing through the RHR heat exchanger is varied, while maintaining total RHR system flowrate constant.
- Total RHR system flowrate is varied, while maintaining RHR flowrate through the RHR heat exchanger constant.

Proposed Answer: C

Explanation:

Technical Reference: 0POP02-RH-0001; 0POP03-ZG-0007

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source: Bank # STP-171 Modified
New

Question History: Last NRC Exam

Cognitive Level: X Memory or Fundamental Knowledge
Comprehension or Analysis

10 CFR Part 55 Content:	55.41	7, 10
	55.43	

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

2

Group #

1

K/A #

006.K5.09

Importance Rating

3.3

Proposed Question:

32. During a small-break Loss of Coolant Accident, the operators are directed to calculate the RCS subcooled margin because the subcooled margin indication on QDPS is known to be inaccurate. The following Reactor Coolant System indications are available:

- * Average of the ten highest core exit thermocouples = 565°F.
- * All Hot Leg Temperatures = 559°F.
- * All Cold Leg Temperatures = 528°F.
- * The RCS Wide Range Pressure Channels = 1435 psig.

Based on the above indications, the Reactor Coolant System is subcooled by

- A. 25°F to 30°F
B. 30°F to 35°F
C. 45°F to 50°F
D. 50°F to 55°F

Proposed Answer: A

Explanation:

Technical Reference: 0POP05-EO-EO10, Loss of Reactor or Secondary Coolant

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source:

Bank #

STP-B10253-
99781-01

Modified

New

Question History: Last NRC Exam

Cognitive Level: Memory or Fundamental Knowledge

X

Comprehension or Analysis

10 CFR Part 55 Content: **55.41** 10, 14

55.43

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

2

Group #

1

K/A #

006.A2.03

Importance Rating

3.3

Proposed Question:

33. The plant is at 100% power. A leak rate test was conducted on the 'A' SI Accumulator Cold Leg Injection Check Valve, XSI0046A which reveals the leakage to be 1.2 gpm. This is a 12" valve. Other RCS leakage includes:

-Identified Leakage is 8.6 gpm including the 1.2 gpm revealed above.

-Unidentified Leakage is 0.5 gpm.

What actions should the operators take?

A. No action is required. All leakrates are within Tech Spec limits.

B. Enter Tech Spec 3.4.6.2, Operational Leakage, based on exceeding the limit for Unidentified Leakage.

C. Enter Tech Spec 3.4.6.2, Operational Leakage, based on exceeding the limit for Identified Leakage.

D. Enter Tech Spec 3.4.6.2, Operational Leakage, based on exceeding the limit for RCS Pressure Isolation Valves leakage.

Proposed Answer: A

Explanation:

Technical Reference:

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source: Bank # _____ Modified _____
New X

Question History: Last NRC Exam

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

10 CFR Part 55 Content:	55.41	10
	55.43	

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

2

Group #

1

K/A #

007.K1.03

Importance Rating

3.0

Proposed Question:

34. The following Unit 2 conditions exist:

- A faulted steam generator (outside containment) resulted in a reactor trip and safety injection
- Operators have isolated the faulted steam generator
- RCS pressure is currently 1800 psig and INCREASING
- PRT PRESS HI alarm illuminates
- PRT level and pressure are INCREASING slowly

Which ONE of the following is the cause of the PRT level and pressure increase?

A. Reactor Coolant Pump seal leakoff flow is returning to the PRT.

B. A Pressurizer Power Operated Relief Valve is open.

C. Normal letdown flow is diverted to the PRT.

D. Loss of instrument air to containment fails open the Reactor Make Up Water valve to the PRT, "SPRAY ISOL FV-3650".

Proposed Answer: A

Explanation:

Technical Reference:

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source: Bank # STP-160 Modified
New

Question History: Last NRC Exam

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

10 CFR Part 55 Content:	55.41	<u>5, 7, 8</u>
	55.43	

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

2

Group #

1

K/A #

008.K3.03

Importance Rating

4.1

Proposed Question:

35. Which ONE of the following describes the effect on RCP operation if ONLY thermal barrier cooling is lost?

A. RCP operation may continue indefinitely providing seal injection flow is increased to 15 gpm/pump.

B. The RCP must be tripped within 1 minute to prevent damage to the thermal barrier.

C. The RCP must be tripped within 3-5 minutes to prevent damage to #1 seal.

D. RCP operation may continue indefinitely providing seal inlet temperature remains below 135°F.

Proposed Answer: D

Explanation:

Technical Reference: POP04-RC-0002

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source: Bank # STP-1072 Modified
New

Question History: Last NRC Exam

[illegible]

10 CFR Part 55 Content:	55.41	3, 7
	55.43	

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

2

Group #

1

K/A #

010.A4.01

Importance Rating

3.7

Proposed Question:

36. At 2335 psig (87.5%) and increasing, the response of the Pressurizer Pressure Master Controller SHOULD be:

- A. Spray Valves CLOSED, and PORV CLOSED.
- B. Spray Valves PARTIALLY OPEN, and PORV CLOSED.
- C. Spray Valves PARTIALLY OPEN, and PORV OPEN.
- D. Spray Valves FULLY OPEN, and PORV OPEN.

Proposed Answer: D

Explanation:

Technical Reference: LOT201.14

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source: Bank # _____ Modified _____
New X

Question History: Last NRC Exam

Cognitive Level:

<u>X</u>	Memory or Fundamental Knowledge
	Comprehension or Analysis

10 CFR Part 55 Content:	55.41	7
	55.43	

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
Tier #	2		
Group #	1		
K/A #	012.K6.06		
Importance Rating	2.7		

Proposed Question:

37. Given the following:

- Unit 1 is steady-state at 100% power, with all controls in automatic
- Pressurizer level control channel selector switch is in the L465/466 position.
- LT-0467 failed low.
- All required actions of 0POP04-RP-0002, Loss of Automatic Pressurizer Level Control are complete and appropriate bistables have been tripped.
- The reference leg for LT-0466 ruptures.

Which ONE of the following describes the plant response? (Assume NO operator actions)

- A. Backup Heaters energize.
- B. Charging flow reduces to minimum.
- C. Letdown isolation valve LCV-0465 closes.
- D. Reactor trip signal is actuated.

Proposed Answer: D

Explanation:

PZR Hi level B/S for RC-LT-0467 tripped as an action of 0POP04-RP-0002. Reference leg failure on RC-LT-0466 results in indicated level going to 100% making up Hi level B/S for this channel. 2/3 Hi Level B/S picked up results in a Rx trip if the unit is > 10% power.

Technical Reference:

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source: Bank # STP-861 Modified
New

Question History: Last NRC Exam

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

10 CFR Part 55 Content:	55.41	<u>6, 7</u>
	55.43	

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

2

Group #

1

K/A #

012.A4.05

Importance Rating

3.6

Proposed Question:

38. The following conditions exist:

- Containment pressure transmitter PT-937 has been declared inoperable.
- Required Technical Specification actions have been taken for Channel 937.

Which ONE of the following statements describes the coincidence for a Containment Spray Actuation to occur and the actions that will result in this coincidence?

A. 2/3 coincidence after the channel is placed in the TRIP condition, by placing bistable (PB-937A) in the TEST position.

B. 2/3 coincidence after the channel is placed in the BYPASS condition, by placing bistable (PB-937A) in the TEST position.

C. 1/2 coincidence after the channel is placed in the TRIP condition, by placing bistable (PB-937A) in the TEST position.

D. 1/2 coincidence after the channel is placed in the BYPASS condition, by placing bistable (PB-937A) in the TEST position.

Proposed Answer: B

Explanation:

Technical Reference: LOT 201.11

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source: Bank # STP-895 Modified
New

Question History: Last NRC Exam

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

10 CFR Part 55 Content:	55.41	6, 7
	55.43	

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

2

Group #

1

K/A #

013.K6.01

Importance Rating

2.7

Proposed Question:

39. While Unit 2 is operating at 75% power, a Steam Pressure detector on the steam line from the 'A' SG has failed low. With no action on the part of operators in response, the condition of the ESF logic is that ESF actuation would occur if...

A. a second steam pressure detector on the 'A' steam line generates a low steam pressure signal.

B. a second steam pressure detector on the 'A' steam line detects steam pressure dropping at greater than 100 psig/sec.

C. a steam pressure detector from any other steam line detects steam pressure dropping at greater than 100 psig/sec.

D. a steam pressure detector from any other steam line generates a low steam pressure signal.

Proposed Answer: A

Explanation:

Technical Reference: LOT201.22 page 20 of Lesson Plan

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source: Bank # _____ Modified _____
New X

Question History: Last NRC Exam

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

10 CFR Part 55 Content:	55.41	7
	55.43	

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

2

Group #

1

K/A #

013.A3.01

Importance Rating

3.7

Proposed Question:

40. All ESF load sequencers are responding in Mode II to a Loss of Offsite Power. The two-second load shed signals have been generated and the EDG output breakers have closed to re-energize the ESF 4.16KV buses. As the AFW pumps are sequenced on, an SI signal is received. The ESF system response is:

A. ESF load sequencers complete sequencing the loads onto the bus in Mode II operation and then the additional loads required by Mode III are sequenced onto the bus.

B. ESF load sequencers shift to Mode III operation and another two-second load shed is generated before loads are sequenced back onto the bus.

C. ESF load sequencers complete sequencing the loads onto the bus in Mode II operation and then the additional loads required by Mode III must be manually started.

D. ESF load sequencers shift to Mode III operation, another two-second load shed is generated, and all required loads must then be manually started.

Proposed Answer: B

Explanation:

Technical Reference: LOT201.22

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source:

Bank #

Modified

New

X

Question History:

Last NRC Exam

Cognitive Level:

Memory or Fundamental Knowledge

X

Comprehension or Analysis

10 CFR Part 55 Content:

55.41

8

55.43

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

2

Group #

1

K/A #

022.K4.05

Importance Rating

2.6

Proposed Question:

41. The minimum containment cooling components required to prevent exceeding design containment pressure during a DBA is:

- A. 2 CS pumps in conjunction with 2 RCFC's.
- B. 2 CS pumps in conjunction with 3 RCFC's.
- C. 3 CS pumps in conjunction with 4 RCFC's.
- D. 3 CS pumps in conjunction with 6 RCFC's.

Proposed Answer: B

Explanation:

Technical Reference: LOT201.11

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source: Bank # _____ Modified _____
New X

Question History: Last NRC Exam

Cognitive Level: X Memory or Fundamental Knowledge
Comprehension or Analysis

10 CFR Part 55 Content:	55.41	8
	55.43	

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

2

Group #

1

K/A #

026.K2.01

Importance Rating

3.4

Proposed Question:

42. WHICH ONE (1) of the following bus losses will result in the loss of Containment Spray Pump 1C?

- A. Class 1E 4.16 KV Bus E1C
- B. Class 1E 4.16 KV Bus E1A
- C. Class 1E 480 V Bus E1C1
- D. Class 1E 480 V Bus E1A1

Proposed Answer: A

Explanation:

Technical Reference: 201.11

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source: Bank # STP-1029 Modified
New

Question History: Last NRC Exam

Cognitive Level:

<u>X</u>	Memory or Fundamental Knowledge
	Comprehension or Analysis

10 CFR Part 55 Content:	55.41	8
	55.43	

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

2

Group #

1

K/A #

026.A3.01

Importance Rating

4.3

Proposed Question:

43. The Unit is operating at 100% power.

-Train 'A' ESF Load Sequencer has just been de-energized for I&C troubleshooting.

-A Reactor trip and Safety Injection are initiated on Low PZR Pressure.

-Containment pressure is 10 psig and increasing.

- Offsite power is available.

-All systems are functioning as expected under the existing plant conditions.

Which ONE of the following correctly describes the response of the Train 'A' Containment Spray (CS) System AND any operator actions required to align the CS system for operation?

A. The 'A' CS pump will start on the HI-3 Containment pressure signal. The operator must manually align the 'A' CS pump discharge valve.

B. With Offsite power available, there will be no adverse effect on the CS system. The 'A' CS pump will start and the discharge valve will open as required.

C. The 'A' CS pump discharge valve will open on the HI-3 Containment pressure signal and the operator will have to start the 'A' CS pump manually.

D. The 'A' CS pump will not start and its discharge valve will not open automatically. The operator must take BOTH CS/CIB/CVI actuate switches to the ACTUATE position which will start the 'A' CS pump and open it's discharge valve.

Proposed Answer: C

Technical Reference: LOT201.22

Learning Objective:

Question Source:

Bank #

Modified

New X

Question History:

Last NRC Exam

Cognitive Level:

Memory or Fundamental Knowledge

X

Comprehension or Analysis

10 CFR Part 55 Content:

55.41

8

55.43

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

2

Group #

1

K/A #

039.A2.01

Importance Rating

3.1

Proposed Question:

44. The Reactor, which was operating at 92%, has tripped on low PZR Pressure due to a large break LOCA. All systems are responding to the LOCA as designed. Five seconds after the LOCA initiated, the following parameters are indicated:

$$T_{ave} = 575^{\circ}\text{F}$$

SG Pressure = 1125 psig

PZR Pressure = 1003 psig

Containment Pressure = 2.9 psig

Under these conditions, the state of the main steam system is:

- A. MSIV's are closed on High Containment Pressure and SG PORV's are relieving SG pressure.
- B. MSIV's are closed on Low SG Pressure but SG PORV's and SG Safeties remain closed.
- C. MSIV's are open and Steam Dump Valves are passing steam to the condenser.
- D. MSIV's are open but Steam Dumps are shut since they have not yet armed.

Proposed Answer: C

Explanation:

MSIV's have not received a closure signal yet, SD's armed when the Turbine tripped on interlock with the RX trip, and Tave is currently above Tref, which places a demand on the SD's to pass steam.

Technical Reference: LOT202.02

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source: Bank # _____ Modified _____
New X

Question History: Last NRC Exam

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

10 CFR Part 55 Content:	55.41	5
	55.43	

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

2

Group #

1

K/A #

056.K1.03

Importance Rating

2.6

Proposed Question:

45. Unit 2 is operating at 7% power with the following conditions:

- Dumping steam to the Condenser
- Turbine rolling up to 1800 rpm
- Condensate Pump 11 operating
- SUFP is operating

Which ONE of the following describes the plant response to Condensate Pump 11 tripping?
(ASSUME no operator action is taken.)

	SUFP	AFWPs	Reactor Trip
A.	Trips	Start on Lo-Lo SG Level	On Lo-Lo SG Level
B.	Does Not Trip	Start on Lo-Lo SG Level	On Turbine Trip
C.	Trips	Start on SUFP Trip	On Lo-Lo SG Level
D.	Does Not Trip	Start on Reactor Trip	On Turbine Trip

Proposed Answer: A

Explanation:

Technical Reference:

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source: Bank # STP-140 Modified
New

Question History: Last NRC Exam

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

10 CFR Part 55 Content:	55.41	4
	55.43	

Comments:

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	<u>2</u>	<u> </u>
Group #	<u>1</u>	<u> </u>
K/A #	<u>056.G2.2.2</u>	<u> </u>
Importance Rating	<u>4.0</u>	<u> </u>

Proposed Question:

46. 0POP02-CD-0001, Condensate System, requires that the “ Condensate pump discharge common vent line isolation valve and the Condensate pump 13 vent at the mini-flow check valve” be open prior to starting Condensate pump 13.

Which ONE of the following statements is the reason for opening these two valves prior to starting the pump?

- A. To flush out corrosion particles that collect in the low flow areas of recirculation line check valve CD-0740.
- B. To extend the life of recirculation valve CD-FV-7016 by eliminating air pockets that promote erosion.
- C. To minimize the occurrence of hydraulic transients in the Condensate pump #13 recirculation line.
- D. To ensure that no steam binding will occur in the Condensate pump (low pressure, low temperature impeller boiling).

Proposed Answer: C

Explanation:

Technical Reference: 0POP02-CD-0001

Proposed references to be provided to applicants during examination:

Learning Objective: 40611

Question Source: Bank # STP-454 Modified
New

Question History: Last NRC Exam

Cognitive Level: X Memory or Fundamental Knowledge
 Comprehension or Analysis

10 CFR Part 55 Content: **55.41** 4
55.43

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
Tier #	2		
Group #	1		
K/A #	059.A4.01		
Importance Rating	3.1		

Proposed Question:

47. The following conditions have resulted in a Feedwater Isolation Signal:

Rx Trip Breakers = Open

SG Level = 82.5%

$$T_{avg} = 571^{\circ}\text{F}$$

Containment Pressure = 0.2 psig

PZR Pressure = 2237 psig

Steam Pressure = 1180 psig

Which of the following are the MINIMUM actions required to reset/block the FWI signal to the Low Power Feed Reg Valves?

- A. Press the Train A & Train B LOW T_{avg} Reset/Block PBs.
- B. Clear P-4, then press the Train A & Train B LOW T_{avg} Reset/Block PBs.
- C. Clear P-4, press the Train A & Train B SI/SG HI-HI LEVEL Reset PBs, then press the SI Reset/Block PBs on CP-001.
- D. Clear P-4, press the Train A & Train B SI/SG HI-HI LEVEL Reset PBs, then reduce Steam Generator Level below the HI-HI alarm setpoint.

Proposed Answer: A

Explanation:

FWI occurred on Rx Trip with Low Tavg; although clearing P-4 is necessary to enable control of FRV's, clearing P-4 is not necessary to clear the FWI signal.

Technical Reference: LOT202.13 page 60

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source: Bank # _____ Modified _____
New X

Question History: Last NRC Exam

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

10 CFR Part 55 Content:	55.41	7, 10
	55.43	

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

2

Group #

1

K/A #

061.K4.01

Importance Rating

4.1

Proposed Question:

48. Which of the following describes the makeup sources to the Auxiliary Feedwater Storage Tank (AFWST)?

- A. Normal - Condenser Hotwell
Backup - Demineralized Water
Emergency - Fire Water
- B. Normal - Condenser Hotwell
Backup - Demineralized Water
Emergency - Service Water
- C. Normal - Demineralized Water
Backup - Condenser Hotwell
Emergency - Fire Water
- D. Normal - Demineralized Water
Backup - Condenser Hotwell
Emergency - Service Water

Proposed Answer: C

Explanation:

Technical Reference: 0POP02-AF-0001, Rev 8, (Pg 41); LOT202.28, Rev 4, (Pg 43)

Proposed references to be provided to applicants during examination:

Learning Objective: 43808

Question Source: Bank # STP-511 Modified
New

Question History: Last NRC Exam

Cognitive Level: X Memory or Fundamental Knowledge
Comprehension or Analysis

10 CFR Part 55 Content:	55.41	4, 7
	55.43	

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

2

Group #

1

K/A #

063.K3.02

Importance Rating

3.5

Proposed Question:

50. Which ONE of the following statements describes the effect of a loss of DC control power to the 4160 VAC breaker supplying 4160 VAC bus E1A?

The breaker will:

- A. remain in its current position, and can be tripped but not closed from its Control Room Panel.
- B. remain in its current position, and cannot be tripped or closed from its Control Room Panel.
- C. trip open, and can be closed but not tripped from its Control Room Panel.
- D. trip open, and cannot be tripped or closed from its Control Room Panel.

Proposed Answer: B

Explanation:

Technical Reference: 0POP02-DJ-0001

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source: Bank # STP-960 Modified
New

Question History: Last NRC Exam

Cognitive Level: X Memory or Fundamental Knowledge
Comprehension or Analysis

10 CFR Part 55 Content:	55.41	7, 8
	55.43	

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

2

Group #

1

K/A #

064.A1.03

Importance Rating

3.2

Proposed Question:

51. The #11 ESF Diesel Generator is undergoing a surveillance test and is currently paralleled with off-site power with a load of 5400 KW and voltage at 4160v. If the Control Room operator were to go to RAISE on the DG GOVERNOR Control switch, which of the following would reach a limit first?

A. Frequency

B. Voltage

C. Reactive Power (kVAR)

D. True Power (KW)

Proposed Answer: D

Explanation:

Technical Reference:

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source: Bank # _____ Modified _____
New X

Question History: Last NRC Exam

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

10 CFR Part 55 Content:	55.41	8
	55.43	

Comments:

Changed “5400 MW” to “5400 KW” in question stem during administration of exam when student recognized and correctly pointed out that MW was a typo; all students made aware of correction during exam; made correction to exam file before saving in ADAMS.

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

2

Group #

1

K/A #

073.K5.03

Importance Rating

2.9

Proposed Question:

52. Local radiation surveys in response to a Reactor Containment Building Atmosphere rad monitor alarm indicate a general area dose rate of 80 mrem/hr. Which ONE of the following would EXCEED his/her 10CFR20 Dose Limits in only one hour of work in this environment?

- A. Plant worker with a year-to-date exposure of 1430 mrem (Total Effective Dose Equivalent)
- B. Visiting member of the public with a year-to-date exposure at this site of 5 mrem (Total Effective Dose Equivalent)
- C. Contract employee with a year-to-date exposure at all sites of 3975 mrem (Total Effective Dose Equivalent)
- D. Declared pregnant worker with a to date exposure of 430 mrem (Deep Dose Equivalent) during the pregnancy

Proposed Answer: D

Explanation:

- A. INCORRECT - Limited to 5 rem total
- B. INCORRECT - Limited to 100 mrem total with 95 mrem left
- C. INCORRECT - Limited to 5 rem total
- D. CORRECT - Limited to 500 mrem total with 70 mrem left

Technical Reference: 10 CFR 20 (1-1-03 edition)

Proposed references to be provided to applicants during examination:

Learning Objective: N0045

Question Source: Bank # STP-90 Modified X
New

Question History: Last NRC Exam

Cognitive Level:

_____	Memory or Fundamental Knowledge
X	Comprehension or Analysis

10 CFR Part 55 Content:	55.41	12
	55.43	

Comments:

Adjusted the stem to better address the KA, and modified the values in the choices.

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

2

Group #

1

K/A #

076.A3.02

Importance Rating

3.7

Proposed Question:

53. Given the following:

- Unit 1 Control Room was abandoned due to a fire in the Relay Room.
- 0POP04-ZO-0001, Control Room Evacuation is in progress.
- All transfer switch checklists have been completed.
- A total loss of offsite power occurs.

Which ONE of the following describes the response of the ECW system?

- A. ECW pumps will automatically start after the DGs energize the 4.16 KV ESF Buses.
- B. ECW pumps must be manually started from the ASP after the DGs energize the 4.16 KV ESF Buses.
- C. ECW pumps in service prior to the blackout will automatically restart, all others must be manually started after the DGs energize the 4.16 KV ESF Buses.
- D. ECW pumps must be manually started from the ESF Train Switchgear Rooms after the DGs energize the 4.16 KV ESF Buses.

Proposed Answer: D

Explanation:

Technical Reference: 0POP04-ZO-0001, Addendum 7

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source: Bank # STP-857 Modified
New

Question History: Last NRC Exam

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

10 CFR Part 55 Content:	55.41	7, 8
	55.43	

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

2

Group #

1

K/A #

078.K2.02

Importance Rating

3.3

Proposed Question:

54. Which ONE of the following describes the EMERGENCY power supply to Instrument Air Compressor #12?

A. TSC diesel generator which energizes LC 1U

B. TSC diesel generator which energizes MCC 1G5

C. BOP diesel generator which energizes LC 1U

D. BOP diesel generator which energizes MCC 1G5

Proposed Answer: D

Explanation:

Technical Reference: Single Line Drawing 9-E-PFAR-01 Rev 13

Proposed references to be provided to applicants during examination:

Learning Objective:	25610
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Question Source:

Bank #

STP-96

Modified

New

Question History:

Last NRC Exam

Cognitive Level:

X

Memory or Fundamental Knowledge

Comprehension or Analysis

10 CFR Part 55 Content:

55.41

7, 8

55.43

Comments:

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	<u>2</u>	<u> </u>
Group #	<u>1</u>	<u> </u>
K/A #	<u>103.A1.01</u>	<u> </u>
Importance Rating	<u>3.7</u>	<u> </u>

Proposed Question:

55. Given the following:

- The plant is operating at full power with a normal 100% power configuration
- A Reactor Trip occurs due to a Loss of ALL Offsite Power
- The ESF Diesel Generators have all started and restored power to their ESF buses
- The Control Room crew has just completed the Immediate Actions of 0POP05-EO-EO00, Reactor Trip or Safety Injection

Which ONE of the following correctly predicts the RCB Temperature trend and the reason for the trend?

- A. Temperature is slowly decreasing because the RCFCs are running with CCW flowing through the cooling coils.
- B. Temperature is slowly increasing because the RCFCs are running with NO cooling flow through the cooling coils.
- C. Temperature is slowly decreasing because the RCFCs are running with Chilled Water flowing through the cooling coils.
- D. Temperature is slowly increasing because the RCFCs are NOT running.

Proposed Answer: B**Explanation:****Technical Reference:** logics 42041, 42042, 41630**Proposed references to be provided to applicants during examination:****Learning Objective:** 4967

Question Source: Bank # STP-1080 Modified
New

Question History: Last NRC Exam

Cognitive Level: Memory or Fundamental Knowledge
X Comprehension or Analysis

10 CFR Part 55 Content: **55.41** 9
55.43

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

2

Group #

2

K/A #

001.K3.01

Importance Rating

2.9

Proposed Question:

56. The following conditions exist on Unit 1:

- Reactor power is 100%
- Control Bank D position is 249 steps
- Rod Control is in automatic

At 0300 hours a rapid load reduction is performed due to a feedwater transient. Control Bank 'D' rods are now at 235 steps with the exception of rod D4 which has remained at 249 steps.

In accordance with 0POP04-RS-0001 "Control Rod Malfunction," how should T_{avg} be controlled while I&C evaluate whether the stationary and moveable grippers and the lift coils are properly energized with the correct currents and in proper sequence?

- A. T_{avg} should be maintained within 1.5°F of T_{ref} with rods in Auto.
- B. T_{avg} should be maintained within 1.5°F of T_{ref} by moving rods in Manual.
- C. T_{avg} should be maintained within 1.5°F of T_{ref} by adjusting Turbine Load and/or adjusting RCS boron concentration.
- D. T_{avg} should be maintained within 1.5°F of T_{ref} by adjusting Turbine Load in combination with manual rod motion.

Proposed Answer: C

Technical Reference: 0POP04-RS-0001 Rev 12 step 5 and Caution

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source:

Bank #

Modified

New

X

Question History:

Last NRC Exam

Cognitive Level:

X

Memory or Fundamental Knowledge

Comprehension or Analysis

10 CFR Part 55 Content:

55.41

10

55.43

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

2

Group #

2

K/A #

002.A3.01

Importance Rating

3.7

Proposed Question:

57. Which ONE of the following indications is used to detect "identified RCS leakage?"

- A. Pressurizer relief tank pressure
- B. Reactor coolant drain tank temperature
- C. Containment noble gas activity
- D. Reactor coolant drain tank level

Proposed Answer: D

Explanation:

Technical Reference: UFSAR 5.2.5.2

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source: Bank # STP-1084 Modified
New

Question History: Last NRC Exam

[illegible]

10 CFR Part 55 Content:	55.41	7
	55.43	

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

2

Group #

2

K/A #

016.K1.09

Importance Rating

3.7

Proposed Question:

58. Unit 2 is in the process of a normal shutdown and cooldown for refueling. Currently:

- PZR Pressure = 1850 psig
- Steam Line Pressure = 725 psig
- Containment Pressure = 0.2 psig

Some minutes later, a pipe rupture in containment results in a Steam Line Isolation. At the moment of Steam Line Isolation actuation, the above parameters had reached the following values:

- PZR Pressure = 1213 psig
- Steam Line Pressure = 325 psig
- Containment Pressure = 2.2 psig

Steam Line Isolation actuation was due to:

- A. Low PZR Pressure
- B. Low Steam Line Pressure
- C. High Containment Pressure
- D. High Rate of Change of Steam Line Pressure

Proposed Answer: D

Explanation:

Low P_{PZR} and Low P_{STM} signals are blocked due to the cooldown below 1985#, and Pcont did not exceed 3psig; Low P_{STM} block also sets the Stm Line Isolation signal to high rate instead of low pressure, therefore it is the only reasonable cause.

Technical Reference: LOT201.22

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source: Bank # _____ Modified _____
New X

Question History: Last NRC Exam

Cognitive Level:

_____	Memory or Fundamental Knowledge
X	Comprehension or Analysis

10 CFR Part 55 Content:	55.41	7
	55.43	

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

2

Group #

2

K/A #

035.K5.13

Importance Rating

3.4

Proposed Question:

59. Unit 2 is initially at 80% power with Rod Control in Automatic. Turbine load is slowly increased to 90% power. When compared with the plant conditions at 80% power, which of the following represents the expected FINAL plant conditions assuming no RCS boron changes are made during the power increase?

		Steam Pressure	Control Rods	Tavg
A.		LOWER	HIGHER	HIGHER
B.		LOWER	HIGHER	LOWER
C.		HIGHER	LOWER	HIGHER
D.		HIGHER	LOWER	LOWER

Proposed Answer: A

Explanation:

Due to Tavg programming, Rods will step out with a power increase in order to raise Tavg and mitigate somewhat the pressure drop in the SG.

Technical Reference:

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source:

Bank #

Modified

New X

Question History:

Last NRC Exam

Cognitive Level:

X

Memory or Fundamental Knowledge

Comprehension or Analysis

10 CFR Part 55 Content:

55.41 5

55.43

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

2

Group #

2

K/A #

041.A2.03

Importance Rating

2.8

Proposed Question:

60. While Unit 2 is operating at 85%, a leak in the Instrument Air System causes IAS pressure to drop, "IAS HDR PRESS LO" annunciator alarms, but the compressors are able to maintain IAS header such that the air pressure at the Steam Dumps is 10 psig below the IAS HDR PRESS LO alarm setpoint. In this condition, the status of the Steam Dumps is:

- A. They are available for controlled actuation and are currently shut.
- B. They are available for controlled actuation and have actuated full open.
- C. They are unavailable for controlled actuation and have failed shut on low IAS pressure.
- D. They are unavailable for controlled actuation and have failed open on low IAS pressure.

Proposed Answer: A

Explanation:

Steam Dumps require 55 psig from the IAS, and the alarm comes in at 90 psig, so there is still sufficient IAS pressure for Steam Dump actuation if necessary.

Technical Reference: LOT202.09, 0POP09-AN-08M3

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source: Bank # _____ Modified _____
New X

Question History: Last NRC Exam

Cognitive Level: X Memory or Fundamental Knowledge
 Comprehension or Analysis

10 CFR Part 55 Content:	55.41	7, 8
	55.43	

Comments:

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	<u>2</u>	<u> </u>
Group #	<u>2</u>	<u> </u>
K/A #	<u>055.K1.06</u>	<u> </u>
Importance Rating	<u>2.6</u>	<u> </u>

Proposed Question:

61. RT-8027, Condenser Air Removal System radiation monitor, monitors the CARS discharge _____ and provides _____ automatically when the HIGH Alarm setpoint is reached.

- E. directly to the atmosphere; audible alarm in the Control Room and closure of the CARS pump suction valves
- F. directly to the atmosphere; audible alarm in the Control Room, but no control function
- G. to the Unit Vent Stack; audible alarm in the Control Room and closure of the CARS pump suction valves
- D. to the Unit Vent Stack; audible alarm in the Control Room, but no control function

Proposed Answer: D

Explanation:

Technical Reference: LOT202.41 Table 1

Proposed references to be provided to applicants during examination:

Learning Objective: _____

Question Source: Bank # _____ Modified
New X

Question History: Last NRC Exam _____

Cognitive Level: X Memory or Fundamental Knowledge
 Comprehension or Analysis

10 CFR Part 55 Content: **55.41** 11, 13
55.43

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

2

Group #

2

K/A #

068.A3.02

Importance Rating

3.6

Proposed Question:

62. A release of a Waste Monitor Tank is in progress through the Liquid Radwaste System.

Which ONE of the following conditions will result in WL-FV-4077, Liquid Radwaste Discharge Valve, shifting to the RECIRC position?

- A. ALERT alarm on RT-8038, LWPS Monitor.
- B. HIGH alarm on RT-8045, LWPS Monitor #2.
- C. Monitor failure to RT-8038, LWPS Monitor.
- D. Monitor failure to RT-8045, LWPS Monitor #2.

Proposed Answer: C

Explanation:

Technical Reference: LOT202.41 Table 1

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source: Bank # STP-694 Modified
New

Question History: Last NRC Exam

Cognitive Level:

<u>X</u>	Memory or Fundamental Knowledge
	Comprehension or Analysis

10 CFR Part 55 Content:	55.41	<u>11, 13</u>
	55.43	

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

2

Group #

2

K/A #

072.A1.01

Importance Rating

3.4

Proposed Question:

63. Unit 1 is operating at 100% power when a valid High Alarm is received on RT-8013, RCB Purge Exhaust Monitor.

Which ONE of the following radiation monitors is now INOPERABLE?

- A. RCB High Range Radiation Monitor (RT-8051)
- B. RCB Atmosphere Radiation Monitor (RT-8011)
- C. Unit Vent Stack Monitor (RT-8010A)
- D. GWPS Outlet Radiation Monitor (RT-8032)

Proposed Answer: B

Explanation:

- A. INCORRECT: RT-8051 is an area monitor inside containment, a CVI does not affect its operation.
B. CORRECT: RT-8011 sample lines isolate on a CVI rendering the monitor inoperable.
C. INCORRECT: RT-8010A is a process monitor associated with the Unit Vent Stack Exhaust, a CVI does not affect its operation.
D. INCORRECT: RT-8032 is a process monitor associated with the GWPS, a CVI does not affect its operation.

Technical Reference: 0POP04-RA-0001, RT-8012/8013 Alarm Response Section

Proposed references to be provided to applicants during examination:

Learning Objective: 92102

Question Source: Bank # STP-390 Modified
New

Question History: Last NRC Exam

[illegible]

10 CFR Part 55 Content:	55.41	11
	55.43	

Comments:

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	<u>2</u>	<u> </u>
Group #	<u>2</u>	<u> </u>
K/A #	<u>075.K1.02</u>	<u> </u>
Importance Rating	<u>2.9</u>	<u> </u>

Proposed Question:

64. Which ONE of the following describes the release pathway of a Waste Monitor Tank (WMT) to the reservoir?

Waste Monitor Tank (WMT) to the:

- A. Circulating Water (CW) discharge piping into the Reservoir.
- B. Open Loop Cooling (OC) discharge piping to Circulating Water (CW) discharge piping into the Reservoir.
- C. Floor Drain Tank (FDT) piping directly into the Reservoir.
- D. Open Loop Cooling (OC) discharge piping into the Reservoir.

Proposed Answer: B

Explanation:

Technical Reference: drawings 9F90001, 9F00033, 2F00032

Proposed references to be provided to applicants during examination:

Learning Objective: 92082

Question Source: Bank # STP-1078 Modified
New

Question History: Last NRC Exam

Cognitive Level: X Memory or Fundamental Knowledge
 Comprehension or Analysis

10 CFR Part 55 Content: **55.41** 13
55.43

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

2

Group #

2

K/A #

086.K504

Importance Rating

2.9

Proposed Question:

65. For a Class 'C' fire in the TSC, the primary extinguishing agent for that fire would be

- A. Halon because it is effective and safer since it remains breathable in the 7 to 7.5% concentration for which the system is designed.
- B. Halon because it is effective and safer since it is absorbed into the surrounding atmosphere within a short period of time.
- C. Carbon Dioxide because it is effective and safer since it remains breathable in the 7 to 7.5% concentration for which the system is designed.
- D. Carbon Dioxide because it is effective and safer since it is absorbed into the surrounding atmosphere within a short period of time.

Proposed Answer: A

Explanation:

Technical Reference: LOT201.29 page 11

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source: Bank # _____ Modified _____
New X

Question History: Last NRC Exam

[illegible]

10 CFR Part 55 Content:	55.41	8
	55.43	

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

3

Group #

1

K/A #

G2.1.27

Importance Rating

3.2

Proposed Question:

66. While Unit 2 is operating steady at 60% power, T_{HOT} output of Channel 1 fails high. How does the PZR Level Control System respond to this event?

- A. PZR Level Control System is not affected by only one T_{HOT} channel failing high.
- B. PZR Level Control System decreases Pressurizer Level to 25%.
- C. PZR Level Control System increases Pressurizer Level to 92% and causes a Reactor Trip.
- D. PZR Level Control System increases Pressurizer Level to 55.4%.

Proposed Answer: D

Explanation:

Technical Reference: LOT201.15 and LOT201.14

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source: Bank # _____ Modified _____
New X

Question History: Last NRC Exam

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

10 CFR Part 55 Content:	55.41	7
	55.43	

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

3

Group #

1

K/A #

G2.1.32

Importance Rating

3.4

Proposed Question:

67. A plant heatup was in progress in accordance with 0POP03-ZG-0001, Plant Heatup. The following RCS temperatures were observed at the given times:

<u>TIME</u>	<u>TEMP</u>
1000	362°F
1030	383°F
1050	400°F
1115	423°F

It is now 1130. Which ONE of the following is the MAXIMUM RCS temperature allowed per the administrative limit of 0POP03-ZG-0001?

- A. 423°F
B. 433°F
C. 463°F
D. 483°F

Proposed Answer: B

Explanation:

Technical Reference:

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source: Bank # STP-736 Modified
New

Question History: Last NRC Exam

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

10 CFR Part 55 Content:	55.41	<u>5, 10</u>
	55.43	

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

3

Group #

2

K/A #

G2.2.12

Importance Rating

3.0

Proposed Question:

68. Maintenance has recently been completed on ECW Pump 1C. Surveillance Procedure 0PSP03-EW-0019, ECW System Train C Testing, is scheduled to be performed for Post-Maintenance Testing on ECW Pump 1C. Which ONE of the following correctly describes how this testing should be performed?

A. Surveillance Procedure 0PSP03-EW-0019 must be performed in its entirety.

B. Only the applicable portions of Surveillance Procedure 0PSP03-EW-0019 need be performed. Sections not performed are NA'd.

C. Only the applicable portions of Surveillance Procedure 0PSP03-EW-0019 need be performed. Sections not performed are crossed out, initialed, and dated.

D. Only the applicable portions of Surveillance Procedure 0PSP03-EW-0019 need be performed. Sections not performed are left blank in the Post-Maintenance Test package.

Proposed Answer: B

Explanation:

Technical Reference: 0PSP03-EW-0019

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source:

Bank #

Modified

New

X

Question History:

Last NRC Exam

Cognitive Level:

X

Memory or Fundamental Knowledge

Comprehension or Analysis

10 CFR Part 55 Content:

55.41

10

55.43

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

3

Group #

2

K/A #

G2.2.13

Importance Rating

3.6

Proposed Question:

69. A work package has been written to re-pack SI-MOV-0031A, LHSI Pump A Cold Leg Injection Valve, on its backseat. The Equipment Clearance Order written for the job calls for one of the boundaries to be the valve on its backseat.

Which ONE of the following identifies the HIGHEST level of authorization necessary to work the job as planned?

- A. Plant Manager
- B. Maintenance Department Manager
- C. Maintenance Supervisor
- D. Shift Supervisor

Proposed Answer: A

Explanation:

Technical Reference: 0PGP03-ZO-EC01, Rev 10, Addendum 3 step 1

Proposed references to be provided to applicants during examination:

Learning Objective: _____

Question Source: Bank # STP-367 Modified
New

Question History: Last NRC Exam

Cognitive Level:

<u>X</u>	Memory or Fundamental Knowledge
	Comprehension or Analysis

10 CFR Part 55 Content:	55.41	10
	55.43	

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

3

Group #

3

K/A #

G2.3.1

Importance Rating

2.6

Proposed Question:

70. An operator is required to complete a valve lineup in an area where the radiation level is 50 mrem/hour. The operator's current year-to-date Total Effective Dose Equivalent (TEDE) is 1350 mrem.

Which ONE of the following indicates the MAXIMUM amount of time the operator can work in this area and NOT exceed STP's Administrative Action Level (AAL)?

- A. 1 hour
B. 3 hours
C. 5 hours
D. 7 hours

Proposed Answer: B

Explanation:

Technical Reference:

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source: Bank # STP-347 Modified
New

Question History: Last NRC Exam

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

10 CFR Part 55 Content:	55.41	10, 12
	55.43	

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

3

Group #

3

K/A #

G2.3.2

Importance Rating

2.5

Proposed Question:

71. Work must be performed in the MAB near a point source that is producing a radiation level of 300 mrem/hr at a distance of 4 feet.

Which ONE of the following methods of work performance will result in the lowest TOTAL personnel radiation exposure?

	<u>Number of Operators</u>	<u>Time to Complete</u>	<u>Distance from Point Source</u>
A.	1	2 hours	8 feet
B.	1	3 hours	12 feet
C.	2	1 hour/each	10 feet
D.	2	2 hours/each	14 feet

Proposed Answer: C

Explanation:

Technical Reference:

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source: Bank # STP-600 Modified
New

Question History: Last NRC Exam

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

10 CFR Part 55 Content:	55.41	12
	55.43	

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
Tier #	3		
Group #	4		
K/A #	G2.4.49		
Importance Rating	4.0		

Proposed Question:

72. Given the following conditions on Unit 1:

- Reactor power is being maintained at 30%
- SGFPs 11 and 12 are in service
- All controls are in automatic

SGFP 12 trips due to a loss of lube oil and 0POP04-FW-0002, Steam Generator Feed Pump Trip is entered. The SUFP has automatically started.

Which ONE of the following describes the immediate operator actions that should be taken?

- A.
 - 1) Check SGFPs – Required number running.
 - 2) Check SGFP Master Controller - OPERABLE.
- B.
 - 1) Start a standby FW Booster Pump.
 - 2) Check SG Feedwater Regulating Valves responding in AUTOMATIC.
- C.
 - 1) Check SGFP Master Controller - OPERABLE.
 - 2) Check SG Feedwater Regulating Valves responding in AUTOMATIC.
- D.
 - 1) Place Low Power Feedwater Regulating Valves in MANUAL.
 - 2) Check SGFPs – Required number running.

Proposed Answer: A

Explanation:

Technical Reference: 0POP04-FW-0002 Rev 6, Steps 1-2

Proposed references to be provided to applicants during examination:

Learning Objective: 92108

Question Source: Bank # STP-110 Modified
New

Question History: Last NRC Exam

Cognitive Level: X Memory or Fundamental Knowledge
Comprehension or Analysis

10 CFR Part 55 Content:	55.41	10
	55.43	

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

3

Group #

4

K/A #

G2.4.1

Importance Rating

4.3

Proposed Question:

73. Current plant conditions are:

- Control rods are moving outward.
- Reactor power was initially 50% and stable, but is now increasing slowly.
- Tave was initially stable at 579.5°F but is now increasing slowly.
- Turbine load is stable.
- Control rods are in AUTO.

Under these conditions, the operator's actions are to:

- Select Rod Control to MANUAL to stop the rod motion.
- Select Steam Dumps to Steam Pressure Control mode.
- Rod Control is responding properly to current conditions; continue to monitor Control Rod motion to ensure proper system response.
- Monitor Steam Dumps to ensure proper system response.

Proposed Answer: A

Explanation:

Technical Reference: 0POP04-RS-0001

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source: Bank # STP-610 Modified
New

Question History: Last NRC Exam

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

10 CFR Part 55 Content:	55.41	10
	55.43	

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
Tier #	3		
Group #	4		
K/A #		G2.4.7	
Importance Rating	3.1		

Proposed Question:

74. 0POP05-EO-EO30, Steam Generator Tube Rupture, is being performed in response to a tube rupture on SG 1A.

The cooldown has just been completed but the target temperature value selected by the crew was 50°F higher than that stipulated in the procedure.

This error could result in which ONE of the following conditions?

- A. Filling the Pressurizer solid during the subsequent depressurization.
- B. Decrease the time for termination of the primary to secondary leakage.
- C. Decrease in pressure of the ruptured SG with increased leakage from the RCS.
- D. Loss of RCS subcooling before RCS and ruptured SG pressures are equalized.

Proposed Answer: D

Explanation:

- A. Incorrect - The pressurizer being overfilled is a symptom of overcooling the RCS instead of undercooling.
- B. Incorrect - The time will not decrease, the undercooling would cause a situation where the leakage cannot be stopped due to loss of subcooling before the pressures are equal.
- C. Incorrect - The situation given will result in the leakage not stopping causing steam generator overfill and pressure increase to RCS pressure.
- D. Correct - To stop primary to secondary leakage the RCS pressure must be decreased to a value equal to the ruptures S/G pressure. If cooldown is stopped too soon the required subcooling will be lost before RCS & S/G pressures are equalized.

Technical Reference:

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source: Bank # STP-654 Modified
New

Question History: Last NRC Exam

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

10 CFR Part 55 Content:	55.41	5, 10
	55.43	

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

3

Group #

4

K/A #

G2.4.2

Importance Rating

3.9

Proposed Question:

75. In accordance with OPOP01-ZA-0018, Emergency Operating Procedures User's Guide, during the performance of the EOPs, which of the following actions is permissible?

- A. Cross-connecting AFW to supply all four SGs, at 200 gpm per SG, with one AFW pump during the performance of 0POP05-EO-FRS1, Response to Nuclear Power Generation - ATWS, with all SG narrow range levels below 5%
- B. Restoring AFW to a faulted SG after it has been isolated to establish the maximum cooldown rate available while performing 0POP05-EO-EO30, Steam Generator Tube Rupture
- C. Resetting Phase A Isolation and restoring Instrument Air to Containment during the performance of 0POP05-EO-EO00, Reactor Trip or Safety Injection
- D. Isolating AFW to a ruptured SG and closing the Main Steam Isolation Valve from the ruptured SG during the performance of 0POP05-EO-EO00, Reactor Trip or Safety Injection

Proposed Answer: C

Explanation:

- A. INCORRECT - FRS1 requires 1080 gpm total AFW flow if all SGs are <5% and a single AFW pump is limited to 675 gpm.
B. INCORRECT - A faulted SG is not to be used for cooldown unless required.
C. CORRECT - IA to containment allows pressure control using spray valves to avoid pressurizer PORV operation.
D. INCORRECT - Only the AFW supplies can be closed to a ruptured SG prior to direction of EO30 to isolate the SG.

Technical Reference: 0POP01-ZA-0018, Rev 9; 0POP05-EO-EO20, Rev 3

Proposed references to be provided to applicants during examination:

Learning Objective: 50354

Question Source:

Bank #

STP-582

Modified

New

Question History:

Last NRC Exam

Cognitive Level:

X

Memory or Fundamental Knowledge

Comprehension or Analysis

10 CFR Part 55 Content:

55.41

10

55.43

Comments:

**WRITTEN SRO EXAM
WITH ANSWERS**

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

1

Group #

1

K/A #

E05.EA2.1

Importance Rating

4.4

Proposed Question 76:

Unit 2 is in a Train B Outage when a reactor trip occurs followed by a loss of offsite power (LOOP). The operators have just completed 0POP05-EO-EO00, "Reactor Trip and Safety Injection," including Addendum 5.

Current conditions are:

- Containment Pressure: 5.5 psig
- Containment Radiation: 10.1 R/hr
- Core Exit Thermocouples: 584°F
- RCS Pressure: 1352 psig
- SB A WR Level: 31%
- SGs B, C, and D WR Levels: 5 - 8%
- AFW Pump 21 Failed to start
- Total AFW flow is approximately 500 gpm and cannot be increased

What actions are required?

- A. Immediately transition to Procedure 0POP05-EO-FRH1, "Response to Loss of Secondary Heat Sink," and establish feed and bleed.
- B. Immediately transition to Procedure 0POP05-EO-EO10, "Loss of Reactor or Secondary Coolant," and depressurize the intact Sgs to 1000 psig.
- C. Immediately transition to Procedure 0POP05-EO-FRH1, "Response to Loss of Secondary Heat Sink," and dump steam to the condenser to reduce SB pressures.
- D. Perform Procedure 0POP05-EO-FRH1, "Response to Loss of Secondary Heat Sink," concurrently with Procedure 0POP05-EO-EO10, "Loss of Reactor or Secondary Coolant."

Proposed Answer: A

Explanation:

Technical Reference: POP01-ZA-0018, POP05-EO-FRH1

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source: Bank # STP-1092 Modified
New

Question History: Last NRC Exam Class 13

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

10 CFR Part 55 Content:	55.41	
	55.43	5

Comments:

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	_____	1
Group #	_____	1
K/A #	APE 062.AK3.02	
Importance Rating	_____	3.9

Proposed Question 77:

- Unit 1 is operating at full power
- ECW Trains A and B are in service
- An inadvertent SI occurs
- All equipment functioned as designed
- The crew is currently performing the actions of Addendum 5 of OPOP05-EO-EO00, Reactor Trip or Safety Injection

The 4160v ESF Bus E1A loses power.

Which of the following describes the expected equipment response AND appropriate procedural guidance?

A. ESF Train 'A' Sequencer will strip ECW Pump 'A' and restart it per the programmed sequencing once ESF Diesel Generator 11 re-energizes the 4160v Bus. Operators should GO TO OPOP04-AE-0001, Loss of Any 13.8 or 4.16 KV Bus, to restart ECW Pump 'A'

B. ESF Train 'A' Sequencer will strip ECW Pump 'A' but will NOT automatically restart (reload) the pump after ESF Diesel Generator 11 re-energizes the 4160v Bus. Operators should GO TO OPOP04-AE-0001, Loss of Any 13.8 or 4.16 KV Bus, to restart ECW Pump 'A'.

C. ESF Train 'A' Sequencer will strip ECW Pump 'A' and restart it per the programmed sequencing once ESF Diesel Generator 11 re-energizes the 4160v Bus. Operators should ensure ECW Pump 'A' is in operation per Addendum 5 of OPOP05-EO-EO00.

D. ESF Train 'A' Sequencer will strip ECW Pump 'A' but will NOT automatically restart (reload) the pump after ESF Diesel Generator 11 re-energizes the 4160v Bus. Operators should ensure ECW Pump 'A' is in operation per Addendum 5 of OPOP05-EO-EO00.

Proposed Answer: C

Explanation:

ESF Train 'A' Sequencer will strip ECW Pump 'A' and restart it per the programmed sequencing once ESF Diesel Generator 11 re-energizes the 4160v Bus. Operators should ensure ECW Pump 'A' is in operation per Addendum 5 of OPOP05-EO-EO00.

Technical Reference: POP01-ZA-0018, Elem drawings 9E-EW01-01, 9E-EW04-02

Proposed references to be provided to applicants during examination:

Learning Objective: _____

Question Source: Bank # STP-1090 Modified _____
New _____

Question History: Last NRC Exam NRC Class 13

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

10 CFR Part 55 Content: 55.41
55.43 5

Comments: _____

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	_____	1
Group #	_____	2
K/A #	APE 037.AA2.12	
Importance Rating	_____	4.1

Proposed Question 78:

Unit 1 plant parameters:

- Letdown flow is 125 gpm.
- Tave is STABLE.
- Pressurizer level is STABLE.
- Seal injection flow to each RCP is 8 gpm.
- Seal leakoff flow from each RCP is 3 gpm.
- Charging flow is 115 gpm as indicated on FI-0205A.
- MOV-001A, PZR PORV Block Valve has a 0.5 gpm packing leak.
- Leakage from known sources other than S/G leakage is 8.5 gpm.
- Unidentified leakage is 0.6 gpm.
- SG 1A has a primary-to-secondary leak

Based on the above conditions, what actions are required to be taken and why?

- Continue plant operations, unidentified leakage is less than 1 gpm.
- Continue plant operations, identified leakage is less than 10 gpm.
- Commence a plant shutdown, primary-to-secondary leakage through 1 steam generator greater than or equal to 150 gallons per day.
- Commence a plant shutdown, leakage exceeds pressure boundary leakage.

Proposed Answer: C **Explanation:**

SG 1A has a primary-to-secondary leak rate of 0.4 gpm (576 gpd) and this exceeds the TS limit of 150 gpd.

Technical Reference: TS 3.4.6.2 **Proposed references to be provided to applicants during examination:****Learning Objective:** _____

Question Source: Bank # STP- Modified
New X

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: **55.41** _____
55.43 2

Comments: _____

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

1

Group #

2

K/A #

APE068.G2.4.11

Importance Rating

4.6

Proposed Question 79:

Unit 2 has experienced a reactor trip and Safety Injection. While performing 0POP05-EO-EO00, Reactor Trip or Safety Injection, a fire breaks out in CP-004. The Control Room must be evacuated.

Which ONE of the following must be performed when the Control Room personnel arrive at the Aux Shutdown Panel?

- A. 0POP05-EO-EO00 should be continued where left off, and 0POP04-ZO-0001, Control Room Evacuation, initiated when 0POP05-EO-EO00 is completed.
- B. 0POP05-EO-EO00 and 0POP04-ZO-0001, Control Room Evacuation, are to be performed concurrently, to the degree possible.
- C. 0POP04-ZO-0001, Control Room Evacuation, must be performed exclusively.
- D. 0POP04-ZO-0001, Control Room Evacuation, is to be performed, unless a CSF Orange or Red condition exists. At which time implementation of the associated FRG is required.

Proposed Answer: C

Explanation:

0POP04-ZO-0001, Control Room Evacuation, must be performed exclusively.

Technical Reference: 0POP04-ZO-0001, Control Room Evacuation and
0POP01-ZA-0018, EOP usage

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source: Bank # STP-1012 Modified
New

Question History: Last NRC Exam

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

10 CFR Part 55 Content:	55.41	
	55.43	5

Comments:

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	_____	<u>2</u>
Group #	_____	<u>1</u>
K/A #	<u>063A2.01</u>	
Importance Rating	_____	<u>3.2</u>

Proposed Question 80:

Unit 2 is in Mode 2. Electrical Maintenance personnel identify the cause of a DC ground alarm as a problem in Switchboard E2A11, Cubicle 4A, "Train A RX Trip SWGR Control Power." The system engineer determines that the ground on the load cubicle disables Train 'R' Reactor Trip Breaker (RTR) and Train 'R' Reactor Trip Bypass Breaker (BYR) shunt trip circuits only. What action(s) is the SRO required to complete for Unit 2?

- A. Declare the effected breakers inoperable. No impact due to redundant trip circuits. No action required.
- B. Declare the effected breakers inoperable. Enter T.S. 3.0.3 and commence a reactor shutdown within 1 hour.
- C. Restore the shunt trip circuits to operable status within 48 hrs or declare the breakers inoperable and be in at least HOT STANDBY within 6 hours.
- D. Restore the inoperable breakers to operable status within 48 hours or open the reactor trip breakers within the next hour.

Proposed Answer: C

Explanation:

Technical Reference: T.S. 3.3.1, Table 3.3.1, Item 20, Action 9, Procedure 0POP04-DJ-0001, "Loss of Class 1E 125 VDC Power"

Proposed references to be provided to applicants during examination:

T.S. 3.3.1 and T/Ss 3.0.1 - 3.0.5

Learning Objective:**Question Source:**

Bank # STP- Modified _____
New X

Question History:

Last NRC Exam _____

Cognitive Level:

_____ Memory or Fundamental Knowledge
X Comprehension or Analysis

10 CFR Part 55 Content:

55.41 _____
55.43 2

Comments:

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	_____	2
Group #	_____	1
K/A #	064.G.2.1.11	_____
Importance Rating	_____	3.8

Proposed Question 81:

Unit 1 is in Mode 1 and DG 12 and DG 13 have just been tagged out for emergency maintenance. The remaining DG 11 is operable. A few minutes later, an auxiliary operator reports the air pressure for DG 11 Starting Air Receivers 11 and 12 as 180 psig and 172 psig, respectively.

What actions are required?

- A. Declare 50.54x and immediately request an exigent technical specification waiver.
- B. Demonstrate the operability of two offsite power sources within one hour and at least once per 8 hours thereafter. In addition, restore one diesel generator to an operable status within 2 hours.
- C. Demonstrate the operability of two offsite power sources within one hour and at least once per 8 hours thereafter. In addition, restore two diesel generators to an operable status within 14 days.
- D. Enter T.S. 3.0.3 and commence a reactor shutdown within 1 hour.

Proposed Answer: B

Explanation:

T.S. 3.8.1.1, Action f. requires B above.

Technical Reference: T.S. 3.8.1.1 Addendum 5 and Procedure 0POP02-DG-0001.

Proposed references to be provided to applicants during examination:

T.S. 3.8.1.1

Learning Objective: _____**Question Source:**

Bank # STP- Modified _____
New X

Question History:

Last NRC Exam _____

Cognitive Level:

_____ Memory or Fundamental Knowledge
X Comprehension or Analysis

10 CFR Part 55 Content:

55.41 _____
55.43 2

Comments:

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	_____	3
Group #	_____	1
K/A #	2.1.7	_____
Importance Rating	_____	4.4

Proposed Question 82:

Unit 1 is in Mode 6 with core alterations in progress.

Train C Control Room HVAC has been tagged out for maintenance for the last eight days.

- Train A and B Control Room HVAC are in the recirculation and makeup air filtration mode of operation.
- Essential Chiller 12 B trips and cannot be restarted.

Based on this information, which ONE of the following describes acceptable actions to comply with Technical Specifications?

- Suspend core alterations. Core alterations may resume after Essential Chiller 12B is returned to service.
- Suspend core alterations. Core alterations may resume after Control Room HVAC Train B is secured and Control Room temperature remains $\leq 78^{\circ}\text{F}$.
- Core alterations may continue. Re-verify that Train "A" Control Room HVAC is in recirculation and makeup air filtration mode of operation.
- Core alterations may continue. Verify that Train "A" Control Room HVAC is capable of being powered from an operable emergency power source.

Proposed Answer: A

Explanation:

Technical Reference: T.S. 3.7.7, Modes 5 and 6, Section b. and basis.

Proposed references to be provided to applicants during examination: T.S. 3.7.7

Learning Objective: _____

Question Source:

Bank #	STP-Requal	Modified	X
	<u>B20237-33269-01</u>		
		New	<u> </u>

Question History: Last NRC Exam

Cognitive Level:

<u> </u>	Memory or Fundamental Knowledge
<u> X </u>	Comprehension or Analysis

10 CFR Part 55 Content:

55.41	<u> </u>
55.43	<u> 7 and 2 </u>

Comments:

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	_____	2
Group #	_____	2
K/A #	034 A2.01	
Importance Rating	_____	4.4

Proposed Question 83:

Unit 2 is in Mode 6 with the following conditions:

- A fuel assembly was being lifted from the upender to place in the core, and the grapple opened and dropped the assembly approximately 1 foot back into the upender.
- Gas bubbles are coming to the surface of the transfer canal.
- Containment Atmosphere Monitor, RT-8011, readings are slowly increasing.

Per OPOP04-FH-0001, which ONE of the following actions are required?

- A. Suspend core alterations and notify the Control Room to sound the containment evacuation alarm.
- B. Lower the upender and notify the Control Room to sound the containment evacuation alarm.
- C. Notify the Control Room and ensure the Fuel Handling Building HVAC is operating in the Emergency Mode.
- D. Notify the Control Room and evacuate the area surrounding the damaged fuel assembly.

Proposed Answer: A

Explanation:

Technical Reference: _____

Proposed references to be provided to applicants during examination:

Learning Objective: LOT 505.01 Objective 92109

Question Source: _____ Bank # _____ Modified _____
New X

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41
 55.43 7

Comments:

Examination Outline Cross-reference:

Level		RO	SRO
Tier #			<u>2</u>
Group #			<u>2</u>
K/A #		086.A1.02	
Importance Rating			<u>3.2</u>

Proposed Question 84:

Which ONE of the following identifies the minimum operability requirements for the fire protection water supply system?

	Storage Tank Volume (each - gallons)	Pumps	Pump Capacity (gpm)
A.	300,000	2	2000
B.	300,000	2	2500
C.	350,000	2	2,000
D.	350,000	2	2,500

Proposed Answer: B

Explanation:

OPGP03-ZF-0018, Section 4.3.1

Technical Reference: OPGP03-ZF-0018, Section 4.3.1

Proposed references to be provided to applicants during examination:

Learning Objective: _____

Question Source: Bank # STP-601 Modified X
New _____

Question History: Last NRC Exam _____

Cognitive Level: X Memory or Fundamental Knowledge
Comprehension or Analysis

10 CFR Part 55 Content: **55.41** _____
55.43 1

Comments:

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	_____	2
Group #	_____	1
K/A #	003.A2.01	_____
Importance Rating	_____	3.9

Proposed Question 85:

Unit 2 is in Mode 2 at approximately 4% power. In preparation for entering Mode 1 (7:05 a.m.), the SRO is walking down the control board and observes the following parameters for the RCPs:

RCP 2 A No 1 Seal Leakoff - 3.2 gpm	RCP 2C No 1 Seal Leakoff - > 6.0 gpm
RCP 2 B No 1 Seal Leakoff - 3.5 gpm	RCP 2D No 1 Seal Leakoff - 3.4 gpm

Based on the above indications, the Unit Supervisor should:

- A. Enter Procedure 0POP04-RC-0002, "Reactor Coolant Pump Off Normal," and begin a reactor shutdown; isolate RCP 2C seal leakoff; then, stop RCP 2C.
- B. Enter Procedure 0POP04-RC-0003, "Excessive RCS Leakage," and begin a reactor shutdown; isolate RCP 2C seal leakoff; then, stop RCP 2C.
- C. Enter Procedure 0POP04-RC-0002, "Reactor Coolant Pump Off Normal," and trip the reactor; stop RCP 2C; then, isolate RCP 2C seal leakoff.
- D. Enter Procedure 0POP04-RC-0003, "Excessive RCS Leakage," and trip the reactor; stop RCP 2C; then, isolate RCP 2C seal leakoff.

Proposed Answer: C

Explanation:

Procedure 0POP04-RC-002, "Reactor Coolant Pump Off Normal,"

Technical Reference: _____

Proposed references to be provided to applicants during examination: _____

Learning Objective: _____

Question Source:	Bank #	STP B20105- T50551-1	Modified	X
		_____	New	_____

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41
 55.43 5

Comments: _____

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	_____	<u>3</u>
Group #	_____	<u>1</u>
K/A #	_____ G2.1.4	_____
Importance Rating	_____	<u>3.4</u>

Proposed Question 86:

Given the following:

- Assume that today is January 15 of the current year.
- A Staff SRO, maintaining an "active" license, has performed the functions of an SRO during one 12 hour shift since January 1.

Which ONE of the following actions will maintain the SRO's license in an "active" status in accordance with OPOP01-ZA-0014, Licensed Operator Maintenance?

- Two more 12 hour shifts performing SRO functions during January.
One more 12 hour shift performing SRO functions during February.
- Two more 12 hour shifts performing SRO functions during February.
Two more 12 hour shifts performing SRO functions during March.
- Two more 12 hour shifts performing SRO functions during March.
Four more 12 hour shifts performing SRO functions during April.
- Two more 12 hour shifts performing SRO functions during January.
One more 12 hour shift performing SRO functions during March.
Four more 12 hour shifts performing SRO functions during April.

Proposed Answer: B**Explanation:**

Two more 12 hour shifts performing SRO functions during February, Two more 12 hour shifts performing SRO functions during March.

Technical Reference: OPOP01-ZA-0014, Licensed Operator Maintenance, Step 4.3**Proposed references to be provided to applicants during examination:****Learning Objective:** _____

Question Source: Bank # STP-854 Modified
New

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 _____
55.43 2 _____

Comments: _____

Examination Outline Cross-reference:	Level	RO	SRO
Tier #			3
Group #			3
K/A #		2.3.9	
Importance Rating			3.4

Proposed Question 87:

Unit 2 containment pressure is 0.4 psig and requires a purge. The following conditions exist:

- Mode 4
- Containment Radiation Monitor RT-8011 is out-of-service.
- The RCB Purge Notification Levels form has not been completed.

What is/are the action(s) for the above plant conditions?

- A. Per Procedure 0POP02-HC-0003, "Supplementary Containment Purge," a purge is allowed with Chemistry concurrence.
- B. Per Procedure 0POP02-HC-0003, "Supplementary Containment Purge," conduct a containment purge, then notify Chemistry to generate a RCB Purge Notification Levels form.
- C. Per Technical Specification 3.3.3.1, "Radiation Monitoring for Plant Operations," obtain a new RCB Purge Notification Levels form, then perform the purge.
- D. Per Technical Specification 3.3.3.1, "Radiation Monitoring for Plant Operations," obtain and analyze a containment grab sample prior to performing a purge.

Proposed Answer: A

Explanation:

Per Procedure 0POP02-HC-0003, "Supplementary Containment Purge," with Chemistry approval, a containment purge is allowed.

Technical Reference: Procedure 0POP02-HC-0003, "Supplementary Containment Purge,"

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source: Bank # STP-1098 Modified
New

Question History: Last NRC Exam Class 13

[illegible]

10 CFR Part 55 Content:	55.41	
	55.43	5

Comments:

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	_____	3
Group #	_____	4
K/A #	G2.4.16	_____
Importance Rating	_____	4.0

Proposed Question 88:

The following conditions exist on Unit 1:

- The crew is responding to an ORANGE path condition for CONTAINMENT by performing the actions of 0POP05-EO-FRZ1, Response to High Containment Pressure.
- They have just performed the first substep for verifying Containment Ventilation Isolation when a RED path condition is noted for HEAT SINK.
- No other RED or ORANGE paths exist.

Which ONE of the following indicates the correct procedure usage for this condition?

- Complete all steps of 0POP05-EO-FRZ1, Response to High Containment Pressure, then transition to 0POP05-EO-FRH1, Response to Loss of Secondary Heat Sink.
- Complete all steps of 0POP05-EO-FRZ1, Response to High Containment Pressure, then transition to 0POP05-EO-FRH1, Response to Loss of Secondary Heat Sink, only if the CFST for CONTAINMENT is satisfied.
- Immediately transition to 0POP05-EO-FRH1, Response to Loss of Secondary Heat Sink without completing the step in progress in 0POP05-EO-FRZ1, Response to High Containment Pressure.
- Complete the step in progress in 0POP05-EO-FRZ1, Response to High Containment Pressure, then transition to 0POP05-EO-FRH1, Response to Loss of Secondary Heat Sink.

Proposed Answer: D

Explanation:

Complete the step in progress in 0POP05-EO-FRZ1, Response to High Containment Pressure, then transition to 0POP05-EO-FRH1, Response to Loss of Secondary Heat Sink

Technical Reference: 0POP01-ZA-0018, Rev 9; LOT504.04, Rev 6

Proposed references to be provided to applicants during examination:

Learning Objective: LOT 504.04 Obj 92245

Question Source: Bank # STP-352 Modified
New

Question History: Last NRC Exam Class 10

Cognitive Level: Memory or Fundamental Knowledge
 X Comprehension or Analysis

10 CFR Part 55 Content: 55.41
55.43 5

Comments:

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	_____	3
Group #	_____	4
K/A #	2.4.27	_____
Importance Rating	_____	3.5

Proposed Question 89:

The following events have occurred on Unit 1 with reactor power at 35%:

- 10:00 a.m. A fire in CP 004 required a control room evacuation due to heavy smoke.
 10:02 a.m. All control room actions specified in Procedure 0POP04-ZO-0001, "Control Room Evacuation" were completed.
 10:08 a.m. All remote shutdown stations were manned and ready.
 10:10 a.m. Communications have been established between ASP and all remote shutdown operators.
 10:11 a.m. All switches, required by Step 12 (transfer control of various valves to ASP) of Procedure 0POP04-ZO-0001, on auxiliary shutdown panel in the ASP position.
 10:16 a.m. Step 11 (ESF switchgear alignment) of Procedure 0POP04-ZO-0001 is still in progress. Safe Shutdown Watch estimated that ESF Train B switchgear room alignment would be completed in 2 minutes. All other alignments completed.

Based on the above events, what actions are required:

- A. The Unit 1 Shift Supervisor shall coordinate the fire response and declare an ALERT.
 B. The Unit 2 Shift Supervisor shall coordinate the fire response and declare an ALERT.
 C. The Unit 1 Shift Supervisor shall coordinate the fire response and declare a Site Area Emergency.
 D. The Unit 2 Shift Supervisor shall coordinate the fire response and declare a Site Area Emergency.

Proposed Answer: B

Explanation:

The unaffected Unit personnel shall coordinate the response to fires in the affected unit and common areas (0POP04-ZO-0008, Note before Step 2.0). Alert based on completing Procedure 0POP04-ZO-0001 Step 12 within 15 minutes.

Technical Reference: 0POP04-ZO-0008, 0POP04-ZO-0001, and 0ERP01-ZV-IN01

Proposed references to be provided to applicants during examination:

Provide Emergency Classification Tables, Category H, for Fire/Explosion, Control Room Evacuation, and Misc Events and associated bases pages.

Learning Objective: LOT 504.50 Obj A92210

Question Source:

Bank #	STP Requal	Modified	X
	<u>B50450-92210-05</u>		
		New	<u> </u>

Question History:

Last NRC Exam

Cognitive Level:

<u> </u>	Memory or Fundamental Knowledge
<u> X </u>	Comprehension or Analysis

10 CFR Part 55 Content:

55.41	<u> </u>
55.43	<u>See explanation below</u>

Comments:

SRO only since SRO is responsible for emergency classification (if the emergency director) and is responsible for direction of fire brigade response.

Examination Outline Cross-reference:	Level	RO	SRO
Tier #			1
Group #			1
K/A #		029.EA2.01	
Importance Rating			4.7

Proposed Question 90:

Unit 2 has experienced the following casualty:

- A Steam Line Break inside containment has occurred.
- 0POP05-EO-EO00, Reactor Trip or Safety Injection was entered at Step 1 but the reactor failed to trip.
- The crew then implemented 0POP05-EO-FRS1, Response to Nuclear Power Generation/ATWS.

At Step 17, "Verify Reactor Subcritical", the following conditions exist:

- Extended Range NIs indicate 0%
- Extended Range NIs SUR is + 0.2 dpm

Which ONE of the following actions is required based on the given conditions?

- A. Continue Emergency Boration and perform FRS1 and EO00 at the same time, and implement actions of other Optimal Recovery Guidelines (ORPs) which do not cooldown or add positive reactivity.
- B. Continue Emergency Boration and continue with FRS1 and implement actions of other Optimal Recovery Guidelines (ORPs) which do not cooldown or add positive reactivity.
- C. Continue Emergency Boration and return to procedure and step in effect (EO00, Step 1).
- D. Continue Emergency Boration and suspend actions of FRS1 until SUR is zero or negative.

Proposed Answer: B

Explanation:

Technical Reference: POP05-EO-FRS1

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source: Bank # STP-735 Modified
New

Question History: Last NRC Exam

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

10 CFR Part 55 Content:	55.41	
	55.43	5

Comments:

Examination Outline Cross-reference:

Level		RO	SRO
Tier #			1
Group #			1
K/A #		055.EA1.05	
Importance Rating			3.6

Proposed Question 91:

Given the following conditions on Unit 2:

- A loss of all AC power has occurred.
- The operators are performing Procedure 0POP05-EO-EC00, "Loss of All AC Power."
- Annunciator "125 V DC SYSTEM E2A11 TRBL" is in alarm.
- Control Board Meter "BUS A11 TRN A CH 1" is reading 107 V dc.

What actions are required to be taken?

- Transition to Procedure 0POP05-EO-ES05, "Natural Circulation Cooldown without Letdown," and open all reactor vessel head vent isolation valves and throttle open one head vent valve.
- Transition to Procedure 0POP05-EO-ES02, "Natural Circulation Cooldown," and locally open SG PORVs to commence a cooldown.
- Remain in Procedure 0POP05-EO-EC00, "Loss of All AC Power," and per Addendum 4, lineup an E2A11 Battery Charger from the TSC Diesel Generator.
- Remain in Procedure 0POP05-EO-EC00, "Loss of All AC Power," and per Addendum 4, open Breaker E2A11 1B, "BTRY E2A11 Main BKR."

Proposed Answer: D

Explanation:

Technical Reference: _____

Proposed references to be provided to applicants during examination:

Learning Objective: _____

Question Source: Bank # STP-340 Modified X
New

Question History: Last NRC Exam

Cognitive Level: X Memory or Fundamental Knowledge
 Comprehension or Analysis

10 CFR Part 55 Content: **55.41**
55.43 5

Comments:

Examination Outline Cross-reference:

Level		RO	SRO
Tier #			1
Group #			1
K/A #		056.G.2.4.30	
Importance Rating			3.6

Proposed Question 92:

Unit 1 is in Mode 5 and a loss of offsite power occurs. All three ESF DGs are supplying their respective buses. You, as the Shift Supervisor, have declared an Unusual Event. Describe the notifications required to be made by Procedure 0ERP01-ZV-IN02, "Notifications to Offsite Agencies?"

- A. NRC Operations Center immediately and the State of Texas and Matagorda County no later than one hour after emergency declared.
- B. State of Texas and Matagorda County within 15 minutes, and the NRC Operations Center no later than one hour after emergency declared.
- C. State of Texas and Matagorda County within 15 minutes, and the NRC Site Resident Inspector no later than one hour after emergency declared.
- D. State of Texas, Matagorda County, and NRC Site Resident Inspector no later than one hour after emergency declared.

Proposed Answer: B

Explanation:

Technical Reference: Proc 0ERP01-ZV-IN02

Proposed references to be provided to applicants during examination:

Learning Objective: _____

Question Source: Bank # STP- Modified
New X

Question History: Last NRC Exam

Cognitive Level: X Memory or Fundamental Knowledge
 Comprehension or Analysis

10 CFR Part 55 Content: 55.41
 55.43

Comments:

SROs can and do have the responsibility of the emergency director and per the procedure are required to approve all notifications and make sure the notifications are made within the required time frame.

Examination Outline Cross-reference:

Level		RO	SRO
Tier #			1
Group #			1
K/A #		E04.EA1.3	
Importance Rating			4

Proposed Question 93:

Unit 2 was operating at 100% power when a LOCA occurred in the FHB. The following conditions exist:

- The crew is performing 0POP05-EO-EC12, "LOCA Outside Containment"
- Train 'A' ECCS and Containment Spray have been isolated based on high SI/CS sump level.
- RCS temperature is slowly increasing
- RCS Pressure continues to decrease

Based on these conditions, what is the next action to be taken in accordance with 0POP05-EO-EC12, LOCA Outside Containment?

- Transition to 0POP05-EO-ES12, "Post-LOCA Cooldown and Depressurization," to cool down and depressurize to Cold Shutdown conditions.
- Remain in 0POP05-EO-EC12, "LOCA Outside Containment," and sequentially isolate the remaining ECCS and CS trains in an attempt to stop the leakage.
- Transition to 0POP05-EO-EC11, "Loss of Emergency Coolant Recirculation," to cool down and depressurize to Cold Shutdown conditions.
- Concurrently perform 0POP05-EO-EC11, "Loss of Emergency Coolant Recirculation," and 0POP05-EO-EC12, "LOCA Outside Containment."

Proposed Answer: B

Explanation:

Assumptions - SBLOCA approximately 1.5" diameter in the FHB.

Technical Reference: 0POP05-EO-EC12, "LOCA Outside Containment,"

Proposed references to be provided to applicants during examination:

Learning Objective: _____

Question Source: _____ **Bank #** _____ **STP-** _____ **Modified** _____
New X

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: **55.41** _____
55.43 5

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

1

Group #

2

K/A #

005.AA2.03

Importance Rating

4.4

Proposed Question 94:

The following conditions exits on Unit 1:

- Reactor power is 100%.
- Control Bank D position is 249 steps.
- Rod control is in automatic.

A rapid load reduction is performed due to a feedwater system transient. Control Bank D is now at 235 steps. The RO reports rods C8 and D4 in Control Bank D have not moved from their original position. I&C is called to investigate and reports that the stationary and moveable grippers and lift coils are properly energized with the correct currents and in the proper sequence.

Which ONE of the following indicates the correct action to be taken by the Control Room Staff?

- A. Per procedure 0POP04-RS-0001, "Control Rod Malfunction," trip the reactor and go to 0POP05-EO-EO00, "Reactor Trip or Safety Injection."
- B. Per Tech Spec 3.1.3.1, "Moveable Control Assemblies," trip the reactor and go to 0POP05-EO-EO00, Reactor Trip or Safety Injection.
- C. Per Procedure 0POP04-RS-0001, "Control Rod Malfunction," commence a load reduction per Procedure 0POP03-ZG-0006, "Plant Shutdown from 100% to Hot Standby," to Mode 3.
- D. Per Tech Spec 3.1.3.1, Moveable Control Assemblies, Power Operation may continue provided the remainder of the rods are aligned to within 12 steps of the inoperable rods within 1 hr.

Proposed Answer:

A

Explanation:

Technical Reference: Technical Specification 3.1.3.1 and Procedure 0POP04-RS-0001, "Control Rod Malfunction,"

Proposed references to be provided to applicants during examination:

Learning Objective: LOT 505.01 Obj 92108

Question Source:

Bank #

STP-3

Modified

X

New

Question History:

Last NRC Exam

Cognitive Level:

Memory or Fundamental Knowledge

X

Comprehension or Analysis

10 CFR Part 55 Content:

55.41

55.43

2 and 5

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

1

Group #

2

K/A #

033.G2.4.11

Importance Rating

3.6

Proposed Question 95:

A plant startup is in progress.

At 7% power, the compensating voltage power supply in Intermediate Range Channel N35 failed. Reactor power is being maintained at 9% power until N35 is repaired.

What action(s) is required to be taken?

- A. Initiate action within one hour to place the unit in Hot Standby within the next six hours.
- B. Place the N35 LEVEL TRIP switch in the TRIP position and continue with the startup.
- C. Place the N35 LEVEL TRIP switch in the BYPASS position and reduce reactor power to just below the P-6 setpoint within one hour
- D. Maintain reactor power less than 10% of rated thermal power until Channel N35 is repaired.

Proposed Answer: D

Explanation:

Technical Reference: T.S. 3.3.1, Action 3 and Procedure 0POP04-NI-0001, "Nuclear Instrument Malfunction"

Proposed references to be provided to applicants during examination: T/S 3.3.1

Learning Objective: LOT503.01 Task # A92103

Question Source: Bank # STP- Modified X
B50301-92103-19
 New

Question History: Last NRC Exam

Cognitive Level: Memory or Fundamental Knowledge
 X Comprehension or Analysis

10 CFR Part 55 Content: **55.41**
55.43 2 and 5

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

1

Group #

2

K/A #

E16.G2.3.10

Importance Rating

3.3

Proposed Question 96:

Plant conditions are as follows:

- A large break LOCA has occurred
- Containment pressure = 9.2 psig
- Containment water level = 62 inches
- Containment radiation level = 2500 R/hr
- RWST Level is 175,000 gallons

Which procedure is appropriate for the above conditions:

- A. Procedure 0POP05-EO-FRZ1, "Response to High Containment Pressure"
- B. Procedure 0POP05-EO-FRZ2, "Response to Containment Flooding"
- C. Procedure 0POP05-EO-FRZ3, "Response to High Containment Radiation Level"
- D. Procedure 0POP05-EO-ES13, "Transfer to Cold Leg Recirculation"

Proposed Answer: C

Explanation:

Technical Reference: 0POP05-EO-FRZ3, “Response to High Containment Radiation Level”

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source: Bank # STP-1099 Modified
New

Question History: Last NRC Exam Class 13

Cognitive Level: X Memory or Fundamental Knowledge
Comprehension or Analysis

10 CFR Part 55 Content:	55.41	
	55.43	5

Comments:

Examination Outline Cross-reference:

Level

RO

SRO

Tier #

2

Group #

1

K/A #

012.G2.1.32

Importance Rating

3.8

Proposed Question 97:

Which ONE of the following Reactor Trip System instrumentation setpoints is designed to protect the reactor core against Departure from Nucleate Boiling?

- A. Power Range Positive Rate
- B. Overpower - Delta T
- C. Pressurizer High Pressure
- D. RCP Underfrequency

Proposed Answer: D

Explanation:

Technical Reference: T.S. Basis 2.2.1

Proposed references to be provided to applicants during examination:

Learning Objective:

Question Source:

Bank #

STP-812

Modified

New

Question History:

Last NRC Exam

Cognitive Level:

X

Memory or Fundamental Knowledge

Comprehension or Analysis

10 CFR Part 55 Content:

55.41

55.43

2

Comments:

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	_____	3
Group #	_____	3
K/A #	2.3.4	_____
Importance Rating	_____	3.1

Proposed Question 98:

A LOCA has occurred on Unit 1 and a SAE has just been declared. The TSC and EOF have been activated. To prevent core damage it is recommended that entry be made into Safety Injection Pump Room 1A.

Projected dose rate in the Pump Room is 1.16E+5 mR/hr.

Duration of the exposure is expected to be 3 minutes.

Who must authorize this exposure?

- A. Radiological Director
- B. Emergency Director
- C. Plant Manager
- D. Vice President of Generation

Proposed Answer: B

Explanation:

Technical Reference: 0ERP01-ZV-IN06; 0PGP03-ZR-0050

Proposed references to be provided to applicants during examination:

Learning Objective: _____

Question Source: Bank # 661 Modified
New

Question History: Last NRC Exam

Cognitive Level: X Memory or Fundamental Knowledge
 Comprehension or Analysis

10 CFR Part 55 Content: **55.41**
55.43 4

Comments:

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	_____	3
Group #	_____	3
K/A #	2.2.5	_____
Importance Rating	_____	2.7

Proposed Question 99:

You are the Unit Supervisor for Unit 1. Currently Unit 1 is in Mode 1 with 79 days remaining until the refueling outage. Accumulator Tank 1C is experiencing problems with increased RCS backleage and requires draining twice per shift and the leak rate is increasing. In order to continue operation, a work package has been developed to shut Accumulator Tank 1C Discharge Isolation Valve, 1MOV-0039C. The valve control circuitry will be modified to receive an open signal on low RCS pressure and/or safety injection actuation signal. During the outage, the valve will be repaired and it's control circuitry returned to it's original design configuration.

What are the requirements for this modification to be implemented?

- A. Since this modification will be in service for less than 90 days, process this work package through the temporary modification process.
- B. Since this modification may affect the safety injection function, process this work package through the 10 CFR 50.59 evaluation process.
- C. Since this modification is a change to the safety injection system as described in the FSAR, a technical specification amendment is required.
- D. Since this modification meets the same functional requirements as the original design, the work package can be approved for implementation.

Proposed Answer: B

Explanation:

Technical Reference: _____

Proposed references to be provided to applicants during examination:

Learning Objective: _____

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

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 _____
55.43 3

Comments: _____

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	_____	1
Group #	_____	1
K/A #	APE 057.G.2.4.45	_____
Importance Rating	_____	3.6

Proposed Question 100:

Unit 1 is operating at 100% power when 120 VAC Distribution Panel DP-1202 becomes de-energized. The plant remains at 100% power with the following annunciators alarming (in addition to others) due to failed instrumentation:

- OT DT RX PRETRP
- PRZR LVL LO B/U HTRS OFF LETDN ISOL
- SG 1C LEVL DEV HI/LO
- T AVG/AUCT T AVG DEV

Based on the information provided, which of the following should be the FIRST action taken?

- Immediately trip the reactor and enter Procedure 0POP05-EO-EO00, "Reactor Trip or Safety Injection," since the plant should have tripped due to loss of DP-1202.
- Enter Procedure 0POP04-FW-0001, "Loss of Steam Generator Level Control," to stabilize SG levels to prevent an unnecessary Reactor Trip on SG level.
- Enter Procedure 0POP04-CV-0004, "Loss of Normal Letdown," to establish Excess Letdown to prevent an unnecessary Reactor Trip on Pressurizer Level.
- Enter Procedure 0POP04-RP-0004, "Failure of RCS Loop RTD Protection," to stabilize RCS temperature to prevent an unnecessary Reactor Trip on OPDT.

Proposed Answer: B

Explanation:

Technical Reference: Procedure 0POP04-FW-0001, "Loss of Steam Generator Water Level Control"

Proposed references to be provided to applicants during examination:

Learning Objective: _____**Question Source:**

Bank #

STP-

Modified

X

B50301-92104-10

New

Question History:

Last NRC Exam

Cognitive Level:

Memory or Fundamental Knowledge

 X

Comprehension or Analysis

10 CFR Part 55 Content:

55.41

55.43

 5 **Comments:**