Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
WS # 3	Group #	1	
	K/A #	000009EK2.03	
OK	Importance Rating	3.0	

Knowledge of the interrelations between the small break LOCA and the SGs

Proposed Question: Common 3

The following plant conditions exist:

- A reactor trip with SI has occurred due to a small break LOCA.
- The crew transitioned from E-0, Reactor Trip or Safety Injection, to FR-H.1, Loss of Secondary Heat Sink, based on NOT being able to establish AFW flow greater than 365 gpm.
- RCS pressure is 700 psig and slowly DECREASING.
- All S/G pressures are approximately 950 psig and STABLE.

Which of the following summarizes plant conditions and what procedure should be implemented?

A. Because S/Gs are the sole heat sink, a transition to E-1, Loss of Reactor or Secondary Coolant, is made to minimize coolant loss and restore S/G levels to normal band.

B. Heat transfer in the RCS during this event is such that the S/Gs are currently NOT functioning as a heat sink and therefore NOT required. Return to E-0 then transition to E-1, Loss of Reactor or Secondary Coolant.

C. The S/Gs are currently NOT functioning as a heat sink, remain in FR-H.1 and attempt to restore S/Gs as a heat sink until RWST level decreases to 11.5 feet, then transition to ES-1.3, Transfer to Cold Leg Recirculation.

D. Because S/Gs are the sole heat sink, remain in FR-H.1 until feed is restored then transition to E-1 where a depressurization of the secondary is prescribed to increase the heat transfer between the RCS and S/Gs.

Proposed Answer:

B. Heat transfer in the RCS during this casualty is such that the S/Gs are currently NOT functioning as a heat sink and therefore NOT required. Return to E-0 then transition to E-1, Loss of Reactor or Secondary Coolant.

Explanation (Optional):

Technical Reference(s): FR-H.1 bases, step 1 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-EOPFRH 7 (As available)

Question Source: Bank # INPO 24717
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: 5/30/2003 Seabrook 1

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

10 CFR Part 55 Content: 55.41 5,7
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
WS # 5	Group #	1	
	K/A #	000015/17G2.1.28	
OK	Importance Rating	3.2	

Knowledge of the purpose and function of major system components and controls

Proposed Question: Common 4

When a RCP is stopped IAW 3-AOP-RCP-1, RCP MALFUNCTION, due to high #1 Seal leakoff flow, the respective Seal Leakoff Isolation Valve is closed after stopping the pump.

Which one of the following correctly describes the reason for closing the respective Seal Leakoff Isolation Valve?

A. Prevent excessive back pressure from interfering with leakoff from the operating RCP's.

B. Prevent over-pressurization of the return line and a possible LOCA Outside Containment.

C. Avoid flashing in the return line and/or Seal Water Heat Exchanger.

D. Reduce RCS inventory loss by directing all #1 seal leakoff to #2 Seal.

Proposed Answer:

D. Reduce RCS inventory loss by directing all #1 seal leakoff to #2 Seal.

Explanation (Optional):

Technical Reference(s): 3-AOP-RCP-1 step 13 bases (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-RCSRCP H
I3LP-ILO-AOPRCP K (As available)

Question Source: Bank # INPO 23133
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: Salem Unit 1 11/4/2002

Question 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	
WS # 8	Group #	1	
	K/A #	000027AK2.03	
OK	Importance Rating	2.6	

Knowledge of the interrelations between the Pressurizer Pressure Control Malfunction and controllers and positioners

Proposed Question: Common 5

The plant is operating at 100% power EOL with all control systems in AUTOMATIC.

Which ONE of the following could cause a Reactor Trip AND Safety Injection actuation? (Assume NO operator action for 1 hour.)

A. TE-433B, Loop 34 Cold Leg (Channel 4), fails LOW.

B. PC-455K, Pzr Pressure Master Controller fails to 0% output.

C. A trip of both Main Feed Pumps.

D. Direct Trip from Buchanan.

Proposed Answer:

B. PC-455K, Pzr Pressure Master Controller fails to 0% output

Explanation (Optional):

100% output opens spray valves fully

Technical Reference(s): SD 1.4 (Attach if not previously provided)

ES-401	Indian Point Unit 3 Written Examination Question Worksheet	Form ES-401-5

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-ICPZPC E-5.a (As available)
I3LP-ILO-AOPINT I.a.

Question Source: Bank # INPO 21540
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: 9/06/2002 Kewaunee, Unit 1

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

10 CFR Part 55 Content: 55.41 7
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
WS # 9	Group #	1	
	K/A #	000029EK1.01	
OK	Importance Rating	2.8	

Knowledge of the operational implications of reactor nucleonics and thermo-hydraulics behavior as they apply to the ATWS

Proposed Question: Common 6

The following plant conditions exist:

- An ATWS is in progress.
- All feedwater to the steam generators has been lost.
- The turbine generator has remained loaded and running.

Which ONE of the following would be an indication of the above conditions several minutes after the ATWS occurred? (Assume all control systems are in AUTO and NO operator action is taken.)

A. Reactor power remains STABLE; pressurizer pressure INCREASES.

B. Reactor power INCREASES; pressurizer pressure DECREASES.

C. Reactor power DECREASES; pressurizer pressure DECREASES.

D. Reactor power DECREASES; pressurizer pressure INCREASES.

Proposed Answer:

D. Reactor power DECREASES; pressurizer pressure INCREASES.

Explanation (Optional):

ES-401	Indian Point Unit 3 Written Examination Question Worksheet	Form ES-401-5

Technical Reference(s): EOP FR-S.1 Bases (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-EOPFRS 3 (As available)

Question Source: Bank # INPO 25802
Modified Bank # (Note changes or attach parent)
New

Question History: 3/14/2003 Surry 1

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

10 CFR Part 55 Content: 55.41 1,7,14
55.43 6

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
WS # 107	Group #	1	
	K/A #	000025AA2.06	
	Importance Rating	3.2	

Ability to determine and interpret the existence of proper RHR overpressure protection as it applies to the Loss of RHR System

Proposed Question: Common 7

Unit 3 is performing a plant cooldown on RHR with 34 RCP operating in preparation for entering cold shutdown. An I & C technician is inappropriately sent to calibrate PT-402 which causes the instrument to peg HIGH. This will result in the following:

A. AC-MOV-730 will AUTO CLOSE

B. AC-MOV-731 will AUTO CLOSE

C. BOTH AC-MOV-730 and 731 will AUTO CLOSE

D. Neither AC-MOV-730 OR 731 will AUTO CLOSE since these valves are de-energized in this plant condition

Proposed Answer:

A. AC-MOV-730 will AUTO CLOSE

Explanation (Optional):

PT-402 is only interlocked with MOV-730. PT-403 is interlocked with MOV-731. These valves are only energized while cooling down on RHR. Once a suitable opening in the RCS is established then these valves are de-energized.

Technical Reference(s): SD-4.2
3-POP-3.3
(Attach if not previously provided)

ES-401	Indian Point Unit 3 Written Examination Question Worksheet	Form ES-401-5

Proposed References to be provided to applicants during examination: NONE

Learning Objective: (As available)I3LP-ILO-RHR001 2c

Question Source: Bank #

Modified Bank # (Note changes or attach parent)

New X

Question History:

Question 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	
WS # 4	Group #	1	
	K/A #	000011EA2.14	
OK	Importance Rating	3.6	

Ability to determine or interpret the actions to be taken if limits for PTS are violated as they apply to the Large Break LOCA

Proposed Question: Common 8

Given the following conditions:

- A LOCA had occurred from HOT STANDBY conditions, Tave at 547°F, 30 minutes ago
- RCS pressure is 125 psig
- RCS Core Exit TCs read 380°F
- RCS Cold Leg temperatures are all 220°F
- 31 SI Pump is running providing 325 gpm flow
- 31 RHR Pump is running providing 1150 gpm flow

What is the appropriate action taken in response to the above conditions?

Entry into FR-P.1, Response to Pressurized Thermal Shock Condition, is ...

A. NOT required since RCS pressure is below 350 psig.

B. made but NO actions are implemented before returning to procedure in effect.

C. made and a RCS temperature soak for a ONE hour period will be completed.

D. made and cooldown will continue within a limit of 50°F in any 60 minute period.

Proposed Answer:

B. made but NO actions are implemented before returning to procedure in effect.

Explanation (Optional):

Technical Reference(s): FR-P.1, step 1 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-EOPFRP 12 (As available)

Question Source: Bank #
Modified Bank #
New X

(Note changes or attach parent)

Question History:

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

10 CFR Part 55 Content: 55.41 3,5,7
55.43 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
WS # 12	Group #	1	
	K/A #	000054AK1.01	
OK	Importance Rating	4.1	

Knowledge of the operational implications of the MFW line break depressurizes the SG as they apply to the Loss of Main Feedwater

Proposed Question: Common 9

Given the following initial plant conditions on Unit 3:

- Reactor power is 90%.
- RCS Tave is STABLE at 565°F on ALL 4 loops
- RCS pressure is STABLE at 2235 psig

Final Conditions:

- Containment Pressure is INCREASING
- 33 SG Feed Flow is pegged HIGH
- 33 SG Main FW Reg Valve is full OPEN
- 33 SG pressure is STABLE
- 33 SG level is DECREASING

Which of the following events is in progress?

A. Main Feed Pump trip

B. Steam Break 33 SG INSIDE VC.

C. Feed Line Break INSIDE Containment.

D. Small Break LOCA INSIDE VC on 33 SG Hot Leg.

Proposed Answer:

C. Feed Line Break INSIDE Containment.

Explanation (Optional):

Technical Reference(s): _____ (Attach if not previously provided)

_____

_____

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-EOPE20 2 (As available)

Question Source: Bank # INPO 19254

Modified Bank # _____ (Note changes or attach parent)

New _____

Question History: 10/20/2000 Braidwood 1

Question Cognitive Level: Memory or Fundamental Knowledge _____

Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 8,10

55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
WS # 108	Group #	1	
	K/A #	000057G2.1.30	
	Importance Rating	3.9	

Ability to locate and operate components, including local control

Proposed Question: Common 10

The plant is at 350 MWe when a static inverter fault causes Instrument Bus 34/34A to be de-energized. In accordance with 3-AOP-IB-1, Loss of Power to an Instrument Bus, the correct response for this condition is to :

A. Leave ALL Main Feed Regulating Valves in AUTO.

B. Place ALL Main Feed Regulating Valves in MANUAL.

C. Place 31 and 34 Main Feed Regulating Valves in MANUAL and leave 32 and 33 Main feed Regulating Valves in AUTO.

D. Place 32 and 33 Main Feed Regulating Valves in MANUAL and leave 31 and 34 Main feed Regulating Valves in AUTO.

Proposed Answer:

B. Place ALL Main Feed Regulating Valves in MANUAL.

Explanation (Optional):

Auto control power will be lost. Manual power from each individual controller will still be available.

Technical Reference(s): 3-AOP-IB-1 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: (As available)I3LP-ILO-EDS118 E3
I3LP-ILO-AOPIB1 1

Question Source:
Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History:

Question 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	
WS # 101	Group #	1	
	K/A #	000026AA2.01	
	Importance Rating	2.9	

Ability to determine and interpret the location of a leak in the CCWS as they apply to the Loss of Component Cooling Water

Proposed Question: Common 11

The operators are responding to a CCW leak IAW 3-AOP-CCW-1, Loss of Component Cooling Water. Makeup to 31 and 32 CCW Surge Tanks has been established. Both surge tanks continue to decrease slowly. After splitting CCW Headers, 31 CCW Surge Tank continues to DECREASE and 32 CCW Surge Tank is slowly INCREASING. Which of the following components is the source of the CCW leak?

A. 33 SI Pump

B. Seal Water Heat Exchanger

C. Non-regenerative Heat Exchanger

D. 32 Waste Gas Compressor

Proposed Answer:

D. 32 Waste Gas Compressor

Explanation (Optional):

Technical Reference(s): SD-4.1 Figure 4.1.1 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

ES-401	Indian Point Unit 3 Written Examination Question Worksheet	Form ES-401-5

Learning Objective: I3LP-ILO-CCW001 0001 (As available)

Question Source:
- Bank # _____
- Modified Bank # _____ (Note changes or attach parent)
- New X

Question History:

Question 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	
WS # 14	Group #	1	
	K/A #	000056AK1.01	
OK	Importance Rating	3.7	

Knowledge of the operational implications of the principles of cooling by natural convection as they apply to Loss of Offsite Power

Proposed Question: Common 12

Unit 3 was operating at 100% power when a reactor trip occurred due to a loss of offsite power. The operators completed the actions of ES-0.1, Reactor Trip Response and have transitioned to ES-0.2, Natural Circulation Cooldown, where they are initiating a natural circulation cooldown.

At the onset of the natural circulation cooldown, which ONE of the following processes will remove the MOST heat from the Reactor Vessel HEAD?

A. The 25°F/hr natural circulation cooldown of the RCS.

B. Heat losses to ambient.

C. All CRDM fans running.

D. Upper head bypass flow.

Proposed Answer:

C. All CRDM fans running.

Explanation (Optional):

Technical Reference(s): ES-0.2 Bases (Attach if not previously provided)

ES-401	Indian Point Unit 3 Written Examination Question Worksheet	Form ES-401-5

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-EOPE00 7 (As available)

Question Source: Bank # INPO 20211
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: 9/10/2001 Cook 1

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

10 CFR Part 55 Content: 55.41 8,10,14
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
WS # 109	Group #	1	
	K/A #	000058AK3.02	
	Importance Rating	3.4	

Knowledge of the reasons for actions contained in EOP for loss of DC power as it applies to the Loss of DC power

Proposed Question: Common 13

During the performance of ES-0.1, Reactor Trip Response, the operators are directed to manually open generator breakers 1 and 3 if they do not open automatically 30 seconds following a turbine trip. A loss of DC control power occurred for generator breakers 1 and 3 the operator is directed by 3-AOP-DC-1, "Loss of a 125V DC Panel", to locally trip generator breakers 1 and 3 if a unit trip has occurred and the generator breakers 1 and 3 have not tripped.

Which of the following is the overriding concern?

A. Motorizing the Main Generator

B. Tripping of RCP's on LOW Fequency

C. Unit Auxiliary Transformer damage

D. Reverse power in the Main Transformer

Proposed Answer:

A. Motorizing the Main Generator

Explanation (Optional):

A. Correct. Breakers must be opened to disconnect from grid
B. Incorrect. Grid will maintain proper frequency
C. Incorrect. UAT will not be damaged by being connected, not a generator
D. Incorrect. Main transformer can send power either way. It is not a generator

Technical Reference(s): ES-0.1
3-AOP-DC-1
(Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: (As available) I3LP-ILO-AOPDC1

Question Source: Bank # INPO 23463
Modified Bank # (Note changes or attach parent)
New

Question History: 3/10/2003 Indian Point 3 (Unit)

Question 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 #	1	
WS # 110	Group #	1	
	K/A #	000062AA2.06	
	Importance Rating	2.8	

Ability to determine and interpret the length of time after the loss of SWS flow to a component before that component may be damaged as it applies to the Loss of Nuclear Service Water

Proposed Question: Common 14

While at 100% power a loss of ALL AC Power occurred. Attempts to start 31 EDG locally have been SUCCESSFUL. Buses 2A and 3A are energized. 32 Essential Service Water Pump can NOT be started. 35 Non-essential Service Water Pump is available.

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

A. Immediately trip 31 EDG IAW ECA-0.0. Then align EDG service water to non-essential header, start 31 EDG and start 35 SW pump.

B. Operate 31 EDG at required load while immediately swapping EDG Service Water to the Non-essential header

C. Immediately start 35 Service Water Pump to provide cooling to 31 EDG.

D. Maintain 31 EDG load less than 500 KW and expeditiously start 35 SW Pump. Trip 31 EDG if HIGH temperature alarm occurs.

Proposed Answer:

A. Immediately trip 31 EDG IAW ECA-0.0. Then align EDG service water to non-essential header and start 35 SW pump.

Explanation (Optional):

31 EDG must be tripped and then EDG service water will be aligned to the non-essential header and then 35 Service Water Pump will be started.

Technical Reference(s): ECA-0.0, Attachment 1 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: (As available) I3LP-ILO-EOPC00 6

Question Source: Bank #

Modified Bank # (Note changes or attach parent)

New X

Question History:

Question Cognitive Level: Memory or Fundamental Knowledge

Comprehension or Analysis X

10 CFR Part 55 Content: 55.41

55.43 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
WS # 16	Group #	1	
	K/A #	W/E04EA1.2	
OK	Importance Rating	3.6	

Ability to operate and / or monitor operating behavior characteristics of the facility as they apply to a LOCA Outside Containment

Proposed Question: Common 15

Unit 3 is in MODE 4 cooling down on RHR with the following plant conditions:

- RCS Temperature 340°F slowly LOWERING
- RCS pressure 300 psig LOWERING
- PZR level 42% LOWERING
- CNMT temperature 100°F
- R-27, Wide Range Plant Vent Gas Activity Monitor, went into ALARM
- SG levels 42% (31) 40% (32) 43% (33) 40% (34)
- SG pressures 115 psig ALL SGs; DECREASING slowly

What event is taking place?

A. A steam leak has occurred outside CNMT.

B. The Cold Overpressure system has actuated.

C. A LOCA has occurred on the suction of the RHR pump.

D. Letdown line pressure control valve, PCV-135, has failed OPEN.

Proposed Answer:

C. A LOCA has occurred on the suction of the RHR pump.

Explanation (Optional):

Technical Reference(s): _____ (Attach if not previously provided)

_____

_____

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3SG-ILO-AOPRHR 1 (As available)

Question Source: Bank # INPO 19269

Modified Bank # _____ (Note changes or attach parent)

New _____

Question History: 10/20/2000 Braidwood 1

Question Cognitive Level: Memory or Fundamental Knowledge _____

Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 5,10

55.43 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
WS # 17	Group #	1	
	K/A #	W/E11EA2.1	
OK	Importance Rating	3.4	

Ability to determine and interpret the facility conditions and selection of appropriate procedures during abnormal and emergency operations as they apply to Loss of Emergency Coolant Recirculation

Proposed Question: Common 16

During a LOCA, emergency coolant recirculation capability was lost, and ECA-1.1, Loss of Emergency Coolant Recirculation, is currently in progress. A RED path is identified on the CONTAINMENT status tree, and transition to FR-Z.1, Response to High Containment Pressure, is performed.

What procedure should be used to operate the containment spray pumps, and why?

A. ECA-1.1, because it provides for REDUCED containment spray.

B. ECA-1.1, because an ECA should be completed prior to transferring to a Function Restoration Procedure.

C. FR-Z.1 because it takes precedence over ECA-1.1.

D. FR-Z.1, because it provides for GREATER containment spray.

Proposed Answer:

A. ECA-1.1, because it provides for REDUCED containment spray.

Explanation (Optional):

ES-401	Indian Point Unit 3 Written Examination Question Worksheet	Form ES-401-5

Technical Reference(s): ECA-1.1, step 3 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-EOPFRZ 7
I3LP-ILO-EOPE10 22.0 (ECA-1.1) (As available)

Question Source: Bank # INPO 22433
Modified Bank # (Note changes or attach parent)
New

Question History: 10/1/2002 Diablo Canyon 1

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

10 CFR Part 55 Content: 55.41 10
55.43 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
WS # 18	Group #	1	
	K/A #	W/E05G2.4.20	
OK	Importance Rating	3.3	

Knowledge of operational implications of EOP warnings, cautions and notes

Proposed Question: Common 17

A Unit 3 Reactor Trip occurred after a 200 day continuous run at 100% power. Following the trip, ALL AFW flow was lost and the Team transitioned to FR-H.1, Loss of Secondary Heat Sink. Due to distractions caused by a pressure channel failure, bleed and feed steps were NOT initiated until WR S/G levels were ALL <10%.

Which one of the following correctly describes the general consequence of the delay?

A. Core uncovery will be MORE severe due to a Pressurizer Safety lifting, INCREASING the loss of mass, while ECCS flow is limited by RCS pressure.

B. Core uncovery will NOT occur as long as one PZR PORV is OPEN, one charging pump is injecting prior to SG dryout and one PRZR Safety is available.

C. Core uncovery will NOT occur as long as both PZR PORVs are OPEN and two charging pumps are injecting prior to SG dryout.

D. Core uncovery will be MORE severe because RCS pressure will remain at a HIGHER value for a longer time, limiting ECCS flow.

Proposed Answer:

D. Core uncovery will be MORE severe because RCS pressure will remain at a HIGHER value for a longer time, limiting ECCS flow.

Explanation (Optional):

Technical Reference(s): FR-H.1 Bases (Attach if not previously

provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-EOPFRH 2 (As available)

Question Source: Bank #
Modified Bank # (Note changes or attach parent)
New X

Question History:

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

10 CFR Part 55 Content: 55.41 10
55.43

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
WS # 19	Group #	2	
	K/A #	000001AK1.06	
OK	Importance Rating	4.0	

Knowledge of the operational implications of the relationship of reactivity and reactor power to rod movement as they apply to the continuous rod withdrawal

Proposed Question: Common 18

With Unit 3 operating at 88% power, the following symptoms occur:

- Reactor power INCREASING.
- Tave GREATER THAN Tref.
- Pressurizer Pressure INCREASING.
- Pressurizer Level INCREASING.

Which ONE of the following would cause the above symptoms to occur INITIALLY?

A. First Stage Turbine Pressure transmitter, PT-412A, Failed LOW.

B. Power range channel N-43 fails HIGH.

C. First Stage Turbine Pressure transmitter, PT-412A, Failed HIGH.

D. Uncontrolled rod withdrawal.

Proposed Answer:

D. Uncontrolled rod withdrawal.

Explanation (Optional):

Technical Reference(s): _____ (Attach if not previously provided)

_____

_____

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-AOPROD 3 (As available)

Question Source: Bank # INPO 20764

Modified Bank # _____ (Note changes or attach parent)

New _____

Question History: 10/29/2001 Braidwood 1

Question Cognitive Level: Memory or Fundamental Knowledge _____

Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 8,10

55.43 6

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
WS # 20	Group #	2	
	K/A #	000028AK2.02	
OK	Importance Rating	2.6	

Knowledge of the interrelations between the Pressurizer Level Control Malfunctions and sensors and detectors

Proposed Question: Common 19

The plant is operating at 100% power with all control systems operating normally. The controlling channel, LT-460, reference leg of Pressurizer Level has just developed a leak where the reference leg connects to the D/P cell. Which one of the following best describes the immediate plant response from this leak?

A. LT-460 - indication will DECREASE, LT-459 indication will INCREASE, LT-461 - indication will INCREASE, charging flow will INCREASE.

B. LT-460 - indication will INCREASE, LT-459 indication will DECREASE, LT-461 - indication will DECREASE, charging flow will DECREASE.

C. LT-460 - indication will INCREASE, LT-459 indication will DECREASE, LT-461 indication will DECREASE, backup heaters will de-energize.

D. LT-460 - indication will DECREASE, LT-459 indication will DECREASE, LT-461 indication will DECREASE, backup heaters will energize.

Proposed Answer:

B. LT-460 - indication will INCREASE, LT-459 indication will DECREASE, LT-461 - indication will DECREASE, charging flow will DECREASE.

Explanation (Optional):

Technical Reference(s): SD-1.4 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-ICPZLV E-5 (As available)

Question Source: Bank # INPO 24612
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: 5/30/2003 Seabrook 1

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

10 CFR Part 55 Content: 55.41 7
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
WS # 111	Group #	2	
	K/A #	000061AA2.06	
	Importance Rating	3.2	

Ability to determine and interpret the required actions if alarm channel is out of service as it applies to the Area Radiation Monitoring (ARM) Systems alarms

Proposed Question: Common 20

Given the following conditions:

- Fuel handling is in progress in Containment and the Spent Fuel Pool (SFP).
- Radiation Monitor R 5 SPENT FUEL POOL AREA MONITOR fails LOW
- All other radiation monitors are operable.

What is the impact of this failure?

A. All fuel assembly movement in the FSB must be suspended.

B. All fuel assembly movement in the FSB AND Containment must be suspended.

C. Only recently irradiated fuel assembly movement in the FSB must be suspended.

D. Fuel assembly movement may continue in the FSB and Containment provided R-14, Plant Vent Gas Activity and R-27, Wide Range Plant Vent Gas Activity, monitors are operable.

Proposed Answer:

C. Only recently irradiated fuel assembly movement in the FSB must be suspended.

Explanation (Optional):

A & B Fuel assemblies out of critical reactor for >84 hours may be moved.

C. Fuel movement in containment is still permitted

D. R-14 and 27 will be able to monitor any release from FSB but are not taken into account for

R-5 being inoperable.

Technical Reference(s): TS 3.3.8 & 3.7.13 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: (As available) I3LP-ILO-FHD001 N

Question Source: Bank # INPO
Modified Bank # 27558 (Note changes or attach parent)
New

Question History: 4/23/2004 Prairie Island 1

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

10 CFR Part 55 Content: 55.41
55.43 5

Comments:

BASES

APPLICABLE SAFETY ANALYSES (continued)

reduces the radioactive content in the fuel building exhaust following a LOCA or fuel handling accident so that offsite doses remain within the limits specified in 10 CFR 50.67 (Ref. 1).

The FSBEVS actuation instrumentation satisfies Criterion 3 of 10 CFR 50.36.

LCO

The LCO requirements ensure that instrumentation necessary for local manual and automatic actuation of the FSBEVS is OPERABLE.

Manual and automatic FSBEVS actuation instrumentation consists of one channel of Fuel Storage Building Area Radiation Monitor (R-5) and one channel of manual actuation. Manual actuation from the fan house and automatic FSBEVS actuation instrumentation are Operable when both the Fuel Storage Building Area Radiation Monitor (R-5) signal and manual initiation will cause the realignment of the FSBEVS to the accident mode of operation as described in the Bases for LCO 3.7.13, Fuel Storage Building Emergency Ventilation System (FSBEVS).

The setpoint for Fuel Storage Building Area Radiation Monitor (R-5) is established in accordance with the FSAR (Ref. 2).

APPLICABILITY

The manual FSBEVS initiation must be OPERABLE when moving recently irradiated fuel assemblies in the fuel storage building, to ensure the FSBEVS operates to remove fission products associated with leakage after a fuel handling accident involving handling recently irradiated fuel.

High radiation initiation of the FSBEVS must be OPERABLE in any MODE during movement of recently irradiated fuel assemblies in the fuel storage building to ensure automatic initiation of the FSBEVS when the potential for the limiting fuel handling accident exists. Due to radioactive decay, the FSBEVS instrumentation is only required to be OPERABLE during fuel handling involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous 84 hours).

(continued)

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
WS # 22	Group #	2	
	K/A #	000037AA2.12	
OK	Importance Rating	3.3	

Ability to determine and interpret the flow rate of leak as it applies to the Steam Generator Tube Leak

Proposed Question: Common 21

A SG tube leak is in progress with the following plant conditions exist:

- CVCS charging flow rate = 63 gpm
- CVCS letdown flow = 75 gpm
- Total RCP seal injection = 32 gpm
- Total RCP seal leakoff flow = 12 gpm
- RCS temperature at no load Tave and steady
- PZR Press and Level are stable

Based on the above indications, what is the approximate RCS SG leak rate?

A. 8 gpm

B. 12 gpm

C. 20 gpm

D. 32 gpm

Proposed Answer:

A. 8 gpm

Explanation (Optional):

Technical Reference(s): SD-3.0 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-AOPSG1 A (As available)

Question Source: Bank # INPO 20216
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: 9/10/2001 Cook 1

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

10 CFR Part 55 Content: 55.41 5
55.43 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
WS # 23	Group #	2	
	K/A #	000051G2.2.12	
OK	Importance Rating	3.0	

Knowledge of the surveillance procedures

Proposed Question: Common 22

Unit 3 is at 100% power and is performing 3-PT-V089, Online Turbine Mechanical Trip Features Test.

The "Test Handle" has just been placed in the TEST position in preparation for doing the Low Vacuum Trip Test (Simulated).

The control room reports that actual condenser vacuum has DROPPED to the turbine trip setpoint.

With no operator action, which ONE of the following will occur?

A. The turbine low vacuum trip device will NOT actuate, and the turbine will NOT trip.

B. The turbine low vacuum trip device will actuate, and the turbine will trip.

C. The turbine low vacuum trip device will NOT actuate, but the turbine will trip.

D. The turbine low vacuum trip device will actuate, but the turbine will NOT trip.

Proposed Answer:

D. The turbine low vacuum trip device will actuate, but the turbine will NOT trip.

Explanation (Optional):

Technical Reference(s): I3LP-ILO-MTG001 Page 30,31 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-MTG001 4 (1583) (As available)

Question Source: Bank # INPO 22518
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: 10/1/2002 Diablo Canyon 1

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

10 CFR Part 55 Content: 55.41 4,10
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
WS # 112	Group #	2	
	K/A #	W/E 16 EA1.1	
	Importance Rating	3.1	

Ability to operate and/or monitor components, and functions of control and safety systems, including instrumentation, signals, interlocks failure modes, and automatic and manual features

Proposed Question: Common 23

The plant is in MODE 5 and in Day 4 of a Refueling Outage. Radiation monitor R-11, Vapor Containment Particulate Activity Monitor, has just gone into ALARM. From the list below, select the actions that would occur from R-11 reaching the ALARM setpoint.

1. Containment pressure relief valves would receive a CLOSE signal.
2. Pressure Relief Fan would receive a TRIP signal.
3. PAB Exhaust Fan would receive a signal to divert through the Charcoal Filters.
4. CB Purge Fan would be sent a TRIP signal.
5. A containment Evacuation ALARM signal would be initiated.
6. Containment purge supply valves would receive a CLOSE signal.
7. Control Room ventilation would receive a signal to swap to the Incident Mode.
8. Containment purge exhaust valves would receive a CLOSE signal.

A. 1, 2, 3, 4, 6

B. 2, 3, 5, 7, 8

C. 1, 2, 4, 5, 6, 8

D. 2, 3, 4, 6, 7, 8

Proposed Answer:

C. 1, 2, 4, 5, 6, 8

Explanation (Optional):

Technical Reference(s): _____ (Attach if not previously provided)

_____

_____

Proposed References to be provided to applicants during examination: NONE

Learning Objective: (As available) I3LP-ILO-RMSPRM B

Question Source: Bank # _____

Modified Bank # _____ (Note changes or attach parent)

New X

Question History:

Question Cognitive Level: Memory or Fundamental Knowledge _____

Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 7

55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
WS # 25	Group #	2	
	K/A #	000069AK3.01	
OK	Importance Rating	3.8	

Knowledge of the reasons for guidance contained in EOP for loss of containment integrity

Proposed Question: Common 24

Given the following plant conditions:

- The Unit has experienced a fault on 31 Steam Generator inside containment.
- The crew has transitioned from E-0 to E-2, Faulted Steam Generator Isolation.
- Containment pressure is currently at 28 psig and slowly RISING.
- Both Containment Spray Pumps are NOT operating.

Which ONE of the following indicates the correct action for the crew to take and the reason for those actions?

A. Continue in E-2, Faulted Steam Generator Isolation and transition to FR-Z.1, Response To High Containment Pressure if containment pressure exceeds 46 psig to prevent loss of containment integrity.

B. Continue in E-2, then transition to E-1, Loss of Reactor or Secondary Coolant after ensuring the faulted steam generator is isolated.

C. Immediately transition to FR-Z.1, Response To High Containment Pressure to prevent loss of containment integrity.

D. Go to E-0, Reactor Trip or Safety Injection and revalidate SI automatic actions to ensure Containment Fan Cooler Units are operating properly.

Proposed Answer:

C. Immediately transition to FR-Z.1, Response To High Containment Pressure to

prevent loss of containment integrity.

Explanation (Optional):

Technical Reference(s): F-0.5 Containment Status Tree (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-EOPFRZ 8 (As available)

Question Source: Bank #
Modified Bank # (Note changes or attach parent)
New X

Question History:

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

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

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
WS # 26	Group #	2	
	K/A #	000076AA1.04	
OK	Importance Rating	3.2	

Ability to operate and / or monitor the failed fuel-monitoring equipment as they apply to the High Reactor Coolant Activity

Proposed Question: Common 25

R-63A and R-63B, Gross Failed Fuel Detectors, went into alarm. In accordance with the abnormal operating procedure 3-AOP-HIACT-1, High Activity, what should the operators do once Chemistry verifies a HIGH RCS activity condition exists?

A. Divert letdown to CVCS HUT and maximize makeup.

B. Place ALL three letdown orifices in service.

C. Place BOTH 75 gpm orifices in service.

D. Place ONE 75 gpm orifice and the 45 gpm orifice in service.

Proposed Answer:

D. Place ONE 75 gpm orifice and the 45 gpm orifice in service.

Explanation (Optional):

Technical Reference(s): 3-AOP-HIACT-1 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

ES-401	Indian Point Unit 3 Written Examination Question Worksheet	Form ES-401-5

Learning Objective: I3LP-ILO-AOPACT 3 (As available)

Question Source: Bank # INPO 24663
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: 5/30/2003 Seabrook 1

Question 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	
WS # 27	Group #	2	
	K/A #	W/E08G2.1.23	
OK	Importance Rating	3.9	

Ability to perform specific system and integrated plant procedures during all modes of plant operation

Proposed Question: Common 26

Given the following conditions:

- A main steam line break occurred inside containment
- MSIVs are closed
- The faulted SG is isolated
- RED PATH conditions exist on the Integrity Status Tree
- The actions of FR-P.1, Response To Imminent Pressurized Thermal Shock Condition" are being performed
- RCS temperature soak is required and has been initiated
- NO RCPs are running

Which evolution can be performed during the one hour "soak period"?

A. Start 34 RCP to control RCS pressure using normal spray.

B. Place normal letdown in service per 3-EOP-FR-P.1, Attachment 3, Establishing Letdown.

C. Raise AFW flow to and establish SG blowdown from the non-faulted SG.

D. Raise RCS pressure to the middle of the pressure band allowed by 3-EOP-FR-P.1, Attachment 5, Post-Soak Cooldown limit.

Proposed Answer:

B. Place normal letdown in service per 3-EOP-FR-P.1, Attachment 3, Establishing Letdown.

Explanation (Optional):

Technical Reference(s): 3-EOP-FR-P.1 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-EOPFRP 13 (As available)

Question Source: Bank # ____
Modified Bank # ____ (Note changes or attach parent)
New X

Question History:

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

10 CFR Part 55 Content: 55.41 10
55.43 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
WS # 28	Group #	1	
	K/A #	003A4.07	
OK	Importance Rating	2.6	

Ability to manually operate and / or monitor in the control room RCP seal bypass

Proposed Question: Common 27

Given the following conditions:

- Plant cooldown is in progress.
- RCS temperature is 220°F.
- RCS pressure is 375 psig.
- VCT pressure is 25 psig.
- ALL RCP seal injection flows are 8 gpm
- RCP seal discharge valves 261A-D are OPEN
- 32 RCP #1 seal leakoff flow indicates 0.8 gpm and slowly DECREASING.
- 32 RCP lower radial bearing temperature is 195°F and slowly RISING

In accordance with 3-SOP-RCS-001, Reactor Coolant Pump Operation, which ONE (1) of the following actions is required and why?

A. OPEN RCP Seal Bypass Valve, 246, to increase seal leakoff flow.

B. CLOSE HCV-142, Charging Line Flow Control Valve, to increase seal injection flow.

C. Trip operating RCPs and isolate seal leakoff due to insufficient seal DP.

D. Isolate #1 seal leakoff for 32 RCP to increase #1 seal DP.

Proposed Answer:

A. OPEN RCP Seal Bypass Valve, 246, to increase seal leakoff flow.

Explanation (Optional):

Technical Reference(s): 3-SOP-RCS-001 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-RCSRCP B (As available)

Question Source: Bank # INPO 28048
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: 9/27/2004 Robinson 2

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

10 CFR Part 55 Content: 55.41 7
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
WS # 102	Group #	1	
	K/A #	004K4.01	
	Importance Rating	2.8	

Knowledge of CVCS design feature and/or interlock which provide for oxygen control in the RCS

Proposed Question: Common 28

With the plant in mode 4 preparing to enter Mode 3, the Watch Chemist reports the Oxygen concentration in the RCS is excessively high. Which of the below describe the method which is used to reduce the Oxygen concentration in the RCS?

A. Add Hydrazine to the RCS via the CVCS System.

B. Increase the Hydrogen pressure in the VCT.

C. Add Hydrogen Peroxide to the RCS via the CVCS System.

D. Turn ALL Pressurizer Backup heaters on to increase Pressurizer Spray to degas the RCS.

Proposed Answer:

B. Increase the Hydrogen pressure in the VCT.

Explanation (Optional):

Technical Reference(s): SD-4.1 Figure 4.1.1 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

ES-401	Indian Point Unit 3 Written Examination Question Worksheet	Form ES-401-5

Learning Objective: I3LP-ILO-CCW001 0001 (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History:

Question 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 #	2	
WS # 31	Group #	1	
	K/A #	005K5.09	
OK	Importance Rating	3.2	

Knowledge of the operational implications of dilution and boration considerations

Proposed Question: Common 29

Given the following conditions:

The plant is being cooled down to 140°F for maintenance which will NOT require the RCS be opened. The crew is in the process of placing the first Residual Heat Removal (RHR) train in service for RCS cooling. Current RCS temperature is 345°F.

Current boron concentrations are as follows:

- RHR (train to be placed in service) boron 1020 ppm
- Required Shutdown Margin at 300°F boron 1750 ppm
- Required Shutdown Margin at 68°F boron 1800 ppm
- RCS boron 2025 ppm
- Refueling boron 2050 ppm

Before the RHR train can be placed in service for RCS cooling, RHR boron concentration must be increased by a MINIMUM *of* ...

A. 730 ppm

B. 780 ppm

C. 1005 ppm

D. 1030 ppm

Proposed Answer:

~~B. 780 ppm~~ C

C. 1005 ppm

Explanation (Optional):

Technical Reference(s): Graph RCS-4A (Attach if not previously provided)
3-SOP-RHR-001

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-RHR001 8.a. (1170) (As available)

Question Source: Bank # INPO 27468
Modified Bank # 27468 (Note changes or attach parent)
New

Question History: 3/24/2004 Harris 1

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

10 CFR Part 55 Content: 55.41 5
55.43

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
WS # 113	Group #	1	
	K/A #	006A3.07	
	Importance Rating	3.6	

Ability to monitor automatic operation of the ECCS, including RHR pumps

Proposed Question: Common 30

A Large Break LOCA has occurred. The Team is performing the actions of ES-1.3, Transfer to Cold Leg Recirculation. What will be the status of the ECCS pumps after Recirc switches 1 and 3 are placed in the ON position?

A. ALL three (3) SI pumps running and BOTH RHR pumps secured.

B. 31 and 33 SI pumps running, 32 SI pump secured and BOTH RHR pumps running.

C. ALL three (3) SI pumps secured and BOTH RHR pumps running.

D. 31 and 33 SI pumps running, 32 SI pump secured and BOTH RHR pumps secured.

Proposed Answer:

D. 31 and 33 SI pumps running, 32 SI pump secured and BOTH RHR pumps secured.

Explanation (Optional):

Recirc switch 1 automatically trips 32 SI pump and recirc switch 3 trips both RHR pumps

Technical Reference(s): SD-10.1 (Attach if not previously provided)

ES-401	Indian Point Unit 3 Written Examination Question Worksheet	Form ES-401-5

Proposed References to be provided to applicants during examination: NONE

Learning Objective: (As available) I3LP-ILO-SIS001 B

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History:

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

10 CFR Part 55 Content: 55.41 _____
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
WS # 114	Group #	1	
	K/A #	007G2.4.31	
	Importance Rating	3.3	

Knowledge of annunciators alarms and indications, and use of the response instructions

Proposed Question: Common 31

Given the following initial PRT conditions:

- PRT Temperature 100°F
- PRT Level 71%
- PRT Pressure 0.5 psig

The Seal Water Return line relief valve CH-218 inadvertently lifted and stuck OPEN. A containment entry was made and the relief valve was CLOSED by mechanical agitation. The following conditions now exist in the PRT:

- PRT Temperature 107°F
- PRT Level 79%
- PRT Pressure 3.5 psig

Based on the above indications what, alarm(s), if any, should be annunciated in the control room and what action(s) should be taken to return the PRT to its original condition?

A. PRT High Level and PRT High Pressure. Drain the PRT to the RCDT to reduce level and vent the PRT to the Waste Gas Header to reduce pressure.

B. PRT High Temperature and PRT High Level. Drain the PRT to the RCDT and add Primary Makeup Water to cool down the PRT

C. PRT High Level. Drain the PRT to the RCDT to reduce level and pressure.

D. PRT High Pressure. Vent the PRT to the Waste Gas Header

Proposed Answer:

C. PRT High Level. Drain the PRT to the RCDT to reduce level and pressure.

Explanation (Optional):

Pressure and level increase from the insurge. Decreasing level would also lower pressure

Technical Reference(s): 3-ARP-003, pages 33, 34 and 37 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: (As available) I3LP-ILO-RCSPZR E-8

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History:

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

10 CFR Part 55 Content: 55.41 10
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
WS # 34	Group #	1	
	K/A #	008K1.04	
OK	Importance Rating	3.3	

Knowledge of the physical connections and / or cause-effect relationship between the CCWS and the RCS, in order to determine sources(s) of RCS leakage into the CCWS

Proposed Question: *Common 32*

Unit 3 is at 100% power when the following events occur in the order shown:

- PRMS channels R-17A/17B, Component Cooling Water Activity Monitors, IN alarm.
- CCW Surge TANK levels INCREASING rapidly.
- Annunciator, RCP THERMAL BARRIER COOLING RETURN HIGH TEMP, in alarm.
- Pressurizer level DECREASES and the running charging pump speed goes to MAXIMUM.
- Annunciator, PRESSURIZER LOW LEVEL in alarm.

Which ONE of the following events will cause the CCW Surge Tank to rise at the highest rate?

A. The CVCS letdown non-regenerative heat exchanger tube has burst and LCV-459/460, High Press L/D Isol Valves, have failed to CLOSE.

B. A Spent Fuel Pit Heat Exchanger tube has burst and protective functions have responded as designed.

C. A RCP thermal barrier leak has occurred and protective functions have responded as designed.

D. A RCP thermal barrier leak has occurred and FCV-625, RCP Thermal Barrier Outlet Valve, has failed to CLOSE.

Proposed Answer:

D. An RCP thermal barrier leak has occurred and MOV-625, RCP Thermal Barrier Outlet Valves, has failed to CLOSE.

Explanation (Optional):

Technical Reference(s): SD-4.1 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-CCW001 0004, 0006 (As available)

Question Source: Bank # INPO 26954
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: 12/15/2003 Turkey Point 3

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

10 CFR Part 55 Content: 55.41 2,9
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
WS # 115	Group #	1	
	K/A #	010A4.02	
	Importance Rating	3.6	

Ability to manually operate and/or monitor in the control room PZR Heaters

Proposed Question: Common 33

Pressurizer Level channel 1 (LT-459) is the alarm channel and Pressurizer Level channel 2 (LT-460) is in control. What affect, if any, would Pressurizer Level channel 1 failing HIGH have on Pressurizer Heater operations?

A. Pressurizer Modulating and Backup Heaters will operate as normal receiving controlling signal from channel 2.

B. ALL Backup Heater and Modulating Heaters will energize from the 5% HIGH level error above program.

C. Only the Backup heaters will receive an ON signal.

D. Only the Modulating Heaters will receive a full ON signal.

Proposed Answer:

A. Pressurizer Modulating and Backup Heaters will operate as normal receiving controlling signal from channel 2.

Explanation (Optional):

5% high on controlling channel will energize all heaters. Low level on either channel will cause all heaters to de-energize

Technical Reference(s): ARP-003, pages 18 and 21
SD-1.4
(Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: (As available)I3LP-ILO-RCSPZR E8

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History:

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

10 CFR Part 55 Content: 55.41 _____
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
WS # 36	Group #	1	
	K/A #	012A1.01	
OK	Importance Rating	2.9	

Ability to predict and / or monitor changes in parameters to prevent exceeding design limits associated with operating the RPS controls including trip setpoint adjustments

Proposed Question: Common 34

During the performance of an NIS power range heat balance at 90% power, an operator uses a feedwater temperature 30°F lower than actual. Would the calculated value of power be HIGHER or LOWER than actual power, and would an adjustment of the NIS power range channels, based on this value, be CONSERVATIVE or NON CONSERVATIVE with respect to High Power Reactor Trip protection setpoints?

Calculated Power Setpoints would be...

A. Higher - Non Conservative

B. Higher - Conservative

C. Lower - Non Conservative

D. Lower - Conservative

Proposed Answer:

B. Higher - Conservative

Explanation (Optional):

Technical Reference(s): 3-SOP-RPC-006A (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-ICEXC E-6 (As available)

Question Source: Bank # INPO 27669
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: 10/5/2004 Cook 1

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

10 CFR Part 55 Content: 55.41 5
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
WS # 37	Group #	1	
	K/A #	013A1.09	
OK	Importance Rating	3.4	

Ability to predict and / or monitor changes in parameters (to prevent exceeding design limits) associated with operating the ESFAS controls including T-hot.

Proposed Question: Common 35

Initial Conditions:

- The plant is at 100% power, beginning of life.
- Rod Control is in MANUAL.
- Tave is on program.
- The Reactor Engineer has requested the crew to slowly withdraw control bank "D" rods to full out after Moderator Temperature Coefficient (MTC) testing.
- The crew is to allow MTC to control reactor power, without borating during the rod withdrawal.

The RO slowly withdraws control bank "D" rods, resulting in the following:

- RCS Narrow Range Thot INCREASES by 4°F.
- PZR pressure control system maintains RCS pressure STABLE.
- Delta Flux remains in the program band.

How does the OTΔT and OPΔT trip setpoints respond?

A. OTΔT setpoint DECREASES.
OPΔT setpoint DECREASES.

B. OTΔT setpoint DECREASES.
OPΔT setpoint INCREASES.

C. OTΔT setpoint INCREASES.
OPΔT setpoint DECREASES.

D. OTΔT setpoint INCREASES.
OPΔT setpoint INCREASES.

Proposed Answer:

A. OTΔT setpoint DECREASES.
OPΔT setpoint DECREASES.

Explanation (Optional):

Technical Reference(s): ITS 3.3.1 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-ICRXR E1 (As available)

Question Source: Bank # INPO 27099
Modified Bank # (Note changes or attach parent)
New

Question History: 7/16/2004 Millstone 3

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

10 CFR Part 55 Content: 55.41 5
55.43 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
WS # 39	Group #	1	
	K/A #	022K2.01	
OK	Importance Rating	3.0	

Knowledge of power supplies to the containment cooling fans

Proposed Question: Common 36

A small break LOCA occurred causing a Reactor Trip AND Safety Injection. ALL safeguards equipment operated as designed. During the performance of E-0, Reactor Trip or Safety Injection, Offsite Power was lost.

Given the following:

- 31 EDG FAILED to start
- ALL remaining equipment operated as designed

ALL equipment that should have automatically started has started on their respective buses. With NO operator action, what will be the configuration for the Containment Fan Cooler Units (FCU)?

A. 31, 32 and 35 FCU's running

B. 31, 33 and 35 FCU's running

C. 33, 34 and 35 FCU's running

D. 32, 33 and 34 FCU's running

Proposed Answer:

B. 31, 33 and 35 FCU's running

Explanation (Optional):

Technical Reference(s): SD-10.3 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-VCCARC 0003 (As available)

Question Source: Bank #
Modified Bank # (Note changes or attach parent)
New X

Question History:

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

10 CFR Part 55 Content: 55.41 5
55.43 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
WS # 40	Group #	1	
	K/A #	026K3.01	
OK	Importance Rating	3.9	

Knowledge of the effect that a loss or malfunction of the CSS will have on the CCS

Proposed Question: Common 37

Given the following conditions:

- Unit 3 is operating at 100% power.
- 31 Containment Spray pump has been declared INOPERABLE due to an oil leak.
- 32 and 34 Fan cooler Units (FCU) are INOPERABLE and isolated due to service water leaks.
- All other ECCS equipment is OPERABLE.

With the plant in this configuration, which of the following describes if the plant is being operated within the Design Basis for containment cooling, and the BASES for your answer?

A. NO, two (2) Containment Spray pumps must be OPERABLE to meet the design basis for containment cooling.

B. NO, one containment Spray pump and four (4) FCU's are required to be OPERABLE to meet the design basis for containment cooling.

C. YES, one (1) OPERABLE Containment Spray pump combined with three (3) OPERABLE FCU's meets the design basis for containment cooling.

D. YES, a single OPERABLE Containment Spray pump and two (2) FCU's OPERABLE meets the design basis for containment cooling.

Proposed Answer:

C. YES, one (1) OPERABLE Containment Spray pump combined with three (3)

OPERABLE FCU's meets the design basis for containment cooling.

Explanation (Optional):

Technical Reference(s): SD-10.3
ITS 3.6.6
(Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-VCCARC 0004, 0006 (As available)

Question Source: Bank # INPO 24076
Modified Bank # (Note changes or attach parent)
New

Question History: 5/5/2003 Salem Unit 1

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

10 CFR Part 55 Content: 55.41 7
55.43

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
WS # 29	Group #	1	
	K/A #	003K6.04	
OK	Importance Rating	2.8	

Knowledge of the effects of a loss or malfunction on the containment isolation valves affecting RCP operation will have on the RCPs

Proposed Question: Common 38

Unit 3 was operating at 100% power when an inadvertent Phase "B" isolation occurred. Which of the following describes the required actions for the Phase "B" isolation and the reason for performing those actions in accordance with 3-AOP-CCW-1, Loss of Component Cooling Water?

A. Immediately trip the Reactor, trip ALL four RCPs and enter E-0, Reactor Trip due to loss of RCP seal return flow.

B. Immediately trip the Reactor, trip ALL four RCPs and enter E-0, Reactor Trip due to loss of CCW to ALL four RCPs.

C. If Phase "B" CCW supply and return valves for RCP motor cooling are not opened within 2 minutes then trip the Reactor, trip ALL four RCPs and enter E-0, due to loss of RCP motor cooling.

D. If Phase "B" CCW supply and return valves for RCP motor cooling are not opened prior to RCP seal outlet temperature exceeding 200°F then trip the Reactor, trip ALL four RCPs and enter E-0, due to loss of RCP seal cooling.

Proposed Answer:

C. If Phase "B" CCW supply and return valves for RCP motor cooling are not opened within 2 minutes then trip the Reactor, trip ALL four RCPs and enter E-0, due to loss of RCP motor cooling.

Explanation (Optional):

Technical Reference(s): 3-AOP-CCW-1 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-AOPCCW B (As available)

Question Source: Bank #
Modified Bank #
(Note changes or attach parent)
New X

Question History:

Question 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	
WS # 42	Group #	1	
	K/A #	039K5.08	
OK	Importance Rating	3.6	

Knowledge of the operational implications of the effect of steam removal on reactivity as it applies to the MRSS

Proposed Question: Common 39

Given the following conditions:

- A Unit startup is in progress following a mid-cycle outage.
- The reactor is critical at 1E-8 amps.
- The SG Atmospheric steam dump valves are maintaining RCS temperature in MANUAL.
- A condenser steam dump valve fails full OPEN

Assuming NO action by the operating crew, which one of the following describes the immediate effect on the plant?

A. RCS Temperature remains the SAME; Power INCREASES.

B. RCS Temperature remains the SAME; Power DECREASES.

C. RCS Temperature DECREASES; Power DECREASES

D. RCS Temperature DECREASES; Power INCREASES.

Proposed Answer:

D. RCS Temperature DECREASES; Power INCREASES.

Explanation (Optional):

Technical Reference(s): _____ (Attach if not previously provided)

_____

_____

Proposed References to be provided to applicants during examination: NONE

Learning Objective: TAA-C-005 2504
TAA-C-011 02532 (As available)

Question Source: Bank # INPO 24963
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: 12/1/2002 Beaver Valley 1

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

10 CFR Part 55 Content: 55.41 5
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
WS # 44	Group #	1	
	K/A #	059K4.08	
OK	Importance Rating	2.5	

Knowledge of MFW design features(s) and / or interlock(s) which provide for feedwater regulation valve operation (on basis of steam flow, feed flow mismatch)

Proposed Question: Common 40

Given the following conditions:

- A plant startup is in progress
- The Unit is at 30% power.
- All Main Feed Regulating Valves are in AUTO
- 31 Feed Flow channel FT-418B is selected for control of 31 SG.
- 31 Feed Flow transmitter PT-418B fails 10% HIGH.

Assuming NO operator action, which of the following statements describes the response of 31 Main Feed Reg (MFR) Valve?

A. 31 MFR valve will initially throttle in the CLOSE direction and then over time will return to it's original position.

B. 31 MFR valve will initially throttle in the OPEN direction and then over time will return to it's original position.

C. 31 MFR valve will CLOSE and then over time the Reactor will trip on Low SG level.

D. 31 MFR valve will OPEN and then over time the Turbine will trip on High SG level.

Proposed Answer:

A. 31 MFR valve will initially throttle in the CLOSE direction and then over time will return to it's original position.

Explanation (Optional):

Technical Reference(s): _____ (Attach if not previously provided)

_____

_____

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-ICLOVE E (As available)
I3LP-ILO-ICSGL 2.0

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History:

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

10 CFR Part 55 Content: 55.41 7
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
WS # 116	Group #	1	
	K/A #	061K3.01	
	Importance Rating	4.4	

Knowledge of the effect that a loss or malfunction of the AFW will have on the RCS

Proposed Question: Common 41

A reactor trip occurs from 100% power due to a Loss of Main Feedwater.

The following conditions exist:

- All RCPs are running.
- 32 ABFP is in service feeding all four steam generators.
- 31 and 33 ABFPs tripped and remain unavailable.
- 32 ABFP speed has begun to slowly LOWER due to a malfunctioning governor.

Which ONE (1) of the following describes the expected impact on Pressurizer Level if the 32 ABFP speed continues to lower?

Pressurizer level…

A. rises due to the INCREASE in ΔT across the Reactor

B. rises due to DECREASE primary to secondary heat transfer.

C. lowers due to DECREASE in ΔT across the Reactor.

D. lowers due to DECREASE primary to secondary heat transfer.

Proposed Answer:

B. rises due to decreased primary to secondary heat transfer.

Explanation (Optional):

A. Incorrect. Level rises due to Tave increasing but ΔT decreases
B. Correct. The 32 ABFP capacity is directly proportional to pump speed; therefore, as pump speed continues to lower, feed flow to all three SGs will lower. With a

decrease in cooler AFW flow into the SGs, the temperature of the inventory on the secondary side of all three SGs will rise, resulting in a decreased primary to secondary heat transfer rate, and an RCS temperature increase, causing pressurizer level and pressure to rise.

C. Incorrect. ΔT decreases but level will increase due to Tave increasing
D. Incorrect. Level will rise because RCS volume rises as temperature rises due to decreased heat removal

Technical Reference(s): FR-H.1 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: (As available)

Question Source: Bank # X
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: 2003 IP3 Audit Written Exam

Question 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	
WS # 38	Group #	1	
	K/A #	013K3.03	
OK	Importance Rating	4.3	

Knowledge of the effects that a loss or malfunction of the ESFAS will have on the containment

Proposed Question: Common 42

Given the following conditions:

- A Large Break LOCA has occurred.
- Train B ECCS has FAILED to actuate.
- ALL other actuations actuate and Train A ECCS equipment is running as required.

Assuming NO action by the crew, which ONE (1) of the following describes the effect on the plant?

A. Containment Isolation Phase A will actuate. Phase B will NOT actuate.

B. Containment Isolation Phase A will NOT actuate. Phase B will actuate.

C. Containment Isolation Phase A will NOT actuate. Phase B will NOT actuate.

D. Containment Isolation Phase A and B will actuate.

Proposed Answer:

D. Containment Isolation Phase A and B will actuate.

Explanation (Optional):

Technical Reference(s): _____ (Attach if not previously provided)

_____

_____

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-VCCIS 1.0 (As available)

Question Source: Bank # INPO 28065

Modified Bank # _____ (Note changes or attach parent)

New _____

Question History: 9/27/2004 Robinson 2

Question Cognitive Level: Memory or Fundamental Knowledge _____

Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 7

55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
WS # 41	Group #	1	
	K/A #	026A3.01	
OK	Importance Rating	4.3	

Ability to monitor automatic operation of the CSS including pump starts and correct MOV positioning

Proposed Question: Common 43

Given the following plant conditions:

- A Large Break LOCA occurred WITH SI actuation
- 15 seconds after the SI actuation containment pressure RISES to 24 psig

Which one of the following sets of pumps/valves receives a start/open signal on the automatic Containment Spray Actuation?

A. Spray pumps 31 and 32 after ~34 second time delay, MOV 866A and B, CNMT Spray Pump Discharge Valves immediately and AOV 876A and B, CNMT Spray NaOH addition after ~2 minute time delay.

B. Spray pumps 31 and 32 after ~34 second time delay, AOV 876A and B, CNMT Spray NaOH addition and MOV 866A and B, CNMT Spray Pump Discharge Valves immediately.

C. Spray pumps 31 and 32 after ~2 minute time delay, MOV 866A and B, CNMT Spray Pump Discharge Valves immediately and AOV 876A and B, CNMT Spray NaOH addition after ~2 minute time delay.

D. Spray pumps 31 and 32 after ~2 minute time delay, MOV 866A and B, CNMT Spray Pump Discharge Valves and AOV 876A and B, CNMT Spray NaOH addition and 880A-K immediately.

Proposed Answer:

A. Spray pumps 31 and 32 after ~34 second time delay, MOV 866A and B, CNMT

Spray Pump Discharge Valves immediately and AOV 876A and B, CNMT Spray NaOH addition after ~2 minute time delay.

Explanation (Optional):

Technical Reference(s): SD-10.2 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-CS001 E-1 (As available)

Question Source: Bank # INPO 27300
Modified Bank # (Note changes or attach parent)
New

Question History: 4/27/2004 Ginna 1

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

10 CFR Part 55 Content: 55.41 5
55.43 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
WS # 46	Group #	1	
	K/A #	061K6.02	
OK	Importance Rating	2.6	

Knowledge of the effect of a loss or malfunction of the pumps will have on the AFW components

Proposed Question: Common 44

Given the following plant conditions:

- Natural Circulation C/D in progress at 20°F/hr
- S/G Atmospheric Steam dumps in manual for C/D
- 32 ABFP supplying 125 gpm to each of the four S/Gs
- 31 and 33 ABFPs are shutdown in AUTO
- All S/G levels being maintained at 45%

What would be the effect on the AFW System should 32 ABFP trip on overspeed? (Assume NO operator actions)

A. NO AFW Pump would start causing ALL four SGs to eventually dry out.

B. Both motor driven AFW Pumps would immediately start and commence feeding ALL four SGs causing S/G levels to continually increase.

C. Both motor driven AFW Pumps would start when any one of the four S/G levels decreased to 8% causing SG levels to continually increase.

D. Both motor driven AFW Pumps would start when any one of the four S/G levels decreased to 8% causing SG levels to go to and automatically maintain program value.

Proposed Answer:

C. Both motor driven AFW Pumps would start when any one of the four S/G levels decreased to 8% causing SG levels to continually increase.

Explanation (Optional):

Technical Reference(s): SD-21.2 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-AFW001 0005 (As available)

Question Source: Bank #
Modified Bank # (Note changes or attach parent)
New X

Question History:

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

10 CFR Part 55 Content: 55.41 7
55.43

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
WS # 47	Group #	1	
	K/A #	062K2.01	
OK	Importance Rating	3.3	

Knowledge of bus power supplies to major system loads

Proposed Question: Common 45

The Main Generator just tripped due to a pilot wire transfer trip from Buchanan. The 25X1 sync check relay which ensures synchronization between 6.9 KV buses 5 and 1/2 for the auto transfer has failed. All other circuits are intact. Which of the following describes the affect to the Reactor Coolant Pumps (RCP)?

A. Only 32 and 34 RCPs will be operating

B. Only 32 and 33 RCPs will be operating

C. Only 33 and 34 RCPs will be operating

D. Only 31 and 33 RCPs will be operating

Deleted

No correct answer

Proposed Answer:

B. Only 32 and 33 RCPs will be operating

Explanation (Optional):

6.9 KV bus tie 2-5 utilizes sync check relay between bus 1 and 5 also (25X1). Bus two will not transfer of offsite power. Bus 1 – 31 RCP. Bus 2 – 34 RCP.

Technical Reference(s): _____ (Attach if not previously provided)

_____

_____

ES-401	Indian Point Unit 3 Written Examination Question Worksheet	Form ES-401-5

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-RCSRCP D (As available)

Question Source: Bank #

Modified Bank # (Note changes or attach parent)

New X

Question History:

Question 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	
WS # 117	Group #	1	
	K/A #	073K3.01	
	Importance Rating	3.6	

Knowledge of the effect that a loss or malfunction of the PRM system will have on radioactive effluent releases

Proposed Question: Common 46

A plant startup is in progress with condenser vacuum being established using the Steam Jet Air Ejectors and the Hoggers. A Steam Generator Tube Leak occurs which places R-15, Air Ejector Exhaust Gas Activity Monitor, into alarm. ALL automatic actions occur. Subsequently, R-15 fails low. Which of the following statements is correct? Assume NO operator action.

A. A release would be directed into the Containment and the environment via both normal R-15 flow path and alarm flow path.

B. The Steam Jet Air Ejector exhaust would be directed to Containment.

C. A release to the environment would occur via the Hoggers.

D. A release to the environment would occur via the normal R-15 flow path ONLY.

Proposed Answer:

B. The Steam Jet Air Ejector exhaust would be directed to Containment.

Explanation (Optional):

Steam to Hoggers is isolated and SJAE divert to containment. When R-15 fails low none of the auto actions return to normal conditions, therefore SJAE will still be diverting to containment. "A" would be correct if R-15 had not failed low and its exhaust swapped back to normal flow path. "C" would be correct if steam to Hogger air ejectors reopened since there is no rad monitor for Hogger exhaust. "D" would be correct since R-15 failed low if the and its exhaust swapped back to normal flow path.

Technical Reference(s): 3-ARP-040, page 6
SD-12
(Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: (As available) I3LP-ILO-RMSPRM B

Question Source: Bank #
Modified Bank # (Note changes or attach parent)
New X

Question History:

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

10 CFR Part 55 Content: 55.41 7
55.43

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
WS # 118	Group #	1	
	K/A #	076A4.02	
	Importance Rating	2.6	

Ability to operate and/or monitor in the control room SWS valves

Proposed Question: Common 47

A Large Break LOCA occurred concurrent with a Loss of Offsite Power. SI was incorrectly reset WITHOUT placing FCV-1176/1176A, Diesel Generator Service Water Valves, in the OPEN position. Based on this, which of the following control room indications are expected and why?

A. RED lights for FCV-1176/1176A. The Blackout signal causes an independent diesel start signal causing these valves to remain fully OPEN.

B. GREEN lights for FCV-1176/1176A. These valves would go CLOSED when SI is reset.

C. RED lights for FCV-1176/1176A. When SI is reset, these valves go to modulate mode to control temperature. These valves would be full open under the diesel load for this condition.

D. RED and GREEN lights for FCV-1176/1176A. When SI is reset, the valves go to modulate mode to provide a preset flow to the EDG's.

Proposed Answer:

D. RED and GREEN lights for FCV-1176/1176A. When SI is reset, the valves go to modulate mode to provide a preset flow to the EDG's.

Explanation (Optional):

Technical Reference(s): SD-24 (Attach if not previously

provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: (As available) I3LP-ILO-SW001 0006

Question Source: Bank #
Modified Bank # (Note changes or attach parent)
New X

Question History:

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

10 CFR Part 55 Content: 55.41 7
55.43

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
WS # 53	Group #	1	
	K/A #	078G2.4.4	
OK	Importance Rating	4.0	

Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.

Proposed Question: Common 48

Given the following:

- 75% power
- PRZR Pressure 2265 slowly INCREASING
- PRZR spray valves closed
- Letdown Orifice Valves closed
- Charging Pump speed INCREASES to 100%
- PRZR Level 54% and INCREASING

Which one of the following malfunctions would cause these indications and what procedure would be entered?

A. Controlling Pressurizer Pressure Channel Failed Low, 3-AOP-INSTR-1,Instrument/Controller Failure.

B. Controlling Pressurizer Level Failed LOW, 3-AOP-INSTR-1,Instrument/Controller Failure.

C. Loss of an Instrument Bus, 3-AOP-IB-1, Loss of Power to an Instrument Bus.

D. Loss of Instrument Air, 3-AOP-AIR-1, Air System Malfunctions.

Proposed Answer:

D. Loss of Instrument Air, 3-AOP-AIR-1, Air System Malfunctions.

Explanation (Optional):

Technical Reference(s): 3-AOP-AIR-1
SD-3.0
(Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-IA001 7 (1799) (As available)

Question Source: Bank #
Modified Bank #
(Note changes or attach parent)
New X

Question History:

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

10 CFR Part 55 Content: 55.41 5
55.43 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
WS # 119	Group #	1	
	K/A #	103A2.04	
	Importance Rating	3.5	

Ability to (a) predict the impacts of containment evacuation (including recognition of the alarm) malfunctions or operation on the containment system- and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations

Proposed Question: Common 49

Refueling is in progress when a report comes to the CCR that a irradiated fuel assembly has been dropped. R-12, Vapor Containment Gas Activity Monitor, is in ALARM and R-11, Vapor Containment Particulate ActivityMonitor, is rising. The fuel transfer tube gate valve is open. What actions are required to be taken per 3-AOP-FH-1?

A. Evacuate containment and Verify Purge Supply and Exhaust Valves automatically CLOSE.

B. Evacuate containment, CLOSE the fuel transfer tube gate valve and then evacuate FSB.

C. Verify the Containment Building Exhaust Fans swap to the incident mode and evacuate containment.

D. Start ALL FCUs in incident mode and then evacuate containment and the FSB.

Proposed Answer:

A. Evacuate containment and verify Purge Supply and Exhaust Valves automatically CLOSE.

Explanation (Optional):

Technical Reference(s): 3-AOP-FH-1 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: (As available) I3LP-ILO-AOPFH1 B

Question Source: Bank #
Modified Bank # (Note changes or attach parent)
New X

Question History:

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

10 CFR Part 55 Content: 55.41 5
55.43 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
WS # 50	Group #	1	
	K/A #	064K2.03	
OK	Importance Rating	3.2	

Knowledge of bus power supplies to the control power

Proposed Question: Common 50

An electrical short caused a loss of 33 DC Power Panel. Subsequently an inadvertent Safety Injection signal was generated. What would be the configuration of the Emergency Diesel Generators following the SI?

A. ALL three EDGs would be running.

B. Only 31 and 32 EDGs would be running.

C. Only 32 and 33 EDGs would be running.

D. Only 31 and 33 EDGs would be running.

Proposed Answer:

C. Only 32 and 33 EDGs would be running.

Explanation (Optional):

Technical Reference(s): 3-AOP-DC-1, Attachment 9 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-EDSEDG 3 (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History:

Question 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	
WS # 55	Group #	1	
	K/A #	103A4.04	
OK	Importance Rating	3.5	

Ability to manually operate and / or monitor in the control room Phase A and Phase B resets

Proposed Question: Common 51

The plant was operating in the normal full power lineup. An inadvertent Safety Injection and Phase A Isolation occurred. Safety Injection has been RESET. What action will allow Letdown Isolation Valves, 201 and 202, to be OPENED in accordance with ES-1.1, SI Termination?

A. Depress both Phase A master Reset pushbuttons and the valves will REOPEN.

B. Depress both Phase A master Reset pushbuttons then put 201 and 202 valve switches to CLOSE and then back to OPEN and the valves will REOPEN.

C. Depress both individual valve Reset pushbuttons then put 201 and 202 valve switches to CLOSE and then back to OPEN and the valves will REOPEN.

D. Depress both Phase A master Reset pushbuttons then depress the individual valve Reset pushbuttons and the valves will REOPEN.

Proposed Answer:

D. Depress both Phase A master Reset pushbuttons then depress the individual valve Reset pushbuttons and the valves will REOPEN.

Explanation (Optional):

Technical Reference(s): 3-ES-1.1, Attachment 3 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-CVC001 5.0 (As available)

Question Source: Bank #

Modified Bank # (Note changes or attach parent)

New X

Question History:

Question 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	
WS # 120	Group #	2	
	K/A #	068K5.04	
	Importance Rating	3.2	

Knowledge of the operational implication of the biological hazards of radiation and the resulting goal of ALARA as they apply to the Liquid Radwaste System

Proposed Question: Common 52

The Circulating water System is out of Service during an outage. Waste Management wants to release a monitor Tank with total gamma activity of 5E-4 µCi/ml and less than minimum detectable boron concentration. Based on this, which of the following is correct?

A. The tank MAY be released without taking further action or obtaining special permission. The total gamma activity is low enough that dilution flow is NOT required to reduce instantaneous dose rates.

B. Dilution flow is necessary to ensure the instantaneous dose rate limit is NOT exceeded. This tank MAY be released if minimum circulator flow is borrowed from Unit 2.

C. The tank MAY be released without taking further action or obtaining special permission. Dilution flow would only be required to satisfy SPDES requirements if the tank contained a measurable boron concentration.

D. Dilution flow is necessary to ensure the instantaneous dose rate limit is NOT exceeded. This tank my not be released until sufficient Unit 3 circulators are placed in service.

Proposed Answer:

B. Dilution flow is necessary to ensure the instantaneous dose rate limit is NOT exceeded. This tank MAY be released if minimum circulator flow is borrowed from Unit 2.

Explanation (Optional):

Technical Reference(s): IP-SMM-CY-001 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: (As available) I3LP-ILO-LWR001 4a, 7b

Question Source: Bank #
Modified Bank # (Note changes or attach parent)
New X

Question History:

Question 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	
WS # 57	Group #	2	
	K/A #	002K6.02	
OK	Importance Rating	3.6	

Knowledge of the effect or a loss or malfunction of the RCP on the RCS

Proposed Question: Common 53

Unit 3 was operating at 28% power when 31 Reactor Coolant Pump (RCP) tripped on overcurrent.

Which of the following describes the unit's initial response? (Assume NO operator action AND Rod Control in MANUAL.)

A. A reactor trip occurs and unaffected loops T_{AVE} DECREASES.

B. A reactor trip occurs and unaffected loops T_{AVE} INCREASES.

C. A reactor trip will NOT occur and unaffected loops T_{AVE} DECREASES.

D. A reactor trip will NOT occur and unaffected loops T_{AVE} INCREASES.

Proposed Answer:

D. A reactor trip will NOT occur and unaffected loops T_{AVE} INCREASES.

Explanation (Optional):

Technical Reference(s): SD-28
3-ARP-002 page 4
Simulator

(Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-ICRXP E-3 (As available)

Question Source: Bank # INPO 20589
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: 6/29/2000 Byron 1

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

10 CFR Part 55 Content: 55.41 7
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
WS # 48	Group #	1	
	K/A #	063A3.01	
OK	Importance Rating	2.7	

Ability to monitor automatic operation of the DC electrical system meters, annunciators, dials, recorders and indicating lights

Proposed Question: Common 54

Given the following plant conditions:

- A BATTERY CHARGE TROUBLE category alarm was received in the control room
- The conventional NPO reports the RED light for + (positive) Ground Detection for 31 Battery Charger is LIT

What actions are required (if any) to clear the alarm in the control room making it available to alarm on any future alarm condition?

A. Open 31 Battery Charger input OR output breakers.

B. Place the Normal/Bypass switch on 31 Battery Charger for + Ground Detection in Bypass position.

C. Place the Common Alarm Buzzer ON/OFF toggle switch to Bypass.

D. Cannot be cleared until the + ground condition is corrected.

Proposed Answer:

B. Place the Normal/Bypass switch on 31 Battery Charger for + Ground Detection in Bypass position.

Explanation (Optional):

Technical Reference(s): SD-27.5 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-EDS125 E-7 (As available)

Question Source: Bank #
Modified Bank # (Note changes or attach parent)
New X

Question History:

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

10 CFR Part 55 Content: 55.41 7
55.43

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
WS # 121	Group #	2	
	K/A #	071A3.03	
	Importance Rating	3.6	

Ability to monitor automatic operation of the Waste Gas Disposal System including radiation monitoring system alarm and actuating signals

Proposed Question: Common 55

A waste gas release is in progress.

Which ONE (1) of the following conditions will automatically close RCV-014, Gaseous Waste Release Header Stop Valve?

A. R-27, Wide Range Plant Vent Noble Gas Detector, in ALARM due to Tritium.

B. R-27, Wide Range Plant Vent Noble Gas Detector, in ALARM due to Krypton and Xenon.

C. R-20, Waste Gas Detector, in ALARM due to Tritium.

D. R-20, Waste Gas Detector, in ALARM due to Krypton and Xenon.

Proposed Answer:

B. R-27, Wide Range Plant Vent Noble Gas Detector, in ALARM due to Krypton and Xenon.

Explanation (Optional):

A is incorrect because it will not go into alarm due to Tritium.

C and D are incorrect because RCV-014 is not interlocked with the detector.

Technical Reference(s): SD-4.3 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: (As available) I3LP-ILO-GWR001 5
I3LP-ILO-RMSPRM E

Question Source: Bank # X
Modified Bank # MODIFIED (Note changes or attach parent)
New

Question History: 2001 IP3 NRC Exam

Question 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	
WS # 103	Group #	1	
	K/A #	014K1.01	
	Importance Rating	3.2	

Knowledge of the physical connection and/or cause effect relationships between the RPIS and the CRDS

Proposed Question: Common 56

Given the following:

- A power ascension was in progress with reactor power at 75%
- Control Bank "D" (CBD) rods are at 175 steps
- A CBD rod dropped into the core
- The problem with the dropped rod has been corrected and the rod has subsequently been withdrawn back to 175 steps
- The ATC inadvertently depressed the ROD CONTROL STARTUP pushbutton instead of the ROD CONTROL ALARM RESET pushbutton

Which of the following describes the indications or conditions that would exist due to depressing the ROD CONTROL STARTUP pushbutton?

A. The ROD INSERTION LOW LIMIT and the ROD INSERTION LOW LOW LIMIT alarm would be prevented from alarming.

B. The ROD INSERTION LOW LIMIT and the ROD INSERTION LOW LOW LIMIT alarm would alarm but at a LOWER value than the actual Rod Insertion Limit.

C. ALL control bank step counters would indicate 000, ALL shutdown bank step counters would indicate 000 steps.

D. ALL control bank step counters would indicate 000, ALL shutdown bank step counters would indicate 230 steps.

Proposed Answer:

C. ALL control bank step counters would indicate 000, ALL shutdown bank step counters would indicate 000 steps.

Explanation (Optional):

The Rod Insertion limits alarms will both alarm when the startup pushbutton is depressed

Technical Reference(s): SD-16.1
Simulator
(Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-ICRPI B (As available)

Question Source: Bank #
Modified Bank # (Note changes or attach parent)
New X

Question History:

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

10 CFR Part 55 Content: 55.41 7
55.43

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
WS # 49	Group #	1	
	K/A #	063K3.02	
OK	Importance Rating	3.5	

Knowledge of the effects that a loss or malfunction of the DC electrical system will have on components using DC control power

Proposed Question: Common 57

Given the following:

- The plant is at 100% power.
- Safeguards Train B, DC Power has failed.

Which ONE of the following describes the response of AFW Pump 33 to a safeguards actuation?

A. Pump will AUTO start but does NOT supply water to any S/G.

B. Pump will AUTO start and supplies water to only 34 S/G.

C. Pump will AUTO start and supplies water to 33 and 34 S/Gs.

D. Pump will NOT AUTO start.

Proposed Answer:

D. Pump will NOT auto start.

Explanation (Optional):

Technical Reference(s): SD-10.0 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-EDS125 E-5 (As available)

Question Source: Bank # INPO 28414
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: 11/15/2004 Kewaunee, Unit 1

Question 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	
WS # 60	Group #	2	
	K/A #	015K5.02	
OK	Importance Rating	2.7	

Knowledge of the operational implications of discriminator/compensation operation concepts as they apply to the NIS

Proposed Question: Common 58

Which one of the following contains BOTH conditions that will result in indicated reactor power being LOWER than actual reactor power?

A. Source Range pulse height discrimination set too HIGH.
Intermediate Range compensating voltage set too HIGH.

B. Source Range pulse height discrimination set too LOW.
Intermediate Range compensating voltage set too LOW.

C. Source Range pulse height discrimination set too LOW.
Intermediate Range compensating voltage set too HIGH.

D. Source Range pulse height discrimination set too HIGH.
Intermediate Range compensating voltage set too LOW.

Proposed Answer:

A. Source Range pulse height discrimination set too HIGH.
Intermediate Range compensating voltage set too HIGH

Explanation (Optional):

Technical Reference(s): SD-13 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-ICEXC E-3 (As available)

Question Source: Bank # INPO 24930
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: 12/1/2002 Beaver Valley 1

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

10 CFR Part 55 Content: 55.41 5
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
WS # 61	Group #	2	
	K/A #	028A2.03	
OK	Importance Rating	3.4	

Malfunctions or operations on the HRPS; and based on those predictions use procedures to correct, control or mitigate the consequences of the hydrogen air concentration in excess of limit flame propagation or detonation with resulting equipment damage in containment

Proposed Question: Common 59

Given the following plant conditions:

- From full power, a Large Break LOCA occurred.
- Containment hydrogen concentration is at 2%.
- 31, 32 and 34 Fan Cooler Units started automatically on the Safety Injection
- 31 and 32 Containment Spray Pumps automatically started
- The plant is on Cold Leg Recirculation

Which one of the following actions should be taken to address these conditions in accordance with ES-1.3, Transfer to Cold Leg Recirculation?

A. Start 33 and 35 Containment Fan Cooler Units to ensure adequate mixing of Containment atmosphere.

B. Operate at least one of the Hydrogen Recombiners, thereby minimizing the potential for a hydrogen burn.

C. Initiate a containment purge to reduce hydrogen below 1%, thereby minimizing the potential for a hydrogen burn.

D. Allow Containment Spray to continue to run for 4 hours, then resample to see if spray flow has reduced Hydrogen concentration to <1%.

Proposed Answer:

B. Operate at least one of the Hydrogen Recombiners, thereby minimizing the potential for a hydrogen burn.

Explanation (Optional):

Technical Reference(s): ES-1.3 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-VCPAH2 5 (As available)

Question Source: Bank # INPO 26326
Modified Bank # (Note changes or attach parent)
New

Question History: 8/1/2003 Palisades 1

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

10 CFR Part 55 Content: 55.41 5
55.43 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
WS # 122	Group #	2	
	K/A #	086K4.04	
	Importance Rating	3.1	

Knowledge of design features(s) and /or interlocks(s) which provide for personnel safety

Proposed Question: *Common 60*

Which area in the plant has a time delay for automatic fire protection actuation for personnel safety?

A. Main Transformer

B. Control Room

C. 480V Switchgear Room

D. Electrical Tunnel

Proposed Answer:

C. 480V Switchgear Room

Explanation (Optional):

Mn Trans and Electrical Tunnel have fire protection but of these, only the 480V Switchgear Room has a time delay. The control room only has portable fire protection equipment.

Technical Reference(s): SD-29.6 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

ES-401	Indian Point Unit 3 Written Examination Question Worksheet	Form ES-401-5

Learning Objective: (As available) I3LP-ILO-FPS001 2

Question Source: Bank # _____

Modified Bank # _____ (Note changes or attach parent)

New X

Question History:

Question Cognitive Level: Memory or Fundamental Knowledge X

Comprehension or Analysis _____

10 CFR Part 55 Content: 55.41 _____

55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
WS # 63	Group #	2	
	K/A #	045A1.06	
OK	Importance Rating	3.3	

Ability to predict and / or monitor changes in parameters associated with operating the MT/G system controls including expected response of secondary plant parameters following T/G trip

Proposed Question: Common 61

The following plant conditions exist:

- The plant is operating at 100%.
- All systems are lined up in their normal lineups.
- All control systems are in automatic.
- Main Generator output breakers 1 and 3 trip due to a pilot wire trip.

Which of the following describes the expected immediate plant response?

A. S/G pressure initially INCREASES as main turbine is lost, S/G levels initially DECREASE due to shrink, feed flow initially INCREASES.

B. S/G pressure initially INCREASES as main turbine is lost, S/G levels initially DECREASES due to shrink, feed flow initially DECREASES.

C. S/G pressure initially DECREASES as main turbine is lost, S/G levels initially DECREASE due to shrink, feed flow initially INCREASES.

D. S/G pressure initially DECREASES as main turbine is lost, S/G levels initially INCREASES due to lower steam pressure, feed flow initially DECREASES.

Proposed Answer:

B. S/G pressure initially INCREASES as main turbine is lost, S/G levels initially DECREASE due to shrink, feed flow initially DECREASES.

Explanation (Optional):

Technical Reference(s): _____ (Attach if not previously provided)

_____

_____

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-ICSGL 2 (As available)

Question Source: Bank # INPO 24696

Modified Bank # _____ (Note changes or attach parent)

New _____

Question History: 5/30/2003 Seabrook 1

Question Cognitive Level: Memory or Fundamental Knowledge _____

Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 5

55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
WS # 64	Group #	2	
	K/A #	055K3.01	
OK	Importance Rating	2.5	

Knowledge of the effects that a loss or malfunction of the CARS will have on the main condenser

Proposed Question: Common 62

Given the following:

- The unit is at 100% power.
- All major controls are in AUTO.
- T_{AVE} has slowly INCREASED 0.2°F in the last 5 minutes.
- Main Generator output has DECREASED 10 MWe.

Which ONE (1) of the following describes the cause of the above indications?

A. SG Safety Valve leakage.

B. Inadvertent RCS dilution.

C. Hudson River tide change from outgoing to incoming.

D. Condenser Air Ejector malfunction.

Proposed Answer:

D. Condenser Air Ejector malfunction.

Explanation (Optional):

Technical Reference(s): SD-20 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-CND001 0002 (As available)

Question Source: Bank # INPO 23359
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: 3/10/2003 Indian Point 3

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

10 CFR Part 55 Content: 55.41 7
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
WS # 65	Group #	2	
	K/A #	072A3.01	
OK	Importance Rating	2.9	

Ability to monitor automatic operation of the ARM system including changes in ventilation alignment

Proposed Question: Common 63

Radiation levels in the Fuel Storage Building (FSB) INCREASED causing R-5, Fuel Storage Building Monitor, to reach the alarm setpoint.

By design, which of the following would AUTOMATICALLY occur in the FSB due to this condition?

A. Start the FSB Supply Fan, shut the sliding door and apply air to door seals.

B. Shut the sliding door, charcoal filter face dampers open and stop the Exhaust Fan.

C. Stop the FSB Supply Fan, shut the sliding door and start Exhaust Fan.

D. Stop exhaust fans, charcoal filter face dampers open and stop the FSB Supply Fan.

Proposed Answer:

C. Stop the FSB Supply Fan, shut the sliding door and start Exhaust Fan.

Explanation (Optional):

Technical Reference(s): SD-12 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-RMSARM B (As available)

Question Source: Bank # INPO
Modified Bank # 21458 (Note changes or attach parent)
New

Question History: 7/17/2002 Braidwood 1

Question 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 #	G	
WS # 66	Group #	1	
	K/A #	G2.1.1	
OK	Importance Rating	3.7	

Knowledge of conduct of operations requirements

Proposed Question: Common 64

Given the following conditions:

- A licensed reactor operator who has an inactive license has been performing administrative duties in the Training Section for twelve months.
- He is returning to Operations and is to be placed back on shift.

Which ONE (1) of the following are the minimum requirements for returning his license to an active status?

A. Complete 40 (any combination of hours) hours watch standing duties in the RO position, including one shift turnover, and conduct a complete plant tour with the Shift Manager.

B. Complete 56 (7 eight hours shifts) hours watch standing duties in the RO position, including shift turnovers before and after each shift, and conduct a complete plant tour with the Shift Manager.

C. Complete 60 (5 Twelve hour shifts) hours watch standing duties in the RO position, including either the on-coming or off-going shift relief, and review all the procedure changes for the past 7 days.

D. Complete FIVE full normal shifts (8 or 12 hours), including either the on-coming or off-going shift relief, and review all the procedure changes for the past 7 days.

Proposed Answer:

A. Complete 40 (any combination of hours) hours watch standing duties in the RO position, including one shift turnover, and conduct a complete plant tour with the

Shift Manager.

Explanation (Optional):

Technical Reference(s): OAP-032 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: IOWKB-ILO-ADM-001 0001 (As available)

Question Source: Bank # INPO 28112
Modified Bank # 28112 (Note changes or attach parent)
New

Question History: 9/27/2004 Robinson 2

Question 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 #	G	
WS # 67	Group #	1	
	K/A #	G2.1.32	
OK	Importance Rating	3.4	

Ability to explain and apply all system limits and precautions

Proposed Question: Common 65

What is the BASIS for the requirement to ensure that the temperature in the steam generators is less than or equal to the temperature in the Reactor Coolant System (RCS) cold leg PRIOR to directing initial starts of Reactor Coolant Pumps?

A. Ensures an available heat sink for the RCS when securing shutdown cooling.

B. Prevents a rapid depressurization of the steam generators due to a cooldown.

C. To limit the thermal stresses experienced by the steam generator tubes.

D. Ensures that heat energy addition to the RCS from the steam generators does not occur, causing rapid pressure rise in RCS.

Proposed Answer:

D. Ensures that heat energy addition to the RCS from the steam generators does not occur, causing rapid pressure rise in RCS.

Explanation (Optional):

Technical Reference(s): 3-SOP-RCS-001 (Attach if not previously provided)

ES-401	Indian Point Unit 3 Written Examination Question Worksheet	Form ES-401-5

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-RCSRCP H (As available)

Question Source: Bank # INPO 20893
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: 12/21/2001 Palisades 1

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

10 CFR Part 55 Content: 55.41 10
55.43 2

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	G	
WS # 68	Group #	2	
	K/A #	G2.2.1	
OK	Importance Rating	3.7	

Ability to perform pre-startup procedures for the facility, including operating those controls associated with plant equipment that could effect reactivity

Proposed Question: Common 66

The following plant conditions exist:

- A reactor startup is in progress
- Estimated Critical Position (ECP) is 80 steps on Control Bank D
- The ATC is preparing to withdraw Control Bank "A"
- Initial count rate prior to shutdown bank withdrawal was 40 cps on source range N31 and N32
- Current count rate is STABLE at 300 cps on source range N31 and N32

Which ONE of the following is the next action to be taken?

A. Continue reactor startup and continue to plot source range counts to criticality.

B. Insert ALL control rods and evaluate the ECP.

C. Stop control rod withdrawal until abnormality is understood and does not jeopardize plant safety.

D. Begin emergency boration to achieve 1% shutdown margin.

Proposed Answer:

B. Insert ALL control rods and evaluate the ECP.

Explanation (Optional):

Technical Reference(s): 3-POP-1.2, Attachment 2 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-POP-006 E-3 (As available)

Question Source: Bank # INPO
Modified Bank # 27237 (Note changes or attach parent)
New

Question History: 5/10/2004 Davis-Besse 1

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

10 CFR Part 55 Content: 55.41 10
55.43 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	
WS # 123	Group #	G	
	K/A #	G2.2.23	
	Importance Rating	2.6	

Ability to track limiting conditions for operations

Proposed Question: Common 67

The plant is operating at 100% power when 31 RHR Pump is found not to meet criteria during a surveillance.

What log entry or entries need to be made to track the failed surveillance?

A. An entry into the eSoms LCO Tracking at the time the surveillance began.

B. An entry into the eSoms LCO Tracking and Unit Log at the time the SM declares 31 RHR Pump inoperable.

C. An entry into the eSoms LCO Tracking and Unit Log at the time of discovery the pump did not meet the surveillance criteria.

D. An entry into Unit Log at the time the surveillance was stopped.

Proposed Answer:

B. An entry into the eSoms LCO Tracking and Unit Log at the time the SM declares 31 RHR Pump inoperable.

Explanation (Optional):

Technical Reference(s): OAP-35, steps 4.5 & 4.8 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: (As available) I3LP-ILO-TSP001

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History:

Question 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	
WS # 43	Group #	1	
	K/A #	039K1.07	
OK	Importance Rating	3.4	

Knowledge of the physical connections and / or cause-effect relationships between the MRSS and the AFW system

Proposed Question: Common 68

Unit 3 was operating at 100% power when a steam line break occurred in the Aux Feed Building. The break is upstream of MS-42, 33 Steam Generator Supply to 32 ABFP.

During the performance of E-2, Faulted Steam Generator Isolation, the NPO fails to MANUALLY SHUT MS-42 as directed by the control room.

Which of the following describes a consequence of this error?

A. 32 ABFP will lose its steam supply because both Steam Generators will blow down through the rupture.

B. 32 ABFP will lose its steam supply because PCV-1139, 32 ABFP pressure control valve, will automatically CLOSE.

C. 32 ABFP will NOT be affected because MS-42, 33 Steam Generator Supply to 32 ABFP, is a stop check valve.

D. 32 ABFP will NOT be affected because PCV-1310A and 1310B will isolate the leak.

Proposed Answer:

C. 32 ABFP will NOT be affected because MS-42, 33 Steam Generator Supply to 32 ABFP, is a stop check valve.

Explanation (Optional):

Technical Reference(s): SD-21.2 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-AFW001 0002 (As available)

Question Source: Bank #
Modified Bank # (Note changes or attach parent)
New X

Question History:

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

10 CFR Part 55 Content: 55.41 2,9
55.43

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	G	
WS # 70	Group #	2	
	K/A #	G2.2.28	
OK	Importance Rating	2.6	

Knowledge of new and spent fuel movement procedures

Proposed Question: Common 69

Given the following conditions:

- Unit 3 is in MODE 6
- A fuel assembly is being lowered into the core
- Source Range Channels N31 and N32 are being used to monitor core reactivity
- Source Range Channels N38 and N39 are out-of-service for calibration

What action is required per Technical Specifications should N31 fail low during the fuel assembly evolution?

A. Immediately remove the fuel assembly from the core and store in the manipulator, then suspend further fuel movement.

B. Continue to lower the fuel assembly into its correct location, then suspend further fuel movement.

C. Place the fuel assembly in a core location that is NOT adjacent to any other fuel assemblies.

D. Immediately suspend core alterations and suspend positive reactivity additions.

Proposed Answer:

D. Immediately suspend core alterations and suspend positive reactivity additions

Explanation (Optional):

Technical Reference(s): ITS 3.9.2 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-TSP001 9168 (As available)

Question Source: Bank #
Modified Bank #
(Note changes or attach parent)
New X

Question History:

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

10 CFR Part 55 Content: 55.41
55.43 7

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	G	
WS # 71	Group #	3	
	K/A #	G2.3.10	
OK	Importance Rating	2.9	

Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure

Proposed Question: Common 70

Given the following conditions at a work site:

- A task is required to be performed in a Radiation area
- Radiation level is 40 mrem/hr
- Radiation level with shielding is 10 mrem/hr
- Time for one worker to install shielding is 9 minutes
- Time for one worker to remove shielding is 6 minutes
- Time to conduct the task with one worker is 1 hour
- Time to conduct the task with two workers is 20 minutes

Assumptions:

- A dose rate of 40 mrem/hr will be received while installing and removing the shielding.
- Shielding is installed and removed by one worker only.

Which ONE of the following would result in the lowest total whole body dose?

Conduct the task with:

A. two workers without shielding.

B. one worker without shielding.

C. two workers with shielding.

D. one worker with shielding.

Proposed Answer:

C. two workers with shielding.

Explanation (Optional):

Technical Reference(s): _____ (Attach if not previously provided)

_____

_____

Proposed References to be provided to applicants during examination: NONE

Learning Objective: GET FUNDAMENTS RAD (As available)

Question Source: Bank # INPO 27008

Modified Bank # _____ (Note changes or attach parent)

New _____

Question History: 12/15/2003 Turkey Point 3

Question Cognitive Level: Memory or Fundamental Knowledge _____

Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 _____

55.43 4

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	
WS # 124	Group #	G	
	K/A #	G2.3.4	
	Importance Rating	2.6	

Knowledge of radiation exposure limits and contamination control, including permissible levels in excess of those authorized

Proposed Question: Common 71

A room in the Radiologically Controlled Area has been surveyed by RP with the following results:

- Maximum on contact radiation reading – 125 mr/hr
- Maximum general area (30 cm from source) radiation reading – 50 mr/hr
- Maximum Beta-gamma contamination reading – 250 dpm/100 cm^2

Based on the survey results, the room MUST have which of the following postings at the entry to the room:

A. Radiation Area

B. High Radiation Area

C. Radiation Area, Contaminated Area

D. High Radiation Area, Contaminated Area

Proposed Answer:

A. Radiation Area

Explanation (Optional):

Radiation Area >5 mr/hr, High Radiation Area >100 mr/hr general area, Contaminated Area >1000 dpm/100 cm^2

B. plausible due to contact reading in excess of 100 mr/hr

C & D plausible due to contamination present

Technical Reference(s): En-RP-108 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: (As available) LIC-RAD-05 5.1.6, 5.1.7

Question Source: Bank # INPO
Modified Bank # 20261 (Note changes or attach parent)
New

Question History: 9/10/2001 Cook 1

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

10 CFR Part 55 Content: 55.41
55.43 4

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	G	
WS # 73	Group #	4	
	K/A #	G2.4.18	
OK	Importance Rating	2.7	

Knowledge of the specific bases for EOPs

Proposed Question: Common 72

Which one of the following describes the reason for feeding only one S/G when all S/Gs level are LESS THAN 12% wide range with Bleed and Feed in progress and RCS hot leg temperature is GREATER THAN 550°F, in accordance with FR-H.1, Response to Loss of Secondary Heat Sink?

A. To ensure that if a S/G failure occurs due to excessive stresses, the failure is isolated to ONE S/G.

B. To prevent a rapid cooldown of the RCS that could lead to a pressurized thermal shock condition.

C. To demonstrate the reliability of the FW source before filling ALL of the steam generators.

D. To determine if ONE S/G is capable of maintaining adequate heat sink so that RCS bleed-and-feed can be terminated.

Proposed Answer:

A. To ensure that if a S/G failure occurs due to excessive stresses, the failure is isolated to ONE S/G.

Explanation (Optional):

Technical Reference(s): FR-H.1, Foldout Page
FR-H.1, Bases
(Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-EOPFRH 7 (As available)

Question Source: Bank # INPO 24409
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: 9/17/2002 Summer 1

Question 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	
WS # 125	Group #	G	
	K/A #	G2.4.48	
	Importance Rating	3.5	

Ability to interpret control room indications to verify the status and operation of system, and understand how operator actions and directives affect plant and system conditions

Proposed Question: Common 73

Given the following conditions:

- A reactor trip and safety injection have occurred.
- All equipment is operating as designed.
- The crew is performing diagnostic actions of E-0, Reactor Trip Or Safety Injection.
- Containment temperature is 190°F and LOWERING.
- RCS pressure is 1250 psig and STABLE.
- RCS subcooling margin is 46°F and STABLE.
- RWST level is 18 feet and dropping slowly
- PRZR level is 4% and RISING.
- All AFW pumps are running with 400 gpm flow.
- All RCP's are STOPPED.

Based upon conditions above, in which ONE of the following procedures will the crew start a reactor coolant pump, if it is desired?

A. ES-1.3, Transfer to Cold Leg Recirculation

B. ES-1.1, SI Termination

C. E-1, Loss Of Reactor Or Secondary Coolant

D. ES-1.2, Post-LOCA Cooldown And Depressurization

Proposed Answer:

D. ES-1.2, Post-LOCA Cooldown And Depressurization

Explanation (Optional):

A. Incorrect. Use of ES-1.3 is not appropriate for these conditions.
B. Incorrect. SI Termination criteria is not met.
C. Incorrect. Transition to ES-1.2 occurs first.
D. Correct. ES-1.2 is performed which will start RCP's during the RCS cooldown.

Technical Reference(s): ES-1.2 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: (As available) I3LP-ILO-EOPE1 19

Question Source: Bank # X
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: Last NRC Exam

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

10 CFR Part 55 Content: 55.41 _____
55.43 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	
WS # 126	Group #	G	
	K/A #	G2.4.16	
	Importance Rating	3.0	

Knowledge of EOP implementation hierarchy and coordination with other support procedures

Proposed Question: Common 74

Given the following

- A LOCA has occurred
- The operating crew is implementing E-1, LOSS OF REACTOR OR SECONDARY COOLANT
- The Integrity Critical Safety Function (CSF) path has gone ORANGE

Which one of the following is the required action?

A. Continue in E-1. Actions to correct the ORANGE path are the same in E-1 and FR-P.1, Response to Imminent Pressurized Thermal Shock Conditions.

B. Complete E-1 through the actions of Containment Spray verification. Transition to FR-P.1 at the completion of E-1

C. Immediately transition to and continue in FR-P.1 until the ORANGE path clears

D. Immediately transition to and complete FR-P.1, unless a higher priority ORANGE OR RED condition develops

Proposed Answer:

D. Immediately transition to and complete FR-P.1, unless a higher priority ORANGE OR RED condition develops

Explanation (Optional):

A and B are incorrect because Red condition takes priority over actions of E-1.
C is incorrect because the FRP is performed to completion, regardless of whether the initiating condition clears, unless a higher priority condition exists and you wouldn't be forced to stay in FR-Z.1 until the condition clears

Technical Reference(s): EOP User's Guide (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: (As available) I3LP-ILO-EOPPROU 10

Question Source: Bank # X
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: 2003 IP3 Audit Editorially Modified

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

10 CFR Part 55 Content: 55.41 10
55.43 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
WS # 10	Group #	1	
	K/A #	000038EA1.16	
OK	Importance Rating	4.4	

Ability to operate and monitor SG atmospheric relief valve and secondary PORV controllers and indicators as they apply to a SGTR

Proposed Question: Common 75

Given the following conditions:

- A Steam generator Tube Rupture has occurred on the 31 SG.
- ALL equipment is operating as designed.
- 31 SG has been isolated.

The following indications exist:

- 31 SG pressure is 1000 psig and trending UP.
- 31 SG NR level is 55% and trending UP.

Which one of the following describes how pressure will be controlled on 31 SG PRIOR to completion of the RCS depressurization?

A. Automatically at the first SG safety valve setpoint.

B. Manually at the condenser steam dump pressure setpoint.

C. Automatically with the SG atmospheric dump valve controller set at 1040 psig.

D. Manually by performing secondary depressurization to cool down the RCS below initial target temperature.

Proposed Answer:

C. Automatically with the SG atmospheric dump valve controller set at 1040 psig.

Explanation (Optional):

Technical Reference(s): E-3, step 3 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-EOP30 7 (As available)

Question Source: Bank # INPO 25007
Modified Bank # (Note changes or attach parent)
New

Question History: 12/1/2002 Beaver Valley 1

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

10 CFR Part 55 Content: 55.41 4,5,7
55.43 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
WS # 76	Group #		1
	K/A #	025AA2.07	
OK	Importance Rating		3.7

Ability to determine and interpret pump cavitation as it applies to the Loss of Residual Heat Removal System.

Proposed Question: **"SRO ONLY" 76**

Given the following plant conditions:

- The plant is in CSD following a refueling outage.
- A vacuum has been drawn on the RCS in preparation for vacuum filling of the RCS.
- Vacuum is currently 26"Hg
- RCS level is 62'6"
- RHR flow prior to drawing the vacuum was 2500 gpm.
- RCS temperature is 125°F
- RHR Flow Indicator (FI-640) starts fluctuating from 1500 gpm to 2000 gpm with the 31 RHR pump running.

What has caused the reduction in RHR flow?

A. RHR flow transmitter inaccuracy due to the vacuum.

B. 31 RHR pump is cavitating due to high RCS temperature.

C. Flashing of water to steam and subsequent collapse back to water in the Reactor Vessel INCREASING and DECREASING headloss across the vessel.

D. 31 RHR Pump is vortexing due to low RCS inventory from draining below mid-loop.

Proposed Answer:

B. 31 RHR pump is cavitating due to high RCS temperature.

Explanation (Optional):

Technical Reference(s): 3-SOP-RCS-017
3-POP-4.2
(Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-POP-004 A (As available)

Question Source: Bank # INPO
Modified Bank # 28389 (Note changes or attach parent)
New

Question History: 11/15/2004 Kewaunee, Unit 1

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

10 CFR Part 55 Content: 55.41
55.43 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
WS # 77	Group #		1
	K/A #	W/E12EA2.1	
OK	Importance Rating		4.0

Ability to determine and interpret the facility conditions and selection of appropriate procedures during abnormal and emergency operations as they apply to the Uncontrolled Depressurization of all Steam Generators

Proposed Question: **"SRO ONLY" 77**

Given the following plant conditions:

- The Unit has sustained a main steam line break affecting ALL 4 SGs.
- The crew is currently performing ECA 2.1, Uncontrolled Depressurization Of All Steam Generators.
- The crew has throttled AFW flow to 100 gpm to each SG to minimize the RCS cooldown. Safety Injection Termination Criteria is NOT met.

SG	Level	Pressure	TREND
31 SG	19% WR	320 psig	SLOWLY DECREASING
32 SG	18% WR	310 psig	SLOWLY DECREASING
33 SG	26% WR	380 psig	SLOWLY INCREASING
34 SG	18% WR	310 psig	SLOWLY DECREASING

Which one of the following describes the required action and the reason for the action?

A. Continue with ECA 2.1, Uncontrolled Depressurization Of All Steam Generators, because Safety Injection termination is not complete.

B. Transition to FR-H.1, Loss Of Secondary Heat Sink because there is a RED condition on the Heat Sink Status Tree.

C. Transition to E-2, Faulted Steam Generator Isolation because there is an intact SG available.

D. Transition to E-3, Steam Generator Tube Rupture because there is an unexplained increase in SG level.

Proposed Answer:

C. Transition to E-2, Faulted Steam Generator Isolation because there is an intact SG available.

Explanation (Optional):

Technical Reference(s): _____ (Attach if not previously provided)

_____

_____

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-EOPE0 5 (As available)

Question Source: Bank # INPO 25026

Modified Bank # _____ (Note changes or attach parent)

New _____

Question History: 12/1/2002 Beaver Valley 1

Question Cognitive Level: Memory or Fundamental Knowledge _____

Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 _____

55.43 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
WS # 127	Group #		1
	K/A #	000062G2.4.6	
	Importance Rating		4.0

Knowledge of system based EOP mitigation strategies

Proposed Question: **"SRO ONLY"** 78

While transferring to Cold Leg Recirculation the Team determines that SWN-1112, SWP's 31, 32, 33 to Conventional Non-essential Header Discharge Isolation valve, can NOT be CLOSED. SWN-1111, SWP's 34, 35, 36 to Conventional Non-essential Header Discharge Isolation valve is CLOSED. In accordance with ES-1.3, Transfer to Cold Leg Recirculation, the team should ...

A. continue on with the transfer to Cold Leg Recirculation, SWN-1111 will provide sufficient Service Water isolation.

B. place the Backup Service Water Pumps in service.

C. isolate Service Water to H_2 Coolers, S/G Blowdown Recovery Hx No. 4 and Turbine Hall Closed Cooling Hxs.

D. isolate Service Water to Main Lube Oil, Seal Oil and Main Boiler Feed Pump Lube Oil Coolers.

Proposed Answer:

C. isolate Service Water to H_2 Coolers, S/G Blowdown Recovery Hx No. 4 and Turbine Hall Closed Cooling Hxs.

Explanation (Optional):

Non-essential service water loads are isolated to provide more cooling for Cold Leg Recirc. SWN-1111 isolates some non-essential loads but not enough. Backup Service Water Pumps provide additional service water but not addressed by procedure.

Technical Reference(s): ES-1.3, Attachment 2 (Attach if not previously

provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: (As available) I3LP-ILO-EOPE10 19

Question Source: Bank #
Modified Bank # (Note changes or attach parent)
New X

Question History:

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

10 CFR Part 55 Content: 55.41 10
55.43 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
WS # 79	Group #		1
	K/A #	057AA2.19	
	Importance Rating		4.3

Ability to determine and interpret plant automatic actions that will occur on a loss of a vital ac electrical instrument bus as they apply to the loss of a vital instrument bus

Proposed Question: **"SRO ONLY" 79**

Given the following plant conditions:

- Unit 3 is at 100% power
- "B" Steam Flow and Feed Flow are in control
- PRZR pressure channel 1 is in control and 2 is in alarm positions
- PRZR level channel 2 is in control and 1 is in alarm positions
- ALL systems are in their normal full power lineup
- A loss of 31 Instrument Bus occurs

Which of the below describes the plant response with NO operator actions?

A. Letdown isolates, ALL PRZR heaters de-energize, 31 and 33 Main feed Reg valves go open.

B. Letdown isolates, ALL PRZR heaters de-energize, ALL four Main feed Reg valves will maintain program level.

C. Letdown remains in service, ALL PRZR heaters remain in their initial condition, 31 and 33 Main feed Reg valves go closed.

D. Letdown remains in service, ALL PRZR heaters remain in their initial condition, ALL four Main feed Reg valves remain at their initial position.

Proposed Answer:

B. Letdown isolates, ALL PRZR heaters de-energize, ALL four Main feed Reg

valves will maintain program level.

Explanation (Optional):

LCV-459 closes isolating L/D and PRZR heaters de-energize due to low PRZR level and MFW Reg valves have SF and FF matched (0 lbm/hr)

Technical Reference(s): 3-AOP-IB-1, step 4.4, Attachment 5 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-AOPIB1 1.0 (As available)

Question Source: Bank # ____
Modified Bank # ____ (Note changes or attach parent)
New X

Question History:

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

10 CFR Part 55 Content: 55.41 ____
55.43 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
WS # 80	Group #		1
	K/A #	058G2.1.33	
OK	Importance Rating		4.0

Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications.

Proposed Question: **"SRO ONLY" 80**

Given the following plant conditions:

- Unit 3 is in MODE 6
- Core offload is in progress
- 31 EDG is out-of-service for scheduled maintenance
- Circuit 10, 32 DC Distribution Panel TRIPS (Control Power for 32 EDG)
- Attempts to CLOSE circuit 10 are UNSUCCESSFULL

With regards to the offload evolution, what actions are required?

A. IMMEDIATELY suspend core alterations until RCS boron concentration has been verified to be greater than required for refueling operations and 32 EDG can be MANUALLY started.

B. Offload may continue provided Source Range Channels N31 and N32 are operable.

C. Enter Technical Specification 3.8.5, DC Sources – Shutdown, IMMEDIATELY suspend core alterations and initiate actions to restore required DC electrical power to operable status.

D. Enter Technical Specification 3.8.5, DC Sources – Shutdown, offload may continue but NO positive reactivity additions are permitted.

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
WS # 80	Group #		1
	K/A #	058G2.1.33	
OK	Importance Rating		4.0

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C. Enter Technical Specification 3.8.5, DC Sources – Shutdown, IMMEDIATELY suspend core alterations and initiate actions to restore required DC electrical power to operable status.

D. Enter Technical Specification 3.8.5, DC Sources – Shutdown, offload may continue but NO positive reactivity additions are permitted.

Proposed Answer:

C. Enter Technical Specification 3.8.5, DC Sources – Shutdown, IMMEDIATELY suspend core alterations and initiate actions to restore required DC electrical power to operable status.

Explanation (Optional):

Technical Reference(s): TS3.8.2
TS 3.8.5
3-AOP-DC-1, Attachment 6
(Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-AOPDC1 B (As available)

Question Source: Bank #
Modified Bank #
New X
(Note changes or attach parent)

Question History:

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

10 CFR Part 55 Content: 55.41
55.43 7

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
WS # 81	Group #		1
	K/A #	W/E05EA2.1	
OK	Importance Rating		4.4

Ability to determine and interpret facility conditions and selection of appropriate procedures during abnormal and emergency operations

Proposed Question: **"SRO ONLY" 81**

Given the following:

- Unit 3 has had a loss of both Feedwater Pumps from 100% power.
- SG LOW level annunciators alarm and the Reactor failed to trip.
- Actions of FR-S.1, Response to Nuclear Power Generation / ATWS are being performed.
- All AFW pumps failed to start and cannot be started.
- Reactor Power has just been verified to be < 5%, with a negative start up rate.

Which one of the following procedures should the SRO transition to?

A. Immediately enter FR-H.1, Response to Loss of Secondary Heat Sink.

B. Complete all actions in FR-S.1, then transition to FR-H.1, Response to Loss of Secondary Heat Sink.

C. Re-enter E-0, Reactor Trip or Safety Injection at the beginning and transition to ES-0.1 Reactor Trip Response when directed by E-0.

D. Re-enter E-0, Reactor Trip or Safety Injection at step 1, complete immediate operator actions and then transition to FR-H.1, Response to Loss of Secondary Heat Sink.

Proposed Answer:

B. Complete all actions in FR-S.1, then transition to FR-H.1, Response to Loss of Secondary Heat Sink.

Explanation (Optional):

Technical Reference(s): OAP-12
FR-S.1
(Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-EOPFRS 12 (As available)

Question Source: Bank # INPO
Modified Bank # 25815 (Note changes or attach parent)
New

Question History: 3/14/2003 Surry 1

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

10 CFR Part 55 Content: 55.41
55.43

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
WS # 128	Group #		2
	K/A #	000028AA2.03	
	Importance Rating		3.3

Ability to determine and interpret charging subsystem flow indicator and controller as they apply to the Pressurizer Level Control Malfunctions

Proposed Question: **"SRO ONLY"** 82

Given the following conditions:

- The plant is at 100% power.
- All control systems are in automatic.
- Pzr Level control input is LT-460.
- Steady state conditions exist.

Charging flow starts slowly lowering and letdown isolation valve LCV-460 automatically closes. Without operator action, which ONE (1) of the following describes the event is progress and the procedure required?

A. HCV-142, Charging Flow Control Valve failure. Enter 3-AOP-CVCS-1, close LCV-459 to isolate Letdown and bypass HCV-142 to establish boration flow path to satisfy Technical Requirements Manual.

B. HCV-142, Charging Flow Control Valve failure. Enter 3-AOP-CVCS-1, place the Pressurizer Level Controller in Manual, initiate Excess Letdown to maintain PZR level and bypass HCV-142 to establish boration flow path to satisfy Technical Requirements Manual.

C. Pressurizer Level Instrument LT-460 failed low. Enter 3-AOP-INST-1 to transfer PZR Level Control to the operable channel and place the High Pressurizer Level Bistable Trip Switch in the TRIP position to satisfy Technical Specification.

D. Pressurizer Level Instrument LT-460 failed high. Enter 3-AOP-INST-1 to transfer PZR Level Control to the operable channel and place the High Pressurizer Level Bistable Trip Switch in the TRIP position to satisfy Technical Specification.

Proposed Answer:

D. Pressurizer Level Instrument LT-460 failed high. Enter 3-AOP-INST-1 to transfer PZR Level Control to the operable channel and place the High Pressurizer Level Bistable Trip Switch in the TRIP position to satisfy Technical Specification.

Explanation (Optional):

A and B are incorrect because if there was a flow controller failure, both Letdown Isolation valves would close on low level. C is incorrect because LT-460 failing low (if controlling) would cause LCV-459 to go closed and charging flow to increasse.

Technical Reference(s): 3-AOP-INST-1 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: (As available) I3LP-ILO-RCSPZR E-2

Question Source: Bank #

Modified Bank # (Note changes or attach parent)

New X

Question History:

Question Cognitive Level: Memory or Fundamental Knowledge

Comprehension or Analysis X

10 CFR Part 55 Content: 55.41

55.43 5

Comments:

10CFR55.43(b) item 5 because the SRO must choose the appropriate procedure and action based upon assessment of plant conditions.

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
WS # 129	Group #		2
	K/A #	W/E10 EA2.1	
	Importance Rating		3.9

Ability to determine and interpret the facility conditions and selection of appropriate procedures during abnormal and emergency operations

Proposed Question: **"SRO ONLY"** 83

Given the following conditions:

- A reactor trip has occurred concurrent with a loss of offsite power.
- The crew is performing actions of ES-0.2, Natural Circulation Cooldown.
- Train "A" of RVLIS is out of service.
- The crew has commenced RCS cooldown and depressurization.
- RCS pressure is 1380 psig and trending DOWN.
- Qualified CETs are 468°F and trending DOWN.
- Pressurizer level is 38% and trending UP slowly.

Due to secondary inventory concerns, RCS cooldown rate MUST be performed at approximately 40°F/Hr.

Which one of the following actions will be required?

A. Repressurize the RCS to minimize void growth in accordance with ES-0.2.

B. Stop the depressurization to reestablish subcooling in accordance with ES-0.2.

C. Transition to ES-0.3, Natural Circulation Cooldown With Steam Void In Vessel (With RVLIS).

D. Transition to ES-0.4, Natural Circulation Cooldown With Steam Void In Vessel (Without RVLIS).

Proposed Answer:

C. Transition to ES-0.3, Natural Circulation Cooldown With Steam Void In Vessel (With RVLIS).

Explanation (Optional):

A is incorrect because repressurizing will not help if the cooldown must be continued at the higher rate. Potential PTS

B is incorrect because minimum subcooling is available. (90 deg F)

C is correct. Based on note prior to step 12 of ES-0.2

D is incorrect but credible since 1 train of RVLIS is OOS. Also, ES-0.4 would be entered after performing actions of ES-0.3

Technical Reference(s): ES-0.2 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: (As available) I3LP-ILO-EOPE00 11

Question Source: Bank # X

Modified Bank # _____ (Note changes or attach parent)

New _____

Question History: BVPS-2 NRC Exam 2002

Question Cognitive Level: Memory or Fundamental Knowledge _____

Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 _____

55.43 5

Comments:

10CFR55.43(b) item 5 because the SRO must assess abnormal conditions for natural circulation cooldown and select appropriate mitigation strategy.

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
WS # 84	Group #		2
	K/A #	W/E06G2.4.4	
OK	Importance Rating		4.3

Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.

Proposed Question: **"SRO ONLY" 84**

The Reactor has tripped with a loss of offsite power. SI has actuated. The crew is performing actions in E-0, Reactor Trip or Safety Injection. Given the following conditions:

- RCS pressure 1700 psig and trending UP
- 31, 32, 34 SG pressures = 1015 psig STABLE
- 33 SG pressure = 700 psig and trending DOWN
- CETs 750°F and trending UP
- SG Narrow Range level off scale LOW
- Maximum available AFW flow of approximately 100 gpm to each SG
- PRZR level 15% and trending DOWN
- CNMT pressure 5 psig and trending UP
- Power is 2% in the PR and IR SUR is slightly NEGATIVE
- RVLIS level 28%

Which ONE of the following describes the FIRST procedure transition from E-0?

A. E-2, Faulted Steam Generator Isolation

B. FR-S.1, Response to Reactor Restart/ATWS

C. FR-C.1, Response to Inadequate Core Cooling

D. FR-H.1, Response to Loss of Secondary Heat Sink

Proposed Answer:

C. FR-C.1, Response to Inadequate Core Cooling

Explanation (Optional):

Technical Reference(s): E-0, step 5 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-EOPE00 (As available)

Question Source: Bank # INPO 28255
Modified Bank # X (Note changes or attach parent)
New

Question History: 11/1/2004 Ginna 1

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

10 CFR Part 55 Content: 55.41 10
55.43 2

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
WS # 85	Group #		2
	K/A #	W/E15G2.1.7	
OK	Importance Rating		4.4

Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior and instrument interpretation

Proposed Question: **"SRO ONLY" 85**

Unit 3 experienced a Safety Injection and Containment Spray actuation due to a large break LOCA. E 1, Loss of Reactor or Secondary Coolant, is being performed following a transition from E 0, Reactor Trip or Safety Injection. The STA has just made his initial scan of the Status Trees. The following conditions exist

- Pressurizer level is 0%
- Cnmt pressure is 20 psig
- Containment Rad Monitors, R-25 and R-26, have just gone into ALARM
- Containment Sump Level is 51 ft. el.

Which of the following procedures must be entered to address the above conditions?

A. FR I.2, Response to Low Pressurizer Level

B. FR Z.3, Response to High Containment Radiation Level

C. FR Z.1, Response to High Containment Pressure

D. FR Z.2, Response to Containment Flooding

Proposed Answer:

D. FR Z.2, Response to Containment Flooding

Explanation (Optional):

Technical Reference(s): F-0.5, F-0.6 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-EOPROU 10 (As available)

Question Source: Bank #
Modified Bank #
(Note changes or attach parent)
New X

Question History:

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

10 CFR Part 55 Content: 55.41
55.43 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		2
WS # 86	Group #		1
	K/A #	004A2.32	
OK	Importance Rating		3.9

Ability to predict the impacts of expected reactivity changes after valving in a new mixed-bed demineralizer that has not been pre-borated and based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations

Proposed Question: **"SRO ONLY" 86**

The following plant conditions exist:

- Unit 3 is in a normal full power lineup at MOL
- A fresh CVCS purification demineralizer has been placed in service.
- The resin has NOT been boron saturated.

Which of the following is 1) the expected plant response with no operator action and 2) what operator actions should be taken to mitigate this event?

A. Power level will INCREASE, commence emergency boration using MOV-333 to maintain power $\leq$ 100% and T_{AVG} at program value.

B. Power level will INCREASE, commence a normal boration to maintain power $\leq$ 100% and T_{AVG} at program value.

C. Power level will DECREASE, energize Pressurizer Backup Heaters to maintain RCS pressure at 2235 psig.

D. Power level will DECREASE, trip the Reactor, initiate E-0, Reactor Trip or Safety Injection.

Proposed Answer:

B. Power level will INCREASE, commence a normal boration to maintain power ≤ 100% and T_{AVG} at program value.

Explanation (Optional):

Technical Reference(s): SD-3.0 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-CVC001 (As available)

Question Source: Bank # INPO
Modified Bank # 18456 (Note changes or attach parent)
New

Question History: 1/1/2000 San Onofre 1

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

10 CFR Part 55 Content: 55.41 5
55.43 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		2
WS # 87	Group #		1
	K/A #	012G2.2.25	
OK	Importance Rating		3.7

Knowledge of bases in technical specifications for limiting conditions for operations and safety limits

Proposed Question: **"SRO ONLY" 87**

Given the following plant conditions:

- Unit 3 is at 100% power.
- PT-412B, First Stage Turbine Pressure, has just failed LOW.

What action is required by Technical Specifications and why?

A. Within 30 minutes verify the P-7 interlock relay is de-energized to ensure the PZR pressure LOW, PZR water level HIGH, RCS flow LOW (1 Loop), RCP breaker OPEN (1 Loop), RCP undervoltage and RCP under frequency Reactor Trips are enabled.

B. Within 1 hour verify the P-7 interlock relay is de-energized to ensure the PZR pressure LOW, PZR water level HIGH, RCS flow LOW (2 Loops), RCP breaker OPEN (2 Loops), RCP undervoltage and RCP under frequency Reactor Trips are enabled.

C. Within 30 minutes verify the P-10 interlock relay is energized to allow ensure the PZR pressure LOW, PZR water level LOW, RCS flow LOW (1 Loop), RCP breaker OPEN (1 Loop), RCP undervoltage and RCP under frequency Reactor Trips are enabled.

D. Within 1 hour verify the P-10 interlock relay is energized to ensure the PZR pressure LOW, PZR water level HIGH, RCS flow LOW (2 Loops), RCP breaker OPEN (2 Loops), RCP undervoltage and RCP under frequency Reactor Trips are disabled.

Proposed Answer:

B. Within 1 hour verify the P-7 interlock relay is de-energized to ensure the PZR pressure LOW, PZR water level HIGH, RCS flow LOW (2 Loops), RCP breaker OPEN (2 Loops), RCP undervoltage and RCP under frequency Reactor Trips are enabled.

Explanation (Optional):

Technical Reference(s): TS 3.3.1 Condition N and bases (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-ITS001 9168

Question Source: Bank #
Modified Bank # (Note changes or attach parent)
New X

Question History:

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

10 CFR Part 55 Content: 55.41
55.43

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		2
WS # 88	Group #		1
	K/A #	059A2.07	
OK	Importance Rating		3.3

Ability to predict the impacts of a trip of MFW pump turbine on the MFW and based on those predictions, use procedures to correct, control or mitigate the consequences of those malfunctions or operations

Proposed Question: **"SRO ONLY" 88**

Given the following plant conditions;

- Unit 3 is performing a power ascension and is currently at 77% power
- 31 and 33 Condensate Pumps are in service
- 32 Condensate Pump is secured but available
- Both Heater Drain Tank Pumps are in service
- Both MBFPs are in service

A problem develops with 32 MBFP Thrust Bearing causing the pump to TRIP.

What is the appropriate course of action for the above conditions?

A. Perform the immediate operator actions of 3-AOP-FW-1, Loss of Feedwater, reduce load to approximately 700 MWE, adjust speed on 31 MBFP as necessary to maintain suction pressure >350 psig and discharge pressure <1390 psig and then start 32 Condensate Pump.

B. Commence a rapid load reduction to 500 MWE, perform the immediate operator actions of 3-AOP-FW-1 and then adjust speed on 31 MBFP as necessary to maintain suction pressure >350 psig and discharge pressure <1390 psi.

C. Perform the immediate operator actions of 3-AOP-FW-1, start 32 condensate pump, then increase 31 MBFP speed to match feed flow to steam flow.

D. Trip the Reactor and enter E-0.

Proposed Answer:

A. Perform the immediate operator actions of 3-AOP-FW-1, Loss of Feedwater, reduce load to approximately 700 MWE, adjust speed on 31 MBFP as necessary to maintain suction pressure >350 psig and discharge pressure <1390 psig and then start 32 Condensate Pump.

Explanation (Optional):

Technical Reference(s): 3-AOP-FW-1 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-AOP-FW1 (As available)

Question Source: Bank # ____
Modified Bank # ____ (Note changes or attach parent)
New X

Question History:

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

10 CFR Part 55 Content: 55.41 5
55.43 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		2
WS # 89	Group #		1
	K/A #	061G2.1.12	
	Importance Rating		4.0

Ability to apply technical specifications for a system

Proposed Question: **"SRO ONLY" 89**

Given the following conditions with Unit 3 operating at 100% power:

- 31 Auxiliary Feedwater (AFW) Pump is out of service for repairs. Repairs will take at least 24 more hours.
- A routine QA Audit of completed surveillance procedures has determined the monthly surveillance performed on 33 AFW Pump 15 days ago was NOT properly completed.

In accordance with attached Technical Specifications, which one of the following actions is correct for this situation?

A. Enter T.S. LCO 3.0.3 and IAW T.S. SR 3.0.4, re-perform the surveillance on 33 AFW Pump within 24 hours

B. Enter T.S. LCO 3.0.3 but the required actions can be delayed for 24 hours IAW T.S. SR 3.0.3.

C. Enter T.S. 3.7.5 Condition C, i.e., 2 AFW Trains inoperable, but the required actions can be delayed for 24 hours IAW T.S. SR 3.0.4.

D. Continue T.S 3.7.5 Condition B, i.e., 1 AFW Train inoperable. Re-perform the surveillance on 33 AFW Pump within 24 hours IAW T.S. SR 3.0.3.

Proposed Answer:

D. Continue T.S 3.7.5 Condition B, i.e., 1 AFW Train inoperable. Re-perform the surveillance on 33 AFW Pump within 24 hours IAW T.S. SR 3.0.3.

Explanation (Optional):

Technical Reference(s): T.S. 3.7.5 & SR 3.0.3 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: T.S. 3.7.5

Learning Objective: I3LP-ILO-ITS001 9168

Question Source: Bank # INPO 23173
Modified Bank # (Note changes or attach parent)
New

Question History: 11/4/2002 Salem Unit 1

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

10 CFR Part 55 Content: 55.41
55.43 2, 5

Comments:

3.7 PLANT SYSTEMS

3.7.5 Auxiliary Feedwater (AFW) System

LCO 3.7.5 Three AFW trains shall be OPERABLE.

---NOTE---
Only one AFW train, which includes a motor driven pump capable of supporting the credited steam generator(s), is required to be OPERABLE in MODE 4.

APPLICABILITY: MODES 1, 2, and 3,
MODE 4 when steam generator is relied upon for heat removal.

ACTIONS

---NOTE---
LCO 3.0.4.b is not applicable.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One steam supply to turbine driven AFW pump inoperable.	A.1 Restore steam supply to OPERABLE status.	7 days AND 10 days from discovery of failure to meet the LCO
B. One AFW train inoperable in MODE 1, 2 or 3 for reasons other than Condition A.	B.1 Restore AFW train to OPERABLE status.	72 hours AND 10 days from discovery of failure to meet the LCO

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time for Condition A or B not met. OR Two AFW trains inoperable in MODE 1, 2, or 3.	C.1 Be in MODE 3. AND C.2 Be in MODE 4.	6 hours 18 hours
D. Three AFW trains inoperable in MODE 1, 2, or 3.	----------NOTE---------- LCO 3.0.3 and all other LCO Required Actions requiring MODE changes are suspended until one AFW train is restored to OPERABLE status. ---------- D.1 Initiate action to restore one AFW train to OPERABLE status.	 Immediately
E. Required AFW train inoperable in MODE 4.	E.1 Initiate action to restore AFW train to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.7.5.1	----------NOTE---------- Not applicable in MODE 4 when steam generator is relied upon for heat removal. ---------- Verify each AFW manual, power operated, and automatic valve in each water flow path, and in both steam supply flow paths to the steam turbine driven pump, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days
SR 3.7.5.2	----------NOTE---------- Not required to be performed for the turbine driven AFW pump until 24 hours after ≥ 600 psig in the steam generator. ---------- Verify the developed head of each AFW pump at the flow test point is greater than or equal to the required developed head.	In accordance with Inservice Testing Program
SR 3.7.5.3	----------NOTE---------- Not applicable in MODE 4 when steam generator is relied upon for heat removal. ---------- Verify each AFW automatic valve that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.5.4	----------NOTES---------- 1. Not required to be performed for the turbine driven AFW pump until 24 hours after ≥ 600 psig in the steam generator. 2. Not applicable in MODE 4 when steam generator is relied upon for heat removal. ---------- Verify each AFW pump starts automatically on an actual or simulated actuation signal.	24 months

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
WS # 90	Group #	1	
	K/A #	076A2.01	
OK	Importance Rating		3.7

Ability to predict the impacts of loss of service water on the SWS and based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions

Proposed Question: **"SRO ONLY" 90**

Given the following plant conditions:

- Unit 3 is at 20% power
- A loss of ALL normal Service Water Pumps has occurred due large amount of debris on the traveling screens
- No Circ Water Pumps are available due to the debris

Which of the following describes the required operator action for the above condition?

A. Trip the Reactor, do NOT SHUT the MSIVs and initiate E-0, Reactor Trip or Safety injection

B. Trip the Reactor, SHUT the MSIVs and initiate E-0, Reactor Trip or Safety injection

C. Immediately align Backup Service Water Pumps, 37, 38 and 39 to the essential service water header.

D. Commence a rapid plant shutdown as long as temperatures remain below the trip setpoint

Proposed Answer:

B. Trip the Reactor, SHUT the MSIVs and initiate E-0, Reactor Trip or Safety injection

Explanation (Optional):

Technical Reference(s): AOP-SW-1 step 4.50 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-AOPSW1 5.0 (As available)

Question Source: Bank #
Modified Bank # (Note changes or attach parent)
New X

Question History:

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

10 CFR Part 55 Content: 55.41 5
55.43 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		2
WS # 91	Group #		2
	K/A #	034K4.02	
OK	Importance Rating		3.3

Knowledge of design feature(s) and / or interlock(s) which provide for fuel movement

Proposed Question: **"SRO ONLY" 91**

Which of the following describes what occurs when the Manipulator Crane INTERLOCK OVERRIDE Keyswitch is engaged?

A. Hoist Load Interlocks are bypassed except overload.

B. Gripper Interlocks are NOT bypassed to prevent dropping a fuel assembly.

C. Directly connects bridge, trolley and hoist controls to joystick; speeds are limited to 10 fpm.

D. Boundary Zone Interlocks are bypassed and Bridge/Trolley speed is limited to 30 fpm.

Proposed Answer:

C. Directly connects bridge, trolley and hoist controls to joystick; speeds are limited to 10 fpm.

Explanation (Optional):

Technical Reference(s): SD-17, page 34 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-FHD001 C (As available)

Question Source: Bank #

Modified Bank # (Note changes or attach parent)

New X

Question History:

Question Cognitive Level: Memory or Fundamental Knowledge X

Comprehension or Analysis

10 CFR Part 55 Content: 55.41

55.43

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		2
WS # 92	Group #		2
	K/A #	035A2.03	
OK	Importance Rating		3.6

Ability to predict the impacts of pressure/level transmitter failure on the S/G and based on those predictions, use procedures to correct, control or mitigate the consequences of those malfunctions or operations

Proposed Question: **"SRO ONLY" 92**

Given the following:

- Unit 3 operating at 100% power
- "B" channels of steam flow and feed flow in control
- Main Feed Regulating Valves in AUTO
- Steam Generator Pressure Channel PT-419B fails HIGH

Which of the below statements describes the plant response and the required actions to stabilize the plant?

A. 31 S/G controlling steam flow indication would INCREASE, 31 S/G actual feed flow and level would INCREASE, 31S/G level error would return level to program level but the operator should swap Steam Flow and Feed Flow for 31 S/G to "A" channel.

B. 31 S/G controlling steam flow indication would INCREASE, 31 S/G actual feed flow and level would INCREASE, the operator must swap Steam Flow for 31 S/G to "A" channel to prevent a Turbine Trip.

C. 31 S/G controlling steam flow indication would DECREASE, 31 S/G actual feed flow and level would DECREASE, 31S/G level error would return level to program level but the operator should swap Steam Flow and Feed Flow for 31 S/G to "A" channel.

D. 31 S/G controlling steam flow indication would DECREASE, 31 S/G actual feed flow and level would DECREASE, the operator must swap Steam Flow for 31 S/G to "A" channel to prevent a Turbine Trip.

Proposed Answer:

A. 31 S/G controlling steam flow indication would INCREASE, 31 S/G actual feed flow and level would INCREASE, 31S/G level error would return level to program level but the operator should swap Steam Flow and Feed Flow for 31 S/G to "A" channel.

Explanation (Optional):

Pressure compensation for steam flow will cause indicated flow to increase. The SF/FF mismatch is small enough for level error to compensate and return S/G level back to program thus prevent and Turbine Trip on High S/G level.

Technical Reference(s): 3-AOP-INSTR-1 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-ICSGL 5.0 (As available)

Question Source: Bank #

Modified Bank # (Note changes or attach parent)

New X

Question History:

Question Cognitive Level: Memory or Fundamental Knowledge

Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 5

55.43 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		2
WS # 93	Group #		2
	K/A #	068A2.04	
OK	Importance Rating		3.3

Ability to predict the impacts of failure of automatic isolation on the Liquid Radwaste System and based on those predictions, use procedures to correct, control or mitigate the consequences of those malfunctions or operations

Proposed Question: **"SRO ONLY" 93**

A liquid release of 32 Monitor Tank is in progress. A release permit was generated for the release and was approved. The following annunicators/conditions are received in the control room:

- R18, LIQUID EFF
- CHANNEL FAILURE
- R-18, Liquid Waste Effluent monitor is alarming on the Bantum 11 panel
- The discharge remains in progress

Which one of the following describes the effect on the plant and the actions required in accordance with 3-ONOP-RM-2, High Activity – Radiation Monitoring System?

A. The release should have automatically terminated. Stop the release and direct chemistry to sample the 32 Monitor Tank then re-calculate allowable release rate to determine if release may continue.

B. The release should have automatically terminated. Stop the release and re-verify the release permit calculations, release may resume provided calculations were correct.

C. R-18 monitor has failed. Release may continue while the HP rechecks calculations for liquid release and recommend corrective action that will be required per the ODCM.

D. R-18 monitor has failed. The release may continue provided two independent samples are taken to validate the release permit.

Proposed Answer:

A. The release should have automatically terminated. Stop the release and direct chemistry to sample the 32 Monitor Tank then re-calculate allowable release rate to determine if release may continue.

Explanation (Optional):

Technical Reference(s): ONOP-RM-2 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-RMSPRM E (As available)

Question Source: Bank # ____
Modified Bank # ____ (Note changes or attach parent)
New X

Question History:

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

10 CFR Part 55 Content: 55.41 ____
55.43 ____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		G
WS # 94	Group #		1
	K/A #	2.1.11	
OK	Importance Rating		3.8

Knowledge of less than one hour technical specifications for a system

Proposed Question: **"SRO ONLY" 94**

A plant heatup/startup is in progress with RCS average temperature at 280°F. The following plant conditions develop:

- 31 and 32 RHR pumps become inoperable
- 31 and 32 SI pumps become inoperable

Which one of the following describes the Technical Specification Actions?

A. Restore only the SI pumps to OPERABLE status before reaching 350°F.

B. Restore the RHR pumps and only one SI pump to OPERABLE status before reaching 350°F.

C. Immediately initiate action to restore one of the RHR pumps to OPERABLE status.

D. Immediately initiate action to restore both SI pumps to OPERABLE status.

Proposed Answer:

C. Immediately initiate action to restore one of the RHR pumps to OPERABLE status.

Explanation (Optional):

ES-401	Indian Point Unit 3 Written Examination Question Worksheet	Form ES-401-5

Technical Reference(s): TS 3.5.3 Condition A (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-ITS001 9168

Question Source: Bank #

Modified Bank # (Note changes or attach parent)

New X

Question History:

Question Cognitive Level: Memory or Fundamental Knowledge

Comprehension or Analysis X

10 CFR Part 55 Content: 55.41

55.43 2, 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		G
WS # 95	Group #		1
	K/A #	2.1.33	
	Importance Rating		4.0

Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications

Proposed Question: **"SRO ONLY" 95**

Given the following:

- The plant is at 75% power.
- 31 CCW heat Exchanger is isolated and the appropriate Condition of TS 3.7.8 is entered
- Engineering reports that the CCW flow through 32 CCW Heat Exchanger is inadequate to supply appropriate cooling to both RHR Heat Exchangers.
- As such, the RHR trains are inoperable.
- Operations has isolated CCW to 31 RHR Heat Exchanger and documented proper flow capability to 32 RHR Heat Exchanger.

Per the attached Technical Specifications, do Technical Specifications require entry into Condition A of TS 3.5.2, including why?

A. Yes. LCO 3.0.1 requires all LCOs to be met including the 72-hour LCO of TS 3.5.2.

B. Yes. LCO 3.0.2 requires entry into TS 3.5.2 ACTIONS since LCO 3.5.2 is NOT met.

C. No. LCO 3.0.5 waives the requirement to enter TS 3.5.2 ACTIONS during OPERABILITY determinations.

D. No. LCO 3.0.6 waives the requirement to enter TS 3.5.2 ACTIONS provided the safety function is maintained.

Proposed Answer:

D. No. LCO 3.0.6 waives the requirement to enter TS 3.5.2 ACTIONS provided the safety function is maintained.

Explanation (Optional):

Technical Reference(s): TS 3.0.6
TS 3.5.2 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: TS 3.5.2

Learning Objective: I3LP-ILO-ITS001 9168

Question Source: Bank #
Modified Bank # (Note changes or attach parent)
New X

Question History: 5/10/2004 Davis-Besse 1

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

10 CFR Part 55 Content: 55.41
55.43 2, 3

Comments:

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS)

3.5.2 ECCS – Operating

LCO 3.5.2 Three ECCS trains shall be OPERABLE.

---NOTES---

1. In MODE 3, both HHSI flow paths may be isolated by closing the isolation valves for up to 2 hours to perform pressure isolation valve testing per SR 3.4.14.1.

2. Operation in MODE 3 with HHSI pumps made incapable of injecting pursuant to LCO 3.4.12, "Low Temperature Overpressure Protection (LTOP)," is allowed for up to 4 hours or until the temperature of all RCS cold legs exceeds 375°F, whichever comes first.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more trains inoperable. AND Two HHSI pumps, one RHR pump and one Containment Recirculation pump are OPERABLE.	A.1 Restore train(s) to OPERABLE status.	72 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE				FREQUENCY
SR 3.5.2.1	Verify the following valves are in the listed position with power to the valve operator removed.			12 hours
	Number	Position	Function	
	SI-856B	Closed	HHSI Loop 33 Hot Leg Injection Stop Valve	
	SI-856G	Closed	HHSI Loop 31 Hot Leg Injection Stop Valve	
	SI-1810	Open	RWST outlet isolation	
	AC-744	Open	Common discharge isolation for RHR pumps	
	SI-882	Open	Common RWST suction isolation for RHR pumps	
	SI-842	Open	HHSI pump minimum flow line isolation	
	SI-843	Open	HHSI pump minimum flow line isolation	
	SI-883	Closed	RHR pump return to RWST isolation	
	AC-1870	Open	RHR pump minimum flow line isolation	
	AC-743	Open	RHR pump minimum flow line isolation	

(continued)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
SR 3.5.2.2	Verify that each ECCS manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days
SR 3.5.2.3	Verify each ECCS pump's developed head at the test flow point is greater than or equal to the required developed head.	In accordance with the Inservice Testing Program
SR 3.5.2.4	Verify each ECCS automatic valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	24 months
SR 3.5.2.5	Verify each ECCS pump starts automatically on an actual or simulated actuation signal.	24 months
SR 3.5.2.6	Verify, for each ECCS throttle valve listed below, each position stop is in the correct position. Valve Numbers SI-856B SI-856G SI-2165 SI-2170 SI-856C SI-856H SI-2166 SI-2171 SI-856D SI-856J SI-2168 SI-2172 SI-856E SI-856K SI-2169	24 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.2.7	Verify, by visual inspection, each ECCS train containment sump suction inlet and recirculation sump suction inlet is not restricted by debris and the suction inlet screens show no evidence of structural distress or abnormal corrosion.	24 months

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		3
WS # 132	Group #		G
	K/A #	G2.2.28	
	Importance Rating		3.5

Knowledge of new and spent fuel movement procedures.

Proposed Question: **"SRO ONLY" 96**

A new fuel assembly was in the process of being lifted by the Spent Fuel Pit Bridge from the New Fuel Elevator. It has been lifted approximately one half of the required height for transfer to the Spent Fuel Pit (SFP) when the Chemist reports to you that the SFP Boron concentration is BELOW Technical Specification Limits. As the operator in charge of SFP fuel movement, what actions are required to be performed?

A. Suspend movement of the fuel assembly and initiate action to restore SFP boron concentration to within limits.

B. Transfer the new fuel assembly to its designated SFP location after SFP verification has commenced.

C. Transfer the new fuel assembly to its designated SFP location and initiate action to restore SFP boron concentration to within limits.

D. Transfer the new fuel assembly to the SFP at a location not adjacent to any other fuel assembly and initiate action to perform a SFP verification.

Proposed Answer:

A. Suspend movement of the fuel assembly and initiate action to restore SFP boron concentration to within limits.

Explanation (Optional):

A. Correct

TS implies movement can commence once a boration is initiated or SFP verification has commenced but movement is not allowed until the boron concentration is greater than limit, This is the proper location as designated by Reactor Engineering. A new fuel assembly that

is not next to any other fuel assemblies would not be able to go critical even with no boron in the SFP

Technical Reference(s): TS 3.7.15 and bases (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: (As available)

Question Source: Bank #
Modified Bank # (Note changes or attach parent)
New X

Question History:

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

10 CFR Part 55 Content: 55.41
55.43 6, 7

Comments:

3.7 PLANT SYSTEMS

3.7.15 Spent Fuel Pit Boron Concentration

LCO 3.7.15 The Spent Fuel Pit boron concentration shall be ≥ 1000 ppm.

APPLICABILITY: When fuel assemblies are stored in the spent fuel pit and a spent fuel pit verification has not been performed since the last movement of fuel assemblies in the spent fuel pit.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Spent fuel pit boron concentration not within limit.	----------NOTE---------- LCO 3.0.3 is not applicable. ----------	
	A.1 Suspend movement of fuel assemblies in the spent fuel pit.	Immediately
	AND	
	A.2.1 Initiate action to restore spent fuel pit boron concentration to within limit.	Immediately
	OR	
	A.2.2 Initiate action to perform a spent fuel pit verification.	Immediately

BASES

APPLICABLE SAFETY ANALYSES (continued)

The concentration of dissolved boron in the spent fuel pit satisfies Criterion 2 of 10 CFR 50.36.

LCO

The spent fuel pit boron concentration is required to be ≥ 1000 ppm. The specified concentration of dissolved boron in the spent fuel pit preserves the assumptions used in the analyses of the potential critical accident scenarios as described in Reference 3. This concentration of dissolved boron is the minimum required concentration for fuel assembly storage and movement within the spent fuel pit until a spent fuel pit verification confirms that there are no mis-loaded fuel assemblies. With no mis-loaded fuel assemblies and unborated water, the spent fuel pit design is sufficient to maintain the core at $k_{eff} \leq 0.95$.

APPLICABILITY

This LCO applies whenever fuel assemblies are stored in the spent fuel pit, until a complete spent fuel pit verification has been performed following the last movement of fuel assemblies in the spent fuel pit. This LCO does not apply following the verification, since the verification would confirm that there are no misloaded fuel assemblies. With no further fuel assembly movements in progress, there is no potential for a misloaded fuel assembly or a dropped fuel assembly.

ACTIONS

A.1, A.2.1 and A.2.2

The Required Actions are modified by a Note indicating that LCO 3.0.3 does not apply.

When the concentration of boron in the spent fuel pit is less than required, immediate action must be taken to preclude the occurrence of an accident or to mitigate the consequences of an accident in progress. This is most efficiently achieved by immediately suspending the movement of fuel assemblies. The concentration of boron is restored simultaneously with suspending

(continued)

BASES

ACTIONS

A.1, A.2.1 and A.2.2 (continued)

movement of fuel assemblies. Alternatively, beginning a verification of the Spent Fuel Pit fuel locations, to ensure proper locations of the fuel, can be performed. However, prior to resuming movement of fuel assemblies, the concentration of boron must be restored. This does not preclude movement of a fuel assembly to a safe position.

If the LCO is not met while moving irradiated fuel assemblies in MODE 5 or 6, LCO 3.0.3 would not be applicable. If moving irradiated fuel assemblies while in MODE 1, 2, 3, or 4, the fuel movement is independent of reactor operation. Therefore, inability to suspend movement of fuel assemblies is not sufficient reason to require a reactor shutdown.

SURVEILLANCE REQUIREMENTS

SR 3.7.15.1

This SR verifies that the concentration of boron in the spent fuel pit is within the required limit. As long as this SR is met, the analyzed accidents are fully addressed. The 31 day Frequency is appropriate because no major replenishment of spent fuel pit water is expected to take place over such a short period of time. This SR is not required to be met or performed if a spent fuel pit verification for conformance with LCO 3.7.16, Figures 3.7.16-1 and B 3.7.16-1, has been performed on all fuel assemblies since the last verification following the last movement of fuel assemblies in the spent fuel pit.

REFERENCES

1. Double contingency principle of ANSI N16.1-1975, as specified in the April 14, 1978 NRC letter (Section 1.2) and implied in the proposed revision to Regulatory Guide 1.13 (Section 1.4, Appendix A).

(continued)

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		G
WS # 97	Group #		2
	K/A #	2.2.24	
	Importance Rating		3.8

Ability to analyze the affects of maintenance activities on LCO status

Proposed Question: **"SRO ONLY" 97**

The following plant conditions exist:

- 100 % power
- 31 EDG is out of service for preventative maintenance

The maintenance supervisor requests a work permit for 33 Safety Injection (SI) pump to be worked now due to man power availability. The estimated completion time for the work is 2 hours.

Should 33 SI pump be taken out of service? Select the proper action to be taken with the justification for your choice.

A. Yes. Technical Specifications allow for one SI pump to be out of service, provided it is returned to service within 72 hours and the remaining 2 SI pumps are demonstrated operable.

B. Yes. Technical Specifications allows for the removal of 33 SI Pump from service for up to 4 hougs.

C. No. Technical Specifications require 3 SI pumps with their associated piping and valves to be operable if any EDG is inoperable.

D. No. Technical Specifications state that if one EDG is out of service then the other 2 EDG's and their associated safeguards equipment should be maintained operable.

Proposed Answer:

D. No. Technical Specifications state that if one EDG is out of service then the other 2 EDG's and their associated safeguards equipment should be maintained operable.

Explanation (Optional):

Technical Reference(s): TS 3.8.1, Bases (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-ITS001 9168

Question Source: Bank #
Modified Bank # (Note changes or attach parent)
New X

Question History:

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

10 CFR Part 55 Content: 55.41
55.43

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		G
WS # 98	Group #		3
	K/A #	2.3.6	
OK	Importance Rating		3.1

Knowledge of the requirements for reviewing and approving release permits

Proposed Question: **"SRO ONLY" 98**

Which ONE of the following can provide final authorization for a Liquid Rad Waste release?

A. Only the Shift Manager

B. Only the Shift Manager or Control Room Supervisor

C. Only the Shift Manager or Chemistry Supervisor

D. Only the Shift Manager or HP Supervisor

Proposed Answer:

B. Only the Shift Manager or Control Room Supervisor

Explanation (Optional):

Technical Reference(s): 3-SOP-WDS-014, Attachment 1 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: I3LP-ILO-LWR001 7 (As available)

Question Source: Bank # INPO 19844
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: 10/29/2001 Braidwood 1

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

10 CFR Part 55 Content: 55.41 _____
55.43 4

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		G
WS # 99	Group #		4
	K/A #	G2.4.41	
OK	Importance Rating		4.1

Knowledge of emergency action level thresholds and classifications

Proposed Question: **"SRO ONLY" 99**

A Primary to Secondary leak of 90 gpm occurred on 34 Steam Generator. Prior to RCS depressurization and SI termination, 34 SG Atmospheric Steam Dump valve was periodically lifting due to high SG pressure. What Emergency Classification declaration should be made for this event?

A. NUE

B. Alert

C. SAE

D. GE

Proposed Answer:

B. Alert

Explanation (Optional):

Technical Reference(s): IP-EP-120 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: SIMULATOR/CLASSROOM (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History:

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

10 CFR Part 55 Content: 55.41 _____
55.43 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		3
WS # 131	Group #		G
	K/A #	G2.4.26	
	Importance Rating		3.3

Knowledge of facility protection requirements including fire brigade and portable fire fighting equipment usage

Proposed Question: **"SRO ONLY"** 100

Given the following conditions:

- A fire has been verified in Main Transformer 32.
- The Team has entered 3-)NOP-FP-1, Plant Fires
- The Fire Brigade Leader has been notified.

Which ONE (1) of the following describes actions that will also be required for this event?

A. Ensure Fire Brigade members from Unit 2 respond and manually actuate the Main Transformer Deluge System. If equipment operation becomes erratic, then trip the reactor and enter E-0, Reactor Trip or Safety Injection.

B. Ensure Fire Brigade members from Unit 3 respond and extinguish the fire using Fire Hoses. If equipment operation becomes erratic, then trip the reactor and enter E-0, Reactor Trip or Safety Injection.

C. Trip the reactor and enter E-0, Reactor Trip or Safety Injection. Perform ONOP-FP-1, Plant Fires, concurrently, ensuring Fire Brigade members from Unit 2 respond and extinguish the fire using Fire Hoses.

D. Trip the reactor and enter E-0, Reactor Trip or Safety Injection. Perform ONOP-FP-1, Plant Fires, concurrently, ensuring Fire Brigade members from Unit 3 respond and manually actuate the Main Transformer Deluge System.

Proposed Answer:

FP-1, Plant Fires, concurrently, ensuring Fire Brigade members from Unit 2 respond and extinguish the fire using Fire Hoses.

Explanation (Optional):

A is incorrect because a fire in the Main Transformer requires a reactor trip

B is incorrect because reactor trip is required and Fire Brigade members will come from the opposite unit.

C is correct.

D is incorrect because Fire Brigade response is from opposite unit

Technical Reference(s): ONOP-FP-1 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: NONE

Learning Objective: (As available) I3LP-ILO-FPS001 3

Question Source: Bank #

Modified Bank # (Note changes or attach parent)

New X

Question History:

Question Cognitive Level: Memory or Fundamental Knowledge

Comprehension or Analysis X

10 CFR Part 55 Content: 55.41

55.43 5

Comments:

10CFR55.43(b) Item 5 because the SRO must assess conditions (location of fire) and select procedural actions as well as procedures that will apply for the condition.

NRC Answer Key 11/17/06

1	A		26	B		51	D		76	B
2	D		27	A		52	B		77	C
3	B		28	B		53	D		78	C
4	D		29	~~B~~ ec		54	B		79	B
5	B		30	D		55	B		80	C
6	D		31	C		56	C		81	B
7	A		32	D		57	D		82	D
8	B		33	A		58	A		83	C
9	C		34	B		59	B		84	C
10	B		35	A		60	C		85	D
11	D		36	B		61	B		86	B
12	C		37	C		62	D		87	B
13	A		38	C		63	C		88	A
14	A		39	D		64	A		89	D
15	C		40	A		65	D		90	B
16	A		41	B		66	B		91	C
17	D		42	D		67	B		92	A
18	D		43	A		68	C		93	A
19	B		44	C		69	D		94	C
20	C		~~45~~	~~B~~	eleted	70	C		95	D
21	A		46	B		71	A		96	A
22	D		47	D		72	A		97	D
23	C		48	D		73	D		98	B
24	C		49	A		74	D		99	B
25	D		50	C		75	C		100	C

U.S.N.R.C. Site-Specific Written Examination
Indian Point Unit 3
Senior Reactor Operator / Reactor Operator

U. S. Nuclear Regulatory Commission
Indian Point Unit 3
RO Written Examination

Applicant Information

Name:	
Date: 11/17/2006	Facility/Unit: Indian Point Unit 3
Region 1	Reactor Type: Westinghouse PWR
Start Time:	Finish Time:

Instructions

Use the answer sheets provided to document your answers. Staple this cover sheet on top of the answer sheets. To pass the examination you must achieve a final grade of at least 80.00 percent. Examination papers will be collected six hours after the examination starts.

Applicant Certification

All work done on this examination is my own. I have neither given nor received aid.

_____
Applicant's Signature

Results

Examination Value	~~75~~ 74 Points
Applicant's Score	_____ Points
Applicant's Grade	_____ Percent

U.S.N.R.C. Site-Specific Written Examination
Indian Point Unit 3
Senior Reactor Operator / Reactor Operator

U. S. Nuclear Regulatory Commission
Indian Point Unit 3
SRO Written Examination

Applicant Information

Name:	
Date: 11/17/2006	Facility/Unit: Indian Point Unit 3
Region: 1	Reactor Type: Westinghouse PWR
Start Time:	Finish Time:

Instructions

Use the answer sheets provided to document your answers. Staple this cover sheet on top of the answer sheets. To pass the examination you must achieve a final grade of at least 80.00 percent overall, with a 70.00 percent or better on the SRO-only items if given in conjunction with the RO exam; SRO-only exams given alone require an 80.00 percent to pass. You have eight hours to complete the combined examination, and three hours if you are only taking the SRO portion.

Applicant Certification

All work done on this examination is my own. I have neither given nor received aid.

_____
Applicant's Signature

Results

RO / SRO-Only / Total Examination Value	~~75~~ 74	/ 25	/ ~~100~~ 99	Points
Applicant's Scores	_____	/ _____	/ _____	Points
Applicant's Grade	_____	/ _____	/ _____	Percent

U.S.N.R.C. Site-Specific Written Examination
Indian Point Unit 3
Senior Reactor Operator / Reactor Operator

Question 1

Given the following conditions:

- The plant is operating at 25% power
- The HIGH pressure tap to RCS flow instrument FT-416A on loop 31 develops a large leak (25 gpm)

What is the resulting plant condition, if NO operator action is taken?

A. All loop 31 flow indicators will read LOW, but the reactor trip is NOT generated on RCS loop LOW flow.

B. All loop 31 flow indicators will read LOW and a reactor trip is generated on RCS loop LOW flow.

C. Only FI-416A RCS flow indication will read LOW, but the reactor trip is NOT generated on RCS loop LOW flow.

D. Only FI-416A RCS flow indication will read LOW and a reactor trip is generated RCS loop LOW flow.

U.S.N.R.C. Site-Specific Written Examination
Indian Point Unit 3
Senior Reactor Operator / Reactor Operator

Question 2

The following conditions are observed about 3 minutes after an automatic safety injection:

- Core exit T/Cs 540°F
- Pressurizer level 58% and INCREASING
- RCS pressure 1100 psig and DECREASING
- Containment pressure 0 psig

Based on these indications, it is likely that a . . . .

A. small break LOCA has occurred outside the containment.

B. steam line break has occurred outside containment.

C. steam generator tube rupture has occurred.

D. pressurizer PORV is stuck open.

U.S.N.R.C. Site-Specific Written Examination
Indian Point Unit 3
Senior Reactor Operator / Reactor Operator

Question 3

The following plant conditions exist:

- A reactor trip with SI has occurred due to a small break LOCA.
- The crew transitioned from E-0, Reactor Trip or Safety Injection, to FR-H.1, Loss of Secondary Heat Sink, based on NOT being able to establish AFW flow greater than 365 gpm.
- RCS pressure is 700 psig and slowly DECREASING.
- All S/G pressures are approximately 950 psig and STABLE.

Which of the following summarizes plant conditions and what procedure should be implemented?

A. Because S/Gs are the sole heat sink, a transition to E-1, Loss of Reactor or Secondary Coolant, is made to minimize coolant loss and restore S/G levels to normal band.

B. Heat transfer in the RCS during this event is such that the S/Gs are currently NOT functioning as a heat sink and therefore NOT required. Return to E-0 then transition to E-1, Loss of Reactor or Secondary Coolant.

C. The S/Gs are currently NOT functioning as a heat sink, remain in FR-H.1 and attempt to restore S/Gs as a heat sink until RWST level decreases to 11.5 feet, then transition to ES-1.3, Transfer to Cold Leg Recirculation.

D. Because S/Gs are the sole heat sink, remain in FR-H.1 until feed is restored then transition to E-1 where a depressurization of the secondary is prescribed to increase the heat transfer between the RCS and S/Gs.

U.S.N.R.C. Site-Specific Written Examination
Indian Point Unit 3
Senior Reactor Operator / Reactor Operator

Question 4

When a RCP is stopped IAW 3-AOP-RCP-1, RCP MALFUNCTION, due to high #1 Seal leakoff flow, the respective Seal Leakoff Isolation Valve is closed after stopping the pump.

Which one of the following correctly describes the reason for closing the respective Seal Leakoff Isolation Valve?

A. Prevent excessive back pressure from interfering with leakoff from the operating RCP's.

B. Prevent over-pressurization of the return line and a possible LOCA Outside Containment.

C. Avoid flashing in the return line and/or Seal Water Heat Exchanger.

D. Reduce RCS inventory loss by directing all #1 seal leakoff to #2 Seal.

U.S.N.R.C. Site-Specific Written Examination
Indian Point Unit 3
Senior Reactor Operator / Reactor Operator

Question 5

The plant is operating at 100% EOL power with all control systems in AUTOMATIC.

Which ONE of the following could cause a Reactor Trip AND Safety Injection actuation? (Assume NO operator action for 1 hour.)

A. TE-433B, Loop 34 Cold Leg (Channel 4), fails LOW.

B. PC-455K, Pzr Pressure Master Controller fails to 0% output

C. A trip of both Main Feed Pumps.

D. Direct Trip from Buchanan.

U.S.N.R.C. Site-Specific Written Examination
Indian Point Unit 3
Senior Reactor Operator / Reactor Operator

Question 6

The following plant conditions exist:

- An ATWS is in progress.
- All feedwater to the steam generators has been lost.
- The turbine generator has remained loaded and running.

Which ONE of the following would be an indication of the above conditions several minutes after the ATWS occurred? (Assume all control systems are in AUTO and NO operator action is taken.)

A. Reactor power remains STABLE; pressurizer pressure INCREASES.

B. Reactor power INCREASES; pressurizer pressure DECREASES.

C. Reactor power DECREASES; pressurizer pressure DECREASES.

D. Reactor power DECREASES; pressurizer pressure INCREASES.

U.S.N.R.C. Site-Specific Written Examination
Indian Point Unit 3
Senior Reactor Operator / Reactor Operator

Question 7

Unit 3 is performing a plant cooldown on RHR with 34 RCP operating in preparation for entering cold shutdown. An I & C technician is inappropriately sent to calibrate PT-402 which causes the instrument to peg HIGH. This will result in the following:

A. AC-MOV-730 will AUTO CLOSE

B. AC-MOV-731 will AUTO CLOSE

C. BOTH AC-MOV-730 and 731 will AUTO CLOSE

D. Neither AC-MOV-730 OR 731 will AUTO CLOSE since these valves are de-energized in this plant condition

U.S.N.R.C. Site-Specific Written Examination
Indian Point Unit 3
Senior Reactor Operator / Reactor Operator

Question 8

Given the following conditions:

- A LOCA had occurred from HOT STANDBY conditions, Tave at 547°F, 30 minutes ago
- RCS pressure is 125 psig
- RCS Core Exit TCs read 380°F
- RCS Cold Leg temperatures are all 220°F
- 31 SI Pump is running providing 325 gpm flow
- 31 RHR Pump is running providing 1150 gpm flow

What is the appropriate action taken in response to the above conditions?

Entry into FR-P.1, Response to Pressurized Thermal Shock Condition, is ...

A. NOT required since RCS pressure is below 350 psig.

B. made but NO actions are implemented before returning to procedure in effect.

C. made and a RCS temperature soak for a ONE hour period will be completed.

D. made and cooldown will continue within a limit of 50°F in any 60 minute period.

U.S.N.R.C. Site-Specific Written Examination
Indian Point Unit 3
Senior Reactor Operator / Reactor Operator

Question 9

Given the following initial plant conditions on Unit 3:

- Reactor power is 90%.
- RCS Tave is STABLE at 565°F on ALL 4 loops
- RCS pressure is STABLE at 2235 psig

Final Conditions:

- Containment Pressure is INCREASING
- 33 SG Feed Flow is pegged HIGH
- 33 SG Main FW Reg Valve is full OPEN
- 33 SG pressure is STABLE
- 33 SG level is DECREASING

Which of the following events is in progress?

A. Main Feed Pump trip

B. Steam Break 33 SG INSIDE VC.

C. Feed Line Break INSIDE Containment.

D. Small Break LOCA INSIDE VC on 33 SG Hot Leg.

U.S.N.R.C. Site-Specific Written Examination
Indian Point Unit 3
Senior Reactor Operator / Reactor Operator

Question 10

The plant is at 350 MWe when a static inverter fault causes Instrument Bus 34/34A to be de-energized. In accordance with 3-AOP-IB-1, Loss of Power to an Instrument Bus, the correct response for this condition is to :

A. Leave ALL Main Feed Regulating Valves in AUTO.

B. Place ALL Main Feed Regulating Valves in MANUAL.

C. Place 31 and 34 Main Feed Regulating Valves in MANUAL and leave 32 and 33 Main feed Regulating Valves in AUTO.

D. Place 32 and 33 Main Feed Regulating Valves in MANUAL and leave 31 and 34 Main feed Regulating Valves in AUTO.

U.S.N.R.C. Site-Specific Written Examination
Indian Point Unit 3
Senior Reactor Operator / Reactor Operator

Question 11

The operators are responding to a CCW leak IAW 3-AOP-CCW-1, Loss of Component Cooling Water. Makeup to 31 and 32 CCW Surge Tanks has been established. Both surge tanks continue to DECREASE slowly. After splitting CCW Headers, 31 CCW Surge Tank continues to DECREASE and 32 CCW Surge Tank is slowly INCREASING. Which of the following components is the source of the CCW leak?

A. 33 SI Pump

B. Seal Water Heat Exchanger

C. Non-regenerative Heat Exchanger

D. 32 Waste Gas Compressor

U.S.N.R.C. Site-Specific Written Examination
Indian Point Unit 3
Senior Reactor Operator / Reactor Operator

Question 12

Unit 3 was operating at 100% power when a reactor trip occurred due to a loss of offsite power. The operators completed the actions of ES-0.1, Reactor Trip Response and have transitioned to ES-0.2, Natural Circulation Cooldown, where they are initiating a natural circulation cooldown.

At the onset of the natural circulation cooldown, which ONE of the following processes will remove the MOST heat from the Reactor Vessel HEAD?

A. The 25°F/hr natural circulation cooldown of the RCS.

B. Heat losses to ambient.

C. All CRDM fans running.

D. Upper head bypass flow.

U.S.N.R.C. Site-Specific Written Examination
Indian Point Unit 3
Senior Reactor Operator / Reactor Operator

Question 13

During the performance of ES-0.1, Reactor Trip Response, the operators are directed to manually open generator breakers 1 and 3 if they do not open automatically 30 seconds following a turbine trip. A loss of DC control power occurred for generator breakers 1 and 3 the operator is directed by 3-AOP-DC-1, "Loss of a 125V DC Panel", to locally trip generator breakers 1 and 3 if a unit trip has occurred and the generator breakers 1 and 3 have not tripped.

Which of the following is the overriding concern?

A. Motorizing the Main Generator

B. Tripping of RCP's on LOW Fequency

C. Unit Auxiliary Transformer damage

D. Reverse power in the Main Transformer

U.S.N.R.C. Site-Specific Written Examination
Indian Point Unit 3
Senior Reactor Operator / Reactor Operator

Question 14

While at 100% power a loss of ALL AC Power occurred. Attempts to start 31 EDG locally have been SUCCESSFUL. Buses 2A and 3A are energized. 32 Essential Service Water Pump can NOT be started. 35 Non-essential Service Water Pump is available.

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

A. Immediately trip 31 EDG IAW ECA-0.0. Then align EDG service water to non-essential header, start 31 EDG and start 35 SW pump.

B. Operate 31 EDG at required load while immediately swapping EDG Service Water to the Non-essential header

C. Immediately start 35 Service Water Pump to provide cooling to 31 EDG.

D. Maintain 31 EDG load less than 500 KW and expeditiously start 35 SW Pump. Trip 31 EDG if HIGH temperature alarm occurs.

U.S.N.R.C. Site-Specific Written Examination
Indian Point Unit 3
Senior Reactor Operator / Reactor Operator

Question 15

Unit 3 is in MODE 4 cooling down on RHR with the following plant conditions:

- RCS Temperature 340°F slowly LOWERING
- RCS pressure 300 psig LOWERING
- PZR level 42% LOWERING
- CNMT temperature 100°F
- R-27, Wide Range Plant Vent Gas Activity Monitor, went into ALARM
- SG levels: 42% (31) 40% (32) 43% (33) 40% (34)
- SG press: 115 psig ALL SGs; DECREASING slowly

What event is taking place?

A. A steam leak has occurred outside CNMT.

B. The Cold Overpressure system has actuated.

C. A LOCA has occurred on the suction of the RHR pump.

D. Letdown line pressure control valve, PCV-135, has failed open.

U.S.N.R.C. Site-Specific Written Examination
Indian Point Unit 3
Senior Reactor Operator / Reactor Operator

Question 16

During a LOCA, emergency coolant recirculation capability was lost, and ECA-1.1, Loss of Emergency Coolant Recirculation, is currently in progress. A RED path is identified on the CONTAINMENT status tree, and transition to FR-Z.1, Response to High Containment Pressure, is performed.

What procedure should be used to operate the containment spray pumps, and why?

A. ECA-1.1, because it provides for REDUCED containment spray.

B. ECA-1.1, because an ECA should be completed prior to transferring to a Function Restoration Procedure.

C. FR-Z.1 because it takes precedence over ECA-1.1.

D. FR-Z.1, because it provides for GREATER containment spray.

U.S.N.R.C. Site-Specific Written Examination
Indian Point Unit 3
Senior Reactor Operator / Reactor Operator

Question 17

A Unit 3 Reactor Trip occurred after a 200 day continuous run at 100% power. Following the trip, ALL AFW flow was lost and the Team transitioned to FR-H.1, Loss of Secondary Heat Sink. Due to distractions caused by a pressure channel failure, bleed and feed steps were NOT initiated until WR S/G levels were ALL <10%.

Which one of the following correctly describes the general consequence of the delay?

A. Core uncovery will be MORE severe due to a Pressurizer Safety lifting, INCREASING the loss of mass, while ECCS flow is limited by RCS pressure.

B. Core uncovery will NOT occur as long as one PZR PORV is OPEN, one charging pump is injecting prior to SG dryout and one PRZR Safety is available.

C. Core uncovery will NOT occur as long as both PZR PORVs are OPEN and two charging pumps are injecting prior to SG dryout.

D. Core uncovery will be MORE severe because RCS pressure will remain at a HIGHER value for a longer time, limiting ECCS flow.

U.S.N.R.C. Site-Specific Written Examination
Indian Point Unit 3
Senior Reactor Operator / Reactor Operator

Question 18

With Unit 3 operating at 88% power, the following symptoms occur:

- Reactor power INCREASING.
- Tave GREATER THAN Tref.
- Pressurizer Pressure INCREASING.
- Pressurizer Level INCREASING.

Which ONE of the following would cause the above symptoms to occur INITIALLY?

A. First Stage Turbine Pressure transmitter, PT-412A, Failed LOW.

B. Power range channel N-43 fails HIGH.

C. First Stage Turbine Pressure transmitter, PT-412A, Failed HIGH.

D. Uncontrolled rod withdrawal.

Question 19

The plant is operating at 100% power with all control systems operating normally. The controlling channel, LT-460, reference leg of Pressurizer Level has just developed a leak where the reference leg connects to the D/P cell. Which one of the following best describes the immediate plant response from this leak?

A. LT-460 - indication will DECREASE, LT-459 indication will INCREASE, LT-461 - indication will INCREASE, charging flow will INCREASE.

B. LT-460 - indication will INCREASE, LT-459 indication will DECREASE, LT-461 - indication will DECREASE, charging flow will DECREASE.

C. LT-460 - indication will INCREASE, LT-459 indication will DECREASE, LT-461 indication will DECREASE, backup heaters will de-energize.

D. LT-460 - indication will DECREASE, LT-459 indication will DECREASE, LT-461 indication will DECREASE, backup heaters will energize.

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Question 20

Given the following conditions:

- Fuel handling is in progress in Containment and the Spent Fuel Pool (SFP).
- Radiation Monitor R 5 SPENT FUEL POOL AREA MONITOR fails LOW
- All other radiation monitors are operable.

What is the impact of this failure?

A. All fuel assembly movement in the FSB must be suspended.

B. All fuel assembly movement in the FSB AND Containment must be suspended.

C. Only recently irradiated fuel assembly movement in the FSB must be suspended.

D. Fuel assembly movement may continue in the FSB and Containment provided R-14, Plant Vent Gas Activity and R-27, Wide Range Plant Vent Gas Activity, monitors are operable.

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Question 21

A SG tube leak is in progress with the following plant conditions exist:

- CVCS charging flow rate = 63 gpm
- CVCS letdown flow = 75 gpm
- Total RCP seal injection = 32 gpm
- Total RCP seal leakoff flow = 12 gpm
- RCS temperature at no load Tave and steady
- PZR Press and Level are stable

Based on the above indications, what is the approximate RCS SG leak rate?

A. 8 gpm

B. 20 gpm

C. 32 gpm

D. 43 gpm

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Question 22

Unit 3 is at 100% power and is performing 3-PT-V089, Online Turbine Mechanical Trip Features Test.

The "Test Handle" has just been placed in the TEST position in preparation for doing the Low Vacuum Trip Test (Simulated).

The control room reports that actual condenser vacuum has DROPPED to the turbine trip setpoint.

With no operator action, which one of the following will occur?

A. The turbine low vacuum trip device will NOT actuate, and the turbine will NOT trip.

B. The turbine low vacuum trip device will actuate, and the turbine will trip.

C. The turbine low vacuum trip device will NOT actuate, but the turbine will trip.

D. The turbine low vacuum trip device will actuate, but the turbine will NOT trip.

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Question 23

The plant is in MODE 5 and in Day 4 of a Refueling Outage. Radiation monitor R-11, Vapor Containment Particulate Activity Monitor, has just gone into ALARM. From the list below, select the actions that would occur from R-11 reaching the ALARM setpoint.

1. Containment pressure relief valves would receive a CLOSE signal.
2. Pressure Relief Fan would receive a TRIP signal.
3. PAB Exhaust Fan would receive a signal to divert through the Charcoal Filters.
4. CB Purge Fan would be sent a TRIP signal.
5. A containment Evacuation ALARM signal would be initiated.
6. Containment purge supply valves would receive a CLOSE signal.
7. Control Room ventilation would receive a signal to swap to the Incident Mode.
8. Containment purge exhaust valves would receive a CLOSE signal.

A. 1, 2, 3, 4, 6

B. 2, 3, 5, 7, 8

C. 1, 2, 4, 5, 6, 8

D. 2, 3, 4, 6, 7, 8

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Question 24

Given the following plant conditions:

- The Unit has experienced a fault on 31 Steam Generator inside containment.
- The crew has transitioned from E-0 to E-2, Faulted Steam Generator Isolation.
- Containment pressure is currently at 28 psig and slowly RISING.
- Both Containment Spray Pumps are NOT operating.

Which ONE of the following indicates the correct action for the crew to take?

A. Continue in E-2, Faulted Steam Generator Isolation and transition to FR-Z.1, Response To High Containment Pressure if containment pressure exceeds 46 psig to prevent loss of containment integrity.

B. Continue in E-2, then transition to E-1, Loss of Reactor or Secondary Coolant after ensuring the faulted steam generator is isolated.

C. Immediately transition to FR-Z.1, Response To High Containment Pressure to prevent loss of containment integrity.

D. Go to E-0, Reactor Trip or Safety Injection and revalidate SI automatic actions to ensure Containment Fan Cooler Units are operating properly.

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Question 25

R-63A and R-63B, Gross Failed Fuel Detectors, went into alarm. In accordance with the abnormal operating procedure 3-AOP-HIACT-1, High Activity, what should the operators do once Chemistry verifies a HIGH RCS activity condition exists?

A. Divert letdown to CVCS HUT and maximize makeup.

B. Place ALL three letdown orifices in service.

C. Place BOTH 75 gpm orifices in service.

D. Place ONE 75 gpm orifice and the 45 gpm orifice in service.

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Question 26

Given the following conditions:

- A main steam line break occurred inside containment
- MSIVs are closed
- The faulted SG is isolated
- RED PATH conditions exist on the Integrity Status Tree
- The actions of FR-P.1, Response To Imminent Pressurized Thermal Shock Condition" are being performed
- RCS temperature soak is required and has been initiated
- NO RCPs are running

Which evolution can be performed during the one hour "soak period"?

A. Start 34 RCP to control RCS pressure using normal spray.

B. Place normal letdown in service per 3-EOP-FR-P.1, Attachment 3, Establishing Letdown.

C. Raise AFW flow to and establish SG blowdown from the non-faulted SG.

D. Raise RCS pressure to the middle of the pressure band allowed by 3-EOP-FR-P.1, Attachment 5, Post-Soak Cooldown limit.

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Question 27

Given the following conditions:

- Plant cooldown is in progress.
- RCS temperature is 220°F.
- RCS pressure is 375 psig.
- VCT pressure is 25 psig.
- ALL RCP seal injection flows are 8 gpm
- RCP seal discharge valves 261A-D are OPEN
- 32 RCP #1 seal leakoff flow indicates 0.8 gpm and slowly DECREASING.
- 32 RCP lower radial bearing temperature is 195°F and slowly RISING

In accordance with 3-SOP-RCS-001, Reactor Coolant Pump Operation, which ONE (1) of the following actions is required and why?

A. OPEN RCP Seal Bypass Valve, 246, to increase seal leakoff flow.

B. CLOSE HCV-142, Charging Line Flow Control Valve, to increase seal injection flow.

C. Trip operating RCPs and isolate seal leakoff due to insufficient seal DP.

D. Isolate #1 seal leakoff for 32 RCP to increase #1 seal DP.

U.S.N.R.C. Site-Specific Written Examination
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Question 28

With the plant in mode 4 preparing to enter Mode 3, the Watch Chemist reports the Oxygen concentration in the RCS is excessively high. Which of the below describe the method which is used to reduce the Oxygen concentration in the RCS?

A. Add Hydrazine to the RCS via the CVCS System.

B. Increase the Hydrogen pressure in the VCT.

C. Add Hydrogen Peroxide to the RCS via the CVCS System.

D. Turn ALL Pressurizer Backup heaters on to increase Pressurizer Spray to degas the RCS.

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Question 29

Given the following conditions:

The plant is being cooled down to 140°F for maintenance which will NOT require the RCS be opened. The crew is in the process of placing the first Residual Heat Removal (RHR) train in service for RCS cooling. Current RCS temperature is 345°F.

Current boron concentrations are as follows:

- RHR (train to be placed in service) boron 1020 ppm
- Required Shutdown Margin at 300°F boron 1750 ppm
- Required Shutdown Margin at 68°F boron 1800 ppm
- RCS boron 2025 ppm
- Refueling boron 2050 ppm

Before the RHR train can be placed in service for RCS cooling, RHR boron concentration must be increased by a MINIMUM of . . . .

A. 730 ppm

B. 780 ppm

C. 1005 ppm

C. 1030 ppm

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Question 30

A Large Break LOCA has occurred. The Team is performing the actions of ES-1.3, Transfer to Cold Leg Recirculation. What will be the status of the ECCS pumps after Recirc switches 1 and 3 are placed in the ON position?

A. ALL three (3) SI pumps running and BOTH RHR pumps secured.

B. 31 and 33 SI pumps running, 32 SI pump secured and BOTH RHR pumps running.

C. ALL three (3) SI pumps secured and BOTH RHR pumps running.

D. 31 and 33 SI pumps running, 32 SI pump secured and BOTH RHR pumps secured.

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Question 31

Given the following initial PRT conditions:

- PRT Temperature 100°F
- PRT Level 71%
- PRT Pressure 0.5 psig

The Seal Water Return line relief valve CH-218 inadvertently lifted and stuck OPEN. A containment entry was made and the relief valve was CLOSED by mechanical agitation. The following conditions now exist in the PRT:

- PRT Temperature 107°F
- PRT Level 79%
- PRT Pressure 3.5 psig

Based on the above indications what, alarm(s), if any, should be annunciated in the control room and what action(s) should be taken to return the PRT to its original condition?

A. PRT High Level and PRT High Pressure. Drain the PRT to the RCDT to reduce level and vent the PRT to the Waste Gas Header to reduce pressure.

B. PRT High Temperature and PRT High Level. Drain the PRT to the RCDT and add Primary Makeup Water to cool down the PRT

C. PRT High Level. Drain the PRT to the RCDT to reduce level and pressure.

D. PRT High Pressure. Vent the PRT to the Waste Gas Header

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Question 32

Unit 3 is at 100% power when the following events occur in the order shown:

- PRMS channels R-17A/17B, Component Cooling Water Activity Monitors, IN alarm.CCW Surge TANK levels INCREASING rapidly.
- Annunciator, RCP THERMAL BARRIER COOLING RETURN HIGH TEMP, in alarm.
- Pressurizer level DECREASES and the running charging pump speed goes to maximum.
- Annunciator, PRESSURIZER LOW LEVEL in alarm.

Which ONE of the following events will cause the CCW Surge Tank to rise at the highest rate?

A. The CVCS letdown non-regenerative heat exchanger tube has burst and LCV-459/460, High Press L/D Isol Valves, have failed to CLOSE.

B. A Spent Fuel Pit Heat Exchanger tube has burst and protective functions have responded as designed.

C. A RCP thermal barrier leak has occurred and protective functions have responded as designed.

D. A RCP thermal barrier leak has occurred and MOV-625, RCP Thermal Barrier Outlet Valve, has failed to CLOSE.

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Question 33

Pressurizer Level channel 1 (LT-459) is the alarm channel and Pressurizer Level channel 2 (LT-460) is in control. What affect, if any, would Pressurizer Level channel 1 failing HIGH have on Pressurizer Heater operations?

A. Pressurizer Modulating and Backup Heaters will operate as normal receiving controlling signal from channel 2.

B. ALL Backup Heater and Modulating Heaters will energize from the 5% HIGH level error above program.

C. Only the Backup heaters will receive an ON signal.

D. Only the Modulating Heaters will receive a full ON signal.

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Question 34

During the performance of an NIS power range heat balance at 90% power, an operator uses a feedwater temperature 30°F lower than actual. Would the calculated value of power be HIGHER or LOWER than actual power, and would an adjustment of the NIS power range channels, based on this value be CONSERVATIVE or NON CONSERVATIVE with respect to High Power Reactor Trip protection setpoints?

Calculated Power Setpoints would be...

A. Higher - Non Conservative

B. Higher - Conservative

C. Lower - Non Conservative

D. Lower - Conservative

U.S.N.R.C. Site-Specific Written Examination
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Question 35

Initial Conditions:

- The plant is at 100% power, beginning of life.Rod Control is in MANUAL.
- Tave is on program.
- The Reactor Engineer has requested the crew to slowly withdraw control bank "D" rods to full out after Moderator Temperature Coefficient (MTC) testing.
- The crew is to allow MTC to control reactor power, without borating during the rod withdrawal.

The RO slowly withdraws control bank "D" rods, resulting in the following:

- RCS Narrow Range Thot INCREASES by 4°F.
- PZR pressure control system maintains RCS pressure STABLE.
- Delta Flux remains in the program band.

How does the OTΔT and OPΔT trip setpoints respond?

A. OTΔT setpoint DECREASES.
OPΔT setpoint DECREASES.

B. OTΔT setpoint DECREASES.
OPΔT setpoint INCREASES.

C. OTΔT setpoint INCREASES.
OPΔT setpoint DECREASES.

D. OTΔT setpoint INCREASES.
OPΔT setpoint INCREASES.

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Question 36

A small break LOCA occurred causing a Reactor Trip AND Safety Injection. ALL safeguards equipment operated as designed. During the performance of E-0, Reactor Trip or Safety Injection, Offsite Power was lost.

Given the following:

- 31 EDG failed to start
- ALL remaining equipment operated as designed

ALL equipment that should have automatically started has started on their respective buses. With NO operator action, what will be the configuration for the Containment Fan Cooler Units (FCU)?

A. 31, 32 and 35 FCU's running

B. 31, 33 and 35 FCU's running

C. 33, 34 and 35 FCU's running

D. 32, 33 and 34 FCU's running

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Question 37

Given the following conditions:

- Unit 3 is operating at 100% power.
- 31 Containment Spray pump has been declared INOPERABLE due to an oil leak.
- 32 and 34 FCU's are INOPERABLE and isolated due to service water leaks.
- All other ECCS equipment is OPERABLE.

With the plant in this configuration, which of the following describes if the plant is being operated within the Design Basis for containment cooling, and the BASES for your answer?

A. NO, two (2) Containment Spray pumps must be OPERABLE to meet the design basis for containment cooling.

B. NO, one containment Spray pump and four (4) FCU's are required to be OPERABLE to meet the design basis for containment cooling.

C. YES, one (1) OPERABLE Containment Spray pump combined with three (3) OPERABLE FCU's meets the design basis for containment cooling.

D. YES, a single OPERABLE Containment Spray pump and two (2) FCU's OPERABLE meets the design basis for containment cooling.

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Question 38

Unit 3 was operating at 100% power when an inadvertent Phase "B" isolation occurred. Which of the following describes the required actions for the Phase "B" isolation and the reason for performing those actions in accordance with 3-AOP-CCW-1, Loss of Component Cooling Water?

A. Immediately trip the Reactor, trip ALL four RCPs and enter E-0, Reactor Trip due to loss of RCP seal return flow.

B. Immediately trip the Reactor, trip ALL four RCPs and enter E-0, Reactor Trip due to loss of CCW to all four RCPs.

C. If Phase "B" CCW supply and return valves for RCP motor cooling are not opened within 2 minutes then trip the Reactor, trip ALL four RCPs and enter E-0, due to loss of RCP motor cooling.

D. If Phase "B" CCW supply and return valves for RCP motor cooling are not opened prior to RCP seal outlet temperature exceeding 200°F then trip the Reactor, trip ALL four RCPs and enter E-0, due to loss of RCP seal cooling.

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Question 39

Given the following conditions:

- A Unit startup is in progress following a mid-cycle outage.
- The reactor is critical at 1E-8 amps.
- The SG Atmospheric steam dump valves are maintaining RCS temperature in MANUAL.
- A condenser steam dump valve fails full OPEN.

Assuming NO action by the operating crew, which one of the following describes the immediate effect on the plant?

A. RCS Temperature remains the SAME; Power INCREASES.

B. RCS Temperature remains the SAME; Power DECREASES.

C. RCS Temperature DECREASES; Power DECREASES

D. RCS Temperature DECREASES; Power INCREASES.

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Question 40

Given the following conditions:

- A plant startup is in progress
- The Unit is at 30% power.
- All Main Feed Regulating Valves are in AUTO
- 31 Feed Flow channel FT-418B is selected for control of 31 SG.
- 31 Feed Flow transmitter PT-418B fails 10% high.

Assuming NO operator action, which of the following statements describes the response of 31 Main Feed Reg (MFR) Valve?

A. 31 MFR valve will initially throttle in the CLOSE direction and then over time will return to it's original position.

B. 31 MFR valve will initially throttle in the OPEN direction and then over time will return to it's original position.

C. 31 MFR valve will CLOSE and then over time the Reactor will trip on Low SG level.

D. 31 MFR valve will OPEN and then over time the Turbine will trip on High SG level.

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Question 41

A reactor trip occurs from 100% power due to a Loss of Main Feedwater.

The following conditions exist:

- All RCPs are running.
- 32 ABFP is in service feeding all four steam generators.
- 31 and 33 ABFPs tripped and remain unavailable.
- 32 ABFP speed has begun to slowly LOWER due to a malfunctioning governor.

Which ONE (1) of the following describes the expected impact on Pressurizer Level if the 32 ABFP speed continues to lower?

Pressurizer level...

A. rises due to the INCREASE in ΔT across the Reactor

B. rises due to DECREASE primary to secondary heat transfer.

C. lowers due to DECREASE in ΔT across the Reactor.

D. lowers due to DECREASE primary to secondary heat transfer.

Question 42

Given the following conditions:

- A Large Break LOCA has occurred.
- Train B ECCS has failed to actuate.
- ALL other actuations actuate and Train A ECCS equipment is running as required.

Assuming NO action by the crew, which ONE (1) of the following describes the effect on the plant?

A. Containment Isolation Phase A will actuate. Phase B will NOT actuate.

B. Containment Isolation Phase A will NOT actuate. Phase B will actuate.

C. Containment Isolation Phase A will NOT actuate. Phase B will NOT actuate.

D. Containment Isolation Phase A and B will actuate.

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Question 43

Given the following plant conditions:

- A Large Break LOCA occurred with SI actuation
- 15 seconds after the SI actuation containment pressure rises to 24 psig

Which one of the following sets of pumps/valves receives a start/open signal on the automatic Containment Spray Actuation?

A. Spray pumps 31 and 32 after ~34 second time delay, MOV 866A and B, CNMT Spray Pump Discharge Valves immediately and AOV 876A and B, CNMT Spray NaOH addition after ~2 minute time delay.

B. Spray pumps 31 and 32 after ~34 second time delay, AOV 876A and B, CNMT Spray NaOH addition and MOV 866A and B, CNMT Spray Pump Discharge Valves immediately.

C. Spray pumps 31 and 32 after ~2 minute time delay, MOV 866A and B, CNMT Spray Pump Discharge Valves immediately and AOV 876A and B, CNMT Spray NaOH addition after ~2 minute time delay.

D. Spray pumps 31 and 32 after ~2 minute time delay, MOV 866A and B, CNMT Spray Pump Discharge Valves and AOV 876A and B, CNMT Spray NaOH addition and 880A-K immediately.

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Question 44

Given the following plant conditions:

- Natural Circulation C/D in progress at 20°F/hr
- S/G Atmospheric Steam Dump valves in manual for C/D
- 32 ABFP supplying 125 gpm to each of the four S/Gs
- 31 and 33 ABFPs are shutdown in AUTO
- All S/G levels being maintained at 45% level

What would be the effect on the AFW System should 32 ABFP trip on overspeed? (Assume NO operator actions)

A. NO AFW Pump would start causing all four SGs to eventually dry out.

B. BOTH motor driven AFW Pumps would immediately start and commence feeding ALL four SGs causing S/G levels to continually INCREASE.

C. BOTH motor driven AFW Pumps would start when any one of the four S/G levels DECREASED to 8% causing SG levels to continually INCREASE.

D. BOTH motor driven AFW Pumps would start when any one of the four S/G levels DECREASED to 8% causing SG levels to go to and automatically maintain program value.

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Question 45

The Main Generator just tripped due to a pilot wire transfer trip from Buchanan. The 25X1 sync check relay which ensures synchronization between 6.9 KV buses 5 and 1/2 for the auto transfer has failed. All other circuits are intact. Which of the following describes the affect to the Reactor Coolant Pumps (RCP)?

A. Only 32 and 34 RCPs will be operating

B. Only 32 and 33 RCPs will be operating

C. Only 33 and 34 RCPs will be operating

D. Only 31 and 33 RCPs will be operating

Deleted

U.S.N.R.C. Site-Specific Written Examination
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Question 46

A plant startup is in progress with condenser vacuum being established using the Steam Jet Air Ejectors and the Hoggers. A Steam Generator Tube Leak occurs which places R-15, Air Ejector Exhaust Gas Activity Monitor, into alarm. ALL automatic actions occur. Subsequently, R-15 fails low. Which of the following statements is correct? Assume NO operator action.

A. A release would be directed into the Containment and the environment via both normal R-15 flow path and alarm flow path.

B. The Steam Jet Air Ejector exhaust would be directed to Containment.

C. A release to the environment would occur via the Hoggers.

D. A release to the environment would occur via the normal R-15 flow path ONLY.

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Question 47

A Large Break LOCA occurred concurrent with a Loss of Offsite Power. SI was incorrectly reset WITHOUT placing FCV-1176/1176A, Diesel Generator Service Water Valves, in the OPEN position. Based on this, which of the following control room indications are expected and why?

A. RED lights for FCV-1176/1176A. The Blackout signal causes an independent diesel start signal causing these valves to remain fully OPEN.

B. GREEN lights for FCV-1176/1176A. These valves would go CLOSED when SI is reset.

C. RED lights for FCV-1176/1176A. When SI is reset, these valves go to modulate mode to control temperature. These valves would be full open under the diesel load for this condition.

D. RED and GREEN lights for FCV-1176/1176A. When SI is reset, the valves go to modulate mode to provide a preset flow to the EDG's.

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Question 48

Given the following:

- 75% power
- PRZR Pressure 2265 slowly INCREASING
- PRZR spray valves CLOSED
- Letdown Orifice Valves CLOSED
- Charging Pump speed INCREASE to 100%
- PRZR Level 54% and INCREASING

Which one of the following malfunctions would cause these indications and what procedure would be entered?

A. Controlling Pressurizer Pressure Channel Failed Low, 3-AOP-INSTR-1, Instrument/Controller Failure.

B. Controlling Pressurizer Level Failed Low, 3-AOP-INSTR-1, Instrument/Controller Failure.

C. Loss of an Instrument Bus, 3-AOP-IB-1, Loss of Power to an Instrument Bus.

D. Loss of Instrument Air, 3-AOP-AIR-1, Air System Malfunctions.

U.S.N.R.C. Site-Specific Written Examination
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Question 49

Refueling is in progress when a report comes to the CCR that a irradiated fuel assembly has been dropped. R-12, Vapor Containment Gas Activity Monitor, is in ALARM and R-11, Vapor Containment Particulate ActivityMonitor, is rising. The fuel transfer tube gate valve is open. What actions are required to be taken per 3-AOP-FH-1?

A. Evacuate containment and Verify Purge Supply and Exhaust Valves automatically CLOSE.

B. Evacuate containment, CLOSE the fuel transfer tube gate valve and then evacuate FSB.

C. Verify the Containment Building Exhaust Fans swap to the incident mode and evacuate containment.

D. Start ALL FCUs in incident mode and then evacuate containment and the FSB.

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Question 50

An electrical short caused a loss of 33 DC Power Panel. Subsequently an inadvertent Safety Injection signal was generated. What would be the configuration of the Emergency Diesel Generators following the SI?

A. ALL three EDGs would be running.

B. Only 31 and 32 EDGs would be running.

C. Only 32 and 33 EDGs would be running.

D. Only 31 and 33 EDGs would be running.

U.S.N.R.C. Site-Specific Written Examination
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Question 51

The plant was operating in the normal full power lineup. An inadvertent Safety Injection and Phase A Isolation occurred. Safety Injection has been RESET. What action will allow Letdown Isolation Valves, 201 and 202, to be OPENED in accordance with ES-1.1, SI Termination?

A. Depress both Phase A master Reset pushbuttons and the valves will REOPEN.

B. Depress both Phase A master Reset pushbuttons then put 201 and 202 valve switches to CLOSE and then back to OPEN and the valves will REOPEN.

C. Depress both individual valve Reset pushbuttons then put 201 and 202 valve switches to CLOSE and then back to OPEN and the valves will REOPEN.

D. Depress both Phase A master Reset pushbuttons then depress the individual valve Reset pushbuttons and the valves will REOPEN.

U.S.N.R.C. Site-Specific Written Examination
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Question 52

The Circulating Water System is out of Service during an outage. Waste Management wants to release a monitor Tank with total gamma activity of 5E-4 µCi/ml and less than minimum detectable boron concentration. Based on this, which of the following is correct?

A. The tank MAY be released without taking further action or obtaining special permission. The total gamma activity is low enough that dilution flow is NOT required to reduce instantaneous dose rates.

B. Dilution flow is necessary to ensure the instantaneous dose rate limit is NOT exceeded. This tank MAY be released if minimum circulator flow is borrowed from Unit 2.

C. The tank MAY be released without taking further action or obtaining special permission. Dilution flow would only be required to satisfy SPDES requirements if the tank contained a measurable boron concentration.

D. Dilution flow is necessary to ensure the instantaneous dose rate limit is NOT exceeded. This tank my not be released until sufficient Unit 3 circulators are placed in service.

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Question 53

Unit 3 was operating at 28% power when 31 Reactor Coolant Pump (RCP) tripped on overcurrent.

Which of the following describes the unit's initial response? (Assume NO operator action AND Rod Control in MANUAL.)

A. A reactor trip occurs and unaffected loops T_{AVE} DECREASES.

B. A reactor trip occurs and unaffected loops T_{AVE} INCREASES.

C. A reactor trip will NOT occur and unaffected loops T_{AVE} DECREASES.

D. A reactor trip will NOT occur and unaffected loops T_{AVE} INCREASES.

U.S.N.R.C. Site-Specific Written Examination
Indian Point Unit 3
Senior Reactor Operator / Reactor Operator

Question 54

Given the following plant conditions:

- A BATTERY CHARGE TROUBLE category alarm was received in the control room
- The conventional NPO reports the RED light for + (positive) Ground Detection for 31 Battery Charger is LIT

What actions are required (if any) to clear the alarm in the control room making it available to alarm on any future alarm condition?

A. Open 31 Battery Charger input OR output breakers.

B. Place the Normal/Bypass switch on 31 Battery Charger for + Ground Detection in Bypass position.

C. Place the Common Alarm Buzzer ON/OFF toggle switch to Bypass.

D. Cannot be cleared until the + ground condition is corrected.

Question 55

A waste gas release is in progress.

Which ONE (1) of the following correctly identifies the RMS channel and setpoint that will automatically close RCV-014, Gaseous Waste Release Header Stop Valve?

A. R-27, Wide Range Plant Vent Noble Gas Detector, in ALARM due to Tritium.

B. R-27, Wide Range Plant Vent Noble Gas Detector, in ALARM due to Krypton and Xenon.

C. R-20, Waste Gas Detector, in ALARM due to Tritium.

D. R-20, Waste Gas Detector, in ALARM due to Krypton and Xenon.

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Indian Point Unit 3
Senior Reactor Operator / Reactor Operator

Question 56

Given the following:

- A power ascension was in progress with reactor power at 75%
- Control Bank "D" (CBD) rods are at 175 steps
- A CBD rod dropped into the core
- The problem with the dropped rod has been corrected and the rod has subsequently been withdrawn back to 175 steps
- The ATC inadvertently depressed the ROD CONTROL STARTUP pushbutton instead of the ROD CONTROL ALARM RESET pushbutton

Which of the following describes the indications or conditions that would exists due to depressing the ROD CONTROL STARTUP pushbutton?

A. The ROD INSERTION LOW LIMIT and the ROD INSERTION LOW LOW LIMIT alarm would be prevented from alarming.

B. The ROD INSERTION LOW LIMIT and the ROD INSERTION LOW LOW LIMIT alarm would alarm but at a LOWER value than the actual Rod Insertion Limit.

C. ALL control bank step counters would indicate 000, ALL shutdown bank step counters would indicate 000 steps.

D. ALL control bank step counters would indicate 000, ALL shutdown bank step counters would indicate 230 steps.

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Question 57

Given the following:

- The plant is at 100% power.
- Safeguards Train B, DC Power has failed.

Which ONE of the following describes the response of AFW Pump 33 to a safeguards actuation?

A. Pump will AUTO start but does NOT supply water to any S/G.

B. Pump will AUTO start and supplies water to only 34 S/G.

C. Pump will AUTO start and supplies water to 33 and 34 S/Gs.

D. Pump will NOT AUTO start.

Question 58

Which one of the following contains BOTH conditions that will result in indicated reactor power being LOWER than actual reactor power?

A. Source Range pulse height discrimination set too HIGH.
Intermediate Range compensating voltage set too HIGH.

B. Source Range pulse height discrimination set too LOW.
Intermediate Range compensating voltage set too LOW.

C. Source Range pulse height discrimination set too LOW.
Intermediate Range compensating voltage set too HIGH.

D. Source Range pulse height discrimination set too HIGH.
Intermediate Range compensating voltage set too LOW.

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Question 59

Given the following plant conditions:

- From full power, a Large Break LOCA occurred.
- Containment hydrogen concentration is at 2%.
- 31, 32 and 34 Fan Cooler Units started automatically on the Safety Injection
- 31 and 32 Containment Spray Pumps automatically started
- The plant is on Cold Leg Recirculation

Which one of the following actions should be taken to address these conditions in accordance with ES-1.3, Transfer to Cold Leg Recirculation?

A. Start 33 and 35 Containment Fan Cooler Units to ensure adequate mixing of Containment atmosphere.

B. Operate at least one of the Hydrogen Recombiners, thereby minimizing the potential for a hydrogen burn.

C. Initiate a containment purge to reduce hydrogen below 1%, thereby minimizing the potential for a hydrogen burn.

D. Allow Containment Spray to continue to run for 4 hours, then resample to see if spray flow has reduced Hydrogen concentration to <1%.

Question 60

Which area in the plant has a time delay for automatic fire protection actuation for personnel safety?

A. Main Transformer

B. Control Room

C. 480V Switchgear Room

D. Electrical Tunnel

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Question 61

The following plant conditions exist:

- The plant is operating at 100%.
- All systems are lined up in their normal lineups.
- All control systems are in automatic.
- Main Generator output breakers 1 and 3 trip due to a pilot wire trip.

Which of the following describes the expected immediate plant response?

A. S/G pressure initially INCREASES as main turbine is lost, S/G levels initially DECREASE due to shrink, feed flow initially INCREASES.

B. S/G pressure initially INCREASES as main turbine is lost, S/G levels initially DECREASE due to shrink, feed flow initially DECREASES.

C. S/G pressure initially DECREASES as main turbine is lost, S/G levels initially DECREASE due to shrink, feed flow initially INCREASES.

D. S/G pressure initially DECREASES as main turbine is lost, S/G levels initially INCREASE due to lower steam pressure, feed flow initially DECREASES.

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Question 62

Given the following:

- The unit is at 100% power.
- All major controls are in AUTO.
- T_{AVE} has slowly INCREASED 0.2°F in the last 5 minutes.
- Main Generator output has DECREASED 10 MWe.

Which ONE (1) of the following describes the cause of the above indications?

A. SG Safety Valve leakage.

B. Inadvertent RCS dilution.

C. Hudson River tide change from outgoing to incoming.

D. Condenser Air Ejector malfunction.

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Question 63

Radiation levels in the Fuel Storage Building (FSB) INCREASED causing R-5, Fuel Storage Building Monitor, to reach the alarm setpoint.

By design, which of the following would AUTOMATICALLY occur in the FSB due to this condition?

A. Start the FSB Supply Fan, shut the sliding door and apply air to door seals.

B. Shut the sliding door, charcoal filter face dampers open and stop the Exhaust Fan.

C. Stop the FSB Supply Fan, shut the sliding door and start Exhaust Fan.

D. Stop exhaust fans, charcoal filter face dampers open and stop the FSB Supply Fan.

U.S.N.R.C. Site-Specific Written Examination
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Question 64

Given the following conditions:

- A licensed reactor operator who has an inactive license has been performing administrative duties in the Training Section for twelve months.
- He is returning to Operations and is to be placed back on shift.

Which ONE (1) of the following are the minimum requirements for returning his license to an active status?

A. Complete 40 (any combination of hours) hours watch standing duties in the RO position, including one shift turnover, and conduct a complete plant tour with the Shift Manager.

B. Complete 56 (7 eight hours shifts) hours watch standing duties in the RO position, including shift turnovers before and after each shift, and conduct a complete plant tour with the Shift Manager.

C. Complete 60 (5 Twelve hour shifts) hours watch standing duties in the RO position, including either the on-coming or off-going shift relief, and review all the procedure changes for the past 7 days.

D. Complete FIVE full normal shifts (8 or 12 hours), including either the on-coming or off-going shift relief, and review all the procedure changes for the past 7 days.

U.S.N.R.C. Site-Specific Written Examination
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Question 65

What is the BASIS for the requirement to ensure that the temperature in the steam generators is less than or equal to the temperature in the Reactor Coolant System (RCS) cold leg PRIOR to directing initial starts of Reactor Coolant Pumps?

A. Ensures an available heat sink for the RCS when securing shutdown cooling.

B. Prevents a rapid depressurization of the steam generators due to a cooldown.

C. To limit the thermal stresses experienced by the steam generator tubes.

D. Ensures that heat energy addition to the RCS from the steam generators does not occur, causing rapid pressure rise in RCS.

U.S.N.R.C. Site-Specific Written Examination
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Question 66

The following plant conditions exist:

- A reactor startup is in progress
- Estimated Critical Position (ECP) is 80 steps on Control Bank D
- The ATC is preparing to withdraw Control Bank "A"
- Initial count rate prior to shutdown bank withdrawal was 40 cps on source range N31 and N32
- Current count rate is stable at 300 cps on source range N31 and N32

Which ONE of the following is the next action to be taken?

A. Continue reactor startup and continue to plot source range counts to criticality.

B. Insert ALL control rods and evaluate the ECP.

C. Stop control rod withdrawal until abnormality is understood and does not jeopardize plant safety.

D. Begin emergency boration to achieve 1% shutdown margin.

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Question 67

The plant is operating at 100% power when 31 RHR Pump is found not to meet criteria during a surveillance.

What log entry or entries need to be made to track the failed surveillance?

A. An entry into the eSoms LCO Tracking at the time the surveillance began.

B. An entry into the eSoms LCO Tracking and Unit Log at the time the SM declares 31 RHR Pump inoperable.

C. An entry into the eSoms LCO Tracking and Unit Log at the time of discovery the pump did not meet the surveillance criteria.

D. An entry into Unit Log at the time the surveillance was stopped.

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Question 68

Unit 3 was operating at 100% power when a steam line break occurred in the Aux Feed Building. The break is upstream of MS-42, 33 Steam Generator Supply to 32 ABFP.

During the performance of E-2, Faulted Steam Generator Isolation, the NPO fails to MANUALLY SHUT MS-42 as directed by the control room.

Which of the following describes a consequence of this error?

A. 32 ABFP will lose its steam supply because both Steam Generators will blow down through the rupture.

B. 32 ABFP will lose its steam supply because PCV-1139, 32 ABFP pressure control valve, will automatically CLOSE.

C. 32 ABFP will NOT be affected because MS-42, 33 Steam Generator Supply to 32 ABFP, is a stop check valve.

D. 32 ABFP will NOT be affected because PCV-1310A and 1310B will isolate the leak.

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Question 69

Given the following conditions:

- Unit 3 is in MODE 6
- Core reload is in progress
- A fuel assembly is being moved from the upender to the core
- Source Range Channels N31 and N32 are being used to monitor core reactivity
- Source Range Channels N38 and N39 are out-of-service for calibration

What action is required per Technical Specifications should N31 fail low during the fuel assembly evolution?

A. Continue to transfer the fuel assembly to the core and store in a location that is NOT adjacent to any other assembly.

B. Continue to transfer the fuel assembly to its assigned core location, then suspend further fuel movement.

C. Continue to transfer the fuel assembly to its assigned core location while placing N-38 OR N-39 in service.

D. Stop the movement of the fuel assembly to the core and return the fuel assembly to the Spent Fuel Pit.

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Question 70

Given the following conditions at a work site:

- A task is required to be performed in a Radiation area
- Radiation level is 40 mrem/hr
- Radiation level with shielding is 10 mrem/hr
- Time for one worker to install shielding is 9 minutes
- Time for one worker to remove shielding is 6 minutes
- Time to conduct the task with one worker is 1 hour
- Time to conduct the task with two workers is 20 minutes

Assumptions:

- A dose rate of 40 mrem/hr will be received while installing and removing the shielding.
- Shielding is installed and removed by one worker only.

Which ONE of the following would result in the lowest total whole body dose?

Conduct the task with:

A. two workers without shielding.

B. one worker without shielding.

C. two workers with shielding.

D. one worker with shielding.

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Question 71

A room in the Radiologically Controlled Area has been surveyed by RP with the following results:

- Maximum on contact radiation reading – 125 mr/hr
- Maximum general area (30 cm from source) radiation reading – 50 mr/hr
- Maximum Beta-gamma contamination reading – 250 dpm/100 cm^2

Based on the survey results, the room MUST have which of the following postings at the entry to the room:

A. Radiation Area

B. High Radiation Area

C. Radiation Area, Contaminated Area

D. High Radiation Area, Contaminated Area

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Question 72

Which one of the following describes the reason for feeding only one S/G when all S/Gs level are LESS THAN 12% wide range with Bleed and Feed in progress and RCS hot leg temperature is GREATER THAN 550°F, in accordance with FR-H.1, Response to Loss of Secondary Heat Sink?

A. To ensure that if a S/G failure occurs due to excessive stresses, the failure is isolated to ONE S/G.

B. To prevent a rapid cooldown of the RCS that could lead to a pressurized thermal shock condition.

C. To demonstrate the reliability of the FW source before filling ALL of the steam generators.

D. To determine if ONE S/G is capable of maintaining adequate heat sink so that RCS bleed-and-feed can be terminated.

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Question 73

Given the following conditions:

- A reactor trip and safety injection have occurred.
- All equipment is operating as designed.
- The crew is performing diagnostic actions of E-0, Reactor Trip Or Safety Injection.
- Containment temperature is 190°F and LOWERING.
- RCS pressure is 1250 psig and STABLE.
- RCS subcooling margin is 46°F and STABLE.
- RWST level is 18 feet and dropping slowly
- PRZR level is 4% and RISING.
- All AFW pumps are running with 400 gpm flow.
- All RCP's are STOPPED.

Based upon conditions above, in which ONE of the following procedures will the crew start a reactor coolant pump, if it is desired?

A. ES-1.3, Transfer to Cold Leg Recirculation

B. ES-1.1, SI Termination

C. E-1, Loss Of Reactor Or Secondary Coolant

D. ES-1.2, Post-LOCA Cooldown And Depressurization

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Question 74

Given the following

- A LOCA has occurred
- The operating crew is implementing E-1, LOSS OF REACTOR OR SECONDARY COOLANT
- The Integrity Critical Safety Function (CSF) path has gone ORANGE

Which one of the following is the required action?

A. Continue in E-1. Actions to correct the ORANGE path are the same in E-1 and FR-P.1, Response to Imminent Pressurized Thermal Shock Conditions.

B. Complete E-1 through the actions of Containment Spray verification. Transition to FR-P.1 at the completion of E-1

C. Immediately transition to and continue in FR-P.1 until the ORANGE path clears

D. Immediately transition to and complete FR-P.1, unless a higher priority ORANGE OR RED condition develops

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Question 75

Given the following conditions:

- A Steam generator Tube Rupture has occurred on the 31 SG.
- ALL equipment is operating as designed.
- 31 SG has been isolated.

The following indications exist:

- 31 SG pressure is 1000 psig and trending UP.
- 31 SG NR level is 55% and trending UP.

Which one of the following describes how pressure will be controlled on 31 SG PRIOR to completion of the RCS depressurization?

A. Automatically at the first SG safety valve setpoint.

B. Manually at the condenser steam dump pressure setpoint.

C. Automatically with the SG atmospheric dump valve controller set at 1040 psig.

D. Manually by performing secondary depressurization to cool down the RCS below initial target temperature.

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Question 76

Given the following plant conditions:

- The plant is in CSD following a refueling outage.
- A vacuum has been drawn on the RCS in preparation for vacuum filling of the RCS.
- Vacuum is currently 26"Hg
- RCS level is 62'6"
- RHR flow prior to drawing the vacuum was 2500 gpm.
- RCS temperature is 125°F
- RHR Flow Indicator (FI-640) starts fluctuating from 1500 gpm to 2000 gpm with the 31 RHR pump running.

What has caused the reduction in RHR flow?

A. RHR flow transmitter inaccuracy due to the vacuum.

B. 31 RHR pump is cavitating due to high RCS temperature.

C. Flashing of water to steam and subsequent collapse back to water in the Reactor Vessel INCREASING and DECREASING headloss across the vessel.

D. 31 RHR Pump is vortexing due to low RCS inventory from draining below mid-loop.

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Question 77

Given the following plant conditions:

- The Unit has sustained a main steam line break affecting ALL 4 SGs.
- The crew is currently performing ECA 2.1, Uncontrolled Depressurization Of All Steam Generators.
- The crew has throttled AFW flow to 100 gpm to each SG to minimize the RCS cooldown. Safety Injection Termination Criteria is NOT met.

SG	Level	Pressure	TREND
31 SG	19% WR	320 psig	SLOWLY DECREASING
32 SG	18% WR	310 psig	SLOWLY DECREASING
33 SG	26% WR	380 psig	SLOWLY INCREASING
34 SG	18% WR	310 psig	SLOWLY DECREASING

Which one of the following describes the required action and the reason for the action?

A. Continue with ECA 2.1, Uncontrolled Depressurization Of All Steam Generators, because Safety Injection termination is not complete.

B. Transition to FR-H.1, Loss Of Secondary Heat Sink because there is a RED condition on the Heat Sink Status Tree.

C. Transition to E-2, Faulted Steam Generator Isolation because there is an intact SG available.

D. Transition to E-3, Steam Generator Tube Rupture because there is an unexplained increase in SG level.

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Question 78

While transferring to Cold Leg Recirculation the Team determines that SWN-1112, SWP's 31, 32, 33 to Conventional Non-essential Header Discharge Isolation valve, can NOT be CLOSED. SWN-1111, SWP's 34, 35, 36 to Conventional Non-essential Header Discharge Isolation valve is CLOSED. In accordance with ES-1.3, Transfer to Cold Leg Recirculation, the team should ...

A. continue on with the transfer to Cold Leg Recirculation, SWN-1111 will provide sufficient Service Water isolation.

B. place the Backup Service Water Pumps in service.

C. isolate Service Water to H_2 Coolers, S/G Blowdown Recovery Hx No. 4 and Turbine Hall Closed Cooling Hxs.

D. isolate Service Water to Main Lube Oil, Seal Oil and Main Boiler Feed Pump Lube Oil Coolers.

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Question 79

Given the following plant conditions:

- Unit 3 is at 100% power
- "B" Steam Flow and Feed Flow are in control
- PRZR pressure channel 1 is in control and 2 is in alarm positions
- PRZR level channel 2 is in control and 1 is in alarm positions
- ALL systems are in their normal full power lineup
- A loss of 31 Instrument Bus occurs

Which of the below describes the plant response with no operator actions?

A. Letdown isolates, ALL PRZR heaters de-energize, 31 and 33 Main feed Reg valves go open.

B. Letdown isolates, ALL PRZR heaters de-energize, ALL four Main feed Reg valves will maintain program level.

C. Letdown remains in service, ALL PRZR heaters remain in their initial condition, 31 and 33 Main feed Reg valves go closed.

D. Letdown remains in service, ALL PRZR heaters remain in their initial condition, ALL four Main feed Reg valves remain at their initial position.

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Question 80

Given the following plant conditions:

- Unit 3 is in MODE 6
- Core offload is in progress
- 31 EDG is out-of-service for scheduled maintenance
- 32 DC Power Panel TRIPS due to a fault (Control Power for 32 EDG)

With regards to the offload evolution, what actions are required?

A. IMMEDIATELY suspend core alterations until RCS boron concentration has been verified to be greater than required for refueling operations and 32 EDG can be MANUALLY started locally at the Air Start Motor.

B. Offload may continue provided Source Range Channels N31 and N32 are operable.

C. Enter Technical Specification 3.8.5, DC Sources – Shutdown, IMMEDIATELY suspend core alterations and initiate actions to restore required DC electrical power to operable status.

D. Enter Technical Specification 3.8.5, DC Sources – Shutdown, offload may continue but NO positive reactivity additions are permitted.

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Question 81

Given the following:

- Unit 3 has had a loss of both Feedwater Pumps from 100% power.
- SG LOW level annunciators alarm and the Reactor failed to trip.
- Actions of FR-S.1, Response to Nuclear Power Generation / ATWS are being performed.
- All AFW pumps failed to start and cannot be started.
- Reactor Power has just been verified to be < 5%, with a negative start up rate.

Which one of the following procedures should the SRO transition to?

A. Immediately enter FR-H.1, Response to Loss of Secondary Heat Sink.

B. Complete all actions in FR-S.1, then transition to FR-H.1, Response to Loss of Secondary Heat Sink.

C. Re-enter E-0, Reactor Trip or Safety Injection at the beginning and transition to ES-0.1 Reactor Trip Response when directed by E-0.

D. Re-enter E-0, Reactor Trip or Safety Injection at step 1, complete immediate operator actions and then transition to FR-H.1, Response to Loss of Secondary Heat Sink.

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Question 82

Given the following conditions:

- The plant is at 100% power.
- All control systems are in automatic.
- Pzr Level control input is LT-460.
- Steady state conditions exist.

Charging flow starts slowly lowering and letdown isolation valve LCV-460 automatically closes. Without operator action, which ONE (1) of the following describes the event is progress and the procedure required?

A. HCV-142, Charging Flow Control Valve failure. Enter 3-AOP-CVCS-1 and close LCV-459 to isolate Letdown, initiate Excess Letdown to maintain PZR level and bypass HCV-142 to establish boration flow path to satisfy Technical Requirements Manual..

B. HCV-142, Charging Flow Control Valve failure. Enter 3-AOP-CVCS-1, place the Pressurizer Level Controller in Manual, initiate Excess Letdown to maintain PZR level initiate Excess Letdown to maintain PZR level and bypass HCV-142 to establish boration flow path to satisfy Technical Requirements Manual..

C. Pressurizer Level Instrument LT-460 failed low. Enter 3-AOP-INST-1 to transfer PZR Level Control to the operable channel and place the High Pressurizer Level Bistable Trip Switch in the TRIP position to satisfy Technical Specification.

D. Pressurizer Level Instrument LT-460 failed high. Enter 3-AOP-INST-1 to transfer PZR Level Control to the operable channel and place the High Pressurizer Level Bistable Trip Switch in the TRIP position to satisfy Technical Specification.

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Question 83

Given the following conditions:

- A reactor trip has occurred concurrent with a loss of offsite power.
- The crew is performing actions of ES-0.2, Natural Circulation Cooldown.
- Train "A" of RVLIS is out of service.
- The crew has commenced RCS cooldown and depressurization.
- RCS pressure is 1380 psig and trending DOWN.
- Qualified CETs are 468°F and trending DOWN.
- Pressurizer level is 38% and trending UP slowly.

Due to secondary inventory concerns, RCS cooldown rate MUST be performed at approximately 40°F/Hr.

Which one of the following actions will be required?

A. Repressurize the RCS to minimize void growth in accordance with ES-0.2.

B. Stop the depressurization to reestablish subcooling in accordance with ES-0.2.

C. Transition to ES-0.3, Natural Circulation Cooldown With Steam Void In Vessel (With RVLIS).

D. Transition to ES-0.4, Natural Circulation Cooldown With Steam Void In Vessel (Without RVLIS).

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Question 84

The Reactor has tripped with a loss of offsite power. SI has actuated. The crew is performing actions in E-0, Reactor Trip or Safety Injection. Given the following conditions:

- RCS pressure 1700 psig and trending UP
- 31, 32, 34 SG pressures = 1015 psig STABLE
- 33 SG pressure = 700 psig and trending DOWN
- CETs 750°F and trending UP
- SG Narrow Range level off scale LOW
- Maximum available AFW flow of approximately 100 gpm to each SG
- PRZR level 15% and trending DOWN
- CNMT pressure 5 psig and trending UP
- Power is 2% in the PR and IR SUR is slightly NEGATIVE
- RVLIS level 28%

Which ONE of the following describes the FIRST procedure transition from E-0?

A. E-2, Faulted Steam Generator Isolation

B. FR-S.1, Response to Reactor Restart/ATWS

C. FR-C.1, Response to Inadequate Core Cooling

D. FR-H.1, Response to Loss of Secondary Heat Sink

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Question 85

Unit 3 experienced a Safety Injection and Containment Spray actuation due to a large break LOCA. E 1, Loss of Reactor or Secondary Coolant, is being performed following a transition from E 0, Reactor Trip or Safety Injection. The STA has just made his initial scan of the Status Trees. The following conditions exist

- Pressurizer level is 0%
- Cnmt pressure is 20 psig
- Containment Rad Monitors, R-25 and R-26, have just gone into ALARM
- Containment Sump Level is 51 ft.

Which of the following procedures must be entered to address the above conditions?

A. FR I.2, Response to Low Pressurizer Level

B. FR Z.3, Response to High Containment Radiation Level

C. FR Z.1, Response to High Containment Pressure

D. FR Z.2, Response to Containment Flooding

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Question 86

The following plant conditions exist:

- Unit 3 is in a normal full power lineup at MOL
- A fresh CVCS purification demineralizer has been placed in service.
- The resin has NOT been boron saturated.

Which of the following is 1) the expected plant response with no operator action and 2) what operator actions should be taken to mitigate this event?

A. Power level will INCREASE; commence emergency boration using MOV-333 to maintain power $\leq$ 100% and T_{AVG} at program value.

B. Power level will INCREASE; commence a normal boration to maintain power $\leq$ 100% and T_{AVG} at program value.

C. Power level will DECREASE; energize Pressurizer Backup Heaters to maintain RCS pressure at 2235 psig.

D. Power level will DECREASE; trip the Reactor, initiate E-0, Reactor Trip or Safety Injection.

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Question 87

Given the following plant conditions:

- Unit 3 is at 100% power.
- PT-412B, First Stage Turbine Pressure, has just failed LOW.

What action is required by Technical Specifications and why?

A. Within 30 minutes verify the P-7 interlock relay is de-energized to ensure the PZR pressure LOW, PZR water level HIGH, RCS flow LOW (1 Loop), RCP breaker OPEN (1 Loop), RCP undervoltage and RCP under frequency Reactor Trips are enabled.

B. Within 1 hour verify the P-7 interlock relay is de-energized to ensure the PZR pressure LOW, PZR water level HIGH, RCS flow LOW (2 Loops), RCP breaker OPEN (2 Loops), RCP undervoltage and RCP under frequency Reactor Trips are enabled.

C. Within 30 minutes verify the P-10 interlock relay is energized to allow ensure the PZR pressure LOW, PZR water level LOW, RCS flow LOW (1 Loop), RCP breaker OPEN (1 Loop), RCP undervoltage and RCP under frequency Reactor Trips are enabled.

D. Within 1 hour verify the P-10 interlock relay is energized to ensure the PZR pressure LOW, PZR water level HIGH, RCS flow LOW (2 Loops), RCP breaker OPEN (2 Loops), RCP undervoltage and RCP under frequency Reactor Trips are disabled.

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Question 88

Given the following plant conditions:

- Unit 3 is performing a power ascension and is currently at 77% power
- 31 and 33 Condensate Pumps are in service
- 32 Condensate Pump is secured but available
- Both Heater Drain Tank Pumps are in service
- Both MBFPs are in service

A problem develops with 32 MBFP Thrust Bearing causing the pump to TRIP.

What is the appropriate course of action for the above conditions?

A. Perform the immediate operator actions of 3-AOP-FW-1, Loss of Feedwater, reduce load to approximately 700 MWE, adjust speed on 31 MBFP as necessary to maintain suction pressure >350 psig and discharge pressure <1390 psig and then start 32 Condensate Pump.

B. Commence a rapid load reduction to 500 MWE, perform the immediate operator actions of 3-AOP-FW-1 and then adjust speed on 31 MBFP as necessary to maintain suction pressure >350 psig and discharge pressure <1390 psi.

C. Perform the immediate operator actions of 3-AOP-FW-1, start 32 condensate pump, then increase 31 MBFP speed to match feed flow to steam flow.

D. Trip the Reactor and enter E-0.

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Question 89

Given the following conditions with Unit 3 operating at 100% power:

- 31 Auxiliary Feedwater (AFW) Pump is out of service for repairs. Repairs will take at least 24 more hours.
- A routine QA Audit of completed surveillance procedures has determined the quarterly surveillance performed on 33 AFW Pump 35 days ago was NOT properly completed.

In accordance with attached Technical Specifications, which one of the following actions is correct for this situation?

A. Enter T.S. LCO 3.0.3 and IAW T.S. SR 3.0.4, re-perform the surveillance on 33 AFW Pump within 24 hours

B. Enter T.S. LCO 3.0.3 but the required actions can be delayed for 24 hours IAW T.S. SR 3.0.3.

C. Enter T.S. 3.7.5 Condition C, i.e., 2 AFW Trains inoperable, but the required actions can be delayed for 24 hours IAW T.S. SR 3.0.4.

D. Continue T.S 3.7.5 Condition B, i.e., 1 AFW Train inoperable. Re-perform the surveillance on 33 AFW Pump within 24 hours IAW T.S. SR 3.0.3.

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Question 90

Given the following plant conditions:

- Unit 3 is at 20% power
- A loss of ALL normal Service Water Pumps has occurred due large amount of debris on the screens
- No Circ Water Pumps are available due to the debris

Which of the following describes the required operator action for the above condition?

A. Trip the Reactor, do NOT SHUT the MSIVs and initiate E-0, Reactor Trip or Safety injection.

B. Trip the Reactor, SHUT the MSIVs and initiate E-0, Reactor Trip or Safety injection.

C. Immediately align Backup Service Water Pumps, 37, 38 and 39 to the essential service water header.

D. Commence a rapid plant shutdown as long as temperatures remain below the trip setpoint.

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Question 91

Which of the following describes what occurs when the Manipulator Crane INTERLOCK OVERRIDE Keyswitch is engaged?

A. Hoist Load Interlocks are bypassed except overload.

B. Gripper Interlocks are NOT bypassed to prevent dropping a fuel assembly.

C. Directly connects bridge, trolley and hoist controls to joystick; speeds are limited to 10 fpm.

D. Boundary Zone Interlocks are bypassed and Bridge/Trolley speed is limited to 30 fpm.

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Question 92

Given the following:

- Unit 3 operating at 100% power
- "B" channels of steam flow and feed flow in control
- Main Feed Regulating Valves in AUTO
- Steam Generator Pressure Channel PT-419B fails HIGH

Which of the below statements describes the plant response and the required actions to stabilize the plant?

A. 31 S/G controlling steam flow indication would INCREASE, 31 S/G actual feed flow and level would INCREASE, 31S/G level error would return level to program level but the operator should swap Steam Flow and Feed Flow for 31 S/G to "A" channel.

B. 31 S/G controlling steam flow indication would INCREASE, 31 S/G actual feed flow and level would INCREASE, the operator must swap Steam Flow for 31 S/G to "A" channel to prevent a Turbine Trip.

C. 31 S/G controlling steam flow indication would DECREASE, 31 S/G actual feed flow and level would DECREASE, 31S/G level error would return level to program level but the operator should swap Steam Flow and Feed Flow for 31 S/G to "A" channel.

D. 31 S/G controlling steam flow indication would DECREASE, 31 S/G actual feed flow and level would DECREASE, the operator must swap Steam Flow for 31 S/G to "A" channel to prevent a Turbine Trip.

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Question 93

A liquid release of 32 Monitor Tank is in progress. A release permit was generated for the release and was approved. The following annunicators/conditions are received in the control room:

- R18, LIQUID EFF
- CHANNEL FAILURE
- R-18, Liquid Waste Effluent monitor is alarming on the Bantum 11 panel
- The discharge remains in progress

Which one of the following describes the effect on the plant and the actions required in accordance with 3-ONOP-RM-2, High Activity – Radiation Monitoring System?

A. The release should have automatically terminated. Stop the release and direct chemistry to sample the 32 Monitor Tank then re-calculate allowable release rate to determine if release may continue.

B. The release should have automatically terminated. Stop the release and re-verify the release permit calculations, release may resume provided calculations were correct.

C. R-18 monitor has failed. Release may continue while the HP rechecks calculations for liquid release and recommend corrective action that will be required per the ODCM.

D. R-18 monitor has failed. The release may continue provided two independent samples are taken to validate the release permit.

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Question 94

A plant heatup/startup is in progress with RCS average temperature at 280°F. The following plant conditions develop:

- 31 and 32 RHR pumps become inoperable
- 31 and 32 SI pumps become inoperable

Which one of the following describes the Technical Specification Actions?

A. Restore only the SI pumps to OPERABLE status before reaching 350°F.

B. Restore the RHR pumps and only one SI pump to OPERABLE status before reaching 350°F.

C. Immediately initiate action to restore one of the RHR pumps to OPERABLE status.

D, Immediately initiate action to restore both SI pumps to OPERABLE status.

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Question 95

Given the following:

- The plant is at 75% power.
- 31 CCW heat Exchanger is isolated and the appropriate Condition of TS 3.7.8 is entered
- Engineering reports that the CCW flow through 32 CCW Heat Exchanger is inadequate to supply appropriate cooling to both RHR Heat Exchangers.
- As such, the RHR trains are inoperable.
- Operations has isolated CCW to 31 RHR Heat Exchanger and documented proper flow capability to 32 RHR Heat Exchanger.

Per the attached Technical Specifications, do Technical Specifications require entry into Condition A of TS 3.5.2, including why?

A. Yes. LCO 3.0.1 requires all LCOs to be met including the 72-hour LCO of TS 3.5.2.

B. Yes. LCO 3.0.2 requires entry into TS 3.5.2 ACTIONS since LCO 3.5.2 is NOT met.

C. No. LCO 3.0.5 waives the requirement to enter TS 3.5.2 ACTIONS during OPERABILITY determinations.

D. No. LCO 3.0.6 waives the requirement to enter TS 3.5.2 ACTIONS provided the safety function is maintained.

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Question 96

A new fuel assembly was in the process of being lifted by the Spent Fuel Pit Bridge from the New Fuel Elevator. It has been lifted approximately one half of the required height for transfer to the Spent Fuel Pit (SFP) when the Chemist reports to you that the SFP Boron concentration is BELOW Technical Specification Limits. As the operator in charge of SFP fuel movement, what actions are required to be performed?

A. Suspend movement of the fuel assembly and initiate action to restore SFP boron concentration to within limits.

B. Transfer the new fuel assembly to its designated SFP location after SFP verification has commenced.

C. Transfer the new fuel assembly to its designated SFP location and initiate action to restore SFP boron concentration to within limits.

D. Transfer the new fuel assembly to the SFP at a location not adjacent to any other fuel assembly and initiate action to perform a SFP verification.

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Question 97

The following plant conditions exist:

- 100 % power
- 31 EDG is out of service for preventative maintenance

The maintenance supervisor requests a work permit for 33 Safety Injection (SI) pump to be worked now due to man power availability.. The estimated completion time for the work is 2 hours.

Should 33 SI pump be taken out of service? Select the proper action to be taken with the justification for your choice.

A. Yes. Technical Specifications allow for one SI pump to be out of service, provided it is returned to service within 72 hours and the remaining 2 SI pumps are demonstrated operable.

B. Yes. Technical Specifications allows for the removal of 33 SI Pump from service for up to 4 hougs.

C. No. Technical Specifications require 3 SI pumps with their associated piping and valves to be operable if any EDG is inoperable.

D. No. Technical Specifications state that if one EDG is out of service then the other 2 EDG's and their associated safeguards equipment should be maintained operable.

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Question 98

Which ONE of the following can provide final authorization for a Liquid Rad Waste release?

A. Only the Shift Manager

B. Only the Shift Manager or Control Room Supervisor

C. Only the Shift Manager or Chemistry Supervisor

D. Only the Shift Manager or HP Supervisor

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Question 99

A Primary to Secondary leak of 90 gpm occurred on 34 Steam Generator. Prior to RCS depressurization and SI termination, 34 SG Atmospheric Steam Dump valve was periodically lifting due to high SG pressure. What Emergency Classification declaration should be made for this event?

A. NUE

B. Alert

C. SAE

D. GE

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Question 100

Given the following conditions:

- A large fire has been verified in Main Transformer 32.
- The Team has entered ONOP-FP-1, Plant Fires.
- The Fire Brigade Leader has been notified.

Which ONE (1) of the following describes actions that will also be required for this event?

A. Ensure Fire Brigade members from Unit 2 respond and manually actuate the Main Transformer Deluge System. If equipment operation becomes erratic, then trip the reactor and enter E-0, Reactor Trip or Safety Injection.

B. Ensure Fire Brigade members from Unit 3 respond and extinguish the fire using Fire Hoses. If equipment operation becomes erratic, then trip the reactor and enter E-0, Reactor Trip or Safety Injection.

C. Trip the reactor and enter E-0, Reactor Trip or Safety Injection. Perform ONOP-FP-1, Plant Fires, concurrently, ensuring Fire Brigade members from Unit 2 respond and extinguish the fire using Fire Hoses.

D. Trip the reactor and enter E-0, Reactor Trip or Safety Injection. Perform ONOP-FP-1, Plant Fires, concurrently, ensuring Fire Brigade members from Unit 3 respond and manually actuate the Main Transformer Deluge System.