QUESTION #1:

A red condition on the Core Cooling Critical Safety Function Status tree has driven the crew to FR-C.1, "Response to Inadequate Core Cooling". SI flow is not functioning and was not able to be established by any means. Which of the following describes the reason that SI Accumulators are isolated in this procedure?

A. Prevents inadvertent injection of nitrogen gas into the RCS.

B. Prevents flow oscillations between RHR flow, RCS flow, and Accumulator flow.

C. Accumulator injection is ineffective with no RCPs running and raises risk of thermal shock to cold leg nozzles.

D. To limit unnecessary thermal stresses on fuel cladding which may have experienced higher then normal temperatures during loss of core cooling.

ANSWER: A

EXPLANATION:
A - correct - Isolation of accumulators prevent nitrogen gas injection to the RCS.
B) - incorrect
C) - incorrect
D) - incorrect

TECHNICAL REFERENCE(S): WRG for FR-C.1 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1206I10RO (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	W/E06EK3.3	
Importance Rating	4.0	3.9

K/A Topic Description: Degraded Core Cooling/Manipulation of controls required to obtain desired operating results during abnormal and emergency situations.

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

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

10 CFR Part 55 Content: 55.41 X
55.43 ____

Comments:

QUESTION #2:

During a large break LOCA event, the expected response of the Containment Building Spray (CBS) system is (without operator action):

A. Upon receiving either a safety injection "S" signal or a CSAS, CBS pumps will start delivering a solution of NaOH to the containment building atmosphere to prevent CB pressure from reaching its design limit of 52psig.

B. Upon receiving a CSAS, CBS pumps will start delivering a solution of NaOH to the containment building atmosphere to prevent CB pressure from reaching its design limit of 52 psig.

C. Upon receiving either a safety injection "S" signal or a CSAS, CBS pumps will start delivering a solution of NaOH to the containment building atmosphere to prevent CB pressure from reaching its design limit of 50 psig.

D. Upon receiving a CSAS, CBS pumps will start delivering a solution of NaOH to the containment building atmosphere to prevent CB pressure from reaching its design limit of 50 psig.

ANSWER: B

EXPLANATION:

CSAS resulting from (2/4) high - 3 pressure transmitters (18psig) will initiate CBS system. 50psig is max actual pressure during DBA. 52 psig is CB design press.

A) 'S' signal does not start CBS pumps
C) wrong design press & 'S' signal does not start
D) wrong design press

TECHNICAL REFERENCE(S): UFSAR CBS detailed system text (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L8035I01RO, L8035I08RO (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	W/E14EK2.2	
Importance Rating	3.4	3.8

K/A Topic Description: High Containment Pressure/Facilities heat removal systems, including primary coolant, emergency coolant, the decay heat removal systems, and relations between the proper operation of these systems to the operation of the facility.

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attached parent)
New __X__

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

10 CFR Part 55 Content: 55.41 __X__
55.43 _____

Comments:

Tech V+V complete
B+C are technically both correct.

QUESTION #3:

The following plant conditions exist:

- The power plant is operating at 100%.
- Service water pump P-41A is tagged out for corrective maintenance.
- Service water pump P-41C trips.
- A tower actuation (TA) signal is generated, realigning service water supply to the cooling tower.
- The 'A' cooling tower pump current is oscillating between 20-50 amps on SW-AM-6167.
- PCCW HX 'A' ~~SW~~ outlet temperature is 90F and rising slowly.

What actions are required per OS1216.01, "Degraded Ultimate Heat Sink"?

A. Start ~~on~~ an additional service water 'B' train pump and cross connect with 'A' train service water and initiate a plant shutdown IAW OS1000.06, "Power Decrease".

Which one is most correct.

B. Continue efforts to restore service water flow. If cannot restore train 'A' service water, initiate a plant shutdown IAW OS1000.06, "Power Decrease".

C. Continue efforts to restore service water flow. If cannot restore train 'A' service water, begin securing train 'A' service water loads IAW attachment 'B' of OS1216.01, "Degraded Ultimate Heat Sink".

D. Start additional 'B' train service water pump and cross connect service water trains IAW OS1016.03, service water train 'A' operation. Secure train 'A' service water loads IAW attachment 'B' of OS1216.01 Degraded Ultimate Heat Sink.

Title case.

ANSWER: C

EXPLANATION:

C - is correct; OS1216.01 describes the actions in choice C
A, B, D - are incorrect

TECHNICAL REFERENCE(S): OS1216.01 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1193I02 (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	062G2.4.12	
Importance Rating	3.4	3.9

K/A Topic Description: Loss of Nuclear Service Water/Knowledge of general operating crew responsibilities during emergency operations.

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attached parent)
New _X_

Question Cognitive Level: Memory or Fundamental Knowledge ____
Comprehensive or Analysis _X_

10 CFR Part 55 Content: 55.41 _X_
55.43 _____

Comments:

Tech V+V sat.

QUESTION #4:
The following conditions exist:

- The crew is implementing ECA-0.0, "Loss of All AC Power"
- Offsite power has been restored to the site.
- The crew is restoring power to bus E5 in accordance with step 7, "Coordinate Effort to Repower Plant With System Dispatcher".

What actions are necessary to restore power to bus E5 from the "UAT" in accordance with ECA-0.0?

A. Reset RMO and close the "UAT" breaker

B. Hold the RMO BYPASS switch in BYPASS and close the "UAT" breaker.

C. Place the E5 Synchronizing Switch in the "UAT" position, reset RMO, and close "UAT" breaker.

D. Place the E5 Synchronizing Switch in the "UAT" position, hold the RMO BYPASS switch in BYPASS, and close the "UAT" breaker.

ANSWER: B

EXPLANATION:

B - correct - B is IAW ECA-0.0 step 7d.
A,C & D - incorrect - are not IAW ECA-0.0
Synch switch is not needed for dead bus.

TECHNICAL REFERENCE(S): ECA-0.0 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None
Learning Objective: L8067I03RO, L8013I09RO, L8067I04RO (As available)

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	1
	Group #	1	1
	K/A #	055EA1.07	
	Importance Rating	4.3	4.5

K/A Topic Description: Station Blackout/ability to monitor or operate the following as they apply to a station blackout: restoration of power from offsite.

Question Source: Bank # Seabrook Bank #22577
Modified Bank # _____ (Note changes or attached parent)
New _____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

Tech V&V complete
need rework on 'D' Title case

QUESTION #5:

due to a SBLOCA

A reactor trip with SI has occurred. The crew transitioned from E-0, "REACTOR TRIP OR SAFETY INJECTION", TO FR-H.1, "LOSS OF SECONDARY HEAT SINK", based on valid red path condition on the heat sink CSF.

When the crew checked whether heat sink was required the Primary Operator reported that RCS pressure was 700 psig and slowly decreasing. The secondary operator reported that all S/G pressures were approximately 950 psig and stable.

Based on this information, the unit supervisor transitioned to E-1, "LOSS OF REACTOR OR SECONDARY COOLANT", Step 1.

Which of the following summarizes plant conditions?

A. A LOCA is in progress. Heat transfer in the RCS during the casualty was such that the S/Gs are currently not functioning as a heat sink and therefore not required, resulting in transition to E-1 to combat LOCA.

B. A LOCA is in progress. Heat transfer in the RCS during the casualty was such that the S/Gs are currently a heat sink but are not required resulting in transition to E-1 to combat LOCA.

C. A LOCA is in progress. Because S/Gs are the sole heat sink, a transition to E-1 is made to minimize coolant loss and restore S/G levels to normal band.

D. A LOCA is in progress. RCS pressure is less than S/G pressure. ~~FR-H.1 sends you back to E-1 where a depressurization of the secondary is prescribed to increase the heat transfer between the RCS and S/Gs~~.

a little squishy - not entirely wrong longer term.

ANSWER: A

Incorrect transition US personnel

EXPLANATION:

S/Gs are now a heat source–heat is being transferred from S/G to RCS.
B, C, and D are incorrect

TECHNICAL REFERENCE(S): FR-H.1 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1211I03RO (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	2	2
K/A #	W/E05EA1.2	
Importance Rating	3.7	4.0

K/A Topic Description: Loss of Secondary Heat Sink/Operating behavior characteristics of the facility.

Question Source: Bank # Seabrook Bank #22674
Modified Bank # _____ (Note changes or attached parent)
New ____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

Tech V+V complete
See opposite

QUESTION #6:

The reactor protection system is designed such that a loss of flow in one reactor coolant loop will trip the reactor above the P-8 permissive. Which one of the following describes the basis for this trip:

A. The reactor trips to minimize departure from nucleate boiling occurring in the core due to reduced heat removal rate.

B. The reactor trips to prevent uneven fuel burning which can lead to localized power peaks exceeding kw/ft limits.

C. The reactor trips to prevent pressure fluctuations in the main steam system from damaging main turbine.

D. The reactor trips to prevent DNB due to flow instabilities created by the loss of one RCP.

ANSWER: A

EXPLANATION:

UFSAR describes function of RCP to prevent departure from nucleate boiling.

B, C, D are incorrect

TECHNICAL REFERENCE(S): UFSAR (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L8056I21RO (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	003G2.1.27	
Importance Rating	2.8	2.9

K/A Topic Description: Reactor Coolant Pump/Knowledge of system purpose or function

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

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

10 CFR Part 55 Content:
55.41 X
55.43 ____

Comments:

Tech Vrv sat.

QUESTION #7:

The following plant conditions exist:

- The crew is performing a downpower maneuver from 100% to 50% as requested by the dispatcher.
- The current power levels are between 76-77% on all four PR channels.
- A high temperature alarm is received on RCP 'A'.
- RCP 'A' MTR LWR RADL BRG Temp Hi-Hi is in; that bearing's temperature is 198F and rising.

What actions are required per OS1201.01, " RCP Malfunction" ?

A. Shutdown plant to mode 3 within 6 hours per OS1000.06, "Power Decrease". Secure RCP when in mode 3.

B. Increase cooling flow to motor bearing. Trip reactor and go to E-0 if bearing temperature reaches 230°F.

C. Secure RCP 'A' immediately. Go to E-0, "Reactor Trip and Safety Injection."

D. Trip reactor and go to E-0. Secure RCP 'A' after E-0 immediate actions are complete.

ANSWER: D

EXPLANATION:

D - correct - 195°F is trip criteria for this bearing, procedure directs actions in D
A - incorrect - if reactor <48%
B - incorrect
C - incorrect

TECHNICAL REFERENCE(S): OS1201.01 RCP Malfunction (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1181I02RO, L1181I03RO- RCP MALF LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	03A1.02	
Importance Rating	2.9	2.9

K/A Topic Description: Reactor Coolant Pumps/Ability to predict/monitor changes in parameters (to prevent exceeding design limits) associated with

operating the RCPs controls including: RCP pump and motor temperature.

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attached parent)
New _X_

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehensive or Analysis _X_

10 CFR Part 55 Content: 55.41 _X_
55.43 _____

Comments:

While performing technical specification logs

QUESTION #8:

~~During your logtaking rounds~~, you notice that some lights are out on main control panel ~~'A'~~ 'DF'. The CVCS is lined up for normal letdown. There are no open or closed indicating lamps energized for the following components:

- CS-V-149 LTDN HX IRC ISO
- CS-LCV-112B CHG PUMP SUCT FROM VCT
- CS-LCV-112D
- CS-V-196 CHG PMP A MIN FLOW
- CS-V-166 RCP-A SEAL INJ ISO
- CS-V-162 RCP-B SEAL INJ ISO
- CS-V-158 RCP-C SEAL INJ ISO
- CS-V-154 RCP-D SEAL INJ ISO
- CS-V-167 RCP SEALS TO SEAL WTR HX
- CS-V-142 CHG TO REGEN HX ISO
- CS-V-460 LTDN REGEN HX ISO (PZR LO LVL-CLOSE)

All other equipment reflects the normal letdown lineup which one of the following can cause the conditions above?

A. Loss of MCC-E612
B. Loss of MCC-E512
C. Loss of MCC-E521
D. Loss of MCC-E621

Closed book? Maybe OK.

ANSWER: B

EXPLANATION:

Tech V+V complete: what is the operational validity?

B - Bus E512 powers these MOVs. Indicating lights powered from same source.
A, C, D - incorrect.

TECHNICAL REFERENCE(S): 480 VAC detailed system text. CVCS detailed system text table 4.6 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L8024I10RO CS LP; L8024I08RO CS LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	004K2.05	
Importance Rating	2.7	2.9

K/A Topic Description: CVCS/Knowledge of bus power supply to the following: MOVs

Question Source: Bank # _____

Modified Bank # _____ (Note changes or attached parent)
New __X__

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

10 CFR Part 55 Content: 55.41 __X__
55.43 _____

Comments:

Tech V+U sat

QUESTION #9:

The following plant conditions exist:

- A loss of offsite power has occurred.
- The crew is performing the actions of ES-0.2, "Natural Circulation Cooldown".
- RCS temperature is 525°F and trending down at 30F per hour.
- RCS pressure is 1950 psig and trending down slowly.
- Low steamline pressure and low PZR pressure SI signals are blocked.
- Charging flow control valve CS-FCV-121 is fully open.
- PZR level is 5% and trending down slowly.

Which one of the following describes the correct action(s) for these conditions?

A. Throttle close S/G ASDVs to allow RCS temp to stabilize IAW ES-0.2.
B. Actuate safety injection and go to E-0, "Reactor Trip or Safety Injection".
C. Transition to ES-0.4, "Natural Circulation Cooldown With Steam Void In Vessel (with RVLIS)"
D. Decrease primary pressure using PZR PORVs to reduce back pressure on charging pumps IAW ES-0.2

ANSWER: B

EXPLANATION:

B-Correct - ES 0.2 operator action summary directs this action if PZR level falls below 5%

A - is incorrect because ES-0.2 Operator Action Summary page directs operator out of procedure to E-0
C - is incorrect because conditions not met per ES-0.2 and reason for A
D - same as A - not addressed in ES-0.2

TECHNICAL REFERENCE(S): ES 0.2 Operator Action Summary (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1200I06RO ES 0.2 LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	W/E09EA2.1	
Importance Rating	3.1	3.8

K/A Topic Description: Natural Circulation/ability to determine and interpret the following as they apply to natural circulation: facility conditions and selection of appropriate procedures during abnormal and emergency operations.

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attached parent)
New __X__ (Salem bank)

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

10 CFR Part 55 Content: 55.41 __X__
55.43 __X__

Comments:

Tech V+V complete.
'A' is also correct.

QUESTION #10:

Step 2 of procedure FR-Z.3, "Response to High Containment Radiation Level" checks if the Containment Recirculation Filter should be placed in service. Why is containment pressure verified less then 18 psig?

A. ~~Containment pressure greater than 18 psig will require transition to a different containment CSF procedure~~. This is true.

B. Containment pressure greater than 18 psig could damage the Recirculation Filter Dampers when they are realigned to the Filter Mode.

C. A "P" signal will prevent the Containment Recirculation Filter Fans, FN-3A and FN-3B, from starting.

D. A "P" signal will prevent the Containment Recirculation Filter System realignment to the Filter Mode.

ANSWER: D

EXPLANATION:
D - Correct - P signal realigns dampers to recirculation mode, bypassing the filter
P signal actuates at 18 psig.
A - Incorrect
B - Incorrect
C - Incorrect

TECHNICAL REFERENCE(S): CHV detailed system text (4.1.3)
Proposed references to be provided to applicants during examination: None
Learning Objective: L8038I04RO CAH LP (As available)

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	1
	Group #	2	2
	K/A #	W/E16EK2.1	
	Importance Rating	3.0	3.3

K/A Topic Description: High Containment Radiation/knowledge of the interrelations between high containment radiation and components and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic/manual features.

Question Source: Bank # Seabrook Bank #22288
Modified Bank # _____ (Note changes or attached parent)
New ____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

Tech VtV sat

QUESTION #11:

The following plant conditions exist:

- The unit is in MODE 4
- RHR cooldown is in progress.
- RCS Temperature - 340°F slowly decreasing.
- RCS pressure - 300 psig decreasing.
- PZR level - 42% decreasing.
- CNMT pressure - 0.2 psig and steady.
- Alarm and Alert levels are alarming for Train 'A' RHR Pump Room low range radiation monitor.
- S/G Narrow Range levels - 42% (A); 40% (B); 43 %(C); 40% (D). and all steady
- S/G pressures - 520 psig (A); 520 psig (D); 530 psig (A); 525 psig (D). and all steady

What event is taking place?

A. A steam leak has occurred inside CNMT.

B. The LTOP system has actuated.

C. Letdown line pressure control valve, CS-PCV-131 has failed open.

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

ANSWER: D

EXPLANATION:
D - Correct - rad levels indicate LOCA in Aux. building
A, B - inside containment
C - Incorrect (wrong lineup)

TECHNICAL REFERENCE(S): E-1 step 11.d. (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1209I04RO ECA1.2 LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	2	1
K/A #	W/E04EK2.1	
Importance Rating	3.5	3.9

K/A Topic Description: LOCA Outside Containment: knowledge of the interrelations between LOCA outside containment and components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and auto/manual features.

Question Source: Bank # Seabrook Bank #20765
Modified Bank # _____ (Note changes or attached parent)
New ____

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

10 CFR Part 55 Content: 55.41 __X__
55.43 _____

Comments:

Tech V&V Sat

QUESTION #12:

The following plant conditions exist:

- Crew is performing actions in ECA-1.1, "Loss of Emergency Coolant Recirculation"
- Containment pressure is 21 psig.
- Both CBS pumps are aligned to the RWST.
- RWST level is at the RWST Tank Empty alarm setpoint.
- "P" signal has been reset on both trains.

What action should the crew take with the CBS pumps?

A. Place the control switches for both pumps in Normal After Stop

B. Stop one of the running pumps

C. Stop and place the switches for both pumps in pull-to-lock

D. Verify both pumps running

ANSWER: C

EXPLANATION:

ECA-1.1 Operator Action Summary: If suction source is lost to any ECCS or spray pump, the pump should be stopped.

A: incorrect
B: only true if RWST was not empty
D: incorrect

TECHNICAL REFERENCE(S): ECA1.1 Operator Action Summary (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1209I02RO ECA1.1 LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	2	2
K/A #	W/E11EK3.3	
Importance Rating	3.8	3.8

K/A Topic Description: Loss of Emergency Coolant Recirculation/knowledge of the reasons for the following responses as they apply to the Loss of Emergency Coolant: manipulation of controls required to obtain desired results during abnormal or emergency situations.

Question Source: Bank # Seabrook Bank #23070
Modified Bank # _____ (Note changes or attached parent)
New ____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

Tech V+V sat

QUESTION #13:

Is it possible to have a positive startup rate while manually inserting rods into the core? Why or why not?

A. No. Inserting rods adds negative reactivity to the core which causes power to decrease hence a negative startup rate.

B. No. The control rods are designed to overcome any postulated reactivity addition including steam line breaks, cold water injections, and any xenon transient.

C. Yes. At the very end of fuel cycle, temperature feedback from the insertion can over come the negative reactivity addition due to control rod insertion at 8 steps per minute.

D. Yes. Positive reactivity additions from temperature or previous rod withdrawls can keep startup rate positive during portions of an inward rod shim.

ANSWER: D

EXPLANATION:
Startup rate is a function of reactivity rate, reactivity inventory and sources, rod insertion does not preclude a positive SUR.

A. positive startup rate is possible
B. control rods cannot combat all reactivity addition causalties at all speeds
C. incorrect

TECHNICAL REFERENCE(S): L1401I - Reactor Kinetics LP (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None
Learning Objective: L1401I09 - Reactor Kinetics LP (As available)
Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	001K5.54	
Importance Rating	2.8	3.1

K/A Topic Description: Control rod drive system/definition and units of reactivity
Question Source: Bank # ____
Modified Bank # ____ (Note changes or attached parent)
New X
Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehensive or Analysis ____

10 CFR Part 55 Content: 55.41 X
55.43 ____

Comments:

Tech V+V complete

QUESTION #14:

The crew is exiting E-0, "Reactor Trip or Safety Injection" to enter E-1, "Loss of Reactor or Secondary Coolant." The SM suggests that the crew should respond to the yellow path condition on the heat sink CSF. Given the following plant conditions, what are the correct actions?

1100 1100 1150 1150

TDEFW effects

- S/G pressure: A:1150 psig B:1150 psig C: 1150 psig D: 1120 psig.
- S/G levels (NR): A:30% B:40% C:40% D:35%.
- EFW flow is throttled to zero on all S/Gs.
- RCS pressure is 1375 psig and lowering slowly.
- SI is actuated; reactor is tripped.
- Containment pressure is 5 psig.

A. There is an over-pressure condition in the 'A' & 'B' S/Gs. Go to FR-H-2, "Response to Steam Generator Overpressure".

B. There is no EFW flow. Go to FR-H-1, "Response to Loss of Secondary Heat Sink", and restore EFW.

C. Go to FR-H-2, "Response to Steam Generator Overpressure" due to high containment pressure and S/G overpressure condition.

D. Plant conditions do not support ~~a~~ meet the transition ~~to~~ criteria for a heat sink functional restoration procedure, remain in E-0.

ANSWER: D

EXPLANATION:
D - correct - S/G pressures do not exceed 1225 psig; no loss of heat sink.

A. SG pressure <1225#
B. not a valid entry point
C. no overpressure condition

~~Attachment provided~~

TECHNICAL REFERENCE(S): FR-H.2, FR-0.3 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1211I05RO FR-H LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	3	3
K/A #	W/E13EA1.1	
Importance Rating	3.1	3.3

K/A Topic Description: S/G Overpressure/ability to operate and/or monitor the following as they apply to S/G overpressure: components and functions of control and safety systems, including instrumentation, signals, interlocks, and auto/manual features.

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attached parent)
New _X_

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehensive or Analysis _X_

10 CFR Part 55 Content: 55.41 _X_
55.43 _____

Comments:

Tech VTV sat.
no comm typ

Look at comm typ.

QUESTION #15:

LT

The plant is operating at 100% power with all control systems operating normally. The reference leg of ~~PT~~-459 has just developed a leak where the reference leg connects to the D/P cell. Which one of the following best describes plant response from this leak? 459/460 is selected for PZR level control.

A. LT-459A - indication will decrease, LT-460A indication will increase, LT-4~~0~~61A - indication will increase, charging flow will increase.

B. LT-459A - indication will increase, LT-460 indication will decrease, LT-461A - indication will decrease, charging flow will decrease.

C. LT-459A - indication will increase, LT-460A indication will decrease, ~~LI~~ LT-461A indication will decrease, backup heaters will deenergize.

D. LT-459A - indication will decrease, LT-460A indication will decrease, ~~LI~~ LT-461A indication will decrease, backup heaters will energize.

ANSWER: B

EXPLANATION:

Controlling channel will indicate higher level and tell charging to decrease and backup heaters to energize.

A,C,D incorrect

TECHNICAL REFERENCE(S): PPLC Detailed System Test (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None
Learning Objective: L1821I01RO PZR LVL INS FAIL LP (As available)
Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	3	3
K/A #	028AK2.02	
Importance Rating	2.6	2.7

K/A Topic Description: PZR level control malfunction/knowledge of interrelation between the PZR level control malfunction and sensors/detector.

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

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

Tech VFV Snf

QUESTION #16:

A single rod has dropped from control group D. The reactor was at 100% power. Which of the following sets of actions are described by OS1210.05, "Dropped Rod" to align the rod control system for recovery of the dropped control rod? Note: rod control urgent failure alarms are reset.

A. Place rod bank selector switch to CBD, place all lift coil disconnect switches for the affected bank to ROD DISCONNECT (except for the dropped rod), record then reset affected group step counter to zero, reset pulse to analog converter by placing the automatic/manual toggle switch in manual then back to automatic prior to withdrawing rods.

B. Place rod bank selector switch to CBD, place all lift coil disconnect switches for the affected bank to ROD DISCONNECT (except for the dropped rod), hold and maintain the pulse to analog converter automatic/manual toggle switch in manual until rod withdrawal is completed.

C. Place rod bank selector switch to CBD, place all lift coil disconnect switches for the affected bank to ROD DISCONNECT (except for the dropped rod), record then verify step counter is at the height of CBD rods prior to dropped rod event, reset pulse to analog converter by placing the automatic/manual toggle switch in manual then back to automatic prior to withdrawing rods.

D. Place rod bank selector switch to CBD, place all lift coil disconnect switches for the affected bank to ROD DISCONNECT (except for the dropped rod), verify step counter is at the height of CBD rods prior to dropped rod event, hold and maintain the pulse to analog converter automatic/manual toggle switch in manual until rod withdrawal is completed.

ANSWER: B

EXPLANATION:

B - Correct actions IAW OS1210.05. "Dropped Rod"

C&D step counter should be zero
A&C toggle switch should remain in manual for rod withdrawal

TECHNICAL REFERENCE(S): OS1210.05, step 4 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1185I02RO Dropped Rod LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	2	1
K/A #	003AA1.01	
Importance Rating	2.9	2.9

K/A Topic Description: Dropped Control Rod/Ability to operate and/or monitor the following as they apply to the Dropped Control Rod: demand position counter and pulse/analog converter

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attached parent)
New __X__

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

10 CFR Part 55 Content: 55.41 __X__
55.43 _____

Comments:

Add PRM title

Tech V+U sat.

QUESTION #17:

During execution of procedure ON1018.09, "Waste Test Tank B Discharge to Transition Structure." RM6509-1 is alarming at the ALARM level. What automatic action mitigates the potential radioactive release to the environment?

A. Waste tank pumps will trip and pump discharge valves will automatically close.

B. Waste tank pump discharge valves will automatically close.

C. Waste tank pumps will trip and WST DISTLT STRUCT valve WL-FCV-1458-1 will automatically close.

D. WST DISTLT to DISCH STRUCT valves WL-FCV-1458-1 and WL-FCV-1458-2 will automatically close.

ANSWER: D

EXPLANATION:

D - Only discharge valves to discharge structure auto close
A, B, C, incorrect

TECHNICAL REFERENCE(S): RDMS Detailed Systems Text OS1252.01, attachment A
(Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1187I02RO Effluent High Radiation LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	2	1
K/A #	059AA2.05	
Importance Rating	3.6	3.9

K/A Topic Description: Accidental Liquid Radwaste Release/ability to determine and interpret the following as they apply to Accidental Liquid Radwaste Release: occurrence of automatic safety actions as a result of high PRM signal.

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

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

10 CFR Part 55 Content:
55.41 X
55.43 ____

Comments:

K/A Topic Description: SI Termination/Ability to operate and/or monitor the following as they apply to the SI Termination: components and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attached parent)
New __X__

Question Cognitive Level: Memory or Fundamental Knowledge ____
Comprehensive or Analysis __X__

10 CFR Part 55 Content: 55.41 __X__
55.43 _____

Comments:

Question Cognitive Level:	Memory or Fundamental Knowledge	____
	Comprehensive or Analysis	X
10 CFR Part 55 Content:	55.41	X
	55.43	____

Comments:

Tech V+V complete

QUESTION #18:

The following plant conditions exist:

- The crew is currently in E-1, "Loss of Reactor or Secondary Coolant", combating a SBLOCA.
- The reactor is tripped; SI is actuated.
- RCS subcooling is 120F.
- RCS pressure is 1950 psig and stable.
- PZR level is 25% and rising slowly.
- All S/Gs narrow ranges are 50% and ~~AFW~~ EFW is throttled to maintain level steady.
- Containment pressure is 1.0 psig.

The crew decides to transfer to ES-1.1, "SI Termination". What actions does ES-1.1 require?

A. Transition immediately to ES-1.2, "Post LOCA Cooldown and Depressurization", step 1, based on RCS pressure.

B. Reset SI, stop all but one coolant charging pump and place in standby, restore normal charging path, stop SI and RHR pumps and place in standby, verify ECCS flow not required, then reset containment phase A&B isolation.

C. Reset SI, stop all but one coolant charging pump and place in standby, transition to ES-1.2, Post LOCA Cooldown and Depressurization, step 1 based on RCS pressure.

D. Reset SI, stop all but one coolant charging pump and place in standby, restore normal charging path. Stop RHR pump and place in standby, verify ECCS flow not required, then reset phase A&B isolation.

'C' could also be ~~compl~~ correct since SBLOCA is unknown most likely will end up in ES-1.2. Suggest making it a faulted SG recovery.

ANSWER: B

EXPLANATION:
B - Correct - response is IAW ES-1.1
A - Incorrect
C - Incorrect, pressure is stable, no transition necessary
D - SI pumps should be secured

TECHNICAL REFERENCE(S): ES-1.1 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1202I14RO, L1202I17RO ES-1.1LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	2	1
K/A #	W/E02EA1.1	
Importance Rating	4.0	3.9

QUESTION #19: VCT M/U

The ~~RMU and CVCS~~ system~~s~~ ~~are~~ is lined up ~~to add makeup water to RCS in~~ for. auto. The VCT fills from 30% to 50% in 3 minutes. Which one of the following could cause this?

A. Charging pumps are not running

B. Two RMU pumps are running

C. Two boric acid pumps are running

D. RMU pumps are not running

A little awkward - ~~maybe ask an LT112/LT185 failure.~~

ANSWER: A

maybe 2052 O

EXPLANATION:
A - 75 gpm of letdown added to VCT w/RMU
(VCT usually takes >5 minutes to Make-up level)

B - flow to VCT will isolate after 30 secs due to flow mismatch
C - flow to VCT will isolate after 30 secs due to flow mismatch
} not necessarily true.
D - incorrect

TECHNICAL REFERENCE(S): L8025 RMU LP, RMU Detailed System Text (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L8025I13RO RMU LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	2	2
K/A #	022AA2.02	
Importance Rating	3.2	3.7

K/A Topic Description: Loss of Reactor Coolant Makeup/ability to determine and interpret the following as they apply to the Loss of Reactor Coolant Makeup: charging pump problems

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

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

10 CFR Part 55 Content:
55.41 X
55.43 ____

Comments:

Suggested replacement for RO #19 Deals with chg system problem.

Question: 20520

UPDATED: 8/23/01 QUESTION APPROVED: No MINUTES TO ANSWER: 0
SYSTEM: CS NRC CATEGORY: 0 ATTACHMENTS: False
PHASE: LOIT PHASE 2
Question Type: MULTIPLE CHOICE

OBJECTIVES:
CT8024C 05
L8024I 05 RO
L1445I 11 RO

KA INFORMATION:
NONE

Question
The following conditions exist:

- The crew is attempting to determine the location of a 10 gpm leak in the charging system.
- Prior to the leak charging flow was 87 gpm and letdown flow was 75gpm.
- VCT level is decreasing.
- All systems are in automatic.
- The NSO reports an indication of leakage from the body of CS-V210, Charging Pump 'A' Discharge Isolation Valve.

Steady state to steady state, what would be a positive indication the operator would have on the main control board that CS-V210 is the source of the leak?

A. Decreased indicated charging flow and pressurizer level decreasing.
B. No change in indicated charging flow from its initial value and pressurizer level on program.
C. Increased indicated charging flow and pressurizer level on program.
D. Increased indicated charging flow and pressurizer level increasing.

Answer

B.

Tech V+V complete.

QUESTION #20:

The following plant conditions exist:

- A reactor startup is in progress. Source Range Channels
- Reactor power is $4x10^3$ cps on NI-31 and NI-32. Intermediate Range Channels
- Reactor power is about $1.5x10^{-11}$ amps on detectors N35 and N36.
- Power is lost to EDE-PP-1B. 120 VAC Vital Power Panel
- NI-31 now reads 0 cps. and "SR 1ti volts Lost Alarm" in N-31

CALL KELLY FOR VERIFY

Which one of the following describes the complete set of action requirements for the loss of nuclear instrumentation?

- Does this have to be a T.S. question?
- maybe a Rx S/U question and loss p.p. 1C. Suggest replacement

A. Table 3.3.1. action statement 4 only.

B. Table 3.3.1. action statement 2 and 4 only.

C. Table 3.3.1 action statements 2, 3 and 4 only.

D. Table 3.3.1 action statements 2,3,4 and LCO 3.0.3.

ANSWER: D

EXPLANATION:
D - correct - bus EDE-PP-1B powers one PRNI, one IRNI and SRNI N-32. The loss of 2 SRNIs puts the facility in LCO 3.03. The action statements for the three detectors still apply.

A,B,C - incorrect - 2 SRNIs, 1 IRNI, and 1 PRNI are inoperable.

TECHNICAL REFERENCE(S): Nuclear Instruments detailed system text pg 30, TS 3.3.1 table 3.3-1, and LCO 3.0.3 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: TS 3.3.1 and TS 3/4-0 Applicability

Learning Objective: L1165I01RO RX S/U LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	2	2
K/A #	032AK2.01	
Importance Rating	2.7	3.1

K/A Topic Description: Loss of SRNI/ knowledge of the interrelations between the Loss of SRNI and the following: power supplies, including proper switch position

Question Source: Bank # _____

Modified Bank # _____ (Note changes or attached parent)
New __X__

Question Cognitive Level: Memory or Fundamental Knowledge ____
Comprehensive or Analysis __X__

10 CFR Part 55 Content: 55.41 __X__
55.43 _____

Comments: No procedure or lesson plan for loss of SRNI

A Reactor trip has occured due to a turbine trip > P-9.

QUESTION #21:

Reactor Trip Breakers

A turbine generator based reactor trip has occurred. DRPI/~~IRPI~~ indicate all rods are still out of the core and the ~~s~~ram breakers are stuck shut. During execution of FR-S.1, "Response to Nuclear Power Generation/ATWS," the procedure has you verify subcriticality. According to FR-S.1, which of the following is one of the indicators ~~of subcriticality?~~ that the reactor is now subcritical.

A. Emergency boration is lined up correctly and injecting.

B. Indication of RCS temperature decreasing.

C. Gammametrics intermediate range flux rate is + 0.25 DPM and decreasing.

D. Power range channels indicate between 3-4%.

ANSWER: D

EXPLANATION:

Power range channels-Less than 5%

A - Incorrect
B - Incorrect
C - IR rate must be 0 or negative

TECHNICAL REFERENCE(S): FR-S.1, step 14 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1200I02RO FR-S.1 LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	2	1
K/A #	029EA2.01	
Importance Rating	4.4	4.7

K/A Topic Description: ATWS/ability to determine or interpret the following as they apply to ATWS: reactor nuclear instrumentation

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

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

10 CFR Part 55 Content: 55.41 X
55.43 ____

Comments:

QUESTION #22:

The following plant conditions exist:

- The reactor was at 100%.
- Tave = 584F, RCS pressure is 2235 psig.
- A PZR PORV and block valve are stuck open. PCV-456A PZR PORV and associated block valve are stuck open.
- RCS temperatures are stable.
- The reactor trips and SI is initiated. "Reactor Trip or Safety Injection"
- The crew transitions from E-0 to E-1, "Loss of Reactor or Secondary Coolant".
- All systems are functioning as expected with the exception of the stuck open PORV & block valve.
- Pressure is currently at 1350 psig and decreasing.

Which of the following statements is ~~providing accurate guidance~~ correct regarding guidance for operating RHR pumps as per E-1 and what is the basis?

A. Secure RHR pumps because primary pressure is greater than 260 psig to reduce burden on EDGs during design basis accident.

B. Do not secure RHR pumps because primary pressure and level instrumentation are not reliable during steam space accident.

C. Secure RHR pumps and place in standby to prevent damage to the pump because pressure will not drop below 1250 psig for 1 stuck open PORV.

D. Do not secure RHR pumps because they may be needed at lower primary pressure

ANSWER: D

Explanation of answer: Step 8 does not allow securing RHR pump if pressure is decreasing

Explanation of distractors:
A. not basis for securing RHR
B. pressure instrumentation is okay; level instrument is not
C. cannot secure pump while pressure dropping

TECHNICAL REFERENCE(S): E-1, L1413I Loss of Coolant TAA LP-Westinghouse ERG for E-1 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1203I02RO E-1 LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	2	2
K/A #	08AK3.03	

Importance Rating 4.1 4.6

K/A Topic Description: PZR Vapor Space Accident/knowledge of the reasons for the following responses as they apply to the PZR vapor space accident: actions contained in EOP for PZR vapor space accident/LOCA

Question Source:

Bank #	____	
Modified Bank #	____	(Note changes or attached parent)
New	X	

Question Cognitive Level:

Memory or Fundamental Knowledge	____
Comprehensive or Analysis	X

10 CFR Part 55 Content:

55.41	X
55.43	X

Comments:

QUESTION #23:

During which of the following scenarios does natural circulation and reflux cooling become important?

A. Only LBLOCAs with leak rates GREATER THAN or equal to design base accident LOCA described in FSAR.

B. Any LBLOCA LESS THAN the leak rate of design basis accident. Assume water source is available to S/Gs and S/Gs safety valves work correctly.

C. Any SBLOCA with leak rate such that SI flow is LESS THAN breakflow and core boiling is occurring.

D. Any SBLOCA that does not include vapor space accidents.

ANSWER: C

EXPLANATION:

C - correct - Natural circulation & reflux cooling are important when there is sufficient mass in primary to sustain density gradient AND a condition when core boiling is in progress (for reflux).

A,B - incorrect - natural circulation and reflux cooling are not mentioned as cooling mechanisms in FSAR, WOG, or lesson plan for LBLOCA.
D- incorrect

TECHNICAL REFERENCE(S): UFSAR, WRG, L1413I pg 14 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1413I03RO LOCA TAA LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	2	1
K/A #	011EK1.01	
Importance Rating	4.1	4.4

K/A Topic Description: Large Break LOCA/knowledge of the operational implications of the following concepts as they apply to the LBLOCA: natural circulation cooling including reflux boiling.

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

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

10 CFR Part 55 Content:
55.41 X
55.43 _____

Comments:

Is S/G press < RCS ?

QUESTION #24:

The following plant conditions exist:

- A small break-LOCA has occurred, ~~and SI has actuated~~.
- The condenser is not available ~~to receive steam.~~
- All S/Gs have been determined to be intact.
- PZR level indicates zero and RVLIS indicates a bubble in the reactor vessel.
- Reactor vessel level is decreasing slowly.
- ~~SI is running as expected~~. ECCS system is ~~operating~~ Functioning normally.
- RCPs are secured.
- Natural Circulation cooling has stopped due to steam void in the S/G U-tubes.

Which of the following describes the primary paths of removing core heat?

A. Natural convection cooling removing all heat from core, break flow removing all heat from primary, S/Gs do not contribute due to steam void in U-tubes.

B. Radiative cooling removing almost all heat from core, SI flow condensation of steam in U-tubes, S/G ASDVs and break flow removing heat from primary.

C. Boiling removing almost all heat from core, condensation of steam in U-tubes, S/G ASDVs lifting, SI flow and break flow removing heat from primary.

D. Boiling removing heat from core, break flow, and SI removing heat from core, S/Gs do not contribute due to steam void in U-tubes.

ANSWER: C

EXPLANATION:

At this point core is boiling; most heat removed by heat of vaporization, heat is removed by SI injection; break flow and S/Gs (reflux).

A - S/Gs do contribute, natural circulation is not primary heat removal
B - radiation transport not primary means of heat transfer
D - same as above

TECHNICAL REFERENCE(S): WRG, L1413I (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1431I03RO LOCA TAA LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	2	2
K/A #	09EK2.03	

Importance Rating 3.0 3.3

K/A Topic Description: Small Break LOCA/knowledge of the interrelation between the small break LOCA and the following: S/Gs

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

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

10 CFR Part 55 Content:
55.41 X
55.43 _____

Comments:

Tech V+V complete.

QUESTION #25:

The following plant conditions exist:

- The reactor is at 100%.
- PZR pressure is 2235 psig.
- Tave is ~~584~~F. 587°F
- PT-455 is the controlling PZR pressure channel.
- PT-455 fails low.

Pzr Pressure Channel

As time goes on

Which of the following will occur with no operator action?

A. PZR control and backup heaters are deenergized by PT-457 on resulting high RCS pressure.

B. Block valves V-122, V-124 (if closed) open, and PORVs PCV-456A, and PCV-456B, open on resulting high RCS pressure.

C. All PZR heaters energize, block valves PCV-122, V-124 open (if closed), and PORV PCV-456B opens

D. All PZR heaters energize, block valves PCV-122, V-124 open (if closed), No PORVs open due to P-455 low pressure input.

ANSWER: C

Or maybe just say 'receive open signal'

EXPLANATION:

PT455 solely controls heater operation-low P turns all heaters on, PT-458, -457 will open block valves on increased pressure. PT-457and -456 will open PORV PCV-456B on increasing pressure. 456~~B~~A will not open due to AND logic in valve ckty.

A - only 1 channel inputs to heaters
B - PCV-456A will NOT open
D - PORV PCV-456B will indeed open

TECHNICAL REFERENCE(S): LP8027PPLC LP, PPLC Detailed System Text
(Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1182I04RO PPLC Failure LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	2
K/A #	27AK2.03	
Importance Rating	2.6	2.8

K/A Topic Description: PZR pressure control system/knowledge of the interrelations between the PPCS malfunctions and the following: controls and positioners.

Question Source:

Bank #	____	
Modified Bank #	____	(Note changes or attached parent)
New	X	

Question Cognitive Level:

Memory or Fundamental Knowledge	____
Comprehensive or Analysis	X

10 CFR Part 55 Content:

55.41	X
55.43	____

Comments:

Tech V+V sat.

QUESTION #26:

The following plant conditions exist:

- The reactor is at 100%.
- A VAS alarm alerts the control room of RCP "B" vibration.
- "B" RCP shaft vibration indicates16mils and frame vibration 6mils and steady.
- All RCP pump seal flows and temperatures are normal.
- "B" RCP upper radial bearing is 190F.

Which of the following actions are required by OS1201.01, "RCP Malfunction"?

A. Continue normal operation, but monitor trends in vibration and bearing temperature closely.

B. Immediately secure "B" RCP then perform immediate actions of E-0, "Reactor Trip or Safety Injection".

C. Manually trip the reactor, secure "B" RCP, then perform immediate actions of E-0, "Reactor Trip or Safety Injection".

D. Manually trip reactor, perform immediate actions of E-0, "Reactor Trip or Safety Injection", then secure "B" RCP.

ANSWER: D

EXPLANATION:

Frame vibs>5mil require steps in this order (OS1201.01)

A - is incorrect; action limit is exceeded
B - is incorrect b/c pump is not secured before reactor trip (maximum flow to core while critical)
C - is incorrect-procedure has RO verify reactor tripped before securing RCP

TECHNICAL REFERENCE(S): OS1201.01 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1181I03RO, L1181I04RO RCP MALF LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	015/017G2.1.7	
Importance Rating	3.7	4.4

K/A Topic Description: RCP Malfunctions/ability to evaluate plant performance and make operational judgements based on operating characteristics, reactor behavior, and instrument interpretation.

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

Question Cognitive Level:	Memory or Fundamental Knowledge	____
	Comprehensive or Analysis	X
10 CFR Part 55 Content:	55.41 X	
	55.43 ____	

Comments:

Tech V+V complete
recommend changing 'D'

QUESTION #27:

The crew has entered FR-P.1. "Response to Imminent Pressurized Thermal Shock". What is the basis for FR-P.1 instructing that SI be terminated and RCP(s) to be started if possible?

A. The soak required by FR-P.1 requires SI to be secured and RCPs started to equalize temperature throughout primary to facilitate soak and minimize thermal stresses.

B. SI can further degrade plant conditions during a PTS scenario and RCPs equalize temperature throughout primary to minimize thermal stresses.

C. The soak required by FR.P.1 requires SI to be secured and RCPs running to provide ability to use spray to depressurize primary.

D. ~~SI can further degrade plant conditions during PTS scenario and RCPs provide ability to use spray to depressurize primary.~~

ANSWER: D

EXPLANATION: SI is a significant contributor to any cold leg temperature decrease or overpressure condition and must be terminated. RCP's are started to provide mixing of cold SI and warm reactor coolant water.

This is correct basis per L1208I, Westinghouse ERGs and FR.P-1.

A - purpose for RCPs is not priority in FR.P-1, soak is not basis for SI
B - SI basis correct, RCP basis not accurate
C - soak not basis

TECHNICAL REFERENCE(S): FR-P.1 pg4 and step 1 note, WERG, L1208I
(Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1208IRO 04, L1208IRO 05 FR-P.1 LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	W/E08EK2.1	
Importance Rating	3.4	3.7

K/A Topic Description: Pressurized Thermal Shock/knowledge of the interrelations between the PTS and the following: components, functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic/manual features.

Question Source:

Bank #		
Modified Bank #		(Note changes or attached parent)
New	X	

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

10 CFR Part 55 Content:	55.41	
	55.43	X

Comments:

Tech V+V complete MDLs not correct selection.
Suggest replacing with # 20672

QUESTION #28

A reactor trip and ATWS have occurred. The crew has just transitioned to FR-S.1, "Response to Nuclear Power Generation/ATWS". Boration is called for by FR-S.1. The ~~BOP~~ RO operator lined up the boration path required by FR-S.1. Plant conditions are:

- All control rods withdrawn.
- Add title FI-183 indicates <5gpm.
- Tave is 584F.
- PZR pressure is 2400 psig.
- Charging pump "A" is running.

The proper emergency boration lineup and corrective action to ensure proper/adequate flow IAW FR-S.1 is:

- Title CS-V-426 open,
- At least one CCP running,
- At least one boric acid pump running, and:

A. VCT in service, verify boration flow is > 50gpm using FI-183, open/verify open PZR spray valve to reduce RCS pressure to <2185psig.

B. VCT in service, Ncup. CS-FK-121 in manual and charge at maximum rate, open/verify open PZR PORVs to reduce RCS pressure to < 2185psig.

C. VCT isolated, CS-FK-121 in manual and charge at maximum rate, CCP suction valves to RWST open, open/verify open PZR spray valve to reduce RCS pressure <2185psig.

D. VCT isolated, CS-FK-121 in manual and charging at maximum rate, CCP suctions valves to RWST open, open/check open PZR PORVs and block valves to reduce pressure <2185 psig.

ANSWER: D

Work on this one

EXPLANATION:

FR-S.1 directs actions in D.

A - Is incorrect boration procedure
B - VCT should be isolated
C - Use PORVs to depressurize

TECHNICAL REFERENCE(S): RMU detailed system text FR-S.1 Step 4
(Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1200I02RO FR-S.1 LP; L8025I18RO RMU LP
(As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	024AA1.17	
Importance Rating	3.9	3.9

K/A Topic Description: Emergency Boration/ability to operate and/or monitor the following as they apply to EB: emergency borate control valves and indicators.

Question Source:

Bank #	____	
Modified Bank #	____	(Note changes or attached parent)
New	X	

Question Cognitive Level:

Memory or Fundamental Knowledge	____
Comprehensive or Analysis	X

10 CFR Part 55 Content:

55.41	X
55.43	____

Comments:

Tech V+V sat.

QUESTION #29:

The following conditions exist:

- The reactor is tripped. and SI actuated ?
- Tave = 563F and decreasing.
- PZR pressure is 2075 psig and decreasing.
- Containment pressure is steady at 15 psig.

Regarding the PCCW system,
Which one of the following should the control boards reflect based on given conditions only.

A. The letdown Hx, spent fuel Hx, and waste process building (WPB) components are isolated.

B. The letdown Hx, spent fuel Hx, WPB components, all RCP bearing oil and air coolers, and all containment structure cooling units are isolated.

C. The letdown Hx, spent fuel Hx, and WPB components are isolated. Containment spray Hx isolation valve is open.

D. The letdown Hx, spent fuel Hx, WPB components, all RCP bearing oil and air coolers, and containment cooling units are isolated. Containment spray Hx isolation valve is open.

ANSWER: A

EXPLANATION:

CIS-A signal @ 4.3 psig in containment. "T" signal isolates these components in CCW system.

B. RCPs and containment cooling not isolated on "T" signal (these are "P" signal components)
C. CBS Hx isolation valve opens on P signal.
D. CBS Hx opens on P signal.

TECHNICAL REFERENCE(S): CC Detailed System Text Table 4.1
(Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L8036I12RO CC LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	026AK3.02	
Importance Rating	3.6	3.9

K/A Topic Description: Loss of PCCW/knowledge of the regions for the following responses as they apply to the Loss of PCCW resulting from actuation of the ESFAS.

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attached parent)
New _X_

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehensive or Analysis _X_

10 CFR Part 55 Content: 55.41 _X_
55.43 _____

Comments:

Tech V+V complete.

QUESTION #30

The following plant conditions exist:

- Reactor is at 100%, ~~Tave = 572F.~~
- One group D rod is 24 steps below group D bank height.
- The SM informs you that the S/D margin is currently less than that specified as minimum in the COLR.
- The misaligned rod has not been declared inoperable.

Which one of the following describes the correct response?

A. Manually trip reactor and perform E-0.

B. Commence normal reactor shutdown to hot standby within 6 hours.

C. Immediately ~~charge borated makeup water to primary~~ commence a rapid boration.

D. Immediately shim bank D rods inward.

ANSWER: C

EXPLANATION:

TS 3.1.1.1 requires immediate boration if S/D margin is less than limit in COLR.

A - is incorrect because action is called for if more than one rod is misaligned > 48 steps
B - is incorrect because this is required if more than one rod is misaligned > 12 steps
D - is incorrect because S/D margin must be restored prior to rod retrieval-rod movement is not called for until after TS compliance is verified and engineering informed. Rod shim is not for restoring S/D margin but simply to retrieve rod.

TECHNICAL REFERENCE(S): OS1210.06 "Misaligned Rod", TS 3.1.1.1
(Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1185I09RO Misaligned Rod LP; L8031I23RO Rod Control LP
(As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	005AK1.05	
Importance Rating	3.3	4.1

K/A Topic Description: Inoperable/Stuck Control Rod/ knowledge of the operational implications of the following concepts as the apply to inoperable/stuck control rod: calculation of minimum shutdown margin.

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attached parent)
New _X_

Question Cognitive Level: Memory or Fundamental Knowledge ____
Comprehensive or Analysis _X_

10 CFR Part 55 Content: 55.41 _X_
55.43 _____

Comments:

Tech V+V sat

Condenser Available

QUESTION #31

Steam dumps will not operate when the conditions of C-9 are NOT met. Which of the following describes the basis for this interlock?

A. To prevent further degradation of condenser vacuum.

B. To prevent damaging the condenser on overpressure.

C. To prevent exceeding condenser design temperature.

D. Prevents boiling circulating water which can damage condenser tubes.

ANSWER: B

EXPLANATION:

Condenser is not designed to be pressurized

A,C,D - not the basis for securing steam dumps on C-9 interlock

TECHNICAL REFERENCE(S): CO detailed system text
(Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L8042I01RO CO LP; L8056I22RO RPS LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	051AK3.01	
Importance Rating	2.8	3.1

K/A Topic Description: Loss of Condenser Vacuum/knowledge of the reasons for the following responses as they apply to the Loss of Condenser Vacuum; Loss of Steam Dump capability upon Loss of Condenser Vacuum.

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

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

10 CFR Part 55 Content:
55.41 X
55.43 ____

Comments:

QUESTIONS #32

The following conditions exist:

channel btlch, Power Range

- Reactor power is at 100% with NI channel N-41 failed. All bistables for N-41 are tripped.
- Power range channel N-44 is determined to be failed as is. No N-44 bistables are tripped.
- N-44 cannot be repaired within the allotted time, and a power decrease to HOT STANDBY is commenced.

Which of the following describes the effect the channel failures have on plant operation during the down power ramp to hot standby with no operator action?

A. The failures have no effect on plant operation.

B. P-7 will fail to block its associated reactor trips.

C. The reactor will trip when power decreases below 10% power.

D. Source range permissive P-6 will fail to activate. ← Careful on this one.

ANSWER: B

EXPLANATION:

2/4 > 10% needed to activate trips: 3/4 decreasing to block trips: 2 detectors are "stuck" >10%

A - incorrect
C - incorrect
D - P-6 is IR instrument

TECHNICAL REFERENCE(S): RPS detailed system text, NI detailed system text
(Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L8030I08RO NI LP, L1406I03RO (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	015A4.03	
Importance Rating	3.8	3.9

K/A Topic Description: NIS/ability to manually operate and/or monitor in the control room: trip bypasses.

Question Source: Bank # Seabrook Bank # 16283
Modified Bank # _____ (Note changes or attached parent)
New ____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

Tech V+V sat.

QUESTION #33

RCS pressure has decreased to ~~1950~~ 1940 psig during a plant cooldown. The P-11 bypass permissive bistable light is LIT and the operators have blocked the appropriate ESF actuations as required by MPE OS1000.04, "Plant Cooldown From Hot Standby to Cold Shutdown."

Subsequently a steamline break occurs downstream of the MSIVs.

Assuming no operator action, what is the expected ESF response?

A. Steamline isolation may occur dependent on break size; an SI will occur if containment pressure reaches 4.3 psig.

B. Steamline isolation will always occur; an SI will not occur.

C. Steamline isolation may occur dependent on break size; an SI will not occur.

D. Since ESF is blocked per OS1000.04, no automatic ESF functions are actuated.

ANSWER: C

EXPLANATION:

MSLIS will isolate MS lines if break is large enough; SI is blocked and will not actuate.

A - SI will not actuate
B - MSLIS will not always actuate
D - MSLIS is still active

TECHNICAL REFERENCE(S): IS detailed system text, RPS detailed system text
(Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L8057I08RO Integrated Safeguards LP, L8057I10RO, L8056I19RO RPS LP (available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	013A3.01	
Importance Rating	3.7	3.9

K/A Topic Description:

Question Source: Bank # Seabrook Bank #20697
Modified Bank # _____ (Note changes or attached parent)
New ____

Question Cognitive Level:	Memory or Fundamental Knowledge	___
	Comprehensive or Analysis	X

10 CFR Part 55 Content:	55.41	X
	55.43	___

Comments:

Tech V+V sat.

QUESTION #34

OIC

The following sequence of events occur:

- Plant trip, Safety Injection and loss of offsite power (LO~~O~~P) occurs simultaneously.
- 15 minutes later, SI is reset.
- 20 minutes later, RMO is reset.
- All equipment operates as designed.

When, if at all, will the previously running Containment Structure Cooling fans automatically restart?

A. Step 3 of Emergency Power Sequencer (EPS).

B. When SI is reset.

C. When Remote Manual Override (RMO) is reset.

D. The fans will not automatically start.

ANSWER: D

EXPLANATION:

CC fans will only restart automatically if emergency power sequencer calls for it and SI signal not present–otherwise must have RMO, RA and "S" reset. RA will only reset when UAT or RAT bkrs are closed.

A - "S" signal present
B - will not autostart
C - will not autostart

TECHNICAL REFERENCE(S): CAH detailed systems text (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L8038I04RO CHV LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	022K2.01	
Importance Rating	3.0	3.1

K/A Topic Description: CNMT Cooling System/knowledge of power supplies to the following: containment cooling fans.

Question Source: Bank # Seabrook Bank #23038
Modified Bank # _____ (Note changes or attached parent)

New ___

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

10 CFR Part 55 Content: 55.41 __X__
55.43 _____

Comments:

Tech VtV sat.

QUESTION #35

The following plant conditions exist:

The plant is operating at ~~100~~% 80% power.
"B" steam generator feed pump (SGFP) trips.
Assuming no operator actions,
What is the expected response of the RCS?

A. Turbine setback causes power mismatch that cools RCS thus PZR level initially shrinks before returning to ~~steady state~~ program level.

B. Turbine setback causes power mismatch that causes control rods to insert; RCS temperature rise causes an initial PZR level swell before returning to ~~steady state~~ program level.

C. Turbine setback causes power mismatch that causes control rods to insert; RCS temperature rise causes an initial PZR level shrink before returning to ~~steady state level~~ program.

D. Turbine setback causes power mismatch that causes control rods to insert. No pressurizer level change observable due to action of steam dumps and rod insertion.

ANSWER: B

Explanation of answer: Power mismatch will cause RCS temperature increase, and rods to insert, initial swell causes PZR level to increase.

A) Does not cool RCS
C) Causes swell initially
D) incorrect

TECHNICAL REFERENCE(S): L1404 Normal Transients, L1405 Abnormal Transients
(Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1404502RO, L1405I07RO (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	059K3.04	
Importance Rating	3.6	3.8

K/A Topic Description: MFW/knowledge of the effect that a loss or malfunction of the MFW will have on the following: RCS

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

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

10 CFR Part 55 Content:
55.41 X
55.43 ____

Comments:

Tech V+V sat.

QUESTION #36:

SGFP glands OK

Which one of the following provides water to the ~~shaft seal~~ system for the "A" steam generator feed pump?

A. "A" SGFP discharge.

B. Condensate pump discharge.

C. Condensate storage tank.

D. Steam seal condensate.

ANSWER: B

EXPLANATION:

B - Correct
A,C,D - incorrect

TECHNICAL REFERENCE(S): Main Feedwater detailed system text (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L8062I05RO MF LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	056K1.03	
Importance Rating	2.6	2.6

K/A Topic Description: Condensate system/knowledge of the physical connections and/or cause-effect relationships between the condensate system and MFW.

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

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

10 CFR Part 55 Content:
55.41 X
55.43 ____

Comments:

Tech V+V complete

QUESTION #37:

The following plant conditions exist:

Suggest rewrite:

- The crew has transitioned to FR-H.1, "Response to Loss of Secondary Heat Sink".
- Conditions have degraded such that the motor driven and steam driven AFW pumps tripped and cannot be restored. EFW
- S/G wide range water levels are between 18-25% in all generators.
- Containment pressure is 5 psig.

Which of the following action(s) are required by FR-H.1 ?

- meet bleed + feed criteria
'D' is also correct

A. Depressurize S/Gs and feed with condensate pumps.

B. Try to establish start-up feed water pumps flow to at least one S/G.

C. Do not establish feed flow to S/Gs. Dry S/Gs require consultation with TSC.

D. Immediately begin bleed and feed or return to bleed and feed procedure step in effect.

ANSWER: B

EXPLANATION:

B - correct - Start-up feed pump is first available source of feed on loss of AFW. E

A - not unless SUFP is not available
C - dry S/G <10% WR
D - after SUFP is started

TECHNICAL REFERENCE(S): FR-H.1 Steps 4-7 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1211I03RO FR-H.1 LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	061K6.02	
Importance Rating	2.6	2.7

K/A Topic Description: AFW/knowledge of the effect of a loss or malfunction of the following will have on the AFW components: pumps

Question Source:

Bank #		
Modified Bank #		(Note changes or attached parent)
New	X	

Question Cognitive Level:	Memory or Fundamental Knowledge	X
	Comprehensive or Analysis	
10 CFR Part 55 Content:	55.41 X	
	55.43	

Comments:

Tech V+V complete.

QUESTION #38

The following plant conditions exist:

- The plant is operating at 100%.
- S/G 'A' feed regulating valve is in manual.
- S/G water levels are stable.
- PT-508 main feed header pressure transmitter fails low.

With no operator action, what is the effect on S/G feed pumps (SGFPs) and what automatic, protective actions will take place to protect the plant from the effect?

A. Feed pumps slow down due to pressure mismatch. Lowering S/G water levels cause reactor to trip on S/G level low-low.

B. Feed pumps slow down due to pressure mismatch. Main turbine trips on S/G low-low level. Reactor trips on main turbine trip.

Feed regulating valves close to compensate OK.

C. Feed pumps speed-up due to pressure mismatch. ~~Reactor trips on S/G High-High level.~~

D. Feed pumps speed-up due to pressure mismatch. Feed pumps trip on overspeed. Main turbine trips on loss of feed. Reactor trips on turbine trip.

ANSWER: C

EXPLANATION:

PT-508 is positive (+) input into summer in the speed control circuit. The failure creates a large negative (-) signal, causing feed pumps to speed-up.

A, B - incorrect
D - incorrect - there is no main turbine/MFP trip

TECHNICAL REFERENCE(S): EHC detailed system text, FW detailed system text, FW detailed system Text, UFSAR Section 15.1 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L8062I07RO MF LP, L8056I17RO RPS LP, L8056I18RO (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	059A1.07	
Importance Rating	2.5	2.6

K/A Topic Description: MFW/ability to predict and/or monitor changes in parameters associated with operating the MFW controls including: feed pump speed, including normal control speed.

Question Source:

Bank #	____	
Modified Bank #	____	(Note changes or attached parent)
New	X	

Question Cognitive Level:

Memory or Fundamental Knowledge	____
Comprehensive or Analysis	X

10 CFR Part 55 Content:

55.41	X
55.43	____

Comments:

Tech U+U sat

QUESTION #39

You had received alarm B8474, "Condensate Pump Discharge Conductivity HI-HI". The results of the chemistry group indicate:

- Cation conductivity greater than 1 micromho.
- swap ~~CD905.07 indicates - valid salt water intrusion.~~
- Chemistry has initiated CD905.07 and confirms a valid salt water intrusion.

What actions are required?

A. Make preparations to commence a normal shutdown and contact plant management for guidance.

B. Immediately reduce power to 50%, contact plant management for shutdown guidance.

C. Remain at power; isolate affected waterbox, blowdown and refill steam generators.

D. Trip the reactor.

ANSWER: D

EXPLANATION:

D - correct action per IAW OS1234.02, "Condenser Tube or Tube Sheet Leak"
A, B, C - Reactor trip criteria met - must trip reactor

TECHNICAL REFERENCE(S): OS1234.02 Step 5 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None
Learning Objective: L1188I03RO Tube sheet rupture LP (As available)
Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	2	2
K/A #	038EK3.05	
Importance Rating	4.0	4.3

K/A Topic Description: SGTR/knowledge of the reasons for the following responses as they apply to SGTR: normal operating precautions to preclude or minimize SGTR.

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

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

10 CFR Part 55 Content: 55.41 X
55.43 ____

Comments:

QUESTION #40

What are the most abundant radioisotopes (microCi/ml) in a liquid waste discharge and what biological hazard do they pose to humans?

A. Cobalt-60 and iodine-131; internal and external biological hazard
B. Cobalt-60 and tritium (H-3); external biological hazard only
C. Tritium (H-3) and iodine-131; internal and external biological hazard only
D. Tritium (H-3) and iodine-131; internal biological hazard only

ANSWER: D

EXPLANATION:

D - Analysis in FSAR describes tritium and iodine as most abundant; both isotopes are beta particles emitters and an internal hazard only.

A, B, C - incorrect

TECHNICAL REFERENCE(S): USFAR table 11.2-8 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: None (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	068K5.04	
Importance Rating	3.2	3.5

K/A Topic Description: Liquid Radwaste System (LRS)/knowledge of the operational implications of the following concepts as they apply to the LRS: biological hazards of radiation and the resulting goal of ALARA.

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

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

10 CFR Part 55 Content:
55.41 X
55.43 ____

Comments: No lesson plan; prerequisite for LOIT program

Tech V+V sat

QUESTION #41

The following plant conditions exist:

- The operating crew is responding to "Inadequate Core Cooling", FR-C.1.
- The crew is unable to re-initiate ECCS flow.
- S/G depressurization proved ineffective due to loss of secondary heat sink.
- All core exit thermocouples indicate >1200F.
- RVLIS indicates 35% and slowly decreasing.
- RCP seal injection startup criteria cannot be established.

Which of the following actions are required by FR-C.1 ?

A. Do not damage RCPs by starting; continue attempts to reestablish ECCS flow.

B. Do not damage RCPs by starting; continue attempts to reestablish ECCS and secondary heat sink.

C. Start only one RCP in any available RCS loop. Continue operation of one RCP until core exit thermocouples are less than 1200F.

D. Start RCPs one at a time in an available RCS loop, until core exit thermocouples are less than 1200F.

ANSWER: D

EXPLANATION:

prescribed actions in FR-C.1

A - RCPs are to be started regardless of starting criteria
B - RCPs are to be started regardless of starting criteria
C - Not restricted to only one RCP

TECHNICAL REFERENCE(S): FR-C.1 step 18 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1206I10RO FR-C.1 LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	017A4.02	
Importance Rating	3.8	4.1

K/A Topic Description: In-core temperature monitor/ability to manually operate/monitor in the control room: temperatures used to determined RCS/RCP operation during inadequate core cooling.

Question Source:

Bank #	____	
Modified Bank #	____	(Note changes or attached parent)
New	X	

Question Cognitive Level:

Memory or Fundamental Knowledge	____
Comprehensive or Analysis	X

10 CFR Part 55 Content:

55.41	X
55.43	____

Comments:

Tech V+V complete

QUESTION #42

The following conditions exist:

- A large break LOCA is in progress.
- A Loss of Offsite Power (LOOP) has occurred.
- Both vital busses are energized by the EDGs. delete.
- ECCS ~~RCS pressure is 550 psig.~~ ~~35 psig~~.
- SI is functioning properly.
- The PZR is empty and there is a steam void in the reactor vessel.
- Containment pressure is 35psig.

What is the expected response of the containment structure cooling system to these conditions?

A. The containment structure cooling fans will trip on a loss of component cooling water after a "P" signal is generated.

B. The containment structure cooling fans trip when the fan control logic receives a "P" signal.

C. All component structure cooling fans are running as required during RCS blowdown to maintain containment pressures below design pressure.

D. The component structure cooling fans are powered from a non-vital bus and are not available after a LOOP. Loss of off-site power.

ANSWER: A

EXPLANATION:

Fans trip on loss of CC water which will occur during a LBLOCA due to "P" signal isolating containment.

B,C,D - incorrect

TECHNICAL REFERENCE(S): CAH Detailed System Text
(Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L8038I01RO, L8038I04RO, L8038I02RO (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	022K4.02	
Importance Rating	3.1	3.4

K/A Topic Description: Containment Cooling System/knowledge of CCS design features and/or interlocks which provide for correlation of fan speed and flow path changes with containment pressure.

Question Source:

Bank #	____	
Modified Bank #	____	(Note changes or attached parent)
New	X	

Question Cognitive Level:

Memory or Fundamental Knowledge	X
Comprehensive or Analysis	____

10 CFR Part 55 Content:

55.41	X
55.43	____

Comments:

QUESTION #43

The following plant conditions exist:

- A ~~reactor startup~~ power increase is in progress.
- The reactor is currently at 75% power.
- Condensate pump 'A' trips and condensate pump "C" starts automatically.

Which one of the following describes what happened and the appropriate operator response.

A. Condensate pump 'A' tripped on low suction pressure, 'C' started on 'A' pump trip, ~~continue reactor startup per~~ enter OS1290.02, "Response to Condensate or Feedwater Heater System Transient".

B. Condensate pump 'A' tripped on overcurrent, condensate pump 'C' started on 'A' pump trip, ~~continue with reactor start-up. Contact I&C about condensate pumps~~. enter OS1231.03 "Turbine Runback/Setback."

C. Condensate pump 'A' tripped on low suction pressure, condensate pump 'C' started on 'A' pump trip, ~~stop reactor startup~~. Contact I~~&C~~ maintenance about condensate pumps.

D. Condensate pump 'A' tripped on overcurrent, condensate pump 'C' started on 'A' pump trip, enter. ~~stop reactor startup per~~ OS1290.02, "Response to Condensate or Feedwater Heater System Transient".

ANSWER: D

EXPLANATION:

- 'B' is also correct –
- Also – "stop reactor s/u" is not in the procedure – would be a management decision.

D - Correct trips and actions IAW OS1290.02
A - No low suction pressure trip
B - Stop Reactor Startup
C - Stop Reactor Startup-no low suction P-trip

TECHNICAL REFERENCE(S): OS1290.02 step 1; CO Detailed System Text
(Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1191I08RO, L1191I07RO, L1191I09RO (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	056A2.04	
Importance Rating	2.6	2.8

K/A Topic Description: Condensate System/ability to predict the impacts of the following malfunctions or operations on the condensate system and based

on those predictions, use procedures to correct control or mitigate the consequences of: loss of condensate pumps.

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attached parent)
New __X__

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

10 CFR Part 55 Content: 55.41 __X__
55.43 _____

Comments:

QUESTION #44 See opposite.

Which one of the following does the plant computer use to determine the status of critical safety functions?

A. Average of 5 highest incore thermocouple readings.

B. Highest quadrant average of incore thermocouple readings.

C. Third-highest valid thermocouple temperature in each train.

D. Highest valid thermocouple temperature in each train.

ANSWER: C

EXPLANATION:

C - correct- plant computer uses the third highest valid TC temperature in each train.
A,B,D - incorrect

TECHNICAL REFERENCE(S): Main Plant Computer System Detailed Text (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L8029I03RO Incore Instrument LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	017G2.1.28	
Importance Rating	3.2	3.3

K/A Topic Description: In-core Temperature Monitor/knowledge of the purpose and function of manor system components and controls.

Question Source:

Bank #		
Modified Bank #		(Note changes or attached parent)
New	X	

Question Cognitive Level:

Memory or Fundamental Knowledge	X
Comprehensive or Analysis	

10 CFR Part 55 Content:

55.41	X
55.43	

Comments:

QUESTION # 45 :

The following conditions exist:

- All other systems have functioned normally
- 'B' train equipment is running in the plant.
- A loss of offsite power and reactor trip have occurred.
- 'A' EDG is powering bus E5 and is loaded start any loads automatically
- 'B' EDG is powering bus E6 but failed to ~~load automatically~~.

~~What is the first motor that should be started on bus E6?~~

A. Service water pump.

B. Charging pump. Stay same - E6 pump

C. Containment cooling fans.

D. PCCW pump.

ANSWER: A

EXPLANATION:
A - correct - ES-0.1 has the operator verify service water to DG as first step if RATs and UATs are not powering bus. All EDG service water supplies are powered from E6.

B, C, D - incorrect

Changing Pump.

No sequencer will start any pump first (actually it never stops).

Indicate what ~~required~~ pump is started on E6.

Maybe just state E5 + E6 energized from their EDG's. Then ask per ES-0.1 step 8 with "Verify AC Buses Energized" what load is the first verified running.

In accordance with ES.01 what is the first load that should be started on bus E6.

TECHNICAL REFERENCE(S): ES-0.1 step 7, 4160kV & SWS Detailed System Text (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1200I04RO ES-0.1 LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	2	2
K/A #	075K2.03	
Importance Rating	2.6	2.7

K/A Topic Description: CW/ knowledge of bus power supplies to the following: emergency/essential SWS pumps

Question Source:

Bank #		
Modified Bank #		(Note changes or attached parent)
New	X	

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

10 CFR Part 55 Content:	55.41	X
	55.43	____

Comments:

Tech V&V complete

QUESTION # 46:

The following conditions exist:
CSF's indicate the

- RED Path on Core Cooling
- RED Path on Heat Sink

FR-C.1, "Response to Inadequate Core Cooling", has been entered.

When the crew starts RCPs, the Core Cooling Status Tree changes to an ORANGE condition.

Which of the following actions should the crew take?

A. Immediately transition to FR-H.1, "Response to Loss of Heat Sink".

B. Immediately transition to FR-C.2, "Response to Degraded Core Cooling".

C. Remain in FR-C.1 until completion, then transition to FR-H.1.

D. Remain in FR-C.1 until completion, then transition to FR-C.2.

ANSWER: C

EXPLANATION:
EOP user's guide, section 4.3, page 9.
B and D are incorrect because they require transition to a lower priority procedure in the higher safety function. All REDS take precedence over all ORANGES. A is incorrect because once the FRP is started, it is followed to completion.

TECHNICAL REFERENCE(S): EOP user's guide, section 4.3, page 9 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1196I03RO CSF LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3
Group #		
K/A #	2.4.21	
Importance Rating	3.7	4.3

K/A Topic Description: knowledge of the parameters and logic used to assess the status of safety functions.

Question Source: Bank # RO100 from SB exam 1998
Modified Bank # _____ (Note changes or attached parent)
New ____

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

10 CFR Part 55 Content: 55.41 X
55.43 X

Comments:

What mode?
Look at.

QUESTION # 47 :

The Shift Manager (SM) determines that the RWST is inoperable because level indicates 475,000 gallons vice the 477,000 gallons required. What actions are required?

A. Add make-up to RWST until RWST level meets requirements only.

B. Add make-up to RWST until RWST level meets requirements and verify boron concentration meets requirements only.

C. Add make-up to RWST until RWST level meets requirements, verify boron concentration meets requirements, and verify RWST solution temperature meets requirements only.

D. Add make-up to RWST until RWST level meets requirements, verify boron concentration and RWST solution temperature meet requirements, and verify operability of motor operated charging pump suction isolation valves to the RWST, LCV-112D and LCV-112E.

ANSWER: C

EXPLANATION:

this a one hour time requirement, required to know from memory.
C - correct - required by TS 3.5.4

A, B, D - incorrect

TECHNICAL REFERENCE(S): TS 3.5.4 / SR 4.5.4 pg 3/4 5-11 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L8034I18RO ECCS LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3
Group #		
K/A #	2.2.12	
Importance Rating	3.0	3.4

K/A Topic Description: knowledge of surveillance procedures.

Question Source:

Bank #		
Modified Bank #		(Note changes or attached parent)
New	X	

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

10 CFR Part 55 Content:	55.41	X
	55.43	

Comments:

Tech VRV sat.

QUESTION #48:

To prevent unnecessary release of radiogases from the waste-gas treatment system, high radiation detected on RE-6504 (hydrogen compressor outlet) will:

A. Cause both hydrogen compressors to shutoff.

B. Cause waste gas vent valve FV-1602 to close, isolating Hydrogen compressor discharge.

C. Cause fans FN-8A and FN-8B to stop, preventing release to unit vent stack.

D. This radiation monitor has no controlling function, just indication in the control room.

ANSWER: B

EXPLANATION:

TECHNICAL REFERENCE(S): FSAR, WG detailed system text, PAH system text
(Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L8059I06RO RDMS LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	0071K1.06	
Importance Rating	3.1	3.8

K/A Topic Description: WGDS/knowledge of the physical connections and/or causal effect relationships between the WGDS and ARM and PRM systems.

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

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

10 CFR Part 55 Content:
55.41 X
55.43 ____

Comments:

Tech V+V sat.

QUESTION #49:

Given the following conditions:

- The crew is performing actions of ES-1.2, "Post LOCA Cooldown and Depressurization".
- Pressurizer level is stable at 58%, RCS temp is stable at 545°F.
- RCS pressure is stable at 1680 psig.
- The US determines that a charging pump can be stopped IAW ES-1.2.

When the RO stops the charging pump, which one of the following describes the expected PZR level response?

A. PZR level will remains unchanged.

B. PZR level rises due to pressure reductions.

C. PZR level and pressure will stabilize at a lower level and pressure.

D. PZR level initially drops, then rises as pressure is reduced.

ANSWER: C

EXPLANATION:

Removal of high head pump reduces flow, conditions were stable, break flow/injection flow stabilize at new lower PZR level and pressure

A - level will drop with reduced flow
B - break is not isolated ⇒level will drop
C - level will drop regardless of charging alignment

TECHNICAL REFERENCE(S): ES-1.2, L1204I ES-1.2 LP pg 9
(Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: 1204I02RO (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	2	2
K/A #	011K5.15	
Importance Rating	3.6	4.0

K/A Topic Description: PZR LCS/ knowledge of the operational implications of the following concepts as they apply to the PZR LCS: PZR level indication when RCS is saturated.

Question Source: Bank # ____

Modified Bank # _____ (Note changes or attached parent)
New _X_

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehensive or Analysis _X_

10 CFR Part 55 Content: 55.41 _X_
55.43 _____

Comments:

We need to verify this
- ask sys. engineer ??

QUESTION #50:

The following conditions exist:

- power plant is at 100%.
- all systems are in their normal lineup.

Which of the following describes the plant's response to a failure of all three condenser mechanical vacuum pumps?

A. Vacuum rapidly drops causing a turbine trip resulting in a reactor trip.

B. No effect on vacuum at full power.

C. Vacuum drops slowly resulting in turbine electrical power output increase over time.

D. Vacuum drops slowly resulting in turbine electrical power output decrease over time.

ANSWER: D

EXPLANATION:

At power, mechanical pumps contribute very little to vacuum besides removing non-condensible gases-lowering vacuum results in less work being done on turbine⇒power decrease.

A - vacuum relatively independent of pumps
B - incorrect
C - power decreases

TECHNICAL REFERENCE(S): L8024 Cond. LP Condensate system text
(Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L8024I01RO; L8024I07RO (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	2	2
K/A #	0055K3.01	
Importance Rating	2.5	2.7

K/A Topic Description: CNDSR air removal/Knowledge of effect that loss/malf of CHRS will have on Main Condenser

Question Source:

Bank #		
Modified Bank #		(Note changes or attached parent)
New	X	

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

10 CFR Part 55 Content:	55.41	X
	55.43	

Comments:

Tech V+V complete.

QUESTION #51:

Power is lost to bus E-5. EDG starting air receiver (TK-45A) discharge valve V61A was left shut inadvertently. The 'A' EDG was inadvertently tripped after successfully starting.

Regarding starting air capacity.

Which of the following describes 'A' EDGs response to another start attempt (valve V61A is still shut)?

A. The 'A' EDG will start with the remaining air receiver as a source of starting air.

B. The 'A' EDG will roll over but not start.

C. The 'A' EDG will start only if 'A' EDG starting air compressor C-2A is operable.

D. The 'A' EDG will start only if 'A' EDG backup air compressor C-18A is available.

ANSWER: A

EXPLANATION:

2 redundant air receivers provide for 2 ~~6~~ starts each per SD single tank starts twice.

B - incorrect
C - incorrect
D - incorrect

TECHNICAL REFERENCE(S): PID: 1-DG-B20460 EDG starting Air EDM Detailed System Text (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1819I05RO EDM LP: L1819I18RO (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	2	2
K/A #	064K6.07	
Importance Rating	2.7	2.9

K/A Topic Description: EDG/K of the effect of loss/malf of air receivers will have on the EDG

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

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

10 CFR Part 55 Content: 55.41 X
55.43 ____

Comments:

Tech V+V complete

QUESTION #52: safety injection ECCS

A ~~reactor trip~~ from 100% power has occurred as a result of a small break LOCA. SI is running as required. Subsequently, a fault on the 125VDC system results in a loss of DC bus 11A. Which of the following describes the impact of this loss of DC control power has on the AC electrical system?

A. The 'A' EDG output breaker opens. Charging pump 'A', RHR pump 'A" and SI pump 'A' breakers remain shut.

B. The 'A' EDG output breaker remains shut, charging pump'A', RHR pump 'A' and SI pump 'A' breakers open.

C. The 'A' EDG output breakers, charging pump 'A', RHR pump 'A', SI pump 'A' breakers remain shut but cannot be operated remotely.

D. The 'A' EDG output breaker, charging pump 'A', RHR pump 'A', SI pump 'A' breakers open.

ANSWER: C

EXPLANATION:

Bus 11A supplies control power to EDG output breaker and 'A' charging pump, RHR pump and SI pump.

A, B, D - Loss of control power will leave all breakers shut but remove ability to open them remotely.

TECHNICAL REFERENCE(S): PSS vol 2, EDC system text (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1189I02RO Loss of Vital DC LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	2	1
K/A #	063K1.02	
Importance Rating	2.7	3.2

K/A Topic Description: DC E.D./Knowledge of physical connection, cause/effect relationship between DCED and AC elec sys

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

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

10 CFR Part 55 Content:
55.41 X
55.43 ____

Comments:

A nuance of the procedure requiring memorization of an RO. potential replacement attached

QUESTION #53:

The following conditions/alarms exist:

- Reactor is at 100% power; normal system lineup
- Spent Fuel Pool leak sump level high alarm in
- Spent Fuel Pool level indicates, 23.25 ft and decreasing slowly.

Which one of the following actions are correct?

A. Commence emergency makeup to spent fuel pool, secure skimmer and Spent Fuel cooling pump.

B. Commence emergency makeup to spent fuel pool, secure skimmer pump only.

C. Do not emergency makeup to spent fuel pool, but secure skimmer and cooling pumps.

D. Add makeup IAW OS1008.01, "Chemical and Control System Makeup", do not secure any pumps.

ANSWER: C

EXPLANATION:

Procedure calls for emergency makeup only on rapidly decreasing levels; pumps are secured when level <23.75 ft.

A - No rapid level decrease
B - No rapid level decrease and cooling pump needs to be secured
D - Both pumps need to be secured

TECHNICAL REFERENCE(S): L1192 Loss of SF Cooling LP; OS1215.07, SF Detailed System Text (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1192I01RO, L1192I07RO (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	2	2
K/A #	033A3.02	
Importance Rating	2.9	3.1

K/A Topic Description: Spent Fuel Pool cooling ability

Question Source:

Bank #		
Modified Bank #		(Note changes or attached parent)
New	X	

Group #	1	1
K/A #	057AA2.20	
Importance Rating	3.6	3.9

K/A Topic Description: Loss of Vital AC Electrical Distribution/ ability to determine and interpret the following as they apply to the Loss of Vital AC Instrument Bus: interlocks in effect on loss of ac vital electrical instrument bus that must be bypassed to restore normal equipment operation.

Question Source:

Bank #	____	
Modified Bank #	____	(Note changes or attached parent)
New	X	

Question Cognitive Level:

Memory or Fundamental Knowledge	____
Comprehensive or Analysis	X

10 CFR Part 55 Content:

55.41	X
55.43	____

Comments:

Tech VW complete.

QUESTION #54

The plant is at the following conditions:

- 100% power.
- Tave = 584F 587°F
- RCS pressure = 2235 psig.
- Control rods are in manual.
- An inadvertant dilution is in progress.

What is the expected first-out indication without operator action?

A. Over Power Delta-T HI

B. Over Temp Delta-T HI

C. Neutron Flux Level HI

D. PZR Pressure HI-~~HI~~ L

ANSWER: B

EXPLANATION:

B - UFSAR analysis of dilution accident at power will result in over temperature Delta-T protective action.

A, C, D - incorrect

TECHNICAL REFERENCE(S): UFSAR Section 15.4.6.2g (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L8056I18RO RPS LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	2	2
K/A #	012K4.07	
Importance Rating	3.0	3.2

K/A Topic Description: RPS/knowledge of RPS design features and/or interlocks which provide for the following: first-out indication.

Question Source:

Bank #		
Modified Bank #		(Note changes or attached parent)
New	X	

Question Cognitive Level:	Memory or Fundamental Knowledge	____
	Comprehensive or Analysis	X
10 CFR Part 55 Content:	55.41	X
	55.43	____

Comments:

Tech VrV s.d

QUESTION #55:

The crew is performing actions of ES-0.3, "Natural Circulation Cooldown With a Steam Void in the Vessel (with RVLIS).

Which of the following conditions will ~~cause to~~ require the operator to increase primary pressure during execution of ES-0.3?

A. Subcooling margin reaches 70F.

B. Decreasing trend on RVLIS full range level.

C. PZR level reaches 25%.

D. RVLIS full range level reaches 76%.

ANSWER: D

EXPLANATION:
D - correct - during the cooldown and depressurization, if RVLIS reaches 76%, the operators are directed to repressurize RCS to collapse bubble in reactor vessel.

A - incorrect - steam dumps used to cool primary if SCM reaches 70F.
B - incorrect - level must drop below 76%
C - incorrect - PZR level not used as criteria for repressurization

TECHNICAL REFERENCE(S): ES-0.3step5
(Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1213I08RO Nat Circ LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	2	2
K/A #	006A1.14	
Importance Rating	3.5	3.9

K/A Topic Description: ECCS/ ability to predict and/or monitor changes in parameters associated with operating the ECCS controls including: reactor. vessel level

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

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

Tech Ut Usnt

Good!

QUESTION #56:

The plant is operating at 100% power. All systems are lined up and operating normally. PZR pressure transmitter PT-455 fails low. Which of the following describes the expected plant response? Assume no operator action.

A. Control and backup PZR heaters de-energize, PZR pressure decreases, PZR spray will no longer auto-actuate, plant will eventually trip due to low pressure SI actuation.

B. Control and backup PZR heaters energize, PZR pressure increases , PZR spray cannot mitigate pressure increase, PORV 'A' eventually opens at 2385 psig and reactor trips on high pressure.

C. Control and backup PZR heaters energize, PZR pressure increases, PZR spray cannot mitigate pressure increase, PORV 'B' eventually opens, reactor trips on high pressure.

D. Control and backup heaters and PZR spray are automatically controlled by PT456, no effect on plant except low input to ESFAS and RPS.

ANSWER: C

EXPLANATION:

PT-455 is controlling channel; all heaters and spray auto functions controlled by PT-455 (normally)

A - heaters energize
B - PORV 'A' cannot work due to AND input from PT-455
D- No auto back-up

TECHNICAL REFERENCE(S): L1182I, detailed system text PPLC (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1182I01RO PPLC LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	2	2
K/A #	010K6.02	
Importance Rating	3.2	3.5

K/A Topic Description: PZR pressure control/PZR effect of loss/malf will have on PPCS

Question Source:

Bank #		
Modified Bank #		(Note changes or attached parent)
New	X	

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

10 CFR Part 55 Content:	55.41	X
	55.43	____

Comments:

Suggest replacement (attached)

Awkward - maybe a loss of 13.8 KV bus < P-7.

QUESTION #57:

The plant is operating at 100% power. 13.8 kV bus #2 is lost. Which of the following is a valid plant response and what actions are required to mitigate the response?

A. Steam dumps arm and open due to plant heatup, MSIVs should be closed in steam lines 'C' and 'D' to prevent loop cooldown.

B. Flow reversal in coolant loops 'A' & 'B', attempt to restore bus and restart RCPs 'C' &'D' IAW E-0, "Reactor Trip or SI Injection".

C. Loops 'A' & 'B' Tave and Th decrease. Shut loop 'A' and 'B' MSIV to arrest cooldown

D. Loops 'A' & 'B' Tave and Th decrease. Attempt to restore 13.8kV bus #2 and restore flow by restarting RCPs IAW normal operating procedures.

ANSWER: D

EXPLANATION:

Trip causes all loop Tave, Th to decrease. Operators should perform actions of E-0, then ES-0.1. Which directs restoration of plant systems IAW normal operating procedures.

A - MSIVs are not directed to be shut
B - No flow reversal in A & B (C&D lost)
C - same as A.

TECHNICAL REFERENCE(S): E-0, ES-0.1, 13.8kV system text (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None
Learning Objective: L1405I04RO Abnormal Transient LP, L8021I37RO RCS LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	2	2
K/A #	002A2.03	
Importance Rating	4.1	4.3

K/A Topic Description: RCS/Loss of forced circ

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

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

10 CFR Part 55 Content:
55.41 X
55.43 _____

Comments:

Question: 23006

UPDATED: 10/31/00 QUESTION APPROVED: No MINUTES TO ANSWER:
SYSTEM: NRC CATEGORY: 0 ATTACHMENTS: False
PHASE:
Question Type: MULTIPLE CHOICE

OBJECTIVES:
L1405I 02 RO

KA INFORMATION:
NONE

Question
The following plant conditions exist.

- The plant is at 25% power.
- The "A" RCP trips.

Which of the following describes the affect of the RCP trip on the UNAFFECTED steam generators?

A. Level decreases.

B. Pressure increases.

C. Steam flow increases.

D. Primary ΔT across the steam generator decreases.

Answer

C.

Question: 22257

UPDATED: 3/26/03 QUESTION APPROVED: Yes MINUTES TO ANSWER:
SYSTEM: NRC CATEGORY: 0 ATTACHMENTS: False
PHASE:
Question Type: MULTIPLE CHOICE

OBJECTIVES:
L1405I 02 RO
L1181I 03 RO

KA INFORMATION:
NONE

Question
The following plant conditions exist.

- The plant is operating at 18% power
- Control rods in manual.
- 'C' RCP trips.

Which of the following sets of conditions describes the expected conditions for the parameter listed below?

	Actual Rx. Power	Steam Flow For The Affected Loop SG	Steam Flow For The Unaffected SG
A.	DECREASE	DECREASE	DECREASE
B.	CONSTANT	INCREASE	INCREASE
C.	CONSTANT	DECREASE	INCREASE
D.	DECREASE	DECREASE	CONSTANT

Answer

C.

Question: 22045

UPDATED: 11/17/99 QUESTION APPROVED: Yes MINUTES TO ANSWER:
SYSTEM: NRC CATEGORY: 0 ATTACHMENTS: False
PHASE:
Question Type: MULTIPLE CHOICE

OBJECTIVES:
L1405I 02 RO

KA INFORMATION:
NONE

Question
The plant is at 25% power.

The "A" RCP trips.

Which of the following describes the affect of the RCP trip on the UNAFFECTED steam generators?

A. Level decreases.

B. Pressure increases.

C. Steam flow increases.

D. Primary ΔT across the steam generator decreases.

Answer

C.

Question: 23158

UPDATED: 11/2/00 QUESTION APPROVED: No MINUTES TO ANSWER:
SYSTEM: NRC CATEGORY: 0 ATTACHMENTS: False
PHASE:
Question Type: MULTIPLE CHOICE

OBJECTIVES:
L1405I 01 RO
L1405I 02 RO

KA INFORMATION:
NONE

Question
The following plant conditions exist.

- The plant is at 12 % power during a Plant Startup.
- RCP A trips on Phase Differential Overcurrent.

With no operator action, what is the response of the plant to the RCP trip?

A. Steam flow decreases in all SGs. All SG levels initially decrease, then increase as the secondary plant stabilizes and SGWLC responds. Control Rods withdraw to maintain Tave on program.

B. Steam pressure decreases in all SGs. SG A level decreases due to the loss of heat input. SG B, C and D levels increase due to increased steam demand. SG levels return to normal as SGWLC responds. Tave stabilizes at a lower value.

C. Steam pressure decreases in all SGs. SG A level decreases due to the loss of heat input. SG B, C and D levels increase due to increased steam demand. SG levels return to normal as SGWLC responds. Control rods withdraw to maintain Tave on program

D. Steam pressure decreases in all SGs. SG A level initially increases due to overfeeding. SG B, C, D levels initially decrease due to increased steam demand. SG levels return to normal as SGWLC responds. Tave remains unaffected because Reactor power remains unaffected.

Answer

Answer: B

See MA 4.3 Fig 5.3 Rev 16.
Tech Vt V cayldt.

QUESTION #58:

Which of the following would require the initiation of a Temporary Modification prior to implementation?

A. Using a strap on flow meter on a GSC pipe to gather data for a design change. OK

B. Measuring voltage in an EHC card at test points ~~designed for that purpose.~~ for troubleshooting OK.

C. Removing a piece of Technical Specification equipment for on line maintenance. ifty

D. Routing a hose from a SW pump vent, to supply lube water for a circ water pump.

ANSWER: D

EXPLANATION:

Substitution/alternate part or material requires TMOD
A, B, C are on list of things that do NOT require temporary modification paperwork.

TECHNICAL REFERENCE(S): Maintenance Manual Chapter 4.3 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1514I09 (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3
Group #	2	2
K/A #	2.2.11	
Importance Rating	2.5	3.4

K/A Topic Description: Knowledge of the process for controlling temporary changes.

Question Source:
Bank # Seabrook Bank #22034
Modified Bank # _____ (Note changes or attached parent)
New ____

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

10 CFR Part 55 Content:
55.41 X
55.43 ____

Comments:

Tech V+V complete

QUESTION #59:

The plant is at 75% power with the outlet of the Steam Generator Blowdown Flash Tank aligned to the ocean.

What automatic action(s), if any, occur(s) directly as a result of RM-6510, S/G 'A' Blowdown Line exceeding the high alarm setpoint?

A. Waste liquid discharge valves WL-FCV-1458-1 & 2 close.

B. Steam Generator Blowdown control valve SB-CV-6519 closes.

C. No control action results directly from the RM-6510 high alarm.

D. The Steam Generator Blowdown system outside containment isolation valves, SB-V-9, -10, -11, and -12 close.

ANSWER: B

EXPLANATION:
B - correct - RM-6510 has an automatic response on high alarm to automatically close S/G blowdown valve: SB-CV-6519.

A - incorrect - waste gas system function
C,D - incorrect

TECHNICAL REFERENCE(S): RM detailed system text (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None
Learning Objective: L8059I06RO RDMS LP (As available)

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	2
	Group #	2	2
	K/A #	073A1.01	
	Importance Rating	3.2	3.5

K/A Topic Description: PRM system/ ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the PRM system controls including: radiation levels.

Question Source: Bank # Seabrook Bank #7582
Modified Bank # _____ (Note changes or attached parent)
New ____

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

10 CFR Part 55 Content: 55.41 X
55.43 ____

Comments:

Tech VRW complete.

QUESTION #60:

The plant is currently at 40% power. Control rods are in manual. Which of the following would reduce the plant's departure from Nucleate Boiling Ratio (DNBR) and what is the bases for limiting DNBR?

A. Decreasing reactor power 10%; limits risk of damaging fuel and/or cladding due to high temperatures.

B. Decreasing reactor power 10%; limits flux tilting due to voiding in the core which can cause linear heat rate violation.

C. Reducing RCS pressure; limits risk of damaging fuel and/or cladding due to high termperatures.

D. Stopping a reactor coolant pump; limits flux tilting due to voiding in the core which can cause linear heat rate violation.

ANSWER: C

EXPLANATION:

C - DNBR is reduced when flow is reduced; basis is to prevent fission product release due to thermally damaging cladding and/or fuel.
A, B - reducing power raises DNBR
D - basis is incorrect

TECHNICAL REFERENCE(S): TS Bases 2.1.1 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L8010I05RO Tech Spec LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3
Group #		
K/A #	2.2.25	
Importance Rating	2.5	3.7

K/A Topic Description: Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.

Question Source:
Bank # ____
Modified Bank # X Seabrook Bank 22049
New ____

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

10 CFR Part 55 Content:
55.41 X
55.43 ____

Comments:

Tech V+V sat
per RP5.1
Fig 5.3

QUESTION #61:

The following conditions exist:

- A thirty-five-year-old maintenance technician is scheduled to inspect and repair RHR-8B.
- The technician's year-to-date TEDE exposure at Seabrook Station is 995 mrem and his expected TEDE exposure for this job is 1000 mrem.

What is the minimum requirement that must be done before this worker can perform the scheduled job?

A. A health physics supervisor must approve the request for a radiation exposure limit extension.

B. A health physics supervisor, the health physics department supervisor, AND the station director must approve the request for a radiation exposure limit extension.

C. A health physics supervisor, the health physics department supervisor, AND the station director must approve the planned special exposure.

D. The technician only needs to sign in on an RWP which allows an exposure limit extension greater than Seabrook's administrative exposure limit but less than the federal exposure limit.

ANSWER: A

EXPLANATION:

SSRP supervisory matrix dictates that extensions from 1000-3000 mrem are approved by health physics supervisor.

B, C, D incorrect

TECHNICAL REFERENCE(S): Radiation Protection Manual (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1525I13RO (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3
Group #		
K/A #	2.3.4	
Importance Rating	2.5	3.1

K/A Topic Description: Knowledge of radiation exposure limits and contamination control including permissible levels in excess of those authorized.

Question Source: Bank # Seabrook Bank #22659
Modified Bank # _____ (Note changes or attached parent)
New ____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

Tech Vt V sat

QUESTION #62:

The following conditions exist:

- The plant has sustained an ATWS.
- The crew has entered FR-S.1, "RESPONSE TO NUCLEAR POWER GENERATION/ATWS".
- The BOP operator was unable to trip the turbine by pressing the Manual Turbine Trip pushbutton.

What action should he take next?

A. Manually run back the turbine.

B. Close MSIVs and bypass valves.

C. Open the Generator breaker.

D. Check the EFW pumps operating.

ANSWER: A

EXPLANATION:
A - correct - Answer directly from procedure.
B,C,D - incorrect - Distracters are written in sequence they appear AFTER attempting to manually run back the turbine. C and D are in step 2 RNO, and D is step 3 of the procedure.

TECHNICAL REFERENCE(S): FR-S.1 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1200I05RO (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3
Group #		
K/A #	2.4.1	
Importance Rating	4.3	4.6

K/A Topic Description: Knowledge of EOP entry conditions and immediate action steps

Question Source: Bank # RO53 (Seabrook exam '98)
Modified Bank # _____ (Note changes or attached parent)
New ____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

Tech UVU complete

QUESTION #63:

Given the following conditions:

- A small break LOCA has occurred.
- The crew responded IAW EOPs and tripped the RCPs when required.
- The crew is currently in ES-1.2, "Post LOCA Cooldown and Depressurization" .
- RCS Pressure is 1490 psig.
- Wide range Tcolds are 505F and slowly decreasing.
- Wide range Thots are 515F and slowly decreasing.
- Core exit thermocouples (CETCs) are 581F and stable.
- Containment pressure is 1 psig.
- S/G narrow-range levels are being maintained at approximately 40%.
- S/G pressures are 715 psig and decreasing slowly.

According to ES-1.2, "Post LOCA Cooldown and Depressurization" the requirements for natural circulation:

A. Are not met, since CETCs are not decreasing.

B. Are not met, since there is inadequate subcooling.

C. Are not met, since S/G parameters are not satisfied.

D. Are met.

ANSWER: B

EXPLANATION:

TECHNICAL REFERENCE(S): ES-1.2 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1204I03RO (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3
Group #		
K/A #	2.4.2	
Importance Rating	3.9	4.1

K/A Topic Description: Knowledge of system setpoints, interlocks, and automatic actions associated with EOP entry conditions.

Question Source: Bank # Seabrook Bank # 22270
Modified Bank # _____ (Note changes or attached parent)
New ____

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehensive or Analysis	X
10 CFR Part 55 Content:	55.41	X
	55.43	_____

Comments:

Sm pu qpm
ch 3 1.1.2.46.
PS3-1.3

QUESTION #64:

Which of the following conditions allow the "operator at the controls" to leave the "at the controls area" unattended during plant operations?

A. To complete the Technical Specification logs for that shift.

B. To verify the receipt of an alarm on a back panel in an emergency.

C. To enter the Work Control Supervisor's office to obtain a controlled key.

D. To obtain a print from the tagging office in order to verify a valve lineup.

ANSWER: B

EXPLANATION:

Reactor operators are not permitted to leave the control area for routine duties, emergencies only.
A, C, D - incorrect

TECHNICAL REFERENCE(S): Operations Management Manual (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1505I09RO (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3
Group #		
K/A #	2.1.2	
Importance Rating	3.0	4.0

K/A Topic Description: Knowledge of operator responsibilities during all modes of plant operation

Question Source:
Bank # Seabrook Bank #16257
Modified Bank # _____ (Note changes or attached parent)
New ____

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

10 CFR Part 55 Content:
55.41 X
55.43 _____

Comments:

Reviewed
best cut will be by operators

QUESTION #65:

You are performing the independent verification for a valve lineup. You are currently checking a normally LOCKED OPEN manual valve. You observe the locking device is properly installed with sufficient slack in the wire to allow some valve movement (but less than one full turn).

Which one of the following is the proper method of verifying the position of the valve?

A. Observe the valve stem position and verify the locking device is installed.

B. Check the operator in the OPEN position, leaving the locking device installed.

C. Check the operator in the CLOSED position, leaving the locking device installed.

D. Remove the locking device, check the operator in the CLOSED direction to verify position, return the valve to the original position, and re-install the locking device.

ANSWER: C

EXPLANATION:

C - In accordance with OS1090.05, "Configuration Control Manual"
A, B, D - incorrect/not allowed

TECHNICAL REFERENCE(S): OS1090.05 Configuration Control Manual and Operations Management Manual (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1505I17RO (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3
Group #		
K/A #	2.1.1	
Importance Rating	3.7	3.8

K/A Topic Description: knowledge of conduct of operations requirements.

Question Source: Bank # Seabrook Bank #16258
Modified Bank # _____ (Note changes or attached parent)
New ____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

Tech VFV sat.

QUESTION #66:

In accordance with the abnormal operating procedure OS1202.05, "RCS High Activity", what should the operators do once Chemistry verifies the high activity condition?

A. Maximize letdown flow.

B. Remove cation demineralizer from service.

C. Divert letdown to PDT and maximize makeup.

D. Place Excess letdown in service in additional to normal letdown.

ANSWER: A

EXPLANATION:
A - correct - OS1202.05 directs maximization of letdown flow to maximize use of the demineralizers.

B,C,D - incorrect.

TECHNICAL REFERENCE(S): OS1202.05 RCS High Activity (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1181I09RO RCS High Activity LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	076AK3.05	
Importance Rating	2.9	3.6

K/A Topic Description: High Reactor Coolant Activity/Knowledge of the reasons for the following responses as they apply to high reactor coolant activity: corrective actions are as a result of high fission product radioactivity level in RCS.

Question Source: Bank # Seabrook #13691
Modified Bank # _____ (Note changes or attached parent)
New ____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

V+V suf.

QUESTION # 67 :

The following plant conditions exist:

- A loss of secondary heat sink has occurred.
- Bleed and feed has been established.
- Wide Range levels are less than 5% in all steam generators.
- RCS hot leg temperatures on all loops are 560F and stable.
- The crew is about to reestablish feedwater flow to the "D" steam generator.

Which of the following describes the flow rate that should be established to the "D" steam generator and the reason for the flow rate?

A. Feed at the maximum rate until RCS hot leg temperatures are less than 550F to mitigate core damage possibilities.

B. Feed at the maximum rate until RCS hot leg temperatures are less than 550F to depressurize the RCS and facilitate accumulator injection.

C. Feed at the minimum rate (less than 100 gpm) until RCS hot leg temperatures are less than 550F to minimize thermal stress on steam generator components.

D. Feed at the minimum rate (less than 100 gpm) until steam generator level is adequate to minimize thermal stress on steam generator components.

ANSWER: D

EXPLANATION:

D - correct - FR-H.1 operator action summary page directs action in answer D if WR S/G levels are below 10% (dry S/G).

A, B, C - incorrect

TECHNICAL REFERENCE(S): FR-H.1 step 3 CAUTION (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1211I03RO FR-H LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	061K3.02	
Importance Rating	4.2	4.4

K/A Topic Description: AFW/ Knowledge of the effect that a loss or malfunction of the AFW will have on the following: S/G.

Question Source: Bank # Seabrook Bank # 23077
Modified Bank # _____ (Note changes or attached parent)
New ____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

V+V suf.

QUESTION #68:

What is the proper response, with regards to procedural use, to a VAS alarm that is accompanied by a green asterisk?

A. Use of alarm response procedures is at the discretion of the Unit Supervisor.

B. Use of alarm response procedures is not required if the alarm was expected.

C. If the alarm response is expected, use of the alarm response procedure shall be required the first time it occurs during the shift. The Unit Supervisor may exercise discretion on procedure use for subsequent alarms throughout the shift.

D. Use of alarm response procedures is mandatory.

ANSWER: D

EXPLANATION:

D - correct per ODI.16 Control Room Alarm Response section 5.1.7

A, B, C - incorrect

TECHNICAL REFERENCE(S): ODI.16 5.1.7 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: None (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3
Group #		
K/A #	2.4.10	
Importance Rating	3.0	3.1

K/A Topic Description: Knowledge of annunciator response procedures.

Question Source:

Bank #		
Modified Bank #		(Note changes or attached parent)
New	X	

Question Cognitive Level:

Memory or Fundamental Knowledge	X
Comprehensive or Analysis	

10 CFR Part 55 Content:

55.41	X
55.43	X

Comments:

VtVsat.

QUESTION #69:

The plant is operating at 3% power during a plant startup. A steam dump malfunction causes Tave to DECREASE to 550F.

What action is required?

A. Restore Tave within its limit in 15 minutes or be in HOT STANDBY within the following 15 minutes.

B. Restore Tave within its limit in 15 minutes or be in HOT STANDBY within 1 hour.

C. Restore Tave within its limits in 1 hour or be in HOT STANDBY within the following 1 hour.

D. Restore Tave within its limit in 1 hour or be in HOT STANDBY within the following 6 hours.

ANSWER: A

EXPLANATION:

A - T.S. 3.1.1.4 requires action to restore Tave within 15 minutes or be in Hot Standby within 15 minutes.
B, C, D - incorrect because they allow for more time than T.S.

TECHNICAL REFERENCE(S): TS 3.1.1.4 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: None (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3
Group #		
K/A #	2.1.11	
Importance Rating	3.0	3.8

K/A Topic Description: Knowledge of less than one-hour technical specification action statement for systems.

Question Source:
Bank # Seabrook RO74 ('98)
Modified Bank # _____ (Note changes or attached parent)
New ____

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

10 CFR Part 55 Content:
55.41 X
55.43 X

Comments:

Vr U complete
needs some fixing

QUESTION #70:

Two qualified personnel and a trainee want to verify an RHR valve lineup. The plant is just finishing an outage and the staff thought this would be an opportunity for the trainee to perform a valve lineup. Many of the rooms that the workers must be in have general area radiation levels of 50mR/hr - 100 mR/hr.

Which one of the following is allowable IAW OS1090.05, "Component Configuration Control"?

A. A qualified staff person as the first checker and the trainee as the second checker can perform the checks simultaneously.

B. A qualified staff member is the first checker. The trainee must be accompanied by a qualified staff member as the second checker. The first and second checker must not be in the same room at the same time.

C. The trainee cannot be the first or second checker. Two qualified staff must be the first and second checker and they must not be in the same room at the same time.

D. The trainee cannot be the first or second checker. Two qualified staff must be the first and second checker and they can perform the checks simultaneously.

ANSWER: B

EXPLANATION: Isn't 'C' also true?

B- IAW OS1090.05 precautions 3.11.1
A - incorrect, 4.2.1.4
C - incorrect, 4.1.1.1
D - incorrect, 4.5.1.7.5

TECHNICAL REFERENCE(S): OS1090.05 Configuration Control Manual and Operations Management Manual (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1505I17RO (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3
Group #		
K/A #	2.3.2	
Importance Rating	2.5	2.9

K/A Topic Description: Knowledge of facility ALARA program

Question Source:

Bank #		
Modified Bank #		(Note changes or attached parent)
New	X	

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

10 CFR Part 55 Content:	55.41	X
	55.43	____

Comments:

V+V sat
by 051002.03

QUESTION #71:

The following plant conditions exist:

- The power plant is operating at 55% following a rapid power decrease.
- Xenon requires diluting the RCS at a rate of 100 gallons per hour.
- Excess letdown is in service.
- Letdown was previously isolated due to a containment isolation valve failure.
- VCT level is 70%.

How should the operator control VCT inventory in accordance with plant procedures?

A. The VCT will automatically divert as level increases.

B. Excess letdown is directed to the reactor coolant drain tank (RCDT) as required.

C. Excess letdown is aligned to the top of the VCT. The VCT will divert as level increases.

D. The operator will place the control switch for CS-LCV/LV-112A to DIVERT as needed, which will align letdown and excess letdown to the PDT.

ANSWER: B

EXPLANATION:

B - V-170 is available in excess letdown line to divert water to RCDT
A - incorrect
C - incorrect
D - 112A is not in excess letdown path

TECHNICAL REFERENCE(S): CS Detailed System Text Section 3.1.5 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1445I09RO Loss of Letdown LO, L8024I05RO CS LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	004A2.18	
Importance Rating	3.1	3.1

K/A Topic Description: CVCS/ability to predict the impacts of the following malfunction on the CVCS and based on these predictions, use procedures to correct, control or mitigate the consequences of these malfunctions.

Question Source: Bank # Seabrook Bank #22250
Modified Bank # _____ (Note changes or attached parent)
New ____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

Tech VHU sml

QUESTION # 72 :

In the WG/VG system, which of the following is the first line of over-pressure protection in the 3 psig hydrogenated vent gas header?

A. Auto opening of VG-V57 on high pressure of 20 psig.

B. Safety Valve Surge Tank relief valve.

C. Auto-opening relief valve VG-V50.

D. Auto-start of WAH-FN-72.

ANSWER: C

EXPLANATION:

C - correct - auto relief valve VG-50 is set at 12 psig to relieve excessive pressure to exhaust header
A - incorrect - VG-V57 is a NO isolation valve
B - code safety at 15psig is backup to VG-V50.
D - incorrect

TECHNICAL REFERENCE(S): WG/VH Detailed System Text pg9 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L8046~~8~~03RO WG LP (As available)

8064

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	071A3.02	
Importance Rating	2.8	2.8

K/A Topic Description: Waste Gas System/ Ability to monitor automatic operation of the Waste Gas Disposal System including: Pressure-regulating system for waste gas vent header.

Question Source:

Bank #	Seabrook Bank # 19256
Modified Bank #	_____ (Note changes or attached parent)
New	___

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

10 CFR Part 55 Content:	55.41	X
	55.43	

Comments:

Tech U+U sat.

QUESTION # 73 :

The unit is operating at 100% power when the MCB fire alarm for Train A Electrical Tunnel (FP-CP-409) alarms. The crew enters OS1200.00, "Response to Fire or Fire Alarm Actuation" and determines the alarm to be valid. The procedure then directs the crew to close PORV block valve RC-V122 and place the mode switches for ALL ASDVs in the CLOSE position.

Which ONE of the following describes why the block valve is closed and the ASDVs are placed in the closed position?

A. Pending fire fighting actions will require these valves to be closed to isolate their respective systems.

B. Valves are placed in the closed position to mitigate spurious actuations.

C. Valves are placed in the closed position to meet Appendix B requirements for safety related equipment in a fire zone.

D. Subsequent procedural steps following fire overhaul will require the PORV and ASDVs to be cycled to determine operability. These actions allow system isolation to facilitate these actions.

ANSWER: B

EXPLANATION:

B - correct
A,C,D - incorrect

TECHNICAL REFERENCE(S): OS1200.00, OS1200.02, LP 8210 section 7.1.1
(Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L8210I05RO safe shutdown LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	067AK1.02	
Importance Rating	3.1	3.9

K/A Topic Description: Plant Fire On-Site: knowledge of the operational implications of the following concepts as they apply to the Plant Fire on Site: fire fighting.

Question Source: Bank # Seabrook Bank #16513

Modified Bank # _____ (Note changes or attached parent)
New ____

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

10 CFR Part 55 Content: 55.41 __X__
55.43 _____

Comments:

Good start to a question but to differentiate between 'C' + 'D' requires having the AOP procedure steps memorized.

QUESTION # 74 :

The following conditions exist:

- The plant is operating at 100%.
- All systems/components are lined up in their normal status/position.
- Pressurizer pressure controlling instruments are: 455/456.
- Pressurizer level controlling instruments are: 459/460.
- An electrical malfunction causes PP-1B to deenergize.
- PP-1B cannot be ~~restored.~~ re-energized.

During the process of restoring ~~Which of the following describes~~ how Normal Letdown ~~is recovered~~ per OS1247.01,"Loss of a 120 VAC Vital Instrument Panel" (PP1A, 1B, 1C, or 1D), ~~if possible?~~ the US directs ~~the~~ is to open CS-V145 Regen Hx outlet valve prior to opening first step the RC-LCV-459 or 460.

A. Letdown cannot be restored with PP-1B deenergized.

B. Take manual control of CS-FK-121 and return PZR level to the program band. Reopen letdown isolation valve LCV-460 to restore proper letdown flow.

C. Select a different level channel for control and backup, verify sufficient PZR level and charging flow, open isolation valve LCV-460 to restore proper letdown flow.

D. Place PZR master level controller in manual, restore PZR level, select a different level channel for control and backup, verify sufficient PZR level and charging flow, close letdown flow control valves, open isolation valve LCV-460, then throttle flow control valves to restore proper letdown flow.

ANSWER: D

EXPLANATION:

D - correct - loss of PP-1B fails channel II instruments (LT-460) low, which causes LCV-460 to shut b/c it senses PZR level <17%. OS1247.01 describes the actions in D.

A, B - incorrect

C - must take manual control of level controller first, must also shut throttle valves.

TECHNICAL REFERENCE(S): PPLC detailed systems text pp 19-20, OS1247.01 steps 4-6
(Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L8024I05RO CVCS LP L1186I07,08,09RO Loss of Vital 120V Bus LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1

Tech VFV OK

QUESTION # 75 :

The following plant conditions exist:

- A Reactor Trip and EFW actuation have occurred.
- Steam pressure in the 'A' and 'B' steam generators decreases as a result of EFW pump operation.
- The flow in the 'A' S/G EFW line reaches the high flow isolation setpoint (as sensed by both train related transmitters) followed shortly by high flow in the 'B' S/G EFW line.

How will the EFW flow control valves respond to this condition?

OK EFW

A. Both sets of flow control valves in each line will automatically close.

OK EFW

B. Both 'A' S/G valves will close but the 'B' S/G valves are blocked from automatic closure.

C. The A train valve in the 'A' EFW line and the B train valve in the 'B' EFW line will automatically close.

D. No automatic closure will result. The operator must manually throttle the upstream MOVs closed.

ANSWER: B

EXPLANATION:

B - correct - EFW high flow signal in each train will shut each flow control valve in one S/G, subsequent high flow signals are blocked to prevent cascading isolation of all S/Gs.

A,C,D - incorrect

TECHNICAL REFERENCE(S): EFW detailed system text pg 7 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L8045I03RO EFW LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	2	2
K/A #	016K1.06	
Importance Rating	3.6	3.5

K/A Topic Description: non-nuclear instrumentation system/ knowledge of the physical connections and or cause/effect relationships between the NNIS and the following system: EFW.

Question Source: Bank # Seabrook Bank #11128
Modified Bank # _____ (Note changes or attached parent)
New ____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

Look up/tech V&V

QUESTION # 76 :

The following plant conditions exist:

- The plant is in MODE ~~3~~ 4
- Containment Pre-entry purge is in progress.

What is the response of the Containment Purge system if ~~a TRAIN 'B'~~ Containment Ventilation Isolation (CVI) signal is generated?

A. Containment Pre-entry purge supply fan (FN-9) will trip. All 4 Containment isolation valves (V1, V2, V3, V4) will close.

B. Containment Pre-entry purge supply fan (FN-9) will trip. The TRAIN 'B' containment isolation valves (V2, V3) will close. CAP valves V-1 and V-4 will remain open.

C. Containment Pre-entry purge exhaust fan (FN-10) will trip. TRAIN 'B' containment isolation valves (V2, V3) will close. CAP valves V-1 and V-4 will remain open.

D. Containment Pre-entry purge supply fan (FN-9) and Purge Exhaust fan (FN-10) will trip. All 4 Containment isolation valves (V1, V2, V3, V4) will close.

ANSWER: ~~A~~ B is correct. V2+V3 get closed by K607B ('B' train slave)

EXPLANATION: 'A' fans → V1+V4 get closed by K607A ('A' train slave).

A - correct - a CVI signal will shut all 4 CVI valves (V-1, V-2, V-3, V-4) and the purge supply fan, FN-9. FN-10 does not have an auto trip on CVI.

B, C, D - incorrect

TECHNICAL REFERENCE(S): CAH detailed system text, IS detailed system text, CAH LP
(Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L8038IRO24 CAH LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	2	2
K/A #	029 2.4.31	
Importance Rating	3.3	3.4

K/A Topic Description: CNMT Purge System/ knowledge of annunciators, alarms/indications and use of response instructions.

Question Source: Bank # _____

Modified Bank # 22634 (Note changes or attached parent)
(Added recovery procedure to question stem)
New ___

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehensive or Analysis ___

10 CFR Part 55 Content: 55.41 X
55.43 ___

Comments:

Verify. good quest!!

QUESTION # 77 :
The following plant conditions exist:

- A steam line rupture is in progress.
- While performing steps of E-0, the Unit Supervisor directs the PSO to initiate a Manual Main Steam Line Isolation signal.
- The PSO manually initiates a Main Steam Line Isolation by placing the train 'A' Main Steam Line Isolation switch to the actuate position.

Which of the following describes the expected position of the Main Steam Line Isolation Valves (MSIVs), MSIV Bypass Valves, and MSIV Upstream Drain Valves following train 'A' manual main steam line isolation actuation?

A. All MSIVs, MSIV Bypass Valves, and MSIV Upstream Drain valves are closed.

B. All MSIVs and MSIV Bypass valves are closed. All MSIV Upstream Drain valves remain open.

C. All MSIVs are closed. The 'A' and 'D' MSIV Bypass Valves and MSIV Upstream Drains Valves are closed. The 'B' and 'C' MSIV Bypass valves and MSIV Upstream Drain valves remain open.

D. All MSIVs are closed. The 'A' and 'D' MSIV Bypass valves are closed. The 'A' and 'D' MSIV Upstream Drains are open. The 'B' and 'C' MSIV Bypass and MSIV Upstream Drains remain open.

ANSWER: B

EXPLANATION:

B - correct - manual actuation of MSIS closes all 4 MSIVs and Bypass valves regardless of which train was actuated. Manual operation does not affect upstream drains, auto MSI does.

A - incorrect - manual MSIS does not shut upstream drains
C - train A or B MSIS shuts ALL MSIVs and Bypass valves
D - same as A & C

TECHNICAL REFERENCE(S): MS detailed system text pg 13, MS LP 8041 pg22,28
(Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L8041I15RO Main Steam LP (As available)

Examination Outline Cross-reference: Level RO SRO

Tier #	2	2
Group #	2	2
K/A #	035A4.06	
Importance Rating	4.5	4.6

K/A Topic Description: S/G: ability to manually operate and/or monitor the following in the control room: S/G isolation on steam leak or tube rupture/leak.

Question Source: Bank # Seabrook Bank # 24463
Modified Bank # _____ (Note changes or attached parent)
New ____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

QUESTION # 78 :

The following plant conditions exist:

- The plant is in Mode 1 at 100% power.
- One PORV is leaking past its shut seat.
- Pressurizer Relief Tank (PRT) level and temperature are slowly rising.
- Assume a normal system lineup with no other abnormalities.

Based on these conditions, which of the following statements best describes the expected system response, if any, with no operator action?

A. At 120F PRT water will automatically be transferred to the RCDT.

B. At 92% level PRT water will automatically be transferred to the RCDT.

C. At 120F PRT water will automatically begin circulating through the PRT Heat Exchanger.

D. No automatic actions will occur, the operator must take manual action to control PRT level and temperature.

ANSWER: C

EXPLANATION:

C - correct - at 120F, PRT pump auto starts to send PRT contents to the PRT Hx.

A - incorrect - PRT pump discharge valve cannot be repositioned to RCDT if PRT temperature is greater than 120F.
B - incorrect - there is no high PRT level auto function.
D - incorrect

TECHNICAL REFERENCE(S): PRT/PZR LP sec 4.1.3 & 4 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

-

Learning Objective: L8022I09,L8022I11 PRT/PZR LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	3	3
K/A #	007K1.03	
Importance Rating	3.0	3.2

K/A Topic Description: PRT/ knowledge of the physical connections and/or cause/effect relationships between the PRTS and the following: RCS.

Question Source: Bank # Seabrook Bank # 23181
Modified Bank # _____ (Note changes or attached parent)
New ____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

Verify

QUESTION # 79 :

The Primary Operator is in the process of swapping running Primary Component Cooling Water pumps in the 'B' PCCW loop. Both the 'B' and 'D' PCCW pumps are running when a loss of off-site power occurs.

Assuming both Emergency Diesel Generators function normally, what would be the status of the 'B' PCCW loop pumps at the completion of EPS loading?

A. The 'D' PCCW pump is running, the 'B' PCCW pump is tripped.

B. The 'B' PCCW pump is running, the 'D' PCCW pump is tripped.

C. Both the 'B' and 'D' PCCW pumps are running.

D. Both the 'B' and 'D' PCCW pumps are tripped.

ANSWER: A

EXPLANATION:

A - correct - the EPS will automatically start the RUNNING pump in it's train. The standby pump is LOCKED OUT until the RMO is reset by the operator. If both pumps are running, the circuitry locks out A or B pump (C and D are preferred) - this prevents overloading the diesel with 2 simultaneous pump starts.

B, C, D - incorrect due to interlocks described above.

TECHNICAL REFERENCE(S): LP 8036 PCCWS LP pp 20-21 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L8036I05, L8036I06RO PCCWS LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	3	3
K/A #	008K2.02	
Importance Rating	3.0	3.2

K/A Topic Description: PCCW/ knowledge of bus power supplies to the following: PCCW pumps, including emergency backup.

Question Source: Bank # Seabrook Bank # 20230

Modified Bank # _____ (Note changes or attached parent)

New ____

Question Cognitive Level: Memory or Fundamental Knowledge X

Comprehensive or Analysis _____

10 CFR Part 55 Content: 55.41 X

55.43 _____

Comments:

QUESTION # 80 :

The following conditions exist:

- A ~~L~~BLOCA has occured. Large Break. ECCS
- The plant is tripped and ~~S~~ is operating as expected.
- Accumulators have discharged and are isolated.
- The SM directs performance of FR-Z.2, "Containment Flooding".

Which one of the following describes the required actions per FR-Z.2 and their purpose?

A. Secure all water sources from outside of containment to prevent damaging vital electrical equipment and diluting the containment water inventory.

B. Secure all water sources from outside of containment to prevent overloading concrete containment structures and diluting the containment water inventory.

C. Locate source of flooding in an attempt to prevent damaging vital electrical equipment and diluting the containment water inventory.

D. Locate source of flooding in an attempt to prevent overloading concrete containment structures and diluting the containment water inventory.

ANSWER: C

EXPLANATION:
C - correct - FR-Z.2 directs the crew to locate source of water then confer with TSC on action. Concern is damaging equipment and diluting the containment inventory.

A, B - incorrect - procedure does not direct the securing of anything.

D - overloading concrete structures is not mentioned as a concern in LP or FSAR.

TECHNICAL REFERENCE(S): FR-Z LP section 4.4 FSAR (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1212I09RO, L1212I10RO FR-Z LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	3	3
K/A #	W/E15EK1.01	
Importance Rating	2.8	3.0

K/A Topic Description: Containment Flooding/ knowledge of the operational implications of the following concepts as they apply to CF: components, capacity, and function of emergency systems.

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attached parent)
New __X__

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

10 CFR Part 55 Content: 55.41 __X__
55.43 _____

Comments:

QUESTION # 81 :

Given the following plant conditions:

- Steam generator 'B' is faulted.
- The crew is performing the actions of E-2, "Faulted Steam Generator Isolation".

Which of the following actions concerning the Turbine Driven EFW (TDEFW) pump should be taken?

A. Shutdown the TDEFW Pump immediately.

B. Isolate the TDEFW Pump steam supply. from the faulted SG.

C. Run the TDEFW Pump until any wide range SG level is greater than 65% wide range.

D. Run the TDEFW Pump only if less than 500 gpm is available to the SGs from the motor driven EFW pump

ANSWER: B

EXPLANATION:
B - correct - step 4 isolates TDEFW from the FAULTED S/G only.
A - incorrect - TDEFW pump is not secured
C - incorrect
D - incorrect

TECHNICAL REFERENCE(S): E-2 step 4 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1207I02RO E-2 LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	W/E12EK1.2	
Importance Rating	3.5	3.8

K/A Topic Description: Uncontrolled Depressurization of all Steam Generators/ knowledge of the operational implications of the following concepts as they apply to the Uncontrolled Depressurization of all Steam Generators: normal, abnormal and emergency operating procedures associated with Uncontrolled Depressurization of all Steam Generators.

Question Source: Bank # Seabrook Bank #14289

Modified Bank # _____ (Note changes or attached parent)
New ____

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

10 CFR Part 55 Content: 55.41 __X__
55.43 _____

Comments:

QUESTION # 82 :

The following plant conditions exist:

- The plant is in MODE 5, Reduced Inventory, with the RCS intact.
- Both trains of RHR are available, with Train B in operation.
- Both PORVs are lined up for LTOP mode of operation.

Due to indication of cavitation on RHR Pump 8B, the crew enters OS1213.03, "Loss of RHR at Reduced Inventory or Midloop with the RCS Intact".

Per the procedure, the crew isolates both trains of RHR by placing both RHR pumps in Pull-to-Lock and closes RHR suction valves RC-V22, V23, V87, and V88.

How does this action affect the Technical Specification operability of Overpressure Protection Systems?

A. Technical Specification requirements are met. Isolating RHR suction valves does not affect operability of the RHR suction reliefs.

B. Technical Specification requirements are NOT met. At least 1 RHR suction relief must be available for overpressure protection.

C. Technical Specification requirements are met. Both PORVs are available for overpressure control.

D. Technical Specification requirements are NOT met. BOTH PORVs and BOTH RHR suction reliefs are required for overpressure control while in Reduced Inventory.

ANSWER: C

EXPLANATION:
C - correct - Tech. Spec requirements are met. Both PORVs are available for overpressure control.
T.S. 3.4.9.3 requires 2 overpressure protection flowpaths, whether PORVs or RHR suction reliefs. Closing the RHR suction valves isolates the RHR suction reliefs, but the PORVs are still available
A,B,D - incorrect.

TECHNICAL REFERENCE(S): TS 3.4.9.3 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: TS 3.4.9.3

Learning Objective: L8022I13RO PZR LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	2	2

K/A #	025 2.1.12	
Importance Rating	2.9	4.0

K/A Topic Description: Loss of RHR/ ability to apply technical specifications for a system.

Question Source: Bank # Seabrook Bank RO60 from 98 exam
Modified Bank # _____ (Note changes or attached parent)
New ____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

ok ambels

QUESTION # 83 :

One of the radiation detectors for the control room east air intake has failed low. What actions, if any, are required due to the failure?

A. No action is required.

B. Place control room emergency ventilation system in RECIRC mode within 1 hour.

C. Place control room emergency ventilation system in RECIRC mode within 6 hours.

D. The control room ventilation system will automatically align for RECIRC on loss of one or both detectors. Verify system lineup.

ANSWER: B

3.3.3.1

EXPLANATION:
B - correct - loss of this detector is a one-hour TS requirement IAW TS 3.1.1.1.
A - incorrect - action required per TS 3.1.1.1.
C - incorrect - 1 hr requirement
D - will realign on a HIGH radiation signal, not a loss of detector.

TECHNICAL REFERENCE(S): TS 3.3.3.1 table 3.3-6 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L8039I09RO High Rad LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	2	2
K/A #	060 2.1.11	
Importance Rating	3.0	3.8

K/A Topic Description: Accidentally Gaseous Radwaste Release/ knowledge of less than 1-hour TS.

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

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

10 CFR Part 55 Content: 55.41 X
55.43 ____

Comments:

Based on the way that step 3b. is written (and also a conservative operating philosophy on a valid alarm) an argument could be made that 'B' is also correct.

QUESTION # 84:

The following conditions exist:

- The plant is in mode 6.
- There are 35 workers inside the containment building performing various work items.
- The Reactor Vessel Cavity area radiation monitor (ARM) is alarming at the ALERT level.
- The SM, HP, and Chemistry have been notified of the condition.

Which of the following is required by OS1252.03, "Area High Radiation"?

A. Verify containment isolation and refer to ODI.33, "Containment Integrity Capability Status".

B. Sound containment evacuation alarm and evacuate containment.

C. Consult with HP to determine if evacuation necessary.

D. No action is directed at ALERT level for this ARM.

ANSWER: C

EXPLANATION:

C - correct - ALERT level requires notification and discussion of appropriate action with HP prior to directing an evacuation of containment.

A - only at ALARM level
B - only after consulting with HP
C - incorrect

TECHNICAL REFERENCE(S): OS1252.03 step 3 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1187I10RO High Rad LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	2	2
K/A #	061AA2.05	
Importance Rating	3.5	4.2

K/A Topic Description: Area Radiation Monitoring/ ability to determine and interpret the following as they apply to the ARM system alarms: need for an evacuation; check against existing limits.

Question Source: Bank # _____

Modified Bank # _____ (Note changes or attached parent)
New __X__

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

10 CFR Part 55 Content: 55.41 __X__
55.43 _____

Comments:

QUESTION # 85:

What is the minimum radiological posting required for a room that exhibits the following conditions?

Shouldn't step be in mrem vice rem?

- General area dose rate levels range from 0.025-0.045 rem/hr.
- The following measurements were taken on pipes and valves:
  - point 1 is 0.100 rem/hr at 30 cm.
  - point 2 is 0.500 rem/hr at 30 cm.
  - point 3 is 1.1 rem/hr at 30 cm.
- Highest smear ~~One swipe~~ in the room read 200 dpm/100 cm^2 .
- The sources are greater than 3 feet away from each other.
- The room is accessible to plant personnel.

A. Technical Specification Locked High Radiation Area

B. Very High Radiation Area

C. High Radiation Area

D. Contaminated Area

ANSWER: A

EXPLANATION:
A - correct - TECHNICAL SPECIFICATION LOCKED HIGH RADIATION AREA - any high radiation area (1) accessible to individuals in which radiation levels could result in a individual receiving a dose equivalent > 1000 mrem (DDE) in one-hour at 30 centimeters from the radiation source or from any surface that radiation penetrates and (2) not meeting the requirements of a Very High Radiation Area.

B - incorrect - defined as person possibly getting 500 rads in one-hour at 1 meter from the source

C - incorrect - high rad is not the MINIMUM posting...this area marked as solely high rad area would be incorrect (>100mrem/hr)

D- incorrect - contamination limit is 1000 dpm/100cm^2 or ~~swipe~~. Smear.

TECHNICAL REFERENCE(S): SSRP LP pp 9-10 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1525I09RO SSRP LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3
Group #		

K/A # 2.3.1
Importance Rating 2.6 3.0

K/A Topic Description: Radiation Control/ knowledge of 10 CFR 20 and related facility radiation control requirements .

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

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

10 CFR Part 55 Content: 55.41 X
55.43 ____

Comments:

Tech V+V: Sat RW

(27B-1 and 27B-2)

QUESTION # 86:

Which of the following describes the operation of the Emergency bus first level undervoltage protection scheme?

should these be underlined

A. There are two normally energized undervoltage relays. When one of 2 relays sense bus voltage less than 70% of nominal for 1.2 seconds (RAT available), a sequence of load stripping and subsequent bus reenergization by the EDG is initiated.

B. There are two normally energized undervoltage relays. When bus voltage drops below 25% of nominal voltage, the two relays deenergize, initiating auto closure of the RAT supply breaker.

C. There are two normally energized undervoltage relays. When both relays sense bus voltage less than 70% of nominal for 1.2 seconds (RAT available), a sequence of load stripping and subsequent bus reenergization by the EDG is initiated.

D. There are two normally energized undervoltage relays. When both relays sense bus voltage less than 95% of nominal coincident with an SI existing for greater than 10 seconds, a sequence of load stripping and subsequent bus reenergization by the EDG is initiated.

ANSWER: C

EXPLANATION:
A - incorrect - the sequence is initiated by 2 of 2 relaying, not 1 of 2.
B - incorrect - it describes the 2 relays (of the 6 on the emergency bus) that drop out to provide an auto transfer to the RAT when the UAT is lost or the UAT breaker trips open.
D - incorrect - it describes the second level undervoltage protection scheme.

TECHNICAL REFERENCE(S): 4.160kV detailed system text pg 20 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L8013I13RO 4.160kV LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	2	2
K/A #	062K4.07	
Importance Rating	2.7	3.1

K/A Topic Description: AC Electrical Distribution/ One line diagram of 4kV to 480V distribution, including sources of normal and alternative power

Question Source: Bank # SB 96 NRC Exam #RO11
Modified Bank # _____ (Note changes or attached parent)

New ____

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

10 CFR Part 55 Content: 55.41 __X__
55.43 _____

Comments:

Suggest: "Which of the following describes the Containment Air Purge (CAP) and Containment Online Purge (COP) system response to a High Alarm condition on Manipulator Crane Area Radiation Monitor RM6535A?"

QUESTION # 87 :

Operationally awkward
not req'd until mode 6
door would be open already.

The following conditions exist:

- The plant is in mode 6
- ~~Containment is being purged prior to entry.~~
- The Fuel Manipulator Crane ARM R-6535A is alarming at the ALARM level.
  Area Radiation Monitor RM 6535A

Which of the following describes the complete automatic system response, if any, to this alarm?

A. Containment Air Purge (CAP) and Containment Online Purge (COP) isolation valves shut.

B. CAP and COP isolation valves shut, CAP and COP fans trip or are blocked from starting.

C. CAP and COP isolation valves shut, CAP, COP, and refueling purge fans trip or are blocked from starting.

D. There is no automatic feature for this ARM.

ANSWER: C

EXPLANATION:

C - correct - the alarm will initiate a containment ventilation isolation (CVI) signal which automatically shuts CAP and COP isolation valves and stops/blocks the CAP, COP, and refueling purge fans.

A - incorrect - not all of the automatic actions
B - incorrect -not all actions
D - incorrect

TECHNICAL REFERENCE(S): CHV LP sec 4.1.1.1, 4.1.2.1, 4.1.2.2, IS LP pg18, RDMS LP pg 44 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L8059I06RO RDMS LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #		
Group #		
K/A #	072A3.01	
Importance Rating	2.9	3.1

K/A Topic Description: ARMs/ ability to monitor automatic operations of the ARM system, including: changes in ventilation alignment.

Question Source: Bank # _____

Modified Bank # _____ (Note changes or attached parent)
New _X_

Question Cognitive Level: Memory or Fundamental Knowledge _X_
Comprehensive or Analysis _____

10 CFR Part 55 Content: 55.41 _X_
55.43 _____

Comments:

Tech V+V: sat

QUESTION # 88:

The following conditions exist:

- The plant is at 85% power.
- 'A' MFP trips and a setback is in progress.
- All steam dumps (SDs) fail to open as required.
- A steam dump arming signal is present.

Which one of the following describes the effect on the main steam system and what is the required response to the stuck SD valves per OS1231.03, "Turbine Runback/Setback"?

Note: Pressures and temperatures below refer to S/G conditions prior to any corrective action.

A. Main steam pressure remains constant through the setback, no corrective action for the steam dumps is required because ASDVs and S/G reliefs will relieve pressure.

B. Main steam pressure rises through the setback, no corrective action for the steam dumps is required because ASDVs and S/G reliefs will relieve pressure.

C. Main steam pressure rises through the setback, try to manually operate steam dump valves.

D. Main steam pressure increases through the setback. Without steam dumps, the reactor will trip on high pressurizer pressure. Go to E-0, "Reactor Trip or Safety Injection".

↑ careful AOP requires manual trip if SG pressures >1150#

ANSWER: C

EXPLANATION:

C - correct - load decrease on turbine causes S/G pressure and temperature to increase, procedure says to manually operate SDs if proper SD actuation did not take place.

A - incorrect - pressure increases.
B - action is required, either manual operation of steam dumps, or FR-H.4 calls for ASDV operation if yellow path is completed in Heat Sink CSF.
D - incorrect - will not get to trip setpoint.

TECHNICAL REFERENCE(S): Steam Dump detailed system text, OS1231.03 step 3, runback/setback LP (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1183I10RO setback LP, L8047I06RO, L8047I15RO SD LP (As available)

Examination Outline Cross-reference: Level RO SRO

Tier #	2	2
Group #	2	2
K/A #	039A2.04	
Importance Rating	3.4	3.7

K/A Topic Description: Main/Reheat Steam/ ability to predict the impacts of the following malfunctions on the MRSS; and based on predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions: malfunctioning steam dump.

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

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

Find a substitute.

QUESTION # 89:

A Large Break LOCA has occurred. The following conditions exist:

Containment Pressure:	20 psig
RWST Level:	480,000 gallons
CBS-P-9A Suction pressure:	50 psig
CBS-P-9A Discharge pressure:	285 psig
CBS-P-9B Suction pressure:	50 psig
CBS-P-9B Discharge pressure:	305 psig

Which of the following describes the status of the CBS pumps?

A. CBS-P-9A is pumping normally; CBS-P-9B is below its design flow.

B. CBS-P-9A is pumping normally; CBS-P-9B is above its design flow.

C. CBS-P-9A is below its design flow; CBS-P-9B is pumping normally.

D. CBS-P-9A is above its design flow; CBS-P-9B is pumping normally

ANSWER: A

EXPLANATION:

A - correct - design flow rate exists at a head of 232 psig with an atmospheric suction pressure. B pump is experiencing some flow resistance resulting in higher discharge pressure implying lower flow rate. Design flow rate should be around 232 + 50 = 282 psig discharge pressure.

B,C,D - incorrect.

TECHNICAL REFERENCE(S): UFSAR 6.2.2.2, CBS detailed system text (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L8035I10RO CBS LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	2	1
K/A #	026A4.01	
Importance Rating	4.5	4.5

K/A Topic Description: Containment Spray System (CSS)/ ability to manually operate and/or monitor in the control room: CSS controls.

Question Source: Bank # seabrook bank #22832
Modified Bank # _____ (Note changes or attached parent)
New ____

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

10 CFR Part 55 Content: 55.41 _____
55.43 X

Comments:

The following conditions exist:

- Large break LOCA has occurred.
- Crew is in E-1 "Loss of Reactor or Secondary Coolant." ~~[illegible]~~
- ~~[illegible]~~. SI has just been reset.
- ~~[illegible]~~ VAS alarm "RWST Lo-Lo" is received. RWST level is 120,000 gals.

Which of the following describes the ~~response~~ interlock on the CBS pumps containment recirc sump CBS-V8 & 14 valves.

~~A. Valves will not open as the SI signal has been reset.~~

A) RWST level has reached semi-automatic swapover ~~[illegible]~~ setpoint valves will not open as SI signal has been reset.

* B) RWST level has reached semi-auto swapover setpoint, valves will open as a separate SI reset is required for input to swapover logic

C) RWST level has not reached semi-auto swapover setpoint valves should be manually aligned per ES 1.3 "Cold Leg Recirc"

D) RWST level has not reached semi-auto swapover setpoint, ~~valves should be manual~~ crew should wait for level to decrease to setpoint.

Tech V+V complete

QUESTION # 90:

Which of the following describes the operation of the Service Air isolation valves, SA-V92 and SA-V93, during an Instrument Air leak?

A. Automatically CLOSE at 80 psig decreasing, automatically REOPEN above 83 psig INCREASING.

B. Automatically CLOSE at 90 psig decreasing, automatically reopen above ~~93~~ 95 psig INCREASING.

C. Automatically CLOSE at 80 psig decreasing, resets to allow manual OPENING above 83 psig INCREASING.

D. Automatically CLOSE at 90 psig decreasing, resets to allow manual opening above ~~83~~ 95 psig increasing.

AOP has reopening of 95# which is more relevant than PS reset point of 93#

ANSWER: D

EXPLANATION:

D - correct - IAS and SAS systems are cross connected through valves SA-V92 and - V93 which automatically close when service air pressure lowers to 90psig (reopens on 93psig increasing).

A,B,C - incorrect

TECHNICAL REFERENCE(S): Air System Detailed System Text (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L8023I16RO Air LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	2	2
K/A #	079A2.01	
Importance Rating	2.9	3.2

K/A Topic Description: Station Air System/ Ability to predict the impacts of the following malfunctions or operations on the SAS; and based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: cross-connection with IAS.

Question Source: Bank # Seabrook Bank #23157
Modified Bank # _____ (Note changes or attached parent)
New ____

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

10 CFR Part 55 Content:	55.41	X
	55.43	

Comments:

Tech V+V complete recommend deleting 1st sentence in 'B'. Replace with: "Throttle open RHR-FCV-610 RHR pump 'A' mini-flow.

QUESTION # 91:

Plant conditions are as follows:

- RCS temperature is 300°F
- RCS pressure is ~~245~~ psig 340psig
- Train 'A' Residual Heat Removal (RHR) is in service with flow set at 3500 gpm; Train 'B' RHR is in ECCS standby mode
- The current cooldown rate is 12°F/hr.
- The US orders the cooldown rate increased from 12°F/hr to 40°F/hr over 10 minutes while maintaining RHR flow relatively constant.

Which of the following describes how the operator will increase the cooldown rate?

A. Throttles the RHR-HCV-606 RHR heat exchanger outlet valve in the closed direction such that RHR system water will spend more time in the RHR heat exchanger to be cooled further by PCCW. Flow is automatically increased through ~~the RHR heat exchanger bypass line~~ RHR-FCV-618 to maintain the combined flow rate constant at 3500 gpm.

We can do this OS1013.03/ 4.3.8.

B. ~~Throttles more PCCW to the RHR heat exchanger such that RHR system water will be cooled further by PCCW~~. The RHR heat exchanger outlet and bypass valves require no throttling since RHR system flow rate remains constant at 3500 gpm.

C. Throttles the RHR-FCV-618 RHR heat exchanger bypass valve in the closed direction. This causes less water to flow through the RHR heat exchanger bypass line. Flow is automatically increased through the RHR heat exchanger to maintain the combined flow rate constant at 3500 gpm.

D. Throttles the RHR-HCV-606 RHR heat exchanger outlet valve in the open direction. This causes more RHR system water to flow through the RHR heat exchanger. Flow is automatically decreased by ~~through the~~ RHR heat exchanger bypass line to maintain the combined flow rate constant at 3500 gpm. RHR-FCV-618

ANSWER: D

EXPLANATION:

D - correct - the operator manipulates the outlet valve to send more or less water through the Hx to be cooled. The bypass valve modulates to maintain 3500 gpm total coming from the Hx and bypass line.

A - incorrect - will reduce CD rate
B - incorrect - PCCW is not manipulated by procedure;
C - incorrect - bypass valve is modulated, the Hx outlet is not.

TECHNICAL REFERENCE(S): OS1013.03, LP 1172 sections 3.4.6,-7 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1172I06RO Plant CD LP, L8033I07RO RHR LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	3	3
K/A #	005A4.02	
Importance Rating	3.4	3.1

K/A Topic Description: RHR/ ability to manually operate and/or monitor in the control room: Heat exchanger bypass flow control

Question Source:
Bank # Seabrook Bank 18608
Modified Bank # _____ (Note changes or attached parent)
New ____

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

10 CFR Part 55 Content:
55.41 X
55.43 ____

Comments:

Seabrook Bank

QUESTION # 92:

The plant is at full power with the "A" reactor trip bypass breaker closed. The operator at the switchgear depresses the close pushbutton for the "B" reactor trip bypass breaker. Which of the following will occur?

A. All reactor trip and bypass breakers would open.

B. The "A" reactor trip breaker would open, the "B" reactor trip breaker and the both bypass breakers would remain closed.

C. The "B" reactor trip breaker would open, the "A" reactor trip breaker and the both bypass breakers would remain closed.

D. The "A" reactor trip bypass breaker would open, both reactor trip breakers and the "B" bypass breaker would remain closed.

ANSWER: A

EXPLANATION:

A - trip/bypass interlocks cause all breakers to open

B, C, D - incorrect

TECHNICAL REFERENCE(S): _____ (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: None (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	1
Group #	1	1
K/A #	001K6.03	
Importance Rating	3.7	4.2

K/A Topic Description: Control Rod Drive System/ knowledge of the effect of a loss or malfunction on the following CRDS components: reactor trip breakers, including controls.

Question Source: Bank # Seabrook bank # 20207

Modified Bank # _____ (Note changes or attached parent)

New ____

Question Cognitive Level: Memory or Fundamental Knowledge X

Comprehensive or Analysis ____

10 CFR Part 55 Content: 55.41 X

55.43 ____

Comments:

Tech V+V sat.

QUESTION # 93:

The plant is at 100%. A complete loss of the Plant Computer occurs. Which of the following must be performed within 1 hour?

A. Loss of Rod Deviation monitor requires logging rod position hourly. "AFD Surveillance"

B. Loss of axial flux difference monitor requires performance of RX 1701 within 1 hour.

C. Loss of quadrant power tilt ratio requires manual calculation per RX 1703 within 1 hour and every 12 hours afterward. "QPTR Surveillance"

D. WRGM heat trace monitoring must be monitored hourly.

ANSWER: B

EXPLANATION:

B - correct - The plant computer calculates if AFD is within limits. When the MPCS goes down, the AFD monitor alarm is inoperable. TS 3/4.2.1 requires monitoring AFD once per hour for the first 24 hours and once per 30 minutes thereafter.

A - 4 hours
C - 12 hours
D - 4 hours

TECHNICAL REFERENCE(S): MPCS detailed system text pg 48, ON1251.01 attachment B, TS 3/4.2.1 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None
Learning Objective: L1184I17RO Loss of MPCS LP (As available)
Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	2	1
K/A #	014K3.02	
Importance Rating	2.5	2.8

K/A Topic Description: Rod Position Indication System/ knowledge of the effect that a loss or malfunction of the RPIS will have on the following: Plant Computer.

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

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

10 CFR Part 55 Content: 55.41 X
55.43 ____

Comments:

QUESTION # 94:

The plant is in MODE 6.
The 'A' EDG is running and loaded.
A fire is detected in the 'A' EDG room.

What automatic actions take place?

A. Supply fan FN-25A automatically trips, Exhaust fan FN-26A automatically starts, exhaust damper DP-16 automatically opens.

Answer → B. No automatic fire actions occur, all actions must be taken by the operators

C. Supply fan FN-25A and Exhaust fan FN-26A automatically trip, Exhaust damper DP-16 automatically closes

D. Supply fan FN-25A and Exhaust fan FN-26A automatically start, exhaust damper DP-16 automatically opens.

ANSWER:

EXPLANATION:

TECHNICAL REFERENCE(S): _____ (Attach if not previously provided)

Proposed references to be provided to applicants during examination: none

Learning Objective: None (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	2	2
K/A #	086A3.02	
Importance Rating	2.9	3.3

K/A Topic Description: Fire Protection System/ ability to monitor automatic operation of the FPS including: actuation of the FPS.

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

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

10 CFR Part 55 Content:
55.41 X
55.43 _____

Comments: no fire protection lesson plan for licensed operators, only fire brigade members

The following conditions exist:

- The unit is recovering from a LARGE BREAK LOCA that occurred 4 days ago.
- The crew receives VAS Alarm "CO ALARM EAH-F-9 For Enclosure Air Handling Filter F-9
- The US ~~directs implement~~ implements OS1200.00 "Response to Fire or Fire Alarm Actuation."

In accordance with OS1200.00, what actions must the crew take?

* A. SECURE associated fan within 5 minutes, Fire brigade must be dispatched and at filter within 10 minutes of being notified.

B. SECURE associated fan within 5 minutes, fire brigade must be dispatched and at filter within 15 minutes of being notified.

C. Secure associated fan within 10 minutes, dispatch Fire brigade to investigate

D. Secure associated fan within 10 minutes, dispatch fire brigade to investigate at filter within 15 minutes.

Tech V+V sat:

QUESTION # 95:

Is this operationally valid.

Given the following plant conditions:

- A Large Break LOCA has occurred inside the containment.
- The operators are working their way through the EOPs.
- Containment Hydrogen concentration is determined to be 1%.
- One hydrogen recombiner is inoperable.

What actions are required, if any, to remove hydrogen from containment ?

A. Initiate a containment purge with concurrence from TSC.

B. Start the remaining hydrogen recombiner.

C. Initiate a containment purge and start the hydrogen recombiner.

D. No action is necessary at this hydrogen level.

ANSWER: B

EXPLANATION:
B - correct - one recombiner is to be started if hydrogen concentration is less than 4% and greater than 0.5%.

A,C - incorrect - this is a backup method used if both hydrogen recombiners fail.
D - incorrect - action is directed if hydrogen is greater than 0.5%

TECHNICAL REFERENCE(S): CHV LP sec 4.2 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L8038I10RO CHV LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	3	2
K/A #	028A2.02	
Importance Rating	3.5	3.9

K/A Topic Description: Hydrogen recombiner and purge control system/ malfunctions or operations on the HRPS; and based on those predictions, use procedures to correct or mitigate the consequences of those malfunctions or operations.

Question Source:

Bank #		
Modified Bank #		(Note changes or attached parent)
New	X	

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

10 CFR Part 55 Content:	55.41	X
	55.43	____

Comments:

RO exam question Sbk 1998

QUESTION # 96:

While performing refueling operations, it becomes necessary to use the INTERLOCK OVERRIDE function of the refueling machine.

The refueling machine operator latches a fuel assembly and attempts to raise the assembly into the mast.

Which of the following conditions result due to the INTERLOCK OVERRIDE condition?

A. The hoist speed is automatically limited to slow speed.

B. Limiting upward motion is controlled by the Refueling Machine Operator only.

C. Bridge and Trolley motion is automatically defeated until the fuel assembly is completely in the mast.

D. Hoist motion will not automatically stop if there is a hoist overload condition.

ANSWER: D

EXPLANATION:
D - correct - the interlock override will bypass the hoist overload.

A - incorrect - there is nothing to keep the hoist from moving at higher speeds.
B - incorrect - upward motion is limited by geared limit switch even if INTERLOCK OVERRIDE is used.
C - incorrect - bridge and trolley motion is allowed with a fuel assembly outside the mast.

TECHNICAL REFERENCE(S): FH detailed system text pp25-32 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L8060I08RO, L8060I09RO Fuel Handling LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	3	2
K/A #	034K4.01	
Importance Rating	2.6	3.4

K/A Topic Description: Fuel Handling Equipment/ knowledge of the design features and/or interlocks which provide for the following: fuel protection from binding and dropping.

Question Source: Bank # Seabrook NRC exam 1998 RO27

Modified Bank # _____ (Note changes or attached parent)
New ____

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

10 CFR Part 55 Content: 55.41 __X__
55.43 _____

Comments:

Tech UNsat

QUESTION # 97:

The following Plant conditions exist:

- A loss of off-site power has occurred.
- The emergency diesel generators have started and are powering their associated emergency buses.
- 1-SA-C-137-A is selected to LEAD and 1-SA-C-137-B is selected to LAG.

Service Air Compressors

Which of the following describes the response of the Instrument Air / Service Air system following the loss of power?

A. Both SA-C-137A and B unit substation supply breakers would be sequenced on at the correct time and then neither compressor would start until RMO is reset.

B. Both SA-C-137A and B unit substation supply breakers would be sequenced on at the correct time and then neither compressor would start until the EPS is reset.

C. Both SA-C-137A and B unit substation supply breakers would be sequenced on at the correct time and then the compressors would respond in accordance with the lead / lag selection.

D. Both SA-C-137A and B unit substation supply breakers would be sequenced on at the correct time and then both compressors would start and load as Fire Protection cooling flow is initiated.

ANSWER: C

EXPLANATION:

C - correct - on a LOP, breakers for SA-C-137A and -B are locked out by RMO relay, on return of power the EPS loads these compressors back onto the EDGs IAW lead/lag designation.

A,B,D - incorrect

TECHNICAL REFERENCE(S): SAS/IAS detailed system text pg 34 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L8023I13RO IAS/SAS LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2

Group #	3	3
K/A #	078A3.01	
Importance Rating	3.1	3.2

K/A Topic Description: Instrument Air System/ ability to monitor automatic operation of the IAS, including air pressure.

Question Source: Bank # seabrook bank # 16311
Modified Bank # _____ (Note changes or attached parent)
New ____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

Tech VIV Suf.

QUESTION # 98:

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.
- The main turbine generator output breaker trips on a fault.

Which of the following describes the expected immediate plant response ?

A. S/G pressure initially decreases 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 increases.

C. S/G pressure initially decreases as main turbine is lost, S/G levels initially increase due to lower steam pressure, feed flow initially decreases.

D. S/G pressure initially increases as main turbine is lost, S/G levels initially decrease due to shrink, feed flow initially decreases.

ANSWER: D

EXPLANATION:

D - correct - initially (prior to steam dumps opening), steam header pressure increases due to the loss of steam demand. The increased back-pressure in the S/Gs partially suppresses boiling which causes shrink to occur in the S/Gs. The reduced steam demand inputs to the feed controller to reduce feed thus feed flow decreases.

A,B,C - incorrect

TECHNICAL REFERENCE(S): SGWLC detailed system text (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L8046I06RO SGWLC LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	3	3
K/A #	045A1.06	
Importance Rating	3.3	3.7

K/A Topic Description: Main Turbine Generator/ ability to predict and/or monitor changes associated with operating turbine system control including response of secondary plant parameters following a TG trip.

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attached parent)
New _X_

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehensive or Analysis _X_

10 CFR Part 55 Content: 55.41 _X_
55.43 _____

Comments:

Best technical V+V will be with the operators.

QUESTION # 99:

The following plant conditions exist:

- The plant is at 100% power.
- A discharge from the Waste Tank 'A' to the transition structure via WL-FCV-1458-1 is in progress.
- A high radiation alarm is indicated on WTT Discharge Monitor, R-6509.
- WL-FCV-1~~5~~48-1, WST DISTLT TO DISCH STRUCT, indicates open.

Which of the following describes the correct actions to be taken to secure the discharge?

A. Shut WL-FCV-1~~5~~48-2, WST DISTLT TO DISCH STRUCT only.

B. Shut valve WL-V-123, Waste Demineralizer Outlet.

C. Secure Waste Test Tank Pumps WL-P-96A and WL-P-96B only.

D. Shut valve WL-V-254, waste distillate discharge header WL-FCV-1458 outlet.

ANSWER: D

EXPLANATION:
D - correct - OS 1252.01 PRM Radiation Alarm has you manually isolate any automatic action failure. Manual valve WL-V-254 will isolate discharge.

A - incorrect - valve is in parallel to WL-FCV-1548-1.
B - incorrect - not in discharge line.
C - incorrect - does not isolate flow.

TECHNICAL REFERENCE(S): OS1252.01 step 2, LWS DWG 1-WL-B20831 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: N1319I04 WL LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	068A2.04	
Importance Rating	3.3	3.3

K/A Topic Description: Liquid Radwaste System (LRS)/ ability to predict the impacts of the following malfunctions or operations on the liquid radwaste system; and, based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: failure of automatic isolation.

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attached parent)
New __X__

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

10 CFR Part 55 Content: 55.41 __X__
55.43 _____

Comments: there is no lesson plan for WLS for initial RO quals. Kerry Wright says this NLO requirement is a prerequisite for initial RO quals so the class must have been exposed to the NLO lesson plan. This explains the reference to a NLO learning objective above. Also, there is no procedure for failure of the discharge to secure automatically...OS1252.01 directs you to manually isolate system as necessary. I assumed that securing pumps alone will not constitute securing the discharge.

Verified

QUESTION # 100:

The following plant conditions exist:

- The plant is in mode 5.
- A containment pre-entry purge is in progress.
- The carbon bed filter is saturated (no longer functions as required).

F-40

Which of the following describes the expected result of the carbon bed being saturated ?

A. The containment purge exhaust fan, FN-10, will trip on low suction pressure.

B. The effluent from containment would have higher levels of xenon and krypton because the carbon bed is designed to remove noble gases.

C. The effluent from containment would have higher levels of gaseous iodine because the carbon bed is designed to remove iodine.

D. The effluent from containment would have higher levels of argon because the carbon bed is designed to remove argon.

ANSWER: C

EXPLANATION:

C - correct - the carbon bed is designed to remove iodine.
A - incorrect - there is not a low dp trip on the fan.
B,D - incorrect.

TECHNICAL REFERENCE(S): CHV detailed system text (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L8038I16RO CHV LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #		
Group #		
K/A #	027K5.01	
Importance Rating	3.1	3.4

K/A Topic Description: Containment Iodine Removal System (CIRS)/ knowledge of the operational implications of the following as they apply to the CIRS: purpose of charcoal filters.

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attached parent)

New	X	
Question Cognitive Level:	Memory or Fundamental Knowledge	X
	Comprehensive or Analysis	
10 CFR Part 55 Content:	55.41	X
	55.43	

Comments:

Tech V+V sat.

QUESTION #101

The following plant conditions exist:

- The operating crew has just transitioned from E-2, "Faulted Steam Generator Isolation" to ECA-2.1, "Uncontrolled Depressurization of All Steam Generators".
- All S/Gs are off-scale low on narrow range detectors.
- Wide range S/G level detectors indicate 35%.
- Complications result in an irrecoverable loss of all feedwater sources.
- S/G wide range levels are lowering quickly.

Which of the following is the correct course of action directed by ECA-2.1?

A. Immediately enter FR-H.1, "Response to Loss of Secondary Heat Sink" and start procedure at step 10 to initiate bleed and feed.

B. Immediately enter FR-H.1, "Response to Loss of Secondary Heat Sink" and begin at step 1.

C. Remain in ECA-2.1 until completion.

D. Remain in ECA-2.1 until directed to evaluate CSF status

ANSWER: B

EXPLANATION:
B - correct - Upon a loss of feed (irrecoverable), ECA-2.1 directs user to go to FR-H.1 (OAS)

A - incorrect - Go to step 10 only if RCS pressure is > 2385psig OR ≥ 3 S/Gs are less then 26% (50% for adverse containment).
C -incorrect - not prescribed in ECA2.1
D - incorrect - return to E02, if pressure is restored (rising) in at least one S/G.

TECHNICAL REFERENCE(S): E-2, ECA-2.1, FR-H.1 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1207IRO6ECA2.1 LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	W/E12EK1.2	
Importance Rating	3.5	3.8

K/A Topic Description: Uncontrolled Depressurization of All Steam Generators/knowledge of the operational implications of the following concepts as they apply to uncontrolled depressurization of all S/Gs: normal,

abnormal and emergency operating procedures associates with UDASGs.

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

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

10 CFR Part 55 Content: 55.41 ____
55.43 X

Comments:

Tech V+V sat.

QUESTION #102

The following conditions exist:

- An Anticipated Transient Without Scram event occurs.
- The Short Term Emergency Director (STED) determines the plant is in a Site Area Emergency.
- Before notifications are initiated, the crew locally trips the reactor.
- The STED now determines that the Site Area Emergency has cleared and the plant is now in an Unusual Event.

Which of the following describes how the initial emergency plan notifications should be carried out?

A. Perform notifications at the Unusual Event level, on initial state notification inform them that a higher classification level had existed.

B. Perform notifications at the Site Area Emergency level, during follow-up state notifications inform them that the higher classification cleared when the lower one clears.

C. Perform notifications at the Unusual Event level, during follow-up state notifications inform them that a higher classification level had existed.

D. Perform notifications at the Site Area Emergency level, during follow-up state notifications inform them that the higher classification has cleared.

ANSWER: C

EXPLANATION:
C - correct - per SSER, Initial notification is the new lower condition, on follow up calls, notify of higher condition.

A, B, D - incorrect

TECHNICAL REFERENCE(S): SSER ER 1.2 precaution 6 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1509I05RO, L1509I06RO SSER LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3
Group #		
K/A #	2.4.15	

Importance Rating 3.0 3.5

K/A Topic Description: Emergency Procedures/Plan / knowledge of communications procedures associated with EOP implementation.

Question Source: Bank # Seabrook bank #20485
Modified Bank # _____ (Note changes or attached parent)
New ____

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

10 CFR Part 55 Content: 55.41 _____
55.43 X

Comments:

Tech V+U sat.

QUESTION #103

You are acting as the Short Term Emergency Director (STED). During a LOCA outside containment, a worker is critically injured and unconscious in the RHR vault. Consultation with health physics determines that two individuals will receive 30 rem each while rescuing the injured person.

Which of the following describes the correct course of action in accordance with the SSRP and SSER?

A. The STED can authorize and order radiation workers to rescue the injured person.

B. The STED can authorize only volunteer radiation workers to rescue the injured person.

C. The Health Physics Supervisor can authorize your recommendation to send two volunteers to rescue the injured worker.

D. The Station Director must approve the STED's decision to send volunteers to rescue the injured worker.

ANSWER: B

EXPLANATION:
B - correct - during implementation of the E-Plan, the STED can authorize emergency exposures bound to the limits of ER 4.3.

A - incorrect - for exposures over 25 rem, workers must volunteer.
C - incorrect - need STED approval;
D - incorrect - planned special exposures need station director approval outside of E-Plan.

TECHNICAL REFERENCE(S): SSER 4.3 page 7, SSRP Sec. 5.2 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1525I14SRO SSRP LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3
Group #		
K/A #	2.3.10	
Importance Rating	2.9	3.3

K/A Topic Description: Radiation Control/ ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure.

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attached parent)
New _X_

Question Cognitive Level: Memory or Fundamental Knowledge _X_
Comprehensive or Analysis _____

10 CFR Part 55 Content: 55.41 _____
55.43 _X_

Comments:

Tech VrV sat.

QUESTION #104

The following conditions exist:

- The plant is in mode 4.
- The primary control room operator becomes seriously ill and must be taken to the hospital.
- There is only one other qualified RO/SRO on site who is standing watch in the control room currently as the secondary control room operator.
- There are three hours left until shift change.

What action is required?

A. The affected operator must not be allowed to leave site until a relief operator arrives.

B. Immediate action must be taken to obtain a replacement operator within four hours.

C. Immediate action must be taken to obtain a replacement operator within two hours.

D. Shift turnover occurs before action is required. Action should be made to find a replacement, but is not required.

ANSWER: C

EXPLANATION:

C - correct - TS requires that immediate action be taken to find a replacement. The position cannot remain unmanned for greater than 2 hours. In mode 4, 2 Ros are required to be present in the control room.

A, B, D - incorrect

TECHNICAL REFERENCE(S): OPMM pg 2-1.1, TS Table 6.2-1
(Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1505IRO02, L1505IRO03 OPMM LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3
Group #		
K/A #	2.1.4	
Importance Rating	2.3	3.4

K/A Topic Description: Conduct of Operations / knowledge of shift staffing requirements.

Question Source: Bank # Seabrook Bank # 16255

Modified Bank # _____ (Note changes or attached parent)

New ____

Question Cognitive Level: Memory or Fundamental Knowledge X

Comprehensive or Analysis _____

10 CFR Part 55 Content: 55.41 _____

55.43 X

Comments:

V+V sat

QUESTION #105

The following plant conditions exist:

- The plant is at 100% power.
- The 'B' Emergency Diesel Generator (EDG) was declared INOPERABLE yesterday at 0600.
- ~~The 'A' EDG was run successfully 4 days ago.~~
- At 0800 today (26 hours after 'B' EDG was declared INOPERABLE), the SM has discovered that the operability run for the 'A' EDG is required and has NOT been performed.

Note: stated times use military time notation.

What action is required?

A. The unit must be in MODE 3 by 1200 today.

B. The operability run on the 'A' EDG must be performed successfully by 0600 tomorrow.

C. The operability of the 'A' EDG must be successfully performed by 1200 today.

D. The operability surveillance of 'A' EDG must be performed successfully by 1000 today or be in HOT STANDBY within the next 6 hours.

ANSWER: C

EXPLANATION: 4.0.2.
C - correct - SR 3.0.2 requires that surveillances required by action statements be completed within 1.25 their stated time limit, or 24x1.25 = 30 hours for this case, or 1200 today.

A - incorrect - if 'A' EDG was INOPERABLE at 0600, this action would be correct.
B - incorrect - 24 hour extension applies to normal surveillances not required by action statements (SR4.0.3)
D - incorrect - if 'A' EDG was INOPERABLE at 0800, this action would be correct.

TECHNICAL REFERENCE(S): TS 3.8.1.1.b actions b, d & f, SR 3.0.2, SR 3.0.3 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: TS 3.8.1, SR Applications

Learning Objective: L8010I09RO, L8010I10RO, L8010I11RO, L8010I12RO TS LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3
Group #		

K/A #	2.1.10	
Importance Rating	2.7	3.9

K/A Topic Description: Conduct of Operations/ knowledge of conditions and limitations of the facility license.

Question Source:

Bank #		
Modified Bank #		(Note changes or attached parent)
New	X	

Question Cognitive Level:

Memory or Fundamental Knowledge	
Comprehensive or Analysis	X

10 CFR Part 55 Content:

55.41	
55.43	X

Comments:

Tech UYU suff

QUESTION #106

The following plant conditions exist:

- The plant is in mode 5.
- A danger tagout has been authorized to be hanged on a service air line.
- That portion of the air line is currently pressurized.
- The individual hanging the tags calls the control room and informs you that one of the valves that he was going to use for 2 valve isolation was open.
- This valve was expected to be shut according to the normal system configuration.
- The tagging of that system has been stopped.

Which of the following describes the correct course of action to be taken?

A. The worker should have repositioned the valve as it was expected to be in the tagout. No permission from the control room was necessary.

B. Any licensed, or previously licensed, SRO with knowledge of plant status and who is Level II tagging qualified can approve the repositioning of the valve and continuation of tagout.

C. The worker must obtain permission from the work control supervisor to reposition valve and continue with tagout.

D. The worker must obtain permission from the US to reposition the valve and continue with the tagout.

ANSWER: C

EXPLANATION:
C - correct - per MA 4.2 General tagging requirements, if a valve is found out of it's expected position, tagging shall stop and instructions from the tagging supervisor shall be obtained.

A - incorrect - must stop TO and get permission from tagging supervisor
B - incorrect - must be tagging supervisor, which requires work control supervisor qualification.
D - incorrect

TECHNICAL REFERENCE(S): Maintenance manual section 4.2 requirements and definitions (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1505I17RO OPMM LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3

Group #	____	____
K/A #	2.2.13	
Importance Rating	3.6	3.8

K/A Topic Description: Equipment Control / knowledge of tagging and clearing procedures.

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

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

10 CFR Part 55 Content: 55.41 ____
55.43 X

Comments:

VRW sat.

QUESTION #107

The following plant conditions exist:

- A large break LOCA is in progress
- The crew is performing actions of FR-C.1, "Response to Inadequate Core Cooling"
- All RCPs have been stopped.
- Both trains of RVLIS Full Range are reading 40% and increasing.

What is the significance of this RVLIS Full Range reading?

A. The core is completely uncovered. Immediate action must be taken to depressurize all intact S/Gs and inject accumulators.

B. One foot of the core is covered, resulting in greatly increased probability of core damage.

C. Approximately 3.5 feet of the core is uncovered, Safety Injection has been successful in restoring core cooling.

D. This RVLIS reading indicates 3.5 feet of the core is covered, The increasing trend indicates that Safety Injection has been successful in restoring RCS inventory.

ANSWER: D

EXPLANATION:

D - correct - RVLIS full range 40% corresponds to a water level of 3.5 feet above the bottom of active fuel in the core. The rising trend indicates that SI is successful in restoring inventory.

A, B, C - incorrect

TECHNICAL REFERENCE(S): Westinghouse ERGs pg FR-C.1-14, FR-C.1 step 6
(Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1206I10RO FR-C.1 LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	W/E06EK1.2	
Importance Rating	3.5	4.1

K/A Topic Description: Degraded Core Cooling / knowledge of the operational implications of the following concepts as they apply to the degraded core cooling: normal, abnormal, and emergency operating procedures associated with degraded core cooling.

Question Source: Bank # Seabrook bank # 20747
Modified Bank # _____ (Note changes or attached parent)
New ___

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

10 CFR Part 55 Content: 55.41 _____
55.43 X

Comments:

QUESTION #108

The following plant conditions exist:

- A reactor startup is in progress.
- Reactor power is at 4%.
- The Source Range NI, N-31, fails low.
- The Intermediate Range NI, N-36, fails low.

SR deenergized @ 1×10^{-10} amps.

SR not req'd above P-6 (2 #4)

What are the required actions?

A Table 3.3-1 action statement 3 only.

B Table 3.3-1 action statement 4 only.

C Table 3.3-1 action statements 3 and 4.

D Table 3.3-1 action statements 3 and 4. LCO 3.0.3.

ANSWER: ~~C~~ A

EXPLANATION:
C - correct - a SR and IR detector is required by TS at this power level. TS requires SR to be restored prior to any positive reactivity insertion and IR to be restored prior to increasing power above 10%.

A - incorrect - action for IR detector only.
B - incorrect - action for SR detector only.
D - incorrect - LCO 3.0.3 not necessary.

TECHNICAL REFERENCE(S): TS 3/4.3.1 Table 3.3-1 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: TS 3/4.0 Applicability & TS 3/4.3.1 Reactor Trip System Instrumentation

Learning Objective: L1165I01RO S/U Instrumentation Failures LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	2	2
K/A #	033 2.2.1	
Importance Rating	3.7	3.6

K/A Topic Description: Loss of Intermediate Range NI/ ability to perform pre-startup procedures for the facility, including operating those controls associated with plant equipment that could affect reactivity.

Question Source: Bank # _____

Modified Bank # _____ (Note changes or attached parent)
New __X__

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

10 CFR Part 55 Content: 55.41 _____
55.43 __X__

Comments:

HV sat

QUESTION #109

The following plant conditions exist:

- The crew is responding to a LOCA in the Primary Auxiliary Building.
- The crew is performing steps in ECA-1.2, "LOCA Outside Containment"
- The crew is unable to isolate the break.

Which procedure will the crew transition to?

A. ES-1.2, "Post LOCA Cooldown and Depressurization".

B. ES-1.3, "Transfer to Cold Leg Recirculation".

C. ECA-1.1, "Loss of Emergency Cooling Recirculation".

D. E-1, "Loss of Reactor or Secondary Coolant"

ANSWER: C

EXPLANATION:
C - correct - ECA-1.2 step 5 directs user to go to ECA-1.1 if leak cannot be isolated.
A - incorrect - no direction to go to this procedure.
B - cannot go to this procedure.
D - incorrect - ECA-1.2 step 5 directs user to go to E-1 if leak is isolated.

TECHNICAL REFERENCE(S): ECA-1.2 step 5 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1209I05RO ECA-1.2 LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	2	2
K/A #	W/E11EA2.1	
Importance Rating	3.8	3.8

K/A Topic Description: Loss of Emergency Coolant Recirculation / ability to operate and/or monitor the following as they apply to the Loss of Emergency Coolant recirculation: facility conditions and selection of appropriate procedures during abnormal and emergency operations.

Question Source:
Bank # Seabrook Bank #23047
Modified Bank # _____ (Note changes or attached parent)
New ____

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

10 CFR Part 55 Content:	55.41	____
	55.43	X

Comments:

QUESTION #110

The following plant conditions exist:

- The plant is mode 6.
- Core offload is currently underway.
- The protected train is A. All equipment needed for a proper protected train alignment is available.
- DC bus 11B is deenergized for maintenance.
- DC bus 11D deenergizes due to equipment failure.

Regarding Technical Specifications,
What action must occur due to the deenergized bus?

A. Immediately suspend core alterations.

B. Troubleshoot DC bus 11D to determine the cause of failure.

C. Reenergize DC bus 11B or 11D within 1 hour, or suspend core alterations.

D. Verify two offsite power supplies within 1 hour, or supend core alterations.

ANSWER: B

EXPLANATION:
B - correct - bus 11B and 11D are train 'B' busses. Tech specs require two DC busses one one train to be OPERABLE. Bus 11A and 11C are still available. No tech spec actions are required for the loss of bus or the subsequent inability to start B diesel or ECCS.

A - incorrect - action required for not having two busses in both trains.
C,D - incorrect .

TECHNICAL REFERENCE(S): TS 3.8.3.2, TS 3.8.1.2, TS 3.5.3.2 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1189I11RO Loss of vital 125VDC LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	2	2
K/A #	058AK1.01	
Importance Rating	2.8	3.1

K/A Topic Description: Loss of DC Power/ knowledge of the operational implications of the following concepts as they apply to the Loss of DC Power: battery charger equipment and instrumentation.

Question Source: Bank # Seabrook bank #25127
Modified Bank # _____ (Note changes or attached parent)
New ____

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

10 CFR Part 55 Content: 55.41 _____
55.43 X

Comments:

QUESTION #111

V+V sat.

The following plant conditions exist:

- The reactor is at 100%.
- Instrument air pressure is decreasing.
- ~~The INST AIR PRESSURE LOW annunciator has just actuated.~~
- Service air pressure is lowering.
- Air operated PCCW valves have shut. closed.

What are the required actions per ON1242.01, "Loss of Instrument Air"?

A. Close ~~Shut~~ service air isolation valves, SA-V92 and SA-V93. If PCCW containment isolation valves cannot be opened within 10 minutes, trip reactor and go to E-0.

B. close ~~Shut~~ service air isolation valves, SA-V92 and SA-V93. If PCCW containment isolation valves cannot be opened within 15 minutes, trip reactor and go to E-0.

C. Regardless of service air pressure, hold open service air isolation valves, SA-V92 and SA-V93, to try open PCCW valves. If PCCW containment isolation valves cannot be opened within 10 minutes, trip reactor and go to E-0.

D. Regardless of service air pressure, hold open service air isolation valves, SA-V92 and SA-V93, to try open PCCW valves. If PCCW containment isolation valves cannot be opened within 15 minutes, trip reactor and go to E-0.

ANSWER: A

EXPLANATION:
A - correct - ON1242.01 requires service air isolation valves to be shut if service air is decreasing OR less than 90 psig. If PCCW cannot be restored to RCPs within 10 minutes, trip the reactor and go to E-0.

B - incorrect - 15 minutes is incorrect
C - incorrect - SW isolation valves should be shut.
D - incorrect - SW isolation valves should be shut and 15 minutes is incorrect.

TECHNICAL REFERENCE(S): ON1242.01 steps 3 and OAS (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1192I04RO, L1192I03RO Loss of Inst Air LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1

Group #	3	2
K/A #	065AA1.02	
Importance Rating	2.6	2.8

K/A Topic Description: Loss of Instrument Air/ ability to operate and/or monitor the following as they apply to the Loss of Instrument Air: components served by instrument air to minimize drain on system

Question Source: Bank # Seabrook Bank #11791
Modified Bank # _____ (Note changes or attached parent)
New ____

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

10 CFR Part 55 Content: 55.41 ____
55.43 X

Comments:

QUESTION #112

The following plant conditions exist:

Title case

- The reactor is at 100%.
- R-6505, condenser air evacuator discharge, is alarming at the alarm setpoint.

Which of the following describes the significance of the alarm status above?

A. The indications on R-6505 is used to determine reactor trip and SI initiation criteria.

B. The level on R-6505 provides for an approximate value for RCS primary-to-secondary leak rate.

C. The rate of increase of levels on R-6505 provides the threshold for tripping the reactor and initiating SI.

D. The indications on R-6505 are used to determine which secondary systems need to be isolated.

ANSWER: B

EXPLANATION:
B - correct - value of R-6505 is used in attachment B to calculate RCS leakage

A - incorrect - PZR level is used to determine trip criteria.
C - incorrect - PZR level is used to determine trip criteria.
D - incorrect

TECHNICAL REFERENCE(S): OS1227.02 caution statements and step, 7c (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1190I02RO, L1190I03RO, L1190I04RO S/G Tube Leak LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	2	2
K/A #	037 2.4.20	
Importance Rating	3.3	4.0

K/A Topic Description: S/G Tube Leak / knowledge of operational implications of EOP warnings, cautions, and notes.

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attached parent)
New __X__

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

10 CFR Part 55 Content: 55.41 __X__
55.43 _____

Comments: not meant to be SRO level question.

QUESTION #113

The following plant conditions exist:

- Reactor Power is at 70% power and increasing slowly.
- PZR Pressure is slowly increasing.
- PZR Level is slowly increasing.
- RCS Tavg is increasing.
- Containment parameters are normal.

not a direct entry condition.

Which procedure should be entered?

A. OS1235.04, "S/G Feed Flow - Steam Flow or Steam Pressure Instrument Failure".

B. OS1210.04, "Continuous Control Rod Withdrawal".

C. E-0, "Reactor Trip or Safety Injection", then E-2, "Faulted Steam Generator"

D. OS1231.03, "Turbine Runback/Setback"

ANSWER: B

EXPLANATION:
B - correct - control rod withdrawal will cause power increase and associated temperature increase and coolant expansion.
A - incorrect - (feed reg valve fail open) excessive feed transient will cause primary temps to decrease, and primary coolant to contract.
C - incorrect - (steam leak/rupture) primary will cool down and contract.
D - incorrect - (runback or setback) power will not increase during runback.

TECHNICAL REFERENCE(S): TAA LPs 1404 and 1405 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: LP1404I06RO normal transient LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	2	1
K/A #	001AK2.08	
Importance Rating	3.1	3.0

K/A Topic Description: Continuous Rod Withdrawal/ knowledge of the interrelations between the continuous rod withdrawal and the following: individual rod display lights and indications.

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attached parent)

New X

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

10 CFR Part 55 Content: 55.41 ____
55.43 X

Comments:

Talk about this one.

QUESTION #114

The following plant conditions exist:

- There has been a loss of offsite power (LOOP).
- The reactor is tripped.
- EDGs 'A' and 'B' are running and supplying power to E5 & E6.
- Service Water Pumps P-41A, P-41B, P-41C and P-41D are running. < why are both pumps running
- Service water discharge pressure is normal on both trains.
- Flow to the PCCW Hx had to be throttled down to maintain proper outlet temperatures.
- Diesel generator water jacket (DGWJ) 'A' flow indicator, FI-6181, reads 400 gpm.
- Diesel generator water jacket (DGWJ) 'B' flow indicator, FI-6191, reads 900 gpm.
- Throttle valves to the 'A' and 'B' DGWJs are fully open.
- The crew is in E-0, "Reactor Trip or Safety Injection".

SW-V16 and SW-V18

Which of the following actions are required?

A. Both EDGs must remain running. Continue with E-0.

B. Both EDGs must be shutdown. Transition to ECA-0.0, "Loss of All AC Power".

C. EDG 'A' must be shutdown. Continue with E-0.

D. EDG 'A' must be unloaded but left running. Continue with E-0.

ANSWER: C

EXPLANATION:
C - correct - the minimum flow required by OS1216.01, "Degraded Ultimate Heat Sink", for EDGs is 900 gpm for SW pumps running. The premise of the question has both SW pumps running and DGWJ throttle valves fully open showing that flow cannot be increased to EDGs. SW pump discharge pressure is normal implying that SW pumps are operating normally. The PCCW Hx is being overcooled due to both SW pumps running thus flow had to be throttled down.

A - incorrect - 'A' EDG must be shutdown.
B - incorrect - 'B' EDG meets minimum requirements and can be left running.
D - incorrect - 'A' EDG must be shutdown.

TECHNICAL REFERENCE(S): OS1216.01 step 8 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1193I01RO Degraded Ultimate Heat Sink LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	062AA2.05	
Importance Rating	2.4	2.5

K/A Topic Description: Loss of Nuclear Service Water/ ability to determine and interpret the following as they apply to the loss of nuclear service water: normal values for SWS header flow rate and the flow rates to the components cooled by the SWS.

Question Source:

Bank #		
Modified Bank #		(Note changes or attached parent)
New	X	

Question Cognitive Level:

Memory or Fundamental Knowledge	
Comprehensive or Analysis	X

10 CFR Part 55 Content:

55.41	
55.43	X

Comments:

OK

QUESTION #115

The following conditions exist:

- There is a core off-load in progress.
- The fuel handlers were moving irradiated fuel to a location in the spent fuel pool.
- You are notified that the spent fuel bundle was accidentally dropped in the spent fuel pool.
- The bundle fell into the correct location.
- R-6518, Spent Fuel Pool High Range radiation monitor reads xx mR/hr. ← may be since trend.

What actions, if any, are required?

A. No action is required.

B. Enter procedure OS1215.06, "Fuel Handling Accident". Instruct the bridge to verify proper location in fuel pool and instruct HP to measure radiation levels above pool. Inform reactor engineering.

C. Enter procedure OS1215.06, "Fuel Handling Accident". Evacuate nonessential personnel from the fuel storage building and verify ventilation lineup is in fuel handling mode.

D. Enter procedure OS1252.03, "Area High Radiation". Notify SM, HP and Chemistry. Confer with HP about evacuating personnel from fuel storage building.

ANSWER: C

EXPLANATION:
C - correct - notification of fuel handling accident is entry condition to OS1215.06. This procedure directs the actions in answer 'C'

A - incorrect
B - incorrect - no verification of location step.
D - incorrect - no radiation high rad levels have been determined yet.

TECHNICAL REFERENCE(S): OS1215.06 steps 1,2 and entry conditions (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1192I04RO, L1192I05RO Fuel Handling Accident LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	3	2
K/A #	034A2.01	

Importance Rating 3.6 4.4

K/A Topic Description: Fuel Handling Equipment System (FHES)/ ability to predict the impacts of the following malfunctions/operations on the FHS and based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: dropped fuel element.

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

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

10 CFR Part 55 Content: 55.41 ____
55.43 X

Comments:

Tech VRV Sat

QUESTION #116

The following plant conditions exist:

- A ~~reactor startup~~ power increase is in progress.
- The reactor is at 48%.
- Containment temperature is 128F.
- Containment pressure is 16.0 psia.

What action(s), if any, are required and why?

A. Take action to reduce containment temperature. Temperature is outside the band used in the overall safety analysis for a steam line break accident.

B. Take action to reduce containment temperature. Temperature is outside the band used in the overall safety analysis for a large break LOCA accident.

C. Restore the internal pressure to within limits within 1 hour, or be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Pressure is kept in the allowable band to prevent exceeding the containment design pressure during LOCA conditions.

D. Restore the internal pressure to within limits within 1 hour, or be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Pressure is kept in the allowable band to prevent exceeding the containment design pressure during a steam line break accident.

ANSWER: A

EXPLANATION:
A - correct - TS 3/4.6.1.5 limits containment air temperature to 120F because the safety analysis for the steam line break accident has bounded initial conditions on temperature.

B - incorrect - not for LOCA analysis
C - incorrect - pressure is below the TS limit of 16.2 psia.
D - incorrect - pressure is below the TS limit of 16.2 psia and basis is LOCA not SLB.

TECHNICAL REFERENCE(S): TS 3/4.6.1.5 LCO and bases, TS 3/4.6.1.4 LCO and bases (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L8038I05aRO, L8038I05cSRO CHV LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	3	2

K/A #	103A1.01	
Importance Rating	3.7	4.1

K/A Topic Description: Containment System/ ability to predict and/or monitor changes in parameters associated with operating the containment system controls including: containment pressure, temperature, and humidity.

Question Source:

Bank #	____	
Modified Bank #	____	(Note changes or attached parent)
New	X	

Question Cognitive Level:

Memory or Fundamental Knowledge	____
Comprehensive or Analysis	X

10 CFR Part 55 Content:

55.41	____
55.43	X

Comments:

QUESTION #117

UV set.

The following plant conditions exist:

- Mode 5 with a plant cool down is in progress.
- RCS temperature is 180F and decreasing slowly.
- 'A' train RHR is in service.
- 'B' DIESEL NOT AVAILABLE LIGHT (UL20) is energized.

The following events occur:

- A loss of offsite power.
- The 'A' train Emergency Power Sequencer "SEQUENCER ACTIVATED" light energizes.
- The 'A' EDG starts.
- The 'A' train Emergency Power Sequencer "SEQUENCER STEP 0" light does NOT energize.

Which procedure is required to be entered?

A. ECA 0.0, "Loss of All AC Power".

B. OS1247.01, "Loss of a Vital Instrument Panel".

C. OS1246.02, "Loss of a Vital Unit Substation or MCC".

D. OS1246.01, "Loss of Offsite Power- Plant Shutdown".

ANSWER: D

EXPLANATION:
the sequencer step 0 light is an indicator that satisfactory bus voltage is restored to bus E5.
D - correct - entry requirements for OS1246.01 are satisfied.
A - incorrect - ECA-0.0 modes of applicability is 1,2,3,4.
B - OS1247.01 is written for at power conditions.
C - OS1246.02 applicable in modes 1,2,3.

TECHNICAL REFERENCE(S): EDE detailed system text, table 4.3, ECA-0.0, OS1247.01, OS1246.02, OS1246.01 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1192I09RO Loss of Offsite Power LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3
Group #		
K/A #	2.4.11	
Importance Rating	3.4	3.6

K/A Topic Description: Emergency Procedures/Plan/ knowledge of abnormal condition procedures.

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attached parent)
New __X__

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

10 CFR Part 55 Content: 55.41 _____
55.43 __X__

Comments:

Upset.

QUESTION #118

The following plant conditions exist:

- The crew is responding to a LOCA in accordance with E-1, "Loss of Reactor or Secondary Coolant".
- A RED path occurs on the Heat Sink Critical Safety Function Status Tree.
- The crew transitions to FR-H.1, "Response to Loss of Secondary Heat Sink".
- Total available EFW flow is 350 gpm.
- RCS pressure is 470 psig and STABLE.
- Containment pressure is 17 psig and INCREASING.
- SG 'A', 'B', 'C' and 'D' pressures are all 950 psig and STABLE.
- SG 'A', 'B', 'C' and 'D' wide range levels are 59% and DECREASING.

Which of the following actions are required?

A. Transition back to E-1, "Loss of Reactor or Secondary Coolant".

B. Immediately TRIP all RCPs.

C. Immediately perform FR-H.1, "Response to Loss of Secondary Heat Sink", steps 10 – 14, to initiate feed and bleed.

D. Attempt to establish EFW flow to at least ONE steam generator.

ANSWER: A

EXPLANATION:
A - correct - RCS pressure is less than the pressure of any non-faulted S/G. This means that the S/Gs cannot be used as a heat sink - FR-H.1 directs the user to the procedure and step in effect.

B - incorrect - step 4 has user stop all RCPs - user never gets to step 4.
C - incorrect - this is action for SG levels less than 26% (50%).
D - incorrect - step 3 has user establish EFW to at least one S/G - user never gets to step 3.

TECHNICAL REFERENCE(S): FR-H.1 OAS, steps 1,3,4 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1211I03RO (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	2	2
K/A #	W/E05EA1.2	
Importance Rating	3.7	4.0

K/A Topic Description: Loss of Secondary Heat Sink/Operating behavior characteristics of the facility.

Question Source:

Bank #	Seabrook Bank 22599
Modified Bank #	_____ (Note changes or attached parent)
New	____

Question Cognitive Level:

Memory or Fundamental Knowledge	____
Comprehensive or Analysis	X

10 CFR Part 55 Content:

55.41	____
55.43	X

Comments:

QUESTION #119

The following plant conditions exist:

- The reactor is at 100%.
- Auto start of the standby mechanical vacuum pump.
- Main generator electrical output is decreasing.
- High turbine exhaust hood temperature.

Which of the following procedures should be entered?

A. OS1234.02 Condenser Tube or Tube Sheet Leak.

B. ON1231.01 Turbine Generator High Vibration.

C. ON1233.01 Loss of Condenser Vacuum.

D. OS1231.03 Turbine Runback/Setback.

ANSWER: C

EXPLANATION:
C - correct - entry conditions for ON1233.01 are met.

TECHNICAL REFERENCE(S): OS1233.01 entry conditions (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1188I05RO Loss of vacuum LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	051AA2.02	
Importance Rating	2.4	2.7

K/A Topic Description: Loss of Condenser Vacuum / ability to determine and interpret the following as they apply to the Loss of Condenser Vacuum: cause for low vacuum condition.

Question Source: Bank # Seabrook Bank #
Modified Bank # _____ (Note changes or attached parent)
New _____

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

10 CFR Part 55 Content: 55.41 ____
55.43 X

Comments:

Double jeopardy
FR-H.1

QUESTION #120

Title case

The following plant conditions exist:

- A reactor trip with SI has occurred.
- The crew transitioned from E-0, "REACTOR TRIP OR SAFETY INJECTION", TO FR-H.1, "LOSS OF SECONDARY HEAT SINK", based on valid red path condition on the heat sink CSF.
- RCS pressure is 700 psig and slowly decreasing.
- All S/G pressures were approximately 950 psig and stable.

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

A. 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. Transition to E-1, "Loss of Reactor or Secondary Coolant".

B. 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.

C. Heat transfer in the RCS during this casualty is such that the S/Gs are currently not functioning as a heat sink. Remain in FR-H.1 to restore S/G levels to normal band.

D. 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.

ANSWER: A

EXPLANATION:
A - correct - S/Gs are now a heat source–heat is being transferred from S/G to RCS - FR-H.1 step 1 kicks user back to procedure and step in effect..
B,C,D - incorrect

TECHNICAL REFERENCE(S): FR-H.1 step 1 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1211I03RO FR-H.1 LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	2	2
K/A #	009EK2.03	
Importance Rating	3.0	3.3

K/A Topic Description: Loss of Secondary Heat Sink/Operating behavior characteristics of the facility.

Question Source: Bank # ____
Modified Bank # Seabrook Bank #22674 (Note changes or attached parent)
New ____

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

10 CFR Part 55 Content: 55.41 ____
55.43 X

Comments:

QUESTION #121

The following plant conditions exist:

- A PORV and it's associated block valve are stuck open.
- The reactor is tripped and SI initiated.
- RCS pressure is 1500 psig and lowering.
- PZR level indicates 100% with a rising trend.
- The crew has just transitioned to E-1, "Loss of Reactor or Secondary Coolant".
- RO The ~~STA~~ recommends that one charging pump be secured to prevent the RCS from going solid and losing pressure control.

What action(s) should be taken and why?

not previously valid

A. Transition to ES-1.1, "SI Termination". Reset SI, secure 1 CCP, then transition to ES-1.2, "Post LOCA Cooldown and Depressurization" to prevent losing pressure control by going solid.

B. Reset SI, secure 1 CCP to prevent going solid and damaging RCS pressure boundary. Transition to ES-1.2, "Post LOCA Cooldown and Depressurization".

C. Do not secure CCP. Transition to ES-1.2, "Post LOCA Cooldown and Depressurization". PZR level instrumentation is inaccurate due to vapor space accident.

D. Do not secure CCP. Transition to ES-1.2, "Post LOCA Cooldown and Depressurization". PZR level and pressure instrumentation is inaccurate due to vapor space accident.

ANSWER: C

EXPLANATION:
C - correct - vapor space accidents render the PZR level instruments inaccurate; RCS inventory should not be assessed using the PZR level instruments. E-1 directs user to ES-1.2. CCPs are not directed to be secured.
A - incorrect - does not meet transition criteria to ES-1.1 due to PZR pressure decrease.
B - incorrect - does not meet criteria to secure CCP; brittle fracture is not a concern at these temperatures in the primary; still above RTT.
D - incorrect - pressure instrumentation is not affected by vapor space accidents

TECHNICAL REFERENCE(S): L1413 LOCA TAA LP (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1413I07RO LOCA TAA LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	2	2

K/A #	008AK3.03	
Importance Rating	4.1	4.6

K/A Topic Description: PZR vapor space accident / knowledge for the reasons for the following responses : actions contained in EOP for PZR vapor space accident/LOCA.

Question Source:

Bank #	____	
Modified Bank #	____	(Note changes or attached parent)
New	X	

Question Cognitive Level:

Memory or Fundamental Knowledge	____
Comprehensive or Analysis	X

10 CFR Part 55 Content:

55.41	____
55.43	X

Comments:

QUESTION #122

The following plant conditions exist: Title case

- The crew is at step 14, "verify reactor subcritical", in FR-S.1, "Response to Nuclear Power Generation / ATWS".
- All control rods remain withdrawn.
- The ROs cannot establish emergency boration.
- Power range channels are fluctuating between 10-15%.
- Tave is 600F and slowly decreasing.
- All S/G NR levels are 10% and stable.
- Total EFW flow is throttled to 400 gpm.

Allow RCS to HLN?

What actions are required?

A. Transition to any other FRPs that need to be addressed that do not cool down RCS, then return to FR-S.1.

B. Return to E-0. Maximize steam flow and feed flow to maintain S/G level and pressure in acceptable band and cooldown RCS.

C. Remain in FR-S.1. Maximize feed flow to cool down RCS until boration is restored.

D. Transition to core cooling and heat sink FRPs to maximize cooldown of RCS. Return to FR-S.1 if boration capability is restored.

ANSWER: A

EXPLANATION:
A - correct - step 14 directs user to address other FRPs that do not cause cooldown then return to step 4. At this point, the goal is to heat up the plant to insert negative reactivity.

B,C,D - incorrect - want to minimize or halt cooldown

TECHNICAL REFERENCE(S): FR-S.1 step 14 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1200I02RO, L1200I03RO FR-S LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	2	1
K/A #	029EA2.01	
Importance Rating	4.4	4.7

K/A Topic Description: ATWS/ability to determine or interpret the following as they apply to ATWS: reactor nuclear instrumentation

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attached parent)
New __X__

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

10 CFR Part 55 Content: 55.41 _____
55.43 __X__

Comments:

procedure limit
< 30°F ΔT

QUESTION #123

The following plant conditions exist:

- The plant is in mode 4.
- RHR train 'A' is aligned for cooldown.
- ~~RHR train 'B' is tagged out.~~ RHR 'B' is in ECCS stby.
- RCP 'A' and 'C' are running.
- RCPs 'B' and 'D' are secured and danger tagged.
- RCS cold leg temperatures are 300F in each loop.
- RCP 'C' trips.
- NSO A ~~NLO~~ calls to the control room to tell you he accidentaly opened RCP 'C' breaker.
- There are no indications that RCP 'C" tripped on fault.
- Steam generator 'C' water temperature is 343F.

The SM wants the 'C' RCP started immediately.

Can the 'C' RCP be started, why or why not?

A. The RCP can be started. The temperature difference is verified within limits to prevent an uncontrolled reactivity addition to the primary from a cold slug of water in the coolant loop.

B. The RCP can be started. The temperature difference is verified within limits to prevent overpressure transients caused by energy addition to the primary system from the secondary system.

C. The RCP cannot be started. The temperature difference is outside of limits to prevent an uncontrolled reactivity addition to the primary from a cold slug of water in the coolant loop.

D. The RCP cannot be started. The temperature difference is outside of limits to prevent overpressure transients caused by energy addition to the primary system from the secondary system.

ANSWER: B

EXPLANATION:
B - correct - if delta T (TS/G-Tcold < 50F), the RCP can be started. Basis is to prevent overpressure condition from energy addition to primary from secondary.

A - incorrect - basis is incorrect.
C - incorrect - RCP can be started and basis incorrect.
D - incorrect - RCP can be started.

TECHNICAL REFERENCE(S): TS 3/4.4.1.3 & bases (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L8021I13RO RCS LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	003K1.10	
Importance Rating	3.0	3.2

K/A Topic Description: RCPs / knowledge of the cause-effect relationship between the RCPS and the RCS

Question Source:

Bank #		
Modified Bank #		(Note changes or attached parent)
New	X	

Question Cognitive Level:

Memory or Fundamental Knowledge	
Comprehensive or Analysis	X

10 CFR Part 55 Content:

55.41	
55.43	X

Comments:

QUESTION #124

The following plant conditions exist:

- The reactor is at 100%.
- 'A' RHR pump is tagged out to realign the shaft coupling and is inoperable. Estimated time to return to service is 10 hours.
- Surveillance 4.8.1.1.2 is being performed on 'B' EDG.
- The BOP accidentally shuts the 'B' EDG output breaker when the synchroscope indicates 180 degrees out of phase.
- The 'B' EDG output breaker opens.
- The 'B' EDG output breaker is severely damaged.
- Bus E6 is deenergized.
- Bus E6 is energized from offsite power seconds later.

why not just say 'B' EDG fault.

Which of the following actions are necessary ?

A. Restore RHR train 'A' to OPERABLE status within 2 hours be in at least HOT STANDBY within the next 6 hours.

B. Restore RHR train 'A' to OPERABLE status within 7 days or be in at least HOT STANDBY within the next six hours only.

C. Restore RHR train 'A' to OPERABLE status within 7 days or be in at least HOT STANDBY within the next six hours. Demonstrate the operability of remaining AC sources within 1 hour and of the remaining EDG within 24 hours only.

D. Actions of LCO 3.0.3.

ANSWER: A

EXPLANATION:
A - correct - with 'A' train of RHR inoperable, and 'B' EDG inoperable, and TS action statement 3/4.8.1.1.d.1 is not satisfied within 2 hours, be in HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours. RHR will not be returned for 10 hours so this applies.

B - incorrect - EDG is inoperable so other TS actions are required in addition to those stated in B.
C - incorrect - 3/4.8.1.1.d.1 needs to be addressed.
D - incorrect - specific LCO actions are directed in 3/4.8.1.1.d.

TECHNICAL REFERENCE(S): TS 3/4.5.2.a, 3/4.8.1.1.b, 3/4.8.1.1.d.1 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: TS 3/4.5 3/4.8

Learning Objective: L8020I24RO EDE LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	2	2
K/A #	062A2.15	
Importance Rating	2.8	3.2

K/A Topic Description: AC Electrical Distribution / consequence of paralleling out of phase / mismatch in voltage.

Question Source:

Bank #		
Modified Bank #		(Note changes or attached parent)
New	X	

Question Cognitive Level:

Memory or Fundamental Knowledge	
Comprehensive or Analysis	X

10 CFR Part 55 Content:

55.41	
55.43	X

Comments:

QUESTION #125

The following plant conditions exist:

- A reactor trip and safety injection has occurred. The following conditions are noted while processing through E-0, "Reactor Trip or Safety Injection".
- 'A' and 'B' S/G pressures are decreasing slowly with the EFW turbine in service.
- 'C' and 'D' S/G pressures are stable.
- There are no alarms on RDMS.
- Containment pressure is 0 psig.
- Subcooling is 80F.
- Pressurizer level is 30% and increasing.
- RCS pressure is in the normal operating band.
- EFW total flow is 550 gpm.
- S/G wide range levels are all 69%.

What procedural transition is called for, if any, under these conditons?

A. Stay in E-0 and commence monitoring of Critical Safety Functions.

B. Go to FR-H.1, "Response to Loss of Secondary Heat Sink."

C. Go to E-2, "Loss of Reactor or Secondary Coolant." "Faulted SG Isolation"

D. Go to ES-1.1, "SI Termination."

ANSWER: D

EXPLANATION:
D - correct - criteria for SI termination are met.
A - incorrect - kick out to ES-1.1 in step 4, evaluation of CSF is step 18.
B - incorrect - criteria for FR-H.1 is <500 gpm EFW and WR S/G levels below 65%.
C - incorrect - no signs of loss of coolant accident.

TECHNICAL REFERENCE(S): E-0 step 4, 18, FR-H CSF tree (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1202I14RO ES-1.1 LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	2	1
K/A #	W/E02EA1.1	
Importance Rating	4.0	3.9

K/A Topic Description: SI Termination/Ability to operate and/or monitor the following as they apply to the SI Termination: components and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features

Question Source: Bank # Seabrook Bank #22154
Modified Bank # _____ (Note changes or attached parent)
New ____

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

10 CFR Part 55 Content: 55.41 ____
55.43 X

Comments:

QUESTION # 126:

The following plant conditions exist:

- Power Range channel N44 was removed from service and its associated bistables tripped in accordance with abnormal OS1211.04, "Power Range NI Instrument Failure."
- Due to a seal problem, the crew has just performed a downpower to 47% and removed the "D" RCP from service.
- Power Range channel N41 begins to drift and is currently reading 52%.

Which of the following should be performed by the crew?

A. Declare power range channel N41 inoperable and within one hour make preparations to be in MODE 3 within the next 6 hours.

B. Continue with the power reduction and notify I&C to check power range channel N41.

C. Perform calorimetric calculation to correct N41 within 2 hours or be in HOT STANDBY within 6 hours.

D. Verify reactor trip and enter E-0, "Reactor Trip or Safety Injection."

ANSWER: D

EXPLANATION:

D - correct - 2 PRNIs are now above P-8, reactor should trip - verify reactor trip and go to E-0.
A, B, C - incorrect - reactor must be tripped.

TECHNICAL REFERENCE(S): OS1211.04, RPS detailed system text pg30, TS Table 3.3-1 (attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1182I09RO, L1182I10RO, L8056I21RO Loss of PRNI & RPS LPs (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	015A2.02	
Importance Rating	3.1	3.5

K/A Topic Description: NIS / ability to manually operate and/or monitor in the control room: trip bypasses.

Question Source: Bank # Seabrook Bank #22037
Modified Bank # _____ (Note changes or attached parent)

New ____

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

10 CFR Part 55 Content: 55.41 ____
55.43 X

Comments:

QUESTION # extra 1 :

The following plant conditions exist:

- Plant is at 100% power.
- Pressurizer pressure channel, PT-455, failed high three hours ago.
- The operating crew carried out the actions of OS1201.06, "PZR Pressure Instrument PT-455/458 Failure", and removed the channel from service. All associated bistables for PT-455 are tripped.
- Channel PT-457 is now the controlling channel.
- All systems have been returned to automatic control.

A loss of 120 VAC vital instrument panel PP-1C has just occurred.

Which of the following describes the impact on the plant of the loss of PP-1C?

A. The plant will remain at 100% power. PZR pressure control will be in manual and the automatic actuation of the PORVs has been lost. Plant must be shutdown per Tech Spec 3.0.3.

B. Safety injection will occur. Go to E-0, "Reactor Trip or Safety Injection".

C. The plant will remain at 100% power. The PORVs will open and must be manually closed. Plant must be shut down per Tech Spec 3.0.3.

D. The master pressure controller will cause the pressurizer control heaters to go to minimum output and close the spray valves. Take manual control of PZR heaters and spray to control RCS pressure.

ANSWER: B

EXPLANATION:
B - correct - with all bistables for 455 tripped, the loss of PP-1C will cause all of it's bistables to be in the tripped status resulting in a reactor trip and SI.
A,C - incorrect - plant trips
D - incorrect - heaters will energize

TECHNICAL REFERENCE(S): PPLC LP page 26-28 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L8027I14RO PPLC LP L1186I08RO Loss of 120VAC bus LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1

K/A #	057AA2.19	
Importance Rating	4.0	4.3

K/A Topic Description: Loss of Vital AC Elec Instr bus / ability to determine and interpret the following as it applies to Loss of vital AC: the plant automatic actions that will occur on the loss of a vital ac electrical instrument bus.

Question Source: Bank # Seabrook Bank# 20441
Modified Bank # _____ (Note changes or attached parent)
New ____

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

10 CFR Part 55 Content:
55.41 _____
55.43 X

Comments:

QUESTION # extra 2 :

The following plant conditions exist:

- The plant has sustained a Steam Generator tube rupture concurrent with a loss of off-site power.
- All safeguards systems functioned as designed.
- Actions of E-3, "Steam Generator Tube Rupture", have been performed. The crew is preparing to cool down and depressurize the RCS to MODE 5.

Which of the following cooldown methods is preferred?

A. ES-3.1, "Post SGTR Cooldown Using Backfill", because it minimizes radiological release.

B. ES-3.2, "Post SGTR Cooldown Using Blowdown", because it minimizes the spread of contamination to secondary plant components.

C. ES-3.3, "Post SGTR Cooldown Using Steam Dump", because it is the fastest method of cooldown.

D. ES-3.3, "Post SGTR cooldown using Steam Dump", because it conserves CST inventory.

ANSWER: A

EXPLANATION:
A - correct - because of loss of offsite power, blowdown and steam dump methods are unavailable. Backfill allows the S/Gs to blowdown into the RCS.

B - incorrect - blowdown electrical equipment not available during LOOP.
C, D - incorrect - condenser is not available

TECHNICAL REFERENCE(S): E-3 step 40, S/G BD detailed system text pg 57
(Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: L1205I14RO E-3 LP (As available)

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	2	2
K/A #	038EA2.08	
Importance Rating	3.8	4.4

K/A Topic Description: SGTR /ability to determine or interpret the following as they apply to SGTR: viable alternatives for placing the plant in a safe condition with the main condenser unavailable.

Question Source: Bank # Seabrook Bank 23194

Modified Bank # _____ (Note changes or attached parent)
New ____

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

10 CFR Part 55 Content: 55.41 _____
55.43 __X__

Comments: