1 **ID: 1146371** **Points: 1.00**

Unit 2 is at 100% power.

- The 2B CC pump is RUNNING
- The Unit 0 CC pump is mechanically and electrically aligned to Unit 2 and in STANDBY
- A LOSS of OFF-SITE POWER occurs due to a switchyard malfunction that affects BOTH units.
- One minute after the event the U-0 AND 2B CC pumps are RUNNING.

What is the power supply to the U-0 CC pump?
What is the position of the 2A CC pump control switch?

	Power Supply	2A CC Pump C/S position
A.	2A DG	after trip
B.	2A DG	pull-to-lock
C.	2B DG	after trip
D.	2B DG	pull-to-lock

Answer: B

Answer Explanation

A is incorrect: The control switch for the 2A CC pump must be in PTL for the U-0 CC pump to replace the 2A pump to automatically start on the safe shutdown sequencer.

B is CORRECT: CC provides cooling for the RCPs, so anything that affects the CC pumps will affect RCP cooling. Since the U-0 pump auto started on a loss of offsite power, it must have been aligned in place of the 2A CC pump aligned to bus 241 with the 2A CC pump C/S in the PTL position. The U-0 pump can be manually started on any bus to which it is aligned, but will only auto-start if the normal CC pump C/S is in PTL.

C is incorrect: The U-0 CC pump can be aligned to either bus 241 (2A DG) or 242 (2B DG); the candidate must analyze the plant response to determine it's aligned to 2A DG. The control switch for the 2A CC pump must be in PTL for the U-0 CC pump to replace the 2A pump and automatically start on the safe shutdown sequencer.

D is incorrect: The U-0 CC pump can be aligned to either bus 241 (2A DG) or 242 (2B DG); the candidate must analyze the plant response to determine it's aligned to 2A DG.

Question 1 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1146371
User-Defined ID:	1 2013 CERT EXAM Q1
Cross Reference Number:	S.CC1-05
Topic:	PS to CC pumps
RO Importance:	2.5
SRO Importance:	2.6
K/A:	003K2.02
Comments:	Source: Byron Exam Bank Cognitive Level: High Reference: BOP CC-10, Pages 13 and 14 K/A 003K2.02 Reactor Coolant Pump System (RCPS): Knowledge of bus power supplies to the following: CCW pumps Question meets K/A – This question is high cognitive level as it requires the examinee to know not only the power supplies to the CC pumps but also understand control switch positions and their functions. This questions meets the K/A because the examinee must know the component cooling water pump power supplies. CCW provides thermal barrier cooling for the RCPs.

2 **ID: 1243297** **Points: 1.00**

Unit 1 is at 50% power.

- 1A RCP tripped.

With NO operator action, what is the response of SG pressures in the OPERATING loops 2 minutes after the RCP tripped?

A. Higher due to lower RCS flow.

B. Lower due to higher steam flow.

C. Higher due to reactor trip.

D. No change due to constant steam demand.

Answer: C

Answer Explanation

A is incorrect: RCS flow does lower, but if plant didn't trip, there would be more steam flow from the unaffected loops, lowering steam pressure.

B is incorrect: Steam flow is lower because of the reactor trip-turbine trip. Steam dumps will maintain RCS temperature at no-load Tave until manually swapped to steam pressure mode.

C is CORRECT: The reactor will trip because the 2 loop trip is unblocked above P-7 (10% power) and single loop trip is unblocked above P-8 (30%) power. The steam dumps will open and maintain Tave at no-load Tref, which raises steam pressure.

D is incorrect: Steam demand has lowered because of the turbine trip from the reactor trip.

Question 2 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1243297
User-Defined ID:	2 BYLI-HT7-080
Cross Reference Number:	A.HT7-09-A
Topic:	Effects of RCP trip >P-8 at power
RO Importance:	3.9
SRO Importance:	4.2
K/A:	003K3.04
Comments:	Source: Modified from bank question 1144459 Cognitive Level: High Reference: BARs 1-11-C5, 1-BP-3.7, BCB-1 Fig 33 K/A 003K3.04 RCP system: Knowledge of the effect that a loss of malfunction of the RCPS will have on the following: RPS Question meets K/A – Examinee must know that single flow RCP trip will trip plant when above 30% (P-8) power, and deduce that the steam pressure will rise as a result.

3 **ID: 1243481** **Points: 1.00**

Unit 1 is at 98% power.

- Letdown Isolation Valve 1CV-459 OPEN and CLOSED lights are BOTH **NOT** Lit.
- 1PR06J, Gross Failed Fuel Monitor, indicates DARK BLUE on RMS Grid 1.

The operators must ____(1)____ charging flow to _____(2)_____.

	___(1)___	____(2)_____
A.	raise	raise cooling of letdown water prior to entering the letdown orifices.
B.	raise	prevent water hammer in the letdown line downstream of the letdown orifices.
C.	lower	limit the cooldown rate of the letdown heat exchanger.
D.	lower	prevent thermal shock of the charging line nozzle into the RCS.

Answer: D

Answer Explanation

A is incorrect: Examinee may think 1CV459 fails open, in which case raising charging flow would cool the increased letdown flow.

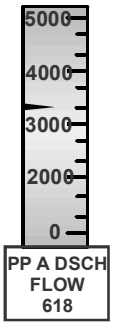
B is incorrect: Examinee may think 1CV459 fails open, which could result in water hammer in the letdown line.

C is incorrect: The letdown heat exchanger accepts the letdown water after the Regen HX. With letdown in service, changing the charging flow will affect the temperature of the water entering it because of the change of Regen HX outlet temperature. With LD isolated, the CC flow control valve will throttle to control CC cooling of the letdown HX, and changing charging flow will have no effect on this HX.

D is CORRECT: 1CV459 fails closed on a loss of control power (indicated by both position lights NOT LIT and loss of RMS monitor flow). With no letdown, the charging water is not preheated, so water at about 110°F would come in contact with the charging line penetration into the RCS.

Question 3 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1243481
User-Defined ID:	3 BYLC3CCV16A001
Cross Reference Number:	BY FM NO. 778 NRC BANK
Topic:	Control of CV cooldown
RO Importance:	3.7
SRO Importance:	4.2
K/A:	004K5.09
Comments:	Source: Byron Bank Cognitive Level: High Reference: BOP CV-9 Precautions K/A 004K5.09 Chemical and Volume Control: Knowledge of the operational implications of the following concepts as they apply to the CVCS: Thermal shock: high component stress due to rapid temperature change. Question meets K/A – The examinee must know the effects of a valve failure on the thermal stress put on a CVCS component - the charging line penetration. Additionally, the operator must know the actions to prevent rapid temperature change.

Unit 1 is in MODE 4, with 1A RH train in shutdown cooling operation.
1FI-618, RH Pump 1A Discharge Flow indicates as shown.



The current RCS cooldown rate is 90°F/hour.

To LOWER the RCS cooldown rate to 75°F/hour, the NSO will throttle _____(1)_____ direction.
1FI-618 indicated flowrate will STABILIZE at _____(2)_____ flowrate.

A. (1) 1RH-606, HX 1A FLOW CONT VLV in the CLOSED
(2) a LOWER

B. (1) 1RH-606, HX 1A FLOW CONT VLV in the CLOSED
(2) the SAME

C. (1) 1RH-618, HX 1A BYP FLOW CONT VLV in the OPEN
(2) a LOWER

D. (1) 1RH-618, HX 1A BYP FLOW CONT VLV in the OPEN
(2) the SAME

Answer: B

Answer Explanation

A is incorrect: 1RH-606 IS used to control RCS cooldown rate, but RH pump discharge flowrate is automatically controlled by the RH HX bypass valve, so total flowrate will not lower.

B is CORRECT: RCS cooldown rate is controlled with the HX flow control valve 1RH-606. Bypass valve 1RH-618 is kept in AUTO, and will maintain RH pump discharge flowrate of 3300 GPM.

C is incorrect: Opening 1RH-618 (in MANUAL) will raise bypass flow, so the cooldown rate will lower slightly. But when 1RH-618 is opened, total flowate will rise, because 1RH-606 is manually controlled.

D is incorrect: Opening 1RH-618 (in MANUAL) will raise bypass flow, so the cooldown rate will lower slightly. But when 1RH-618 is opened, total flowate will rise, because 1RH-606 is manually controlled.

Question 4 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1243579
User-Defined ID:	4 BYLI-RH1-101
Cross Reference Number:	
Topic:	RH 618 response
RO Importance:	3.4
SRO Importance:	3.1
K/A:	005A4.02
Comments:	Source: New Cognitive Level: High Reference: BOP RH-6 K/A 005A4.02 Residual Heat Removal System: Ability to manually operate and/or monitor in the control room: Heat exchanger bypass flow control Question meets K/A – Examinee must know that the RH HX bypass flow control valve will automatically maintain 3300 GPM when changes to RH HX flow are made. 1FI-618 indicates total flow (HX bypass flow plus HX flow), and the examinee must know that is the controlled parameter that operates the bypass flow control valve.

5 **ID: 1245159** **Points: 1.00**

Unit 1 is at 100% power.

- 1A CV pump is running.
- 1A CV pump bearing temperatures are in alarm and RISING.
- 1B SX pump discharge temperature is 74°F.
- 1B SX pump discharge pressure has LOWERED to 82 psig.
- ALL SX Tower fans are running in HIGH SPEED.
- SX basin level is currently 85% and STABLE.
- ALL SX Tower makeup paths are OPERATING.

Which of the following is the operator directed to perform to address this situation?

A. Align FP cooling to the 1A CV pump.

B. Isolate one train of RCFCs on each unit.

C. Start 1A SX pump and Shutdown 1B SX pump per BOP SX-9.

D. Verify all SX Tower riser valves are open.

Answer: A

Answer Explanation

A is CORRECT: This is the action of 1BOA Pri-7 for a loss of cooling to the CV pump when temperatures exceed the Table A limits, which are trended on PPC trends TR27.

B is incorrect: This is the action to take if SX must be crosstied between the units to a single SX pump.

C is incorrect: This would be the action for a problem with the SX pump itself. The problem is a leak in the SX system supplying the CV pump.

D is incorrect: Verifying risers open would be an action for containment spray actuation, but is not required in this situation, and will not rectify the problem.

Question 5 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1245159
User-Defined ID:	5 BYLC3DOA69D003
Cross Reference Number:	BY FM NO. 1432 NRC BANK
Topic:	1A CV supply from FP
RO Importance:	3.0
SRO Importance:	3.5
K/A:	006K6.05
Comments:	Source: Byron Exam Bank Cognitive Level: High Reference: 1BOA PRI-7, Attachment B, Aligning FP Cooling to CV Pump Oil Coolers K/A 006K6.05 Emergency Core Cooling System (ECCS) Knowledge of the effect of a loss or malfunction on the following will have on the ECCS: HPI/LPI cooling water. Question meets K/A - The examinee must know that SX cools the CV pumps (which supply high head injection), and that a loss of of cooling means that the back up supply (FP) must be locally aligned to the pumps. This can be answered without specific procedure knowledge, but by knowing the systems, and diagnosing the nature of the failure.

6 **ID: 1244450** **Points: 1.00**

Unit 1 is at 100% power.

- PRT temperature, level and pressure are unexpectedly RISING.

The crew should implement which one of the following procedures?

A. 1BOA Pri-1, Excessive Primary Plant Leakage

B. 1BOA RCP-1, RCP Seal Failure

C. BOP RY-3, Filling and Venting the Pressurizer Relief Tank

D. BOP RY-M1, Reactor Coolant Pressurizer System Valve Lineup

Answer: A

Answer Explanation

A is CORRECT: Rising PRT level, temperature and pressure are entry conditions for 1BOA Pri-1

B is incorrect: 1RCP seal leakoffs go to VCT, RCDT and CNMT sump. If seal leakoff did go to PRT, this would be an appropriate procedure.

C is incorrect: BOP RY-4 and BOP RY-6 for draining the PRT and temperature control of PRT are referenced in 1BOA Pri-1 in response to the given conditions. This choice is a similar sounding procedure, and could be considered that "venting" the PRT is the correct response.

D is incorrect: Checking the RY system valve lineup could be considered an appropriate response to the given conditions, but doesn't actually direct any actions.

Question 6 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1244450
User-Defined ID:	6 2016 NRC PRT2
Cross Reference Number:	
Topic:	BOA Pri-1 entry for PRT
RO Importance:	4.0
SRO Importance:	4.2
K/A:	007G2.4.11
Comments:	Source: New Cognitive Level: Low Reference: 1BOA PRI-1, page 1 K/A 007G2.4.11 Pressurizer relief/Quench Tank: Knowledge of abnormal condition procedures Question meets K/A – The examinee must know the entry conditions for 1BOA Pri-1 based on PRT conditions

7 **ID: 1244632** **Points: 1.00**

Unit 1 is at 100% power.

Which of the following actions, if any, must be taken if 1CC685, CC From RCPs Thermal Barrier Isolation Valve, spuriously CLOSES?

A. Immediately trip the reactor and then the RCPs.

B. Initiate a cooldown of the RCP Seals at less than 1°F per minute.

C. Initiate a unit shutdown and trip the affected RCPs within 8 hours.

D. RCP operation may continue provided radial bearing temperature limits are NOT exceeded.

Answer: D

Answer Explanation

A is incorrect: This is the action if all CC cooling is lost (to all RCP loads including oil coolers) per 1BOA Pri-6 attachment A; this is also the action in 1BOA RCP-2 if both seal injection AND CC to the RCP thermal barriers is lost.

B is incorrect: This is an action from 1BOA RCP-2, Attachment A, after the plant has been tripped and RCPs secured.

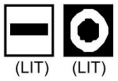
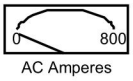
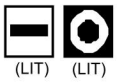
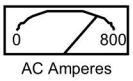
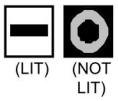
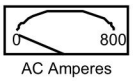
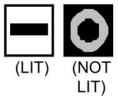
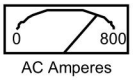
C is incorrect: This is an action from 1BOA RCP-1 for an RCP seal failure.

D is CORRECT: If component cooling is lost to the RCP thermal barrier, operation may continue based on temperatures. With seal injection in operation cool water will still be flowing past the seals and bearings. This is plausible because under other conditions, (ie, a loss of seal injection also), the Rx and RCPs are tripped regardless of bearing temperature.

Question 7 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1244632
User-Defined ID:	7 BYLC3DOA10E006
Cross Reference Number:	BY FM NO. 1208 NRC BANK
Topic:	Component cooling is lost to the RCP thermal barrier
RO Importance:	3.4
SRO Importance:	3.5
K/A:	008K3.01
Comments:	Source: Byron Exam Bank Cognitive Level: Memory Reference: BAR 1-7-A4, BAR _-7-E4, BOA RCP-2, 1BOA PRI-6, Component Cooling Malfunction. Step 4. K/A 008K3.01 Component Cooling Water System (CCWS): Knowledge of the effect that a loss or malfunction of the CCWS will have on the following: Loads cooled by CCWS. Question meets K/A – Examinee must know that a loss of CCWS to a particular load (RCP thermal barrier) will result in temperature rising, but that they may continue to operate as long as temperatures stay within limits, beecause seal injection will still provide cooling.

Unit 1 was at 100% power when the following event occurred with no operator actions.
- Pressurizer pressure ROSE to 2265 PSIG.
- Pressurizer pressure then LOWERED to the current pressure of 2225 PSIG.

What is the status of the Pressurizer Spray valves, and the Variable Pzr Heaters (Group C)?

	Spray Valves	Heaters
A.		
B.		
C.		
D.		

Answer: D

Answer Explanation

A is incorrect: Spray valves cycle closed from 2310 to 2260 PSIG decreasing, so they opened fully, but reclosed when pressure got below 2260 PSIG. Variable heaters ramp on when pressure gets below 2250 PSIG.

B is incorrect: Spray valves cycle closed from 2310 to 2260 PSIG decreasing, so they opened, but reclosed when pressure got below 2260 PSIG.

C is incorrect: Variable heaters ramp on from 2250 to 2220 PSIG lowering, so at 2225 PSIG, they have about 80% current.

D is CORRECT: Spray valves ramp open from 2260 to 2310 PSIG increasing, so when pressure lowered below 2260, they fully closed. Variable heaters ramp on from 2250 to 2220 PSIG lowering, so at 2225 PSIG, they have about 80% current.

Question 8 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1244638
User-Defined ID:	8 NRC 2016 010A2 001
Cross Reference Number:	
Topic:	Pressure control on downpower (picture)
RO Importance:	3.6
SRO Importance:	3.5
K/A:	010A3.02
Comments:	Source: Modified from question System ID #1144793 Cognitive Level: High Reference: Byron ILT System lesson plan I1-RY-XL-01, Chapter 14, Pressurizer, pages 8 & 10 K/A 010A3.02 Pressurizer Pressure Control System: Ability to monitor automatic operation of the Pzr PCS including: Pzr Pressure. Question meets K/A - Candidate must know how the Pressurizer Pressure Control System automatically operates during a normal power and pressure change, and must evaluate the situation and apply that knowledge to determine the status of the stated pressure control components.

9 **ID: 1244649** **Points: 1.00**

The field contacts monitored by RPS logic circuits are energized by ...

A. 120 VAC Instrument Bus power through the Input Bay.

B. 48 VDC Logic Cabinet power.

C. 24 VDC Process Instrument (7300 rack) power.

D. 15 VDC Logic Cabinet power.

Answer: A

Answer Explanation

A is CORRECT: Field contacts are powered from the 120 VAC instrument busses.

B is incorrect: Powers the master relay coils and other related loads; also receives power from 120 VAC instrument busses.

C is incorrect: Powers the process cards, and is also powered from the 120 VAC instrument busses.

D is incorrect: Powers logic cards and related loads; also powered by 120 VAC instrument busses.

Question 9 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1244649
User-Defined ID:	9 BYLI-RP1-033
Cross Reference Number:	S.RP1-03-B
Topic:	RPS field contact power supply
RO Importance:	3.3
SRO Importance:	3.7
K/A:	012K2.01
Comments:	Source: Byron Exam Bank Cognitive Level: Memory Reference: S60AR07.DOC, ILT SSPS system lesson plan, page 20 K/A 012K2.01 Reactor Protection System Knowledge of the bus power supplies to the following: RPS channels, components and interconnections Question meets K/A – Examinee must know the power supply to the RPS field contacts, a component in the RPS system.

10 **ID: 1244711** **Points: 1.00**

Unit 1 is at 100% power.
- Containment pressure transmitter 1PT934 is INOPERABLE.
- The appropriate action requirements of Tech Specs have been carried out.

Which of the following describes the MINIMUM necessary logic to actuate Containment Spray?

A. Only ONE of the OPERABLE containment pressure transmitters has to reach the HI-3 setpoint.

B. Only TWO of the OPERABLE containment pressure transmitters have to reach the HI-3 sepoint.

C. ALL THREE of the OPERABLE containment pressure transmitters have to reach the HI-3 setpoint.

D. Containment Spray can **NOT** occur unless 2 of 2 switches are actuated.

Answer: B

Answer Explanation

A is incorrect: If the inoperable channel could be tripped, and not bypassed, this would be true.

B is CORRECT: When channel becomes inop it is placed in "bypass". This does not trip the SSPS input because it's an "energize to actuate circuit", it merely removes it from the logic. Thus it requires 2 of the remaining 3 channels to reach Hi-3 to generate the CS/Phase B signal.

C is incorrect: There are 4 CNMT pressure channels, and the usual logic is that 1 less than the number of available channels (ie, 2 of 3) must be actuated to cause a system actuation. CS uses 2 of 4.

D is incorrect: CS will actuate manually, as this states, but manual is NOT the ONLY actuation available.

Question 10 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1244711
User-Defined ID:	10 BYLI-CS1-035
Cross Reference Number:	BY-SYS-QUEST #: SCS0027
Topic:	PT934 is INOPERABLE
RO Importance:	2.7
SRO Importance:	3.1
K/A:	013K6.01
Comments:	Source: Byron Exam Bank Cognitive Level: High Reference: ILT System LP ESFAS, page 26 K/A 013K6.01 Engineered Safety Features Actuation System: Knowledge of the effect of a loss or malfunction on the following will have on the ESFAS: Sensors and detectors Question meets K/A – The examinee must know the effect of the malfunction of a CNMT pressure detector on the ESF actuation of CS.

11 **ID: 1146312** **Points: 1.00**

Unit 1 was at 100% power when the following sequence of events occurred:

- A SPURIOUS Pressurizer Low Pressure SI signal occurred.
- The reactor tripped, however, Reactor Trip Breaker A did NOT open and CANNOT be opened locally.
- The SI signal is NO longer present.
- Both Train A and Train B SI Reset pushbuttons have been depressed.

The following indications are present on 1PM05J Bypass Permissive Panel:

- 1-BP-4.1, SI ACTUATED is NOT LIT.
- 1-BP-5.1, AUTO SI BLOCKED is FAST FLASHING.

- Normal Charging and Letdown have been restored.
- All ECCS equipment has been restored to its normal alignment.
- The Reactor Trip Breakers have NOT been manually cycled.

Then a 450 gpm SGTR occurs.

With NO further operator action, which of the following indicates the effect on the RCS over the next 30 minute time period?

A. Charging and letdown flow will maintain normal PZR level.

B. ECCS injection flow will result in a water-solid PZR with relief via the PZR PORVs.

C. RCS inventory will lower until SI accumulator injection occurs.

D. RCS pressure will lower until ECCS injection flow stabilizes it at a lower value.

Answer: D

Answer Explanation

A is incorrect: Break size prevents maintaining PZR level in normal charging alignment.

B is incorrect: Break size and single train ECCS flow will not fill and pressurize PZR to solid condition.

C is incorrect: Would be correct if both trains of ECCS were initially reset. A 450 gpm SGTR won't lower RCS pressure to the SI accumulator setpoint with a train of ECCS actuated.

D is CORRECT: When initial SI occurs, train A auto SI is not blocked during SI reset due to failure of RTA to open. (No P4 on train A). When SI reset pushbuttons are depressed, both trains of ESF reset (due to the signal no longer being present), but only train B SI auto block is enabled.
When subsequent SI occurs due to SGTR (low PZR press), train A SI automatically actuates and Train B is prevented from actuating.
Train A ECCS components will provide sufficient flow to stabilize PZR level when injection flow matched break flow.

Question 11 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1146312
User-Defined ID:	11 CERT 2010 RO 40
Cross Reference Number:	S.RP1-11
Topic:	Auto SI not blocked
RO Importance:	4.0
SRO Importance:	4.2
K/A:	013A1.01
Comments:	Source: Byron Exam Bank Cognitive Level: High Reference: BARs 1-BP-3.1, 4.1, & 5.1 K/A 013A1.01 Engineered Safety Features Actuation System: Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the ESFAS controls including: RCS pressure and temperature Question meets K/A – Candidate must evaluate the plant conditions to determine what effect the operation of ESF system has on RCS level and pressure.

12 **ID: 1244728** **Points: 1.00**

With an RCS LOCA in progress, the running 1A Cnmt Chilled Water (WO) Pump tripped.

The Cnmt WO Pump tripped as a result of the ...

A. SI signal bypassing SX around the containment chillers.

B. SI signal opening the RCFC SX inlet & outlet isolation valves.

C. Phase A signal closing the WO containment isolation valves.

D. Phase A signal isolating SX to the containment chillers.

Answer: C

Answer Explanation

A is incorrect: Bypassing SX around the chiller does not affect the WO pump.

B is incorrect: The change in the RCFC SX valves does not affect the WO pump.

C is CORRECT: On a LOCA, an SI will cause a Phase A to actuate which will cause the WO isolation valves to close (the SI signal does not directly cause the WO isolation valves to close). With these valves closed, the WO pump will trip

D is incorrect: A Phase A signal does not isolate SX to the containment chillers; an SI signal does. Isolating SX to the containment chiller will cause the chiller to trip, but not the WO pump.

Question 12 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1244728
User-Defined ID:	12 BWLC3CVP2001
Cross Reference Number:	10CFR55.41(B) (7)
Topic:	CNMT WO pump trip on phase A
RO Importance:	2.9
SRO Importance:	2.9
K/A:	022K1.04
Comments:	Source: Byron Exam Bank Cognitive Level: Memory Reference: 6E-1-4030WO03 K/A 022K1.04 Containment Cooling System: Knowledge of the physical connections and/or cause-effect relationships between the CCS and the following systems: Chilled Water Question meets K/A – The examinee must know the effect of a change in CCS (phase A isolation from an SI) on the Chilled water valves.

13 **ID: 1146009** **Points: 1.00**

Given the following plant conditions:

- Unit 1 experienced an RCS LOCA.
- All systems responded as designed.

The following annunciators are LIT:
- 1-3-A4, "CS Actuation"
- 1-3-B3, "Spray Add Tank Level LO-2"
- 1-3-C3, "Spray Add Tank Level High Low"

- The "CS010A OPEN" and "CS010B OPEN" monitor lights are LIT.

Under these conditions, the operator is required to...

A. reset the Containment Spray signal and close 1CS019A and B, CS Eductor Spray Add Valves.

B. reset the Containment Spray signal and close 1CS010A and B, CS Eductor Inlet Flow Control Valves.

C. close 1CS019A and B, CS Eductor Spray Add Valves (RESET is unnecessary).

D. close 1CS010A and B, CS Eductor Inlet Flow Control Valves (RESET is unnecessary).

Answer: A

Answer Explanation

A is CORRECT: "Spray Add Tank Level LO-2" alarm indicates that sufficient NaOH has been injected and that this flowpath should be isolated by closing 1CS019A and B. This requires the CS Actuation signal to be reset.

B is incorrect: The 1CS010 distractors are plausible because these valves are in the eductor motive force flowpath, and would have an impact on NaOH flow, even though they are not in the actual NaOH flowpath and are not the valves designated in the procedure.

C is incorrect: Closing 1CS019 A and B without resetting the CS Actuation signal first is a plausible distractor, but is incorrect because this would cause the valves to reopen automatically as soon as they were closed.

D is incorrect: The 1CS010 distractors are plausible because these valves are in the eductor motive force flowpath, and would have an impact on NaOH flow, even though they are not in the actual NaOH flowpath and are not the valves designated in the procedure.

Question 13 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1146009
User-Defined ID:	13 BYLI-CS1-099
Cross Reference Number:	
Topic:	Closing 1CS019 on spray add tank lo-2 level
RO Importance:	3.1
SRO Importance:	3.4
K/A:	026A1.05
Comments:	Source: Byron Exam Bank Cognitive level: High Reference: BAR 1-3-A3 K/A 026A1.05 Containment Spray System: Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the CCS controls including: Chemical Additive Tank level and concentration This meets the K/A because the candidate must understand that Low-2 in the Chemical Additive Tank means the contents of the tank have been depleted and know that with "CS Actuated" still lit, the CS signal must be reset to operate the valves closed.

14 **ID: 1146315** **Points: 1.00**

Unit 2 was at 100% power.

- An RCS LOCA occurred on Unit 2.

Operators are PREPARING to perform Step 9, Align CS System for Recirculation of 2BEP ES-1.3, TRANSFER TO COLD LEG RECIRCULATION, with the following conditions:

- ECCS has been aligned for cold leg recirculation.
- ALL CV, SI, and CS pumps are running.
- 2A RH pump is running.
- 2B RH pump is in PULL OUT.

- 2SI8812B, RH Pump 2B Suction From RWST Isolation Valve, is closed.
- 2SI8811B, Cnmt Sump 2B Isolation Valve, is closed and CANNOT be opened from the MCR.

- Both 2CS001A & B, CS Pump RWST Suction Valves are open.
- Both 2CS009A & B, CS Pump Sump Suction Valves are closed.

- RWST level is 8%.

Based on the above indications, the operators are required to…

A. place ONLY 2A AND 2B CS pumps in PULL OUT due to inadequate suction source.

B. place 2B CV, 2B SI, 2A CS, AND 2B CS pumps in PULL OUT due to an imminent loss of suction.

C. place 2CS009B C/S to open, to align a suction source to the 2B CS Pump.

D. go to 2BCA -1.1, LOSS OF EMERGENCY COOLANT RECIRC, due to failure of one train of ECCS to transfer to cold leg recirculation.

Answer: A

Answer Explanation

A is CORRECT: Place 2A and 2B CS pumps in PTL to prevent pump damage. RWST level at 9% requires stopping all pumps taking a suction on the RWST unless flowpath exists from containment sump.

B is incorrect: CV and SI pumps have suction source aligned to train A RH via 2CV8804A and 2SI8804A and are not required to be shutdown.

C is incorrect: Placing 2CS009B to open will not align suction source to pumps due to interlock with 2SI8811B, which prevents 2CS009B from being opened with 2SI8811B closed.

D is incorrect: Emergency coolant recirc is established on train A.

Question 14 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1146315
User-Defined ID:	14 CERT 2010 RO 43
Cross Reference Number:	S.CS1-16
Topic:	Aligning CS for recirc
RO Importance:	4.6
SRO Importance:	4.6
K/A:	026G2.1.20
Comments:	Source: Byron Exam Bank Cognitive Level: High Reference: 2BEP ES-1.3 OAS K/A 026G2.1.20 Containment Spray System: Ability to interpret and execute procedure steps. Question meets K/A – Candidate must interpret the plant conditions with a failure of a recirculation valve to open and control the CS pumps with a low RWST level to prevent damage, EXECUTING the proper procedure actions.

15 **ID: 1244803** **Points: 1.00**

Unit 1 is at 80% power.

- BOTH turbine driven feedwater pumps are in Auto.
- The Master FW Pump Speed Controller is in Auto.
- 1MS072A, FW Pump 1B Hot Reheat Steam Supply Isol Valve, was CLOSED.

Based on the above conditions, what will be the effect on the unit?

The 1B FW pump will...

A. trip and be unable to supply feedwater.

B. continue to supply feedwater at a reduced flowrate.

C. automatically transfer to its high pressure steam supply, and will continue to supply feedwater.

D. have to be manually transferred to its high pressure steam supply to continue to supply feedwater.

Answer: C

Answer Explanation

A is incorrect: The TDFP will still supply feedwater; the examinee may consider a loss of steam supply as a trip.

B is incorrect: The high pressure steam supply (main steam) will run the 1B TDFP at 100% capacity.

C is CORRECT: The high pressure governor valve will open further, supplying the 1B TDFP from main steam.

D is incorrect: The TDFP supplies are manually opened when starting up, but when on line, the HP governor valve will respond automatically.

Question 15 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1244803
User-Defined ID:	15 CERT 2010 RO 45
Cross Reference Number:	R-FW-003
Topic:	TDFP LP steam supply isolation
RO Importance:	2.5
SRO Importance:	2.6
K/A:	039K3.04
Comments:	Source: Modified from 1146317 Cognitive Level: High Reference: BOP FW-1, page 11; M-35 K/A 039K3.04 Main and Reheat Steam System: Knowledge of the effect that a loss or malfunctions of the MRSS will have on the following: MFW pumps. Question meets K/A – Candidate must evaluate the failure of a steam supply to the MFW pump turbine and know the expected response.

16 **ID: 1245010** **Points: 1.00**

Unit 1 is at 600 MW with a power ascension at 0.3 MW/min in progress.
- 1B and 1C Main Feedwater pumps are in service.
- 1A MFW and the Startup Feedwater pumps are in standby.

- The 1B Main Feedwater Pump TRIPS.
- FW PUMP NPSH LOW alarm is LIT.

After closing the recirc valve on the tripped pump, the crew must...

A. trip the reactor.

B. verify 1CD210A & B, CP Bypass Valves are OPEN and stop the power ascension.

C. start the 1A Main Feedwater Pump and throttle open 1A MFWP Discharge Valve 1FW016.

D. depress the TURBINE RUNBACK button and verify the ROD MODE SELECTOR SWITCH is in AUTOMATIC.

Answer: B

Answer Explanation

A is incorrect: If NO feedwater pumps were running, 1BOA Sec-3 provides RNO direction with power less than 700 MW to trip the reactor.

B is CORRECT: If power is <700 MW, and another FW pump is running, then 1BOA Sec-1 has actions to verify the CP Bypass valves are open and stop any power change.

C is incorrect: This is the proper action to take if power is above 700 MW when a FW pump trips and the 1A FW pump is available.

D is incorrect: This is the proper action to take if power is above 700 MW when a FW pump trips and the 1A FW pump is NOT available.

Question 16 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1245010
User-Defined ID:	16 NRC 2014 80
Cross Reference Number:	
Topic:	Medium power feed pump trip
RO Importance:	3.0
SRO Importance:	3.3
K/A:	059A2.07
Comments:	Source: Modified from question system ID #1144836 Cognitive Level: High Reference: 1BOA Sec-1 K/A 059A2.07 Main Feedwater System: Ability to (a) predict the impacts of the following malfunctions or operation on the MFW; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Tripping of MFW pump turbine. Question meets K/A – The examinee must realize the impact of a FW pump trip on FW to the plant, and know the procedurally directed actions to respond to the malfunction.

17 **ID: 1245108** **Points: 1.00**

Which ONE of the following conditions on Unit 1 will automatically OPEN 1AF006A/B & 1AF017A/B, SX Suction Valves?

A. SI actuation with CST level at 65%.

B. SI actuation with S/G NR levels at 15%.

C. AMS actuation with AF pump suction pressures at 19.5 psia.

D. Loss of power to buses 157 & 159 with AF pump suction pressures at 17.5 psia.

Answer: D

Answer Explanation

A is incorrect: SI start will partially arm the SX suction valves, but CST level at 65% is not low enough to cause the low suction pressure required.

B is incorrect: SI start, or SG N/R levels at 15% will partially arm the SX suction valves, but must be combined with low suction pressure.

C is incorrect: An AMS does not arm the SX suction valves. 19.5 PSIA is low enough pressure on the AP300 pressure switch.

D is CORRECT: The low suction swap over setpoint is <18.1 psia, and an active signal from an SI, LO-2 SG level, or UV on 2/4 RCP busses.

Question 17 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1245108
User-Defined ID:	17 PRE-ILT-AF-013
Cross Reference Number:	10CFR55.41(B) (7)
Topic:	Automatically OPEN 1AF006A/B & 1AF017A/B
RO Importance:	3.6
SRO Importance:	3.8
K/A:	061K1.07
Comments:	Source: Byron Exam Bank Cognitive Level: Low Reference: BAR 1-3-A2, 1-3-A7, 1-3-E7, 6E-1-4030AF04 K/A 061K1.07 Auxiliary/Emergency Feedwater: Knowledge of the physical connections and/or cause-effect relationships between the AFW and the following systems: Emergency water source. Question meets K/A – The examinee must know what conditions (cause) will align the Emergency water source (SX) to AFW.

18 **ID: 1245117** **Points: 1.00**

The Unit 1 reactor tripped after both feedwater pumps tripped.
- DC bus 112 is deenergized due to a bus fault.
- 1PS-AF055, Aux Feedwater Pump 1B Suction Pressure Loop, is failed to atmospheric pressure.

Condition 1:
In the 1B AF Pump Room, the operator selects MANUAL and depresses and holds the START pushbutton.

Condition 2:
In the Aux Building (364' level), the operator places the 1B AF pump switch in the "START with Bypass" position.

Considering each condition separately, the 1B AF pump _____ start in Condition 1 and _____ start in Condition 2.

	Condition 1	Condition 2
A.	will	will
B.	will	will NOT
C.	will NOT	will
D.	will NOT	will NOT

Answer: C

Answer Explanation

A is incorrect: It cannot be started from the 383 AF pump room because it is tripped at 16.5 PSIA low suction pressure trip.

B is incorrect: It cannot be started from the 383 AF pump room because it is tripped at 16.5 PSIA low suction pressure trip. It can be started from 364 panel by the START WITH BYPASS switch that bypasses the low suction pressure trip.

C is CORRECT: Loss of DC 112 will prevent the 1B AF pump from autostarting or being started from MCR or RSDP. It cannot be started from the 383 AF pump roomI because it is tripped at 16.5 PSIA low suction pressure trip. It can be started from 364 panel by the START WITH BYPASS switch that bypasses the low suction pressure trip.

D is incorrect: It can be started from 364 panel by the START WITH BYPASS switch that bypasses the low suction pressure trip.

Question 18 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1245117
User-Defined ID:	18 BYLC3CAF01F004
Cross Reference Number:	
Topic:	Manually starting 1B AFP
RO Importance:	3.4
SRO Importance:	3.8
K/A:	061A2.04
Comments:	Source: Byron Exam Bank Cognitive Level: High Reference: BOP AF-7 K/A 061A2.04 Auxiliary/Emergency Feedwater: Ability to predict the impacts of the following malfunctions or operations on the AFW; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: pump failure or improper operation. Question meets K/A – The examinee must know which failures will prevent the 1B AF pump from starting and know which switch(es) will start the pump with a failure present, in accordance with operating procedures.

19 **ID: 1245127** **Points: 1.00**

Unit 2 is at 100% power.

- The Inverter for Instrument Bus 214 failed 5 minutes ago.
- Operators are responding per 2BOA ELEC-2, LOSS OF INSTRUMENT BUS Unit 2.
- Instrument Bus 214 has NOT been reenergized via the Constant Voltage Transformer (CVT).
- Unit 2 experienced a loss of offsite power (LOOP).
- 2A Diesel Generator (DG) started and energized Bus 241.

Assuming all components function as designed, which of the following describes the plant response for the 2B DG?

2B DG will...

A. START, ENERGIZE Bus 242, and START all required loads on the Sequencer.

B. START, ENERGIZE Bus 242, but NOT START loads on the Sequencer.

C. START but NOT ENERGIZE Bus 242.

D. NOT START.

Answer: B

Answer Explanation

A is incorrect: DC Bus 212 is intact, so 2B DG has control power and will start, but with AC 214 de-energized, the B train Safe shutdown Sequencer will not operate to sequence the loads on Bus 242.

B is CORRECT: DC Bus 212 is intact, so 2B DG has control power and will start and pick up Bus 242. AC instrument Bus 214 is NOT energized, so the Safe Shutdown Sequencer will not operate to sequence loads on bus 242. If AC IB 214 had been transferred to the CVT, AC Bus 214 would have de-energized on the LOOP and re-energized when bus 242 was re-energized by 2B DG, starting the Safe Shutdown Sequencer. But AC IB 214 was NOT transferred to the CVT.

C is incorrect: DC Bus 212 is intact, so 2B DG has control power and will start and pick up bus 242.

D is incorrect: DC Bus 212 is intact, so 2B DG has control power and will start and pick up bus 242. AC bus 214 is NOT energized, so the Safe Shutdown Sequencer will not operate to sequence loads on bus 242.

Question 19 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1245127
User-Defined ID:	19 BYLI AC010
Cross Reference Number:	S.AP1-10-A
Topic:	AC IB power supply transfer
RO Importance:	RO 3.1
SRO Importance:	SRO 3.5
K/A:	062K4.10
Comments:	Source: Modified from question system ID # 1144874. Cognitive Level: High Reference: 1BOA Elec-2 K/A 0624.10 AC Electrical Distribution System: Knowledge of ac distribution system design feature(s) and/or interlock(s) which provide for the following: Uninterruptable ac power sources Question meets K/A – The examinee must understand the operation of the various supplies to the AC Instrument Busses, and know that a loss of the inverter results in loss of Instrument Bus but does not affect the DC bus.

20 **ID: 1144876** **Points: 1.00**

Unit 2 is at 90% power.

- Annunciator 2-22-E8, 125V DC BATT CHGR 212 TROUBLE, is LIT.
- Annunciator 2-22-E10, 125V DC PNL 212/214 VOLT LOW, is NOT Lit.
- DC Bus 212 voltage indicates 125 VDC.

The EO reports the readings from 2DC06E, DC Bus 212:

- DC Bus 212 Battery Charger Current indicates 0 amps.
- DC Bus 212 Bus Voltage indicates 125 VDC.
- DC Bus 212 Battery Current indicates 40 amps.

What is the status of DC Busses 212 and 214?

A. DC Busses 212 AND 214 are energized by Battery Charger 212.

B. DC Bus 212 is energized by Battery Charger 212 but DC Bus 214 is de-energized.

C. DC Busses 212 AND 214 are energized by DC Battery 212.

D. DC Bus 212 is energized by Battery 212 but DC Bus 214 is de-energized.

Answer: C

Answer Explanation

A is incorrect: The battery charger output breaker (AF-1) is tripped, so the busses are energized by the battery.

B is incorrect: The battery charger output breaker (AF-1) is tripped, so the busses are energized by the battery.

C is CORRECT: When the Battery Charger A.C. output breaker trips, DC voltage will not be lost to the 212 and 214 DC Busses. The Battery Charger trouble alarm comes in, but with voltage normal, the cause of the trouble alarm is the output breaker trip. The charger is lost but the battery will supply voltage for DC loads until an appropriate power source can be obtained. This would be either X-tie to Unit-1 DC system or to restore the dedicated charger to operable status. We will enter Tech. Spec. 3.8.4 under this condition.

D is incorrect: Bus 214 is energized from DC 212.

Question 20 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1144876
User-Defined ID:	20 BYLI DC010
Cross Reference Number:	T.OA01-02
Topic:	Battery charger breaker trip indication
RO Importance:	2.6
SRO Importance:	2.9
K/A:	063K4.04
Comments:	Source: Byron Exam Bank Cognitive Level: High Reference: BAR 2-22-E8 K/A 063K4.04 DC Electrical Distribution: Knowledge of DC electrical design feature(s) and/or interlocks(s) which provide for the following: Trips Question meets K/A – The examinee must know the results and implications of a DC supply breaker trip.

21 **ID: 1245267** **Points: 1.00**

BOTH Units are at 100% power.
- 1A and 2B SX pumps were running.

The 1A SX pump tripped on over current.

In accordance with 1BOA Pri-7, SX Malfunction, the Unit 1 NSO must...

A. verify the 1B SX pump automatically starts.

B. hold the control switch for the 1B SX pump to START until the oil pump starts, then wait for the 1B SX pump to start.

C. dispatch an EO to locally start the oil pump for the 1B SX pump, then manually start the 1B SX pump from the MCR.

D. open 1SX033 and 1SX034, the SX pump crosstie valves.

Answer: B

Answer Explanation

A is CORRECT: Some similar systems have an automatic start function on low system pressure, such as Non-essential Service Water, and Component Cooling. The standby SX pump does NOT automatically start.

B is CORRECT: The MCR hand switch starts the oil pump first, then the SX pump will start when oil pressure builds up.

C is incorrect: The oil pump could be started locally, but is on the 330' level of the AB behind the watertight doors. It would take far too long to dispatch the EO to start it locally in this situation.

D is incorrect: The train crosstie valves are normally maintained open, but it is a procedure RNO action to open them if closed. It would do no good to open the switches in this case.

Question 21 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1245267
User-Defined ID:	21 BYLI-PRI70002
Cross Reference Number:	
Topic:	Manual start of SX pump
RO Importance:	2.9
SRO Importance:	2.9
K/A:	076A4.01
Comments:	Source: Byron Exam Bank Cognitive Level: Memory Reference: 1BOA Pri-7 K/A 076A4.01 Service Water System: Ability to manually operate and/or monitor in the control room: SWS pumps. Question meets K/A – The examinee must know the proper action to take from the control room to manually start an essential service water (SX) pump.

22 **ID: 1245274** **Points: 1.00**

BOTH Units are at 100% power.
- 1C Diesel Oil Storage Tank is found ruptured and empty.
- 2B Diesel Oil Storage Tank is found ruptured and empty.

Which Diesel Generators are affected by these failures?

A. BOTH 1A and 2A

B. BOTH 1A and 2B

C. BOTH 1B and 2A

D. BOTH 1B and 2B

Answer: B

Answer Explanation

A is incorrect: 2A EDG is supplied from the 2A tank.

B is CORRECT: The units are arranged differently. 1A EDG has 1A and 1C tanks, 1B EDG has 1B and 1D tanks. Unit 2 has only 2 tanks: 2A EDG had 2A tank and 2B EDG has 2B tank. Answers are plausible in light of the unit differences and the nomenclature differences for unit 1.

C is incorrect: 1B EDG is supplied from the 1B and 1D tanks. 2A EDG is supplied from the 2A tank.

D is incorrect: 1B EDG is supplied from the 1B and 1D tanks.

Question 22 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1245274
User-Defined ID:	22 2016 NRC DG001
Cross Reference Number:	
Topic:	DOST rupture
RO Importance:	3.2
SRO Importance:	3.3
K/A:	064K6.08
Comments:	Source: New Cognitive Level: High Reference: M-50 and M-130 K/A 064K6.08 Emergency Diesel Generator: Knowledge of the effect of a loss or malfunction of the following will have on the ED/G system: Fuel oil storage tanks. Question meets K/A – The examinee must know which fuel tank is associated with each EDGs, and know that a failure of a tank will affect the EDG operability.

23 **ID: 1245309** **Points: 1.00**

During an EMERGENCY start of an Emergency Diesel Generator, how does its associated starting air compressor and air dryer respond?

The air compressor starts ____(1)_____, and the air dryer starts _____(2)_____.

	_____(1)_____	_____(2)_____
A.	180 seconds AFTER its air dryer starts	when its EDG receives a START signal
B.	when its EDG reaches 280 RPM	when its EDG reaches 280 RPM
C.	180 seconds AFTER its air dryer starts	at 240 PSIG in its air receiver
D.	at 240 PSIG in its air receiver	at 240 PSIG in its air receiver

Answer: D

Answer Explanation

A is incorrect: The dryer does not start on an ED/G emergency start signal. Other auxiliary equipment (eg, room fan) will start simultaneously with the ED/G. The compressor NORMALLY starts 180 seconds after the air dryer, but that time delay is bypassed during an emergency start.

B is incorrect: The compressor and dryer do not start on an ED/G at 280 RPM. Other auxiliary equipment (eg, Fuel Oil transfer pump, automatic trips enabled) will activate at ED/G speed of 280 RPM.

C is incorrect: This is the normal response of the compressor and dryer with ED/G in standby.

D is CORRECT: With an automatic start of the ED/G, the compressor and dryer both start on receiver pressure of 240 PSIG.

Question 23 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1245309
User-Defined ID:	23 BYLC3CDG01A001
Cross Reference Number:	BY FM NO. 115 QUIZ BANK
Topic:	DG Air Start System
RO Importance:	4.1
SRO Importance:	4.0
K/A:	064A3.01
Comments:	Source: Byron Exam Bank Cognitive Level: Memory Reference: 6E-1-4030DG10 K/A 064A3.01 Emergency Diesel Generator System: Ability to monitor automatic operation of the ED/G system, including: Automatic start of compressor and ED/G. Question meets K/A – The examinee must know the proper automatic starting response of the air compressor with an automatic start of the ED/G.

24 **ID: 1146306** **Points: 1.00**

Unit 2 is in MODE 4.

- RCS boron concentration is 1590 ppm.
- 2A RH train is aligned for cold leg injection.
- 2B RH train was aligned for cold leg injection and is being aligned for shutdown cooling.
- Prior to shutdown, the 2B RH train was drained for pump repairs and refilled from the RWST.

Placing the 2B RH train in service, with NO additional operator action, would cause RCS boron concentration to…

A. rise, with NO change in shutdown margin.

B. rise, resulting in a rise in shutdown margin.

C. lower, with NO change in shutdown margin.

D. lower, resulting in a reduction in shutdown margin.

Answer: B

Answer Explanation

A is incorrect: Boron concentration will rise, incorrect in stating that SDM will not change.

B is CORRECT: Given the conditions, 2B RH will contain borated water at RWST concentration; 2300 ppm. Starting it in SD cooling will borate the RCS, raising SDM. Requires knowledge of RWST boron concentration.

C is incorrect: Incorrect in stating that boron concentration will lower.

D is incorrect: Incorrect in stating that boron concentration will lower.

Question 24 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	2.00
System ID:	1146306
User-Defined ID:	24 CERT 2010 RO 32
Cross Reference Number:	S.RH1-09-A
Topic:	Diluted RH loop affect on SDM
RO Importance:	2.9
SRO Importance:	3.1
K/A:	005K5.03
Comments:	Source: Byron Bank Cognitive Level: High Reference: TS 3.5.4, TS 3.1.1 K/A 005K5.03 Knowledge of the operational implications of the following concepts as they apply the RHRS: Reactivity effects of RHR fill water Question meets K/A – Candidate must know the that the water contained in the idle RH train will be higher boron concentration, and evaluate the effect of this fill water on reactivity, ie, shutdown margin.

25 **ID: 1146321** **Points: 1.00**

BOTH Units are at 100% power.

- Unit 0 CC Hx is aligned to Unit 1.

- 0PR09J indicator turned RED 1 minute ago.
- 1/2PR09J indications have NOT changed.
- 1/2CC017, Unit 1/2 CC Surge Tank Vent Valves, are open.

Based on the above indications, the operators are required to…

A. close BOTH 1CC017 AND 2CC017 due to the failure of 0PR09J to automatically isolate BOTH CC surge tank vent paths.

B. isolate the U-0 CC Hx and go to 1BOA PRI-6, COMPONENT COOLING MALFUNCTION, due to a leak in the CC system.

C. close ONLY 1CC017 due to the alignment of U-0 CC Hx to Unit 1.

D. notify chemistry to sample CC system activity, NO further action is required.

Answer: A

Answer Explanation

A is CORRECT: 0PR09J is initially below both the alert and alarm setpoints. When the detector fails, 0PR09J will go to high alarm. 0PR09J high alarm should automatically close both 1/2CC017. BAR actions are to verify 1/2CC017 valves closed.

B is incorrect: Would be correct actions after confirmed valid high alarm, but with only 1 alarm in, it needs to be confirmed.

C is incorrect: Both 1/2CC017 should have automatically closed even though Unit 0 CC Hx is aligned to Unit 1.

D is incorrect: 1/2PR09J are indicating properly, BAR directs notifying chemistry to sample CC, however action is also required to verify automatic actions have occurred.

Question 25 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1146321
User-Defined ID:	25 CERT 2010 RO 51
Cross Reference Number:	S.AR1-04-B-2
Topic:	Rad monitor effect on CC vent
RO Importance:	4.2
SRO Importance:	4.1
K/A:	073G2.4.31
Comments:	Source: Byron Exam Bank Cognitive Level: High Reference: BAR RM11-1-0PR09J K/A 073G2.4.31 Process Radiation Monitor System: Knowledge of annunciator alarms, indications, or response procedures. Question meets K/A – Candidate must know the automatic actions of malfunctions in PRM, and know what response procedure actions are required when a detector fails.

Both units are at 100% power.

- The suction line to the 2B SX pump sheared completely off at the pump.

Which trains of SX are affected by the subsequent room flooding?

A. Unit 2 B Train ONLY

B. Unit 2 A Train and Unit 2 B Train

C. Unit 1 B Train and Unit 2 B Train

D. Unit 1 A and B Train and Unit 2 A and B Train

Answer: C

Answer Explanation

A is incorrect: 1B SX pump is in the same room as the 2B SX pump so it will also be affected.

B is incorrect: 2A SX pump is in a separate flood sealed room, so will not be affected by flooding in the B train room. Candidate may think both pumps of a single unit are in the same room.

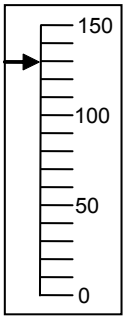
C is CORRECT: 1B and 2B SX pumps are in a common, flood sealed room. Flooding in the room will affect both units' B trains.

D is incorrect: Units' trains are in separate flood sealed rooms in the 330' level of the Aux Building. Candidate may think flooding in one room will also affect the other room.

Question 26 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1144806
User-Defined ID:	26 NRC 2014 52
Cross Reference Number:	
Topic:	SX room flooding
RO Importance:	2.8
SRO Importance:	3.2
K/A:	076K4.06
Comments:	Source: Bank (previously used NRC 2014 exam) Cognitive Level: Memory Reference: 0BOA PRI-8 K/A 076K4.06 Service Water System - Knowledge of SWS design feature(s) and/or interlock(s) which provide for the following: Service water train separation. Question meets K/A - Candidate must know the Essential Service Water (SX) pumps are train separated in flood seal protected rooms, but share the room with the same train pump for the other unit. This is a design feature to ensure train separation in case of catastrophic flooding because the pumps are below grade and the SX tower basins would flood the room in the event of a sheared pipe. PRA for SX (46%) and Internal Flooding (14%) shows they are extremely high risk initiating events for CDF analysis, so the candidates should know the methods and design that mitigates that risk. 10CFR55.41(b)(7)

Both units are at 100% power.

- The Instrument Air Header pressure gauge on 0PM01J indicates as shown:



What is the status of the Instrument Air system?

Instrument Air system pressure is...

A. within its normal range.

B. above its normal range and the IA receiver relief valves should be open.

C. above its normal range and the IA dryers should have automatically bypassed.

D. above its normal range and ONLY the LEAD Service Air Compressor should be running.

Answer: B

Answer Explanation

A is incorrect: The normal range for instrument air is 110 - 115 PSIG.

B is CORRECT: The gauge indicates 129 PSIG, considerably above its normal range, and above the IA receiver relief valve setpoint of 125 PSIG.

C is incorrect: The IA dryers bypass at 90 PSIG, which is considerably below the indicated pressure. This is plausible to prevent dryer damage.

D is incorrect: The SAC auto start at various SA pressures, all well below the indicated IA pressure. The highest pressure is the Lead SAC which shuts off at 118 PSIG, so at the given pressure, any SAC running is a malfunction (which would be the cause of the high IA pressure).

Question 27 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1144807
User-Defined ID:	27 NRC 2014 53
Cross Reference Number:	
Topic:	IA monitoring
RO Importance:	3.1
SRO Importance:	3.1
K/A:	078A4.01
Comments:	Source: Bank (used on NRC 2014 exam) Cognitive Level: High Reference: Byron ILT System LP for IA: I1-SA-XL-01 K/A 078A4.01 Instrument Air System - Ability to manually operate and/or monitor in the control room: Air pressure Question meets K/A - Candidate must have the ability to monitor the pressure gauge in the control room as shown, and know the automatic effects of the high pressure on the IA system; specifically, the automatic operation of relief valves.

28 **ID: 1146726** **Points: 1.00**

Which one of the following valves gets a Containment Phase A signal?

A. 1CV460, Cold Leg Letdown Isolation Valve

B. 1CV8152, Letdown Header Isolation Valve

C. 1CC685, RCP Thermal Barrier CC Return Isolation Valve

D. 1CV8105, Charging Pumps Discharge Header Downstream Isolation Valve

Answer: B

Answer Explanation

A is incorrect: 1CV460 will close when Pzr Level < 17%.

B is CORRECT: 1CV9152 will close on a Phase A signal, according to 1BOA Pri-13, Recovery from Inadvertant Phase A Containment Isolation.

C is incorrect: 1CC685 is an MOV that closes on high CC flow or Phase B signal.

D is incorrect: 1CV8105 is a MOV that closes on an SI signal.

Question 28 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1146726
User-Defined ID:	28 11-1 CERT2 Q#052
Cross Reference Number:	
Topic:	CNMT Phase A valve
RO Importance:	3.9
SRO Importance:	4.2
K/A:	103A3.01
Comments:	Source: Byron Exam Bank Cognitive Level: Memory Reference: 1BOA Pri-13 K/A 103A3.01 Containment system: Ability to monitor automatic operation of the containment system, including: Containment Isolation Question meets K/A – The examinee must know which valve(s) will automatically close upon receiving a Phase A CNMT Isolation signal.

29 **ID: 1245456** **Points: 1.00**

What are the control power supplies for the Unit 1 reactor trip and bypass breakers?

	Rx Trip Bkr A	Rx Trip Bkr B	Trip Bypass Bkr A	Trip Bypass Bkr B
A.	DC 111	DC 112	DC 111	DC 112
B.	DC 111	DC 112	DC 113	DC 114
C.	DC 111	DC 114	DC 111	DC 114
D.	DC 111	DC 114	DC 113	DC 112

Answer: A

Answer Explanation

A is CORRECT: The train A trip and bypass breakers are powered from DC 111, and train B breakers are powered from DC 112.

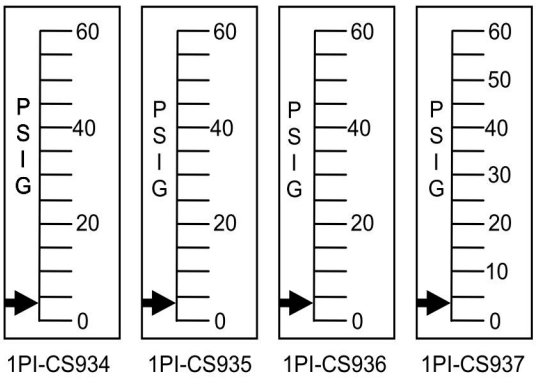
B is incorrect: The 4 DC busses are listed with the major busses shown as supplying the trip breakers and their subsidiary busses supplying the bypass breakers.

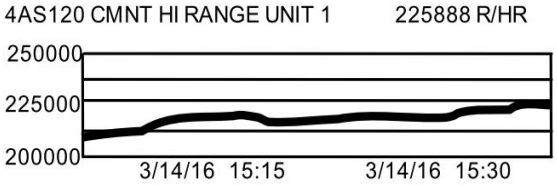
C is incorrect: ESFAS train A gets power from AC 111, and train B from AC 114. The examinee may think the trip and bypass breakers are similarly powered from the DC busses.

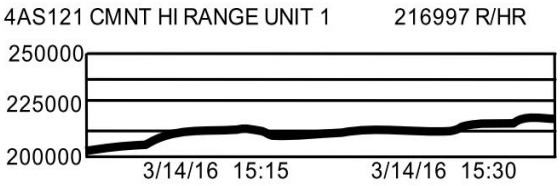
D is incorrect: This combines the logical consistencies from choices B and C.

Question 29 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1245456
User-Defined ID:	29 2016 NRC RD001
Cross Reference Number:	
Topic:	Reactor trip breaker power alignment
RO Importance:	3.6
SRO Importance:	3.7
K/A:	001K2.02
Comments:	Source: New Cognitive Level: Memory Reference: BOP RD-E1 K/A 10001K2.02 Control Rod Drive System: Knowledge of bus power supplies to the following: One-line diagram of power supply to trip breakers. Question meets K/A – The examinee must know the arrangement of the control power supplies from the DC busses to the reactor trip and bypass breakers.

Unit 1 has experienced an automatic Reactor Trip and Safety Injection actuation.
During the performance of 1BEP-0, Reactor Trip or Safety Injection, the RO checks for Adverse Containment using the 1PM06J gauges, and RMS trends shown below:







The RO will report that Containment is...

A. NOT ADVERSE.

B. ADVERSE based on containment pressure ONLY.

C. ADVERSE based on radiation levels ONLY.

D. ADVERSE based on BOTH containment pressure AND radiation levels.

Answer: C

Answer Explanation

A is incorrect: "Adverse CNMT" is at 5 PSIG and 100000 R/hr. The stem shows the radiation limit is exceeded.

B is incorrect: The gauges clearly show CNMT pressure less than 5 PSIG.

C is CORRECT: "Adverse CNMT" is at 5 PSIG and 100000 R/hr. The stem shows the radiation limit is exceeded.

D is incorrect: The gauges clearly show CNMT pressure less than 5 PSIG.

Question 30 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1245688
User-Defined ID:	30 BYLI-RCS111
Cross Reference Number:	
Topic:	Adverse CNMT
RO Importance:	4.2
SRO Importance:	4.6
K/A:	002K3.03
Comments:	Source: New Cognitive Level: High Reference: 1BEP-0 note K/A 002K3.03 Reactor Coolant system: Knowledge of the effect that a loss or malfunction of the RCS will have on the following: Containment Question meets K/A – The examinee must know the criteria for Adverse CNMT which is met by the occurance of a RCS LOCA.

31 **ID: 1245499** **Points: 1.00**

Which of the following situations would cause a General Warning on the DRPI display?

A. One central control card differs from the other two.

B. One dropped rod at 100% power with normal rod alignment prior to the rod dropping.

C. Data "B" card inputs are invalid.

D. Two rods within the same bank deviate from one another by more than 12 steps.

Answer: C

Answer Explanation

A is incorrect. A central control card failure will cause the control card failure alarm on the DRPI display and an RPI Non Urgent Alarm.

B is incorrect. A dropped rod will result in "ROD AT BOTTOM" annunciator, "ROD DEVIATION PWR RANGE TILT" alarm, and a rod bottom light on DRPI.

C is CORRECT. The general warning DRPI display LEDs are illuminated for Data "A" or Data "B" input being rejected or any cause for an DRPI urgent failure alarm which are:
- Loss of both A and B data or error in BOTH; or
- > 1 bit difference in A and B gray codes: or
- Combined data sum is > 38

D is incorrect. For this situation a "ROD DEVIATION PWR RANGE TILT" alarm would be generated.

Question 31 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1245499
User-Defined ID:	31 BYLI DRPI 001
Cross Reference Number:	
Topic:	General Warning on the DRPI display
RO Importance:	3.2
SRO Importance:	3.6
K/A:	014A1.02
Comments:	Source: Byron Exam Bank Cognitive Level: Memory Reference: BOP RD-8, BAR 1-10-D6 K/A 014A1.02 Rod Position Indication System: Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the RPIS controls, including: Control rod position indication on control room panels. Question meets K/A – DRPI has a Data A train and Data B train. The examinee must know that a failure in one train (which can be defeated with the RPIS controls) will cause an indication of a General Warning on the control room DRPI display.

32 **ID: 1245707** **Points: 1.00**

Unit 1 is at 100% power.

If letdown is isolated, VCT Auto Makeup will start when VCT level reaches 37% on level channel __(1)__.

If VCT level continues to lower, charging pump suction alignment swapover will occur when VCT level reaches 5% on level channel(s) __(2)__.

	___(1)____	____(2)____
A.	1LT-112 ONLY	1LT-112 OR 1LT-185
B.	1LT-112 ONLY	1LT-112 AND 1LT-185
C.	1LT-185 ONLY	1LT-112 OR 1LT-185
D.	1LT-185 ONLY	1LT-112 AND 1LT-185

Answer: B

Answer Explanation

A is incorrect: part 1 is correct, LT-112 is the controlling channel. Part 2 is incorrect, the protective function requires BOTH LT-112 and LT-185 to lower to 5%.

B is CORRECT: part 1 is correct, LT-112 is the controlling channel. Part 2 is correct, the protective function requires BOTH LT-112 and LT-185 to lower to 5%.

C is incorrect: part 1 is incorrect, LT-112 is the controlling channel. Part 2 is incorrect, the protective function requires BOTH LT-112 and LT-185 to lower to 5%.

D is incorrect: part 1 is incorrect, LT-112 is the controlling channel. Part 2 is correct, the protective function requires BOTH LT-112 and LT-185 to lower to 5%.

Question 32 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1245707
User-Defined ID:	32 BYLC3CCV12A005
Cross Reference Number:	
Topic:	VCT level channel inputs
RO Importance:	2.7
SRO Importance:	2.8
K/A:	016K5.01
Comments:	Source: New Cognitive Level: Memory Reference: 6E-1-4030CV10/11, BAR 1-9-A2 K/A 016K5.01 Non-nuclear Instrumentation System: Knowledge of the operational implications of the following concepts as they apply to the NNIS: Separation of control and protection circuits. Question meets K/A – The examinee must which channel(s) provide control of VCT level (LT-112) and which provide protective functions (LT-112 combined with LT-185).

33 **ID: 1245532** **Points: 1.00**

Thirty minutes after a reactor trip with a loss of offsite power, an indication that natural circulation is occurring is...

A. S/G pressures are rising.

B. RCS hot leg temperatures are rising.

C. CETC temperatures are lowering.

D. RCS subcooling is 10°F and lowering.

Answer: C

Answer Explanation

A is incorrect: SG pressures will be stable or lowering during natural circulation as SG temperature lowers.

B is incorrect: Hot leg temperatures will lower after NC is established.

C is CORRECT: CETC temperatures will lower with effective natural circulation.

D is incorrect: Subcooling should be stable or rising; pressure is held steady during NC so as CETC temperature lowers, SC will rise.

Question 33 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1245532
User-Defined ID:	33 BRDLC3DEP9015
Cross Reference Number:	
Topic:	indication of natural circ
RO Importance:	3.6
SRO Importance:	3.8
K/A:	072A3.01
Comments:	Source: Byron Exam Bank Cognitive Level: Memory Reference: 1BEP ES-0.2 K/A 072A3.01 in-Core Termperature Monitoring System: Ability to monitor automatic operation of the ITM system including: Indications of normal, natural and interrupted circulation of the RCS. Question meets K/A – The candidate must evaluate the given conditions to determine whether the changes in parameters would indicate natural circulation will be occurring.

34 **ID: 1245547** **Points: 1.00**

Unit 1 is in MODE 3 at Normal Operating Temperature and Pressure, in preparation for a refueling outage.
- 1A Containment Charcoal Filter Fan, 1VP05FA was running to lower containment radioactivity levels before containment entry was made.

One minute ago, the following alarm annunciated:
- Annunciator 0-33-C3, "CNMT CHAR FLTR UNIT TEMP HIGH" is LIT.

The EO reported that the 1st and 2nd stage local alarms are LIT on the local panel, 1VP01J.

In accordance with BAR 0-33-C3, the crew must...

A. shift the VP fan to LOW SPEED.

B. adjust the CNMT chiller bypass valve to provide more SX flow to the CNMT chiller.

C. bypass the charcoal adsorber.

D. TRIP the VP fan and direct the EO to open the local deluge valve.

Answer: D

Answer Explanation

A is incorrect: The VP fan has only one speed, but the RCFC fans that actually cool CNMT have a high and low speed.

B is incorrect: The CNMT chiller bypass valve does automatically adjust SX flow through the CNMT chiller.

C is incorrect: The alarm is indicative of a charcoal filter fire, and bypassing the adsorber will do nothing to address the problem.

D is CORRECT: The local alarms provide positive indication of a fire, so the operators must trip the running fan and have the local deluge valve manually opened.

Question 34 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1245547
User-Defined ID:	34 BYLI VPO11
Cross Reference Number:	
Topic:	Fire in CNMT charcoal filter
RO Importance:	3.0
SRO Importance:	3.3
K/A:	027A2.01
Comments:	Source: New Cognitive Level: High Reference: BAR 0-33-C3 K/A 027A2.01 Containment Iodine Removal System: Ability to (a) predict the impacts of the following malfunctions or operations on the CIRS; and (b) based on those predications, use Procedures to correct, control, or mitigate the consequences of those malfunction or operations: High temperature in the filter system. Question meets K/A – The candidate must evaluate the cause of the alarm and respond by tripping fans and actuating fire protection to the filters. The single original annunciator alone does not meet the criteria to decide its a fire, but local EO verification is required to make that determination.

35 **ID: 1245589** **Points: 1.00**

When the S/G Blowdown Line Radiation Monitor (1/2PR08J) senses "High Radiation", which of the following valves AUTOMATICALLY CLOSE?

NOTE:
1SD002's = Steam Generator Blowdown Isolation Valves
1SD005's = Steam Generator Blowdown Sample Valves
1PS179's = Steam Generator Blowdown Sample Valves

A. Only 1SD002's close.

B. Only 1PS179's close.

C. 1SD002's close and 1PS179's close.

D. 1SD005's close and 1SD002's close.

Answer: B

Answer Explanation

A is incorrect: SD002 valves close on a HELB actuation, or Phase A.

B is CORRECT: When 1/2PR08J senses high radiation, the SG Blowdown Sample Valves _PS179A-D close. No other valves are affected.

C is incorrect: SD002 valves close on a HELB actuation, or Phase A.

D is incorrect: SD002s and SD005s valves close on a Containment Isolation Phase A signal (both sets of valves) or a HELB actuation (SD002s)

Question 35 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1245589
User-Defined ID:	35 BYLI-PS1-015
Cross Reference Number:	
Topic:	SG Sample isolation on high rad
RO Importance:	2.6
SRO Importance:	2.8
K/A:	035K4.03
Comments:	Source: Byron Exam Bank Cognitive Level: Memory Reference: BAR RM-1-1PM08J K/A 035K4.03 Steam Generator System: Knowledg of S/GS design feature(s) and/or interlockd(s) which provide for the following: Automatic blowdown and sample line isolation and reset. Question meets K/A – The examinee must know the automatic isolation features of the steam generator blowdown sample system.

36 **ID: 1245610** **Points: 1.00**

Unit 1 is at 50%
- Auct High Tave = Tref
- Steam Dumps are in Tave Mode

An instantaneous 20% load rejection AND a simultaneous failure of Loop D Cold Leg RTD FAILED HIGH have occurred.

Assuming NO operator action, which of the following describes the response of the steam dump system?

A. ONLY the first two groups of steam dump valves (6 valves) would actuate and OPEN until actual Tave lowered to 550°F, which would block the steam dumps and stop the cooldown.

B. ONLY the first group of steam dump valves (3 valves) would actuate and OPEN until actual Tave lowered to 550°F, which would block the steam dumps and stop the cooldown.

C. ALL four groups of steam dump valves (12 valves) would actuate and OPEN until actual Tave lowered to 550°F, which would block the steam dumps and stop the cooldown.

D. ALL four groups of steam dump valves (12 valves) would actuate and OPEN and would continue to blowdown past actual indicated Tave of 550°F. RCS cooldown would NOT be stopped.

Answer: C

Answer Explanation

A is incorrect: All 4 groups of steam dumps will open, but a lower temperature error would trigger only 2 groups.

B is incorrect: All 4 groups of steam dumps will open, but when below P-12 (550°F), steam dumps can be manually bypassed to open one group.

C is CORRECT: The 20% load rejection will provide the arming signal. Tcold failing high would provide auctioneered high Tave of ~ 600°F - more than enough to meet 100% demand &/or Hi-2 difference from Tref on load reject controller to open all 12 dumps. With no operator action, cooldown would continue until 2 of remaining 3 Tave channels hit P-12 of 550°F, closing dumps.

D is incorrect: P-12 will close the dumps when below 550°F. Some failures such as rod control, would cause Tave to continue to lower.

Question 36 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1245610
User-Defined ID:	36 BYLI-DU1-037
Cross Reference Number:	
Topic:	Steam dump response with Tave failure
RO Importance:	3.5
SRO Importance:	3.6
K/A:	041K1.05
Comments:	Source: Byron Exam Bank Cognitive Level: High Reference: ILT Steam dump lesson plan, pages 8 and 9, K/A 041K1.05 Steam Dump System (SDS)/Turbine Bypass Control: Knowledge of the physical connections and/or cause-effect relationshops between the SDS and the following systems: RCS Question meets K/A – The examinee must analyze a failure and determine the effect on the steam dumps and the RCS temperature.

37 **ID: 1245650** **Points: 1.00**

The following setpoints have been entered for the 0PR01J Rad Monitor per the Liquid Release form:

- Alert Setpoint: 3.19E-04 mci/ml
- High Alarm Setpoint: 6.38E-04 mci/ml
- Current Activity Value: 6.95E-06 mci/ml

To test the auto closure feature of 0WX353, the operator changed the High Alarm setpoint (channel item 9) on 0PR01J to 6.38E-05. The channel remained GREEN.

Which of the following actions should be taken?

A. Inform the Unit Supervisor that the 0PR01J is inoperable.

B. Verify the Circ Water Blowdowm Low Flow Interlock has been reset.

C. Place the key-locked switch for 0WX353 in CLOSE at 0PL01J.

D. Enter a lower value into channel item 9 to obtain the desired rad monitor interlock function.

Answer: D

Answer Explanation

A is incorrect: If the correct value had been set in, and the interlock failed, then 0PR01J would be inoperable.

B is incorrect: This is a preliminary step in the procedure as part of preparation for the interlock test.

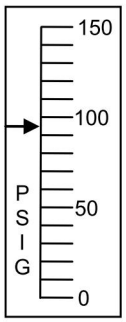
C is incorrect: This is a preliminary step in the procedure as part of preparation for the interlock test.

D is CORRECT: The listed value that the high alarm was set to, is still higher than the ambient value, so the interlock function should not and did not actuate. A value lower than the ambient value must be set in for the high alarm.

Question 37 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1245650
User-Defined ID:	37 BYLC3CWQ01A002
Cross Reference Number:	
Topic:	0PR01J Rad Monitor setting for Liquid Release
RO Importance:	3.4
SRO Importance:	4.1
K/A:	068K4.01
Comments:	Source: Byron Exam Bank Cognitive Level: High Reference: BCP 400-TWX01 step 6.16.6 K/A 068K4.01 Liquid Radwaste System: Knowledge of the effect of a loss or malfunction on the following will have on the Liquid Radwaste System: Radiation Monitors Question meets K/A – The examinee must understand the relationship between alarm and actuation settings and the effect of a misoperation of the radiation monitor on the release system.

Both units are at full power.
- 2B Station Air Compressor (SAC) is online and in LEAD.
- 2A SAC is in LAG.

Annunciator 0-39-C2, SAC 2A/2B RCVR PRESS LOW goes into ALARM.
- The Service Air pressure gauge on 0PM01J indicates as shown below.



Which of the following actions must be taken?

A. Start the 2A SAC from its 0PM01J control switch.

B. Dispatch the EO to verify the 2A SAC automatically started.

C. Dispatch the EO to bypass the Instrument Air dryers.

D. Dispatch the EO to isolate the 2A/2B Service Air receiver.

Answer: B

Answer Explanation

A is incorrect: The 2A SAC has no control switch or RUNNING indication in the MCR.

B is CORRECT: The standby Unit 2 SAC should have started when SA pressure lowered to 102 PSIG. The operator is expected to verify/start the SAC. The 2A SAC has no control switch or RUNNING indication in the MCR, so the EO must be dispatched to verify/start it.

C is incorrect: The Instrument Air dryers automatically bypass when IA pressure is <90 PSIG, Pressure is above that so no action would be required in this situation.

D is incorrect: Isolating the 2A/2B SA receiver would worsen the situation, but the examinee could consider that action to isolate a possible leak. The air pressure is sensed upstream of the receiver.

Question 38 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1245667
User-Defined ID:	38 BYLI-SA011
Cross Reference Number:	
Topic:	Low SA pressure
RO Importance:	4.2
SRO Importance:	4.0
K/A:	079G2.4.50
Comments:	Source: New Cognitive Level: High Reference: BAR 0-39-C2 K/A 079G2.4.50 Service Air: Ability to verify system alarm responses and operate controls identified in the alarm response manua. Question meets K/A – The examinee must interpret the gauge reading and apply their knowledge of the alarm response manual combined with knowledge of control location inside and outside the MCR.

39 **ID: 1245708** **Points: 1.00**

The basis for verifying that the main turbine is tripped in 1BEP-0 "REACTOR TRIP OR SAFETY INJECTION" is to ...

A. prevent a turbine overspeed trip.

B. prevent an uncontrolled RCS cooldown.

C. reduce AF flow requirements following the reactor trip.

D. ensure condenser vacuum is adequate for steam dump operation.

Answer: B

Answer Explanation

A is incorrect: The 30 second time delay for the generator output breakers to open after a turbine trip, and the closure of stop and reheat intercept valves, prevents turbine overspeed.

B is CORRECT: From the WOG background for the turbine trip step, the turbine is tripped to prevent an uncontrolled cooldown of the RCS due to steam flow that the turbine would require.

C is incorrect: AF flow is based on SG level.

D is incorrect: C-9 interlock for Condenser Available ensures the condenser vacuum is adequate.

Question 39 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1245708
User-Defined ID:	39 BRDLC3DEP1004
Cross Reference Number:	
Topic:	Turbine trip basis
RO Importance:	4.0
SRO Importance:	4.6
K/A:	007EK3.01
Comments:	Source: Byron Exam Bank Cognitive Level: Memory Reference: 1BEP-0 background document K/A 007EK3.01 Reactor Trip: Knowledge of the reasons for the following as they apply to a reactor trip: Actions contained in EOP for reactor trip. Question meets K/A – The examinee must know the reason for a turbine trip in 1BEP-0, Reactor Trip or Safety Injection

40 **ID: 1146294** **Points: 1.00**

Unit 1 is in MODE 3.

- Pressurizer PORV 1RY455A failed open.
- Block valve 1RY8000A will NOT close.
- RCS pressure is 1085 psig.
- PRT pressure is 35 psig.

What is the condition of the fluid and the indicated temperature downstream of 1RY455A?

A. Saturated steam at 258°F

B. Steam-water mixture at 280°F

C. Saturated steam at 280°F

D. Superheated steam at 306°F

Answer: D

Answer Explanation

A is incorrect: Sat at 258 is the error of thinking the fluid is saturated at 50 psia.

B is incorrect: Steam-water at 280 is the error of starting from 2250 psia and results in mixture at 50 psia.

C is incorrect: Sat at 280 is the error of using 35 psig (instead of 50 psia) as the endpoint.

D is CORRECT: With primary pressure at 1100 psia, isenthalpic throttling to 50 psia puts the steam in the superheat region between 280° and 320°F. Interpolating the curve puts the temperature at 306°.

Question 40 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1146294
User-Defined ID:	40 CERT 2010 RO 18
Cross Reference Number:	
Topic:	State and temp of fluid downstream of Pzr PORV
RO Importance:	3.2
SRO Importance:	3.7
K/A:	008AK1.01
Comments:	**Provide Steam Tables** Source: Byron Exam Bank Cognitive Level: High Reference: Steam Tables K/A 008AK1.01 Knowledge of the operational implications of the following concepts as they apply to a Pressurizer Vapor Space Accident: Thermodynamics and flow characteristics of open or leaking valves Question meets K/A – Candidate must determine the state of the fluid downstream of an open PORV, which is knowledge of the thermodynamic effects of an open PORV; which the operator determines by reading a mollier diagram.

41 **ID: 1245709** **Points: 1.00**

An event occurred on Unit 1 which resulted in a peak containment pressure of 22 psig.

One (1) hour later the following plant conditions exist:

- RCS pressure 375 psig and stable
- CNMT pressure 3.5 psig and dropping slowly
- S/Gs pressures all at 800 psig and dropping slowly
- Secondary radiation normal
- RWST level 21% and dropping

In accordance with the procedures in effect, the RH pumps are ____(1)____, and the CS pumps are ____(2)____.

	__(1)__	__(2)__
A.	running	running
B.	running	stopped
C.	stopped	running
D.	stopped	stopped

Answer: A

Answer Explanation

A is CORRECT: RH pumps were stopped in 1BEP 1, step 8, but then restarted in 1BEP ES-1.3, step 3. The CS pumps auto started on CNMT pressure >20 psig, and were not stopped in accordance with 1BEP1, step 7.e.

B is incorrect: CS pumps would be stopped for CNMT pressure <15 psig, IF the event were a secondary fault. The stated SG pressures eliminate that as a possibility.

C is incorrect: RH pumps are stopped in 1BEP 1 when RCS pressure is >325 psig and stable or rising. But then restarted in 1BEP ES-1.3.

D is incorrect: Both sets of pumps are running for reasons stated above.

Question 41 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1245709
User-Defined ID:	41 BYLC3DEP03B002
Cross Reference Number:	
Topic:	Pumps running after a loca
RO Importance:	2.6
SRO Importance:	2.7
K/A:	011EK2.02
Comments:	Source: New Cognitive Level: High Reference: 1BEP-1, 1BEP ES-1.3 K/A 011EK2.02 Large Break LOCA: Knowledge of the interrelations between the following and the Large Break LOCA: Pumps Question meets K/A – The examinee must analyze the plant conditions to determine which pumps should be operating.

42 **ID: 1245748** **Points: 1.00**

Unit 1 is at 100% power.

- Annunciator 1-13-E5, RCP TRIP, has just LIT due to a trip of the 1A RCP.

Based on 1PM05J indications:
1- Which 1A RCP control switch lights will be LIT?
2- Compared to BEFORE the event, five minutes later, indicated RCP AMPS for RCPs 1B, 1C and 1D are ...

A. 1) stop ONLY
2) lower

B. 1) stop ONLY
2) higher

C. 1) stop AND disagreement
2) lower

D. 1) stop AND disagreement
2) higher

Answer: D

Answer Explanation

A is incorrect: The disagreement light comes on when the breaker is tripped with the control switch in the After Close position.

B is incorrect: The disagreement light comes on when the breaker is tripped with the control switch in the After Close position. The total core flow will lower, but 3 loop flows will rise.

C is incorrect: The total core flow will lower, but 3 loop flows will rise.

D is CORRECT: When the RCP breaker trips (opens), as caused by an RCP protective relay operation, the stop light will be lit, as sensed by breaker position, and the disagreement light will be lit as sensed by breaker position and control switch position. The amps on the running pumps will be higher, because loop flows will rise in the 3 running loops. Higher flow means higher amps.

Question 42 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1245748
User-Defined ID:	42 2013 NRC EXAM Q33
Cross Reference Number:	
Topic:	Single loop Loss of flow
RO Importance:	2.7
SRO Importance:	2.6
K/A:	015/17AA1.10
Comments:	Source: Modified from question # 1146220 Cognitive Level: High Reference: 6E-1-4030RC01 K/A 015/17AA1.10 RCP Malfunctions: Ability to operate and/or monitor the following as they apply to the RCP Malfunctions: RCP Ammeter and trip alarm Question meets K/A – The examinee must know RCP switch indications along with RCP ammeter indications based on a trip of a Reactor Coolant Pump.

43 **ID: 1246793** **Points: 1.00**

Unit 1 is at 100% power.

- 1CV121, Centrifugal Charging Pump Flow Control Valve, is in MANUAL control.
- 1CV182, Charging Header Back Pressure Control Valve, is at 52% demand.

Over a period of 6 hours:

- PZR level lowers from 60% to 30%.
- Charging flow lowers from 132 gpm to 112 gpm.
- Seal injection flows lower from 11 gpm to 9 gpm per RCP.

The cause of the problem is __(1)__, and to control the problem, the operator will throttle __(2)__.

A. (1) clogged seal injection filter
(2) open both 1CV121 and 1CV182.

B. (1) clogged seal injection filter
(2) open 1CV121, and fully open 1CV182.

C. (1) degrading CV pump impeller
(2) open 1CV121, and fully close 1CV182.

D. (1) degrading CV pump impeller
(2) open 1CV121, and maintain 1CV182 at 52% demand.

Answer: D

Answer Explanation

A is incorrect: Given the conditions, a clogged seal injection filter wouldn't cause PZR level to lower, just Seal Injection to lower.

B is incorrect: Given the conditions, a clogged seal injection filter wouldn't cause PZR level to lower, just Seal Injection to lower.

C is incorrect: "open 1CV121, and fully close 1CV182" would raise seal injection flow and lower RCS makeup flow, resulting in lowering PZR level.

D is CORRECT: Actions would raise charging flow to pre-transient value. Seal injection flow will return to pre-transient value with no adjustment on FCV required.

Question 43 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1246793
User-Defined ID:	43 BYLI-CV-131
Cross Reference Number:	
Topic:	Degraded impeller effect on CV
RO Importance:	3.2
SRO Importance:	3.7
K/A:	022AA2.02
Comments:	Source: Byron Exam Bank Cognitive Level: High Reference: BOP CV-1a, M-64 sheets 3A and 3B K/A 022AA2.02 Loss of Reactor Coolant Makeup: Ability to determine the following as they apply to the Loss of Reactor Coolant Makeup: Charging Pump Problems Question meets K/A - This question meets the K/A because it requires examinee knowledge of the actions to achieve a constant RCS status, and how adjusting charging and seal injection flow control valves affect system differential pressure and flow. Seal injection flow is dependent on the pressure differential between charging and RCS.

44 **ID: 1146036** **Points: 1.00**

Unit 1 has been shutdown for 35 days.
- RH system is Shutdown Cooling
- The core HAS been refueled.
- A loss of RH cooling has occurred, and the crew has implemented "1BOA Pri-10, Loss of RH Cooling".

- Attachment C, RCS Bleed and Feed is in progress.

What is the minimum required indicated flowrate to maintain the RCS in a subcooled condition?

A. 15 GPM through 1FI-121A, Charging Header Flow

B. 50 GPM through 1FI-121A, Charging Header Flow

C. 260 GPM through 1FI-917, High Head SI Flow Meter

D. 360 GPM through 1FI-917, High Head SI Flow Meter

Answer: C

Answer Explanation

A is incorrect: Normal charging valves are shut and cold leg injection valves are opened during performance of RCS bleed and feed.

B is incorrect: Normal charging valves are shut and cold leg injection valves are opened during performance of RCS bleed and feed.

C is CORRECT: Normal charging valves are shut and cold leg injection valves are opened during performance of RCS bleed and feed. Figures 1BOA Pri 10-3 and 1BOA Pri 10-4 each has 2 curves, with the higher flow rate after refueling for the curve to prevent boiling required 250+ GPM.

D is incorrect: Figures 1BOA Pri 10-3 and 1BOA Pri 10-4 each has 2 curves, with the higher flow rate after refueling for the curve to prevent boiling required 250 GPM.

Question 44 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1146036
User-Defined ID:	44 BYLI-PR1-099
Cross Reference Number:	
Topic:	1FI-917 indication for loss of RH
RO Importance:	2.6
SRO Importance:	2.5
K/A:	025AA1.20
Comments:	**Provided Reference: Figure 1BOA Pri 10-3, "Minimum Makeup Flow Required to Prevent Boiling Prior to Refuel" and Figure 1BOA Pri 10-4, "Minimum Makeup Flow Required to Prevent Boiling After Refuel"** Source: Byron Exam Bank Cognitive level: High Reference: 1BOA Pri-10, Loss of RH Cooling K/A 025AA1.20 Loss of Residual Heat Removal System: Ability to operate and/or monitor the following as they apply to the Loss of Residual Heat Removal System: HPI pump control switch, indicators, ammeter, running lights, and flow meter. Question meets K/A – This meets the K/A because the candidate must know the required flowpath and the indicated makeup flow rate.

45 **ID: 1245771** **Points: 1.00**

Unit 1 is in MODE 3 with a normal cooldown in progress.

- Annunciator 1-2-A5 "CC SURGE TANK LEVEL HIGH LOW" is illuminated.
- Local investigation reveals NO obvious cause for the problem.
- The water level in the surge tank is slowly LOWERING with makeup valve 1CC183 OPEN.

Which of the following is the cause of the problem based on the symptoms?

A. The plant is being cooled down at an excessive rate.

B. There is a leak in the Unit 1 CC heat exchanger.

C. There is a leak in an RCP thermal barrier heat exchanger.

D. There is a leak in the letdown heat exchanger.

Answer: B

Answer Explanation

A is incorrect: An RCS cooldown will not affect CC surge tank level with RHR not in SD cooling.

B is CORRECT: CC pressure is greater than SX, so a leak in the CC HX is outleakage from CC system.

C is incorrect: RCS seal injection is at a much higher pressure than CC, even in MODE 4, so a thermal barrier leak would be inleakage to the CC system.

D is incorrect: The letdown HX is higher pressure than CC system, so would cause inleakage to the CC system.

Question 45 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1245771
User-Defined ID:	45 BYLC3DOA10A001
Cross Reference Number:	
Topic:	CC leak location
RO Importance:	2.9
SRO Importance:	3.1
K/A:	026AA2.01
Comments:	Source: Byron Exam Bank Cognitive Level: High Reference: 1BOA Pri-7, BAR 1-2-A5 K/A 026AA2.01 Loss of Component Cooling Water: Ability to determine and interpret the following as they apply to the Loss of Component Cooling Water: Location of a leak in the CCWS Question meets K/A – The examinee must consider the plant conditions to determine the location of a CC leak.

46 **ID: 1245787** **Points: 1.00**

Unit 1 is at 90% power.

- 1PK-455A, the Master Pressurizer Pressure Controller, has malfunctioned.
- Pressurizer pressure has stabilized at 2150 PSIG with spray valves closed, backup heaters off, and variable heaters modulating.

Compared to the temperatures at normal operating pressure, the Pressurizer vapor space temperature has ____(1)____ and is ____(2)_____ Pressurizer liquid space temperature.

	___(1)___	___(2)___
A.	lowered	equal to
B.	lowered	lower than
C.	risen	equal to
D.	risen	higher than

Answer: A

Answer Explanation

A is CORRECT: Normal Pzr temperature is 653°F at 2235 PSIG. At 2150 PSIG, Pzr temperatures will be about 647°F. Given the conditions indicating the Pzr has achieved stability, vapor space temperature will equal liquid space temperature.

B is incorrect: Given the conditions indicating the Pzr has achieved stability, vapor space temperature will equal liquid space temperture.

C is incorrect: Because pressure is lower, saturation temperature is also lower.

D is incorrect: Because pressure is lower, saturation temperature is also lower. Given the conditions indicating the Pzr has achieved stability, vapor space temperature will equal liquid space temperature.

Question 46 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1245787
User-Defined ID:	46 BYLI RY011
Cross Reference Number:	
Topic:	Pzr saturation temperature
RO Importance:	3.1
SRO Importance:	3.4
K/A:	027AK1.01
Comments:	Source: New Cognitive Level: High Reference: Steam tables K/A 027AK1.01 Pressurizer Pressure Control System Malfunction: Knowledge of the operational implications of the following concepts as they apply to Pressurizer Pressure Control System Malfunctions: Definition of Saturation Temperature Question meets K/A – The examinee must know the given pressure is being controlled at lower than normal operating pressure, and that saturation temperature follows pressure. The examinee must understand that with spray valves in their normal, closed position that there is no error integral built in, so that the vapor and liquid temperatures will be equal. If the failure had allowed the backup heaters to come on so the spray valves had to be open to control pressure, then the liquid temperature could be different than vapor temperature.

47 **ID: 1245811** **Points: 1.00**

Unit 1 was at 100% power.

- The Unit 1 Main Turbine tripped because of a switchyard failure.
- The Unit 1 Reactor did NOT automatically trip and would NOT manually trip from MCR actions.
- The EO opened the Unit 1 Train A Reactor Trip Breaker locally, but could NOT open the Unit 1 Train B Reactor Trip Breaker.

10 minutes later, the steam dumps are controlling Tave to __(1)__, and __(2)__ of the previously open Feed Water Isolation Valves are CLOSED.

	__(1)__	__(2)__
A.	557°F	none
B.	557°F	all
C.	560°F	none
D.	560°F	all

Answer: D

Answer Explanation

A is incorrect: With B Trip breaker shut, the dumps control on the Load Reject controller at Tref + 3°F, or 560°F. In Plant Trip mode, dumps would control to 557°F.

B is incorrect: With B Trip breaker shut, the dumps control on the Load Reject controller at Tref + 3°F, or 560°F. In Plant Trip mode, dumps would control to 557°F. The FWI valves get a closed signal from both A and B ESFAS trains, so even with one train of P-4 not made up, all FWI valves close.

C is incorrect: The FWI valves get a closed signal from both A and B ESFAS trains, so even with one train of P-4 not made up, all FWI valves close.

D is CORRECT: With B Trip breaker shut, the dumps control on the Load Reject controller at Tref + 3°F, or 560°F. All FWI close.

Question 47 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1245811
User-Defined ID:	47 BYLI RP113
Cross Reference Number:	
Topic:	ATWS P-4 effects
RO Importance:	2.9
SRO Importance:	3.1
K/A:	029EK2.06
Comments:	Source: New Cognitive Level: High Reference: 6E-1-4030FW04 and 6E-1-4030MS09 K/A 029EK2.06 Anticipated Transient Without Scram: Knowledge of the interrelations between the following and an ATWS: Breakers, relays and disconnects. Question meets K/A – The examinee must know that when trip breakers are manipulated during an ATWS, what effect they will have on relays and controls of important interrelated systems such as Feed Water Isolation and Steam Dumps.

48 **ID: 1245847** **Points: 1.00**

2BEP ES-3.1, Post-SGTR Cooldown Using Backfill on Unit 2 is in progress.

In order to cooldown the ruptured SG, After the RCS cooldown has begun, the operators are directed to...

A. raise RCS pressure until SG level rises, then raise SG blowdown flow to lower SG level.

B. raise SG level with AF, then raise SG blowdown flow to lower SG level.

C. raise SG level above 42% with AF, and lower RCS pressure to lower SG level.

D. lower RCS pressure to lower SG level below 25%, then raise SG level by raising RCS pressure.

Answer: C

Answer Explanation

A is incorrect: This would be plausible in that the cooler RCS water would cool the SG, but this would further contaminate the SG.

B is incorrect: This is the SG blowdown method.

C is CORRECT: SG level is raised to >42%, the RCS pressure is lowered to backfill from the SG. This is feed (the SG), then bleed (the SG).

D is incorrect: Lowering RCS pressure will lower SG level, but SG level is restored with AF, not by raising RCS pressure. This would raise SG level, but would further contaminate the SG.

Question 48 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1245847
User-Defined ID:	48 BYLC3DEP16B006
Cross Reference Number:	
Topic:	Post-SGTR Cooldown Using Backfill
RO Importance:	3.6
SRO Importance:	3.7
K/A:	038EA1.39
Comments:	Source: New Cognitive Level: High Reference: 2BEP ES-3.1 Steps 7, 8 and 9 (continuous action steps) K/A 038EA1.39 Steam Generator Tube Rupture: Ability to operate and monitor the following as they apply to a SGTR: Drawing SG into the RCS, using the "feed and bleed" method. Question meets K/A - The examinee understand the concept and overall strategy of the backfill procedure, and how to feed and bleed.

49 **ID: 1245855** **Points: 1.00**

In accordance with BOA ELEC-4, LOSS OF OFFSITE POWER, if S/G PORV's are being utilized, then cooldown should be initiated within _____ hours, to insure an adequate AF supply.

A. 2

B. 4

C. 6

D. 12

Answer: A

Answer Explanation

A is CORRECT: 1BOA Elec-4 has a caution stating to start a cooldown within 2 hours if using SG PORVS.

B is incorrect: 4 hours is a common time found in surveillance requirements and some BOAs.

C is incorrect: 6 hours is a common TS time to be in MODE 3.

D is incorrect: 12 hours is a time limit found in the BGPs, and TS BOL requirements.

Question 49 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1245855
User-Defined ID:	49 BYLITOA10005
Cross Reference Number:	BY-FM-SIM-OOA01-1268-01
Topic:	LOOP cooldown time requirement
RO Importance:	3.8
SRO Importance:	4.3
K/A:	056G2.4.20
Comments:	Source: Byron Exam Bank Cognitive Level: Memory Reference: 1BOA Elec-4 K/A 056G2.4.20 Loss of Offsite Power: Knowledge of the operational implications of EOP warnings, cautions and notes. Question meets K/A – The examinee must know the time requirement to start a cooldown based on the caution in the LOOP procedure.

50 **ID: 1245867** **Points: 1.00**

Unit 1 was at 100% power.

- DC Bus 111 subsequently tripped when the bus experienced a complete short to ground.
- During the perfomance of 1BEP-0, "REACTOR TRIP OR SAFETY INJECTION", the PMG (Permanent Magnet Generator) Output Breaker was directed to be MANUALLY opened.

The PMG output breaker will be opened...

A. locally (at the breaker on TB 426' level) to prevent the PMG from backfeeding DC Bus 111.

B. locally (at the breaker on TB 426' level) to prevent the PMG from backfeeding DC Bus 113.

C. locally (at the breaker on TB 426' level) to de-excite the Main Generator allowing the busses fed from the UAT to ABT before voltage degrades.

D. manually (at 1PM01J) to de-excite the Main Generator allowing the busses fed from the UAT to ABT before voltage degrades.

Answer: C

Answer Explanation

A is incorrect: The PMG will not backfeed to DC 111, but it is a logical reason to open a breaker, and this choice provides a symetry to choice B. Byron's emergency diesel generators use DC power to flash the exciter field, so there is some possibility of backfeeding to DC from the excitation circuit.

B is incorrect: The PMG output breaker gets control power from DC 113, which is powered from DC 111. But the PMG won't backfeed DC 113.

C is CORRECT: With a loss of DC 111, the PMG loses control power from DC 113 to open. As the generator coasts down, voltage degrades, but the UAT stays energized until the PMG output breaker is opened.

D is CORRECT: The PMG output breaker can't be opened from the MCR (1PM01J) with a loss of DC 111/113.

Question 50 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1245867
User-Defined ID:	50 BWLC3DOA3016
Cross Reference Number:	
Topic:	Reason for PMG trip on loss of DC
RO Importance:	4.0
SRO Importance:	4.2
K/A:	058AK3.02
Comments:	Source: New Cognitive Level: High Reference: 1BOA Elec-1, 1BEP-0 background K/A 058AK3.02 Loss of DC Power: Knowledge of the reasons for the following responses as they apply to the Loss of DC Power: Actions contained in EOP for loss of DC power. Question meets K/A – The examinee must know the reason the PMG output breaker must be opened on a loss of DC control power. This is a higher order question because the examinee must deduce the loss of DC 111 will cause a loss of DC 113, preventing the PMG breaker from being opened from the MCR.

51 **ID: 1245890** **Points: 1.00**

Why do the RCFC inlet valves, 1SX016A/B, automatically OPEN upon a Safety Injection actuation?

A. Makeup the starting interlock for the SX pumps.

B. Makeup the starting interlock for the RCFC fans.

C. Provide long-term cooling of containment.

D. Provide a flowpath when the containment chiller inlet and outlet valves, 1SX112A/B and 114A/B ISOLATE.

Answer: C

Answer Explanation

A is incorrect: The SX pumps will autostart on an SI even if the associated train SX016 and SX027 are closed. These valves must be open for a manual start.

B is incorrect: The RCFC fans have a time delay interlock when changing speeds, and have an automatic function on SI actuation, but are not interlocked with the RCFC inlet valves.

C is CORRECT: Per UFSAR, page 6.2-43, RCFCs provide long-term cooling of containment following an SI.

D is incorrect: The CNMT chiller bypass valves, _SX147A/B, provide this flowpath.

Question 51 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1245890
User-Defined ID:	51 BYLI-SX1-002
Cross Reference Number:	
Topic:	Reason for RCFC inlet realignment
RO Importance:	3.6
SRO Importance:	3.9
K/A:	062AK3.02
Comments:	Source: New Cognitive Level: Memory Reference: UFSAR, page 6.2-43 K/A 062AK3.02 Loss of Nuclear Service Water: Knowledge of the reasons for the following responses as they apply to the Loss of Nuclear Service Water: The automatic actions (alignments) within the nuclear service water resulting from the actuation of the ESFAS. Question meets K/A – The examinee must know the reason valves in the SX system auto align on a SI signal, to provide long term containment cooling.

52 **ID: 1245908** **Points: 1.00**

If a loss of instrument air occurs and the reactor trips, RCS temperature will be controlled manually using the SG PORVs because the ___ will fail SHUT.

A. 1MS004A-M, Steam Dump Valves

B. 1CB039A-M, Steam Dump Spray Valves

C. 1MS001A-D, Main Steam Isolation Valves

D. 1CW001A-C, Circ Water Pump Discharge Valves

Answer: A

Answer Explanation

A is CORRECT: Steam dump valves fail shut on loss of IA, requiring use of SG PORVs to control RCS temperature.

B is incorrect: Steam Dump Spray Valves fail open

C is incorrect: MSIV have an IA accumulator to close a valve on loss of IA, but do not fail shut on loss of IA.

D is incorrect: CW Pump Disch Valves are motor operated and not affected by loss of IA. If they did shut, a loss of vacuum would result, requiring use of SG PORVs

.

Question 52 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1245908
User-Defined ID:	52 11-1 CERT2 Q#003
Cross Reference Number:	
Topic:	SD effect of lost IA
RO Importance:	3.8
SRO Importance:	4.2
K/A:	065G2.4.9
Comments:	Source: Byron Exam Bank Cognitive Level: Memory Reference: 1BOA Sec-4, Page 9 K/A 065G2.4.9 Loss of Instrument Air: Knowledge of low power/shutdown implication in accident (eg, loss of coolant accident or loss of residual heat removal) mitigation strategies Question meets K/A – The examinee must know the effect of a loss of IA on shutdown heat removal capabilities.

53 **ID: 1245917** **Points: 1.00**

Unit 1 had an automatic reactor trip and safety injection occur from full power.

- 1BCA-1.2, LOCA Outside Containment, Step 2 "Try to Identify and Isolate break", is in progress.
- 1SI8809A, RH to Cold Legs 1A & 1D Isolation Valve has just been CLOSED.

Positive indication that the leak is isolated is...

A. RVLIS level begins RISING.

B. RCS pressure begins RISING.

C. RH pump discharge pressure begins RISING.

D. Aux Building radiation levels begin LOWERING.

Answer: B

Answer Explanation

A is incorrect: RVLIS level can rise from accumulator injection or hot leg drain-down and doesn't mean the leak is isolated.

B is CORRECT: The note on page 5 states if RCS pressure begins to RISE, the ECCS valve(s) should remain closed. This is the only acceptable criteria to determine the leak is isolated.

C is incorrect: RH flow will lower, and pressure rise, when the flowpath is reduced. This doesn't mean the leak is isolated.

D is incorrect: AB radiation levels would lag any change in leakage, and would lower over time as less radioactive material is available to leak into the AB.

Question 53 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1245917
User-Defined ID:	53 NRC 2014 15
Cross Reference Number:	
Topic:	Leak outside CNMT isolation
RO Importance:	3.6
SRO Importance:	4.2
K/A:	E04EA2.2
Comments:	Source: Modified from Q#1144773 Cognitive Level: Memory Reference: 1BCA 1.2 K/A E04EA2.2 LOCA Outside Containment: Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments. Question meets K/A - Candidate must know the effect of isolating a LOCA outside CNMT in accordance with the guidance provided in the procedure.

54 **ID: 1244312** **Points: 1.00**

Unit 1 has experienced a LOCA.

- 1BEP ES-1.3 “Transfer to Cold Leg Recirculation” has been completed to the point of checking if **Hot Leg Recirculation** is required.

- The RO has reported:
  - SI ACTUATED bypass permissive light is NOT LIT.
  - AUTO SI BLOCKED bypass permissive light is LIT.

Subsequently, a **loss of offsite power** occurred.

- The EDGs have completed the sequencer actions, and NO further operator actions have been taken.

What is the status of the CV, SI and RH pumps?

A. The CV pumps are running without water supplied from a suction source, and the RH and SI pumps are NOT running.

B. The CV pumps are running with water supplied from the RWST, and the RH and SI pumps are NOT running.

C. The CV pumps are running with water supplied from the CNMT Recirculation Sump, and the RH and SI pumps are NOT running.

D. The CV, RH and SI pumps are all running, with water supplied from the CNMT Recirculation Sump.

Answer: A

Answer Explanation

A is CORRECT: There is a Caution after step 6 of BEP ES-1.3. The CV pumps will restart whereas the SI and RH pumps will not. The CV pumps are aligned to the discharge of the non-running RH pump, so there is no water suppy to them. Snce the stem states that the requirement for HL Recirc is being checked, all the CL recirec steps have been completed.

B is incorrect: The CV pumps suction source has been aligned to the discharge of the non-running RH pumps so have no water supplied. The CV pumps are isolated from the RWST a few steps after they are aligned to RH discharge, so examinee may incorrectly believe the RWST can still supply water.

C is incorrect: The CV pumps suction source has been aligned to the discharge of the non-running RH pumps so have no water supplied.

D is incorrect: The RH and SI pumps are not running. They would have restarted on the sequencer if SI signal was not reset and blocked.

Question 54 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1244312
User-Defined ID:	54 BW-COPS3-924
Cross Reference Number:	
Topic:	Effect of loss of recirc source on LOOP
RO Importance:	3.6
SRO Importance:	3.9
K/A:	E11EK2.1
Comments:	Source: New Cognitive Level: High Reference: 1BEP ES-1.3 K/A E11EK2.1 Loss of Emergency Coolant Recirc: Knowledge of the interrelations between Loss of Emergency Coolant Recirc and the following: Components, and functions of control and safety systems,including instrumentations, signals, interlocks, failure modes, and automatic and manual features. Question meets K/A – The examinee must know the signals, interlocks, automatic feature associated with the pumps (components) used in recirc mode, and what happens when signals are reset and subsequent failures (LOOP) occur as specified in the procedure.

55 **ID: 1145178** **Points: 1.00**

Unit 1 has experienced a feedwater pump trip

- The EO attempted to MANUALLY start the 1B Auxilary Feedwater pump from the pump room.
- He attempted TWO 5-second crank attempts on the diesel, but it FAILED to start.
- The EO subsequently determined that a fuel supply valve was closed.

Which of the following describes the status of starting power for the 1B Diesel AF pump?

A. The in-service set of batteries are too discharged to start the diesel, and the standby batteries must be MANUALLY aligned.

B. The in-service set of batteries would still have adequate power to start the diesel.

C. The in-service set of batteries are too discharged to start the diesel, and the standby batteries will be AUTOMATICALLY aligned.

D. Both sets of batteries are normally paralleled, and are too discharged to start the diesel.

Answer: B

Answer Explanation

A is incorrect: There is enough reserve capacity in the inservice set that the EO does not have to align the other set.

B is CORRECT: There are two independent starting battery banks which are selectable. Upon any start signal, if the diesel fails to start, it will attempt 4 crank attempts before locking out - therefore reserve capacity still exists for this situation.

C is incorrect: The batteries are not connected together; a local selector switch chooses the inservice bank.

D is incorrect: In other cases, EMD must jumper power to a panel, for example they have stabs and gear to power bus 143 in event of a loss of offsite power. This is not required in this case.

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Question 55 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1145178
User-Defined ID:	55 BYLI-AF1-031
Cross Reference Number:	BY-SYS-QUEST #: SAF0029
Topic:	1B AFP battery capacity
RO Importance:	3.6
SRO Importance:	4.6
K/A:	E05G2.2.37
Comments:	Source: Byron Exam Bank Cognitive Level: High Reference: BAR 1-3-C6, BOSR for 1B AF pump start test K/A E05G2.2.37 Loss of Secondary Heat Sink: Ability to determine operability and/or availability of safety related equipment Question meets K/A – The examinee must determine that the 1B AF is still available to mitigate a loss of heat sink.

56 **ID: 1146049** **Points: 1.00**

Unit 1 has the following plant conditions:

- Generator output: 1200 MW
- MVAR out: 300 MVAR OUT
- Generator Gas pressure: 60 psig
- Voltage Regulator: ON

Which of the following describes the proper operator actions?

A. Lower excitation by placing the Voltage Adjustor to lower.

B. Lower excitation by placing the Base Adjustor to lower.

C. Raise excitation by placing the Voltage Adjustor to raise.

D. Raise excitation by placing the Base Adjustor to raise.

Answer: A

Answer Explanation

A is CORRECT: The MVAR loading is outside the capability curve, so excitation has to be lowered. With the Voltage Regulator ON, it is lowered by use of the Voltage Adjuster. The Base Adjuster is used when the VR is OFF.

B is incorrect: With the Voltage Regulator ON, it is lowered by use of the Voltage Adjuster.

C is incorrect: The MVAR loading is outside the capability curve, so excitation has to be lowered.

D is incorrect: The MVAR loading is outside the capability curve, so excitation has to be lowered. With the Voltage Regulator ON, it is lowered by use of the Voltage Adjuster.

Question 56 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1146049
User-Defined ID:	56 BYLC3CMP01A005
Cross Reference Number:	BY FM NO. 232 QUIZ BANK
Topic:	Required actions for HI MVARS with low Hydrogen pressure
RO Importance:	3.3
SRO Importance:	3.4
K/A:	077AK1.02
Comments:	**Provided reference: BCB figure 20a** Source: Byron Exam Bank Cognitive Level: High Reference: BGP 100-3, BCB figure 20a K/A 077AK1.02 Generator Voltage and Electric Grid Disturbances: Knowledge of the operational implications of the following concepts as they apply to GV and EGD: Over-excitation. Question meets K/A - The examinee must know that the turbine generator is over excited for the given conditions, and what operating actions must be taken.

57 **ID: 1246127** **Points: 1.00**

Unit 1 was runback from 75% power due to the loss of a feedwater pump.

- Control Bank D group 1 rod M-12 position remains at 186 steps.
- Control Bank D group 2 rod D-12 position is indicating 150 steps.
- Control Bank D bank demand is 135 steps.
- PDMS is OPERABLE.

Which ONE of the following actions is required?

A. Trip the reactor and implement 1BEP-0,"Reactor Trip or Safety Injection".

B. Perform an incore flux map to determine rod position.

C. Verify Shutdown Margin OR initiate boration to restore SDM within ONE hour.

D. Verify Shutdown Margin within ONE hour. If SDM is NOT met, initiate boration to restore SDM within the NEXT hour.

Answer: C

Answer Explanation

A is incorrect: 1BOA Rod-3 requires a trip for 2 DROPPED rods.

B is incorrect: A flux map would be performed if PDMS were inoperable; the question does not state it is inoperable, and nothing in the stem would lead to it being inoperable.

C is CORRECT: With 1 or more rods not aligned, TS 3.1.4 requires that SDM is verified within 1 hour, OR boration initiated within 1 hour if SDM is not met.

D is incorrect: Verifiying SDM OR borating must be done within the first hour. It is not an If-Then statement.

Question 57 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1246127
User-Defined ID:	57 BYLI-ROD3001
Cross Reference Number:	BY-FM-SIM-1969-00
Topic:	TS actions for misaligned rods
RO Importance:	3.9
SRO Importance:	4.5
K/A:	APE005G2.2.39
Comments:	Source: New Cognitive Level: Memory Reference: 1BOA Rod-3, TS 3.1.4 K/A APE005G2.2.39 Inoperable/Stuck Control Rod: Knowledge of less than or equal to one hour Technical Specification actions statements for systems. Question meets K/A – The examinee must know the required actions when TS 3.1.4 for control rod alignment is not met.

58 **ID: 1246130** **Points: 1.00**

Unit 1 was at 100% power.

- The turbine generator spuriously tripped.
- Both reactor trip breakers are CLOSED.
- The crew is performing the actions of 1BFR S.1, Response to Nuclear Power Generation/ATWS.
- Emergency boration was begun 20 minutes ago in accordance with 1BFR S.1 requirements.
- Tave is at 547°F and slowly lowering.

The boration must…

A. be stopped once the reactor is tripped.

B. continue because RCS temperature is below 557°F.

C. continue until reactor power is less than 5% with a negative SUR.

D. continue until adequate Shutdown Margin is verified.

Answer: D

Answer Explanation

A is incorrect: There is no procedural direction to stop boration when reactor is tripped.

B is incorrect: The RCS is below normal Tave, but that is the reason for borating in 1BEP ES-0.1, not in 1BFR S.1. There is procedural guidance to deal with an uncontrolled cooldown.

C is incorrect: There is no procedural direction to stop boration when power is <5%.

D is CORRECT: 1BFR S.1 Caution before step 16 states “Boration should continue to obtain adequate shutdown margin during subsequent actions”.

Question 58 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1246130
User-Defined ID:	58 11-1 CERT2 Q#026
Cross Reference Number:	
Topic:	Boration in BFR S.1
RO Importance:	4.1
SRO Importance:	4.4
K/A:	024AK3.01
Comments:	Source: Byron Exam Bank Cognitive Level: Memory Reference: 1BFR S.1 background document K/A 024AK3.01 Emergency Boration: Knowledge of the reasons for the following responses as they apply to Emergency Boration: When emergency boration is required. Question meets K/A – The examinee must know that the REASON boration is continuing in 1BFR S.1, is in order to assure adequate SDM. The other reasons also will later apply for emergency boration, but not until the crew has transitioned procedures to 1BEP ES-0.1.

59 **ID: 1246132** **Points: 1.00**

Unit 1 is at 100% power.

- The SJAE/GS radiation monitor indicates a rising trend in activity detected.

The crew checks the S/G parameters and observe the following:

- The M/A station controller demand for the 1A FRV is slightly greater than the demand signals for the other FRVs.
- The steam flow for the 1B S/G is slightly less than the steam flow for the other S/Gs.
- The steamline radiation monitors associated with the 1C S/G indicate an activity level of about two times greater than the other S/Gs.
- The feedwater flow for the 1D S/G is slightly greater than the feedwater flow for the other S/Gs.

The S/G with the S/G tube leak is the...

A. 1A S/G.

B. 1B S/G.

C. 1C S/G.

D. 1D S/G.

Answer: C

Answer Explanation

A is incorrect: The difference in FRV demand is normal, and if ruptured, the demand would be lower, not higher.

B is incorrect: A slight difference in indicated SF is normal, and a ruptured SG will not lower steam flow. It might cause it to be slightly higher.

C is CORRECT: The rising radiation level confirms a tube leak in the 1C SG; all SGs would show very similar MS rad rates if the feedwater were slightly contaminated. A 2 times rise means there is primary leakage into that SG. The N-16 gamma decay will be gone by the time the condensed steam gets to the other SGs as feedwater, so won't cause much of a rise in their MS rad detectors.

D is incorrect: A slight difference in indicated FF is normal, and if sufficiently ruptured, the affected SG would have lower FF.

Question 59 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1246132
User-Defined ID:	59 BRDLC3DOA7004
Cross Reference Number:	
Topic:	MS rads on SGTL
RO Importance:	3.4
SRO Importance:	3.9
K/A:	037AA2.03
Comments:	Source: Byron Exam Bank Cognitive Level: High Reference: 1BOA Sec-8 K/A 037AA2.03 Steam Generator Tube Leak: Ability to determine and interpret the following as they apply to the Steam Generator Tube Leak: That the expected indication on main steam lines from the SGs should show increasing radiation levels. Question meets K/A – the examinee must determine the leaking SG based on rising MS radiation levels.

60 **ID: 1146053** **Points: 1.00**

Unit 1 tripped from full power 10 minutes ago.

- The Steam Dump Mode Select Switch is selected to Tave.
- Tave is 561°F.
- The C-9, Condenser Not Available, light is LIT.
- 1A Circulating Water Pump is running.
- Condenser PRESSURE is 12" Hg Absolute.

The steam dump valves will IMMEDIATELY open when...

A. a second Circulating Water Pump is started.

B. condenser pressure is lowered below 7" Hg Absolute.

C. the Steam Dump Mode Select Switch is taken to RESET to reset C-9.

D. the Steam Dump Mode Select Switch is taken to Steam Pressure Mode.

Answer: B

Answer Explanation

A is incorrect: 2 CD/CB pumps are required for a FW pump; candidates may confuse with CW pumps for C-9.

B is CORRECT: The condenser is NOT available if condenser pressure is greater than 7" Hg Absolute, or NO Circ Water pumps are running.

C is incorrect: C-7, the Loss of Turbine Load interlock, not C-9, is reset with the Mode Select Switch.

D is incorrect: Mode Select Switch CAN select SP Mode, but dumps won't open with C-9 lit.

Question 60 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1146053
User-Defined ID:	60 BYLI-DU1-099
Cross Reference Number:	
Topic:	Reason dumps are inop without C-9
RO Importance:	2.8
SRO Importance:	3.1
K/A:	051AK3.01
Comments:	Source: Byron Exam Bank Cognitive level: High Reference: 1BOA Sec-3, Loss of Condenser Vacuum K/A 051 AK3.01 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 meets K/A - This meets the K/A because the candidate must know why the steam dumps are disarmed with a loss of condenser vacuum.

61 **ID: 1246152** **Points: 1.00**

Unit 1 is at 100% power.

- CNMT VENT ISOLATION (1-5-C7) annunciator alarmed.
- The reactor did NOT trip, and power operation continued uninterrupted.

Which of the following is likely cause of this annunciator alarm?

A. CNMT Area Monitor 1RE-AR011 failed high.

B. CNMT Purge Exhaust Monitor 1RE-PR001 failed high.

C. Either manual CNMT Phase A Reset momentarily depressed.

D. One of the two CNMT Spray Actuation switches on 1PM06J taken to ACTUATE.

Answer: A

Answer Explanation

A is CORRECT: 1AR011 or 1AR012 HIGH will result in a CNMT vent isolation.

B is incorrect: 1PR001 has no interlock or automatic functions.

C is incorrect: Phase A ISOLATION signal will cause a CNMT vent isolation, but resetting it will not.

D is incorrect: CS actuation (BOTH trains) will cause a CNMT vent isolation, but not ONE switch actuation.

Question 61 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1246152
User-Defined ID:	61 BYLC3CAR03A001
Cross Reference Number:	
Topic:	CNMT VENT ISOLATION annunciator alarms.
RO Importance:	2.6
SRO Importance:	2.9
K/A:	060AK2.01
Comments:	Source: Byron Exam Bank Cognitive Level: Memory Reference: RM-11 BAR, BAR 1-5-C7 K/A 060AK2.01 Accidental Gaseous Radwaste Release: Knowledge of the interrelations between the Accidental Gaseous Radwaste Release and the following: ARM system, including the normal radiaton -level indications and the operability status. Question meets K/A – The examinee must know the effect of an ARM failure on the containment system that prevents an Accidental Gaseous Radwaste Release.

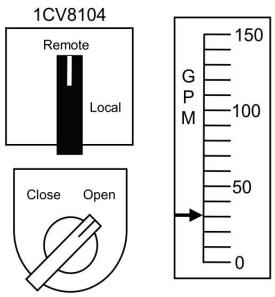
62 **ID: 1246170** **Points: 1.00**

Unit 1 Main Control Room has been evacuated in accordance with 1BOA Pri-5, Control Room Inaccessiblity.

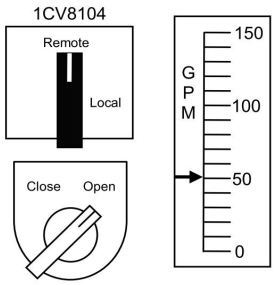
- Emergency boration of the RCS is required, per 1BOA Pri-2, Emergency Boration.

Which of the following shows the proper valve alignment and the MINIMUM REQUIRED emergency boration flowrate?

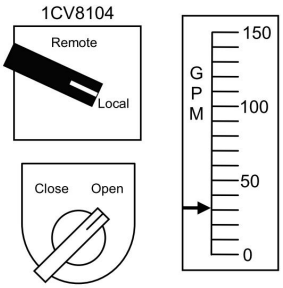
A.



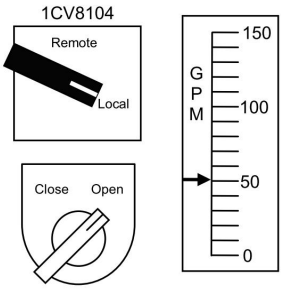
B.



C.



D.



Answer: C

Answer Explanation

A is incorrect: This shows the RSDP switch in Remote, which gives MCR control of the 1CV8104.

B is incorrect: This shows the RSDP switch in Remote, and 50 GPM boration, which is a commonly held misconception because the meter is marked there.

C is CORRECT: 1BOA Pri-2 calls for minimum of 30 GPM emergency boration. The RSDP switch must be in LOCAL to open the 1CV8104.

D is incorrect: This shows a 50 GPM boration.

Question 62 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1246170
User-Defined ID:	62 BYLI-PRI5-001
Cross Reference Number:	
Topic:	Boration at RSDP
RO Importance:	3.9
SRO Importance:	4.1
K/A:	068AA1.11
Comments:	Source: New Cognitive Level: High Reference: 1BOA Pri-2 and 1BOA Pri-5 K/A 068AA1.11 Control Room Evacuation: Ability to operate and/or monitor the following as they apply to the Control Room Evacuation: Emergency borate valve controls and indications. Question meets K/A – The examinee must be able to monitor and apply the procedural rules for emergency boration.

63 **ID: 1246208** **Points: 1.00**

The operators have implemented BCA 1.1, "Loss of Emergency Coolant Recirculation".

- A Red path is identified.
- BFR-Z.1, "Response to High Containment Pressure" is subsequently entered and containment isolation is verified.
- The operators then operate the containment spray system according to the directions of BCA 1.1 instead of BFR-Z.1.

BCA 1.1 takes precedence over BFR Z.1 with these conditions because the BCA 1.1 pump operating criteria...

A. are less restrictive, permitting reduced containment spray operation to conserve RWST water.

B. provide a more rapid means of verifying automatic actuation of the containment spray system.

C. ensure that the maximum heat removal system capacity is used to reduce containment pressure.

D. are more restrictive, ensuring continuous containment spray system operation to reduce containment pressure.

Answer: A

Answer Explanation

A is CORRECT: CS is operated by a unique table contained in BCA 1.1 to conserve RWST inventory.

B is incorrect: BCA 1.1 doesn't provide a more rapid verification of CS.

C is incorrect: BCA 1.1 doesn't maximize heat removal from CNMT, but ensures adequate amount.

D is incorrect: BCA 1.1 criteria are less restrictive to conserve RWST water.

Question 63 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1246208
User-Defined ID:	63 BYLITFR53005
Cross Reference Number:	
Topic:	BFR Z.1 and BCA 1.1
RO Importance:	3.2
SRO Importance:	3.7
K/A:	E14EK1.2
Comments:	Source: Byron Exam Bank Cognitive Level: Memory Reference: BCA 1.1 background document K/A E14EK1.2 High Containment Pressure: Knowledge of the operational implications of the following concepts: Normal, abnormal and emergency operating procedures associated with High Containment Pressure. Question meets K/A – The examinee must know the implications and interrelationship of the procedure for high CNMT pressure: BFR Z.1 as used with the loss of recirc procedure: BCA 1.1

64 **ID: 1246229** **Points: 1.00**

1BFR C.1, “Response to Inadequate Core Cooling”, has the operator depressurize all intact steam generators to 90 psig and then to atmospheric pressure in order to...

A. allow more feedwater into the steam generators to enhance Natural Circulation.

B. allow the SI Accumulators and the RH system to inject water into the core.

C. inject a sufficient quantity of borated water to provide adequate shutdown margin.

D. establish sufficient subcooling to maximize Natural Circulation flow.

Answer: B

Answer Explanation

A is incorrect: Depressurizing the SG will allow more feedwater, but that is not the reason for doing it.

B is CORRECT: WOG Background information, Section 2, Description (_FR-C.1)
Reinitiation of high pressure safety injection is the most effective method to recover the core and restore adequate core cooling. If some form of high pressure injection cannot be established or is ineffective in restoring adequate core cooling, then the operator must take actions to reduce the RCS pressure in order for the SI accumulators and low-head SI pumps to inject. Analyses have shown that a rapid secondary depressurization is the most effective means for achieving this.

C is incorrect: With the reactor tripped, there is adequate SDM, although adding accumulator contents will add boron which will raise the SDM.

D is incorrect: Cooldown may raise subcooling, but that is not the reason for doing the cooldown.

Question 64 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1246229
User-Defined ID:	64 BYLC3DFR02A008
Cross Reference Number:	
Topic:	BFR C.1 SG depress
RO Importance:	3.5
SRO Importance:	3.6
K/A:	074EK2.06
Comments:	Source: Byron Exam Bank Cognitive Level: Memory Reference: BFR C.1 WOG background K/A 074EK2.06 Inadequate Core Cooling: Knowledge of the interrelations between the Tubine Bypass and atmospheric dump valves and Inadequate Core Cooling. Question meets K/A – The examinee must know the SGs are depressurized, using steam dump valves and/or SG PORVs, during BFR C.1 in a effort to restore core cooling.

65 **ID: 1146056** **Points: 1.00**

Unit 1 experienced a loss of coolant accident, and the crew is responding to Containment pressure of 23 PSIG using 1BFR-Z.1 "Response to High Containment Pressure".

The crew will perform all of the following actions, EXCEPT...

A. verify containment isolation.

B. verify containment heat removal capabilities.

C. perform a release from containment.

D. check for and isolate any faulted Steam Generators.

Answer: C

Answer Explanation

A is incorrect: CNMT isolation is verified in BFR Z.1.

B is incorrect: CS and RCFCs are operated in BFR Z.1

C is CORRECT: CNMT is not released in 1BFR Z.1. Distractors are plausible because ensuring the CS system is operating as designed is the obvious response to 23 psig in cnmt. A cnmt release is a possible response to high cnmt pressure in the Severe Accident Management Guidleines, but not in the BFRs. This is a NOT question, which is normally to be avoided. In this case, there is a dearth of credible distractors to write it otherwise, and the selected distractors are the less obvious responses fro the procedure.

D is incorrect: Faulted SGs are isolated in BFR Z.1.

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Question 65 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1146056
User-Defined ID:	65 BYLI-FRZ-001
Cross Reference Number:	
Topic:	High level actions of BFR Z.1
RO Importance:	3.7
SRO Importance:	4.7
K/A:	E13G2.4.6
Comments:	Source: Byron exam bank Cognitive level: Memory Reference: 1BFR Z.1 K/A E13G2.4.6 High Containment Pressure: Knowledge of EOP mitigation strategies. Question meets K/A - The examinee must understand the procedure usage and actions to remedy high containment pressure.

66 **ID: 1246232** **Points: 1.00**

When reactor power goes above P-10, Nuclear At Power, C-1, the Intermediate Range High Flux Rod Stop, is BLOCKED _____(1)_____ .
C-1 prevents _____(2)_____ rod withdrawal.

	_____(1)_____	_____(2)_____
A.	AUTOMATICALLY	ONLY AUTOMATIC
B.	AUTOMATICALLY	AUTOMATIC AND MANUAL
C.	MANUALLY	ONLY AUTOMATIC
D.	MANUALLY	AUTOMATIC AND MANUAL

Answer: D

Answer Explanation

A is incorrect: C-1 is manually blocked. It prevents both automatic and manual rod withdrawal.

B is incorrect: C-1 is manually blocked

C is incorrect: It prevents both automatic and manual rod withdrawal.

D is CORRECT: C-1 is manually blocked, to prevent automatic and manual rod withdrawal to prevent an IR high flux trip.

Question 66 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1246232
User-Defined ID:	66 BYLI EF010
Cross Reference Number:	
Topic:	Function of C-1
RO Importance:	4.1
SRO Importance:	4.1
K/A:	G2.1.28
Comments:	Source: New Cognitive level: Memory Reference: BAR 1-10-A2, 1-BP-3.4 K/A G2.1.28 Knowledge of the purpose and function of major system components and controls. Question meets K/A - The examinee must know HOW and WHY the C-1, IR High Flux Rod Stop, (an important control during reactor startup) is blocked.

67 **ID: 1246247** **Points: 1.00**

Unit 1 is at 100% power.

- The status lights shown below are on the 1PM06J, Group 1 MLB-5, Readiness status light panel. (GRAY is NOT lit.)

Choose the required and expected valve alignment.

A.

SI8811A OPEN	SI8811B OPEN	SI8840 OPEN
SI8812A CLOSED	SI8812B CLOSED	RH610 OPEN
RH8701A OPEN	RH8701B OPEN	RH611 OPEN
RH8702A OPEN	RH8702B OPEN	

B.

SI8811A OPEN	SI8811B OPEN	SI8840 OPEN
SI8812A CLOSED	SI8812B CLOSED	RH610 OPEN
RH8701A OPEN	RH8701B OPEN	RH611 OPEN
RH8702A OPEN	RH8702B OPEN	

C.

SI8811A OPEN	SI8811B OPEN	SI8840 OPEN
SI8812A CLOSED	SI8812B CLOSED	RH610 OPEN
RH8701A OPEN	RH8701B OPEN	RH611 OPEN
RH8702A OPEN	RH8702B OPEN	

D.

SI8811A OPEN	SI8811B OPEN	SI8840 OPEN
SI8812A CLOSED	SI8812B CLOSED	RH610 OPEN
RH8701A OPEN	RH8701B OPEN	RH611 OPEN
RH8702A OPEN	RH8702B OPEN	

Answer: B

Answer Explanation

A is incorrect: This shows RH610 and 611 closed. They will be open.

B is CORRECT: The RH610 and 611 are OPEN with the RH system in standby (with no flow), and SI8811A and B are CLOSED.

C is incorrect: This shows SI8811A and B open, they must be closed. RH610 and 611 must be open.

D is incorrect: This shows SI8811A and B open, they must be closed.

Question 67 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1246247
User-Defined ID:	67 BYLI 2131-001
Cross Reference Number:	
Topic:	Valve position
RO Importance:	4.6
SRO Importance:	4.3
K/A:	G2.1.31
Comments:	Source: New Cognitive level: High Reference: RH BOSR K/A G2.1.31 Ability to locate control room switches, controls, and indications, and to determine that they correctly reflect the desired plant lineup. Question meets K/A - The examinee must be able to interpret the status lights, and know how they reflect how the plant should be aligned.

68 **ID: 1246248** **Points: 1.00**

An Estimated Critical Condition (ECC) has been calculated for a Beginning of Life (BOL) reactor startup, with a Negative Moderator Temperature Coefficient (-MTC), that is to be performed **5 hours** after a trip from a 60 day full power run.

Which of the following events or conditions will result in the ACTUAL critical control rod height being LOWER than the PREDICTED control rod height in the ECC?

(Consider each item separately)

A. The startup is delayed 2 hours due to a passing thunderstorm.

B. Main Steam Header pressure is lowered by 100 psi just prior to criticality.

C. A new boron sample shows a current boron concentration 20 ppm higher than that used in the ECC calculation.

D. The Nuclear Engineer used the EOL Integrated Rod Worth Curve instead of the BOL Curve for the ECC calculation.

Answer: B

Answer Explanation

A is incorrect: Delaying the S/U is wrong due to the affects of Xenon building in after the trip.

B is CORRECT: Lowering MS hdr P# lowers RCS temp adding positive reactivity, which would be more than what was assumed in the ECC, therefore rods would not have to be removed as far to achieve criticality.

C is incorrect: A higher boron concentration that what was assumed in the ECC means rods would have to be removed more than predicted.

D is incorrect: Control rods are worth more at end of life due to decreased competition from boron which would make predicted position less than actual.

Question 68 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1246248
User-Defined ID:	68 BW-COPS4-109
Cross Reference Number:	
Topic:	Reactivity effects on ECP
RO Importance:	4.1
SRO Importance:	4.3
K/A:	G2.1.43
Comments:	Source: Byron Exam Bank Cognitive Level: High Reference: ILT Reactivity lesson plan K/A G2.1.43 Ability to use procedures to determine the effects on reactivity of plant changes, such as reactor coolant system temperature, secondary plant, fuel depletion, etc. Question meets K/A – The examine must know the effects of plant changes on the reactivity of a reactor startup.

69 **ID: 1246250** **Points: 1.00**

When closing a THROTTLEABLE MOV, an operator receives a full closed indication. Per OP-AA-103-105, Limitorque Motor-Operated Valve Operations, at this point the operator is required to...

A. immediately release the control switch.

B. continue to hold the handswitch in the CLOSED position until the TSLB position light is verified closed.

C. continue to hold the handswitch in the CLOSED position until valve has been LOCALLY verified closed.

D. continue to hold the handswitch in the CLOSED position for approximately 5 seconds.

Answer: D

Answer Explanation

A is incorrect: This is acceptable for a non-throttleable switch, but not a throttelable MOV.

B is incorrect: This is a good way to verify valve position, but not required.

C is incorrect: This is a method to ensure valve is shut, but not required.

D is CORRECT: Per OP-AA-103-105, step 4.2.2, substep 2, throttleable switches are held to CLOSE for 5 seconds after the limit switch light comes on to ensure closure.

Question 69 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1246250
User-Defined ID:	69 RG20002-001
Cross Reference Number:	
Topic:	Limitorque valve switch operation
RO Importance:	4.6
SRO Importance:	4.1
K/A:	G2.2.2
Comments:	Source: Byron Exam Bank Cognitive Level: Memory Reference: OP-AA-103-105 K/A G2.2.2 Ability to manipulate the console controls as required to operate the facility between shutdown and designated power levels. Question meets K/A – The examinee must know the requirements to manipulate the control room switch for a limitorque valve.

70 **ID: 1246287** **Points: 1.00**

The following occurs for testing of a normally open, motor operated containment isolation valve:

- The valve passed its previous surveillance testing last quarter.
- The surveillance procedure was begun at 0800.
- At 0830, the valve would NOT stroke in the closed direction and the Unit Supervisor was informed of the failure.
- At 0900, the surveillance was completed and logged as UNSAT.

When is the Completion Time clock started to comply with the Tech Spec Required Action resulting from the valve INOPERABILITY?

A. At 0800 when the surveillance was begun.

B. At 0830 when the valve failure was discovered and reported.

C. At 0900 when the surveillance was logged completed.

D. At the date and time of the completion of last quarter's surveillance.

Answer: B

Answer Explanation

A is incorrect: Plausible for candidate to assume that you must go back to the start of the surveillance.

B is CORRECT: The Completion Time is the amount of time allowed for completing a Required Action. It is referenced to the time of discovery of a situation (e.g., inoperable equipment or variable not within limits) that requires entering an ACTIONS condition.

C is incorrect: Plausible for candidate to assume that it is from the completion of the surveillance. This would result in a delay of required actions.

D is incorrect: Plausible for candidate to assume that you must go back to the last successful surveillance.

Question 70 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1246287
User-Defined ID:	70 RG20034-007
Cross Reference Number:	
Topic:	Timeclock for surveilliance
RO Importance:	3.7
SRO Importance:	4.1
K/A:	G2.2.12
Comments:	Source: Byron Exam Bank Cognitive Level: Memory Reference: TS 1.3 K/A G2.2.12 Knowledge of surveillance procedures Question meets K/A – The examinee must understand that when a component fails a surveillance, it is not operable as of the time the failure is discovered.

71 **ID: 1246289** **Points: 1.00**

Unit 2 is at 100% power.

- A leakage surveillance was just performed and indicates 3 gpm of total RCS leakage
- After investigation, the following leaks are discovered:
  - The 2C S/G has a 0.15 gpm tube leak
  - Pzr PORV 2RY455A has 1.2 gpm of seat leakage
  - 0.5 gpm of RCS leakage is coming from the body of 2RC8001A (Hot Leg LSIV)
  - 0.3 gpm is leaking through the reactor head vents

Which leakage limits have been exceeded?

A. PRESSURE BOUNDARY and PRIMARY TO SECONDARY leakage

B. PRESSURE BOUNDARY and UNIDENTIFIED leakage

C. IDENTIFIED and PRESSURE ISOLATION VALVE leakage

D. PRIMARY TO SECONDARY and PRESSURE ISOLATION VALVE leakage

Answer: A

Answer Explanation

A is CORRECT: There is >150 gpd of primary to secondary leakage and pressure boundary leakage thru RC8001 of > 0 gpm.

B is incorrect: There is NO unidentified leakage; 1 gpm is allowable.

C is incorrect: There is 1.2 identified leakage; 10 gpm is allowable. There is no pressure isolation valve listed.

D is incorrect: There is no pressure isolation valve listed.

Question 71 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1246289
User-Defined ID:	71 BYLI-RC1-133
Cross Reference Number:	
Topic:	TS leakage determination
RO Importance:	3.9
SRO Importance:	4.6
K/A:	G2.2.42
Comments:	Source: Byron Exam Bank Cognitive Level: High Reference: TS 3.4.13 & 3.4.14 K/A G2.2.42 Ability to recognize system parameters that are entry-level conditions for Technical Specifications. Question meets K/A – The examinee must determine what parameters are exceeded requiring TS entry.

72 **ID: 1246308** **Points: 1.00**

The Total Effective Dose Equivalent Administrative radiation exposure limits for a 25 year old male Byron Operator, without an additional authorization to raise limits, are (in mrem per year)...

A. 200

B. 500

C. 2000

D. 5000

Answer: C

Answer Explanation

A is incorrect: The admin limit for minor workers is 200 mrem per year.

B is incorrect: The 10CFR 20 limit for minor workers is 500 mrem per year.

C is CORRECT: The Exelon admin limit for adult workers is 2000 mrem per year.

D is incorrect: The 10CFR 20 limit for adult workers is 5000 mrem per year.

Question 72 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1246308
User-Defined ID:	72 BYLI RP010
Cross Reference Number:	
Topic:	Rad exposure
RO Importance:	3.2
SRO Importance:	3.7
K/A:	G2.3.4
Comments:	Source: New Cognitive Level: Memory Reference: RP-AA-203 K/A G2.3.4 Knowledge of radiation exposure limits under normal or emergency conditions. Question meets K/A – The examinee must recall normal exposure limits

73 **ID: 1246328** **Points: 1.00**

When leaving a radiologically controlled area, if the operator is presented with a Whole Body Monitor (WBM) and a portable survey instrument, the operator should use the ___(1)___.

When a WBM is used, if an alarm is received the operator must exit and _____(2)_____.

	____(1)____	_____(2)_____
A.	WBM	allow the alarm to reset and try the monitor again.
B.	WBM	notifiy Radiation Protection before monitoring again
C.	portable instrument	allow the alarm to reset and try the monitor again
D.	portable instrument	notifiy Radiation Protection before monitoring again

Answer: A

Answer Explanation

A is CORRECT: Per RP-AA-350, the WBM is preferred, and if an alarm sounds, the user should try again after the alarm resets.

B is incorrect: Per RP-AA-350, if an alarm sounds, the user should try again after the alarm resets.

C is incorrect: Per RP-AA-350, the WBM is preferred.

D is incorrect: Per RP-AA-350, the WBM is preferred, and if an alarm sounds, the user should try again after the alarm resets.

Question 73 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1246328
User-Defined ID:	73 BYLI RP011
Cross Reference Number:	
Topic:	Whole body monitor
RO Importance:	2.9
SRO Importance:	2.9
K/A:	G2.3.5
Comments:	Source: New Cognitive Level: Memory Reference: RP-AA-350 K/A G2.3.5 Ability to use radiation monitoring systems, such as fixed radiation monitors and alarms, portable survey instruments, personnel monitoring equipment, etc. Question meets K/A – The examinee must understand the usage of monitoring equipment and what to do when an alarm is received.

74 **ID: 1146275** **Points: 1.00**

When performing 1BEP-3 for a Steam Generator Tube Rupture, the operators are directed to depressurize the RCS at Step 16 until any of the following conditions are met:

- RCS pressure < Ruptured SG pressure and Pzr level > 12%
- Pzr level > 69%
- RCS subcooling is NOT acceptable

This depressurization of the RCS will...

A. reduce primary to secondary leakage and raise injection flow.

B. reduce primary to secondary leakage and lower injection flow.

C. result in secondary to primary leakage, lowering ruptured SG level, allowing injection flow to be stopped.

D. NOT reduce primary to secondary leakage until injection flow is stopped.

Answer: A

Answer Explanation

A is CORRECT: BD-EP-3, page 40, background for BEP-3. Leakage is not stopped until SI is terminated, but leakage is reduced. Lowering RCS pressure raises injection flow, allowing Pzr level to rise, restoring RCS inventory.

B is incorrect: Injection flow is not lowered by reducing RCS pressure.

C is incorrect: Back leakage at this point will be minor if it occurs at all, and will cease when the depressurization is stopped.

D is incorrect: Primary leakage IS reduced (although not stopped) before SI is terminated.

Question 74 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1146275
User-Defined ID:	74 CERT 2010 RO 21
Cross Reference Number:	
Topic:	Reason for equalizing pressures during SGTR
RO Importance:	3.3
SRO Importance:	4.0
K/A:	G.2.4.18
Comments:	Source: Byron Bank Cognitive Level: Low Reference: BD-EP-3 K/A 038EK3.01 Knowledge of the reasons for the following responses as they apply to the SGTR: Equalizing pressure on primary and secondary sides of ruptured S/G. Question meets K/A - Candidate must recall the basis for the EOP step of reducing RCS pressure to the pressure of the ruptured SG.

75 **ID: 1246448** **Points: 1.00**

Unit 1 has an Emergency Plan event in progress.

- An ENS notification is required to be made.
- The NSO in the MCR picks up the ENS phone to make the notification but finds the phone line dead.

The NSO must...

A. call the NRC using the NARS phone.

B. call the NRC using a commercial phone line.

C. request the TSC make the ENS notification.

D. make the ENS notification to the NRC Resident Inspector.

Answer: B

Answer Explanation

A is incorrect: The NARS phone connects to the state and local emergency organizations.

B is CORRECT: If the NRC's dedicated phone does not work, the communicator is provided a phone number to call in on.

C is incorrect: It is the communicator's duty to make the notification. The TSC is likely not yet staffed in any case.

D is incorrect: The ENS notification must go to NRC headquarters, not to the Resident Inspector.

Question 75 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1246448
User-Defined ID:	75 BRDLC7FZP5002
Cross Reference Number:	
Topic:	NSO communicator duty
RO Importance:	3.9
SRO Importance:	3.8
K/A:	G2.4.39
Comments:	Source: Byron Exam Bank Cognitive Level: Memory Reference: EP-AA-114, page 5 K/A G2.4.39 Knowledge of RO responsibilities in emergency plan implementation Question meets K/A – The examinee must know how to properly communicate during an emegency plan event.

76 **ID: 1246468** **Points: 1.00**

Unit 1 is in MODE 5.

- 1A RH Train is operating in the Shutdown Cooling Mode.
- 1A RH pump pressure, flow and amps are stable.
- RCS temperature is 130°F and RISING at 1°/3 minutes.
- The NSO reports he can NOT stabilize or lower RCS temperature.
- Annunciators 1-6-D1, "RH PUMP 1A CC FLOW LOW" and 1-2-A6, "RH HX CC WTR FLOW HIGH LOW" are LIT.
- The crew entered 1BOA Pri-10, "Loss of RH Cooling".

The SRO will direct the NSO to...

A. LOWER 1A RH Pump flow in accordance with 1BOA Pri-10, "Loss of RH Cooling".

B. verify sufficient CC flow to the 1A RH Heat Exchanger, and implement 1BOA Pri-6, "Component Cooling Malfunction".

C. TRIP the 1A RH Pump, and switch RH trains using BOP RH-6, "Placing the RH System in Shutdown Cooling".

D. TRIP the 1A RH Pump, and implement 1BOA Pri-10, Attachment B, "Steaming Intact/Non-Isolated SGs".

Answer: B

Answer Explanation

A is incorrect: This is an RNO action if there is a problem with the pump itself. The stem contraindicates any pump problem.

B is CORRECT: The symptoms indicate a problem with CC cooling to the RH HX. The RH pump CC flow low along with the other CC flow alarm indicate flow is low, and a problem with CC is causing the RCS heatup, hence the procedure directs the use ob 1BOA Pri-6.

C is incorrect: The RH pump doesn't have to be tripped; the BAR for CC flow low to the RH pump indicates the pump is fine as long as RH temperatures are <275°F. Placing the other RH train in service will not solve the CC problem.

D is incorrect: The RH pump doesn't have to be tripped; the BAR for CC flow low to the RH pump indicates the pump is fine as long as RH temperatures are <275°F. If the CC problem is not rectified, this is eventually where the crew would head as the RSC heats up, but at the given heatup rate, it will be 6 hours before this attachment will be effective or required.

Question 76 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1246468
User-Defined ID:	76 BYLI RH101
Cross Reference Number:	
Topic:	RH pump cavitation
RO Importance:	2.7
SRO Importance:	2.9
K/A:	005A2.01
Comments:	Source: New Cognitive Level: High SRO Reference: 1BOA Pri-10, BARs 1-6-D1, 1-2-A6 K/A 005A2.01 Residual Heat Removal System (RHRS): Ability to (a) predict the impacts of the following malfunctions or operations on the RHRS, and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Failure modes for pressure, flow, pump motor amps, motor temperature, and tank level instrumentation. Question meets K/A – SRO candidate must diagnose the nature of the failure and select the proper actions and procedures to mitigate the particular failure. 10CFR55.43(b)(5)

77 **ID: 1246487** **Points: 1.00**

Unit 1 was at 100% power.

- 1SI8811A, A Train CNMT Recirc Sump isolation valve, is out of service for a motor replacement with the motor removed.

Then Unit 1 experienced a RCS LOCA.

- The crew implemented 1BEP 0, "Reactor Trip or Safety Injection" and transitioned to 1BEP 1, "Loss of Primary or Secondary Coolant".
- Then, Bus 142 FAULTED, de-energized and can NOT be re-energized.
- Then, RWST level lowered to the point that the crew has implemented 1BEP ES-1.3, "Transfer to Cold Leg Recirculation".

The SRO must direct...

A. an EO to locally open 1SI8811B in accordance with 1BEP ES-1.3.

B. Maintenance to restore 1SI8811A so it can be opened in accordance with 1BEP ES-1.3.

C. the crew to immediately TRIP 1A RH Pump in accordance with 1BEP ES-1.3 Operator Action Summary page.

D. the crew to transition to 1BCA 1.1, "Loss of Emergency Coolant Recirculation".

Answer: D

Answer Explanation

A is incorrect: 1BEP ES 1.3 doesn't direct 1SI8811A or B to be opened locally, but from the MCR. Neither valve can be opened from the MCR. This also tests whether the examinee knows that the valves don't have a common pump supply header.

B is incorrect: This action cannot be done in a timely manner.

C is incorrect: The OAS does not direct pump trip until RWST is <9%, so there is no need to trip the pump immediately.

D is CORRECT: The plant has lost recirculation capabilities and the crew must implement 1BCA 1.1.

Question 77 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1246487
User-Defined ID:	77 BYLI ECCS 101
Cross Reference Number:	
Topic:	ECCS valve loss
RO Importance:	3.0
SRO Importance:	3.3
K/A:	006A2.08
Comments:	Source: New Cognitive Level: High Reference: 1BEP ES-1.3 K/A 006A2.08 Emergency Core Cooling System: Ability to (a) predict the impacts of the following malfunctions operations on the ECCS, and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Effect of electric power loss on valve position. Question meets K/A – SRO candidate must understand the effect of a loss of electric power to an ECCS valve and decide on the proper steps or procedures to rectify the failure. 10CFR55.43(b)(5)

78 **ID: 1246508** **Points: 1.00**

Unit 1 was at 100% power.

- 1BOA Sec-1, "Secondary Pump Trip", was entered when a Heater Drain Pump tripped.
- Manual control of Heater Drain Tank level was attempted but was UNSUCCESSFUL.
- A Reactor Trip actuation has occurred.

With the BEPs entered, when will the actions of 1BOA Sec-1 be continued/completed?

1BOA Sec-1 actions...

A. will NOT be completed.

B. IMMEDIATELY upon transition OUT OF 1BEP-0, "Reactor Trip or Safety Injection".

C. will be resumed after 1BEP ES-0.1, "Reactor Trip Response", is exited.

D. will be resumed IMMEDIATELY after the completion of the Immediate Actions Steps of 1BEP-0, "Reactor Trip or Safety Injection".

Answer: A

Answer Explanation

A is CORRECT: The correct answer is correct because the BOAs will not be re-entered, unless specifically called out in a EP, CA or FR procedure after entry into a BEP has been performed. This is delineated in BAP 1310-10. Further as a general "rule of thumb" the BOA's are applicable only until the reactor is tripped or SI actuated.

B is incorrect: The further steps of BOA Sec-1 are based on having the plant at power.

C is incorrect: The further steps of BOA Sec-1 are based on having the plant at power.

D is incorrect: The further steps of BOA Sec-1 are based on having the plant at power.

Question 78 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1246508
User-Defined ID:	78 BYLI-MFW-011
Cross Reference Number:	
Topic:	HD level Rx trip
RO Importance:	3.8
SRO Importance:	4.5
K/A:	059G2.4.8
Comments:	Source: New Cognitive Level: Memory SRO Reference: BAP 1310-10 page 9, and 1BOA Sec-1 K/A 059G2.4.8 Main Feedwater: Knowledge of how abnormal operating procedures are used in conjunction with EOPs. Question meets K/A – Requires examinee to have knowledge of how BOAs are used in conjuction with BEPs. SRO level based on directing the crews procedural transitions. Meets the SRO-Only criteria of 10CFR55.43(b)(5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

79 **ID: 1146071** **Points: 1.00**

Given the following plant conditions:

- 1A SX pump AND 2A SX Pump are OOS for a common suction valve replacement.
- 1B and 2B SX Pumps BOTH trip and CANNOT be restarted.

The Unit Supervisors will direct alternate SX cooling to be supplied DIRECTLY from the ____(1)____ system, and the units to be ____(2)____.

	_____(1)_____	_____(2)_____
A.	Non-Essential Service Water	rapidly shutdown per 1 and 2BGP 100-4T.1
B.	Non-Essential Service Water	tripped, and enter 1 and 2BEP-0
C.	Fire Protection	rapidly shutdown per 1 and 2BGP 100-4T.1
D.	Fire Protection	tripped, and enter 1 and 2BEP-0

Answer: D

Answer Explanation

A is incorrect: WS can be aligned to FP, but can not be DIRECTLY aligned to SX. Since the SX system has a large mass with cooling towers, and takes a considerable amount of time to heat up, it's plausible for a rapid shutdown to be used instead of a trip.

B is incorrect: WS can not be DIRECTLY aligned to SX.

C is incorrect: Since the SX system has a large mass with cooling towers, and takes a considerable amount of time to heat up, it's plausible for a rapid shutdown to be used instead of a trip.

D is CORRECT: Per 0BOA Pri-7, Loss of Ultimate Heat Sink, the reactor must be tripped and 1BEP-0 implemented if no SX pumps are running. Fire Protection water, if available, is lined up to supply SX water. This is true especially in light that there are backup supplies for SX. Fire Protection can be aligned, along with WS (Non-essential service water) through the FP system.

Question 79 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1146071
User-Defined ID:	79 BYLI-OA6-099
Cross Reference Number:	
Topic:	Actions for loss of SX
RO Importance:	3.5
SRO Importance:	3.7
K/A:	076A2.01
Comments:	Source: Bank Cognitive level: High SRO Reference: 0BOA Pri-7, Loss of Ultimate Heat Sink K/A 076A2.01 Service Water System: Ability to (a) predict the impacts of the following malfunctions or operations on the SWS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Loss of SWS This meets the K/A because the candidate must determine the nature of the problem from the given alarm and supplied information and select the procedure transitions as directed in the BOA for a loss of SX that affects the CC system. This meets 10CFR55.43b: item 5: Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

80 **ID: 1246509** **Points: 1.00**

Unit 1 has experienced a Safety Injection actuation.

- Containment pressure is 35 psig.
- ONE train of Containment Spray has actuated.

1BFR Z.1, Response to High Containment pressure...

A. will NOT be implemented.

B. can be implemented on a YELLOW path.

C. must be implemented on a ORANGE path.

D. must be implemented on a RED path.

Answer: B

Answer Explanation

A is incorrect: Would be true if CNMT pressure were <20psig.

B is CORRECT: CNMT pressure >20 psig and <50 psig, with at least 1 CS train in operation, directs usage of 1BFR Z.1 on a yellow path.

C is incorrect: Would be true with CNMT pressure between 20 and 50 psig with NO CS in operation.

D is incorrect: Would be tru if CNMT pressure >50 psig.

Question 80 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1246509
User-Defined ID:	80 BYLI-BFRZ1-010
Cross Reference Number:	
Topic:	BFR Z.1 yellow path
RO Importance:	4.0
SRO Importance:	4.6
K/A:	103G2.4.21
Comments:	Source: New Cognitive level: Memory SRO Reference: BST-1, Containment K/A 103G2.4.21 Containment: Knowledge of the parameters and logic used to assess the status of safety functions, such as reactivity control, core cooling and heat removal. This meets the K/A because the examinee must know the parameters and logic of the status tree used to assess the Containment Safety Function on a Yellow Path. SRO Only question: This meets 10CFR55.43b: item 5: Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

81 **ID: 1246510** **Points: 1.00**

Unit 1 has experienced a Reactor Trip caused by a Main Turbine trip.

- The crew implemented 1BEP 0, "Reactor Trip or Safety Injection" and has transitioned to 1BEP ES-0.1, "Reactor Trip Response".
- A Master Pressurizer Level Controller failure has resulted in Pressurizer level lowering to 15%.
- The NSO has taken manual control of 1CV121, Charging Pump Flow Control Valve and stabilized Pressurizer level.

The SRO will direct the crew to...

A. transition to 1BOA Inst-2, “Operation with a Failed Instrument Channel”.

B. actuate SI and re-enter 1BEP 0, "Reactor Trip or Safety Injection".

C. manually start ECCS pumps and enter 1BEP 1, "Primary or Secondary LOCA".

D. continue in 1BEP ES-0.1 to restore Pressurizer level.

Answer: D

Answer Explanation

A is incorrect: 1BOA Inst-2 would be entered for a failed level channel, but this is a controller failure and the BOA doesn't apply.

B is incorrect: SI would be actuated in 1BFR I.2 or 1BEP ES-0.1 if Pzr level can't be maintained >4%.

C is incorrect: ECCS pumps would be started as described in 1BFR I.2 or 1BEP ES-0.1 if SI had previously been executed and reset, and Pzr level can't be maintained >12%.

D is CORRECT: 1BEP ES-0.1 will direct control of charging flow at step 3 to raise Pzr level. Level can be "maintained" above 17%.

Question 81 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1246510
User-Defined ID:	81 BYLI-BFRI2-010
Cross Reference Number:	
Topic:	Restoring Pzr level
RO Importance:	3.8
SRO Importance:	3.9
K/A:	011A2.03
Comments:	Source: New Cognitive level: High SRO Reference: 1BEP ES-0.1 K/A 011A2.03 Pressurizer Level Control: Ability to (a) predict the impacts of the following malfunctions operations on the PZR LCS, and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Loss of PZR Level. This meets the K/A - The examinee must evaluate the plant conditions and select the correct procedure to mitigate the problem. SRO Only question: This meets 10CFR55.43b: item 5: Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

82 **ID: 1246527** **Points: 1.00**

Unit 1 is at 75% power.

- Power range channel N43 LOWER detector failed HIGH.
- The NSO placed rod control in MANUAL after Control Bank D moved 15 steps.

Indicated AFD in the FAILED quadrant will become more ___(1)___.

After the plant has been stabilized, the SRO will direct the control rods to be realigned using ____(2)____.

	___(1)___	_____(2)_____
A.	negative	1BOA Rod-1, Uncontrolled Rod Motion
B.	positive	1BOA Rod-1, Uncontrolled Rod Motion
C.	negative	1BOA Rod-3, Dropped or Misaligned Rod
D.	positive	1BOA Rod-3, Dropped or Misaligned Rod

Answer: A

Answer Explanation

A is CORRECT: The lower detector failing high will cause AFD in that quadrant to be more negative. PR NI will go up, causing rods to step IN. The rod motion resulting from the failed channel directs use of 1BOA Rod-, which will restore rod position.

B is incorrect: The lower detector failing HIGH causes AFD to be more negative, but the examinee may believe the failed channel high may be more positive.

C is incorrect: While rods have moved from their desired position, they aren't misaligned so this would not be the procedure to use.

D is incorrect: If the UPPER detector had failed high, indicated AFD in that quadrant would be more positive.

Question 82 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1246527
User-Defined ID:	82 BYLI-NI-010
Cross Reference Number:	
Topic:	NI malfunction
RO Importance:	3.3
SRO Importance:	3.8
K/A:	015A2.04
Comments:	Source: New Cognitive level: High SRO Reference: 1BOA Rod-1, BGP 100-8 K/A 015A2.04 Nuclear Instrumentation: Ability to (a) predict the impacts of the following malfunctions operations on the NIS, and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Effects on axial flux density of control rod alignment and sequencing, xenon production and decay, and boron vs. control rod reactivity changes. This meets the K/A - The examinee must evaluate the plant conditions and select the correct procedure to mitigate the problem. This procedure direction is not direct entry from the given plant conditions, hence requiring SRO level evaluation of the malfunction. SRO Only question: This meets 10CFR55.43b: item 5: Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

83 **ID: 1246549** **Points: 1.00**

When moving irradiated fuel assemblies in the Refueling Cavity, the minimum water level above the vessel flange can be monitored __(1)__.

The Tech Spec basis for the minimum water level is to __(2)__.

	_____(1)_____	_____(2)_____
A.	locally and in the MCR	limit iodine fission product release
B.	locally and in the MCR	limit gamma exposure
C.	ONLY in the MCR	limit iodine fission product release
D.	ONLY in the MCR	limit gamma exposure

Answer: A

Answer Explanation

A is CORRECT: TS 3.9.7 requires at least 23 feet above the vessel flange when moving irradiated fuel. The top of the cavity is 26 feet above the vessel, and the TS basis is to lower iodine activity.
The local and MCR indicators are both individually used in some surveillances and procedures, making it plausible that only one exists.Cavity level is regularly raised during refuling to limit the gamma exposure, but is not a basis for TS required minimum level.

B is incorrect: Cavity level is regularly raised during refuling to limit the gamma exposure, but is not a basis for TS required minimum level.

C is incorrect: The local and MCR indicators are both individually used in some surveillances and procedures, making it plausible that only one exists.

D is incorrect: The local and MCR indicators are both individually used in some surveillances and procedures, making it plausible that only one exists. Cavity level is regularly raised during refuling to limit the gamma exposure, but is not a basis for TS required minimum level.

Question 83 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1246549
User-Defined ID:	83 NRC 2014 91
Cross Reference Number:	
Topic:	Refueling cavity level
RO Importance:	2.9
SRO Importance:	3.7
K/A:	034A1.02
Comments:	Source: Modified from question # 1146074 Cognitive Level: Memory Reference: TS 3.9.7, Refueling Cavity Water Level K/A 034A1.02 Fuel Handling Equipment: Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the Fuel Handling System controls including: Water level in the refueling canal Question meets K/A – SRO candidate must know the places to monitor and the basis for the minimum TS refueling cavity level. The "refueling canal" ties together the spent fuel pool and refueling cavity. There is no monitoring equipment or design limit associated specifically with the refueling canal. When in use, it is connected to the refueling cavity water, and hence its water level will be the same as the refueling cavity water level, which IS monitored and has design limits. This meets 10CFR55.43b: item 4: Radiation hazards that may arise during normal and abnormal situations, including maintenance activities and various contamination conditions. 10CFR55.43(b)(4)

84 **ID: 1249948** **Points: 1.00**

An automatic reactor trip and safety injection has occurred on Unit 2 as a result of lowering RCS pressure.

The operators note the following conditions:

	Prior to Trip and SI	After SI Occurs
Pzr Pressure	Lowering	Lowering
RCS Temperature	Stable	Stable
Pzr Level	No significant change	Rising
Reactor Power	Stable	Lowering

Initially which of the following accidents would result in these conditions, and what procedure flowpath will address this accident?

A. Stuck open S/G safety valve; 2BEP-2, "Faulted SG Isolation"

B. Letdown line break outside CNMT; 2BEP ES-1.1, "SI Termination"

C. Double-ended hot leg break; 2BEP ES-1.3, "Transfer to Cold Leg Recirculation"

D. Stuck open pressurizer safety valve; 2BEP ES-1.2, "Post LOCA Cooldown and Depressurization"

Answer: D

Answer Explanation

A is incorrect: Pressurizer pressure lowering can be due to mass or energy loss, but Pzr level would lower due to cooldown too. This would also cause power to rise before the trip.

B is incorrect: This would be isolated after Phase A isolation closes the CNMT letdown isolation valves, and while Pzr level will go up, so would pressure.

C is incorrect: A LBLOCA such as this will empty the Pzr, so after the SI, level would not rise.

D is CORRECT: Pressurizer pressure lowering can be due to mass or energy loss. Stable Pzr level initially indicates NOT a larger LOCA or secondary fault; rising Pzr level with lowering pressure indicates vapor space leak. This type of SBLOCA is dealt with by ES 1.2.

Question 84 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1249948
User-Defined ID:	84 BW-COPS1-008
Cross Reference Number:	
Topic:	Diagnose vapor space leak
RO Importance:	3.4
SRO Importance:	3.6
K/A:	008AA2.20
Comments:	Source: Bank Cognitive Level: High SRO Reference: 2BEP ES-1.2 K/A008AA2.20 Pressurizer Vapor Space Accident (Relief Valve Stuck Open): Able to determine and interpret the following as they apply to the Pressurizer Vapor Space Accident: The effect of an open PORV on code safety, based on observation of plant parameters. This meets the K/A - The examinee diagnose the event of an open PORV from given parameter trends, and select the proper procedure that will rectify the problem. SRO Only question: This meets 10CFR55.43b: item 5: Assessment of facility conditions and selection of appropriate procedures during normal, abnormal and emergency situations.

85 **ID: 1146076** **Points: 1.00**

Unit 1 was at 100% power and experienced an RCS loss of coolant accident.

- RWST level is 30%.
- All systems and components responded as designed except as noted below.
- When the operators pushed the SI RESET pushbuttons, the SI ACTUATED light stayed LIT and the AUTO SI BLOCKED light stayed NOT LIT.

If the operators place the control switch for 1SI8811A, CNMT Recirc Sump Isolation valve to CLOSE, the valve will __(1)__.

In order to RESET SI, the SRO will direct SI to be reset per __(2)__.

	____(1)____	_____(2)_____
A.	close and stay closed	1BOA Pri-5, Att F, SI Termination
B.	close and stay closed	1BOA Pri-5, Att E, ESF Manual Block or Reset
C.	close and reopen	1BOA Pri-5, Att F, SI Termination
D.	close and reopen	1BOA Pri-5, Att E, ESF Manual Block or Reset

Answer: D

Answer Explanation

The response of the SI ACTUATED and AUTO SI BLOCKED lights indicate the SI signal did not reset, thus the recirc sump valve has an automatic open signal. The open signal to this valve does not prevent it from going closed, but will cause it to immediately reopen.
1BOA Pri-5 Attachment E is used to reset SI in the RNO column of each BEP step that directs SI reset. BEP ES-1.1, SI Termination, is the usual procedure that directs resetting the SI signal. In the various procedures that have the operator reset SI, the operators are directed to reset using BOA Pri-5 if the SI signal can't be reset from the MCR. Attachment E, ESF Manual Block or Reset, is the procedure that resets the signal. BOA PRI-5 Attachment F, SI Termination, can be confused with the BEP ES-1.1, or mistakenly thought to be the proper attachment to use when SI is to be reset for termination.

Question 85 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1146076
User-Defined ID:	85 BYLI-EP1-102
Cross Reference Number:	
Topic:	SI reset failure effect on RH
RO Importance:	3.3
SRO Importance:	3.7
K/A:	EPE011EA2.02
Comments:	Source: Byron Exam Bank Cognitive level: High SRO Only Reference: 1BEP ES-1.3 K/A EPE011 EA2.02 Large Break LOCA: Ability to determine or interpret the following as they apply to a Large Break LOCA: Consequences to RHR of not resetting safety injection. This meets the K/A because the candidate must know that the RH system sump suction valves can be reset even with SI not reset. This tests the SRO ability to direct use of the proper procedure to reset SI. This meets 10CFR55.43b: item 5: Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

86 **ID: 1246587** **Points: 1.00**

If seal injection flow is ___(1)___ than the "acceptable" region of Figure 3.5.5-1 of Technical Specification 3.5.5., Seal Injection Flow, there can be ___(2)___ flow during a large break LOCA.

	___(1)___	___(2)___
A.	less	insufficient ECCS
B.	less	excessive seal injection
C.	more	insufficient ECCS
D.	more	excessive seal injection

Answer: C

Answer Explanation

A is incorrect: Less seal injection flow will result in more ECCS flow.

B is incorrect: Less seal injection flow during testing will not result in excessive seal injection flow on a large break LOCA.

C is CORRECT: More seal injection flow during testing means the seal injection valves are too far open, diverting flow from ECCS.

D is incorrect: More seal injection flow will result in "more" but not excessive seal injection flow to the RCPs.

Question 86 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1246587
User-Defined ID:	86 BYLI-TS3.5.5-002
Cross Reference Number:	
Topic:	TS 3.5.5 basis
RO Importance:	4.0
SRO Importance:	4.7
K/A:	022G2.2.22
Comments:	Source: New Cognitive Level: Memory SRO Reference: Basis Tech Spec 3.5.5 K/A 022G2.2.22 Loss of Reactor Coolant Makeup: KNolwedge of limiting conditions for operations and safety limits. This meets the K/A - The examinee must know the basis for the LCO for proper seal injection quantity, which is provided by the charging pumps during normal operations and in the event of a LOCA. SRO Only question: This meets 10CFR55.43b: item 2: Facility operating limitations in the technical specifications and their bases. The SRO must know the BASIS for the specification, not just the requirement of it.

87 **ID: 1246669** **Points: 1.00**

Unit 1 experienced a SGTR that occurred 3 hours ago.

- The RCS is at 400°F and is being cooled down at 30°F/hr.
- The Ruptured S/G cooldown is in progress using the backfill method.
- SR count rate indications slowly begin to rise unexpectedly.

Which of the following is the cause of the rise in SR count rate?

A. The SR instrumentation is responding to the change in Xenon conditions in the core.

B. The SR instruments are responding to the radioactivity that is being added back into the RCS from the ruptured S/G.

C. The RCS boron concentration is being diluted by water flowing from the ruptured S/G, thereby reducing shutdown margin.

D. The RCS cooldown is too rapid for the described conditions.

Answer: C

Answer Explanation

A is incorrect: Xenon is building in, which will lower SR counts.

B is incorrect: Instruments respond to neutrons, not to radioactive contamination.

C is CORRECT: The RCS boron concentration is being diluted by water flowing from the ruptured S/G, thereby reducing shutdown margin.
BD-EP ES-3.1, step 4
Subsequent steps will bring the RCS to RH system conditions. The RCS boron concentration should be verified to be adequate for reactivity control at cold shutdown. The ruptured steam generator water should also be sampled since backflow into the RCS will occur. Sufficient boron must be provided to compensate for boron dilution from this backflow if the boron concentration in the ruptured steam generator is less than the required shutdown margin.

D is incorrect: The cooldown is within limits and wouldn't cause this effect on SR counts.

Question 87 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1246669
User-Defined ID:	87 BYLC3DEP05B012
Cross Reference Number:	
Topic:	Loss of SDM during SGTR
RO Importance:	3.8
SRO Importance:	4.4
K/A:	038EA2.06
Comments:	Source: Byron Exam Bank Cognitive Level: High SRO Reference: BEP ES-3.1 and BD-EP ES-3.1, step 4 K/A 038EA2.06 Steam Generator Tube Rupture: Ability to determine or interpret the following as they apply to a SGTR: Shutdown Margins and required boron concentrations. This meets the K/A - The SRO must interpret the effects of the activities of the SGTR on the plant's Shutdown Margin. SRO Only question: This meets 10CFR55.43b: item 6: Procedures and limitations involved in initial core loading, alterations in core configuration, control rod programming, and **determination of various internal and external effects on core reactivity.**

88 **ID: 1246671** **Points: 1.00**

Both units were at 100% power.

- 20 minutes ago, an Earthquake occurred near the plant.
- Annunciator 0-38-E5, “Accelerograph Accel High” is in alarm
- The National Earthquake Center reports it as a 0.3g seismic event.
- OBE light is LIT on 0PA02J.

BOTH units lost off-site power.

- All of the Emergency Diesel Generators have started and are supplying their respective ESF 4kV buses.
- 1 and 2AR020/21 indicate 5 E-1 R/hour.
- There is NO damage to SFP and level is normal.

1BFR H.1, "Loss of Heat Sink" is in progress on Unit 1 as of 5 minutes ago.
2BEP ES-0.2, "Natural Circulation Cooldown" is in progress on Unit 2 as of 5 minutes ago.

The Emergency Action Level classification that will be reported to NARS is...

A. Unusual Event

B. Alert

C. Site Area Emergency

D. General Emergency

Answer: C

Answer Explanation

A is incorrect: UE is met by the LOOP on both units, but is not the highest classification.

B is incorrect: Alert is met by the OBE earthquake, but is not the highest classification.

C is CORRECT: SAE is met by Heat Sink Red path (the conditions that lead to implementation of 1BFR H.1), is the highest classification, so will be reported on NARS. A loss of heat sink means there is a loss of Main Feedwater, along with loss of Aux Feedwater.

D is incorrect: GE is not met. If 1AR020/21 were >4.4 E+3 R/hr, then GE would be met on Unit 1.

Question 88 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1246671
User-Defined ID:	88 BYLI-EAL-222
Cross Reference Number:	
Topic:	EAL classification
RO Importance:	2.9
SRO Importance:	4.6
K/A:	054G2.4.41
Comments:	**Provide EP-AA-1002, Addendum 3** Source: New Cognitive Level: High SRO Only Reference: EP-AA-1002, Addendum 3 K/A 054G2.4.41 Loss of Main Feedwater: Knowledge of the emergency action level thresholds and classifications. This meets the K/A - The examinee must evaluate the plant conditions and classify the event. SRO Only question: This meets 10CFR55.43b: item 5: Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

89 **ID: 1246691** **Points: 1.00**

Unit 1 was at 100% power.

- THEN, BOTH trains of Safety Injection spuriously actuated.
- The crew entered 1BEP-0, "Reactor Trip or Safety Injection".
- Shortly after entry, due to a switchyard fault SAT 142-1 and SAT 142-2 LOCKED OUT.
- Neither Emergency Diesel Generator could be started.
- The crew entered 1BCA-0.0, "Loss of All AC Power".

During the performance of 1BCA-0.0, the crew CROSSTIED bus 141 to bus 241 successfully. Following this, the plant parameters are as follows:

- RCS pressure is 1325 psig and dropping slowly.
- Pressurizer level is off-scale low.
- ALL Steam Generator NR levels are off-scale low.
- Total AF flow is 400 gpm and stable.

Based on the above information, the SRO will complete the required actions of 1BCA-0.0, THEN transition to...

A. 1BCA-0.1, "Loss of all AC Power without SI required".

B. 1BCA-0.2, "Loss of all AC Power with SI required".

C. 1BEP-0, "Reactor Trip or Safety Injection", AND direct the tripping of ALL running Reactor Coolant Pumps.

D. 1BFR-H.1, "Response to Loss of Secondary Heat Sink".

Answer: B

Answer Explanation

A is incorrect: The conditions to go to 1BCA-0.1 are not met.

B is CORRECT: With an SI and the given conditions, the crew must go to 1BCA-0.2.

C is incorrect: There is not a path to go to 1BEP-0, and RCP trip criteria would exist in some procedures, but with the given conditions, all RCPs are already tripped.

D is incorrect: BFRs are not implemented until after step 11 of 1BCA-0.2.

Question 89 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1246691
User-Defined ID:	89 SG40014-001
Cross Reference Number:	
Topic:	BCA 0.0 transition
RO Importance:	4.2
SRO Importance:	4.4
K/A:	055G2.2.44
Comments:	Source: Byron Exam Bank Cognitive Level: High SRO Only Reference: 1BCA-0.0 K/A 055G2.2.44 Station Blackout: Ability to interpret control room indications to verify the status and operation of a system, and understand how operator actions and directives affect plant and system conditions. This meets the K/A - The examinee must evaluate the plant conditions and select the correct procedure to mitigate the problem. SRO Only question: This meets 10CFR55.43b: item 5: Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

90 **ID: 1246747** **Points: 1.00**

Unit 1 is at 25% power.

- A Control Bank D rod fully dropped into the core.
- An Ovation malfunction prevents turbine power from being adjusted.
- Tave stabilized at 547°F.
- The SRO is directing the actions of 1BOA Rod-3 "Dropped or Misaligned Rod", step 5 to Stabilize RCS Temperature.

After 30 minutes, the SRO must have the crew...

A. dilute to restore Tave using BOP CV-5, "Operation of the Reactor Makeup System in Dilute/Alternate Dilute Mode".

B. lower power and stabilize the reactor critical below 5% power.

C. trip the turbine and stabilize the plant with 1BOA TG-8, "Turbine Trip Below P-8".

D. trip the reactor and enter 1BEP-0, "Reactor Trip or Safety Injection".

Answer: D

Answer Explanation

A is incorrect: 1BOA Rod-3 directs adjusting turbine load to restore Tave >550°F, at step 5.

B is incorrect: TS 3.4.2 for minimum temperature for criticality requires the unit to be in Mode 2 with Keff <1.0 after 30 minutes of Tave <550°. This choice places the unit in Mode 2, but with the reactor critical.

C is incorrect: Unit power is below P-8, which the examinee may infer to require the use of 1BOA TG-8 to trip the turbine and keep the reactor on line. 1BOA TG-8 requires the plant stabilized at 15% to 20% power.

D is CORRECT: TS 3.4.2 LCO is not met, and 1BOA Rod-3 directs a reactor trip after 30 minutes if Tave hasn't been restored to >550°F.

Question 90 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1246747
User-Defined ID:	90 BYLI-ROD-112
Cross Reference Number:	
Topic:	Dropped rod Tave
RO Importance:	4.3
SRO Importance:	4.4
K/A:	003G2.1.23
Comments:	Source: New Cognitive Level: Memory SRO Only Reference: 1BOA Rod-3 K/A 003G2.1.23 Dropped Rod: Ability to perform specific system and integrated plant procedures during all modes of plant operation. This meets the K/A - The examinee must evaluate the plant conditions and direct the proper actions in accordance with the correct procedure to mitigate the problem. SRO Only question: This meets 10CFR55.43b: item 5: Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

91 **ID: 1246767** **Points: 1.00**

Unit 1 is in a refueling outage.

- Alarm 1-6-C3, REFUELING CAVITY LVL HIGH LOW, is received
- The crew enters 1BOA REFUEL-2, "REFUELING CAVITY OR SPENT FUEL POOL LEVEL LOSS".
- THEN, the Fuel Handling SRO reports that bubbles are rising in the Refueling Cavity AFTER a fuel assembly is DROPPED.

Which of the following is the required action from the Unit Supervisor?

A. Enter 1BOA REFUEL-1, "FUEL HANDLING EMERGENCY", and EVACUATE ALL personnel from the Unit 1 Containment.

B. Enter 1BOA REFUEL-1, "FUEL HANDLING EMERGENCY", and ACTUATE Containment Isolation Phase A.

C. Remain in 1BOA REFUEL-2 ONLY, and START a Containment Charcoal Filter Unit.

D. Remain in 1BOA REFUEL-2 ONLY, and EVACUATE ONLY Non-Essential Personnel from the Unit 1 Containment.

Answer: A

Answer Explanation

A is CORRECT: Per 1BOA REFUEL-1, Fuel Handling Emergency. Conditions are met, and this would take priority over 1BOA REFUEL-2.

B is incorrect: It is plausible to actuate a Phase A as this would isolate containment and if the student believes that preventing a potential radiation release may be mitigated this way.

C is incorrect: It is plausible to remain in REFUEL-2, and the actions would isolate containment or help with the mitigation of the radiation release, but not the top priority here.

D is incorrect: It is plausible to remain in REFUEL-2, and the actions would isolate containment or help with the mitigation of the radiation release, but not the top priority here.

Question 91 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1246767
User-Defined ID:	91 SE20036-001
Cross Reference Number:	
Topic:	Refueling accident
RO Importance:	3.4
SRO Importance:	4.1
K/A:	036AA2.02
Comments:	Source: Byron Exam Bank Cognitive Level: High Reference: 1BOA Refuel-1 K/A 036AA2.02 Fuel Handling Incidents: Ability to determine and interpret the following as they apply the Fuel Handling Incidents: Occurrence of a fuel handling incident. This meets the K/A - The examinee must evaluate the plant conditions and select the correct procedure and direct the correct actions to mitigate the problem. This is a fuel handling related procedure and part of the SRO, but not the RO, responsibilities. SRO Only question: This meets 10CFR55.43b: item 7: Fuel handling facilities and procedures.

92 **ID: 1246771** **Points: 1.00**

Unit Two completed a load reduction three hours ago from 98% to 50% RTP. Chemistry now reports the following RCS activity sample results:

- Dose equivalent XE-133 specific activity: 630 µCi/gram
- Dose equivalent I -131 specific activity: 90 µCi/gram

Which of the following describes the most restrictive required actions for these conditions?

A. The unit must be shutdown to at least Hot Standby with RCS Tave less than 500°F within 6 hours.

B. The unit must be shutdown to at least Hot Standby within 6 hours and in Cold Shutdown within 36 hours.

C. Perform an isotopic analysis for Iodine once per 4 hours for the next 48 hours.

D. Restore Dose Equivalent XE-133 to with limits in next 48 hours.

Answer: B

Answer Explanation

A is incorrect: Be in mode 3 with Tave less than 500°F within 6 hours is an old requirement that has been superceded.

B is CORRECT: The most restrictive action is to enter condition C > 60 µCi/gram for I-131 be in Mode 3 in 6 hours and Mode 5 in 36 hours

C is incorrect: Perform isotopic analysis once per 4 and restore within 48 hours is the wrong action for given sample results.

D is incorrect: With the given conditions we are in Cond B >630 µCi/gram for XE-133 restore in 48 hours, but it is not most restrictive.

Question 92 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1246771
User-Defined ID:	92 BYLC3CRC01C011
Cross Reference Number:	
Topic:	High RCS activity
RO Importance:	2.8
SRO Importance:	3.4
K/A:	076AA2.02
Comments:	**Provide TS 3.4.16** Source: Byron Exam Bank Cognitive Level: High SRO Only Reference: TS 3.4.16 K/A 076AA2.02 High Reactor Coolant Activity: Ability to determine and interpret the following as they apply to the High Reactor Coolant Activity: Corrective actions required for high fission product activity in RCS This meets the K/A - The examinee must evaluate the plant conditions and interpret the Tech Spec required actions. The surveillance requirements list the limts, and the SRO must interpret the conditions for the required actions, and then determine which required action is the most restrictive. SRO Only question: This meets 10CFR55.43b: item 2: Facility operating limitations in the technical specifications and their bases.

93 **ID: 1246772** **Points: 1.00**

Unit 2 was at 100% power.

- An inadvertent SI occurs on A train only.
- The SI ACTUATED permissive light is lit.

Following Immediate Actions, the SRO will direct the crew to...

A. continue the actions of 2BEP 0, "Reactor Trip or Safety Injection" and when directed, transition to 2BEP ES-1.1, "SI Termination".

B. verify ONLY that train A ESF equipment actuated, then immediately enter 2BEP ES-1.1, "SI Termination".

C. immediately reset SI, stop all SI and RH pumps, then restore normal charging and letdown with 2BOA ESP-2, "Re-establishing CV Letdown".

D. immediately place all SI and RH pumps in pull-out, then restore normal charging and letdown with 2BOA ESP-2, "Re-establishing CV Letdown".

Answer: A

Answer Explanation

A is CORRECT: The SRO must direct SI to be actuated, then transition to SI termination from 2BEP-0.

B is incorrect: This would seem to be a prudent action, to not start a second train of SI, but procedurally SI must be actuated. This is in conformance with the WOG symptom based procedures.

C is incorrect: There is no direction to do this directly. These actions will be taken in 2BEP ES-1.1.

D is incorrect: There is no direction to do this. SI will be reset and these actions will be taken in 2BEP ES-1.1.

Question 93 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1246772
User-Defined ID:	93 BYLC3DEP19D001
Cross Reference Number:	
Topic:	SI termination
RO Importance:	4.2
SRO Importance:	4.2
K/A:	E02G2.4.47
Comments:	Source: Byron Exam Bank Cognitive Level: High SRO Only Reference: 2BEP-0, 2BEP ES-0.1 K/A E02G2.4.47 SI Termination: Ability to diagnose and recognize trends in an accurate and timely manner utilizing the appropriate control room reference material. This meets the K/A - The examinee must evaluate the plant conditions and select the correct procedure to mitigate the problem. SRO Only question: This meets 10CFR55.43b: item 5: Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

94 **ID: 1146084** **Points: 1.00**

Unit 1 experienced a large-break LOCA.
- The crew is transitioning to 1BEP ES-1.3, "Transfer to Cold Leg Recirculation".

- The following conditions are reported by the STA as 1BEP ES-1.3 is entered:
  - An ORANGE path in Core Cooling
  - A RED Path in INTEGRITY
  - RH Pump has 1B TRIPPED on overcurrent.
  - RCS pressure is approximately 20 PSIG.

Based on the conditions listed above, the SRO will...

A. immediately transition to 1BFR-P.1, "Response to Imminent Pressurized Thermal Shock Condition".

B. immediately go to 1BCA-1.1, "Loss of Emergency Coolant Recirculation".

C. direct performance of steps 1 thru 6 of 1BEP ES-1.3, then go to 1BFR-P.1, "Response to Imminent Pressurized Thermal Shock Condition".

D. direct performance of steps 1 thru 6 of 1BEP ES-1.3, and then go to 1BFR-C.2, "Response to Degraded Core Cooling".

Answer: C

Answer Explanation

A is incorrect: 1BFR ES-1.3 takes precedence over any BFR's until step 6 is complete. The transition to the applicable BFR will then be made.

B is incorrect: 1BFR ES-1.3 takes precedence over any BFR's until step 6 is complete.

C is CORRECT: 1BFR ES-1.3 takes precedence over any BFR's until step 6 is complete. The transition to the applicable BFR will then be made. With RCS pressure <325 PSIG, 1BFR P.1 will be exited at step 1, but still must be entered.

D is incorrect: The Core Cooling critical safety function is a higher priority than the Integrity critical safety function, but any RED path takes precedence over any ORANGE path.

Question 94 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1146084
User-Defined ID:	94 BYLC3DFR2016
Cross Reference Number:	
Topic:	BFR P.1 usage
RO Importance:	4.4
SRO Importance:	4.7
K/A:	G2.1.7
Comments:	Source: Byron Exam Bank Cognitive level: High SRO Only Reference: 1BEP ES-1.3 K/A G2.1.7 Ability to evaluate plant performance and make operational judgements based on operating characteristics, reactor behavior, and instrument interpretation. This meets the K/A because the SRO will determine the proper procedure transitions based on the priorities of recirculation implementation and PTS. This meets 10CFR55.43b: item 5: Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

95 **ID: 1246787** **Points: 1.00**

Unit 1 is in a Refueling Outage.

- While offloading an irradiated fuel assembly, the fuel handlers are called to the OCC for an emergency safety stand down meeting.
- The fuel assembly is currently on the fuel transfer cart on the SFP side of the transfer tube.

The SRO supervising the fuel handling must direct the irradiated fuel assembly to be placed...

A. in the Reactor Vessel ONLY.

B. in the Spent Fuel Pool storage rack ONLY.

C. on the fuel transfer cart INSIDE Containment.

D. in EITHER the Reactor Vessel OR the Spent Fuel Pool storage rack.

Answer: D

Answer Explanation

A is incorrect: In accordance with OU-AP-200, an irradiated fuel assembly must be placed in the reactor vessel or SFP storage rack.

B is incorrect: In accordance with OU-AP-200, an irradiated fuel assembly must be placed in the reactor vessel or SFP storage rack.

C is incorrect: It would be plausible to place the irradiated assembly inside CNMT on the transfer cart, but it must be in the reactor vessel or SFP storage rack.

D is CORRECT: In accordance with OU-AP-200, an irradiated fuel assembly must be placed in the reactor vessel or SFP storage rack.

Question 95 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	0.00
System ID:	1246787
User-Defined ID:	95 BYLI-OU-012
Cross Reference Number:	
Topic:	Unattended irradiated fuel assembly
RO Importance:	2.8
SRO Importance:	3.9
K/A:	G2.1.40
Comments:	Source: New Cognitive Level: Memory SRO Only Reference: OU-AP-200, page 12, section 4.1.13 K/A G2.1.40 Knowledge of refueling administrative requirements This meets the K/A - The examinee must know the proper place to store an unattended irradiated fuel assembly. This knowledge is not required of ROs because the do not move or supervise fuel movements.. SRO Only question: This meets 10CFR55.43b: item 7: Fuel handling facilities and procedures.

96 **ID: 1146087** **Points: 1.00**

An OTDM (Operational and Technical Decision Making) must be reviewed for Operations Department concerns by the __(1)__, and approved by the __(2)__ or designee.

	_____(1)_____	_____(2)_____
A.	Operations Services Manager	Plant Manager
B.	Operations Services Manager	Site Vice President
C.	Unit Supervisor	Site Vice President
D.	Unit Supervisor	Plant Manager

Answer: A

Answer Explanation

A is CORRECT: OP-AA-106-101-1006 Section 3 states the Station Manager has the responsibility to approve, and the OSM will screen for operator burden and impact.

B is incorrect: The SVP is a plausible distractor for approval of a significant product such as an OTDM.

C is incorrect: The Unit Supervisor is the designated reviewer in several other admin processes, and the SVP is a plausible distractor for approval of a significant product such as an OTDM.

D is incorrect: The Unit Supervisor is the designated reviewer in several other admin processes.

Question 96 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1146087
User-Defined ID:	96 BYLI-AM6-099
Cross Reference Number:	
Topic:	Operational & Technical Decision Making
RO Importance:	3.9
SRO Importance:	4.3
K/A:	G2.2.14
Comments:	Source: Bank Cognitive level: Memory SRO Only Reference: OP-AA-106-101-1006 K/A Equipment Control G2.2.14: Knowledge of the process for controlling equipment configuration or status. Meets the K/A because the candidate must know the process for OTDM process changes to the facility. This meets 10CFR55.43b: item 3: Facility licensee procedures required to obtain authority for design and operating changes in the facility.

97 **ID: 1246788** **Points: 1.00**

Unit 1 is in MODE 4.

- Cooldown of the RCS and Pressurizer is in progress, using RHR with 1D RCP running.
- The NSO has recorded the following temperatures:

	RCS Tcold	Pzr Liquid
08:00	320°F	460°F
08:30	275°F	400°F
09:00	230°F	340°F

In accordance with TS and TRM requirements, the SRO will...

A. stop the cooldown of both the RCS and Pzr.

B. allow the cooldown of both the RCS and Pzr to continue..

C. stop the cooldown of the RCS and allow the cooldown of the Pzr to continue

D. stop the cooldown of the Pzr and allow the cooldown of the RCS to continue.

Answer: B

Answer Explanation

A is incorrect: The RCS cooldown is 90°F/hour, and the Pzr cooldown is 120°F/hour, within limits. Both cooldowns may continue.

B is CORRECT: TS 3.4.3 limits RCS cooldown to 100°F per hour. There is an admin limit of 50°F per hour if AF is using SX or no RCPs are on, but that doesn't apply in this situation. TRM 3.4.c limits the Pzr cooldown to 200°F per hour, with a heatup limit of 100°F per hour.

C is incorrect: The RCS cooldown is 90°F/hour, and may continue.

D is incorrect: The Pzr cooldown is 120°F/hour, and may continue.

Question 97 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1246788
User-Defined ID:	97 NRC 2014 85
Cross Reference Number:	
Topic:	TS and TRM RCS and Pzr cooldown limits
RO Importance:	3.4
SRO Importance:	4.7
K/A:	G2.2.40
Comments:	Source: Modified from question # 1144841 Cognitive Level: High SRO Only Reference: TS 3.4.3, TRM 3.4.c, Unit 1 PTLR K/A G2.2.40 Ability to apply Technical Specifications for a system. Question meets K/A – SRO candidate must evaluate the cooldown rate, and apply the limits from the TS and TRM in order to provide the proper direction to the crew. SRO Only question: 10CFR55.43(b)(2) Facility operating limitations in the technical specifications and their bases.

98 **ID: 1246789** **Points: 1.00**

What condition could result in excessive exposure rates in the Reactor Cavity Incore Area?

A. Movement of irradiated fuel in the reactor vessel.

B. Starting or stopping of a Reactor Cavity Vent fan.

C. Lowering the reactor cavity water level to the flange.

D. Withdrawal of a detector guide thimble.

Answer: D

Answer Explanation

A is incorrect: movement within the vessel under proper conditions has no effect on dose rates.

B is incorrect: Vent fan operation may cause airborne problems but not excessive dose rate

C is incorrect: Lowering level to the flange will leave the fuel covered, not affecting the area below the reactor.

D is CORRECT: The incore thimbles withdrawal would cause an excessive exposure rate in the area below the reactor.

Question 98 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1246789
User-Defined ID:	98 BW-COPS2-013
Cross Reference Number:	
Topic:	MIDS effect on dose rate in Rx cavity
RO Importance:	3.4
SRO Importance:	3.8
K/A:	G2.3.14
Comments:	Source: Byron Exam Bank Cognitive Level: High SRO Only Reference: System LP chapter 34a, MIDS K/A G2.3.14 Knowledge of radiation or contamination hazards that may arise during normal, abnormal, ore emergency conditions or activities. This meets the K/A - The examinee must know the effects of moving MIDs on radiation levels SRO Only question: This meets 10CFR55.43b: item 4: Radiation hazards that may arise during normal and abnormal situations, including maintenance activities and various contamination conditions.

99 **ID: 1246790** **Points: 1.00**

Unit 1 has declared an ALERT.

- The Technical Support Center (TSC) is staffed and has command and control of the event.
- The Emergency Offsite Facility (EOF) is staffed and ready to assume command and control from the TSC.

In accordance with EP-AA-112, Emergency Response Organization/Emergency Response Facility Activation and Operation, which of the following responsibilities can be transferred from the TSC to the EOF?

1. Event Classification
2. Protective Action Recommendations
3. Notification of Offsite Agencies
4. Emergency Exposure Controls

A. ONLY 1 AND 3

B. ONLY 2 AND 3

C. ONLY 2, 3, AND 4

D. 1, 2, 3, AND 4

Answer: B

Answer Explanation

A is incorrect: Classification remains at the TSC.

B is CORRECT: EP-AA-112, step 3.1.3, PARs and Notifications are transferred to EOF, Classification and Emergency Exposure Control remain at TSC.

C is incorrect: Emergency exposure controls remain at the TSC.

D is incorrect: Classification and emergency exposure controls remain at the TSC.

Question 99 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1246790
User-Defined ID:	99 SG40040-001
Cross Reference Number:	
Topic:	Command center authority
RO Importance:	2.4
SRO Importance:	4.4
K/A:	G2.4.38
Comments:	Source: Byron Exam Bank Cognitive Level: Low SRO Only Reference: EP-AA-112, section 3.1.3 K/A G2.4.38 Ability to take actions called for in the facility emergency plan, including supporting or acting as emergency coordinator if required. This meets the K/A - The examinee must know the emergency plan procedure's assignment of the emergency director's duties. SRO Only question: This meets 10CFR55.43b: item 5: Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

100 **ID: 1246791** **Points: 1.00**

In accordance with EP-AA-112-100-F-01, "Shift Emergency Director Checklist", whose permission, at a minimum, is required to approve 50.54(x) actions that allow the operator to "take reasonable action that departs from a license condition."?

A. An operator holding an Active SRO license

B. The Shift Operations Superintendent

C. The Operations Director

D. The Plant Manager

Answer: A

Answer Explanation

A is CORRECT: An actively licensed SRO may approve 50.54(x) actions

B is incorrect: The SOS does not have to approve 50.54(x)

C is CORRECT: The Operations Director does not have to approve 50.54(x)

D is incorrect: The Plant Manager probably doesn't hold an SRO license, so can't approve 50.54(x); if they do have the license, their permission is not required.

Question 100 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	3
Difficulty:	3.00
System ID:	1246791
User-Defined ID:	100 BYLI-ZP-107
Cross Reference Number:	
Topic:	50.54(x) authority
RO Importance:	2.7
SRO Importance:	4.5
K/A:	G2.4.40
Comments:	Source: New Cognitive Level: Memory SRO Only Reference: EP-AA-112-100-F-01 K/A G2.4.40 Knowledge of SRO responsibilities in emergency plan implementation This meets the K/A - The examinee must know who has the authority to approve 50.54(x) implementation during an Emergency Event. SRO Only question: This meets 10CFR55.43b: item 5: Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.