EXAMINATION ANSWER KEY

22-1 (2023-301) NRC Exam - RO

1	**ID: 14655**	**Points: 1.00**

Unit 2 was operating at near rated power when BOTH Recirc Pumps tripped.

Prior to the transient, ACTUAL RPV water level was ___(1)___ than INDICATED Fuel Zone RPV water level.

After the transient, the difference between ACTUAL RPV water level and INDICATED Fuel Zone RPV water level will get ___(2)___ following the transient.

A. (1) lower
(2) smaller

B. (1) lower
(2) larger

C. (1) higher
(2) smaller

D. (1) higher
(2) larger

Answer: A

Answer Explanation

Fuel Zone indications are affected by anything that causes flow through the monitored jet pump. Therefore, Recirc pump flow causes the Fuel Zone instruments to be inaccurate in the non-conservative direction (read higher than actual).

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:	14655
User-Defined ID:	14655
Cross Reference Number:	
Topic:	01 - 295001.A1.07
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: DRE216LN001.06 Reference: OP-DR-103-102-1002, Operator Aid #250, TSG K/A: 295001.A1.07 3.4 K/A: Ability to operate and/or monitor the following as they apply to Partial or Complete Loss of Forced Core Flow Circulation: Nuclear boiler instrumentation system CFR: 41.7 / 45.6 Level: High Safety Function: 1 & 4 Pedigree: Bank History: None Explanation: A. Correct - Fuel Zone indications are affected by anything that causes flow through the monitored jet pump. Therefore, Recirc pump flow causes the Fuel Zone instruments to be inaccurate in the non-conservative direction (read higher than actual). B. Incorrect - First part is correct. The difference will get smaller following the transient. Plausible because there are indicators in the plant that the difference between indicated and actual would get larger. C. Incorrect - Indicated level on the Fuel Zone instruments is higher than actual level due to the forced flow through the monitored jet pump. Plausible because the candidate must determine how the indicators work and interpolate what the indications would be. D. Incorrect - Indicated level on the Fuel Zone instruments is higher than actual level due to the forced flow through the monitored jet pump. The difference will get smaller following the transient. Plausible because the candidate must determine how the indicators work and interpolate what the indications would be and there are indicators in the plant that the difference between indicated and actual would get larger. **REQUIRED REFERENCES:** None

2	ID: 23477	Points: 1.00

DSSP 0100-CR, HOT SHUTDOWN PROCEDURE - CONTROL ROOM EVACUATION, requires verifying MO 2-1301-1, U2 ISOLATION CONDENSER RX OUTLET ISOL VLV, open.

This is done by placing the ISOL COND RX INLET VLV 2-1301-1 selector switch in VLV1 and taking the ISOL COND RX INLET VLVS 2-1301 local control switch to OPEN, inside local panel 2202-76, in the 2/3 D/G room.

Which one of the following describes the reason for placing the ISOL COND RX INLET VLV 2-1301-1 selector switch in VLV1?

A. To disconnect local control circuits from the valve.

B. To disconnect Control Room control circuits from the valve.

C. To isolate wire runs to meet divisional physical separation criteria.

D. To prevent overloading the associated DG during a design basis LOCA.

Answer: B

Answer Explanation

Placing the 2-1301-1 valve in the VLV1 position, removes the control circuit from the Main Control Room, in case of fire/evacuation.

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:	23477
User-Defined ID:	23477
Cross Reference Number:	
Topic:	02 - 295016.K2.08
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: 29501LP083 Reference: DSSP 0100-CR, 12E-2507B K/A: 295016.K2.08 3.9 K/A: Knowledge of the relationship between Control Room Abandonment and the following systems or components: Isolation condensers CFR: 41.7 / 45.8 Level: Memory Safety Function: 7 Pedigree: Bank History: None Explanation: A. Incorrect - With the selector switch in the VLV1 position, this removes the Control Room circuits from the valve. Plausible because if the switch was in the NORMAL position it would remove the local control circuits from the valve. B. Correct - Placing the 2-1301-1 valve in the VLV1 position, removes the control circuit from the Main Control Room, in case of fire/evacuation. C. Incorrect - Operating the switch does not change the physical routing or location of equipment. Plausible because division separation is important to the safety of the plant. D. Incorrect - The valves are powered from either MCC 28-1 or MCC 38-1, both of which can be powered from 2/3 EDG. The powering of the valves is included in the required load capabilities of the EDG. Plausible because the candidate will need to know how much load an EDG can carry. **REQUIRED REFERENCES:** None

3	ID: 13311	Points: 1.00

Unit 2 was operating at near rated conditions, with one Instrument Air compressor lined up and operating, when a leak developed in the Unit 2 Instrument Air system that is slightly greater than the capacity of the running compressor.

Which of the following Control Room indications would the Unit NSO expect to observe?

On panel 923-1, U2 IA HDR PRESS gauge will lower to _______, then stabilize or rise.

A. 60 psi

B. 85 psi

C. 90 psi

D. 95 psi

Answer: B

Answer Explanation

The AO backup from the Service Air System will open at 85 psi

Question 3 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	2.00
System ID:	13311
User-Defined ID:	13311
Cross Reference Number:	
Topic:	03 - 295019.A1.02
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: DRE278LN001.06 Reference: DOA 4700-01, DAN 923-1 F-4 K/A: 295019.A1.02 3.2 K/A: Ability to operate and/or monitor the following as they apply to Partial or Complete Loss of Instrument Air: System valves CFR: 41.7 / 45.6 PRA: No Level: Memory Safety Function: 8 Pedigree: Bank History: 08-1 Cert Explanation: A. Incorrect - Plausible because 60 psi is when the dryers are automatically bypassed B. Correct - The AO backup from the Service Air System will open at 85 psi C. Incorrect - Plausible because 90 psi is when the compressor loads D. Incorrect - Plausible because 95 psi is when the Unit 1 IA system backup opens, but is normally isolated **REQUIRED REFERENCE:** None

4	ID: 28075	Points: 1.00

Unit 2 is operating at 50% power.

Which of the following changes would result in Control Rod Worth becoming LESS NEGATIVE (absorb less neutrons)?

A. Lowering void fraction

B. Lowering fuel temperature

C. Rising Xenon concentration

D. Rising moderator temperature

Answer: C

Answer Explanation

A rise in Xenon concentration results in a smaller number of thermal neutrons available to be absorbed by the control rods. Therefore, Control Rod Worth will become less negative.

Question 4 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	2.00
System ID:	28075
User-Defined ID:	28075
Cross Reference Number:	
Topic:	04 - 292005.K1.09
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: BR0SIr4_Control_Rods Obj 9 Reference: Generic Fundamentals BR0SIr4_Control_Rods K/A: 292005.K1.09 2.6 K/A: Control Rods - Explain direction of change in the magnitude of CRW for a change in moderator temperature, void fraction, control rod density, and xenon CFR: 41.1 PRA: No Level: Memory Safety Function: N/A Pedigree: Bank History: None Explanation: A. Incorrect- Plausible because changing void fraction will have an effect on CRW, but lowering the void fraction causes CRW to become more negative. B. Incorrect - Plausible because a change in fuel temperature does have a small effect on CRW, but a drop in temperature will cause CRW to become more negative. C. Correct - A rise in Xenon concentration results in a smaller number of thermal neutrons available to be absorbed by the control rods. Therefore, Control Rod Worth will become less negative. D. Incorrect - Plausible because changing moderator temperature will effect CRW, but rising temperature will make CRW more negative. **REQUIRED REFERENCES:** None

None

5 **ID: 24256** **Points: 1.00**

Unit 3 is in Mode 5 with fuel moves in progress. SRM counts begin to steadily go up and continue to go up over a 5 minute period in the quadrant containing the fuel moves.

How are fuel moves affected?

A. Fuel moves may continue. SRM response is normal for these conditions.

B. Fuel moves may continue. The grapple may be raised, but NOT lowered.

C. Stop ALL fuel moves. The grapple may be lowered, but NOT raised.

D. Stop ALL fuel moves. Do NOT attempt to raise or lower the grapple.

Answer: D

Answer Explanation

Per DOA 0800-03, True criticality is indicated by a sustained increase in count rate, over 15 to 20 seconds, of the SRM closest to the Fuel Assembly/Bundle <u>OR</u> Control Rod being moved. The other SRMs may also begin to increase as neutron population increases throughout the core. Immediate actions of DOA 0800-03 require operators to suspend fuel moves and NEITHER raise nor lower the grapple.

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:	4.00
System ID:	24256
User-Defined ID:	24256
Cross Reference Number:	
Topic:	05 - 295023.K1.04
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: DRE272LN002.06 Reference: DOA 0800-03, DFP 0800-01 K/A: 295023K1.04 3.4 K/A: Knowledge of the operational implications and/or cause and effect relationships of the following as they apply to Refueling Accidents: Fuel positioning CFR: 41.8 to 41.10 PRA: Yes Level: High Safety Function: 8 Pedigree: Bank History: 14-1 NRC Explanation: A. Incorrect - Per DOA 0800-03, inadvertent criticality has occurred and fuel moves must be suspended. Plausible because during fuel moves SRM counts will change. B. Incorrect - Per DOA 0800-03, inadvertent criticality has occurred and fuel moves must be suspended. plausible because it must be determined that the indications are a True criticality and not caused by instrument noise. C. Incorrect - Per DOA 0800-03, inadvertent criticality has occurred and fuel moves must be suspended. Plausible because part 1 is correct and part 2 would put the fuel back in the core if it was allowed by procedure. D. Correct - Per DOA 0800-03, True criticality is indicated by a sustained increase in count rate, over 15 to 20 seconds, of the SRM closest to the Fuel Assembly/Bundle <u>OR</u> Control Rod being moved. The other SRMs may also begin to increase as neutron population increases throughout the core. Immediate actions of DOA 0800-03 require operators to suspend fuel moves and NEITHER raise nor lower the grapple. Justification for HIGH order: The candidate must determine inadvertent criticality has occurred and then determine the correct operational implications. **REQUIRED REFERENCE:** None

6	ID: 28103	Points: 1.00

Unit 2 is operating at near rated power, when Bus 23-1 trips due to an overcurrent condition.

What INITIAL Containment impacts are there with this loss and why?

A. The Drywell to Torus D/P rises due to Drywell temperature rising.

B. The Drywell to Torus D/P lowers due to Drywell temperature rising.

C. The Drywell to Torus D/P rises due to Torus temperature rising.

D. The Drywell to Torus D/P lowers due to Torus temperature rising.

Answer: A

Answer Explanation

The overcurrent on Bus 23-1 causes it to fully de-energize (EDG cannot close onto it). With Bus 23-1 de-energized, Bus 28 becomes de-energized. With Bus 28 de-energized, four of the Drywell Coolers (A, B, F, G) lose power, causing temperature to rise in the Drywell. As temperature rises, a corresponding rise in Drywell pressure will occur and therefore Drywell to Torus D/P will rise.

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:	28103
User-Defined ID:	22589
Cross Reference Number:	
Topic:	06 - 295012.K1.01
Num Field 1:	
Num Field 2:	
Text Field:	

Comments:	Objective: 262LN001.12 Reference: DANs 902-5 G-5, 902-4 G-17 K/A: 295012.K1.01 4.0 K/A: Knowledge of the operational implications and/or cause and effect relationships of the following as they apply to High Drywell Temperature: Drywell pressure CFR: 41.8 to 41.10 PRA: No Level: High Safety Function: 5 Pedigree: New History: N/A Explanation: A. Correct - The overcurrent on Bus 23-1 causes it to fully de-energize (EDG cannot close onto it). With Bus 23-1 de-energized, Bus 28 becomes de-energized. With Bus 28 de-energized, four of the Drywell Coolers (A, B, F, G) lose power, causing temperature to rise in the Drywell. As temperature rises, a corresponding rise in Drywell pressure will occur and therefore Drywell to Torus D/P will rise. B. Incorrect - Drywell temperature would rise causing Drywell pressure to rise and then Drywell to Torus D/P would RISE. The second part is correct. Plausible because the candidate will have to analyze how the D/P detectors operate and determine how pressure will be affected. C. Incorrect - The first part is correct. Torus temperature and pressure will not be IMMEDIATELY affected therefore would not affect Drywell to Torus D/P. Plausible because if Torus temperature were to rise then that would affect the Drywell to Torus D/P and the candidate would have to analyze how the D/P detectors operate and determine how pressure will be affected. D. Incorrect - If Torus temperature were to rise, which would cause Torus pressure to rise that would cause the Drywell to Torus D/P to lower but Torus temperature and pressure will not be IMMEDIATELY affected therefore would not affect Drywell to Torus D/P. Plausible because if Torus temperature were to rise then that would affect the Drywell to Torus D/P and the candidate would have to analyze how the D/P detectors operate and determine how pressure will be affected. **REQUIRED REFERENCES:** None

7 **ID: 28019** **Points: 1.00**

Unit 3 is operating at 80% power. DOS 2300-10, HIGH PRESSURE COOLANT INJECTION SYSTEM IST COMPREHENSIVE/PRESERVICE PUMP TEST, is in progress.

- SBGT is in operation
- Torus Cooling is running IAW DOP 1500-02, TORUS WATER COOLING MODE OF LOW PRESSURE COOLANT INJECTION SYSTEM, with 3A & 3C LPCI pumps and 3A & 3D CCSW pump operating

After approximately 10 minutes of running Torus Bulk Temperature is 93°F and rising at 1°F per minute

In 13 minutes what action is required?

A. Secure HPCI

B. Enter DEOP 200-1 and continue the surveillance

C. Increase Torus Cooling flow and continue the surveillance

D. Slow the HPCI turbine to minimum speed until Torus Temperature is <95°F

Answer: A

Answer Explanation

IAW TS 3.6.2.1 when Suppression pool average temperature >105°F AND thermal power is >1% RTP AND performing testing that adds heat to the suppression pool then the required action is to suspend all testing that adds heat to the suppression pool IMMEDIATELY, therefore securing HPCI is the proper action.

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:	28019
User-Defined ID:	28019
Cross Reference Number:	
Topic:	07 - 295013.A1.02
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: 223LN001.8 Reference: DOS 2300-10, DEOP 200-1, TS 3.6.2.1 K/A: 295013.A1.02 4.1 K/A: Ability to operate and/or monitor the following as they apply to High Suppression Pool Water Temperature: Systems that add heat to the suppression pool CFR: 41.7 / 45.6 PRA: Yes Level: High Safety Function: 5 Pedigree: Bank History: 20-2 NRC Explanation: A. Correct - IAW TS 3.6.2.1 when Suppression pool average temperature >105°F AND thermal power is >1% RTP AND performing testing that adds heat to the suppression pool then the required action is to suspend all testing that adds heat to the suppression pool IMMEDIATELY, therefore securing HPCI is the proper action. B. Incorrect - DEOP 200-1 will be entered when Torus Bulk Temperature >95°F but the surveillance will be stopped. Plausible because there have been multiple times when actually performing the surveillance and having to enter DEOP 200-1 while continuing with the surveillance. C. Incorrect - Max Torus Cooling will be placed in service when Torus Bulk Temperature >95°F as directed by DEOP 200-1 and DOP 1500-02 but the surveillance will be stopped. Plausible because if the math is done incorrectly and it is determined to be <105°F then Max Torus Cooling would be established and the surveillance would continue. D. Incorrect - HPCI is required to be secured if Torus Bulk Temperature >105°F. Plausible because there are multiple HPCI surveillances that require HPCI to ran at minimum speed for extended periods of time. **REQUIRED REFERENCES:** None

8 **ID: 27433** **Points: 1.00**

Unit 2 was operating at 100% power.

Annunciator 902-8 D-6, 480V BUS 20, 25 THRU 29 DC POWER FAILURE, is in alarm.

ONLY the control power feed breaker from the Normal 125 VDC bus to Bus 29 has tripped.

Bus 29 and 125VDC Bus 2B-1 remain energized.

Then, a Loss of Coolant Accident occurs.

- HPCI has automatically started and is injecting at rated flow
- Reactor pressure is at 200 psig and lowering
- Reactor water level is -160 inches and lowering

Which LPCI pumps, if any, are injecting into the reactor?

A. NO LPCI pumps are injecting

B. ONLY the 2A and 2B LPCI pumps are injecting

C. ONLY the 2C and 2D LPCI pumps are injecting

D. ALL LPCI pumps are injecting

Answer: D

Answer Explanation

125 VDC control power to Bus 29 is used for all breakers on Bus 29, including the breaker going to MCC 28-7/29-7. Without control power, all of the breakers on those buses will remain in the state they lost power in. When the LOCA occurs, the Unit will scram and the Unit Aux Transformer (UAT) will de-energize. All electrical loads will automatically fast transfer to the Reserve Aux Transformer (RAT), without any loss of power. The LPCI Injection valves are powered from swing MCC 28-7/29-7, which is normally aligned to Bus 29. When Bus 29 loses control power, the MCC will no longer have control power to open the breaker from Bus 29. Because all LPCI pump buses are energized from the RAT and MCC 28-7/29-7's source bus has power, all LPCI pumps and LPCI injection valves operate correctly. With Reactor pressure less than 325 psig, the injection valves will open and all LPCI pumps will inject.

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:	4.00
System ID:	27433
User-Defined ID:	27433
Cross Reference Number:	
Topic:	08 - 203000.K2.03
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: DRE203LN001.08 Reference: DOP 1500-03 K/A: 203000.K2.03 3.7 K/A: RHR/LPCI: Injection Mode: Knowledge of electrical power supplies to the following: Initiation logic. CFR: 41.7 PRA: Yes Safety Function: 2 & 4 Level: High Pedigree: Bank History: 16-1 NRC, 18-1 NRC Explanation: A. Incorrect - Plausible if the loss of control power to Bus 29 will cause the breakers on Bus 29 to trip. A failure of Bus 29 to supply MCC 28-7/29-7 would cause the LPCI injection valves to remain shut. B. Incorrect - Plausible if assumed that 125 VDC power to the LPCI B loop initiation logic was lost. If LPCI B loop logic power were lost, only the A and B LPCI pumps would start. 125 VDC Bus 2B-1 provides power to LPCI B initiation logic. 125 VDC Bus 2B-1 provides control power to Bus 29. C. Incorrect - Plausible if 125 VDC power to the LPCI A loop initiation logic was lost. If LPCI A loop logic power were lost, only the C and D LPCI pumps would start. 125 VDC Bus 2A-1 provides power to LPCI A initiation logic. D. Correct - 125 VDC control power to Bus 29 is used for all breakers on Bus 29, including the breaker going to MCC 28-7/29-7. Without control power, all of the breakers on those buses will remain in the state they lost power in. When the LOCA occurs, the Unit will scram and the Unit Aux Transformer (UAT) will de-energize. All electrical loads will automatically fast transfer to the Reserve Aux Transformer (RAT), without any loss of power. The LPCI Injection valves are powered from swing MCC 28-7/29-7, which is normally aligned to Bus 29. When Bus 29 loses control power, the MCC will no longer have control power to open the breaker from Bus 29. Because all LPCI pump buses are energized from the RAT and MCC 28-7/29-7's source bus has power, all LPCI pumps and LPCI injection valves operate correctly. With Reactor pressure less than 325 psig, the injection valves will open and all LPCI pumps will inject. **REQUIRED REFERENCES:** None

9	ID: 28104	Points: 1.00

Unit 2 is in Mode 4.

- RPV level is at +30 inches.
- Recirc loop temperatures 200°F and steady.
- 2A and 2B RBCCW pumps are operating on Unit 2.
- MO 2-3704, RBCCW OUTLET VLV, was timed opened for 16 seconds.
- 2C SDC Heat Exchanger is out of service.

What would be the effect if 2A and 2B Shutdown Cooling (SDC) Pumps are started in the COOLING mode with their discharge valves 60% open?

A. RPV water level will rise.

B. Recirculation loop temperature will rise.

C. SDC will be at the maximum cooling limit for this condition.

D. BOTH RBCCW pumps will trip on low discharge pressure.

Answer: C

Answer Explanation

Per the Limitations and Actions of the DOP 1000-03, to achieve MAXIMUM cooling for this condition, the 2-3704 is timed open for 16 seconds and per the CAUTION prior to step G.1 the MAXIMUM valve position for the SDC pump discharge valves for Unit 2 is 60%.

Question 9 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	4
Difficulty:	3.00
System ID:	28104
User-Defined ID:	13663
Cross Reference Number:	
Topic:	09 - 205000.K5.02
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: DRE205001.08 Reference: DOP 1000-03 K/A: 205000.K5.02 3.5 K/A: Knowledge of the operational implications or cause and effect relationships of the following concepts as they apply to the Shutdown Cooling System (RHR Shutdown Cooling Mode): Valve operation CFR: 41.5 / 45.3 Level: Memory Safety Function: 4 Pedigree: Bank History: None Explanation: A. Incorrect - Plausible because if the 2-3704 was open enough then RPV temp would go up and subsequently RPV level would go up. B. Incorrect - Plausible because Recirc loop temp would increase if the valve was NOT opened for 16 seconds – indicating less cooling and subsequent increase in RPV temperature. C. Incorrect - Plausible because there are systems that if the discharge valve is open too much then the pump(s) will runout and potentially trip. D. Correct - Per the Limitations and Actions of the DOP 1000-03, to achieve MAXIMUM cooling for this condition, the 2-3704 is timed open for 16 seconds and per the CAUTION prior to step G.1 the MAXIMUM valve position for the SDC pump discharge valves for Unit 2 is 60%. **REQUIRED REFERENCES:** None

10 **ID: 13791** **Points: 1.00**

Unit 2 was operating at near rated power when the following sequence of events occurred:

- Time = 0 seconds: A spurious Group 1 signal occurs
- Time = 5 seconds: RPV pressure peaks at 1070 psig
- Time = 12 seconds: RPV pressure drops to 1025 psig

The Reactor scrammed on ___(1)___ and the Isolation Condenser ___(2)___ initiated to control RPV pressure.

A. (1) MSIV closure
(2) automatically

B. (1) MSIV closure
(2) will be manually

C. (1) High RPV pressure
(2) automatically

D. (1) High RPV pressure
(2) will be manually

Answer: B

Answer Explanation

Scram caused by MSIV closure BEFORE the high RPV pressure signal was received as a result of the Group 1 isolation. The IC does not initiate until RPV pressure is sustained above setpoint (1047 to 1063) for nominal time of 15 seconds. Pressure reaches 1070 within 5 seconds, then goes below 1047 within the next 7 seconds - therefore no automatic initiation - standby lineup.

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:	13791
User-Defined ID:	13791
Cross Reference Number:	
Topic:	10 - 207000.A4.07
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: DRE207LN001.06 Reference: Electrical Print 12E-2502A, 12E-2506, 12E-2507, 12E-2512, DOP 1300-02 , DAN 902-5 D-4, DAN 902-4 A-15 K/A: 207000.A4.07 4.2 K/A: Isolation (Emergency) Condenser - Ability to manually operate and/or monitor in the control room: System initiation CFR: 41.7 / 45.5 to 45.8 PRA: Yes Level: High Safety Function: 4 Pedigree: Bank History: 06-1 NRC Explanation: A. Incorrect - First part is correct. Second part is plausible because the Isolation Condenser does have an automatic initiation setpoint. B. Correct - Scram caused by MSIV closure BEFORE the high RPV pressure signal was received as a result of the Group 1 isolation. The IC does not initiate until RPV pressure is sustained above setpoint (1047 to 1063) for nominal time of 15 seconds. Pressure reaches 1070 within 5 seconds, then goes below 1047 within the next 7 seconds - therefore no automatic initiation - standby lineup. C. Incorrect - First part is plausible because High RPV pressure is a scram signal. Second part is plausible because the Isolation Condenser does have an automatic initiation setpoint. D. Incorrect - First part is plausible because High RPV pressure is a scram signal. Second part is correct. **REQUIRED REFERENCE:** None

11 **ID: 24024** **Points: 1.00**

Unit 2 was operating at near rated power.

- Bus 29 tripped on overcurrent
- Unit 2 Reactor was scrammed on low RPV water level.

The SRO directs you to inject SBLC as an Alternate Injection System per DOP 1100-02, INJECTION OF SBLC Hard Card.

What would be the expected system response after completion of the hard card actions?

A. NO injection flow.

B. ~40 gpm flow from the 2A pump ONLY.

C. ~40 gpm flow from the 2B pump ONLY.

D. ~80 gpm flow from BOTH pumps.

Answer: B

Answer Explanation

The 2A pump is the only pump with an electrical power supply, and it delivers ~40 gpm.

Question 11 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	4
Difficulty:	2.00
System ID:	24024
User-Defined ID:	24024
Cross Reference Number:	
Topic:	11 - 211000.K2.01
Num Field 1:	0.00
Num Field 2:	0.00
Text Field:	
Comments:	Objective: DRE211LN001.02 Reference: DOS 1100-03, DOP 6700-19 K/A: 211000.K2.01 3.6 K/A: Standby Liquid Control System - Knowledge of electrical power supplies to the following: SLCS pumps. CFR: 41.7 Level: High PRA: No Safety Function: 1 Pedigree: Bank History: None Explanation: A. Incorrect - Only the 2B pump would without power and therefore 2A pump is still available to inject. Plausible if the candidate did not understand the power supplies B. Correct - The 2A pump is the only pump with an electrical power supply, and it delivers ~40 gpm. C. Incorrect - With a loss of Bus 29, MCC 29-1 would be lost. MCC 29-1 is the power supply to both the 2B pump and the 2B squib valve, which would not be able to deliver any flow. Plausible if the candidate did not understand the power supplies D. Incorrect - With a loss of Bus 29, MCC 29-1 would be lost. MCC 29-1 is the power supply to both the 2B pump and the 2B squib valve, which would not be able to deliver any flow. Plausible if the candidate did not understand the power supplies **REQUIRED REFERENCES:** None

12 **ID: 14030** **Points: 1.00**

If the reactor mode switch is in **RUN**, which one of the following conditions will cause a **DIRECT** trip of one RPS trip system (i.e., will cause a half scram)?

A. Reactor power at 10% with MSIVs 1C & 2D less than 90% open.

B. Reactor power at 10% with Turbine Stop Valves 3 & 4 less than 90% open.

C. Reactor power at 45% with MSIVs 1A & 1D less than 90% open.

D. Reactor power at 45% with Turbine Stop Valves 2 & 3 less than 90% open.

Answer: A

Answer Explanation

MSIVs C and D do not meet the 5 alive concept, so at this power a 1/2 scram would result.

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:	4.00
System ID:	14030
User-Defined ID:	14030
Cross Reference Number:	
Topic:	12 - 212000.K5.02
Num Field 1:	0.00
Num Field 2:	0.00
Text Field:	
Comments:	Objective: 212LN001.06 Reference: 12E-2464, 2465, 2466; DAN 902(3)-5 D-14 K/A: 212000.K5.02 4.1 K/A: Knowledge of the operational implications or cause and effect relationships of the following concepts as they apply to the Reactor Protection System: Logic channel arrangements CFR: 41.5 /45.3 Safety Function: 7 PRA: No Level: High Pedigree: Bank History: 19-1 NRC Explanations: A. Correct - MSIVs C and D do not meet the 5 alive concept, so at this power a 1/2 scram would result. B. Incorrect - TSV 3 and 4 do not add up to 5, but at 10% power, Turbine Stop Valves would not cause a 1/2 scram (38.5% bypass). Plausible because TSV do not add up to 5 (5 alive) C. Incorrect - MSIVs A and D meet the "5" alive requirement (no half scram). Plausible because candidate must determine for this power level which combinations are OK. D. Incorrect - TSV 2 and 3 meet the "5" alive requirement (no half scram). Plausible because candidate must determine for this power level which combinations are OK. **REQUIRED REFERENCES:** None

13	ID: 14674	Points: 1.00

The SRM “DRIVE IN” push button must be ___(1)___ to drive the SRM detectors into the core, and the SRM “DRIVE OUT” push button must be ___(2)___ to drive the SRM detectors out of the core.

A. (1) continually held
(2) continually held

B. (1) continually held
(2) momentarily depressed

C. (1) momentarily depressed
(2) continually held

D. (1) momentarily depressed
(2) momentarily depressed

Answer: C

Answer Explanation

The DRIVE IN switch is a seal in circuit and need <u>NOT</u> be held in. The DRIVE OUT switch is <u>NOT</u> a seal in circuit

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:	2.00
System ID:	14674
User-Defined ID:	14674
Cross Reference Number:	
Topic:	13 - 215004.A4.04
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: DRE215LN004.11 Reference: DOP 0700-01 K/A: 215004.A4.04 3.2 / 3.2 K/A: Source Range Monitor System - Ability to manually operate and/or monitor in the control room: SRMS drive control switches CFR: 41.7 Safety Function: 7 PRA: No Level: Memory Pedigree: Bank History: 05-1 NRC, 18-1 NRC Explanation: A. Incorrect - Since the drive in button has a design contact that locks in, the button does not need to be held in. Plausible because part 2 is correct and part 1 would be correct for drive out. B. Incorrect - Since the drive in button has a design contact that locks in, the button does not need to be held in. Plausible because part 1 would be correct for drive out and part 2 would be correct for drive out. C. Correct - The DRIVE IN switch is a seal in circuit and need NOT be held in. The DRIVE OUT switch is NOT a seal in circuit D. Incorrect - The drive out push button does not have a maintain contact feature, so it needs to be held continuously. Plausible because part 1 is correct and part 2 would be correct for drive in. **REQUIRED REFERENCES:** None

14 **ID: 28105** **Points: 1.00**

Both Units were at rated power when the Feed Breaker to Bus 2A-1 tripped.

What is the status of the ADS system?

A. DIV 1 ADS Logic is available
ADS valve circuitry is powered from the alternate power source

B. DIV 1 ADS Logic is available
ADS valve circuitry is powered from the normal power source

C. DIV 1 ADS Logic is unavailable
ADS valve circuitry is powered from the alternate power source

D. DIV 1 ADS Logic is unavailable
ADS valve circuitry is powered from the normal power source

Answer: C

Answer Explanation

2A-1 is the only power source to DIV 1 Logic and the normal source to the ADS valve circuitry. Therefore, DIV 1 logic is unavailable and the ADS valve circuitry will swap over to 2B-1.

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:	28105
User-Defined ID:	28020
Cross Reference Number:	
Topic:	14 - 218000.K6.06
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: 218LN001.12 Reference: DOA 6900-T1, DAN 902-3 C-15, 12E-2461 & 12E-2462 K/A: 218000.K6.06 4.0 K/A: Knowledge of the effect of the following plant conditions, system malfunctions, or component malfunctions on the Automatic Depressurization System: DC power CFR: 41.7 / 45.7 PRA: No Level: High Safety Function: 3 Pedigree: New History: N/A Explanation: A. Incorrect - 2A-1 is the only power source to DIV 1 Logic, therefore is unavailable. Plausible because parts 2 is correct and part 1 must identify a single source failure. B. Incorrect - 2A-1 is the only power source to DIV 1 Logic, therefore is unavailable. ADS valve circuitry is normally powered from 2A-1. Plausible because must identify normal and alternate power supplies and transfer logic. C. Correct - 2A-1 is the only power source to DIV 1 Logic and the normal source to the ADS valve circuitry. Therefore, DIV 1 logic is unavailable and the ADS valve circuitry will swap over to 2B-1. D. Incorrect - 2A-1 is the only power source to DIV 1 Logic, therefore is unavailable. ADS valve circuitry is normally powered from 2A-1 and will automatically switch to its alternate power supply. Plausible because part 1 is correct. Part 2 must recognize the normal and alternate power supply and transfer logic. **REQUIRED REFERENCE:** None

None

15 | **ID: 22386** | **Points: 1.00**

Unit 3 is operating at near rated power, when the following occurs:

- Bus 34-1 experiences an overcurrent condition.
- A fire in 250 VDC Turbine Building MCC 3 causes the MCC to become de-energized.

What effect does this have on the ESS Bus?

A. The ESS ABT will transfer power to the ESS Bus, from the Inverter to MCC 38-2, via a Transformer.

B. The ESS ABT will transfer power to the ESS Bus, from the Static Switch to MCC 38-2, via a Transformer.

C. The ESS Static Switch will transfer power to the ESS Bus, from the Inverter to Bus 35, via a Voltage Regulator.

D. The ESS Static Switch will transfer power to the ESS Bus, from the Inverter to Bus 36, via a Voltage Regulator.

Answer: D

Answer Explanation

Upon a loss of Bus 34-1 (overcurrent), Bus 39 becomes de-energized. Subsequently with a loss of the TB 250 VDC MCC 3, the Inverter loses power. With no power into the Inverter, the Static Switch will transfer power to the ESS Bus, from the Inverter to Bus 36, via a Voltage Regulator.

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:	2.00
System ID:	22386
User-Defined ID:	22386
Cross Reference Number:	
Topic:	15 - 262002.K2.01
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: DRE262LN001.06 Reference: DAN 902-8 E-8, DOP 6800-01 K/A: 262002.K2.01 3.3 K/A: Uninterruptable Power Supply (AC/DC) - Knowledge of electrical power supplies to the following: Static switch/inverter CFR: 41.7 PRA: No Level: High Safety Function: 6 Pedigree: Bank History: None Explanation: A. Incorrect - The ESS ABT will transfer power to the ESS Bus from Bus 38-2 if there is no other power available first. The ESS ABT is downstream of the Static Switch not the Inverter. Plausible because this is a power supply to the ESS Bus. B. Incorrect - The ESS ABT will transfer power to the ESS Bus from Bus 38-2 if there is no other power available first. Plausible because this is a power supply to the ESS Bus. C. Incorrect - The ESS Static Switch will transfer power from the Inverter to Bus 36 not Bus 35. Plausible because Bus 25 is a Unit 2 power supply to its ESS Bus. D. Correct - Upon a loss of Bus 34-1 (overcurrent), Bus 39 becomes de-energized. Subsequently with a loss of the TB 250 VDC MCC 3, the Inverter loses power. With no power into the Inverter, the Static Switch will transfer power to the ESS Bus, from the Inverter to Bus 36, via a Voltage Regulator. **REQUIRED REFERENCES:** None

16	ID: 24191	Points: 1.00

A locked throttle valve in a safety related system is to be positioned three turns CLOSED FROM FULL OPEN.

Per OP-AA-108-101-1001, COMPONENT POSITION DETERMINATION, which of the following verification techniques is required for the valve's position?

A. Peer Check

B. Alternate Verification

C. Concurrent Verification

D. Independent Verification

Answer: C

Answer Explanation

Per OP-AA-108-101-1001 for component position determination, concurrent verification is required for throttle valve position.

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:	2.00
System ID:	24191
User-Defined ID:	24191
Cross Reference Number:	
Topic:	16 - Generic 2.1.29
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: 29900LK051 References: OP-AA-108-101-1001, HU-AA-101 K/A: Generic 2.1.29 4.1 / 4.0 K/A: Knowledge of how to conduct system lineups, such as valves, breakers, or switches CFR: 41.10 / 45.1 / 45.12 PRA: No Level: Memory Pedigree: Bank History: 14-1 NRC Explanation: A. Incorrect - Peer Check is the act of checking the correct component identification and discussing subsequent component manipulation prior to action being taken and for a locked throttle valve this would not be appropriate. Plausible because peer checking in an approved method of verification. B. Incorrect - Alternate Verification would be utilizing other indications (ie flow as the valve is operated, visual inspection of valve, etc.) and for a locked throttle valve this would not be appropriate. Plausible because the proper position of some pieces of equipment could be verified using this method. C. Correct - Per OP-AA-108-101-1001 for component position determination, concurrent verification is required for a locked throttle valve position. D. Incorrect - Independent Verification would not be used for the throttle valve; once the valve is in the position it is required to be in then it should not be moved again. In order to complete an Independent Verification, the second checker would have to move the valve. Plausible because IV is an approved method of other valve positions, just not throttle valves. **REQUIRED REFERENCES:** None

17 **ID: 28072** **Points: 1.00**

Unit 2 is operating at rated power.

- High rainfall causes grass and debris to accumulate on the 2/3 Cribhouse bar racks.
- Condenser vacuum is degrading.
- NPSH to Condensate pumps is lowering.

Which of the following would indicate that cavitation was occurring?

1. Fluctuating pump discharge pressure
2. Fluctuating pump flow rate
3. Steadily rising motor currents
4. Excessive pump noise

A. 1, 2, and 3

B. 1, 2, and 4

C. 1, 3, and 4

D. 2, 3, and 4

Answer: B

Answer Explanation

Degrading condenser vacuum will affect the amount of condensate depression achieved by the condenser. as conditions worsen the eye of the impeller of the condensate pumps will reach the point where cavitation will occur. Indications of cavitation are:
a. Fluctuating pump discharge pressure
b. Fluctuating pump flow rate
c. Fluctuating pump motor current
d. Excessive pump noise (pump sounds like it is pumping rocks).

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:	28072
User-Defined ID:	28072
Cross Reference Number:	
Topic:	17 - 256000.291004.K1.01
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: BC02Sr4 pumps-03 References: BC02Sr4 Pumps K/A: 256000.291004.K1.01 3.2 K/A: Condensate - Identification, symptoms, and consequences of cavitation CFR: 41.3 Safety Function: 2 Level: Memory Pedigree: New History: N/A Explanation: A. Incorrect - Plausible because parts 1 and 2 are correct. Motor amps will fluctuate versus steadily increasing. B. Correct - Degrading condenser vacuum will affect the amount of condensate depression achieved by the condenser. as conditions worsen the eye of the impeller of the condensate pumps will reach the point where cavitation will occur. Indications of cavitation are: a. Fluctuating pump discharge pressure b. Fluctuating pump flow rate c. Fluctuating pump motor current d. Excessive pump noise (pump sounds like it is pumping rocks) C. Incorrect - Plausible because motor amps will rise but also lower (fluctuate). Parts 2 and 3 are correct. D. Incorrect - Plausible because parts 1 and 3 are correct. Part 2 motor amps will rise but also lower (fluctuate). **Required Reference:** None

None

18 **ID: 13321** **Points: 1.00**

A licensed NSO is being administered a JPM at a Unit 2 CRD accumulator as part of their Annual Requal Exam.

A continuous 2 minute siren sounds followed by an announcement directing all personnel NOT having emergency assignments, to report to the CLOSEST assembly area.

To what area must the NSO report?

A. Main Control Room

B. Operation Support Center (OSC)

C. Unit 2 Turbine Building Trackway

D. Administration Building Lunchroom/Foyer Area

Answer: C

Answer Explanation

Per EP-AA-1004, upon hearing a 2 minute continuous siren (EP assembly siren) all personnel not having emergency assignments have been instructed to assemble in pre-designated assembly areas. Refer to figure 4-2. Per figure 4-2, the closest area from the Unit 2 accumulator banks is the Unit 2 turbine building main corridor.

Question 18 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	2.00
System ID:	13321
User-Defined ID:	13321
Cross Reference Number:	
Topic:	18 - Generic 2.4.39
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: 29501LP083 Reference: EP-AA-1004 K/A: Generic 2.4.39 3.9 K/A: Knowledge of RO responsibilities in emergency plan implementing procedures CFR: 41.10 Safety Function: N/A Level: Memory Pedigree: Bank History: 05-1 NRC, 18-1 NRC Explanation: A. Incorrect - Plausible because this would be the correct answer for a NSO if they were on-shift, but not while performing training activities. B. Incorrect - Plausible because this is where the shift operators go that are not in tech spec required positions C. Correct - Per EP-AA-1004, upon hearing a 2 minute continuous siren (EP assembly siren) all personnel not having emergency assignments have been instructed to assemble in pre-designated assembly areas. Refer to figure 4-2. Per figure 4-2, the closest area from the Unit 2 accumulator banks is the Unit 2 turbine building main corridor. D. Incorrect - Plausible because this would be correct if the NSO was outside the plant. **REQUIRED REFERENCES:** None

19	ID: 13812	Points: 1.00

Unit 2 was operating at near rated conditions, when the following occurred:

- Unit 2 experienced a Loss of Off-Site Power (LOOP)
- Unit 2 experiences a Reactor Scram
- Annunciator 902-8 E-4 2/3 DG OVERLOAD alarmed
- Annunciator 902-8 D-4 2/3 DG GROUND FAULT alarmed
- Annunciator 902-8 E-5 4KV BUS 24-1 OVERCURRENT alarmed
- 2/3 DIESEL GENERATOR KILOWATT meter reads 2850 Kilowatts

What INITIAL action is the NSO required to take?

A. Dispatch an EO to open 2/3 D/G to Bus 23-1 ACB

B. Trip ALL loads connected to 2/3 EDG. If the fault clears, then close breakers one at a time to locate ground fault to prevent damage to the 2/3 EDG

C. Trip ALL loads connected to 2/3 EDG. If the fault clears, then close breakers one at a time to locate ground fault to prevent damage to the load AFTER Off-Site power restored

D. Trip all UNNECESSARY loads connected to 2/3 DG. If the fault clears, then close breakers one at a time to locate ground fault to prevent damage to the load AFTER Off-Site power restored

Answer: D

Answer Explanation

With the 2/3 EDG running via an AUTO start signal (LOOP), the actions required are to trip ALL unnecessary loads connected, then close breakers one at a time to locate ground fault to prevent damage to the load when Off-Site power restored.

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:	4.00
System ID:	13812
User-Defined ID:	13812
Cross Reference Number:	
Topic:	19 - 295003.K2.03
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: DRE264LN004.10 Reference: DAN 902-8 D-4, DAN 902-8 E-4 K/A: 295003.K2.03 3.9 K/A: Knowledge of the relationship between Partial or Complete Loss of AC Power and the following systems or components: AC electrical distribution system CFR: 41.7/45.8 PRA: Yes Safety Function: 6 Level: High Pedigree: Bank History: None Explanation: A. Incorrect - No procedural guidance exists to open this breaker locally. Additionally, opening this breaker will result in a loss of ALL AC power. Plausible because is this was a manual start of the EDG then the breaker should have auto tripped. B. Incorrect - Tripping of all loads connected to 2/3 EDG is incorrect. Damage to 2/3 EDG is not of concern. Plausible because all UNNECESSARY loads are tripped and then closed in one at a time. C. Incorrect - Tripping of all loads connected to the 2/3 EDG is incorrect. Damage to equipment up restoration of off-site power is of concern. Plausible because all UNNECESSARY loads are tripped and then closed in one at a time. D. Correct - With the 2/3 EDG running via an AUTO start signal (LOOP), the actions required are to trip ALL unnecessary loads connected, then close breakers one at a time to locate ground fault to prevent damage to the load when Off-Site power restored. Justification for HIGH order: The candidate is forced to evaluate the effects of EDG automatic in addition to actions taken. **REQUIRED REFERENCES:** None

20 **ID: 14693** **Points: 1.00**

Unit 2 was operating at near rated power when a malfunction caused the loss of Unit 2 125 VDC buses 2A-1 AND 2B-1.

A ___(1)___ Scram signal will be received, due to the loss of ___(2)___.

A. (1) Half
(2) Div 1 ATS ONLY

B. (1) Half
(2) Div 1 AND Div 2 ATS

C. (1) Full
(2) Div 1 ATS ONLY

D. (1) Full
(2) Div 1 AND Div 2 ATS

Answer: D

Answer Explanation

The loss of 2A-1 and 2B-1 will make up the RPS logic for a full scram due to a Loss of both DIV 1 and DIV 2 ATS for both reactor water level lo lo and reactor pressure hi.

Question 20 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	14693
User-Defined ID:	14693
Cross Reference Number:	
Topic:	20 - 295004.A1.04
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: DRE263LN002.12 Reference: DAN 902-4 H-20, DAN 902-4 G-20, DOA 6900 -02, DOP 6800-05 K/A: 295004.A1.04 3.7 K/A: Knowledge of the reasons for the following responses as they apply to PARTIAL OR COMPLETE LOSS OF D.C. POWER: DC electrical loads CFR: 41.7/45.6 PRA: Yes Safety Function: 6 Level: High Pedigree: Bank History: None Explanation: A. Incorrect - The loss of 2A-1 and 2B-1 will make up the RPS logic for a full scram. Plausible because there are many systems that have reserve power that will auto swap to protect from trips. Plausible because ATS has both AC and DC power to both divisions and must know what the loss of each power supply would cause. B. Incorrect - The loss of 2A-1 and 2B-1 will make up the RPS logic for a full scram. Plausible because there are many systems that have reserve power that will auto swap to protect from trips. Second part is correct. C. Incorrect - First part is correct. The loss of 2A-1 and 2B-1 will make up the RPS logic for a full scram. Plausible because ATS has both AC and DC power to both divisions and must know what the loss of each power supply would cause. D. Correct - The loss of 2A-1 and 2B-1 will make up the RPS logic for a full scram due to a Loss of both DIV 1 and DIV 2 ATS for both reactor water level lo lo and reactor pressure hi. **REQUIRED REFERENCES:** None

21	ID: 28023	Points: 1.00

A hydraulic ATWS has occurred on Unit 2.

The NSO will ___(1)___.

The MINIMUM electrical safety precautions required to perform this task are ___(2)___.

A. (1) de-energize scram solenoids
(2) safety glasses, long sleeve electrical safety coat, and rubber gloves

B. (1) de-energize scram solenoids
(2) all metal removed, safety glasses, long sleeve FR shirt, and rubber gloves

C. (1) install jumpers, perform repeated scrams/resets
(2) safety glasses, long sleeve electrical safety coat, and rubber gloves

D. (1) install jumpers, perform repeated scrams/resets
(2) all metal removed, safety glasses, long sleeve FR shirt, and rubber gloves

Answer: D

Answer Explanation

Per DEOP 400-5 - For a hydraulic scram, jumpers need to installed prior to repeated scrams for CRD insertion. Per SA-AA-129 - the voltage in the area being worked in for DEOP 500-5 the minimum PPE is all metal removed, long sleeve arc-rated FR shirt and FR pants or FR coverall, safety glasses and rubber gloves.

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:	2.00
System ID:	28023
User-Defined ID:	28023
Cross Reference Number:	
Topic:	21 - 295006 G.2.1.2
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: 295L105 Reference: SA-AA-129, DEOP 400-5, DEOP 500-05 K/A: 295006 G.2.1.2 4.1 / 4.4 K/A: Knowledge of operator responsibilities during any mode of plant operation: SCRAM CFR: 41.10 / 43.1 / 45.13 PRA: No Level: High Safety Function: N/A Pedigree: New History: N/A Explanation: A. Incorrect - Need to remove all metal. Plausible because pulling scram solenoid fuses is the correct for an electrical ATWS. B. Incorrect - Jumpers need to installed. Plausible because pulling scram solenoid fuses is the correct for an electrical ATWS and part 2 is correct. C. Incorrect - Need to remove all metal. Plausible because part 1 is correct. The PPE is not a correct list. D. Correct - Per DEOP 400-5 - For a hydraulic scram, jumpers need to installed prior to repeated scrams for CRD insertion. Per SA-AA-129 - the voltage in the area being worked in for DEOP 500-5 the minimum PPE is all metal removed, long sleeve arc-rated FR shirt and FR pants or FR coverall, safety glasses and rubber gloves. **REQUIRED REFERENCES:** None

None

22 **ID: 28106** **Points: 1.00**

U3 was operating at near rated power when an ERV opened fully and is now stuck full open.

What is a negative effect of this condition?

A. Lowering Drywell pressure

B. Lowering NPSH for the ECCS pumps

C. Rising Drywell to Torus DP

D. Rising motor amps for the ECCS pumps

Answer: B

Answer Explanation

Rising temperature lowers the available NPSH - closer to cavitation.

Question 22 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	28106
User-Defined ID:	28106
Cross Reference Number:	
Topic:	22 - 295026.A2.01-1
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: 223LN001.3h Reference: EOP-DEOP TB K/A: 295026.A2.01 4.1/4.0 K/A: Ability to determine and/or interpret the following as they apply to Suppression Pool High Water Temperature: Suppression pool water temperature CFR: 41.10/43.5/45.13 Safety Function: 5 Level: Memory Pedigree: Bank History: None Explanation: Rising temperature lowers the available NPSH - closer to cavitation. Higher temp for torus water would tend to raise pressure in the torus, thus lowering drywell to torus dp, with little or no impact on drywell pressure. As torus temp goes up, water density goes down, therefore, motor amps go down (less work). A. Incorrect - Higher temp for torus water would tend to raise pressure in the torus, thus lowering drywell to torus dp, with little or no impact on drywell pressure. Plausible because torus pressure would tend to rise. B. Correct - Rising temperature lowers the available NPSH - closer to cavitation. C. Incorrect - Higher temp for torus water would tend to raise pressure in the torus, thus lowering drywell to torus dp, with little or no impact on drywell pressure. Plausible because drywell to torus DP would change, just in the opposite direction. D. Incorrect - As torus temp goes up, water density goes down, therefore, motor amps go down (less work). Plausible because this would be correct if torus temperature was going down. **Required References:** None

23	ID: 28024	Points: 1.00

An electrical fire has been reported in the 2/3 Emergency Diesel Generator (EDG) room. The automatic fire suppression system actuated as designed. Fire response personnel are planning to enter the room to confirm that the fire is extinguished.
This fire would be classified as Class ___(1)___.
A significant hazard associated with entering the room is the potential for suffocation due to ___(2)___.

A. (1) A
(2) CO_2 discharge

B. (1) A
(2) Halon

C. (1) C
(2) CO_2 Discharge

D. (1) C
(2) Halon

Answer: C

Answer Explanation

The fire is electrical in nature, so it is Class C. The EDG room is protected by automatic CO_2 suppression, so suffocation is a major hazard to consider prior to entry.

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:	28024
User-Defined ID:	28024
Cross Reference Number:	
Topic:	23 - 600000.K1.02
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: 29501LK080 Reference: SA-AA-0301 K/A: 600000.K1.02 3.4 K/A: Knowledge of the operational implications and/or cause and effect relationships of the following as they apply to Plant Fire on Site: Firefighting methods for each type of fire CFR: 41.8/41.10/45.3 PRA: No Safety Function: 8 Pedigree: Bank History: None Level: Memory Explanation: A. Incorrect - Class A pertains to paper/wood fires and this fire was electrical in nature. The second part of the answer is correct. Plausible because (1) there are four classes of fire (A, B, C and D). The student must be able to distinguish between the classes. (2) the second part of the answer is correct. B. Incorrect - Class A pertains to paper/wood fires and this fire was electrical in nature. In addition, the room is NOT protected by halon. Plausible because (1) there are four classes of fire (A, B, C and D). The student must be able to distinguish between the classes. (2) the AEER is protected by CO_2 and Halon. C. Correct - The fire is electrical in nature, so it is Class C. The EDG room is protected by automatic CO_2 suppression, so suffocation is a major hazard to consider prior to entry. D. Incorrect - Class C is correct; however, the room is not protected by Halon. Plausible because (1) the first part of the answer is correct. (2) the AEER is protected by CO_2 and Halon. **REQUIRED REFERENCES:** None

None

24	ID: 28025	Points: 1.00

Unit 2 is operating at full power when the following occurs:

- Steam line rupture has occurred in the HPCI room and a Group IV Isolation does not initiate.
- HPCI pump room temperature is 155°F.
- HPCI pump room radiation level is 100 mr/hr.

Per OP-DR-103-102-1002, STRATEGIES FOR SUCCESSFUL TRANSIENT MITIGATION, which of the following room coolers must be started in addition to U2 HPCI room cooler?

1. Unit 2 LPCI/CS room cooler
2. Unit 3 LPCI/CS room cooler
3. Unit 3 HPCI room cooler

A. 3 ONLY

B. 1 and 2 ONLY

C. 1 and 3 ONLY

D. 1, 2, and 3

Answer: D

Answer Explanation

With the HPCI room temperature exceeding Max normal of 150 degrees, DEOP 300-1, SECONDARY CONTAINMENT CONTROL, entry is required. Room coolers are to be started. Per OP-DR-103-102-1002, STRATEGIES FOR SUCCESSFUL TRANSIENT MITIGATION, when operating room coolers, start all available LPCI and HPCI room coolers on both units.

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:	3.00
System ID:	28025
User-Defined ID:	28025
Cross Reference Number:	
Topic:	24 - 295032.K2.01
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: 29502LK052 References: DEOP 300-1 K/A: 295032.K3.03 3.5 K/A: Knowledge of the relationship between High Secondary Containment Area Temperature and the following systems or components: Area/room coolers CFR: 41.7/45.8 PRA: No Safety Function: 9 Level: Memory Pedigree: New History: N/A Explanation: A. Incorrect - Plausible because the U3 HPCI should be started, but LPCI room coolers must be started as well. B. Incorrect - Plausible because both units LPCI room coolers should be started but U3 HPCI room cooler must be started as well even though it has an auto start on high room temperature. C. Incorrect - Plausible because both U2 LPCI and U3 HPCI room coolers must be started, but U3 LPCI room cooler must be started as well. D. Correct - With the HPCI room temperature exceeding Max normal of 150°F, DEOP 300-1, SECONDARY CONTAINMENT CONTROL, entry is required. Room coolers are to be started. Per OP-DR-103-102-1002, STRATEGIES FOR SUCCESSFUL TRANSIENT MITIGATION, when operating room coolers, start all available LPCI and HPCI room coolers on both units. **REQUIRED REFERENCES:** None

None

25	ID: 14645	Points: 1.00

The following plant conditions exist after a transient with both units at power:

- There is 1 inch of water on the Unit 2 HPCI Room floor - Water level is steady.
- The Unit 2 West Corner room floor is covered in water (< 1 inch and level is steady).

Why are the sump pumps operated under these conditions per DEOP 300-1?

A. To maintain equipment operability.

B. To maintain site release rates below 10 CFR 100 limits.

C. To quantify the leakage rate to determine Tech Spec required actions.

D. To ensure environmental conditions are maintained for EQ Instrumentation.

Answer: A

Answer Explanation

The basis for pumping the sumps on high water level in Secondary Containment is to maintain operability of equipment in the area, and to maintain the areas in a condition permitting safe entry by personnel. The normal water level in the corner rooms is 'none', i.e., dry floors. The Max Safe level is 8 inches. Water level above Max Safe will jeopardize equipment and prevent personnel entry as electrical conduit and junction boxes will be submerged.

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:	14645
User-Defined ID:	14645
Cross Reference Number:	
Topic:	25 - 295036 G.2.4.22
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: 29502LK052 Reference: EOP-DEOP-SAMG TB, DAN 902-4 C-19, DOA 0040-02, DEOP 300-1 K/A: 295036 G.2.4.22 4.0/4.7 K/A: Knowledge of the bases for prioritizing safety functions during abnormal/emergency operations: Secondary Containment High Sump/Area Water Level CFR: 41.7/41.10/43.5/45.12 PRA: No Safety Function: 5 Level: Memory Pedigree: Bank History: None Explanation: A. Correct - The basis for pumping the sumps on high water level in Secondary Containment is to maintain operability of equipment in the area, and to maintain the areas in a condition permitting safe entry by personnel. The normal water level in the corner rooms is 'none', i.e., dry floors. The Max Safe level is 8 inches. Water level above Max Safe will jeopardize equipment and prevent personnel entry as electrical conduit and junction boxes will be submerged. B. Incorrect - Plausible because pumping the sumps will control spread of contamination, it is not the DEOP 300-1 basis. C. Plausible because the sumps are being pumped and DW sumps are able to quantify volume. The leakage cannot be quantified via the sumps, D. Plausible because of the EQ instruments located in the corner rooms, but water level does not put the EQ instruments at risk (those that need to operate in high humidity are leak tight). **REQUIRED REFERENCES:** None

26 **ID: 28035** **Points: 1.00**

Given the following conditions on Unit 2:

- APRM 4 is reading 85%
- All other APRM's are reading 67%
- Total core flow is 51 Mlbm/hr
- Total Recirc flow is 47% of rated drive flow
- All APRM gains are 1.0

What is the response, if any, to the above conditions?

(Reference provided)

A. NO trip signals present

B. Rod Block signal ONLY

C. Rod Block and HALF Scram signals present

D. Rod Block and FULL Scram signals present

Answer: B

Answer Explanation

Per TRM 3.3.a, the rod block flow-biased setpoint is .56W+55.4. Per T.S. 3.3.1.1, the scram setpoint is .56W+67.4. Per the given conditions, "W" = 47; thus a rod block is present for APRM 4 (.56(47)+55.4 = 81.7%). APRM 4 is currently reading 85%. Conditions are below the scram setpoint (.56(47)+67.4 = 93.7%). "W" is defined in the COLR, Section 6 as the "% of drive flow required to produce a rated core flow of 98 Mlb/hr

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:	28035
User-Defined ID:	28035
Cross Reference Number:	
Topic:	26 - 215005.A3.03
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: 215LN005.06 Reference: Tech Spec 3.3.1.1, TRM 3.3.a, DAN 902(3)-5 A-7 K/A: 215005.A3.03 3.6 K/A: Ability to monitor automatic operation of the Average Power Range Monitor/Local Power Range Monitor System, including: Meters and recorders. Safety Function: 7 CFR: 41.7 Level: High Pedigree: Bank History: None Explanations: A. Incorrect - A rod block would occur based on the conditions listed in the stem. Plausibility: Plausible because the answer would be correct if APRM #4 was indicating slightly lower (81% or lower), and the also because the student may miscalculate the trip values. B. Correct - Per TRM 3.3.a, the rod block flow-biased setpoint is .56W+55.4. Per T.S. 3.3.1.1, the scram setpoint is .56W+67.4. Per the given conditions, "W" = 47; thus a rod block is present for APRM 4 (.56(47)+55.4 = 81.7%). APRM 4 is currently reading 85%. Conditions are below the scram setpoint (.56(47)+67.4 = 93.7%). "W" is defined in the COLR, Section 6 as the "% of drive flow required to produce a rated core flow of 98 Mlbm/hr C. Incorrect - A half scram would not occur because APRM #4 reading is less than the scram setpoint. Plausibility: This is plausible because the answer would be correct if APRM #4 power were slightly higher, or if the student miscalculates the trip values. D. Incorrect - A full SCRAM would not occur, since APRM #4 only affects one of the two trip systems. Plausibility: Plausible because if APRM #4 power were higher or trip setpoints were miscalculated, then a rod block and RPS trip would occur. Given this, the full SCRAM is plausible because if ACTUAL power exceeded the RPS trip setpoint, or shorting links were not installed, a full SCRAM would not occur. **REQUIRED REFERENCES:** Tech Spec 3.3.1.1, TRM 3.3.a

27	ID: 28036	Points: 1.00

Both units are at rated power.

- Both Reactor Building Ventilation Systems are isolated for isolation damper repairs
- B SBGT train is in START
- A SBGT train is in STANDBY
- Unit 3 experiences a sustained total loss of instrument air
- All equipment operated as designed

What is the preferred action regarding the SBGT system?

A. Start 2/3A Train of SBGT AND secure 2/3B Train

B. Take manual control of B SBGT flow control damper

C. Verify the backup air supply to the SBGT system opens

D. Verify automatic start of A SBGT train AND trip of B SBGT train

Answer: A

Answer Explanation

SBGT is required to be running due to Reactor Building Ventilation being off. DOA 4700-01 states that on a loss of air, it is preferred to operate the unaffected SBGT train since the flow control damper will fail open on the affected SBGT train which may cause it to exceed its design flow.

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:	28036
User-Defined ID:	28036
Cross Reference Number:	
Topic:	27 - 261000 K1.10
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: 261LN001-8 References: DOA 4700-01 K/A: 261000 K1.10 3.0 K/A: Knowledge of the physical connections and/or cause and effect relationships between the Standby Gas Treatment System and the following systems: Instrument air system. CFR: 41.4 to 41.9/45.7to 45.8 Safety Function: 9 Level: High Pedigree: New History: N/A Explanation: A. Correct - SBGT is required to be running due to Reactor Building Ventilation being off. DOA 4700-01 states that on a loss of air, it is preferred to operate the unaffected SBGT train since the flow control damper will fail open on the affected SBGT train which may cause it to exceed its design flow. B. Incorrect - The SBGT flow control damper does NOT have manual throttle capability. Plausible because some dampers can be controlled manually. C. Incorrect - The SBGT system does NOT have a backup air supply. Plausible because some valves and dampers in the plant have backup air supply or accumulators to operate equipment on loss of air. D. Incorrect - A SBGT train will NOT auto start since B SBGT will NOT have low flow or lose its heater. Plausible because if other dampers were affected, it would cause a loss of system flow which would provide an auto start signal to 2/3A. **Required Reference:** None

None

28 **ID: 28026** **Points: 1.00**

Operations is performing a LIVE bus transfer between Bus 24-1 and 34-1 and is being conducted in accordance with DOP 6500-08, BUS 24-1 TO BUS 34-1 TIE BREAKER OPERATION, with the following conditions:

- The first cross tie breaker has been closed
- The synch selector switch has been placed to ON for the second cross tie breaker
- The voltage difference between the busses is 25 Volts
- The Synch Meter is within 3 degrees of vertical (357 degrees)

Under these conditions, should the second crosstie breaker be closed, and why?

A. No, because the voltage difference is too high for cross tie operation.

B. No, because the two buses are too far out of phase for cross tie operation.

C. Yes, because the voltage and phase limits are met for cross tie operation.

D. Yes, because the phase limit is met and the voltage limit is <u>NOT</u> applicable when closing the second cross-tie breaker.

Answer: C

Answer Explanation

Per the limitations and actions of the DOP, the limits for cross tie operation is within 5 degrees of vertical on the Synch meter and the voltage difference is <50 volts.

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:	28026
User-Defined ID:	28026
Cross Reference Number:	
Topic:	28 - 262001.A4.06
Num Field 1:	0.00
Num Field 2:	0.00
Text Field:	
Comments:	Objective: 26204LK009 Reference: DOP 6500-08 K/A: 262001.A4.06 3.2 K/A: Ability to manually operate and/or monitor in the control room: Instrument switches. Safety Function: 6 CFR: 41.7/45.5 to 45.8 Level: High Pedigree: Bank History: None Explanation: A. Incorrect - Plausible because The voltage difference between the emergency buses that are crosstied must be < 50 volts (preferably closer to zero volts). At 25 volts the limit is met but not close to zero. B. Incorrect - Plausible because zero degrees out of phase is preferred, 3 degrees is within the tolerance of 5 degrees of the vertical position. C. Correct - Per the limitations and actions of the DOP, the limits for cross tie operation is within 5 degrees of vertical on the Synch meter and the voltage difference is <50 volts. D. Incorrect - Plausible because the phase limit is met, the voltage limit is applicable even though it is in spec for this evolution. **REQUIRED REFERENCES:** None

None

29	ID: 28107	Points: 1.00

Unit 2 was operating at near rated power when a complete loss of U2 125 VDC Division 2 occurred.

The Control Room control switch indication lights will be lost for . . . . .

A. 2A LPCI pump

B. 2C LPCI pump

C. 2A SDC pump

D. 2C SDC pump

Answer: B

Answer Explanation

With a loss of 125 Vdc Division 2, pumps powered from Bus 24-1 will lose remote indication and protection ability. 2C LPCI is the only pump powered from Bus 24-1.

Question 29 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	3.00
System ID:	28107
User-Defined ID:	28107
Cross Reference Number:	
Topic:	29 - 263000.A1.02
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: DRE263LN002.12 Reference: DOA 6900-02, DOA 6900-T1 K/A: 263000.A1.02 3.3 K/A: Ability to predict and/or monitor changes in parameters associated with operation of the DC Electrical Distribution, including: Lights and alarms CFR: CFR: 41.5 / 45.5 Safety Function: 6 Level: Memory Pedigree: New History: N/A Explanation: A. Incorrect - 2A LPCI pump is powered from Bus 23-1 and its control power is from Div 1 125 VDC. Plausible because the reserve control power is supplied from U2 125VDC Div 1. B. Correct - With a loss of 125 Vdc Division 2, pumps powered from Bus 24-1 will lose remote indication and protection ability. 2C LPCI is the only pump powered from Bus 24-1. C. Incorrect - 2A SDC pump is powered from Bus 23-1 and its control power is from Div 1 125 VDC. Plausible because the reserve control power is supplied from U2 125VDC Div 1. D. Incorrect - 2C SDC pump is powered from Bus 23-1 and its control power is from Div 1 125 VDC. Plausible because the reserve control power is supplied from U2 125VDC Div 1 and this is also a difference between units. 3C SDC is powered from Bus 34-1 (Div 2) and would be affected if this situation was on Unit 3. **REQUIRED REFERENCES:** None

None

30	ID: 28028	Points: 1.00

Unit 2 is operating at 100% power.

The Instrument Air system is lost.

What is the system impact for the feedwater heating system?

A. Extraction Steam Bypass AOs fail open

B. Extraction Steam Bypass AOs fail as is

C. Extraction Steam Bypass AOs fail closed

D. Heater Emergency Drain AOs fails closed

Answer: A

Answer Explanation

Per DOA 4700-01, INSTRUMENT AIR SYSTEM FAILURE, on a loss of instrument air or instrument bus, extraction steam non-return valves would close AND the extraction bypass valves would open.

Question 30 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	2.00
System ID:	28028
User-Defined ID:	28028
Cross Reference Number:	
Topic:	30 - 300000 K3.11
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: DRE260LN001.06 Reference: DOP 6800-02, DOA 3500-02, M-14, DOA 4700-01 K/A: 239001.K3.11 3.0 K/A: Knowledge of the effect that a loss or malfunction of the Instrument Air System will have on the following systems or system parameters: Extraction steam system. CFR: 41.7 Safety Function: 3 Level: Memory Pedigree: Bank History: 18-1 NRC Explanation: A. Correct - Per DOA 4700-01, INSTRUMENT AIR SYSTEM FAILURE, on a loss of instrument air or instrument bus, extraction steam non-return valves would close AND the extraction bypass valves would open. B. Incorrect - When power is lost to the solenoids the extraction bypass valves will fail to the open position to prevent a turbine trip due to high feedwater heater level. Plausibility: Failed "as is" is plausible because Dresden has a number of AOV's that fail as is on a loss of Instrument Air or Instrument bus power to the solenoids. An example is the Off gas chimney isolation valves as well as the SJAE suction vlvs. C. Incorrect - The extraction bypass AOVs fail open. Plausibility: This is plausible because there are a number of air operated valves that fail closed when air is taken away when power is lost to the solenoids. D. Incorrect - Opens on loss of power to the solenoids supplied by instrument bus. **REQUIRED REFERENCES:** None

None

31 **ID: 28029** **Points: 1.00**

Both Units were operating at 100% power.

Fire header pressure has reached 91 psig and is dropping at a rate of 3 psig/min.

If the trend remains constant and no operator action is taken, the EARLIEST time at which the U2/3 DFP will have auto started is....

A. 4 minutes later

B. 5 minutes later

C. 6 minutes later

D. 7 minutes later

Answer: A

Answer Explanation

At the 4 minute point, fire main pressure would be 79 psig, The U2/3 DFP will start at 80 psig.

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:	2.00
System ID:	28029
User-Defined ID:	28029
Cross Reference Number:	
Topic:	31 - 510000.K3.09
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: DRE286LN001.11 Reference: DOA 3900-01, DAN XL3 82-30, DAN 901-2 H-8, DAN 923-1 G-4 K/A: 510000 K3.09 2.7 K/A: Knowledge of the effect that a loss or malfunction of the Service Water System will have on the following systems or system parameters: Fire protection system. CFR: 41.7/45.4 Safety Function: 4 PRA: No Pedigree: New Level: High History: N/A Explanations: A. Correct - At the 4 minute point, fire main pressure would be 79 psig, The U2/3 DFP will start at 80 psig. B. Incorrect - At the 5 minute point, fire main pressure would be 76 psig. Plausible because the U2/3 DFP will already be started the U1 DFP starts at 75 psig. C. Incorrect - The Unit 1 DFP will auto start at 75 psig. This has been met . Plausible because this is the EARLIEST time for U1 DFP to start. D. Incorrect - At the 7 minute point, fire main pressure would be 70 psig. The U2/3 and U1 DFP's will have started earlier. Plausible because at this time the U1 screen wash pumps will also have started at 70 psig. **REQUIRED REFERENCES:** None

None

EXAMINATION ANSWER KEY

22-1 (2023-301) NRC Exam - RO

32	**ID: 28030**	**Points: 1.00**

Unit 3 was operating at near rated power, when the following occurred:

- An automatic scram occurred, with an ATWS resulting
- Reactor Power is currently 42%
- Drywell pressure is 1.30 psig and rising
- RPV water level was terminated and prevented to -55 inches per DEOP 400-5
- Maximum Torus Cooling has been established

Then Drywell pressure exceeds 2.0 psig.

(1) What effect, if any, does this have on Torus Cooling?

(2) What action, if any, must be done to re-establish Max Torus Cooling?

A. (1) None, because the HX BYPASS VLVs will be interlocked closed
(2) No manipulations are required

B. (1) None, until RPV pressure drops below 350 psig, at which time the HX BYPASS VLVs will open
(2) The HX BYPASS VLVs are required to be re-closed after they have opened

C. (1) Cooling will be reduced, because the HX BYPASS VLVs will open and be interlocked open for 30 seconds
(2) The HX BYPASS VLVs are required to be re-closed after interlock has timed out

D. (1) Cooling will be reduced, because the HX BYPASS VLVs will open and be interlocked open until RPV pressure drops below 350 psig
(2) The HX BYPASS VLVs are required to be re-closed after they have opened

Answer: C

Answer Explanation

The HX BYPASS VLVs were closed to establish Max Torus Cooling - there was no initiation signal present. When DW pressure exceeds the ECCS initiation setpoint, the valves receive an open signal, and are interlocked open for 30 seconds. After interlock times out, the valves are re-closed via the control switch to re-establish max torus cooling.

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:	28030
User-Defined ID:	28030
Cross Reference Number:	
Topic:	32 - 219000.A3.01
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: DRE203LN001.03 Reference: DOP 1500-02 attach C, DOP 1500-03 K/A: 219000.A3.01 3.9 K/A: Ability to monitor automatic operation of the RHR/LPCI: Torus/Suppression pool Cooling Mode, including: Valve operation. CFR: 41.7/45.7 Safety Function: 5 Level : High Pedigree: Bank History: 2007 NRC Explanation: A. Incorrect - The HX BYPASS valves were manually closed to establish max torus cooling. Plausible because without a valid initiation signal the valves would remain closed. B. Incorrect - The actions will take place at +2 psig drywell not 350 psig RPV pressure. Drywell pressure initiation logic does not use RPV pressure (used by low-low level initiation logic). Plausible because the actions are correct for a 2# signal. C. Correct - The HX BYPASS VLVs were closed to establish Max Torus Cooling - there was no initiation signal present. When DW pressure exceeds the ECCS initiation setpoint, the valves receive an open signal, and are interlocked open for 30 seconds. After interlock times out, the valves are re-closed via the control switch to re-establish max torus cooling. D. Incorrect - Plausible the HX BYPASS valves will open and be interlocked closed for 30 seconds. The HX BYPASS vlvs will be reopened manually. **REQUIRED REFERENCES:** None

None

33 **ID: 28031** **Points: 1.00**

The following conditions exist on Unit 2:

- 2A Off Gas process rad monitor is reading above the Hi-Hi setpoint
- 2B Off Gas process rad monitor has failed down-scale

How will the Off Gas system respond?

A. Off Gas system isolates immediately

B. SJAE Suction Valves close after 15 minutes

C. Chimney Isolation Valve closes after 15 minutes

D. Chimney Isolation Valve goes closed immediately followed by the SJAE suction valves 15 minutes later

Answer: C

Answer Explanation

Per DAN 902-54 B-8, One radiation monitor is downscale and the other radiation monitor is upscale OR both radiation monitors are upscale, the Off-gas hold-up line isolation logic timer has started AND 15 minutes later the following valves will close:
AO 2-5406, OFFGAS CHIMNEY ISOL. VLV.
AO 2-5423-500, HOLDUP LINE DRAIN VLV.
SO 2-5437, PRESSURIZED DRAIN TANK OUTLET VALVE, isolating the pressurized drain tank.

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:	28031
User-Defined ID:	28031
Cross Reference Number:	
Topic:	33 - 271000.K4.08
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: DRE271LN001.06 Reference: DAN 902-54 B-8, DAN 902(3)-3 C-2 K/A: 271000.K4.08 3.7 K/A: Knowledge of Offgas System design features and/or interlocks that provide for the following: automatic system isolation. CFR: 41.7 Safety Function: 9 Level: Memory Pedigree: Bank History: None Explanation: A. Incorrect - Plausible because the Off Gas system will operate normally for 15 minutes then isolate. B. Incorrect - The SJAE suction valves are NOT interlocked with the Off Gas PRMs. Plausible because of the number of valves that do isolate. C. Correct - Per DAN 902-54 B-8, One radiation monitor is downscale and the other radiation monitor is upscale OR both radiation monitors are upscale, the Off-gas hold-up line isolation logic timer has started AND 15 minutes later the following valves will close: ▪ AO 2-5406, OFFGAS CHIMNEY ISOL. VLV. ▪ AO 2-5423-500, HOLDUP LINE DRAIN VLV. ▪ SO 2-5437, PRESSURIZED DRAIN TANK OUTLET VALVE, isolating the pressurized drain tank. D. Incorrect - Plausible because the Chimney Isolation Valve will close just not immediately, there is a 15 minute timer. The SJAE suction valves are not interlocked with the Off Gas PRMs. Plausible because of the number of valves that do isolate. **Required References**: None

None

34 **ID: 28110** **Points: 1.00**

From the following, select which statement describes "Operable-Operability", in accordance with Dresden Technical Specifications.

The condition of a system, subsystem, division, component, or device...

A. capable of performing its specified safety function(s) independent of its support systems.

B. that will allow testing, calibration or inspection to assure operation is within Safety Limits and LCOs.

C. necessary to protect the integrity of certain physical barriers to guard against the uncontrolled release of radioactivity.

D. capable of performing its specified safety function(s) with its support systems capable of performing their required support function(s).

Answer: D

Answer Explanation

Per TS 1.1 the definition of OPERABLE-OPERABILITY is: a system, subsystem, division, component, or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified safety function(s) and when all necessary attendant instrumentation, controls, normal or emergency electrical power, cooling and seal water, lubrication, and other auxiliary equipment that are required for the system, subsystem, division, component, or device to perform its specified safety function(s) are also capable of performing their related support function(s).

Question 34 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	2.00
System ID:	28110
User-Defined ID:	28110
Cross Reference Number:	
Topic:	34 - Generic 2.2.38 (1)
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: DRE299LN001.1 Reference: TS 1.1 K/A: Generic 2.2.38 3.6 / 4.5 K/A: Knowledge of conditions and limitations in the facility license CFR: 41.7 / 41.10 / 43.1 / 45.13 PRA: No Level: Memory Safety Function: N/A Pedigree: Bank History: Quad Cities 2012 ILT NRC Exam Explanation: A. Incorrect - It IS required to have all its support systems capable of performing their required support functions. Plausible because there are definitions that require independence. B. Incorrect - This is the definition of a Surveillance. Plausible because it is a definition listed in TS 1.1. C. Incorrect - This is the definition of a Safety Limit. Plausible because it is a definition listed in TS 1.1. D. Correct - Per TS 1.1 the definition of OPERABLE-OPERABILITY is: a system, subsystem, division, component, or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified safety function(s) and when all necessary attendant instrumentation, controls, normal or emergency electrical power, cooling and seal water, lubrication, and other auxiliary equipment that are required for the system, subsystem, division, component, or device to perform its specified safety function(s) are also capable of performing their related support function(s). **Required Reference:** None

None

35 **ID: 28074** **Points: 1.00**

A Unit 3 startup is in progress with the Reactor critical below the point of adding heat (POAH).

Which of the following describes the effect of the fuel temperature (Doppler) coefficient of reactivity?

If fuel temperature RISES, …

A. positive reactivity will be added due to a change in leakage from the core.

B. positive reactivity will be added due to a change in resonance absorption in U-238.

C. negative reactivity will be added due to a change in leakage from the core.

D. negative reactivity will be added due to a change in resonance absorption in U-238.

Answer: D

Answer Explanation

The fuel temperature coefficient of reactivity is negative, therefore a rise in fuel temperature will result in addition of negative reactivity. This is due to more resonant absorption of neutrons in U-238 in the fuel, which results in fewer neutrons reaching thermal energies and fewer thermal fissions in the Reactor.

Question 35 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	2.00
System ID:	28074
User-Defined ID:	28074
Cross Reference Number:	
Topic:	35 - 292004.K1.05
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: BC02lr4_Coefficients Obj 5 Reference: Generic Fundamentals BC02lr4_Coefficients K/A: 292004.K1.05 2.9 K/A: Reactivity Coefficients - Define the fuel temperature (Doppler) coefficient of reactivity CFR: 41.1 PRA: No Level: Memory Pedigree: Bank History: None Explanation: A. Incorrect - This is due to more resonant absorption of neutrons in U-238 in the fuel. Plausible because leakage from the core is relevant with the moderator temperature coefficient of reactivity. B. Incorrect - The fuel temperature coefficient of reactivity is negative, therefore a rise in fuel temperature will result in addition of negative reactivity. Plausible because reactivity coefficients can be positive or negative. C. Incorrect - The fuel temperature coefficient of reactivity is negative, therefore a rise in fuel temperature will result in addition of negative reactivity. Plausible because reactivity coefficients can be positive or negative. This is due to more resonant absorption of neutrons in U-238 in the fuel. Plausible because leakage from the core is relevant with the moderator temperature coefficient of reactivity. D. Correct - The fuel temperature coefficient of reactivity is negative, therefore a rise in fuel temperature will result in addition of negative reactivity. This is due to more resonant absorption of neutrons in U-238 in the fuel, which results in fewer neutrons reaching thermal energies and fewer thermal fissions in the Reactor. **REQUIRED REFERENCES:** None

None

36 **ID: 28046** **Points: 1.00**

An event has occurred at the station resulting in the following trend on Unit 2/3 Rx Bldg and Unit 2/3 Chimney SPING as indicated on PPDS. (READINGS ARE COMBINED SUM)

(HH:MM)

01:00	2.0 E+05 µCi/sec
01:30	7.0 E+05 µCi/sec
02:00	2.0 E+06 µCi/sec
02:30	7.0 E+06 µCi/sec
03:00	2.0 E+07 µCi/sec

When is DEOP 0300-02, Radioactivity Release Control, FIRST required if the trend continues unchanged?

(Reference provided)

A. 02:30

B. 03:30

C. 04:30

D. 05:30

Answer: B

Answer Explanation

This is the first time off-site release rates are in excess of the ALERT level (2.05E+07µCi/sec) for EALs. This is the entry condition for DEOP 0300-02.

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:	4.00
System ID:	28046
User-Defined ID:	28046
Cross Reference Number:	
Topic:	36 - 295038.G.2.4.6
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: 29502LK056 Reference: EP-AA-1004 Addendum 3, DEOP 0300-02 K/A: 295038.G.2.4.6 3.7 / 4.7 K/A: High Off-site Release Rate: Knowledge of emergency and abnormal operation procedures major action categories. CFR: 41.10/ 43.5/45.13 Safety Function: 9 Pedigree: Bank Level: High History: None Explanation: A. Incorrect - Plausible because this would coincide with an Unusual Event. B. Correct - This is the first time off-site release rates are in excess of the ALERT level (2.05E+07µCi/sec) for EALs. This is the entry condition for DEOP 0300-02. C. Incorrect - Plausible because this time coincides with exceeding Site Area Emergency limits. D. Incorrect - Plausible because this time coincides with exceeding General Emergency limits. **Required References:** EP-AA-1004 Addendum 3 EAL Charts

None

37 **ID: 7648** **Points: 1.00**

The Rod Worth Minimizer and its loaded sequence prevent.....

A. mispositioning of a control rod, whether in or out of sequence.

B. a MCPR value of greater than 1.00 if the control rod pattern is out of sequence and a rod drop accident occurs.

C. peak fuel enthalpy from exceeding 170 cal/gm if the highest allowable worth control rod is involved in a single rod scram.

D. peak fuel enthalpy from exceeding 280 cal/gm if the highest allowable worth control rod is involved in a rod drop accident.

Answer: D

Answer Explanation

The rod pattern that inputted into the RWM are to limit control rod worth and the reactivity addition rate resulting from a control rod drop and thus assure that peak fuel enthalpy would be less than 280 cal/gm.

Question 37 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	3.00
System ID:	7648
User-Defined ID:	7648
Cross Reference Number:	LI
Topic:	37 - 201006.K5.08
Num Field 1:	0.00
Num Field 2:	0.00
Text Field:	
Comments:	Objective: DRE201LN006.1 Reference: UFSAR 7.7.2, TS bases 2.1.1, NF-DR-721 K/A: 201006.K5.08 3.3 K/A: Knowledge of the operational implications or cause and effect relationships of the following concepts as they apply to the Rod Worth Minimizer System: Rod pattern limits CFR: 41.5 / 45.3 PRA: No Level: Memory Safety Function: 7 Pedigree: New History: N/A Explanation: A. Incorrect - Plausible because the RWM does not PREVENT a mispositioned control rod, it alarms and issues rod blocks if a control rod is mispositioned. B. Incorrect - Plausible because the fuel cladding SL is defined with a margin to the conditions that would produce onset of transition boiling (i.e., MCPR = 1.00). C. Incorrect - Plausible because the IRMs provide protection against local control rod withdrawal errors and results in peak fuel enthalpy below the 170 cal/gm fuel failure threshold criterion. D. Correct - The rod pattern that inputted into the RWM are to limit control rod worth and the reactivity addition rate resulting from a control rod drop and thus assure that peak fuel enthalpy would be less than 280 cal/gm. **REQUIRED REFERENCES:** None

38 **ID: 28048** **Points: 1.00**

Unit 3 is at rated conditions when the following occurs

- Annunciators 903-4 G-3, 3A RECIRC PP SEAL CLG WTR FLOW LO and 903-4 G-7, 3B RECIRC PP SEAL CLG WTR FLOW LO, alarm simultaneously.
- MO 3-3702, U3 DW SUPPLY VLV, has gone closed and will NOT re-open.
- Annunciators 903-4 E-5, 3A RECIRC PP TEMP HI and F-9, 3B RECIRC PP TEMP HI, then alarm within a few seconds of each other.

(1) What is the FIRST action required?

(2) What is the reason for that action?

A. (1) Scram and trip both Recirc pumps
(2) To prevent damage to Recirc pump seals and bearings

B. (1) Scram and trip both Recirc pumps
(2) To prevent damage to RBCCW piping due to thermal expansion

C. (1) Reduce both Recirc pump speeds
(2) To prevent damage to Recirc pump seals and bearings

D. (1) Reduces both Recirc pump speeds
(2) To prevent damage to RBCCW piping due to thermal expansion

Answer: A

Answer Explanation

With MO 3-3702 closed, no RBCCW flow is getting to the DW to cool the Recirc Pumps. DOA 3700-01 says "IF RBCCW flow is lost and CANNOT be restored within one minute, THEN perform the following: IF the Mode Switch is in RUN, THEN manually scram the reactor AND Enter DGP 2-3, Reactor Scram and perform concurrently with this procedure. Trip the Recirculation Pumps AND enter DOA 0202-01, Recirculation (Recirc) Pump Trip – One or Both Pumps

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:	28048
User-Defined ID:	28048
Cross Reference Number:	
Topic:	38 - 295018.A2.01
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: 20800LK010 Reference: DOA 3700-01, DAN 902-4 G-3, G-7, E-5, F-9 K/A: 295018.A2.01 3.7 K/A: Ability to determine and/or interpret the following as they apply to Partial or Complete Loss of Component Cooling Water: Component temperatures. CFR: 41.10/43.5/45.13 Safety Function: 8 Level: High Pedigree: Bank History: None Explanation: A. Correct - With MO 3-3702 closed, no RBCCW flow is getting to the DW to cool the Recirc Pumps. DOA 3700-01 says "<u>IF</u> RBCCW flow is lost and <u>CANNOT</u> be restored within one minute, <u>THEN</u> perform the following: <u>IF</u> the Mode Switch is in RUN, <u>THEN</u> manually scram the reactor <u>AND</u> Enter DGP 2-3, Reactor Scram and perform concurrently with this procedure. Trip the Recirculation Pumps <u>AND</u> enter DOA 0202-01, Recirculation (Recirc) Pump Trip – One or Both Pumps and perform concurrently with this procedure. B. Incorrect - Plausible because Part 1 is correct, part 2 flow is lost to RBCCW piping in the DW, but it will not heat up that fast as to cause thermal expansion due to the increase temperature due to discharge valves being open and there are relief valves installed in the line to protect them. C. Incorrect - Plausible because if only the 3A and B RECIRC PP TEMP HI annunciators were alarming, it may have been possible to lower pump speed to clear the alarms. Part 2 is correct D. Incorrect - Plausible because if only the 3A and B RECIRC PP TEMP HI annunciators were alarming, it may have been possible to lower pump speed to clear the alarms. Part 2 flow is lost to RBCCW piping in the DW, but it will not heat up that fast as to cause thermal expansion due to the increase temperature due to discharge valves being open and there are relief valves installed in the line to protect them. **Required Reference:** None

39	ID: 28050	Points: 1.00

Unit 2 has scrammed from full power.

- Drywell Temperature (points 9 and 10 of TR 2-1340-1) is 185°F and steady
- Reactor Building temperature is 185°F and steady
- RPV pressure is 850 psig and steady
- Both Recirc Pumps are tripped
- Narrow Range level is -43 inches and lowering slowly
- Fuel Zone level is -84 inches and lowering slowly
- WR level is -56 inches and lowering slowly

What level instruments CAN BE used to accurately evaluate the core submergence?

(Reference provided)

A. ONLY Fuel Zone Instruments

B. ONLY Wide Range Instruments

C. Fuel Zone OR Wide Range Instruments

D. Narrow OR Medium OR Wide Range OR Fuel Zone Instruments

Answer: A

Answer Explanation

For the given conditions only the Fuel Zone instruments are considered accurate. Narrow/Medium range is below minimum usable of -39 inches. Wide Range is below minimum useable of -51 inches.

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:	4.00
System ID:	28050
User-Defined ID:	28050
Cross Reference Number:	
Topic:	39 - 295009.A2.01
Num Field 1:	0.00
Num Field 2:	0.00
Text Field:	
Comments:	Objective: 29501LP001 Reference: DEOP 0100 K/A: 295009.A2.01 4.1 K/A: Ability to determine and/or interpret the following as they apply to Low Reactor Water Level: Reactor water level. CFR: 41.10/43.5/45.13 PRA: No Safety Function: 7 Level: High Pedigree: Bank History: None Explanation: A. Correct - For the given conditions only the Fuel Zone instruments are considered accurate. Narrow/Medium range is below minimum usable of -39 inches. Wide Range is below minimum useable of -51 inches. B. Incorrect - Plausible because Wide Range would be correct with Drywell temp between 32 to 100°F. C. Incorrect - Plausible because Fuel Zone is correct and Wide Range would be correct with Drywell temp between 32 to 100°F. D. Incorrect - Plausible because the table list values that would be useable for all four level instruments and must determine which are applicable at the current pressure and temperature. **REQUIRED REFERENCES:** DEOP 0100 with entry conditions blanked out

None

40	**ID: 28051**	**Points: 1.00**

Unit 2 was operating at rated power when an ATWS occurred.

A Blowdown is required in DEOP 400-5.

Per table P1 RPV Pressure Control Systems, HPCI (DOA 2300-02):

⚠ Exceeding NPSH/Vortex Limits (Figs N3, V) or 165°F
Suction temperature may cause system damage.

If HPCI is used, Preferred suction is from ___(1)___, and it is ___(2)___ to bypass Hi area temperature isolations.

A. 1) CST
2) OK

B. 1) CST
2) NOT OK

C. 1) Torus
2) OK

D. 1) Torus
2) NOT OK

Answer: A

Answer Explanation

Use CST suction if you can.
* OK to bypass high torus level transfer (DEOP 500-02).
OK to bypass (DEOP 500-02):
* High area temperature isolation.
* High drywell pressure test return isolation.

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:	4.00
System ID:	28051
User-Defined ID:	28051
Cross Reference Number:	
Topic:	40 - 206000 G.2.4.19
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: 29501LE005 References: DEOP 0010-00, DEOP 400-05, EOP-DEOP-SAMG-TB-Vol 2 K/A: 206000 G.2.4.19 3.4 / 4.1 K/A: Knowledge of emergency and abnormal operation procedures layout, symbols, and icons: High-Pressure Coolant Injection. CFR: 41.10/45.13 PRA: No Safety Function: 3 Level: High Pedigree: New History: N/A Explanation: A. Correct - Use CST suction if you can. * OK to bypass high torus level transfer (DEOP 500-02). OK to bypass (DEOP 500-02): * High area temperature isolation. * High drywell pressure test return isolation. B. Incorrect - Plausible because must recognize that the symbol means caution by does not eliminate HPCI as a Pressure control system. Part 1 is correct, part 2 the temperatures would increase if used. C. Incorrect - Plausible because must recognize that the symbol means caution by does not eliminate HPCI as a Pressure control system. Part 2 is correct, Part 1 must recognize that the procedure allows the bypass high torus level transfer. D. Incorrect - Plausible because must recognize that the symbol means caution by does not eliminate HPCI as a Pressure control system. Part 1 must recognize that the procedure allows the bypass high torus level transfer. Part 2 the temperatures would increase if used. **REQUIRED REFERENCES:** If DEOPs are provided for other questions, blank out the HPCI block in L1, P1 and P2

None

41	ID: 28108	Points: 1.00

Unit 2 was at 100% power with the 'A' SBGT train in PRI and the 'B' SBGT train in STBY, when the following sequence of events occurred:

- A steam leak developed in the HPCI room
- Annunciator 902-3 A-3, RX BLDG VENT CH B RAD HI HI alarmed
- 2 minutes later Bus 29 trips on overcurrent

10 minutes later secondary containment differential pressure would be ___(1)___ because ___(2)___.

A. (1) unaffected
(2) 'A' SBGT would be running and 'B' SBGT would be in standby

B. (1) unaffected
(2) 'B' SBGT would be running and 'A' SBGT would be tripped

C. (1) more negative
(2) 'A' SBGT would be running and 'B' SBGT would be in standby

D. (1) more negative
(2) 'B' SBGT would be running and 'A' SBGT would be tripped

Answer: B

Answer Explanation

(1) After 10 minutes the differential pressure will not have been affected. (2) The Rx Bldg vent high radiation condition causes the SBGT train in PRI (A) to auto start. When the heater trips due to the loss of MCC 29-9, 'A' SBGT train will trip and 'B' will auto start.

Question 41 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	28108
User-Defined ID:	28108
Cross Reference Number:	
Topic:	41 - 261000.K4.04
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: DRE261LN001.02 Reference: DANs 902-3 A-3, 923-5 A-6, DOP 7500-01 K/A: 261000.K4.04 3.4 K/A: Knowledge of Standby Gas Treatment System design features and/or interlocks that provide for the following: Radioactive particulate filtration CFR: 41.7 Level: High Pedigree: New History: N/A K/A Justification: With the Rx Bldg vent high radiation condition this causes SBGT to autostart to filter the radioactive particulate out that is causing the high radiation condition. Explanation: A. Incorrect - (1) The first part of the answer is correct. (2) "B" SBGT will be running, and 'A' train will be tripped. Plausible because the student must recognize that heater failure causes the associated SBGT to trip and the standby train to autostart. B. Correct - (1) After 10 minutes the differential pressure will not have been affected. (2) The Rx Bldg vent high radiation condition causes the SBGT train in PRI (A) to auto start. When the heater trips due to the loss of MCC 29-9, 'A' SBGT train will trip and 'B' will auto start. C. Incorrect - (1) After 10 minutes the differential pressure will not have been effected. Plausible because the standby train will autostart and the secondary containment differential pressure will be the same as before Bus 29 tripped. (2) Only "B" train will be running. Plausible because the student must recognize that heater failure causes the associated SBGT to trip and the standby train to autostart. D. Incorrect - (1) After 10 minutes the differential pressure will not have been effected. Plausible because the standby train will autostart and the secondary containment differential pressure will be the same as before Bus 29 tripped. (2) The second part of the answer is correct. **REQUIRED REFERENCES:** None

42 **ID: 28111** **Points: 1.00**

Unit 2 was producing 985 MWe when the following alarms come in:

- 902-3 D-13, 2C ELECTROMATIC RELIEF VLV OPEN
- 902 4 H 17, VLV LEAK DET SYS TEMP HI
- 902 4 H 19, ACOUSTIC MONITOR ACTUATED

Generator output has dropped to 940 MWe as a result of the transient.

DOA 0250-01, RELIEF VALVE FAILURE, Immediate Operator actions have been completed. The following indications are observed:

- Generator output is reading 960 MWe
- Torus bulk temperature is reading 87.4°F and rising at a trend of 1°F every 5 minutes
- No lights for the 2-203-3C valve are illuminated on the 902-3 panel
- 902-21 Acoustic Monitor Channel 3C red and amber lights are illuminated

(1) What is the current status of the 2C ERV?

(2) What is the NEXT action to be taken?

A. (1) Leaking
(2) Cycle control switch from OFF to MANUAL and back to OFF

B. (1) Leaking
(2) Immediately scram the reactor

C. (1) Stuck open
(2) Cycle control switch from OFF to MANUAL and back to OFF

D. (1) Stuck open
(2) Immediately scram the reactor

Answer: C

Answer Explanation

The indications are that the 2C ERV is still open following the Immediate Operator actions, therefore it is stuck. Cycling the control switch is the next action to take to attempt to close the ERV.

Question 42 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	28111
User-Defined ID:	28111
Cross Reference Number:	
Topic:	42 - 239002.A2.03
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: DRE239LN001.8 Reference: DOA 0250-01 K/A: 239002.A2.03 4.6 / 4.4 K/A: Ability to (a) predict the impacts of the following on the Safety Relief Valves and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operations: Stuck-open SRV CFR: 41.5 / 43.5 / 45.6 PRA: Yes Level: High Safety Function: 3 Pedigree: New History: N/A Explanation: A. Incorrect - Plausible because per DOA 0250-01 discussion section the more probable failure mode is a leaking relief valve. The second part is correct B. Incorrect - Plausible because per DOA 0250-01 discussion section the more probable failure mode is a leaking relief valve. Plausible because scramming the reactor is an action of DOA 0250-01, but not until Torus temperature is approaching 110°F. C. Correct - The indications are that the 2C ERV is still open following the Immediate Operator actions, therefore it is stuck. Cycling the control switch is the next action to take to attempt to close the ERV. D. Incorrect - The first part is correct. Plausible because scramming the reactor is an action of DOA 0250-01, but not until Torus temperature is approaching 110°F. **Required references:** None

None

43 **ID: 28054** **Points: 1.00**

Unit 2 is operating at rated power when a loss of Instrument Bus to the Bailey system occurs.

What is the impact to the FWLC system?

A. FWLC is now powered from ESS

B. FWLC is now powered from 24 VDC

C. Loss of FWLC from the control room

D. FWLC swaps from 3 element to single element

Answer: A

Answer Explanation

Bailey is powered by 4 power supplies, two fed from the Instrument Bus (IB) and two fed from the Essential Service System (ESS). On a loss of a single power source the system automatically transfers to the power supplies fed by the other source and an annunciator annunciates.

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:	28054
User-Defined ID:	28054
Cross Reference Number:	
Topic:	43 - 259002.K6.02
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: DRE259LN002- 12 References: DOA 6800-T1 K/A: 259002K6.02 3.3 K/A: Knowledge of the effect of the following plant conditions, system malfunctions, or component malfunctions on the Reactor Water Level Control system: AC power Safety Function: 2 CFR: 41.7/45.7 Level: Memory Pedigree: New History: N/A Explanation: A. Correct - Bailey is powered by 4 power supplies, two fed from the Instrument Bus (IB) and two fed from the Essential Service System (ESS). On a loss of a single power source the system automatically transfers to the power supplies fed by the other source and an annunciator annunciates. B. Incorrect - Plausible because the FWLC system is powered from 24 VDC power supplies that are auctioneered between Essential Service and Instrument Bus. C. Incorrect - Plausible because if ESS was lost as well this would cause a loss of Feedwater level control from the control room, other means to control water level would be required. D. Incorrect - Plausible because Bad Quality Failures causes the Individual and Total Steam (Feed) Flow Signals to indicate incorrectly. If in Three Element Control the FWLC automatically transfers to Single Element. **REQUIRED REFERENCES:** None

None

44 **ID: 28055** **Points: 1.00**

A Unit 2 shutdown is being performed.

As pressure and temperature lower.....

(1) Which system will be filled and vented?

(2) What is the reason for this?

A. (1) SDC
(2) Minimizing water hammer/vibrations

B. (1) SDC
(2) To prevent a rapid drop in reactor water level

C. (1) RWCU
(2) Minimizing water hammer/vibrations

D. (1) RWCU
(2) To prevent a rapid drop in reactor water level

Answer: A

Answer Explanation

SDC will be filled and vented during the shutdown as pressure and temperature are lowering. This will allow for the system to be operated at the proper time and minimizing the chance of water hammer/vibrations in the SDC or RBCCW systems.

Question 44 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	1.00
System ID:	28055
User-Defined ID:	28055
Cross Reference Number:	
Topic:	44 - 205000.K5.04
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: 205LN001.14 Reference: DOP 1000-01 K/A: 205000.K5.04 2.9 K/A: Knowledge of the operational implications or cause and effect relationships of the following concepts as they apply to the Shutdown Cooling System (RHR Shutdown Cooling Mode): System venting CFR: 41.5 / 45.3 PRA: No Level: Memory Safety Function: 4 Pedigree: New History: N/A Explanation: A. Correct - SDC will be filled and vented during the shutdown as pressure and temperature are lowering. This will allow for the system to be operated at the proper time and minimizing the chance of water hammer/vibrations in the SDC or RBCCW systems. B. Incorrect - First part is correct. Plausible because it is possible for the start of SDC to lower reactor water level, it is not the reason listed in the PRECAUTIONS section of DOP 1000-01, FILL AND VENT OF SHUTDOWN COOLING SYSTEM. C. Incorrect - If RWCU is NOT filled and vented and then started it could cause a rapid drop in reactor water level and a subsequent increase in reactor power. Plausible because this is a PRECAUTION listed in a DOP for a system that is connected to the RPV. Second part is correct. D. Incorrect - If RWCU is NOT filled and vented and then started it could cause a rapid drop in reactor water level and a subsequent increase in reactor power. Plausible because this is a PRECAUTION listed in a DOP for a system that is connected to the RPV. Plausible because it is possible for the start of SDC to lower reactor water level, it is not the reason listed in the PRECAUTIONS section of DOP 1000-01, FILL AND VENT OF SHUTDOWN COOLING SYSTEM. **REQUIRED REFERENCES:** None

45 **ID: 28056** **Points: 1.00**

Unit 2 is operating at full power. Drywell pressure has risen over the last 10 minutes from 1.15 psig to 1.30 psig.

IAW DOA 0040-01, SLOW LEAK, what is the approximate size of the leak into the Drywell?

A. 5 gpm

B. 10 gpm

C. 25 gpm

D. 30 gpm

Answer: A

Answer Explanation

The thumb rule for computing drywell leakage is Drywell pressure will rise approximately 0.03 psig for a 1 gpm leak.

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:	28056
User-Defined ID:	28056
Cross Reference Number:	
Topic:	45 - 295010.K3.04
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: 29501LK055 Reference: DOA 0040-01 K/A: 295010.K3.04 3.6 K/A: Knowledge of the reasons for the following responses or actions as they apply to High Drywell Pressure: Leak investigation CFR: 41.5 / 45.6 PRA: Yes Level: High Safety Function: 5 Pedigree: New History: N/A Explanation: A. Correct - The thumb rule for computing drywell leakage is Drywell pressure will rise approximately 0.03 psig for a 1 gpm leak. B. Incorrect - Drywell pressure increased 0.15 psig and one of the thumb rules is that RBCCW temperature will rise approximately 5°F for a 7.5 gpm liquid leak. Plausible if the math is done incorrectly. C. Incorrect - Drywell pressure increased 0.15 psig and one of the thumb rules is that RBCCW temperature will rise approximately 5°F for a 3 gpm steam leak. Plausible if the math is done incorrectly. D. Incorrect - Drywell pressure increased 0.15 psig and one of the thumb rules is that Drywell temperature will rise approximately 1°F for a two (2) gpm leak. Plausible if the math is done incorrectly. **REQUIRED REFERENCES:** None

None

46 | **ID: 28058** | **Points: 1.00**

Units 2 and 3 are at full power when the following events occur in the order listed:

- A small leak develops in the drywell of Unit 3
- Operators Scram Unit 3 at 1.5 psig in the Drywell
- Unit 3 Aux Power transfers as expected
- At 5 psig Drywell pressure Torus Sprays are initiated but pressure continues to rise
- All Unit 3 automatic functions operated as designed

5 minutes Later:

Unit 2 has a loss of off-site power (LOOP). (1) What is the expected lineup of the 2/3 EDG?

Subsequently:

Drywell pressure rises to 3 psig on U2. (2) What action, if any, is required to energize Bus 23-1?

A. (1) 2/3 EDG is running idle
(2) The 2/3 EDG auto closes on Bus 23-1 with a LOOP and a LOCA

B. (1) 2/3 EDG is running idle
(2) Force the 2/3 EDG to close onto Bus 23-1 per DGA-12 Attachment C

C. (1) 2/3 EDG is carrying Bus 33-1
(2) Force the 2/3 EDG to close onto Bus 23-1 per DGA-12 Attachment C

D. (1) 2/3 EDG is carrying Bus 33-1
(2) The 2/3 EDG auto closes on Bus 23-1 with a LOOP and a LOCA

Answer: B

Answer Explanation

1) There are two 2/3 EDG output breakers, one each for Bus 23-1 and Bus 33-1. Each of the 2/3 EDG output breakers has is interlocked to prevent it from being closed if there is an ECCS signal on the opposite unit. This is to ensure the 2/3 EDG remains available for the unit experiencing the LOCA should a dual unit loss of offsite power occur.
2) Each breaker has a two position (NORMAL-BYPASS) keylock switch that allows bypassing the ECCS interlock described above. There are TWO of these switches, one on the 902-8 panel and one on the 903-8 panel, which bypasses the interlock to their respective 2/3 EDG output breakers ONLY.
3) This interlock will also cause the breaker to trip open if it is closed. A key lock for each breaker is located on the 902(3) 8 panel and will permit bypassing the interlock and closing the associated breaker.

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:	4.00
System ID:	28058
User-Defined ID:	28058
Cross Reference Number:	
Topic:	46 - 264000.A2.07
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: 264LN001-05 Reference: DGA - 12 Attachment C K/A: 264000.A2.07 4.7 / 4.6 K/A: Ability to (a) predict the impacts of the following on the Emergency Generators and (b) base on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operations: Loss of offsite power. Safety Function: 6 CFR: 41.5/43.5/45.6 Level: High Pedigree: New History: N/A Explanation: A. Incorrect - Plausible because Part 1 is correct. Part 2 would be correct if U3 did not have a LOCA as well as Unit 2. B. Correct - 1) There are two 2/3 EDG output breakers, one each for Bus 23-1 and Bus 33-1. Each of the 2/3 EDG output breakers has is interlocked to prevent it from being closed if there is an ECCS signal on the opposite unit. This is to ensure the 2/3 EDG remains available for the unit experiencing the LOCA should a dual unit loss of offsite power occur. 2) Each breaker has a two position (NORMAL-BYPASS) keylock switch that allows bypassing the ECCS interlock described above. There are TWO of these switches, one on the 902-8 panel and one on the 903-8 panel, which bypasses the interlock to their respective 2/3 EDG output breakers ONLY. 3) This interlock will also cause the breaker to trip open if it is closed. A key lock for each breaker is located on the 902(3) 8 panel and will permit bypassing the interlock and closing the associated breaker. C. Incorrect - Plausible because with a LOCA on Unit 3 the U3 and 2/3 EDGs would have received start signals. Part 2 is correct. D. Incorrect - Plausible because with a LOCA on Unit 3 the U3 and 2/3 EDGs would have received start signals. Part 2 would be correct if U3 did not have a LOCA as well as Unit 2. **REQUIRED REFERENCES:** None

47	ID: 28059	Points: 1.00

Unit 2 is operating at full power. Annunciator 902-3 G-1, LIQUID PROCESS RAD MONITOR HI, alarms.

(1) Where would the rising radiation levels be sensed at?

(2) Where in the Control Room would the radiation levels be indicated on?

A. (1) Discharge of the RBCCW pumps
(2) 902-2 panel

B. (1) Discharge of the RBCCW pumps
(2) 923-1 panel

C. (1) Combined RBCCW heat exchanger header
(2) 902-2 panel

D. (1) Combined RBCCW heat exchanger header
(2) 923-1 panel

Answer: C

Answer Explanation

Radiation levels in RBCCW are sensed on the Combined heat exchanger header. The radiation levels are indicated on the 902-2 panel.

Question 47 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	1.00
System ID:	28059
User-Defined ID:	28059
Cross Reference Number:	
Topic:	47 - 400000.K1.03
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: DRE272LN002.3d Reference: DAN 902-3 G-1, M-20 K/A: 400000.K1.03 3.1 K/A: Knowledge of the physical connections and/or cause and effect relationships between the Component Cooling Water System and the following systems: Radiation monitoring systems CFR: 41.4 to 41.5 / 41.7 to 41.9 PRA: No Level: Memory Safety Function: 8 Pedigree: New History: N/A Explanation: A. Incorrect - Radiation levels in RBCCW are sensed on the Combined heat exchanger header. Plausible because the RBCCW Pressure Lo is sensed at the discharge of the pumps. The second part is correct B. Incorrect - Radiation levels in RBCCW are sensed on the Combined heat exchanger header. Plausible because the RBCCW Pressure Lo is sensed at the discharge of the pumps. The radiation levels are indicated on the 902-2 panel. Plausible because there are many RBCCW parameters that are on the 923-1 panel. C. Correct - Radiation levels in RBCCW are sensed on the Combined heat exchanger header. The radiation levels are indicated on the 902-2 panel. D. Incorrect - The first part is correct. The radiation levels are indicated on the 902-2 panel. Plausible because there are many RBCCW parameters that are on the 923-1 panel. **REQUIRED REFERENCES:** None

None

48	ID: 28060	Points: 1.00

Unit 2 was operating at rated power when a transient occurred.

The following conditions have existed for the last five minutes ...

- Drywell pressure is 3 psig
- Reactor water level is -35 inches
- Reactor pressure is 950 psig
- APRM downscales are not illuminated

Which of the following described the expected response of the LPCI system with NO operator action taken?

A. The LPCI system initiation logic AND loop select logic signals will NOT be generated until RPV pressure drops below 900 psig.

B. The LPCI system initiation logic AND loop select logic signals have initiated AND the 1501-21 and 22 valves in the de-selected loop are CLOSED.

C. The LPCI system initiation logic AND loop select logic signal have initiated, but NO LPCI valves will reposition until RPV pressure drops below 350 psig.

D. The LPCI system initiation logic has initiated, but the LPCI loop select logic will NOT select a LPCI system for injection until RPV pressure is below 350 psig.

Answer: B

Answer Explanation

LPCI initiates is +2 psig drywell pressure or -59 inches reactor water level. LPCI loop select logic initiates if 2 psig drywell pressure or -59 inches reactor water level. Loop Select has A two (2) second time delay is provided to allow for momentum effects to establish the maximum pressure differential for break detection. Since the flow decay time constant of the fluid in one recirculation loop excluding ASD is about 1 second, approximately two (2) second delay will assure that the momentum effects have established the maximum pressure differential for loop selection. The LPCI system injection valves in the non-selected loop will CLOSE and be sealed in.

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:	28060
User-Defined ID:	28060
Cross Reference Number:	
Topic:	48 - 295037.K2.22
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: DRE203LN001-05 References: DOP 1500-05 K/A: 295037.K2.22 3.8 K/A: Knowledge of the relationship between SCRAM condition Present and Reactor Power Above APRM Downscale or Unknown and the following systems or components: RHR/LPCI system. CFR: 41.7/41.8/45.8 Safety Function: 4 Level: High Pedigree: New History: N/A Explanation: A. Incorrect - Plausible because loop select logic has a two second time delay after the scram to allow for pressure and level to adjust. B. Correct - LPCI initiates is +2 psig drywell pressure or -59 inches reactor water level. LPCI loop select logic initiates if 2 psig drywell pressure or -59 inches reactor water level. Loop Select has A two (2) second time delay is provided to allow for momentum effects to establish the maximum pressure differential for break detection. Since the flow decay time constant of the fluid in one recirculation loop excluding ASD is about 1 second, approximately two (2) second delay will assure that the momentum effects have established the maximum pressure differential for loop selection. The LPCI system injection valves in the non-selected loop will CLOSE and be sealed in. C. Incorrect - Plausible because initiation logic and loop select logic signal have initiated. The injection valves on the selected loop will not open until pressure drops below 350 psig. D. Incorrect - Plausible because the valves on the selected loop will not reposition until RPV pressure drops to less than 350 psig. **Required references:** None

None

49 **ID: 28061** **Points: 1.00**

Unit 2 is operating at rated power when a transient occurred.

- Drywell pressure is 6 psig
- All MSIVs are closed
- All rods are in
- RPV pressure is 600 psig and steady
- RPV level is lowering

The EARLIEST an Emergency Depressurization can be performed is when RPV level reaches ___(1)___ inches.

This is done in order to maintain Peak Cladding Temperature less than ___(2)___ °F.

A. (1) -143
(2) 1500

B. (1) -170
(2) 1500

C. (1) -143
(2) 1800

D. (1) -170
(2) 1800

Answer: B

Answer Explanation

With RPV pressure > 500 psig, TAF is -170". Per EPGs, an ED may be performed when RPV level reaches TAF and MUST be performed prior to reaching MSCRWL (-186" with RPV pressure >500 psig). The PCT limit that applies is 1500F.

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:	4.00
System ID:	28061
User-Defined ID:	28061
Cross Reference Number:	
Topic:	49 - 295031.K3.02
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: 29501LK028 Reference: EOP-DEOP-SAMG TB K/A: 295031.K3.02 4.7 K/A: Knowledge of the reasons for the following responses as they apply to Reactor Low Water Level: Core submergence. CFR: 41.5/45.6 Safety Function: 2 PRA: No Level: High Pedigree: Bank History: 14-1 NRC Explanation: A. Incorrect - With RPV pressure > 500 psig, TAF is -170". ED due to RPV level prior to reaching TAF is not permitted by procedure Plausibility: Candidate must recognize that a corrected value of -170 inches is used for TAF when RPV Pressure is > 500 Psig. The PCT limit of 1500°F listed is correct. B. Correct - With RPV pressure > 500 psig, TAF is -170". Per EPGs, an ED may be performed when RPV level reaches TAF and MUST be performed prior to reaching MSCRWL (-186" with RPV pressure >500 psig). The PCT limit that applies is 1500°F. C. Incorrect - With injection sources available, a blowdown would occur at TAF, therefore PCT limit of 1800F is not correct. Also, with RPV pressure > 500 psig, TAF is -170". Plausibility: Candidate must recognize that a corrected value of -170 inches is used for TAF when RPV Pressure is > 500 Psig. The candidate may not recognize that a PCT limit of 1500°F is correct for a blowdown at TAF, versus 1800°F for steam cooling. D. Incorrect - With injection sources available, a blowdown would occur at TAF, therefore PCT limit of 1800°F is not correct. The level of -170" is correct for the current pressure. Plausibility: The candidate may not recognize that a PCT limit of 1500°F is correct for a blowdown at TAF, versus 1800°F for steam cooling. Justification of HIGH order: The candidate must determine whether to use pressure corrected TAF or not, and identify the correct PCT limit. **REQUIRED REFERENCES:** None

50 **ID: 28062** **Points: 1.00**

Unit 2 was operating at rated power.

A transient occurs which causes changes to the following parameters:

(1) Torus temperature
(2) Reactor pressure
(3) Torus level

Which combination would require a blowdown to ensure that there is sufficient heat capacity in the torus to sustain a blowdown?

(Reference provided)

A. (1) 170 degrees
(2) 850 psig
(3) 15 feet

B. (1) 180 degrees
(2) 800 psig
(3) 15 feet

C. (1) 190 degrees
(2) 600 psig
(3) 14 feet

D. (1) 200 degrees
(2) 500 psig
(3) 13 feet

Answer: B

Answer Explanation

When the data points were plotted, it is determined that HCL is being violated and a blowdown is required.

Question 50 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	5
Difficulty:	4.00
System ID:	28062
User-Defined ID:	28062
Cross Reference Number:	
Topic:	50 - 295028.A2.02
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: 29501LP005 References: EOP-DEOP-SAMG-TB VOL 1, DEOP 200-1 K/A: 295028.A2.02 3.6 K/A: Ability to determine and/or interpret the following as they apply to High Drywell Temperature: Reactor pressure. CFR: 41.10/43.5/45.13 Safety Function: 5 PRA: No Level: High Pedigree: New History: N/A Explanation: A. Incorrect - Plausible because all three data points must be plotted and determined below the line. B. Correct - When the data points were plotted, it is determined that HCL is being violated and a blowdown is required. C. Incorrect - Plausible because all three data points must be plotted and determined below the line. D. Incorrect - Plausible because all three data points must be plotted and determined below the line. **REQUIRED REFERENCES:** DEOP 200-1 with entry conditions removed.

None

51 | **ID: 28063** | **Points: 1.00**

A Unit 2 transient has resulted in the following conditions:

- Reactor Scram with all rods in
- RPV completely depressurized
- Torus bottom pressure is 15 psig
- Torus water level is 9 feet 3 inches
- Torus bulk water temperature is 150°F
- RPV water level is being maintained at -160 inches with the 2B Core Spray pump, operating at rated flow
- No additional ECCS pumps are available

The 2B Core Spray pump may experience pump damage due to violating its ___(1)___ AND ___(2)___.

(Reference provided)

A. (1) Vortex limits ONLY
(2) securing the 'B' Core Spray pump and flooding the containment is required

B. (1) Vortex limits ONLY
(2) continuing 'B' Core Spray pump operation regardless of potential pump damage is permitted

C. (1) Vortex AND NPSH limits
(2) securing the 'B' Core Spray pump and flooding the containment is required

D. (1) Vortex AND NPSH limits
(2) continuing 'B' Core Spray pump operation regardless of potential pump damage is permitted

Answer: B

Answer Explanation

Vortex limits are being violated but Core Spray is still needed for RPV level. NPSH limits are not being exceeded.

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:	4.00
System ID:	28063
User-Defined ID:	28063
Cross Reference Number:	
Topic:	51 - 295030.K3.07
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: 29502LP005 Reference: DEOP 100, table V and table W. K/A: 295030.K3.07 3.8 K/A: Knowledge of the reasons for the following responses or actions as they apply to Low Suppression Pool Water Level: NPSH/vortex limits. CFR: 41.5/45.6 Safety Function: 2 & 4 PRA: Yes Level: High Pedigree: Bank History: 18-1 NRC Explanation: With the Core Spray pump operating at rated flow (5000 gpm) the pump is only violating its vortex limit, NOT the NPSH. A. Incorrect - Plausible because Only Vortex limits are being violated. If the pump were secured flooding of containment would be required. The pump is allowed to be operated regardless of NPSH and Vortex limits. DEOP cautions exists to warn of possible equipment damage, but do not direct securing the pump. B. Correct - Vortex limits are being violated but Core Spray is still needed for RPV level. NPSH limits are not being exceeded. C. Incorrect - Plausible because Only Vortex limits are being violated. Continued operation of B Core spray is permitted. If the pump were secured flooding of containment would be required. The pump is allowed to be operated regardless of NPSH and Vortex limits. DEOP cautions exists to warn of possible equipment damage, but do not direct securing the pump. D. Incorrect - Only Vortex limits are being violated. Plausible because the second part is correct and first part must be determined from the graphs. **REQUIRED REFERENCE:** DEOP 100 with entry conditions redacted.

None

52	**ID: 28057**	**Points: 1.00**

A LOOP and subsequent transient has occurred on Unit 2 requiring RPV injection with low pressure ECCS systems.

The Unit Supervisor has directed you to maximize injection with Core Spray.

- LPCI is unavailable
- NO high pressure injection sources are available
- RPV pressure is 90 psig

What is the expected TOTAL flowrate of injection into the RPV?

A. 4,500 gpm

B. 9,000 gpm

C. 18,000 gpm

D. 27,000 gpm

Answer: B

Answer Explanation

Each CS pump is required to generate 4500 gpm flowrate against an RPV pressure of 90 psig.

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:	28057
User-Defined ID:	28057
Cross Reference Number:	
Topic:	52 - 209001.A1.04
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: 209LN001.03 Reference: TS 3.5.1 SR 3.5.1.5 K/A: 209001.A1.04 4.1 K/A: Ability to predict and/or monitor changes in parameters associated with operation of the Low-Pressure Core Spray System, including: Reactor pressure CFR: 41.5 Safety Function: 2 PRA: Yes Pedigree: Bank History: 16-1 NRC Level: Memory Explanation: A. Incorrect - This would be correct for 1 CS pump. B. Correct - Each CS pump is required to generate 4500 gpm flowrate against an RPV pressure of 90 psig. C. Incorrect - This would be correct for 4 LP ECCS pumps (i.e. LPCI) D. Incorrect - This would be correct for all LP ECCS pumps. **REQUIRED REFERENCE:** None

None

53 **ID: 28065** **Points: 1.00**

Which one of the following sets of conditions will result in the bypass of the IRM HI HI and INOP scram functions?

The Reactor Mode Switch in:

A. RUN, and the companion APRM is NOT downscale.

B. STARTUP, and the companion APRM is NOT downscale.

C. RUN, and the IRM detectors FULLY withdrawn from the core.

D. STARTUP, and the IRM detectors FULLY withdrawn from the core.

Answer: A

Answer Explanation

The following rod block signals are bypassed when the mode switch is in RUN.
The following will initiate a rod block:

a. IRM Downscale (> 5/125 of full scale) (TRM Section 3.3.a Table T3.3.a 1 Function 3.d)
   (1) Bypassed on Range 1.
b. IRM Upscale (< 108/125 of full scale) (TRM Section 3.3.a Table T3.3.a 1 Function 3.b)

c. IRM detector NOT FULL IN. (TRM Section 3.3.a Table T3.3.a 1 Function 3.a)

d. IRM inoperative. (TRM Table T3.3.a 1 Function 3.c)

Question 53 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	2.00
System ID:	28065
User-Defined ID:	28065
Cross Reference Number:	LI
Topic:	53 - 215003.K4.10
Num Field 1:	0.00
Num Field 2:	0.00
Text Field:	
Comments:	Objective: DRE215LN003.06 Reference: DOP 0700-02 K/A: 215003 K4.10 3.6 K/A: Knowledge of Intermediate Range Monitor System design feature and/or interlocks that provide for the following: Automatically bypassing IRM rod block signals. CFR: 41.7 Safety Function: 7 Level: Memory Pedigree: Bank History: None Explanation: A. Correct - The following rod block signals are bypassed when the mode switch is in RUN. The following will initiate a rod block: a. IRM Downscale (> 5/125 of full scale) (TRM Section 3.3.a Table T3.3.a 1 Function 3.d) (1) Bypassed on Range 1. b. IRM Upscale (< 108/125 of full scale) (TRM Section 3.3.a Table T3.3.a 1 Function 3.b) c. IRM detector NOT FULL IN. (TRM Section 3.3.a Table T3.3.a 1 Function 3.a) d. IRM inoperative. (TRM Table T3.3.a 1 Function 3.c) B. Incorrect - plausible because IRM/APRM Companion Scram, APRM downscale AND Companion IRM Hi Hi OR Inop. is bypassed when mode switch is NOT in RUN C. Incorrect - Plausible because IRM rod blocks are bypassed with mode switch in RUN D. Incorrect - Plausible because there are RPS signals bypassed for IRM/APRM companion SCRAM with mode switch NOT in RUN **Required References:** None

None

54 **ID: 28066** **Points: 1.00**

Unit 2 is at rated power.

The U2 NSO took the SBLC Control Switch to 1&2 position.

Which of the following valves would receive an isolation signal?

1)	2-1201-1	RX OUTLET ISOL
2)	2-1201-1A	RX OUTLET BYP
3)	2-1201-2	INLET ISOL
4)	2-1201-3	AUX PP SUCT
5)	2-1201-7	RX RETURN

A. 1 and 2 ONLY

B. 3 and 4 ONLY

C. 2, 3, 4 and 5 ONLY

D. 1, 2, 3, 4, and 5

Answer: D

Answer Explanation

These valves all will be closed following a SBLC initiation.

Question 54 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	1.00
System ID:	28066
User-Defined ID:	28066
Cross Reference Number:	
Topic:	54 - 211000.A3.06
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: DRE211LN001.6 Reference: DOP 1100-02 K/A: 211000.A3.06 4.1 K/A: Ability to monitor automatic operation of the Standby Liquid Control System, including: RWCU system isolation CFR: 41.7 / 45.7 PRA: No Level: Memory Safety Function: 1 Pedigree: New History: N/A Explanation: A. Incorrect - Plausible because these valves would all indicate closed, but not all of them. B. Incorrect - Plausible because these valves would all indicate closed, but not all of them. C. Incorrect - Plausible because these valves would all indicate closed, but not all of them. D. Correct - These valves all will be closed following a SBLC initiation. **REQUIRED REFERENCES:** None

None

55	ID: 28067	Points: 1.00

Unit 2 was operating at rated power when 2-203-1D, U2 1D INBD MSIV, failed shut.

- RPV level is being controlled at -40" in automatic
- RPV pressure is 1040 psig and being controlled with the IC
- All attempts to open the 2-4399-74, CLEAN DEMIN VLV, have failed

Per DOP 1300-03, MANUAL OPERATION OF THE ISOLATION CONDENSER, the preferred RPV PRESSURE CONTROL method is:

A. ADS valve operation

B. HPCI operation in the pressure control mode

C. IC operation with contaminated demin make up

D. IC operation with fire suppression system make up

Answer: B

Answer Explanation

With the conditions stated in the stem, a PCIS GRP I has occurred due to high steam flow. IC shell side makeup is required due to inventory loss. A reactor scram followed with a failure of all control rods to fully insert. With the failure of MO 2-4399-74 normal shell side makeup using IC makeup pumps is unavailable. Per DOP 1300-03, clean demin is the preferred source with IC makeup pumps unavailable; however, the flowpath for clean demin also requires the use of MO 2-4399-74 thereby making IC with clean demin unavailable. Since RPV level is being maintained by FWLC in auto, HPCI is NOT needed for RPV level control and therefore available in the pressure control mode. IC operation with fire suppression makeup and IC operation with contaminated makeup are listed after HPCI in the order of preference in DOP 1300-03, MANUAL OPERATION OF ISOLATION CONDENSER.

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:	4.00
System ID:	28067
User-Defined ID:	28067
Cross Reference Number:	
Topic:	55 - 207000.K3.01
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: 207LN001.08 Reference: DOP 1300-03 K/A: 207000.K3.01 3.8 K/A: Knowledge of the effect that a loss or malfunction of the Isolation (Emergency) Condenser will have on the following systems or system parameters: Reactor pressure. CFR: 41.7/45.4 Safety Function: 4 PRA: Yes Level: High Pedigree: Bank History: 14-1 NRC Explanation: A. Incorrect - ADS valves are available however they are not the preferred RPV pressure control method at this time. B. Correct - With the conditions stated in the stem, a PCIS GRP I has occurred due to high steam flow. IC shell side makeup is required due to inventory loss. A reactor scram followed with a failure of all control rods to fully insert. With the failure of MO 2-4399-74 normal shell side makeup using IC makeup pumps is unavailable. Per DOP 1300-03, clean demin is the preferred source with IC makeup pumps unavailable; however, the flowpath for clean demin also requires the use of MO 2-4399-74 thereby making IC with clean demin unavailable. Since RPV level is being maintained by FWLC in auto, HPCI is NOT needed for RPV level control and therefore available in the pressure control mode. IC operation with fire suppression makeup and IC operation with contaminated makeup are listed after HPCI in the order of preference in DOP 1300-03, MANUAL OPERATION OF ISOLATION CONDENSER. C. Incorrect - This is the LEAST preferred option for makeup water to the IC. HPCI would be employed for pressure control prior to the use of the IC with contaminated demin water as shell side makeup. D. Incorrect - Fire water is the NEXT preferred source of makeup water to the IC shell side, however RPV pressure control should be transitioned to HPCI operation in the pressure control mode before this is employed. Justification of HIGH order: The candidate must analyze the plant conditions and system status and apply knowledge of procedure precautions and limitations. **REQUIRED REFERENCES:** None

56 **ID: 28064** **Points: 1.00**

Unit 2 is operating at rated power.

Grid Disturbances cause the following alarms to actuate.

- DAN 902(3)-8 C-2, RES AUX TR 22 TROUBLE
- DAN 902-8 H-10, 4 KV BUS 24-1 VOLTAGE DEGRADED

DOA 6100-03, AUX POWER TRANSFORMER TROUBLE, directs reducing power to 65 to 70%

Per DGP 03-01, POWER CHANGES, the preferred method is ...

A. insert CRAM rods ONLY.

B. immediately reduce core flow ONLY.

C. insert rods in reverse sequence THEN reduce core flow.

D. insert CRAM rods and reduce core flow simultaneously.

Answer: C

Answer Explanation

Per the DOA for Aux Power Transformer Trouble, actions are to Decrease Unit load, while increasing VARS. Per DGP 03-01 Power Changes Emergency Load Decrease Guidance:

a. IF FCL is >93%, THEN reduce power by inserting control rods in reverse sequence (preferred) or CRAM rod insertion 90 MWe of generator power OR 9% of APRM power.

THEN

b. Reduce Reactor power by decreasing core flow to 58 Mlbm/hour (58 to 62 Mlbm/hour)

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:	28064
User-Defined ID:	28064
Cross Reference Number:	
Topic:	56 - 700000.A1.04
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: DRE103LN002.3 References: DGP 03-01, DAN 902-8 H-10, DOA 6100-03 K/A: 700000.A1.04 3.6 K/A: Ability to operate and/or monitor the following as the apply to Generator Voltage and Electric Grid Disturbances: Reactor Controls CFR: 41.5/41.10/45.5/45.7/45.8 Safety Function: 6 Level: High Pedigree: New History: N/A Explanation: A. Incorrect - Plausible because CRAMs can be used but are not preferred. Quick action required due to 5 minute timer B. Incorrect - Plausible because this would be correct if the Unit was not at full power with FCL greater than 93% C. Correct - Per the DOA for Aux Power Transformer Trouble, actions are to Decrease Unit load, while increasing VARS. Per DGP 03-01 Power Changes Emergency Load Decrease Guidance: a. IF FCL is >93%, THEN reduce power by inserting control rods in reverse sequence (preferred) or CRAM rod insertion 90 MWe of generator power OR 9% of APRM power. THEN b. Reduce Reactor power by decreasing core flow to 58 Mlbm/hour (58 to 62 Mlbm/hr) D. Incorrect - Plausible because CRAMs could be used but not preferred, core flow would be lowered but not until after FCL less than 93%. Quick action required due to 5 minute timer. **Required References:** None

None

57 **ID: 28069** **Points: 1.00**

Which of the following describes the sequencing of the directional control valves during a CRD single notch insert?

During a CRD single notch insert, the drive insert and exhaust valves (121 & 123) open, then.....

A. settle valve (120) opens, (121 & 123) close, drive settles and (120) closes.

B. drive insert valve (121) closes, drive settles, and exhaust valve (123) closes.

C. drive insert and exhaust valves (121 & 123) close, drive settles by the stab valves closing.

D. drive insert and exhaust valves (121 & 123) close, drive settles through the cooling water header.

Answer: A

Answer Explanation

The 121 & 123 directional control valves open (for 3 seconds). Two seconds into the sequence, the 120 directional control valve, the "settle" valve, opens for five seconds. Conclusion is that the 121 & 123 valves close and the 120 valve closes 4 seconds later.

Question 57 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	3.00
System ID:	28069
User-Defined ID:	28069
Cross Reference Number:	
Topic:	57 - 201001.K1.08
Num Field 1:	0.00
Num Field 2:	0.00
Text Field:	
Comments:	Objective: 201LN001.06 References: M-34, DOP 0400-01, 12E-2414 K/A: 201001.K1.08 4.2 K/A: Knowledge of the physical connections and/or cause and effect relationships between the Control Rod Drive Hydraulic System and the following systems: Reactor manual control system. CFR: 41.1-3 to 41.5-8/45.1-6/45.8 PRA: No Safety Function: 1 Level: Memory Pedigree: Bank History: None Explanation: A. Correct - The 121 & 123 directional control valves open (for 3 seconds). Two seconds into the sequence, the 120 directional control valve, the "settle" valve, opens for five seconds. Conclusion is that the 121 & 123 valves close and the 120 valve closes 4 seconds later. B. Incorrect - Plausible because the 121 and 123 valves do close, just not the sequence described. C. Incorrect - Plausible because the 121 and 123 valves are correct, stab valves are not part of the settle process. D. Incorrect - Plausible because the 121 and 123 valves are correct, drive settles via the drive header. **Required Reference:** None

None

58 **ID: 28070** **Points: 1.00**

Unit 3 was operating at full power with the U3 EDG OOS.

- Bus 34 trips on overcurrent
- No actions are taken to cross-tie busses

Which of the following can be operated?

A. 3A FPC pump

B. 3B SBLC pump

C. 3C LPCI pump

D. 3D Condensate/Condensate Booster pump

Answer: A

Answer Explanation

3A FPC pump is powered from Bus 38, therefore has power and can be operated

Question 58 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	2.00
System ID:	28070
User-Defined ID:	28070
Cross Reference Number:	
Topic:	58 - 233000.K2.01
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: DRE233LN001.2 Reference: DOP 6700-13, DOS 6700-05 K/A: 233000.K2.01 3.1 K/A: Knowledge of electrical power supplies to the following: Fuel pool cooling pumps CFR: 41.7 PRA: No Level: Memory Safety Function: 9 Pedigree: New History: N/A Explanation: A. Correct - 3A FPC pump is powered from Bus 38, therefore has power and can be operated B. Incorrect - 3B SBLC pump is powered from MCC 39-1. With U3 EDG OOS and Bus 34 tripped on overcurrent then Bus 34-1 and Bus 39 have no power either. C. Incorrect - 3C LPCI pump is powered from Bus 34-1. With U3 EDG OOS and Bus 34 tripped on overcurrent then Bus 34-1 has no power. D. Incorrect - 3D Condensate/Condensate Booster pump is powered from Bus 34. **REQUIRED REFERENCES:** None

None

59 **ID: 28071** **Points: 1.00**

Unit 2 is operating at 40% power.

DOS 0250-02, FULL CLOSURE TIMING AND EXERCISING OF MAIN STEAM ISOLATION VALVES, is being performed.

The MSIVs are being timed using a stopwatch and read to the nearest one tenth of a second.

Which of the following would meet the Acceptance Criteria?

A. 4.0 seconds "Switch-to-Light" AND 2.8 seconds "Light-to Light"

B. 4.2 seconds "Switch-to-Light" AND 3.8 seconds "Light-to-Light"

C. 4.6 seconds "Switch-to-Light" AND 2.5 seconds "Light-to-Light"

D. 5.1 seconds "Switch-to-Light" AND 3.3 seconds "Light-to-Light"

Answer: B

Answer Explanation

Per DOS 0250-02 with the Unit in a HOT condition the limit is $\leq$ 4.5 seconds "Switch-to Light" AND $\geq$ 3.0 seconds "Light-to Light"

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:	28071
User-Defined ID:	28071
Cross Reference Number:	
Topic:	59 - 223002.291001.K1.09
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: DRE239LN001-08 Reference: DOS 0250-02 K/A: 223002.291001.K1.09 2.7 K/A: Primary Containment Isolation/Nuclear Steam Supply Shutoff - The stroke test for a valve, including the use of a stopwatch CFR: 41.3 Safety Function: 3 Level: Memory Pedigree: New History: N/A Explanation: A. Incorrect - Plausible because part 1 is correct. Part 2 must realize that 3 seconds is a minimum time not a maximum time. B. Correct - Per DOS 0250-02 with the Unit in a HOT condition the limit is $\leq$ 4.5 seconds "Switch-to Light" AND $\geq$ 3.0 seconds "Light-to Light" C. Incorrect - Plausible because part 1 must determine that rounding is only required if timing to 100ths of seconds. Part 2 must realize that 3 seconds is a minimum time not a maximum time. D. Incorrect - Plausible because this would be a correct answer if the reactor was in COLD conditions. **REQUIRED REFERENCE:** None

None

60 **ID: 22619** **Points: 1.00**

Per the UFSAR, why is it NOT permissible to run the Mechanical Vacuum Pump when the Reactor Mode Switch is in the RUN position?

A. This would bypass the Low Condenser Vacuum scram with the Reactor Mode Switch in RUN.

B. This would provide an untreated release pathway for non-condensibles to the Main Chimney.

C. Because of the potential of Hydrogen fires and/or explosions due to the gases being admitted to the main condenser.

D. Because the common suction line can NOT accommodate the required flow to both the Mechanical Vacuum Pump and the SJAE's.

Answer: B

Answer Explanation

Not permissible in RUN due to bypassing the Off Gas System and discharging directly to the 310' chimney (which results in an untreated release pathway for non-condensibles).

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:	22619
User-Defined ID:	22619
Cross Reference Number:	
Topic:	60 - Generic.3.11
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: DRE275LN001.03 Reference: UFSAR 11.3.2.3, DAN 902-7 H-3 K/A: Generic.3.11 3.8 / 4.3 K/A: Ability to control radiation releases CFR: 41.11/43.4/45.10 PRA: No Level: Memory Pedigree: Bank History: 08-1 NRC, 18-1 NRC Explanation: A. Incorrect - Plausible because the low condenser vacuum bypass is jumpered out when running the Mechanical Vacuum Pump. B. Correct - Not permissible in RUN due to bypassing the Off Gas System and discharging directly to the 310' chimney (which results in an untreated release pathway for non-condensibles). C. Incorrect - Plausible because this is true for the discharge of the pump, not the suction. D. Incorrect - The mechanical vacuum pump discharges via the gland seal exhaust piping, not the SJAE piping. Plausible because both lines go to the Main Chimney. **REQUIRED REFERENCES:** None

61	ID: 28043	Points: 1.00

A scram has occurred on U2 due to rising Drywell Pressure.

Drywell Pressure continues to rise even with Drywell Sprays initiated.

If pressure exceeds the Pressure Suppression Pressure limit a blowdown is required.

What is the reason for performing an Emergency Depressurization?

A. To ensure the pressure capability of the primary containment is not exceeded

B. The maximum primary containment pressure at which ADSVs can be opened and will remain open is not exceeded

C. To limit further release of energy into the primary containment and to ensure the RPV is depressurized while pressure suppression capability is still available

D. To ensure the maximum primary containment pressure at which vent valves sized to reject all decay heat from the containment can be opened and closed is not exceeded

Answer: C

Answer Explanation

Per DEOP/SAMG Technical Basis If containment sprays cannot be initiated or are ineffective in controlling primary containment pressure below the Pressure Suppression Pressure, a blowdown is required. The blowdown is performed to limit further release of energy into the primary containment and to ensure that the RPV is depressurized while pressure suppression capability is still available.

Question 61 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	4
Difficulty:	4.00
System ID:	28043
User-Defined ID:	28043
Cross Reference Number:	
Topic:	61 - 295024.K3.04
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: 29502LK008 References: EOP - DEOP - SAMG - TB K/A: 295024.K3.04 4.2 K/A: Knowledge of the reasons for the following responses or actions as they apply to High Drywell Pressure: Emergency depressurization. CFR: 41.5/45.6 Safety Function: 5 Level: Memory Pedigree: New History: N/A Explanations: A. Incorrect - Plausible because this is a reason for containment venting to be evaluated due to Primary Containment Pressure Limit. B. Incorrect - Plausible because this is a reason for containment venting to be evaluated due to Primary Containment Pressure Limit. C. Correct - Per DEOP/SAMG Technical Basis If containment sprays cannot be initiated or are ineffective in controlling primary containment pressure below the Pressure Suppression Pressure, a blowdown is required. The blowdown is performed to limit further release of energy into the primary containment and to ensure that the RPV is depressurized while pressure suppression capability is still available. D. Incorrect - Plausible because this is a reason for containment venting to be evaluated due to Primary Containment Pressure Limit. **Required References:** None

None

62	ID: 28032	Points: 1.00

Given the following Unit 2 conditions:

- Mode 5 with the Reactor Cavity and Dryer Separator flooded to 4 inches below cavity ventilation ducts
- Main Steam Line (MSL) Plugs are installed in all four MSLs
- Reactor cavity water temperature is 93°F
- Unit 2 Fuel Pool water level is 37'9" at 93°F
- Operating team is maintaining Reactor cavity and Fuel Pool temp between 90°F to 100°F
- Reactor core alterations are in progress
- 2A Shutdown Cooling (SDC) Pump is OOS
- 2B SDC Pump is aligned to the Reactor Vessel with MO 2-3704 positioned at max setting
- 2C SDC Pump is aligned to the Unit 2 Fuel Pool Cooling System

IF 2B SDC Pump tripped on overcurrent with these conditions, which decay heat removal alternatives listed below is a viable option to control reactor water temperatures?

A. Initiate 2A Core Spray pump

B. Raise RBCCW flow to shell side of SDC heat exchangers

C. Initiate feed and bleed with CRD and main steam line drains

D. Utilize natural circulation from Fuel Pool to Reactor Cavity with Fuel Pool Gates removed

Answer: D

Answer Explanation

Since 2C SDC loop is aligned to the Fuel Pool Utilizing a natural circulation flow path from Fuel Pool to Reactor Cavity with Fuel Pool Gates removed would provide decay heat removal path immediately on the 2B SDC pump trip.

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:	28032
User-Defined ID:	28018
Cross Reference Number:	
Topic:	62 - 295021.K1.04
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: 29501LP036 Reference: DOA 1000-01 K/A: 295021.K1.04 3.9 K/A: Knowledge of the operational implications and/or cause and effect relationships of the following as they apply to Loss of Shutdown Cooling: Natural circulation CFR: 41.8 to 41.10 PRA: No Level: High Safety Function: 4 Pedigree: Bank History: None Explanation: A. Incorrect - Initiating a CS pump would flood the cavity and fuel pool into RB vent ducts with no drain path available. Plausible because a CS pump would be able to inject into the RPV with the current conditions. B. Incorrect - Raise RBCCW flow to shell side of SDC heat exchangers is NOT option to 2C SDC HX since MO 2-3704 is at max setting for two exchanger operation. Plausible because increasing the RBCCW flow is a way to increase cooling. C. Incorrect - MSL drains are isolated due to MSL plugs being installed. Plausible because that is a viable path per DOA 1000-01 if the MSL drains were not isolated. D. Correct - Since 2C SDC loop is aligned to the Fuel Pool Utilizing a natural circulation flow path from Fuel Pool to Reactor Cavity with Fuel Pool Gates removed would provide decay heat removal path immediately on the 2B SDC pump trip. **REQUIRED REFERENCES:** None

None

63 **ID: 28076** **Points: 1.00**

Which one of the following identifies (1) a burnable poison that is loaded into the Reactor and (2) describes the purpose of this poison?

A. (1) Gadolinium
(2) Allow more fuel to be loaded into the core

B. (1) Gadolinium
(2) Compensate for buildup of fission product poison

C. (1) Samarium
(2) Allow more fuel to be loaded into the core

D. (1) Samarium
(2) Compensate for buildup of fission product poison

Answer: A

Answer Explanation

Gadolinium is a burnable poison loaded into the Reactor. Its purpose is to allow more fuel to be loaded into the Reactor.

Question 63 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	2.00
System ID:	28076
User-Defined ID:	28076
Cross Reference Number:	
Topic:	63 - 292007.K1.01
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: BR07lr4_Fuel_Depletion Obj 1 Reference: Generic Fundamentals BR07lr4_Fuel_Depletion K/A: 292007.K1.01 3.1 K/A: Fuel Depletion and Burnable Poisons - Define burnable poison and state its use in the reactor CFR: 41.1 PRA: No Level: Memory Pedigree: Bank History: None Explanation: A. Correct - Gadolinium is a burnable poison loaded into the Reactor. Its purpose is to allow more fuel to be loaded into the Reactor. B. Incorrect - The purpose of burnable poisons is not to compensate for building of fission product poisons. Plausible because Reactor operation does simultaneously burnout burnable poisons and create fission product poisons. C. Incorrect - Samarium is not a burnable poison loaded into the Reactor. Plausible because it is a fission product poison that builds up during Reactor operation. D. Incorrect - Samarium is not a burnable poison loaded into the Reactor. Plausible because it is a fission product poison that builds up during Reactor operation. The purpose of burnable poisons is not to compensate for building of fission product poisons. Plausible because Reactor operation does simultaneously burnout burnable poisons and create fission product poisons. **REQUIRED REFERENCE:** None

None

64	ID: 28079	Points: 1.00

Both units are operating at full power.

- Control Room personnel have noticed a smell of smoke in the Control Room
- It has been determined that the smoke is coming from outside of the Control Room

In accordance with DOA 5750-04, SMOKE, NOXIOUS FUMES OR AIRBORNE CONTAMINANTS IN THE CONTROL ROOM, the Control Room will have to be ___(1)___ and must be verified at the ___(2)___ panel.

A. (1) purged
(2) 923-5

B. (1) purged
(2) 2/3-9400-105

C. (1) isolated and pressurized
(2) 923-5

D. (1) isolated and pressurized
(2) 2/3-9400-105

Answer: D

Answer Explanation

With smoke coming from outside of the Control Room the proper action is the place CREVs in Isolate and Pressurize. The isolations will be verified at Panel 2/3-9400-105.

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:	28079
User-Defined ID:	28079
Cross Reference Number:	
Topic:	64 - 290003.A2.06
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: DRE288LN003.8 Reference: DOA 5750-04 K/A: 290003.A2.06 3.2 / 3.7 K/A: Ability to (a) predict the impacts of the following on the Control Room Ventilation and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operations: Breaches of control room envelope CFR: 41.5 PRA: No Level: High Safety Function: 9 Pedigree: New History: N/A Explanation: A. Incorrect - The first part is plausible because purging the Control Room would be correct if the smoke was coming from inside the Control Room. Second part is plausible because Control Room Ventilation is controlled at the 923-5 panel. B. Incorrect - The first part is plausible because purging the Control Room would be correct if the smoke was coming from inside the Control Room. Second part is correct. C. Incorrect - First part is correct. Second part is plausible because Control Room Ventilation is controlled at the 923-5 panel. D. Correct - With smoke coming from outside of the Control Room the proper action is the place CREVs in Isolate and Pressurize. The isolations will be verified at Panel 2/3-9400-105. **REQUIRED REFERENCES:** None

None

65	ID: 28081	Points: 1.00

Unit 2 was operating at 30% power, with load ascension in progress, when the following timeline of events occurred:

- 03:05:00 - Stator Cooling INLET water flow to the Main Generator reached 450 gpm
- 03:05:03 - DAN 902-7 C-3, TURB STATOR COOLANT RUNBACK, illuminated
- 03:05:45 - The Unit 2 NSO began reducing reactor power with core flow
- 03:08:25 - Generator stator amps are observed as 9300 and steady

Which of the following describes the additional actions, if any, that would be expected to automatically occur by 03:08:35?

A. No additional automatic actions occur

B. The standby Stator Coolant pump starts

C. The Main Turbine/Generator trips ONLY

D. The Main Turbine/Generator trips AND the Reactor scrams

Answer: C

Answer Explanation

When Stator Cooling water inlet flow is <500 gpm, a Stator Runback is received. If Stator amps are NOT <9121 stator amps within 3.5 minutes, a Turbine trip is initiated.

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:	28081
User-Defined ID:	28081
Cross Reference Number:	
Topic:	65 - 245000.K3.08
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: DRE253LN001.06 Reference: DOA 7400-01, DANs 902-7 B-10 & C-3 K/A: 245000.K3.08 3.7 K/A: Knowledge of the effect that a loss or malfunction of the Main Turbine Generator and Auxiliary Systems will have on the following systems or system parameters: Reactor/turbine pressure regulating system CFR: 41.7 / 45.4 PRA: No Level: High Safety Function: 4 Pedigree: New History: N/A Explanation: A. Incorrect - The turbine will trip if stator amps are not <9121 amps within 3.5 minutes. Plausible because if amps were <9121 then no additional automatic actions would occur. B. Incorrect - The standby pump will only AUTO start if the running pump trips or its discharge pressure is <65 psig. Plausible because this is an automatic action that occurs within the Stator Water Cooling system. C. Correct - When Stator Cooling water inlet flow is <500 gpm, a Stator Runback is received. If Stator amps are NOT <9121 stator amps within 3.5 minutes, a Turbine trip is initiated. D. Incorrect - The reactor does NOT scram since rated core thermal power was < 38.5%. Plausible because if power were >38.5 then the Bypass Valves would not be able to handle to demand and cause a Reactor scram. **REQUIRED REFERENCES:** None

66 **ID: 28047** **Points: 1.00**

Unit 2 is operating at rated power when a Scram occurs due to spurious Group I Isolation.

- Reactor Power is 5%
- Reactor Pressure is 1060 psig and rising slowly
- ERVs are cycling

Which of the following is performed to minimize power transients through changes in the core void fraction during execution of DEOP 400-05, FAILURE TO SCRAM?

A. Inhibit ADS and initiate IC

B. Verify FWLCS in automatic

C. Initiate IC and open ADSVs to lower RPV pressure to 945 psig

D. Terminate and prevent all RPV injection except boron and CRD to -35 inches

Answer: C

Answer Explanation

Allowing pressure oscillations can cause significant power transients through changes in the core void fraction. This is controlled via the Iso Condenser and ADSVs, thus not allowing the ADSVs to cycle.

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:	28047
User-Defined ID:	28047
Cross Reference Number:	
Topic:	66 - 295025.K1.07
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: 29501LK025 Reference: DEOP 100, DEOP 400-5, DEOP TB Vol 2 K/A: 295025.K1.07 4.2 K/A: Knowledge of the operational implications and/or cause and effect relationships of the following as they apply to High Reactor Pressure: Pressure control strategies. CFR: 41.8 to 41.10 Safety Function: 3 Level: High Pedigree: New History: N/A Explanation: A. Incorrect - Plausible because ADS is inhibited and Iso Condenser is initiated, ADS in inhibit does not lower pressure. B. Incorrect - Plausible because if all rods were in and FWLC in auto, setpoint setdown would lower level to minimize the impact of shrink and swell. C. Correct - Allowing pressure oscillations can cause significant power transients through changes in the core void fraction. This is controlled via the Iso Condenser and ADSVs, thus not allowing the ADSVs to cycle. D. Incorrect - Plausible because if power was greater than 6% then Terminate and Prevent to less than -35 inches would be required to uncover feedwater spargers. **REQUIRED REFERENCES:** None

None

67	ID: 7684	Points: 1.00

Unit 2 is at rated power

- Annunciator 902-5 G-3, RPIS SYS INOP, is alarming

Based on these conditions, control rods can.....

A. be moved IF the RWM is bypassed.

B. NOT be moved due to a Select Block.

C. NOT be moved due to a timer malfunction.

D. NOT be moved due to a rod withdrawal block.

Answer: B

Answer Explanation

This alarm is indicative of a loss of RPIS 24 VDC power supply and as a result of that a Select Block is inserted.

Question 67 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	2.00
System ID:	7684
User-Defined ID:	7684
Cross Reference Number:	LI
Topic:	67 - 201002.K6.04
Num Field 1:	0.00
Num Field 2:	0.00
Text Field:	
Comments:	Objective: 201LN002-12 Reference: DAN 902(3)-5 G-3 K/A: 201002.K6.04 3.5 K/A: Knowledge of the effect of the following plant conditions, system malfunctions, or component malfunctions on the Reactor Manual Control System: RPIS CFR: 41.7 / 45.7 PRA: No Level: Memory Safety Function: 1 Pedigree: Bank History: None Explanation: A. Incorrect - Plausible because if a RWM Block were to be in then this would be correct B. Correct - This alarm is indicative of a loss of RPIS 24 VDC power supply and as a result of that a Select Block is inserted. C. Incorrect - Plausible because a timer malfunction is another cause of a Select Block. D. Incorrect - Plausible because a withdrawal block would cause a rod to be able to not be moved out, but loss of power to RPIS does not cause a withdrawal block. **REQUIRED REFERENCES**: None

68	ID: 28088	Points: 1.00

Unit 2 is at 80% power.

- Rod J-6 is being moved from position 36 to 48
- Annunciator 902-5 F-3, ROD DRIVE TEMP HI, alarms
- Temperature on TR-2-340-16, CONTROL ROD DRIVE TEMP, indicates 360°F for J-6 and steady

This could cause ___(1)___.

The required action is ___(2)___.

A. 1) slow scram time
2) drive the rod to position 00 and take OOS

B. 1) slow scram time
2) make preparations to scram test the CRD as soon as possible.

C. 1) fast scram time
2) drive the rod to position 00 and take OOS

D. 1) fast scram time
2) make preparations to scram test the CRD as soon as possible.

Answer: B

Answer Explanation

Per DAN 902(3)-5 F-3 Rod Drive Temp Hi, Rod movement may cause a high temperature alarm if a CRD was already operating near (within 50°F) of its alarm setpoint. Setpoint is 250°F. If temperature is between 350 and 400°F the proper action is to make preparations to scram test the CRD as soon as possible. WHEN rod temperatures are > 400°F, THEN application of scram time penalties will always result in Tech Spec Slow rods per DOS 0300-06. Elevated temperatures result in slower scram times.

Question 68 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	4
Difficulty:	4.00
System ID:	28088
User-Defined ID:	28088
Cross Reference Number:	
Topic:	68 - 201003.A1.04
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: DRE201LN001.10 References: DAN 902(3)-5 F-3, DOS 0300-06 K/A: 201003.A1.04 3.0 K/A: Ability to predict and/or monitor changes in parameters associated with operation of Control Rod and Drive Mechanism including: CRD mechanism temperature. CFR: 41.1-6/45.1-6 Safety Function: 1 Level: High Pedigree: New History: N/A Explanation: A. Incorrect - Plausible because part 1 is correct. Part 2 would be correct if the rod was declared inoperable due to scram time not meeting tech spec requirement. B. Correct - Per DAN 902(3)-5 F-3 Rod Drive Temp Hi, Rod movement may cause a high temperature alarm if a CRD was already operating near (within 50 F) of its alarm setpoint. Setpoint is 250°F. If temperature is between 350 and 400°F the proper action is to make preparations to scram test the CRD as soon as possible. WHEN rod temperatures are > 400°F, THEN application of scram time penalties will always result in Tech Spec Slow rods per DOS 0300 06. Elevated temperatures result in slower scram times. C. Incorrect - Plausible because must determine if higher temperature would cause faster or slower rod movement. Part 2 would be correct if the rod was declared inoperable due to scram time not meeting tech spec requirement. D. Incorrect - Plausible because must determine if higher temperature would cause faster or slower rod movement. Part 2 is correct. **Required reference:** None

None

69	ID: 28089	Points: 1.00

(1) What is a possible consequence of operating a LPCI pump at shutoff head for a prolonged period of time?

(2) This consequence can be avoided by ensuring proper operation of ....

A. 1) overheating of pump
2) minimum flow valve

B. 1) overheating of pump
2) keep-fill system

C. 1) excessive motor current
2) minimum flow valve

D. 1) excessive motor current
2) keep-fill system

Answer: A

Answer Explanation

Operating a centrifugal pump, such as a LPCI pump, at shutoff head can cause elevated pump temperatures due to inadequate flow. Ensuring proper operation of the minimum flow valve helps to avoid this overheating.

Question 69 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	1.00
System ID:	28089
User-Defined ID:	28089
Cross Reference Number:	
Topic:	69 - 293006.K1.18
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: BT06lr4_Statics_Dynamics Obj 34 Reference: Generic Fundamentals BT06lr4_Statics_Dynamics K/A: 293006.K1.18 2.7 K/A: Fluid Statics and Dynamics - Explain how operating a centrifugal pump at shutoff head may cause overheating and describe the methods used to avoid overheating. CFR: 41.14 PRA: No Level: Memory Pedigree: Bank History: None Explanation: A. Correct - Operating a centrifugal pump, such as a LPCI pump, at shutoff head can cause elevated pump temperatures due to inadequate flow. Ensuring proper operation of the minimum flow valve helps to avoid this overheating. B. Incorrect – Ensuring proper operation of the minimum flow valve helps to avoid this overheating. Plausible because the keep-full system must be operated properly to avoid other unwanted conditions with LPCI, such as water hammer and degraded flow rates. C. Incorrect – Motor current at shutoff head conditions is low, not high. Plausible because this is correct for runout conditions. D. Incorrect – Motor current at shutoff head conditions is low, not high. Plausible because this is correct for runout conditions. Ensuring proper operation of the minimum flow valve helps to avoid this overheating. Plausible because the keep-full system must be operated properly to avoid other unwanted conditions with LPCI, such as water hammer and degraded flow rates. **Required References:** None

None

70	ID: 28090	Points: 1.00

The nil-ductility transition temperature is the temperature.....

A. in which the distortion of the lattice usually occurs.

B. below which the probability of brittle fracture significantly increases.

C. when metal splits along certain crystal planes and can rapidly occur.

D. when mechanisms operating at high temperatures that are cooled by cold fluid break.

Answer: B

Answer Explanation

Nil-ductility transition temperature is the temperature below which metal fails by brittle fracture....

Question 70 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	1.00
System ID:	28090
User-Defined ID:	28090
Cross Reference Number:	
Topic:	70 - 293010.K1.02
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: BT10Ir4_Thermal_Limits Obj 8.a Reference: Generic Fundamentals BT10Ir4_Thermal_Limits K/A: 293010.K1.02 2.7 K/A: Brittle Fracture and Vessel Thermal Stress - State the definition of Nil-Ductility Transition Temperature CFR: 41.14 PRA: No Level: Memory Safety Function: N/A Pedigree: Bank History: None Explanation: A. Incorrect - The distortion of the lattice occurs at high temperatures. B. Correct - Nil-ductility transition temperature is the temperature below which metal fails by brittle fracture. C. Incorrect - This is the definition Cleavage Fracture. D. Incorrect - This is the definition of Thermal Stress. **Required References:** None

71	ID: 28092	Points: 1.00

Unit 2 was operating at near rated power when an instrument failure requires an in-plant manipulation which will affect reactivity.

Which of the following describes the MINIMUM requirement to perform this evolution?

Communication between the Control Room and ______, in the plant.

A. any SRO ONLY

B. any SRO with a qualified QNE

C. any ACTIVE LICENSED Operator ONLY

D. an ACTIVE LICENSED Operator with no restriction which would prohibit solo operations

Answer: D

Answer Explanation

Local Operation of equipment that affects reactivity requires a Active License (RO or SRO), but with the additional caveat of no restrictions that would prohibit solo operations (Per HR-AA-07-101, “No Solo” Operation: License restriction that prohibits solo operation in the Main Control Room or other specified controlled areas).

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:	28092
User-Defined ID:	28092
Cross Reference Number:	
Topic:	71 - Generic 2.1.4
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: 20200LN001.08 Reference: DOP 0202-16, HR-AA-07-101 K/A: Generic 2.1.4 3.3 K/A: Knowledge of individual licensed operator responsibilities related to shift staffing, such as medical requirements, "no-solo" operation, maintenance of active license status, 10 CFR Part 55. Safety Function: N/A CFR: 41.10/43.2 Level: Memory Pedigree: Bank History: 2008 NRC Explanations: A. Incorrect - Local Operation of equipment that affects reactivity requires an Active License (RO or SRO) with no restrictions that would prohibit solo operations (Per HR-AA-07-101, “No Solo” Operation: License restriction that prohibits solo operation in the Main Control Room or other specified controlled areas). Plausible because SRO can direct operations in the field that affect reactivity but must have an active license and no restrictions that would prohibit solo operations. B. Incorrect - Local Operation of equipment that affects reactivity requires an Active License, but with the additional caveat of no restrictions that would prohibit solo operations (Per HR-AA-07-101, “No Solo” Operation: License restriction that prohibits solo operation in the Main Control Room or other specified controlled areas). QNE = Qualified Nuclear Engineer. Plausible because the answer is partially correct. Missing the Active License and no solo restrictions. C. Incorrect - Local Operation of equipment that affects reactivity requires an Active License (RO or SRO), but with the additional caveat of no restrictions that would prohibit solo operations (Per HR-AA-07-101, “No Solo” Operation: License restriction that prohibits solo operation in the Main Control Room or other specified controlled areas). Plausible because the answer is partially correct. Missing the no solo restrictions. D. Correct - Local Operation of equipment that affects reactivity requires an Active License (RO or SRO), but with the additional caveat of no restrictions that would prohibit solo operations (Per HR-AA-07-101, “No Solo” Operation: License restriction that prohibits solo operation in the Main Control Room or other specified controlled areas). **Required References:** None

72 **ID: 28093** **Points: 1.00**

Which of the following activities would REQUIRE a Plant PA announcement?

Activities that could change _______.

1. Fire Risk
2. Online Risk
3. Plant Radiation Levels
4. Shutdown Risk

A. 1 and 2

B. 3 and 4

C. 2 and 3

D. 1 and 4

Answer: C

Answer Explanation

Per OP-DR-108-117-1001, PROTECTED PATHWAY EQUIPMENT AND PATHWAY POLICY, Change in on line risk will be announced via Plant Public Address (PA) system and updated on monitors in the PAF. Also, per OP-AA-104-101, changes in Reactor Mode require a PA announcement.

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:	4.00
System ID:	28093
User-Defined ID:	28093
Cross Reference Number:	
Topic:	72 - Generic 2.2.17
Num Field 1:	0.00
Num Field 2:	0.00
Text Field:	

Comments:	Objective: 29501LK093 Reference: OP-AA-104-101, OP-DR-201-012-1001, OP-DR-108-117-1001 K/A: Generic 2.2.17 2.6 K/A: Knowledge of the process for managing maintenance activities during power operation, such as risk assessments, work prioritization, and coordination with the transmission system operator. Safety Function: N/A CFR: 41.10/43.5/45.13 PRA: No Level: Memory Pedigree: New History: N/A Explanation: A. Incorrect - Per OP-DR-201-012-1001, DRESDEN ON-LINE FIRE RISK MANAGEMENT, Changes in Fire Risk do not require a PA announcement. They will be briefed with the operations crew and the fire brigade. The second part, changes in online risk, is correct. Plausible because the student must be familiar with the administrative requirements of the Fire Risk procedure, including requirements for communications that must occur. The second part of the answer is correct. B: Correct - Per OP-DR-108-117-1001, PROTECTED PATHWAY EQUIPMENT AND PATHWAY POLICY, Change in on line risk will be announced via Plant Public Address (PA) system and updated on monitors in the PAF. Also, per OP-AA-104-101, potential changes in plant radiation require a PA announcement. C. Incorrect - The first part of the answer, changes in online risk, is correct. Per OP-DR-108-117-1001, PROTECTED PATHWAY EQUIPMENT AND PATHWAY POLICY, Changes in Shutdown risk do not require a PA announcement. They will be communicated via daily communication memos distributed at the Main Access Facility and updated on monitors in the PAF. Plausible because the first part of the answer is correct. The student The student must be familiar with the administrative requirements of the Shutdown Risk procedure. It is similar to the online risk, but does not require a plant PA announcement for changes. D. Incorrect - Per OP-DR-201-012-1001, DRESDEN ON-LINE FIRE RISK MANAGEMENT, Changes in Fire Risk do not require a PA announcement. They will be briefed with the operations crew and the fire brigade. Per OP-DR-108-117-1001, PROTECTED PATHWAY EQUIPMENT AND PATHWAY POLICY, Changes in Shutdown risk do not require a PA announcement. They will be communicated via daily communication memos distributed at the Main Access Facility and updated on monitors in the PAF. Plausible because the student must be familiar with the administrative requirements of the Fire Risk procedure, including requirements for communications that must occur. The student must also be familiar with the administrative requirements of the Shutdown Risk procedure. It is similar to the online risk, but does not require a plant PA announcement for changes. **REQUIRED REFERENCES:** None

73 **ID: 28096** **Points: 1.00**

Unit 2 is operating at 100% power.

A pressure transient occurs causing DAN 902-5 H-5 RPV PRESS HI, to alarm.

The increase in pressure would result in a(an) ___(1)___ in Critical Power.

This would mean ___(2)___ bundle power is necessary to cause transition boiling to occur.

A. (1) increase
(2) less

B. (1) increase
(2) more

C. (1) decrease
(2) less

D. (1) decrease
(2) more

Answer: C

Answer Explanation

An increase in pressure would result in a decrease in critical power. As pressure increases, the latent heat of vaporization (hfg) decreases, requiring less bundle power necessary to cause transition boiling to occur.

Question 73 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	2
Difficulty:	1.00
System ID:	28096
User-Defined ID:	28096
Cross Reference Number:	
Topic:	73 - 293009.K1.42
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: BT09lr4_Thermal_Limits Obj 35.c Reference: Generic Fundamentals BT09lr4_Thermal_Limits K/A: 293009.K1.42 3.3 K/A: Core Thermal Limits - For the following plant operating or accident conditions, identify which of the three core thermal limits are most limiting: Increase in reactor pressure. CFR: 41.14 PRA: No Level: High Pedigree: New History: N/A Explanation: A. Incorrect - This is the basis behind MFLCPR. Plausible because this is another thermal limit ratio given on the OD-20 edit. B. Incorrect - This is the basis behind MFLCPR. Plausible because this is another thermal limit ratio given on the OD-20 edit. C. Correct - An increase in pressure would result in a decrease in critical power. As pressure increases, the latent heat of vaporization (hfg) decreases, requiring less bundle power necessary to cause transition boiling to occur. D. Incorrect - This is the basis behind MFLCPR. Plausible because this is another thermal limit ratio given on the OD-20 edit. **REQUIRED REFERENCES:** None

None

74	ID: 28100	Points: 1.00

A transient has occurred on Unit 2.

- Reactor Pressure is 600 psig and lowering at 20 psig/min
- Drywell Pressure is 12 psig and rising 0.5 psig/min
- Reactor Water Level -150 inches and lowering 10 inches/min

In order to start Torus and Drywell sprays per the Hard Card for LPCI/CCSW OPERATION DURING TRANSIENT SITUATIONS, the 316 and ___(1)___ keylock switches must be placed in MANUAL / MANUAL OVERRD.

6 minutes later, ___(2)___ are running.

A. (1) 317
(2) No Sprays

B. (1) 317
(2) Torus and Drywell Sprays

C. (1) 318
(2) No Sprays

D. (1) 318
(2) Torus and Drywell Sprays

Answer: C

Answer Explanation

With the conditions listed LPCI would have started. Using the Hard Card the first step is to place the 316 and 318 keylock switches to MANUAL/MANUAL OVERRD. Due to the trends, 6 minutes later reactor pressure would be 480 psig so level correction would not be needed. Reactor water level would be -210 inches (less than 2/3 core height). Torus and Drywell sprays will isolate unless the 317 switches are taken to MANUAL OVERRD with US permission.

Question 74 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	4
Difficulty:	3.00
System ID:	28100
User-Defined ID:	28100
Cross Reference Number:	
Topic:	74 - 230000.K6.08
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: DRE203LN001-11 References: UFSAR 7.4.1, UFSAR 6.2, DOP 1500-02 K/A: 230000.K6.08 3.3 K/A: Knowledge of the effect of the following plant conditions, system malfunctions, or component malfunctions on the RHR-LPCI: Torus/Suppression Pool Spray Mode: Nuclear boiler instrumentation. CFR: 41.7/45.7 PRA: No Safety Function: 5 Level: High Pedigree: New History: N/A Explanation: A. Incorrect - Plausible because the 317 interlock switches could be used with US permission but not needed at current level and pressure. Part 2 is correct. B. Incorrect - Plausible because the 317 interlock switches could be used with US permission but not needed at current level and pressure. Part 2 must determine the level and pressure based on current trends and understand 2/3 core height logic. C. Correct - With the conditions listed LPCI would have started. Using the Hard Card the first step is to place the 316 and 318 keylock switches to MANUAL/MANUAL OVERRD. Due to the trends, 6 minutes later reactor pressure would be 480 psig so level correction would not be needed. Reactor water level would be -210 inches (less than 2/3 core height). Torus and Drywell sprays will isolate unless the 317 switches are taken to MANUAL OVERRD with US permission. D. Incorrect - Plausible because Part 1 is correct. Part 2 must determine the level and pressure based on current trends and understand 2/3 core height logic. **Required references:** None

None

75 **ID: 28102** **Points: 1.00**

Unit 2 was operating at near rated power when the Turbine tripped.

- The Generator has NOT tripped
- The Generator Field Breaker is Open

The team is required to open Generator GCBs ___(1)___ from the ___(2)___ panel.

A. (1) After 90 seconds
(2) 902-8

B. (1) IMMEDIATELY
(2) 923-2

C. (1) IMMEDIATELY
(2) 902-8

D. (1) After 90 seconds
(2) 923-2

Answer: B

Answer Explanation

With the generator still on line and the Field Breaker open then the GCBs should be IMMEDIATELY opened from the 923-2 panel per DOA 5600-01 immediate operator action 3.

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:	28102
User-Defined ID:	28102
Cross Reference Number:	
Topic:	75 - 295005.G.2.4.12
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: 24501LK017 Reference: DOA 5600-01, DOP 6400-13, DGP 02-01 K/A: 295005.G.2.4.12 4.0 / 4.3 K/A: Main Turbine Generator Trip - Knowledge of operating crew responsibilities during emergency and abnormal operations Safety Function: 3 CFR: 41.10 / 45.12 PRA: No Level: Memory Pedigree: Bank History: 19-1 NRC Explanation: A. Incorrect - (1) With the generator still on line the GCBs must be opened on the 923-2 panel. (2) This action should be taken immediately. Plausible because (1) GCBs 1-2 and 1-7 are operated from the 902-8 panel under normal circumstances, and (2) the operate is directed to wait 90 seconds if the field breaker remains closed. B. Correct - With the generator still on line and the Field Breaker open then the GCBs should be IMMEDIATELY opened from the 923-2 panel per DOA 5600-01 immediate operator action 3. C. Incorrect - <u>IF</u> Generator fails to trip <u>AND</u> Field Breaker opens, <u>THEN</u> <u>IMMEDIATELY</u> open the Generator GCBs from Panel 923-2. Plausible (1) because part 1 is correct and (2) GCBs 1-2 and 1-7 are operated from the 902-8 panel under normal circumstances. D. Incorrect - <u>IF</u> Generator fails to trip <u>AND</u> Field Breaker opens, <u>THEN</u> <u>IMMEDIATELY</u> open the Generator GCBs from Panel 923-2. Plausible (1) because if the Field Breaker remains closed part 1 would be correct. (2) Part 2 is correct. **REQUIRED REFERENCES:** None

None

76 **ID: 28021** **Points: 1.00**

Unit 2 was operating at near rated power, when the 'A' and 'B' NR RPV Level transmitters failed DOWNSCALE simultaneously.

The FWLC system will ___(1)___ and the Unit Supervisor will direct ___(2)___.

A. (1) enter Setpoint Setdown
(2) reducing Recirc flow to 56 Mlbm/hr, per DOA 0600-01, TRANSIENT LEVEL CONTROL

B. (1) enter Setpoint Setdown
(2) manually matching feed flow and steam flow per DOA 0600-01, TRANSIENT LEVEL CONTROL

C. (1) transfer to Single Element Control
(2) inserting a manual scram per DGP 02-03, REACTOR SCRAM

D. (1) transfer to Single Element Control
(2) depressing 1-ELEM button per DAN 902-5 G-8, 1-ELEMENT FW CONTROL ACTIVE AT HI FLOW

Answer: B

Answer Explanation

With two of the three RPV level instruments failing low, the FWLCS will enter setpoint setdown and begin to drive RPV level to the preset setpoint of -10 inches. To prevent a reactor scram, the Unit Supervisor will direct entering the DOA for transient level control and then manually controlling RPV level, by matching steam and feed flow.

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:	28021
User-Defined ID:	28021
Cross Reference Number:	
Topic:	76 - 259002.A2.03
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: DRE259LN002.08 Reference: DAN 902-5 G-7, DOA 0600-01 K/A: 259002.A2.03 3.8 / 3.9 K/A: Ability to (a) predict the impacts of the following on the Reactor Water Level Control System and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operations: Loss of reactor water level input CFR: 41.5 / 43.5 / 45.6 PRA: No Level: High Safety Function: 2 Pedigree: Bank History: None **SRO Only Criteria: 10CFR55.43(b)(5) -** Assessment of facility conditions and selection of appropriate procedures during normal, abnormal and emergency situation. Conditions and limitations in the facility license. Explanation: A. Incorrect - Plausible because Reducing Recirc flow would be correct, but NOT below 58 Mlbm/hr. B. Correct - With two of the three RPV level instruments failing low, the FWLCS will enter setpoint setdown and begin to drive RPV level to the preset setpoint of -10 inches. To prevent a reactor scram, the Unit Supervisor will direct entering the DOA for transient level control and then manually controlling RPV level, by matching steam and feed flow. C. Incorrect - Single element will NOT be entered unless a steam or feed flow signal (not Level) was lost. Plausible because this would be plausible if the steam or flow signal had been lost vs Level indication. D. Incorrect - Single element will NOT be entered unless a steam or feed flow signal (not Level) was lost. Plausible because this would be plausible if the steam or flow signal had been lost vs Level indication. **REQUIRED REFERENCES:** None.

77	ID: 23799	Points: 1.00

Unit 3 was operating at 65% power, when the NSO reported that a Jet Pump failed on the “A” Recirc loop.

This would be indicated by a drop in core thermal power and a ___(1)___ in Recirc pump flow.

The Unit Supervisor is required to direct securing ___(2)___ immediately and enter DOA 0202-01, RECIRC PUMP TRIP.

A. (1) drop
(2) ONLY the “A” Recirc Pump

B. (1) rise
(2) ONLY the “A” Recirc Pump

C. (1) drop
(2) BOTH Recirc Pumps and scramming the Reactor

D. (1) rise
(2) BOTH Recirc Pumps and scramming the Reactor

Answer: B

Answer Explanation

One of the indications of a failed jet pump would be a drop in core thermal power and a RISE in Recirc Pump flow for a given speed. The Unit Supervisor then would be required to make the decision that the Jet Pump failed and direct ONLY the affected Recirc Pump secured

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:	23799
User-Defined ID:	23799
Cross Reference Number:	
Topic:	77 - 202001.A2.01
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: DRE202LN001.12 Reference: DOA 0201-01 K/A: 202001.A2.01 3.9 / 4.1 K/A: Ability to (a) predict the impacts of the following on the Recirculation System and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operations: Jet pump failure CFR: 41.5 / 43.5 / 45.6 Level: High PRA: No Safety Function: 1 & 4 Pedigree: Bank History: 10-1 Cert, 12-1 Cert **SRO Only Criteria: 10CFR55.43(b)(5) -** Assessment of facility conditions and selection of appropriate procedures during normal, abnormal and emergency situation. Conditions and limitations in the facility license. Explanation: A. Incorrect - Plausible because second part is correct. A failed pump could lead to belief that flow would drop. Recirc pump flow would rise with a failure of a jet pump. B. Correct - One of the indications of a failed jet pump would be an drop in core thermal power and a RISE in Recirc Pump flow for a given speed. The Unit Supervisor then would be required to make the decision that the Jet Pump failed and direct ONLY the affected Recirc Pump secured. C. Incorrect - Plausible because A failed pump could lead to belief that flow would drop. Recirc pump flow would rise with a failure of a jet pump. Only the affected Recirc Pump should be secured. If the transient caused a SCRAM both pumps would be secured. D. Incorrect - Plausible because first part is correct. Only the affected Recirc Pump should be secured. If the transient caused a SCRAM both pumps would be secured. **REQUIRED REFERENCES:** None

78 **ID: 14724** **Points: 1.00**

Unit 2 was operating at near rated power.

With regards to the SBLC system which set of parameters below would require an LCO entry?

A tank level of ___(1)___ gallons;

A tank temperature of ___(2)___ ˚F;

A Sodium Pentaborate concentration of ___(3)___ % by weight.

(Reference provided)

A. (1) 3500
(2) 90
(3) 14.5

B. (1) 3600
(2) 115
(3) 14.5

C. (1) 3700
(2) 90
(3) 15.0

D. (1) 3800
(2) 115
(3) 15.5

Answer: B

Answer Explanation

Utilizing the figure 3.1.7-1 of I.T.S. 3.1.7, the only set of parameters that are NOT in the acceptable operating range is 14.5% / 3600 gallons / 115˚F. The parameters are NOT in the acceptable range because of the temperature value.

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:	14724
User-Defined ID:	14724
Cross Reference Number:	
Topic:	78 - Generic.2.1.25
Num Field 1:	0.00
Num Field 2:	0.00
Text Field:	
Comments:	Objective: DRE211LN001.07 Reference: T.S. 3.1.7 figure 3.1.7-1 K/A: Generic 2.1.25 3.9 / 4.2 K/A: Ability to interpret reference materials, such as graphs, curves, and tables (reference potential) CFR: 41.10 / 43.5 / 45.12 PRA: No Level: High Pedigree: Bank History: 12-1 Cert **SRO Criteria: 10CFR55.43(b)(2)** - Facility operating limitations in the technical specifications and their bases. Explanation: A. Incorrect - This is within the acceptable operating region of figure 3.1.7-1. Plausible due to needing to be able to interpret the graph correctly. B. Correct - Utilizing the figure 3.1.7-1 of I.T.S. 3.1.7, the only set of parameters that are NOT in the acceptable operating range is 14.5% / 3600 gallons /115˚F. The parameters are NOT in the acceptable range because of the temperature value. C. Incorrect - This is within the acceptable operating region of figure 3.1.7-1. Plausible due to needing to be able to interpret the graph correctly. D. Incorrect - This is within the acceptable operating region of figure 3.1.7-1. Plausible due to needing to be able to interpret the graph correctly. **REQUIRED REFERENCES:** T.S. 3.1.7, with less than 1 hour times removed

79	ID: 22454	Points: 1.00

DOP 2000-110, Attachment 1: WASTE SURGE TANK RADIOACTIVE WASTE DISCHARGE TO RIVER CARD, contains the calculation for determining the ___(1)___ flowrate and radiological monitor alarm setpoints, and, excluding designees, is REQUIRED to be verified by ___(2)___ .

A. (1) dilution
(2) Unit Supervisor

B. (1) dilution
(2) Shift Manager

C. (1) discharge
(2) Unit Supervisor

D. (1) discharge
(2) Shift Manager

Answer: D

Answer Explanation

Per DOP 2000-110 attachment 1 the calculating for river discharge flowrate must be calculated, then verified by the Shift Manager.

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:	4.00
System ID:	22454
User-Defined ID:	22454
Cross Reference Number:	
Topic:	79 - Generic.2.3.06
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: DRE268LN001.14 Reference: DOP 2000-110 K/A: Generic.2.3.06 3.8 K/A: Ability to approve release permits. CFR: 41.13/43.4/45.10 Level: Memory Pedigree: Bank History: 11-1 NRC **SRO Criteria: 10CFR55.43(b)(4)** - Radiations hazards that may arise during normal and abnormal situations, including maintenance activities and various contamination conditions. Explanation: A. Incorrect - The Shift Manager must determine discharge flowrate. Plausible because dilution flowrate is calculated on Attachment 2 but does not require a Shift Manager signature. B. Incorrect - The Shift Manager must determine discharge flowrate. Plausible because dilution flowrate is calculated on Attachment 2 but does not require a Shift Manager signature. C. Incorrect - The Shift Manager must verify calculations prior to release. Plausible because part 1 is correct. Part 2 is plausible because the Unit Supervisor is an SRO licensed individual, but the stem states to exclude designees. D. Correct - Per DOP 2000-110 attachment 1 the calculating for river discharge flowrate must be calculated, then verified by the Shift Manager. **REQUIRED REFERENCES:** None

80	ID: 23899	Points: 1.00

Which of the following events are required to be reported to the Plant Manager, Site Medical, and the Senior Resident Inspector per OP-AA-106-101, SIGNIFICANT EVENT REPORTING?

A. Initiation of a Prompt Investigation.

B. An unplanned shutdown or load reduction.

C. Injury/medical condition requiring offsite medical attention.

D. A significant breakdown of plant radiological or environmental controls.

Answer: C

Answer Explanation

Per OP-AA-106-101 if there is an injury/medical condition requiring offsite medical attention. Transportation via ambulance to an offsite medical facility the following individuals must be notified: Plant Manager, Site Medical, and Senior Resident Inspector.

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:	23899
User-Defined ID:	23899
Cross Reference Number:	
Topic:	80 - Generic 2.4.30
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: 29900LK152 Reference: OP-AA-106-101 K/A: Generic 2.4.30 -- / 4.1 K/A: Knowledge of events related to system operation/status that must be reported to internal organizations or external agencies, such as the State, the NRC, or the transmission system operator. Safety Function: N/A CFR: 41.10/43.5/45.11 PRA: No Level: Memory Pedigree: Bank History: 10-1 NRC, 19-1 NRC **SRO Only Criteria: 10CFR55.43(b)(5) -** Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations. Explanation: A. Incorrect - A prompt investigation requires notification of Plant Manager and Senior Resident Inspector but not Station Security. Plausible because 2 of 3 are correct and an investigation could include security. B. Incorrect - An unplanned shutdown or load reduction requires notification of Plant Manager and Senior Resident Inspector but not Station Security. Plausible because 2 of 3 are correct and security may be needed to control access to certain areas during a shutdown. C. Correct - Per OP-AA-106-101 if there is an injury/medical condition requiring offsite medical attention. Transportation via ambulance to an offsite medical facility the following individuals must be notified: Plant Manager, Site Medical, and Senior Resident Inspector. D. Incorrect - A significant breakdown of plant radiological or environmental controls.requires notification of Plant Manager and Senior Resident Inspector but not Station Security. Plausible because 2 of 3 are correct and security may be needed to limit access to affected areas. **REQUIRED REFERENCES:** None

81	ID: 28099	Points: 1.00

A Site Area Emergency has been declared.

Prior to the activation of the entire ERO with overall emergency plan and control in the Control Room, the Shift Manager will do which of the following?

1. Classify Event (filling out NARs)
2. Notify offsite authorities
3. Direct site Personnel Protective Actions (Assembly/Evacuation)
4. Make the PARs

A. 1, 2, 3

B. 2, 3, 4

C. 1, 3, 4

D. 1, 2, 4

Answer: A

Answer Explanation

Per EP-AA-112-100 CONTROL ROOM OPERATIONS, the Shift Manager assumes command and control for emergency response activities until relieved by the Station Emergency Director. For the conditions listed the Shift Manager would be responsible for Classifying Events, directing site PPA's (i.e. assembly/evacuation), and notifying offsite authorities. PARs is not required at a Site Emergency.

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:	28099
User-Defined ID:	28099
Cross Reference Number:	
Topic:	81 - Generic 2.4.40
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: 295L160 Reference: EP-AA-112-100 K/A: Generic 2.4.40 K/A: Knowledge of SRO responsibilities in emergency plan implementation. PRA: No Level: Memory Pedigree: New History: N/A **SRO Only Criteria: 10CFR55.43(b)(5)** - Assessment of facility conditions and selection of appropriate procedures during normal, abnormal and emergency situation. Conditions and limitations in the facility license. Explanation: A. Correct - Per EP-AA-112-100 CONTROL ROOM OPERATIONS, the Shift Manager assumes command and control for emergency response activities until relieved by the Station Emergency Director. For the conditions listed the Shift Manager would be responsible for Classifying Events, directing site PPA's (i.e. assembly/evacuation), and notifying offsite authorities. PARs is not required at a Site Emergency. B. Incorrect - Plausible because 2 and 3 are correct and 4 would be correct for a General Emergency. C. Incorrect - Plausible because 3 and 1 are correct and 4 would be correct for a General Emergency. D. Incorrect - Plausible because 1 and 2 are correct and 4 would be correct for a General Emergency. **REQUIRED REFERENCES:** None

82 **ID: 27592** **Points: 1.00**

Unit 2 was operating at 60% power.

THEN:

- Severe vibrations were reported coming from the Main Turbine
- The reactor was scrammed
- Turbine TRIP pushbuttons on the 902-7 panel were UNSUCCESSFUL
- Reverse power trip did not occur after reactor scram
- Breaker I-2, U2 250 VDC REACTOR BUILDING MCC #2B (MAIN FEED BKR), on 250 VDC MCC #3 trips open during the transient

The SRO will direct ___(1)___ to isolate the steam supply to the Main Turbine, and to control RPV pressure with the ___(2)___.

A. (1) placing BOTH EHC pumps in PTL
(2) ADS valves

B. (1) placing BOTH EHC pumps in PTL
(2) Isolation Condenser

C. (1) shutting the MSIVs and MSL drains
(2) ADS valves

D. (1) shutting the MSIVs and MSL drains
(2) Isolation Condenser

Answer: A

Answer Explanation

(1) Per DOA 5600-01, if the 902-7 panel pushbuttons are not successful, and reverse power does not trip the turbine the EHC pumps should be placed in PTL.
(2) Per DOA 5600-01 immediate actions pressure control should be transitioned to IC or HPCI, but with I-2 on 250 VDC MCC #3 tripped open 250 VDC MCC 2A has no power which powers both IC and HPCI valves/pumps that are required for operation; the Unit Supervisor will then have to direct the ADS valves for pressure control IAW DEOP 100 pressure leg.

Question 82 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	4
Difficulty:	3.00
System ID:	27592
User-Defined ID:	27592
Cross Reference Number:	
Topic:	82 - 295005.G.2.1.20
Num Field 1:	
Num Field 2:	
Text Field:	

Comments:	Objective: DRE245LN001.08 References: DOA 6000-01, DOA 5600-01, DGP 02-01, DGP 02-03 K/A: 295005 G.2.1.20 --/4.6 K/A: Ability to interpret and execute procedure steps: Main Turbine Generator Trip. Safety Function: 3 CFR: 41.10/43.5/45.12 PRA: No Level: High Pedigree: Bank History: 19-1 NRC **SRO Only Criteria: 10CFR55.43(b)(5)** - Assessment of facility conditions and selection of appropriate procedures during normal, abnormal and emergency situation. Conditions and limitations in the facility license. Justification for SRO Only: By adding the DC breaker trip, the question moves beyond the immediate operator action and requires the SRO to direct another method to control pressure. Explanations: A. Correct - (1) Per DOA 5600-01, if the 902-7 panel pushbuttons are not successful, and reverse power does not trip the turbine the EHC pumps should be placed in PTL. (2) Per DOA 5600-01 immediate actions pressure control should be transitioned to IC or HPCI, but with I-2 on 250 VDC MCC #3 tripped open 250 VDC MCC 2A has no power which powers both IC and HPCI valves/pumps that are required for operation; the Unit Supervisor will then have to direct the ADS valves for pressure control IAW DEOP 100 pressure leg. B. Incorrect - (1) The first part is correct. (2) DOA 5600-01 directs the use of HPCI or Isolation condenser for the conditions listed in the stem, but no power to the 2-1301-3 the IC is not available. Plausible because (1) the first part of the answer is correct. (2) use of IC for pressure control is the next step in DOA 5600-01, but with no power to the 2-1301-3 the IC is not available. C. Incorrect - (1) Closing the MSIVs and MSL drains would isolate the steam supply to the Main Turbine but DOA 5600-01 directs keeping the MSIVs open and to maintain Main Condenser vacuum and steam seal pressure (2) the second part of the question is correct. Plausible because (1) These are the actions to stop an uncontrolled cooldown but without the bypass valves being available DOA 5600-01 directs maintaining Main Condenser vacuum and steam seal pressure for the acceptance of house loads (2) the second part of the question is correct. D. Incorrect - (1) Per DOA 5600-01, if the 902-7 panel pushbuttons are not successful, and reverse power does not trip the turbine the EHC pumps should be secured. (2) the second part of the question is correct Plausible because (1) These are the actions to stop an uncontrolled cooldown but without the bypass valves being available DOA 5600-01 directs maintaining Main Condenser vacuum and steam seal pressure for the acceptance of house loads (2) use of IC for pressure control is the next step in DOA 5600-01, but with no power to the 2-1301-3 the IC is not available. **Required References:** None

83 **ID: 28109** **Points: 1.00**

Unit 2 was operating at rated power.

- A LOCA occurs on Unit 2
- Bus 23-1 tripped on overcurrent
- RPV level is -150 inches and rising slowly
- DW pressure is 17 psig and rising slowly
- RPV pressure is 225 psig and dropping
- All available low pressure ECCS is injecting into the RPV
- HPCI is running in pressure control mode

Subsequently, the Unit 2 Torus develops an unisolable leak resulting in the following conditions:

- Torus level is 12 feet and lowering slowly
- Actions to restore Torus level are NOT successful

Which of the following actions are required under these conditions?

A. Secure ALL ECCS injection into the RPV.

B. Continue injecting into the RPV with ALL ECCS systems.

C. Secure HPCI, continue RPV injection into RPV with Core Spray and LPCI.

D. Secure HPCI, inject into the RPV with Core Spray, initiate torus and drywell sprays with LPCI.

Answer: C

Answer Explanation

The conditions given indicate the need to inject with ALL ECCS systems into the RPV since level is below the TAF. However, because torus level is below 12 feet, DEOP 200-1 directs HPCI to be tripped if not needed for RPV injection. So, HPCI should be tripped but all other ECCS systems should continue to inject and NOT be diverted until level is >TAF.

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:	28109
User-Defined ID:	28109
Cross Reference Number:	
Topic:	83 - 295030.A2.01
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: 29502LP035 Reference: DEOP 200-1, DEOP 100 K/A: 295030.EA2.01 4.0 K/A: Ability to determine and/or interpret the following as they apply to Low Suppression Pool Water Level: Suppression pool level CFR: 41.10 / 43.5 / 45.13 Safety Function: 5 PRA: No Level: High Pedigree: New History: N/A **SRO Criteria: 10CFR55.43(b)(5)** - Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations. Explanation: A. Incorrect - Plausible because with RWL <TAF injection must be maximized with all available injection sources, HPCI being the only exception due to Torus level. B. Incorrect - Plausible because level is below TAF. Level is rising so HPCI must be secured based on Torus level if it is not needed for RPV injection, with level rising HPCI is not needed. C. Correct - The conditions given indicate the need to inject with ALL ECCS systems into the RPV since level is below the TAF. However, because torus level is below 12 feet, DEOP 200-1 directs HPCI to be tripped if not needed for RPV injection. So, HPCI should be tripped but all other ECCS systems should continue to inject and NOT be diverted until level is >TAF. D. Incorrect - Plausible because containment pressure is still rising, but all other ECCS systems should continue to inject and NOT be diverted until level is >TAF. **Required References:** None

None

84 **ID: 27493** **Points: 1.00**

Unit 2 is at 100% power and Unit 3 is in REFUEL.

- Work on the 923-2, 345 kV switchyard panel MOD is in progress.
- Cutting and grinding causes a small fire with a large amount of smoke.
- The fire is extinguished within 3 minutes.

The Unit Supervisor directs ___(1)___ AND ___(2)___.

A. (1) Position CRM ISOL switch to ISOLATE
(2) CREVS remains operable while in Isolate Mode

B. (1) Position CRM ISOL switch to ISOLATE
(2) Declare CREVS inoperable while in Isolate Mode

C. (1) Position CRM AIR FLOW CONTROL switch to OUTSIDE
(2) CREVS remains operable while in Purge Mode.

D. (1) Position CRM AIR FLOW CONTROL switch to OUTSIDE
(2) Declare CREVS inoperable while in Purge Mode.

Answer: D

Answer Explanation

With a fire in the control room causing smoke or noxious fumes entry is required into DOA 5750-04. If the origin of the smoke is from inside the control room then Step D.5 requires placing Main Control Room HVAC to the PURGE MODE. While in the Purge Mode of operation CREVs is inoperable per Tech Spec 3.7.4.

Question 84 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	4
Difficulty:	4.00
System ID:	27493
User-Defined ID:	27493
Cross Reference Number:	
Topic:	84 - 600000.A2.05
Num Field 1:	
Num Field 2:	
Text Field:	

Comments:	Objective: 28800LK004 Reference: DOA 5750-04, T.S. 3.7.4, DOP 5750-05 K/A: 600000 A2.05 -- / 3.2 K/A: Ability to determine and/or interpret the following as they apply to Plant Fire On Site: Ventilation alignment necessary to secure affected area CFR: 45.8 Safety Function: 8 Level: High Pedigree: Bank History: 18-1 NRC **SRO Criteria: 10CFR55.43(b)(5)** - Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations. Explanation: SRO only due to the fact that the On Site Fire would require entry into multiple DOA.s and include Operability calls based on Tech Spec compliance A. Incorrect - With the source of the smoke from in the Control Room then the correct mode would be would be PURGE. Plausible because step D.2 of DOA 5750-04, has a decision point on whether to go to D.5 or D.8. This would be correct if D.8 was chosen. B. Incorrect - With the source of the smoke from in the Control Room then the correct mode would be PURGE. In addition, CREVs would be operable in Isolate Mode. Plausible because step D.2 of DOA 5750-04, has a decision point on whether to go to D.5 or D.8. This would be correct if D.8 was chosen. The second part is correct C. Incorrect - The first part is correct. With a fire in the control room causing smoke or noxious fumes entry is required into DOA 5750-04, SMOKE, NOXIOUS FUMES OR AIRBORNE CONTAMINANT IN THE CONTROL ROOM. If the origin of the smoke is from inside the control room, then Step D.5 requires placing Main Control Room HVAC to the PURGE MODE. In the Purge Mode with the dampers selected for OUTSIDE, the T.S for Control Room Envelope is not met and the system must be declared INOP. Plausible because the first part is correct (smoke purge is required), and the candidate may mistakenly believe the CREVs system is still OPERABLE. D. Correct - With a fire in the control room causing smoke or noxious fumes entry is required into DOA 5750-04, SMOKE, NOXIOUS FUMES OR AIRBORNE CONTAMINANT IN THE CONTROL ROOM. If the origin of the smoke is from inside the control room, then Step D.5 requires placing Main Control Room HVAC to the PURGE MODE. While in the Purge Mode of operation CREVs is inoperable per Tech Spec 3.7.4. **Required References:** None

None

85	ID: 10318	Points: 1.00

Unit 3 was at rated conditions when a transient occurred.

- An Isolation Condenser steam leak occurred and was isolated
- Isolation Condenser area temperature is 170°F and is too high for personnel access
- Reactor Building D/P is -0.25 inWC
- Valid Reactor Building Ventilation isolations are present on each of the following parameters:
  - ♦ Drywell Pressure
  - ♦ Reactor Water Level
  - ♦ Reactor Building Exhaust Radiation

Restarting the Reactor Building Ventilation would allow safer access to the Isolation Condenser area...

A. but is NOT allowed due to the Reactor Building Exhaust Radiation isolation.

B. but is NOT allowed due to the Reactor Water Level isolation.

C. and may be performed after bypassing the isolation signals.

D. but is NOT allowed due to the Drywell Pressure isolation.

Answer: A

Answer Explanation

Only the drywell and RPV water level isolations are allowed to be bypassed since they do not indicate a release hazard. Reactor building exhaust radiation above the isolation setpoint would be indicated of a potential radioactive release problem and would not be allowed to be bypassed unless it was deemed SBGT cannot restore and hold RB DP below 0 in.

Question 85 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	4
Difficulty:	3.00
System ID:	10318
User-Defined ID:	10318
Cross Reference Number:	
Topic:	85 - 295034 G.2.1.1
Num Field 1:	0.00
Num Field 2:	0.00
Text Field:	
Comments:	Objective: 29502LK050 References: DEOP 300-1, DAN 902(3)-3 A-3 & F-14 K/A: 295034 G.2.1.1 -- / 4.2 K/A: Knowledge of conduct of operation requirements: Secondary Containment Ventilation High Radiation. CFR: 41.10/43.10/45.13 PRA: Yes Safety Function: 9 Level: High Pedigree: Bank History: None **SRO Criteria: 10CFR55.43(b)(5)** - Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations. Explanation: A. Correct - Only the drywell and RPV water level isolations are allowed to be bypassed since they do not indicate a release hazard. Reactor building exhaust radiation above the isolation setpoint would be indicated of a potential radioactive release problem and would not be allowed to be bypassed unless it was deemed SBGT cannot restore and hold RB DP below 0 in. B. Incorrect - Plausible because the ventilation would have tripped, but it could be restarted without a valid Reactor Building exhaust radiation condition. C. Incorrect - Plausible because bypassing the isolation signals would be allowed and restart of fans without a valid Reactor Building exhaust radiation condition. D. Incorrect - Plausible because the ventilation would have tripped, but it could be restarted without a valid Reactor Building exhaust radiation condition. **REQUIRED REFERENCES:** None

86 | **ID: 28077** | **Points: 1.00**

Unit 2 was operating at rated power and then the 2B Recirc pump tripped resulting in the following conditions:

- 2A Recirc pump speed 30%
- 2B Recirc pump speed 0%
- Active loop / reactor coolant temp 525°F
- Idle loop temperature 498°F
- RPV bottom head temperature 350°F

Which of the following describes restart conditions of the 2B Recirc pump?

(Reference provided)

A. All conditions are appropriate for restart.

B. A restart is NOT permitted due to 2A Recirc pump speed ONLY.

C. A restart is NOT permitted due to the difference between idle loop temperature AND active loop temperature.

D. A restart is NOT permitted due to the difference between active loop temperature AND RPV bottom head temperature.

Answer: D

Answer Explanation

DOP 0202-01 specifies the conditions necessary for restart of the idle Recirc pump. The temperature difference between the bottom head coolant and the reactor vessel coolant must be $\leq$ 145°F (SR 3.4.9.3). This requirement is NOT met. The temperature difference between the Recirc Loop coolant in the loop to be started and the reactor vessel coolant must be $\leq$ 50°F (SR 3.4.9.4). This requirement is met. Lastly, the operating Recirc pump speed (for U2) must be $\leq$ 30% (prerequisites of DOP 202-01). This requirement is met. So, of the conditions given, one criteria does NOT meet the restart requirements.

Question 86 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	5
Difficulty:	3.00
System ID:	28077
User-Defined ID:	28077
Cross Reference Number:	
Topic:	86 - 295001.A2.10
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: 20200LK004 References: DOP 202-01, TS 3.4.9 SR 3.4.9.3 and SR 3.4.9.4 K/A: 295001.A2.10 -- / 3.7 K/A: Ability to determine and/or interpret the following as they apply to Partial or Complete Loss of Forced Core Flow Circulation: Recirculation system/RPV differential temperatures. CFR: 41.10/43.5/45.13 Safety Function: 1 Level: High Pedigree: New History: N/A **SRO Criteria: 10CFR55.43(b)(2)** - Facility operating limitations in the technical specifications and their bases. Explanation: A. Incorrect - Plausible because the criteria for operating pump speed and temperature difference between the reactor coolant temperature in the recirculation loop to be started and the RPV coolant temperature is met. B. Incorrect - Plausible because must identify that the limit is ≤ 30% for pump speed and temperature difference between the reactor coolant temperature in the recirculation loop to be started and the RPV coolant temperature is met. C. Incorrect - Plausible because must identify that the limit is ≤ 30% for pump speed. Bottom head temperature will NOT permit restart. D. Correct - DOP 202-01 specifies the conditions necessary for restart of the idle Recirc pump. The temperature difference between the bottom head coolant and the reactor vessel coolant must be ≤ 145°F (SR 3.4.9.3). This requirement is NOT met. The temperature difference between the Recirc Loop coolant in the loop to be started and the reactor vessel coolant must be ≤ 50°F (SR 3.4.9.4). This requirement is met. Lastly, the operating Recirc pump speed (for U2) must be ≤ 30% (prerequisites of DOP 202-01). This requirement is met. So, of the conditions given, one criteria does NOT meet the restart requirements. **Required reference:** TS 3.4.9 with 1 hour or less action statements redacted

87	ID: 28078	Points: 1.00

The Reactor is in Cold Shutdown with the Reactor Vessel head still tensioned.

Normal Shutdown Cooling has been lost. Other means of shutdown cooling have been unsuccessful and it is decided to establish a cooling flow path through an SRV to the Torus.

What is the MINIMUM Technical Specification temperature for the Reactor Vessel metal temperatures for these conditions, AND what is this based upon?

A. 83°F, Shell to Flange T (at greatest stress)

B. 68°F, Shell to Flange T (at greatest stress)

C. 83°F, Nil Ductility Temperature + 60°F

D. 68°F, Nil Ductility Temperature + 60°F

Answer: C

Answer Explanation

Per T.S. Bases 3.4.9, when the water level is within the normal range for power operation and the pressure is less than 20% of the preservice system hydrostatic test pressure (for Dresden 2 and 3, this pressure is 312 psig). Under these conditions, the minimum temperature is 60°F above the RT_{NDT} of the closure flange regions which are stressed by the bolt preload (for Dresden 2 and 3, this temperature is 83°F).

Question 87 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	4
Difficulty:	4.00
System ID:	28078
User-Defined ID:	28078
Cross Reference Number:	
Topic:	87 - 295021.G2.2.23
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: DRE 205LN001-07 References: T.S. Bases 3.4.9 RCS Pressure and Temperature Limits T.S.3.4.9 Tables, and UFSAR section 5.3.2.1.1.2 K/A: 295021.G2.2.23 -- / 4.6 K/A: Ability to track technical specification limiting conditions for operation: Loss of Shutdown Cooling. CFR: 41.10/43.2/45.13 Safety Function: 4 Level: High Pedigree: Bank History: None **SRO Criteria: 10CFR55.43(b)(2)** - Facility operating limitations in the technical specifications and their bases. Explanations: A. Incorrect - Plausible because part 1 is correct, Part 2 is plausible because the reactor vessel head still tensioned. B. Incorrect - Plausible because the bottom head region limit is established as 68°F based on lowest moderator temperature assumptions for shutdown margin analysis. Part 2 is plausible because the reactor vessel head still tensioned. C. Correct - Per T.S. Bases 3.4.9, when the water level is within the normal range for power operation and the pressure is less than 20% of the preservice system hydrostatic test pressure (for Dresden 2 and 3, this pressure is 312 psig). Under these conditions, the minimum temperature is 60°F above the RT_{NDT} of the closure flange regions which are stressed by the bolt preload (for Dresden 2 and 3, this temperature is 83 F). D. Incorrect - Plausible because the bottom head region limit is established as 68°F based on lowest moderator temperature assumptions for shutdown margin analysis. Part 2 is correct. **Required References:** None

None

88	ID: 28080	Points: 1.00

Unit 2 was operating at near rated power, with the U2 EDG OOS for maintenance, and a transient occurred.

- TR-86 sudden pressure relay tripped
- RPV water level dropped to -70 inches
- The Unit 2/3 EDG failed to start (automatically and manually)

The Unit Supervisor should direct the NSO to enter ___(1)___, and direct repowering the Div 1 and Div 2 4KV buses using the 23-1 to 33-1 crosstie AND the ___(2)___.

A. (1) DGA-12, LOSS OF OFFSITE POWER, ONLY
(2) 24-1 to 34-1 crosstie

B. (1) DGA-12, LOSS OF OFFSITE POWER, ONLY
(2) U2 SBO

C. (1) DGA-12, LOSS OF OFFSITE POWER, THEN exit DGA-12 and enter DGA-22, STATION BLACKOUT
(2) 24-1 to 34-1 crosstie

D. (1) DGA-12, LOSS OF OFFSITE POWER, THEN exit DGA-12 and enter DGA-22, STATION BLACKOUT
(2) U2 SBO

Answer: B

Answer Explanation

TR-86 will de-energize upon actuation of the Sudden Pressure relay. This causes a loss of power to TR-22. From the conditions given, the reactor will SCRAM, TR-21 will lockout, and the 4KV Div 1 and Div 2 4KV buses will de-energize. The loss of TR-21 and TR-22, will cause a loss of offsite power to Unit 2. Having U2 EDG OOS, and failure of U2/3 EDG will result in loss of power to all 4KV Buses on U2. DGA-12 would be selected to restore power, and it directs use of the U2 SBO and one unit cross tie to restore power.

Question 88 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	0
Difficulty:	0.00
System ID:	28080
User-Defined ID:	28080
Cross Reference Number:	
Topic:	88 - 264000.A2.11
Num Field 1:	
Num Field 2:	
Text Field:	

Comments:	Objective: DRE262LN003.12 Reference: DGA-12, DGA-22, DOA 6600-01 K/A: 264000.A2.11 -- / 4.3 K/A: Ability to (a) predict the impacts of the following on Emergency Generator and (b) based on those prediction, use procedures to correct, control, or mitigate the consequences of those abnormal operations: Emergency Generators CFR: 41.5/ 43.5 / 45.6 Safety Function: 6 Level: High Pedigree: Bank History: None **SRO Criteria: 10CFR55.43(b)(5)** - Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations. Explanation: A. Incorrect – Item (1) is correct. Item (2) is incorrect, as the U2 SBO is used for these conditions, along with one crosstie. Plausibility: (1) Item 1 is the correct procedure. (2) A related procedure, DOA 6600-01, contains steps for both crossties, however the candidate must realize that DGA-12 requires that only one crosstie be used. B. Correct – TR-86 will de-energize upon actuation of the Sudden Pressure relay. This causes a loss of power to TR-22. From the conditions given, the reactor will SCRAM, TR-21 will lockout, and the U2/3 EDG will be given a start signal. The loss of TR-21 and TR-22, will cause a loss of offsite power to Unit 2. Having U2 EDG OOS, and failure of U2/3 EDG will result in loss of power to all 4KV Buses on U2. DGA-12 would be selected to restore power, and it directs use of the U2 SBO and one unit crosstie to restore power. C. Incorrect – Item (1) is incorrect. With a unit crosstie available, DGA-22 is not entered for these conditions. Item (2) is incorrect. The power sources that should be used to repower these buses, per DGA-12, are the SBO and a single unit cross tie. Plausibility: (1) The candidate may not recognize that the crossties are still available, which would lead them to enter DGA-22 . (2) A related procedure, DOA 6600-01, contains steps for both crossties, however the candidate must realize that DGA-12 requires that only one crosstie is required to be used. D. Incorrect – Item 1 is Incorrect. With a unit cross tie available, DGA-22 is not entered for these conditions. (2) Item 2 is correct. Plausibility: (1) DGA-12 is the right procedure to enter. (2) A related procedure, DOA 6600-01, contains steps for both crossties, however the candidate must realize that DGA-12 requires that only one crosstie be used. **REQUIRED REFERENCES:** None

None

89	ID: 10386	Points: 1.00

During the U2 Refuel Outage EMD replaced the Safety related 250 VDC Battery and performed all required PMTs and surveillances. The battery has been turned over to Operations.

Unit 2 is in MODE 3 with ALL battery chargers operable and the 250 VDC batteries have now been placed on a float charge.

Safety related 250 VDC pilot cell weekly readings were completed with the following results:

- Voltage 2.23 volts
- Specific Gravity 1.197 (corrected)
- Electrolyte Level at the maximum mark
- Battery charging current 1.9 amps

Which of the following actions describes the required action, if any, with regard to battery operability?

(Reference provided)

A. NO actions are required. ALL parameters meet requirements for battery operability.

B. Perform necessary surveillances within 2 hours and restore to operable status within 24 hours.

C. The battery must be declared inoperable immediately and restored to operable status within 24 hours.

D. ALL Category C measurements must be taken within 24 hours. If any of these Category C readings are less than the allowable values the battery must be declared inoperable immediately.

Answer: D

Answer Explanation

TRM Table 3.8.b-1 lists the requirements for float voltage on battery cells. With the pilot cell reading less than the Category A requirement for float voltage, TRM 3.8.6 Condition A actions must be taken. The action requires that the Category C measurements be taken within 24 hours. If any of the Category C readings are less than the allowable values the battery must be declared inoperable immediately in accordance with Tech Spec 3.8.6 Condition B.

Question 89 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	5
Difficulty:	3.00
System ID:	10386
User-Defined ID:	10386
Cross Reference Number:	
Topic:	89 - 263000 G.2.2.21
Num Field 1:	0.00
Num Field 2:	0.00
Text Field:	
Comments:	Objective: 263LN001-7.b References: Tech Spec 3.8.6 , TRM table T3.8.b-1 K/A: 263000 G.2.2.21 -- / 4.1 K/A: Knowledge of pre - and post - maintenance operability requirements. DC Electrical Distribution CFR: 41.10/43.2 Safety Function: 6 Level: High Pedigree: Bank History: None **SRO Criteria: 10CFR55.43(b)(2)** - Facility operating limitations in the technical specifications and their bases. Explanation: A. Incorrect - The specific gravity reading is less than the allowable limit & Tech Spec Table 3.8.6-1 footnote (c) **DOES NOT** apply. Plausible because all other criteria are met and there are times when it would be allowable for specific gravity to be less than 1.200 B. Incorrect - Plausible because this would be correct if the float voltage were <2.07 V. C. Incorrect - Plausible because this would be correct for One 250 VDC or 125 VDC battery with one or more battery cells float voltage < 2.07 V and float current > 2 amps. D. Correct - TRM Table 3.8.b-1 lists the requirements for float voltage on battery cells. With the pilot cell reading less than the Category A requirement for float voltage, TRM 3.8.6 Condition A actions must be taken. The action requires that the Category C measurements be taken within 24 hours. If any of the Category C readings are less than the allowable values, the battery must be declared inoperable immediately in accordance with Tech Spec 3.8.6 Condition B. **Required References:** TRM 3.8.b, T.S. 3.8.6

90 **ID: 28082** **Points: 1.00**

Unit 2 is operating at rated power and Unit 3 is in Day 3 of a refueling outage.

- U3 SAC is OOS
- 2B IAC is OOS
- 2A and 3C IACs are running supplying Unit 2
- 3A and 3B IACs are running supplying Unit 3

A transient occurs resulting in the following:

- 10:05 Unit 2 IA header pressure begins lowering
- 10:10 Annunciator 923-1 E-4, 2 INST AIR DRYER TROUBLE, alarms
- 10:20 902-6 H-10, FW REG VLVS BACKUP AIR ACTIVE alarm is received

The 2A IAC Dryer Bypass ___(1)___ AND the SRO will direct ___(2)___.

A. (1) will auto open
(2) Start all available SERVICE AIR compressors, per DOA 4600-01 Service Air System Failure

B. (1) must be manually opened
(2) Start all available SERVICE AIR compressors, per DOA 4600-01 Service Air System Failure

C. (1) will auto open
(2) Crosstie Unit 2 and Unit 3 INSTRUMENT AIR systems, per DOA 4700-01 Instrument Air System Failure

D. (1) must be manually opened
(2) Crosstie Unit 2 and Unit 3 INSTRUMENT AIR system, per DOA 4700-01, Instrument Air System Failure

Answer: C

Answer Explanation

The 2A IAC Dryer alarm will come in at 60 psig downstream of the dryer. The bypass valve will auto open sensing a dryer issue. Given the time from the beginning of the leak to the alarm, the candidate must identify IA header pressure is dropping at approximately 1 psig per minute. Direction to cross tie U2 and U3 IA headers per DOP 4700-03 is appropriate

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:	4.00
System ID:	28082
User-Defined ID:	28082
Cross Reference Number:	
Topic:	90 - 300000.A2.01
Num Field 1:	
Num Field 2:	
Text Field:	

Comments:	Objective: DRE278LN001.08 Reference: DOA 4700-01, DOP 4700-03, DAN 902(3)-6 H-10, DAN 923-1 E-4 K/A: 300000.A2.01 / 3.3 K/A: Ability to (a) predict the impacts of the following on the Instrument Air System and (b) base on those prediction, use procedures to correct, control, or mitigate the consequences of those abnormal operation: Air dryer and filter malfunctions. CFR: 41.5/45.6 Safety Function: 8 Level: High Pedigree: New History: N/A **SRO Only Criteria: 10CFR55.43(b)(5) -** Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations. Explanation: A. Incorrect - Plausible because the dryer bypass vlv will auto open at 60 psig. There are multiple IA compressors (5 total). Only 2 SA compressors (1 on each unit). Given in the stem Unit 3 SAC is OOS (Service Air is no longer unit specific when in a normal lineup. Normal lineup is 2/3 SA crosstie open, 1 SAC running and the other in PTL), U2 SAC is running and the SA-IA crosstie is already open based on alarms given. Unit 2 SAC is unable to keep up with SA loads and IA loads/leakage. B. Incorrect - Plausible because if pressure continues being reduced the Dryer must be manually isolated. There are multiple IA compressors (5 total). Only 2 SA compressors (1 on each unit). Given in the stem Unit 3 SAC is OOS (Service Air is no longer unit specific when in a normal lineup. Normal lineup is 2/3 SA crosstie open, 1 SAC running and the other in PTL), U2 SAC is running and the SA-IA crosstie is already open based on alarms given. Unit 2 SAC is unable to keep up with SA loads and IA loads/leakage. C. Correct - The 2A IAC Dryer alarm will come in at 60 psig downstream of the dryer. The bypass valve will auto open sensing a dryer issue. Given the time from the beginning of the leak to the alarm, the candidate must identify IA header pressure is dropping at approximately 1 psig per minute. Direction to cross tie U2 and U3 IA headers per DOP 4700-03 is appropriate D. Incorrect - Plausible because if pressure continues being reduced the Dryer must be manually isolated. Part 2 is correct. **REQUIRED REFERENCES:** None

None

91 **ID: 28083** **Points: 1.00**

Chemistry has reported that high coolant activity exists on Unit 2 and a fuel element failure is suspected.

The Unit Supervisor directs entry into DGA-16, COOLANT HIGH ACTIVITY - FUEL ELEMENT FAILURE.

Which of the following actions is required to prevent excessive personnel exposure if site assembly is required?

A. Isolating HPCI steam flow

B. Re-aligning HPCI Steam Drains

C. Isolating the Isolation Condenser

D. Re-aligning Recirc Sample Lines

Answer: B

Answer Explanation

Conservatively the Assembly area inside the RPA is near the feedpumps, which is against the condenser shield wall. Any flow of radioactive water to the condenser would increase dose rates in this area, so re-aligning HPCI steam drains is correct. HPCI is not isolated because it may be needed if a SCRAM is required.

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:	28083
User-Defined ID:	28083
Cross Reference Number:	
Topic:	91 - 206002.G.2.1.39
Num Field 1:	0.00
Num Field 2:	0.00
Text Field:	
Comments:	Objective: 29501LK051 Reference: DGA-16 K/A: 206000.G.2.1.39 -- / 4.3 K/A: Knowledge of conservative decision-making practices: High-Pressure Coolant Injection. CFR: 41.10 / 43.5 / 45.12 PRA: No Safety Function: 2 Level: High Pedigree: Bank History: None **SRO Criteria: 10CFR55.43(b)(4)** - Radiations hazards that may arise during normal and abnormal situations, including maintenance activities and various contamination conditions. Explanation: A. Incorrect - Plausible because isolating HPCI steam flow would isolate the leakage, but this would not be a conservative decision. B. Correct - Conservatively the Assembly area inside the RPA is near the feedpumps, which is against the condenser shield wall. Any flow of radioactive water to the condenser would increase dose rates in this area, so re-aligning HPCI steam drains is correct. HPCI is not isolated because it may be needed if a SCRAM is required. C. Incorrect - Plausible because Isol Condenser could also be affected by high coolant activity, but does not drain to the main condenser. D. Incorrect - Plausible because Recirc sample lines would also be affected by high coolant activity, but does not drain to the main condenser. **Required References:** None

None

92	ID: 28084	Points: 1.00

Unit 3 is in Mode 1 and the following conditions exist:

- An Operator is withdrawing control rod J-8 for a Unit power ascension
- Annunciators 903-5 A-3, ROD DRIFT, and B-3, ROD WORTH MIN BLOCK alarm
- The Operator notices there is NO position indication for rod J-8 on the Full Core Display, the Rod Worth Minimizer, or the 4 Rod Display
- Reactor power is steady

Given the above conditions:

The LCO for Tech Spec 3.1.3, Control Rod Operability ___(1)___ being met.

The Unit Supervisor directs ___(2)___.

A. (1) IS
(2) Enter DOA 0300-06, RPIS FAILURE, and enter a substitute position then move the control rod to a position that has a good RPIS indication.

B. (1) IS NOT
(2) Enter DOA 0300-06, RPIS FAILURE, and enter a substitute position then move the control rod to a position that has a good RPIS indication.

C. (1) IS
(2) Enter DOA 0300-05, INOPERABLE OR FAILED CONTROL ROD DRIVE, and insert the CRD to 00.

D. (1) IS NOT
(2) Enter DOA 0300-05, INOPERABLE OR FAILED CONTROL ROD DRIVE, and insert the CRD to 00.

Answer: B

Answer Explanation

Per TS 3.1.3 bases when position indication is lost for a control rod, it is considered inoperable and therefore does NOT meet the LCO for Control Rod Operability. The correct action is to enter DOA 0300-06 and enter a substitute position.

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:	28084
User-Defined ID:	28084
Cross Reference Number:	
Topic:	92 - 214000.A2.01
Num Field 1:	0.00
Num Field 2:	0.00
Text Field:	
Comments:	Objective: 201LN002.08 Reference: DOA 0300-06 and TS 3.1.3 bases K/A: 214000.A2.01 -- / 3.3 K/A: Ability to (a) predict the impacts of the following on the Rod Position Information System and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operations: Failed reed switches CFR: 41.5/43.5/45.6 Safety Function: 7 Level: High Pedigree: New History: N/A **SRO Only Criteria: 10CFR55.43(b)(5) -** Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations. Explanation: A. Incorrect - Plausible because the rod is not moving as indicated by power steady. If it was at 00 it would be met. Part 2 is correct. B. Correct - Per TS 3.1.3 bases when position indication is lost for a control rod, it is considered inoperable and therefore does NOT meet the LCO for Control Rod Operability. The correct action is to enter DOA 0300-06 and enter a substitute position. C. Incorrect - Plausible because the rod is not moving as indicated by power steady. Part 2 is plausible because the rod is INOP and if it failed to latch the correct action would be to Insert to 00. D. Incorrect - Plausible because part 1 is correct. Part 2 is plausible because the rod is INOP and if it failed to latch the correct action would be to Insert to 00. **Required references:** None

None

93 **ID: 22680** **Points: 1.00**

Prior to returning to two loop operation from single loop operation, the temperature difference between the Recirc Loop coolant in the *loop to be started* and the Reactor Vessel coolant must be ≤ 50ºF, in ___(1)___.

The bases for this LCO is PRIMARILY to prevent brittle fracture of the ___(2)___ .

A. (1) ALL modes
(2) Reactor Coolant Piping

B. (1) ALL modes
(2) Reactor Coolant Pressure Vessel

C. (1) modes 1-4 ONLY
(2) Reactor Coolant Piping

D. (1) modes 1-4 ONLY
(2) Reactor Coolant Pressure Vessel

Answer: D

Answer Explanation

Prior to returning to two loop operation, from single loop operation the temperature difference between the Recirc Loop coolant in the loop to be started and the Reactor Vessel coolant must be < 50ºF, in modes 1-4 ONLY, and this bases for this LCO is PRIMARILY to prevent brittle fracture of the Reactor Coolant Pressure Vessel. The P/T limits are not derived from Design Basis Accident SAFETY ANALYSES (DBA) analyses. They are prescribed during normal operation to avoid encountering pressure, temperature, and temperature rate of change conditions that might cause undetected flaws to propagate and cause nonductile failure of the RCPB, a condition that is unanalyzed. The temperature difference between the reactor coolant in the respective recirculation loop and in the reactor vessel is ≤50°F during recirculation pump startup in MODES 1, 2, 3, and 4.

Question 93 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	5
Difficulty:	3.00
System ID:	22680
User-Defined ID:	22680
Cross Reference Number:	
Topic:	93 - Generic.2.2.25
Num Field 1:	
Num Field 2:	
Text Field:	

Comments:	Objective: DRE202LN001.07 Reference: TS 3.4.9, Bases 3.4.9, DOP 0202-01 K/A: Generic.2.2.25 4.2 K/A: Knowledge of the bases in Technical Specifications for limiting conditions for operations and safety limits. CFR: 43.2 Safety Function: 1 Level: Memory Pedigree: Bank History: 2009 NRC **SRO Criteria: 10CFR55.43(b)(2)** - Facility operating limitations in the technical specifications and their bases. Explanation: A. Incorrect - Plausible because the other pressure and temperature limits listed in T.S. 3.4.9 REACTOR COOLANT SYSTEMS applicable At all times. Reactor Coolant piping is not called out in the limit for <50ºF delta. B. Incorrect - Plausible because the other pressure and temperature limits listed in T.S. 3.4.9 REACTOR COOLANT SYSTEMS applicable At all times. Part 2 is correct. C. Incorrect - Plausible because Part 1 is correct. Reactor Coolant piping is not called out in the limit for <50ºF delta. D. Correct - Prior to returning to two loop operation, from single loop operation the temperature difference between the Recirc Loop coolant in the loop to be started and the Reactor Vessel coolant must be <50ºF, in modes 1-4 ONLY, and this bases for this LCO is PRIMARILY to prevent brittle fracture of the Reactor Coolant Pressure Vessel. The P/T limits are not derived from Design Basis Accident SAFETY ANALYSES (DBA) analyses. They are prescribed during normal operation to avoid encountering pressure, temperature, and temperature rate of change conditions that might cause undetected flaws to propagate and cause notification failure of the RCPB, a condition that is unanalyzed. The temperature difference between the reactor coolant in the respective recirculation loop and in the reactor vessel is ≤50°F during recirculation pump startup in MODES 1, 2, 3, and 4. **REQUIRED REFERENCES:** None

94	ID: 28086	Points: 1.00

Unit 3 was in STARTUP, with the following set of conditions:

- The NSO withdrew Control Rod G-7 from notch 12 to notch 14.
- Reactor period changed from 100 seconds to a STABLE 31 seconds.

What action is required next and why?

A. Insert Control Rod G-7;
to obtain a stable period indication of greater than 60 seconds.

B. Withdraw Control Rod G-7;
to obtain a stable period indication.

C. Insert Control Rods as necessary;
to achieve sub-criticality.

D. Stop ALL Control Rod movements;
to allow the QNE to perform core analysis.

Answer: A

Answer Explanation

IF a Short Period is detected, THEN the following actions should be taken:

a. IF a sustained reactor period of < 50 seconds is discovered, THEN;
   (1) IMMEDIATELY insert control rods until a period of 60 seconds or more is indicated,
   (2) Contact the Shift Supervisor,
   (3) Restore reactor period to > 100 seconds before continuing control rod withdrawal.

b. Perform follow up actions of DGA 7, Unpredicted Reactivity Addition.

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:	28086
User-Defined ID:	28086
Cross Reference Number:	
Topic:	94 - Generic.2.1.07
Num Field 1:	
Num Field 2:	
Text Field:	

Comments:	Objective: 20102LK005 Reference: DGP 1-1 Attachment A K/A: Generic 2.1.07 / 4.7 K/A: Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation. CFR: 41.5/43.1/45.12/45.13 PRA: No Safety Function: 7 Level: Memory Pedigree: Bank History: 2009 NRC **SRO Criteria: 10CFR55.43(b)(5)** - Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations. Explanation: A. Correct - IF a Short Period is detected, THEN the following actions should be taken: a. IF a sustained reactor period of < 50 seconds is discovered, THEN; (1) IMMEDIATELY insert control rods until a period of 60 seconds or more is indicated, (2) Contact the Shift Supervisor, (3) Restore reactor period to > 100 seconds before continuing control rod withdrawal. b. Perform follow up actions of DGA 7, Unpredicted Reactivity Addition. B. Incorrect - Plausible because the alarm for SRM Short period is not in. Finishing the current rod to obtain a stable period is plausible C. Incorrect - Plausible because Rod insertion is the first action, but not achieve sub-criticality. D. Incorrect - Plausible because if the cause was a rod misposition, Per DOA 300-12 the first action is to discontinue all rod movement. The QNE is in the control room for the startup and will perform a core analysis. Per DGP 1-1 the range for reactor period is 60-330 seconds. The DAN states that rods should be inserted until period is more than 60 seconds. **REQUIRED REFERENCES:** None

None

95 **ID: 28087** **Points: 1.00**

Reactor refueling operations are in progress and fuel assembly is being placed in the fuel storage racks when the following annunciators alarm on the 902-3 panel:

REFUEL FLOOR HI RADIATION	B-1
RX BLDG VENT CH A OR CH B HIGH RADIATION	B-16
RX BLDG FUEL POOL CH A HIGH RADIATION	C-16
RX BLDG FUEL POOL CH B HIGH RADIATION	E-16
RX BLDG VENT CHANNEL A HI HI RADIATION	F-14

If all systems operate as designed and Refuel Floor Radiation monitor 2(3)1700-16A reading of 15,000 mR/hr is confirmed, what is the emergency classification level for this event?

(Reference provided)

A. Unusual Event

B. Alert

C. Site Emergency

D. General Emergency

Answer: B

Answer Explanation

Damage to irradiated fuel resulting in a release of radioactivity from the fuel as indicated by ANY Table R1 Radiation Monitor reading >1000 mRem/hr.

Question 95 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	5
Difficulty:	4.00
System ID:	28087
User-Defined ID:	28087
Cross Reference Number:	
Topic:	95 - 295033.A2.04
Num Field 1:	0.00
Num Field 2:	0.00
Text Field:	

Comments:	Objective: 29501LP032 References: EP-AA-1004 Addendum 3, DANs 902-3 B-1, B-16, C-16, E-16, F-14 K/A: 295033.A2.04 -- / 4.3 K/A: Ability to determine and/or interpret the following as they apply to High Secondary Containment Area Radiation Levels: Emergency plan. CFR: 41.10/43.5/45.13 PRA: No Safety Function: 9 Level: High Pedigree: New History: N/A **SRO Criteria: 10CFR55.43(b)(4)** - Radiations hazards that may arise during normal and abnormal situations, including maintenance activities and various contamination conditions. Explanation: A. Incorrect - Plausible because RU2 states UNPLANNED Area Radiation Monitor reading rise on ANY radiation monitors in Table R1. Refuel Floor High Range ARM Station #2(4), Fuel Pool Radiation Monitor B. Correct - Damage to irradiated fuel resulting in a release of radioactivity from the fuel as indicated by ANY Table R1 Radiation Monitor reading >1000 mRem/hr. C. Incorrect - Plausible because CS6 states RPV level cannot be determined for > 30 minutes. AND core uncovery is indicated by ANY of the following: Table C3 indications of a sufficient magnitude to indicate core uncovery. OR Refuel Floor Hi Range ARM >3000 mR/hr. D. Incorrect - Plausible because CG6 states RPV level cannot be determined for > 30 minutes. AND core uncovery is indicated by ANY of the following: Table C3 indications of a sufficient magnitude to indicate core uncovery. OR Refuel Floor Hi Range ARM >3000 mR/hr. AND ANY Containment Challenge Indication (Table C4) **Required reference:** EP-AA-1004 Addendum 3

None

96	ID: 28091	Points: 1.00

Unit 2 and Unit 3 were at 100% power when the control room had to be abandoned.

Before leaving the MCR, the U2 NSO reported that 2-1301-1, RX OUTLET ISOL, indicates CLOSED.

The Unit Supervisor will DIRECT an operator to re-open valve 2-1301-1, RX OUTLET ISOL, in accordance with ___(1)___.

Once the Isolation Condenser has been initiated, makeup to the isolation condenser shell side MUST be started within ___(2)___ minutes.

A. (1) TSG-3, OPERATIONAL CONTINGENCY ACTION GUIDELINES
(2) 10

B. (1) TSG-3, OPERATIONAL CONTINGENCY ACTION GUIDELINES
(2) 20

C. (1) DSSP 0100-CR, HOT SHUTDOWN PROCEDURE – CONTROL ROOM EVACUATION
(2) 10

D. 1) DSSP 0100-CR, HOT SHUTDOWN PROCEDURE – CONTROL ROOM EVACUATION
(2) 20

Answer: D

Answer Explanation

The correct procedure is DSSP 0100-CR. The DSSP contains actions to restore this valve, and the actions must be followed as written in order to meet the required actions and time lines needed for fire safe shutdown. Although TSG-3 has similar actions, it is a support procedure that is not required to be entered, and which is used to support the emergency response organization for beyond design basis accident conditions not specifically addressed in operating procedures.

Per DSSP 0100-CR, isolation condenser makeup must be initiated within 20 minutes of initiating the isolation condenser.

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:	28091
User-Defined ID:	28091
Cross Reference Number:	LI
Topic:	96 - 295016 G.2.4.5
Num Field 1:	0.00
Num Field 2:	0.00
Text Field:	

Comments:	Objective: DRE277LN001.05 Reference: DSSP 0100-CR K/A: 295016 G.2.4.5 -- / 4.3 K/A: Knowledge of the organization of the operating procedures network for normal, abnormal, and emergency evolutions: Control Room Abandonment. CFR: 43.5 PRA: No Safety Function: 7 Level: Memory Pedigree: Bank History: None **SRO Only Criteria: 10CFR55.43(b)(5) -** Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations. Explanation: A. Incorrect - (1) The correct procedure is DSSP 0100-CR (2) the required time is 20 minutes. Plausible because (1) TSG-3 has similar actions for reopening 2-1301-1. (2) For control room abandonment, DSSP 0100-CR is entered. This procedure has other actions that must be completed within 10 minutes. B. Incorrect - (1) The correct procedure is DSSP 0100-CR (2) the second part of the answer is correct. Plausible because (1) TSG-3 has similar actions for reopening 2-1301-1. (2) the second part of the answer is correct. C. Incorrect - (1) The first part of the answer is correct. (2) the required time is 20 minutes. Plausible because (1) The first part of the answer is correct (2) For control room abandonment, DSSP 0100-CR is entered. This procedure has other actions that must be completed within 10 minutes. D. Correct - (1) The correct procedure is DSSP 0100-CR. The DSSP contains actions to restore this valve, and the actions must be followed as written in order to meet the required actions and time lines needed for fire safe shutdown. Although TSG-3 has similar actions, it is a support procedure that is not required to be entered, and which is used to support the emergency response organization for beyond design basis accident conditions not specifically addressed in operating procedures. (2) Per DSSP 0100-CR, isolation condenser makeup must be initiated within 20 minutes of initiating the isolation condenser. **K/A Justification:** DOP 1300-03 MANUAL OPERATION OF THE ISOLATION CONDENSER TSG-3 Att C MANUAL OPERATION OF THE UNIT 2 ISOLATION CONDENSER DSSP 100-CR HOT SHUTDOWN PROCEDURE-CONTROL ROOM EVACUATION All 3 levels of procedures have the steps outlined to perform the actions required for the Iso Condenser. Must understand the organization and hierarchy of procedures to be used for Control Room Evacuation. **Required References:** None

97 **ID: 28094** **Points: 1.00**

Unit 2 was at full power when a LOCA occurred:

- A release is in progress
- The SAMG's have NOT been entered
- Torus Bottom pressure is 45 psig and slowly rising
- Field Survey teams have reported the following gamma dose rates, which are expected to remain at this level for the next 90 minutes:
  - 8 mRem/hr at the 345 KV switchyard
  - 12 mRem/hr at the Lift Station
  - 15 mRem/hr at the Training Building parking lot
  - 18 mRem/hr at the Pre-Access Facility
- The Shift Manager has determined that primary containment pressure reduction is REQUIRED in order to REDUCE THE EXPECTED OFFSITE DOSE, per the override in DEOP 0200-01, PRIMARY CONTAINMENT CONTROL.

Based on the CURRENT conditions, the Unit Supervisor should direct ENTERING DEOP 0500-04, CONTAINMENT VENTING ___(1)___.

Per the guidance in OP-AA-103-102-1002, STRATEGIES FOR SUCCESSFUL TRANSIENT MITIGATION, venting containment to REDUCE TOTAL OFFSITE DOSE containment pressure should be lowered to ___(2)___ psig.

(Reference provided)

A. (1) ONLY
(2) 0

B. (1) ONLY
(2) NO lower than 10

C. (1) AND DEOP 0300-02, RADIOACTIVITY RELEASE CONTROL
(2) 0

D. (1) AND DEOP 0300-02, RADIOACTIVITY RELEASE CONTROL
(2) NO lower than 10

Answer: D

Answer Explanation

Of the areas listed, only the lift station is outside of the site-boundary (off-site). It has an expected dose above 10 mRem/hr, based on Field Team reports, and is expected to last for more than 60 minutes. Therefore, it would meet the EAL ALERT condition for RA1, and entry into DEOP 0300-02, Radioactivity control is required. OP-DR-103-102-1002, STRATEGIES FOR SUCCESSFUL TRANSIENT MITIGATION, requires venting no lower than approximately 10 psig when venting to reduce total offsite dose per the override in DEOP 0200-01. This is done to ensure adequate NPSH for ECCS when in an accident condition.

Question 97 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	4
Difficulty:	3.00
System ID:	28094
User-Defined ID:	28094
Cross Reference Number:	
Topic:	97 - 295038 G.2.4.20
Num Field 1:	
Num Field 2:	
Text Field:	

Comments:	Objective: 29502LK103 Reference: EP-AA-1000, ODCM, DEOP 300-2, EP-AA-1004 Addendum 3, DEOP 0500-04, OP-DR-103-102-1002 K/A: 295038 G.2.4.20 -- / 4.3 K/A: High Offsite Radioactivity Release Rate - Knowledge of the operational implications of emergency and abnormal operating procedures warnings, cautions, and notes. CFR: 41.10 / 43.5 / 45.13 Safety Function: 9 PRA: No Level: High Pedigree: Bank History: NRC 19-1 **SRO Only Criteria: 10CFR55.43(b)(5) –** Assessment of facility conditions and selection of appropriate procedures during normal, abnormal and emergency conditions. **10CFR55.43(b)(4) –** Radiation hazards that may arise during normal and abnormal situations, including maintenance activities and various contamination conditions. Explanation: A. Incorrect - (1) Of the areas listed, only the lift station is outside of the site-boundary (off-site). It has an expected dose above 10 mRem/hr, based on Field Team reports, and is expected to last for more than 60 minutes. Therefore, it would meet the EAL ALERT condition for RA1, and entry into DEOP 0300-02, Radioactivity control is required. (2) OP-DR-103-102-1002requires venting to no lower than approximately 10 psig when venting to reduce total offsite dose per the override in DEOP 0200-01. This is done to ensure adequate NPSH for ECCS when in an accident condition. Plausible because (1) Of the areas listed, only the lift station is OFFSITE. The students may believe that all the areas are onsite, which is a common misconception. (2) When venting in DEOP 0500-04, Attachment 4 to control H_2 in the drywell, pressure is intentionally reduced all the way to zero psig. Additionally, DEOP 0200-01 gives guidance to stop drywell sprays and torus sprays before reaching 0 psig. B. Incorrect - (1) Of the areas listed, only the lift station is outside of the site-boundary (off-site). It has an expected dose above 10 mRem/hr, based on Field Team reports, and is expected to last for more than 60 minutes.. Therefore, it would meet the EAL ALERT condition for RA1, and entry into DEOP 0300-02, Radioactivity control is required. (2) The second part of the answer is correct. Plausible because (1) Of the areas listed, only the lift station is OFFSITE. The students may believe that all the areas are onsite, which is a common misconception. (2) The second part of the answer is correct. C. Incorrect - (1) The first part of the answer is correct (2) OP-DR-103-102-1002 requires venting to no lower than approximately 10 psig when venting to reduce total offsite dose per the override in DEOP 0200-01. This is done to ensure adequate NPSH for ECCS when in an accident condition. Plausible because(1) The first part of the answer is correct (2) When venting in DEOP 0500-04, Attachment 4 to control H_2 in the drywell, pressure is intentionally reduced all the way to zero psig. Additionally, DEOP 0200-01 gives guidance to stop drywell sprays and torus sprays before reaching 0 psig. D. Correct - (1) Of the areas listed, only the lift station is outside of the site-boundary (off-site). It has an expected dose above 10 mRem/hr, based on Field Team reports, and is expected to last for more than 60 minutes. Therefore, it would meet the EAL ALERT condition for RA1, and entry into DEOP 0300-02, Radioactivity control is required. (2) OP-DR-103-102-1002, STRATEGIES FOR SUCCESSFUL TRANSIENT MITIGATION, requires venting no lower than approximately 10 psig when venting to reduce total offsite dose per the override in DEOP 0200-01. This is done to ensure adequate NPSH for ECCS when in an accident condition. **Required References:** EP-AA-1004 Addendum 3 and ODCM Figure 1-2 K/A Justification: Per DEOP 0010-00, GUIDELINES FOR USE OF DRESDEN EMERGENCY OPERATING PROCEDURES AND SEVERE ACCIDENT MANAGEMENT GUIDELINES, Pointers are used to highlight system operating details which may apply depending on existing conditions (notes).

98	ID: 22032	Points: 1.00

Unit 2 is operating at 100% power.

- 2B SAC is being started but has not been placed on the header.
- An EO reports that the 2B IAC is NOT loading.
- U2 IA Pressure demand in the normal band.
- A troubleshooting plan is being developed.

A non-licensed Field Sup has developed a simple Troubleshooting plan per MA-AA-716-004, CONDUCT OF TROUBLESHOOTING.

What is the MINIMUM level of permission required for this troubleshooting plan before work can commence?

A. Non-Licensed Field Supervisor

B. Unit Supervisor

C. Shift Manager

D. Operations Support and Services Manager

Answer: B

Answer Explanation

Per MA-AA-716-004, conduct of troubleshooting, the Unit Supervisor Authorizes field troubleshooting activities and ensures adequate bounds have been established to limit plant impact and/or cause a change from previous risk assessment values by review and approval of each troubleshooting activity.

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:	22032
User-Defined ID:	22032
Cross Reference Number:	
Topic:	98 - Generic 2.2.20
Num Field 1:	2005
Num Field 2:	
Text Field:	
Comments:	Objective: 262LN005.08 References: MA-AA-716-004 K/A: Generic 2.2.20 3.8 K/A: Knowledge of the process for managing troubleshooting activities. CFR: 41.10/43.5/45.13 PRA: No Safety Function: N/A Level: Memory Pedigree: New History: N/A **SRO Only Criteria: 10CFR55.43(b)(5) –** Assessment of facility conditions and selection of appropriate procedures during normal, abnormal and emergency conditions. Explanation: A. Incorrect - Plausible because the Field Supervisor ensures a pre-job brief commensurate with the complexity and risk of each troubleshooting activity is performed and includes all work groups whose expertise is needed to implement and evaluate the results of the activity. B. Correct - Per MA-AA-716-004, conduct of troubleshooting, the Unit Supervisor Authorizes field troubleshooting activities and ensures adequate bounds have been established to limit plant impact and/or cause a change from previous risk assessment values by review and approval of each troubleshooting activity. C. Incorrect - Plausible because SM evaluates emergent troubleshooting activities and associated risks relative to applicable equipment problems in accordance with WC-AA-2000, Emergent Issue Response procedure. D. Incorrect - Plausible because Senior Manager of Operations Support and Services (or designee) — Has final Operational, Elevated, Conditionally Critical and Reactivity Risk determination authority. - Reviews the schedule at E-6 to determine if all work tasks requiring risk evaluation were properly identified and assessed. **Required references:** None

99	ID: 28097	Points: 1.00

Unit 2 is starting up after a refuel outage.

- Rods are being pulled to raise power per DGP 01-01, UNIT STARTUP.
- Currently 3 bypass valves are open.
- Control Rod F-6 is being moved.
- RBM 7 fails UPSCALE.

What action, in any, must be taken?

(Reference provided)

A. No Action Required.

B. Place channel in trip within 30 days.

C. Suspend Control rod movement except by scram immediately.

D. Restore RBM monitor channel to operable status with 24 hours.

Answer: A

Answer Explanation

With power less than 30% as indicated by 3 bypass valves open (~12% pwr), the RBM is not required per Tech Spec Table 3.3.2.1-1. Therefore, no action required.

Question 99 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	4
Difficulty:	3.00
System ID:	28097
User-Defined ID:	28097
Cross Reference Number:	
Topic:	99 - 215002 G.2.2.22
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: DRE215LN002-07 Reference: Tech Spec. 3.3.2.1, Table 3.3.2.1-1, DAN 902(3)-5 A-7 K/A: 215002 G.2.2.22 4.7 K/A: Knowledge of limiting conditions for operation and safety limits: Rod Block Monitor. Safety Function: 7 CFR: 41.5.43.2/45.2 PRA: No Level: High Pedigree: New History: N/A **SRO Criteria: 10CFR55.43(b)(2)** - Facility operating limitations in the technical specifications and their bases. Explanation: A. Correct - With power less than 30% as indicated by 3 bypass valves open (~12% power), the RBM is not required per Tech Spec Table 3.3.2.1-1. Therefore no action required. B. Incorrect - Plausible because that action would be required for power greater than 25% percent for OPRMs C. Incorrect - Plausible because this is a correct action for RWM inoperable during startup with power less than 10%. D. Incorrect - Plausible because this would be the correct answer for 1 channel Hi/INOP and power greater than 30%. **Required References:** Tech Spec. 3.3.2.1, Tech Spec 3.3.1.3, DAN 902(3)-5 A-7

None

100 **ID: 28098** **Points: 1.00**

A transient occurred resulting in the following RAD readings on the the 2/3 Reactor Bldg and Unit 2/3 Chimney SPINGS for the last 15 minutes:

Unit 2/3 Chimney SPING reads 1.8 E+09 uCi/sec.
Unit 2/3 Rx Bldg SPING reads 8.0 E+08 uCi/sec.

- You are the Shift Manager required to make the EAL call and Protective Action Recommendation (PARs), as needed
- Wind Direction is from 58°
- A loss of primary containment has occurred.

(1) What is the initial EAL classification?

(2) What is the initial Protective Action Recommendation, if any?

(Reference provided)

A. (1) Site Area Emergency
(2) No PARs required

B. (1) General Emergency
(2) Shelter Sub Areas 1, 3, 4, 7,ONLY

C. (1) General Emergency
(2) Evacuate Sub Areas: 1, 3, 4, 7 ONLY

D. (1) General Emergency
(2) Evacuate Sub Areas 1, 2, 3, 4, 5, 7, 8, 10, 11 ONLY

Answer: D

Answer Explanation

The sum of reading on the Unit 2/3 Rx Bldg and Unit 2/3 Chimney SPINGs exceeds the 2.05 E+09 uCi/sec for greater than or equal to 15 minutes meets the threshold of RG1. Per the PARs flowchart, Evacuation should be recommended and based on wind direction the correct areas are 1, 2, 3, 4, 5, 7, 8, 10, 11

Question 100 Info	
Question Type:	Multiple Choice
Status:	Active
Always select on test?	No
Authorized for practice?	No
Points:	1.00
Time to Complete:	4
Difficulty:	4.00
System ID:	28098
User-Defined ID:	28098
Cross Reference Number:	
Topic:	100 - 295017.A2.02
Num Field 1:	
Num Field 2:	
Text Field:	
Comments:	Objective: 295LP032 Reference: EP-AA-111-F-04 K/A: 295017.A2.02 -- / 3.3 K/A: Ability to determine and/or interpret the following as they apply to High Offsite Radioactive Release Rate: Total number of curies released or release rate/duration. CFR: 41.10/43.5/45.13 Safety Function: 5 Level: High Pedigree: New History: N/A **SRO Only Criteria: 10CFR55.43(b)(5) –** Assessment of facility conditions and selection of appropriate procedures during normal, abnormal and emergency conditions. Explanation; A. Incorrect - Plausible because neither of the individual SPING readings exceed the limit for a general emergency, but both meet the RS1. B. Incorrect - Plausible because Part 1 is correct. This would be correct if the readings are not summed correctly to meet RG1 for curies AND PAR is not being made from the control room without knowing TEDE and CDE. Answer is plausible if the candidate incorrectly executes the PARs flowchart. C. Incorrect - Plausible because Part 1 is correct. This would be correct if the readings are not summed correctly to meet RG1 for curies. D. Correct - The sum of reading on the Unit 2/3 Rx Bldg and Unit 2/3 Chimney SPINGs exceeds the 2.05 E+09 uCi/sec for greater than or equal to 15 minutes meets the threshold of RG1. Per the PARs flowchart, Evacuation should be recommended and based on wind direction the correct areas are 1, 2, 3, 4, 5, 7, 8, 10, 11 Execution of PARs flowchart requires the candidate to transverse multiple decision points. An error at any of these decision points will result in an incorrect PARs recommendation. **REQUIRED REFERENCES:** EP-AA-111-F-04, EP-AA-1004 Addendum 3 Hot and Cold Matrices