Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
1	Both	1	1	295001	2950012404	4.0	4.3	High

System/Evolution Name:
Partial or Complete Loss of Forced Core Flow Circulation

Category Statement:
Emergency Procedures and Plan

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

Question Stem:
The plant was operating at 92% power when TDRFP "A" tripped. Reactor water level initially decreased to 30 in. before recovering and stabilizing at 35 in. The following conditions exist:

- Reactor Power is 67%
- Core Flow is 37.5 Mlbm/hr

What action(s) is/are required?

A: Scram the reactor.

B: Perform a rapid plant shutdown.

C: Reset FCV runback and raise core flow.

D: Reduce power to < 40% with control rods.

Answer:
A

Objective PB400801.1.2

Question Source:
New

Question Difficulty
Medium

Reference Provided:
STABILITY CONTROL & POWER/FLOW OPERATING MAP

Reference:
CPS 4008.1 ABNORMAL REACTOR COOLANT FLOW

Explanation:
The trip of the TDRFP followed by the low reactor level initiates a FCV runback. With core flow less than 38 Mlbm/hr a reactor scram is required due to entry into the restricted zone.

Distracters:

B is incorrect because a scram is required.
C is incorrect because increasing flow is not an allowed method to exit the restricted zone.
D is incorrect because inserting control rods is not an allowed method to exit the restricted zone.

Date Written: 6/27/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
2	Both	1	1	295003	295003A104	3.6	3.7	High

System/Evolution Name:
Partial or Complete Loss of A.C. Power

Category Statement:
Ability to operate and/or monitor the following as they apply to PARTIAL OR COMPLETE LOSS OF A.C. POWER:

KA Statement:
D.C. electrical distribution system

Question Stem:
The plant was operating at power when at 08:00 all Station AC busses deenergize. The reactor scrams and the turbine trips. All attempts to start DGs fail. The dispatcher reports that the offsite power outage is expected to last 4 hours. The crew establishes level control with RCIC and pressure control with SRVs. At 09:00 DC load Shedding was initiated and completed at 09:45.

What consequence could be realized as a result of these conditions?

A: RCIC may become unavailable due to RCIC room temperature exceeding its limiting value.

B: RCIC system may become unavailable due to a high Lube Oil temperature before AC power is restored.

C: RCIC and SRVs may become unavailable due to a loss of DC power before battery chargers are restored.

D: Main Control Room area temperatures may exceed the habitability limit of 120°F due to loss of ventilation.

Answer:
C

Objective PB420001.1.3

Question Source:
New

Question Difficulty
High

Reference Provided:
None

Reference:
CPS 4200.01 LOSS OF AC POWER

Explanation:
DC load shedding is a time critical action required to be initiated and completed within one hour of the loss of AC power. This is done to insure a 4 hour coping time with DC power available for the operating of RCIC and SRVs. RCIC and SRVs may become unavailable before AC power is restored.

Distracters:

A is incorrect because RCIC Leak Detection isolations due to room temperature are bypassed.
B is incorrect because the RCIC Lube Oil temperature would not become excessive for greater than 4 hours.
D is incorrect because peak MCR temperature would not be effected by a premature loss of DC power.

Date Written: 7/16/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
3	Both	1	1	295004	295004A102	3.8	4.1	High

System/Evolution Name:
Partial or Complete Loss of D.C. Power

Category Statement:
Ability to operate and/or monitor the following as they apply to PARTIAL OR COMPLETE LOSS OF D.C. POWER:

KA Statement:
Systems necessary to assure safe plant shutdown

Question Stem:
The plant had been operating at power when a gross failure of the condenser and hotwell resulted in a loss of vacuum, scram and group 1 isolation. Immediately after the scram, Annunciator "UNDERVOLTAGE ON 125V DC MCC 1A 5060-2E" alarmed, bus voltage indicates 50 VDC. The following plant conditions are present:

- Reactor water level is 0 inches.
- Reactor pressure is 1070 psig.
- All rods are in.

What system is immediately available for RPV pressure control/cooldown?

A: SRVs
B: RCIC
C: RWCU
D: RFPTs

Answer:
A

Objective LP85263.1.13.2

Question Source:
New

Question Difficulty
Medium

Reference Provided:
EOPs without Entry Conditions

Reference:
EOP-1 RPV Control
CPS No. 4201.01, LOSS OF DC POWER

Explanation:
The loss of DC power has made RCIC INOP and has resulted in 1G33-F004, RWCU Suct Outbd Isol going shut (if open) due to a loss of power to Temperature Transmitter, 1G33-N008 (NRHX Tube Hi Temp Outlet). The RT pumps, if running, will stop since 1G33-F004 being open is a permissive for pump running. The RFPT are not immediately available due to the group 1 isolation and the condenser failure.

Distracters:

B is incorrect because RCIC is INOP due to the power failure.
C is incorrect because RWCU is OFF.
D is incorrect because the group 1 isolation and the condenser failure would prevent the use of the RFPTs.

Date Written: 7/20/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
4	Both	1	1	295005	295005K102	3.2	3.6	Low

System/Evolution Name:
Main Turbine Generator Trip

Category Statement:
Knowledge of the operational implications of the following concepts as they apply to MAIN TURBINE GENERATOR TRIP:

KA Statement:
Core thermal limit considerations

Question Stem:
Which transient, if initiated from RATED power, would result in the smallest margin to the Minimum Critical Power Ratio (MCPR) safety limit?

A: Inadvertent MSIV Closure

B: Recirculation Pump Seizure

C: Trip of Both Reactor Recirculation Pumps

D: Generator load reject without bypass valves

Answer:
D

Objective LP87498.1.7

Question Source:
New

Question Difficulty
High

Reference Provided:

None

Reference:
LP87498 Transient Analysis

Explanation:
The worst case anticipated transient with regard to MCPR is load reject without bypass. This results in the greatest change in MCPR.

Distracters:

Answer A is incorrect as the decrease in CPR is insignificant due to the reactor scram initiation before pressure increases due to the MSIV closure.
Answer B is incorrect as the decrease in CPR is insignificant due to the power reduction that accompanies the loss of flow.
Answer C is incorrect as a trip of both pumps produces no significant change in CPR due to the power reduction that would occur.

Date Written: 6/30/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
5	Both	1	1	295006	295006A203	4.0	4.2	High

System/Evolution Name:
SCRAM

Category Statement:
Ability to determine and/or interpret the following as they apply to SCRAM:

KA Statement:
Reactor water level

Question Stem:
The plant was operating at RATED power when an inadvertent scram occurred. The Operator placed the Reactor Mode Switch to SHUTDOWN and the following conditions exist:

- Reactor water level 0 inches rising slowly.
- Reactor pressure 926 psig and steady
- Reactor Power 0% APRMs
- All rods are fully inserted

What actions are required IMMEDIATELY?

A: Insert all SRMs and IRMs.

B: Place feedwater level control to Single Element.

C: Arm and depress the manual scram pushbuttons.

D: Evacuate containment and secure one (1) TDRFP.

Answer:
D

Objective PB410001.1.2

Question Source:
New

Question Difficulty
Medium

Reference Provided:
None

Reference:
CPS 4100.01 REACTOR SCRAM

Explanation:
Even though water level is still low, it's trend is rising which requires one (1) RFP to be secured. In addition, since operation was in mode 1 the containment is required to be evacuated.

Distracters:

A is incorrect because it is not an immediate action to insert SRMs and IRMs..
B is incorrect because there is no immediate requirement to go to single element control.
C is incorrect because there is no need to actuate the reactor scram pushbuttons.

Date Written: 7/15/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
6	Both	1	1	295016	295016A108	4.0	4.0	High

System/Evolution Name:
Control Room Abandonment

Category Statement:
Ability to operate and/or monitor the following as they apply to CONTROL ROOM ABANDONMENT:

KA Statement:
Reactor pressure

Question Stem:
The plant was initially operating at 92% power when a Main Control Room evacuation was required. The reactor was shutdown at 10:00 and the Remote Shutdown Panel (RSP) was manned. At 10:30 the following plant conditions exist:

- RCIC is in service with suction from the RCIC Storage Tank and discharge to the RCIC Storage Tank
- RCIC flow is 550 gpm
- Reactor Water level is 40 inches and steady
- Both Loops of RHR are in Suppression Pool Cooling
- Suppression pool temperature is 100ºF
- Reactor pressure is 550 psig and lowering

What is required?

A: Reduce RCIC flow.

B: Increase RCIC flow.

C: Maintain RCIC flow at 550 gpm.

D: Shift RCIC suction to the suppression pool.

Answer:
A

Objective LP85217.1.10.1

Question Source:
New

Question Difficulty
Medium

Reference Provided:
CPS No. 4003.01F003 RSP - SATURATED TEMPERATURE/PRESSURE CORRELATION or Steam Tables and calculator.

Reference:
CPS No. 4003.01C001 RSP - PRESSURE CONTROL

Explanation:
The cooldown rate is excessive (135ºF/hr) and will exceed 100ºF/hr if the rate of depressurization is not reduced. Since the RCIC system is controlling reactor pressure it's flowrate should be reduced in an attempt to control cooldown rate.

Distracters:

B is incorrect because increasing RCIC flow would further aggravate the already high cooldown rate.
C is incorrect because maintaining this flow rate would exceed the cooldown rate limit.
D is incorrect because shifting suctions will not prevent exceed the cooldown rate limit and there is no driving reason to shift RCIC suctions.

Date Written: 10/21/2003 Author: Pickley

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
7	Both	1	1	295018	295018K202	3.4	3.6	Low

System/Evolution Name:
Partial or Complete Loss of Component Cooling Water

Category Statement:
Knowledge of the interrelations between PARTIAL OR COMPLETE LOSS OF COMPONENT COOLING WATER and the following:

KA Statement:
Plant operations

Question Stem:
With the plant operating at 92% power, the Component Cooling Water (CCW) System pump suction develops a leak which exceeds the capacity of the CCW expansion tank makeup. The operators determine CCW system and plant shutdown is required due to loss of cooling to vital reactor auxiliary equipment.

What action is required?

A: Verify cooling water automatically transfers to the Shutdown Cooling (SX) System.

B: Stop the plant Service Air Compressors within five (5) minutes of the loss of cooling.

C: Stop the Reactor Recirculation (RR) pumps within one (1) minute of the loss of cooling.

D: Stop the Fuel Pool Cooling and Cleanup (FC) System pumps within five (5) minutes of the loss of cooling.

Answer:
C
Objective LP85208.1.13

Question Source:
Bank: {00090}

Question Difficulty
Medium

Reference Provided:
None

Reference:
3203.01 Component Cooling Water section 8.3.6

Explanation:
The Reactor Recirculation pumps are required to be stopped within one (1) minute following a loss of CCW.

Distracters:

A. This action is not required as there is no automatic transfer to SX.
B. The Service Air Compressors will automatically trip due to Low Cooling Water Pressure at 30 psig, and the required action would be to verify that they tripped.
D. The FC pumps should have tripped due to CCW flow <12.2 gpm for > 100 seconds and the required action would be to verify that they tripped.

Date Written: 6/27/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
8	Both	1	1	295019	295019A101	3.5	3.3	High

System/Evolution Name:
Partial or Complete Loss of Instrument Air

Category Statement:
Ability to operate and/or monitor the following as they apply to PARTIAL OR COMPLETE LOSS OF INSTRUMENT AIR:

KA Statement:
Backup air supply

Question Stem:
The plant had been operating at power when a loss of instrument air occurred. The reactor was scrammed and scram actions completed. The following plant and instrument air conditions are present:

- ADS IA CNMT Inbd Isol Valves 1IA012B and 1IA013B indicate OPEN
- ADS IA CNMT Outbd Isol Valves 1IA012A and 1IA013A indicate OPEN
- IA Header pressure is 40 psig.
- MSIVs are closed

What is a consequence of the current conditions?

A: Remaining Instrument Air System pressure will be lost.

B: ADS Backup Air Bottles immediately depressurize to the IA System.

C: A Group 13 isolation would result in a loss of all air to ADS and (2) LLS-SRVs.

D: The ADS Air System is relying on only one check valve to prevent leaking compressed air into the IA System piping.

Answer:
D

Objective LP85301.1.18

Question Source:
Bank: {8269}

Question Difficulty
High

Reference Provided:
None

Reference:
CPS 3101.01, MAIN STEAM (MS, IS & ADS)

Explanation:
If the compressed air bottles are placed into service without shutting the ADS Supply Header Inboard Isolation Valves 1IA012B and 1IA013B, then the entire system would rely on one check valve to prevent leakage into the IA System piping. If the normal air supply to the ADS and (2) LLS valves is not restored when available, the air bottles would bleed down, possibly to the point of not performing their function when required.

Distracters:

A is incorrect because this lineup would not impact the current IA system conditions.
B is incorrect because a system check valve would prevent immediate depressurization.
C is incorrect because air pressure from the bottles would continue to supply the ADS and (2) LLS-SRVs following the isolation.

Date Written: 7/15/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
9	Both	1	1	295021	295021K301	3.3	3.4	Low

System/Evolution Name:
Loss of Shutdown Cooling

Category Statement:
Knowledge of the reasons for the following responses as they apply to LOSS OF SHUTDOWN COOLING:

KA Statement:
Raising reactor water level

Question Stem:
Why is reactor water level raised to greater than 44 inches Shutdown Range/ 61 inches Upset Range in accordance with CPS 4006.01 LOSS OF SHUTDOWN COOLING, when a loss of Shutdown Cooling occurs?

A: Reduce the possibility of thermal stratification.

B: Increase coolant mass to increase time to boil.

C: Reduce thermal stresses on the CRD stub tubes.

D: Increase coolant contact area with RPV metal to enhance natural circulation.

Answer:
A

Objective LP85205.1.14

Question Source:
New

Question Difficulty
Medium

Reference Provided:

None

Reference:
CPS 4006.01 LOSS OF SHUTDOWN COOLING

Explanation:
On a loss of Shutdown cooling reactor water level is raised to greater than the natural circulation level (above the separators) to provide a natural circulation flow path. This provides natural circulation and reduces the possibility of thermal stratification.

Distracters:

B is incorrect even though this is true the reason water level is raised is to promote natural circulation to prevent stratification.
C is incorrect even though this reason may be realized on a subsequent return to forced circulation flow. Raising water level is to aid in natural circulation flow that the reduced possibility of stratification.
D is incorrect because water level is raised to provide a natural circulation flowpath.

Date Written: 7/11/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
10	Both	1	1	295023	295023A201	3.6	4.0	Low

System/Evolution Name:
Refueling Accidents

Category Statement:
Ability to determine and/or interpret the following as they apply to REFUELING ACCIDENTS:

KA Statement:
Area radiation levels

Question Stem:
A refueling accident in the Containment Building Fuel Transfer Pool results in a fuel bundle being dropped and significantly damaged. The following Main Control Room annunciators are subsequently received:

- HI RAD INITIATION SGTS
- RUNNING SGTS EXHAUST FANS A & B

For the given sequence of events, the Fuel Building (VF) supply dampers _______(1)_______ and the supply and exhaust fans _______(2)_______.

A: (1) remain open
(2) continue to operate

B: (1) isolate
(2) continue to operate

C: (1) remain open
(2) trip

D: (1) isolate
(2) trip

Answer:
D

Objective LP85261.1.13.1

Question Source:
Bank: {21039}

Question Difficulty
Medium

Reference Provided:
None

Reference:
CPS 3319.01 STANDBY GAS TREATMENT (VG)

Explanation:
VF trips and isolates if VG is started.

Distracters:

A is incorrect as the dampers close and the fans trip.
B is incorrect as the fans trip.
C is incorrect as the dampers close.

Date Written: 10/21/2003 Author: Pickley

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
11	Both	1	1	295024	295024K308	3.7	4.1	Low

System/Evolution Name:
High Drywell Pressure

Category Statement:
Knowledge of the reasons for the following responses as they apply to HIGH DRYWELL PRESSURE:

KA Statement:
Containment spray: Plant Specific

Question Stem:
The plant had been operating at power when an accident occurred. The following conditions are present:

- Reactor pressure 550 psig (slowly lowering)
- Containment pressure 2.1 psig (slowly rising)
- Containment Temperature 150ºF (steady)
- Suppression Pool level 16 ft (steady)

What is the reason containment sprays are required at this time?

A: Prevents exceeding containment design temperature.

B: Ensures maintenance of the pressure suppression function of containment.

C: Ensures maintenance of containment pressure below the containment spray initiation limit.

D: Provides scrubbing of the containment atmosphere to reduce transport of fission products outside containment.

Answer:
B

Objective LP87550.1.1.30

Question Source:
New

Question Difficulty
Medium

Reference Provided:
EOP-6 without entry conditions

Reference:
EOP Technical Bases Rev. 4, Pg 8-32

Explanation:
Containment pressure is approaching the Pressure suppression pressure limit (Fig. N) and current conditions are within the OK to Spray portion of the Containment Spray Initiation Limit graph. With these conditions sprays are initiated to ensure maintenance of the pressure suppression function of containment.

Distracters:

A. Although sprays would be allowed under these conditions containment design temperature is not currently threatened.
C. Maintenance of pressure below the spray initiation limit is not the reason for initiation of sprays.
D. Venting is not currently in progress so therefore the scrubbing effect of the sprays is not needed.

Date Written: 10/21/2003 Author: Pickley

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
12	Both	1	1	295025	295025A204	3.9	3.9	Low

System/Evolution Name:
High Reactor Pressure

Category Statement:
Ability to determine and/or interpret the following as they apply to HIGH REACTOR PRESSURE:

KA Statement:
Suppression pool level

Question Stem:
The plant had been operating at rated power when an ATWS occurred that resulted in the following plant conditions:

- Reactor pressure is 1100 psig
- Suppression pool temperature is 140ºF
- Drywell Temperature is 185ºF
- Containment Temperature is 155ºF
- Suppression pool level is 21 ft slowly rising.
- Reactor water level is 0 inches and steady
- All attempts to reduce suppression pool level and the rising trend have been unsuccessful.

Why is a blowdown required? Prevent…

A: exceeding Heat Capacity Limit.
B: exceeding drywell design temperature.
C: exceeding containment design temperature.
D: failures that would directly pressurize containment.

Answer:
D

Objective LP87558.1.19

Question Source:
New

Question Difficulty
High

Reference Provided:
EOPs without entry conditions.

Reference:
Clinton EOP Technical Bases

Explanation:
The conditions put operation in the unsafe region of the SRV tailpipe limit. Since unsuccessful attempts have been made to control level and reactor water level is stable then a blowdown is required. The SRV Tail Pipe Level Limit is a function of RPV pressure. SRV operation with suppression pool water level above the SRV Tail Pipe Level Limit could damage the SRV discharge lines. This, in turn, could lead to containment failure from direct pressurization and damage to equipment inside the containment from pipe-whip and jet-impingement loads.

Distracters:

A is incorrect because operation is still in the safe region of the Heat Capacity Limit graph.
B is incorrect because a large margin exists to the drywell design temperature 330ºF design vs. 185ºF actual.
C is incorrect because a large margin exists to the containment design temperature 185ºF design vs. 155ºF actual.

Date Written: 7/22/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
13	Both	1	1	295026	2950262127	2.8	2.9	Low

System/Evolution Name:
Suppression Pool High Water Temperature

Category Statement:
Conduct of Operations

KA Statement:
Knowledge of system purpose and/or function.

Question Stem:
The plant had been operating at power when an accident occurred. The following conditions are present:

- Reactor Power is 4%
- Reactor Pressure 1000 psig
- Suppression Pool Level 19 ft.
- Suppression Pool Temperature 128°F
- MDRFP is injecting for level control

The crew starts SLC.

What is the purpose of SLC injection at this time?

Starting SLC ensures that…

A: hot shutdown boron weight is injected prior to exceeding containment design pressure.
B: cold shutdown boron weight is injected prior to exceeding containment design temperature.
C: hot shutdown boron weight is injected before suppression pool heat capacity limit is exceeded.
D: cold shutdown boron weight is injected before suppression pool heat capacity limit is exceeded.

Answer:
C

Objective LP87553.1.6.8

Question Source:
New

Question Difficulty
Medium

Reference Provided:
EOPs without Entry Conditions

Reference:
EOP Technical Basis Revision 4, pg 5-13

Explanation:
Reactor power and suppression pool temperature put operation above the Boron Injection Temperature limit. At this point on the curve SLC is initiated to ensure hot shutdown boron weight is injected before suppression pool heat capacity limit is exceeded.

Distracters:

A is incorrect as this describes the heat capacity limit which is based on not exceeding design temperature or pressure following a RPV blowdown. SLC is initiated to prevent exceeding the HCTL so this distracter is incorrect.
B is incorrect because this is part of the basis for the heat capacity limit.
D is incorrect because the SLC functions to ensure Hot Shutdown boron weight not cold shutdown boron weight is injected before suppression pool heat capacity is exceeded.

Date Written: 7/7/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
14	Both	1	1	295027	2950272431	3.3	3.4	High

System/Evolution Name:
High Containment Temperature (Mark III Containment Only)

Category Statement:
Emergency Procedures and Plan

KA Statement:
Knowledge of annunciators alarms and indications, and use of the response instructions.

Question Stem:
The plant was operating at rated power when RWCU HX ROOM WEST TEMPERATURE HIGH, 5000-5A alarmed. No other alarms are present. Plant conditions are as follows:

- RWCU HX Room temperatures as indicated on Recorder, E31-R608 are all between 194ºF and 198 ºF and are rising
- Containment temperature has risen from 75 ºF to 115 ºF and continues to rise
- Containment pressure is 0.1 psig
- RWCU system continues to operate

1) What automatic action, if any, should have occurred?

2) What action, if any should be taken?

A: 1) BOTH divisions of RWCU should have isolated
2) Close all RWCU system isolation valves

B: 1) ONLY Division 1 RWCU isolation valves should have isolated
2) Close Division 1 RWCU isolation valves

C: 1) ONLY Division 2 RWCU isolation valves should have isolated
2) Close Division 2 RWCU isolation valves

D: 1) NEITHER division of RWCU should have isolated
2) Shutdown the RWCU system

Answer:
A

Objective LP87558.1.13

Question Source:
Bank: {19100}

Question Difficulty
High

Reference Provided:
None

Reference:
CPS 5000-5A REACTOR WATER CLEANUP PUMP HEAT EXCHANGER ROOM WEST TEMPERATURE HIGH

Explanation:
The RWCU HX ROOM WEST TEMPERATURE HIGH alarm indicates that an automatic RWCU isolation is required. Since indications are given that all temperatures are greater than 190ºF both divisions should have isolated. Since this automatic action failed to occur the operator should manually complete those actions.

Distracters:

B is incorrect because both divisions should have isolated and both divisions should be isolated.
C is incorrect because both divisions should have isolated and both divisions should be isolated.
D is incorrect because both divisions should have isolated and both divisions should be isolated.

Date Written: 7/21/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
15	Both	1	1	295028	295028K301	3.6	3.9	Low

System/Evolution Name:
High Drywell Temperature

Category Statement:
Knowledge of the reasons for the following responses as they apply to HIGH DRYWELL TEMPERATURE:

KA Statement:
Emergency depressurization

Question Stem:
Emergency depressurization is required by EOP-6 if drywell temperature cannot be lowered back below 330ºF and held there.

What is the bases for this Drywell Temperature (330ºF)?

This temperature represents the…

A: drywell design temperature.

B: lowest limit of combustion for drywell materials.

C: maximum temperature at which ADS is qualified.

D: maximum calculated drywell temperature for minimum indicated water level.

Answer:
A

Question Source:
New

Question Difficulty
Medium

Objective LP85223.1.10.4

Reference Provided:

EOPs without the entry conditions.

Reference:
Clinton Power Station Emergency Operating Procedures Technical Bases

Explanation:
The specified temperature in the EOPs is the lower of the maximum temperature at which ADS is qualified (340°F) and the drywell design temperature (330°F). Drywell design pressure is the lower of the two or 330°F.

Distracters:

B is incorrect because 330°F is for drywell design temp.
C is incorrect because ADS is qualified to 340°F.
D is incorrect because 330°F is for drywell design temp.

Date Written: 7/22/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
16	Both	1	1	295030	2950302450	3.3	3.3	High

System/Evolution Name:
Low Suppression Pool Water Level

Category Statement:
Emergency Procedures and Plan

KA Statement:
Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.

Question Stem:
The plant had been operating at power when an accident occurred. The following indications/alarms are present:

- DUMP SWITCH IN DISABLED POSITION SM SYSTEM DIV 1 5041-5G is in alarm.
- DUMP SWITCH IN DISABLED POSITION SM SYSTEM DIV 2 5041-6G is in alarm.
- DIVISION 1 HIGH DRYWELL PRESSURE SIGNAL SEALED IN 5067-3A is in alarm.
- DIVISION 2 HIGH DRYWELL PRESSURE SIGNAL SEALED IN 5066-3A is in alarm.
- Suppression Pool (SP) level is 18'0".

What MINIMUM additional actions, if any, would INITIATE suppression pool makeup from the upper containment pools?

(NOTE: Choices are listed in MINIMUM to MAXIMUM order.)

A: No action required, makeup is automatically initiated 30 minutes following simultaneous low-low SP level and high DW pressure.

B: Place the Suppression Pool Dump Valve control switches to OPEN.

C: Place Suppression Pool Dump Valve Mode Select switches to ENABLE.

D: Place Suppression Pool Dump Valve Mode Select switches to ENABLE AND Place the Suppression Pool Dump Valve control switches to OPEN.

Answer:
C

Objective LP85408.1.4.1

Question Source:
New

Question Difficulty
High

Reference Provided:
None

Reference:
CPS No. 5041.05 ALARM PANEL 5041 ANNUNCIATORS - ROW 5
CPS No. 3220.01 SUPPRESSION POOL MAKE-UP

Explanation:
The valves will only open if the Mode Select Switch is in ENABLE. With the Mode Select Switch in DISABLE, the valves will NOT open via the MCR handswitch or automatically. With the Switch in "ENABLE", the valves will open automatically on:
1) A LOCA signal, received from the Div. 1 ESF Actuation System logic (RHR logic via CCW), and a Low-Low Suppression Pool level. 2) A LOCA signal without Low-Low Suppression Pool level after timer 1UAY-SM505 has timed out (25 minutes).
Therefore with these conditions present placing the Suppression Pool Dump Valve Mode Select switches to ENABLE initiates an upper pool dump.

Distracters:

A is incorrect because with the mode switch in DISABLE the pool will not dump regardless of conditions.
B is incorrect because with the mode switch in DISABLE placing the dump valve control switch to OPEN will not dump the upper pool.
D is incorrect because this does not represent the minimum action that would dump the upper pool the mode switch need only be taken to ENABLE.

Date Written: No: 7/15/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
17	Both	1	1	295031	295031K204	4.0	4.1	Low

System/Evolution Name:
Reactor Low Water Level

Category Statement:
Knowledge of the interrelations between REACTOR LOW WATER LEVEL and the following:

KA Statement:
Reactor core isolation cooling: Plant-Specific

Question Stem:
RPV water level has dropped to a level that caused the Reactor Core Isolation Cooling (RCIC) system to automatically initiate. RPV level will cycle between high level and low level.

What is the EXPECTED RCIC system (Steam Side) sequence of events?

A: RCIC turbine trip throttle valve trips shut at high level, then re-opens at low level.

B: The Steam Supply Shutoff Valve (1E51-F045) closes at high level, then reopens at low level.

C: RCIC turbine trip throttle valve trips shut at high level, then re-opens at low level, if the high level signal has been manually reset.

D: The Steam Supply Shutoff Valve (1E51-F045) closes at high level, then reopens at low level, if the high level signal has been manually reset.

Answer:
B

Objective LP85217.1.4.1

Question Source:
Bank: {3113}

Question Difficulty
Medium

Reference Provided:
None

Reference:
CPS No. 3310.01 REACTOR CORE ISOLATION COOLING SYSTEM (RCIC)

Explanation:
Once initiated, the RCIC System will maintain Reactor water level between Level 2 and Level 8 automatically, without operator action. The Steam Supply Shutoff Valve (1E51-F045) closes at high level, then reopens at low level.

Distracters:

A is incorrect because the trip throttle valve does not trip on high level.
C is incorrect because trip throttle valve does not trip on high level and no manual reset is required system reinitiates on low level automatically.
D is incorrect because no manual reset is required system reinitiates on low level automatically.

Date Written: 7/22/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
18	Both	1	1	295037	295037A104	4.5	4.5	High

System/Evolution Name:
SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown

Category Statement:
Ability to operate and/or monitor the following as they apply to SCRAM CONDITION PRESENT AND REACTOR POWER ABOVE APRM DOWNSCALE

KA Statement:
SBLC

Question Stem:
The plant was initially operating at 92% power when an inadvertent group 1 isolation occurred. Very little rod motion occurred on the subsequent scram. Neither manual scram nor ARI were successful. The crew started both SLC pumps at 10:05.

What is the FIRST opportunity the crew has to commence a cooldown?

(Note: Choices are listed in order of EARLIEST to LATEST, choose the FIRST condition that allows commencement of a cooldown).

A: Immediately

B: Reactor becomes subcritical

C: At 10:45

D: All rods are in

Answer:
C

Objective LP87553.1.6

Question Source:
New

Question Difficulty
Medium

Reference Provided:

EOP-1A, ATWS RPV CONTROL with entry conditions removed.

Reference:
EOP-1A, ATWS RPV CONTROL

Explanation:
With the ATWS a cooldown can only be commenced when either cold shutdown boron weight has been injected or the reactor is subcritical with no boron injected. At 10:45 both SLC pumps have been operating for 40 minutes which corresponds to Cold Shutdown Boron Weight.

Distracters:

A is incorrect because the conditions to commence a cooldown have not been met until Cold Shutdown Boron Weight has been injected IAW EOP-1A pressure leg.
B is incorrect because even if the reactor becomes subcritical, boron has been injected and therefore a cooldown cannot commence until cold shutdown boron weight has been injected IAW EOP-1A pressure leg.
D is incorrect because the cooldown may commence before all rods are in if cold shutdown boron weight is injected.

Date Written: 7/11/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
19	Both	1	1	295038	295038A204	4.1	4.5	High

System/Evolution Name:
High Off-Site Release Rate

Category Statement:
Ability to determine and/or interpret the following as they apply to HIGH OFF-SITE RELEASE RATE:

KA Statement:
Source of off-site release

Question Stem:
The plant was operating at 92% power with fuel inspections in progress in the Fuel Building when a spent fuel bundle was badly damaged. The fuel building ventilation failed to isolate and attempts to manually initiate the isolation were unsuccessful, the supply and exhaust fans are OFF and SGTS is IDLE. Radiation release rate from the Fuel Building is approaching the Emergency Plan General Emergency (GE) level. The following conditions are present:

- All Fuel Building Exhaust Vent Plenum Monitors indicate UPSCALE
- Fuel Building Fuel Pool Cooling Pump Room Survey indicates 500 rem/hr
- Fuel Building Fuel Pool Cooling Heat Exchanger Room Survey indicates 700 rem/hr
- Fuel Building General Area Elevation 737' Survey indicates 20 rem/hr

What action is required?

A: Scram and enter EOP-1.
B: Scram, enter EOP-1, EOP-3 and Blowdown.
C: Shutdown the reactor per 3006.01 UNIT SHUTDOWN
D: Continue operation and attempts to isolate Fuel Building ventilation.

Answer:
C

Objective LP87559.1.7

Question Source:
New

Question Difficulty
Medium

Reference Provided:
EOPs without entry conditions.

Reference:
EOP-8 Secondary Containment Control
EOP-9 Radioactive Release Control

Explanation:
The determination should be made that the offsite release is not due to a primary system discharge, so even though the release rate is approaching a GE, EOP-9 actions for a release rate approaching a GE do not apply. In secondary containment more than two areas are above Max Safe for the same parameter requiring a Unit Shutdown.

Distracters:

A is incorrect as a scram is not required because a primary system is not discharging.
B is incorrect as a scram and blowdown are not required because a primary system is not discharging.
D is incorrect because with two areas greater than Max Safe, continued operation is not allowed.

Date Written: 7/17/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
20	Both	1	1	600000	600000A101	3.0	2.9	Low

System/Evolution Name:
Plant Fire On Site

Category Statement:
Ability to operate and/or monitor the following as they apply to PLANT FIRE ON

KA Statement:
Respirator air pack

Question Stem:
The plant was operating when the Shift Manager announced toxic gas in the Main Control Room and directs the crew to don self-contained breathing apparatus (PremAire). The Shift Manager directs the crew to remain in the Main Control Room and commence a shutdown.

When is the cylinder valve on the PremAire opened?

A: ONLY when the PremAire whistle sounds.

B: when the air mask is disconnected from a shrader valve.

C: when Main Control Room RA pressure falls below 1850 psig.

D: when donning the PremAire and remains open irrespective of shrader valve connection status.

Answer:
B

Objective LP10311.2.1

Question Source:
New

Question Difficulty
Medium

Reference Provided:
None

Reference:
CPS 4003.02 TOXIC GAS RELEASE Pg. 5
LP10311MSA PremAire XV Cadet

Explanation:
The PremAire cylinder valve is opened when not connected to the MCR RA via the shrader valve in order to supply breathing air to the wearer. When connected to the RA system the cylinder valve must be closed in order to prevent equalizing pressure between the RA system and the PremAire cylinders, which would result in the depressurization of the PremAire cylinders which are at a higher pressure (3000 psig) than RA system.

Distracters:

A is incorrect as this whistle sounds on low pressure with the cylinder valve open.
C is incorrect because at this pressure the RA bottles in the MCR are capable of supplying
sufficient breathing air for 7 men for 6 hours, and therefore transition to the limited bottle supply is not appropriate.
D is incorrect because when connected to the RA system via the Schrader valve the PremAire cylinder valve is closed to prevent depressurizing the cylinders to the RA system.

Date Written: 6/26/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
21	Both	1	2	295009	2950092449	4.0	4.0	High

System/Evolution Name:
Low Reactor Water Level

Category Statement:
Emergency Procedures and Plan

KA Statement:
Ability to perform without reference to procedures those actions that require immediate operation of system components and controls.

Question Stem:
A plant startup and power ascension is in progress operating with the following conditions:

- CORE FLOW is 39 Mlbm/hr and steady
- Steam Flow 7.9E6 lbm/hr and steady
- Feed Flow 7.4E6 lbm/hr and steady
- RPV WATER LEVEL HIGH OR LOW 5002-2Q
- RPV water level is 30 inches and slowly lowering

What IMMEDIATE action is required?

A: Place the mode switch to Shutdown.

B: Lower reactor power to within the capacity of the existing FW flow using RR flow control valves.

C: Lower reactor power to within the capacity of the existing FW flow using control rods in reverse sequence.

D: Take manual control of the FW system to stabilize RPV water level and match Feedwater flow and Main Steam flow.

Answer:
D

Objective

Question Source:
New

Question Difficulty
Medium

Reference Provided:
None

Reference:
CPS 3005.01 UNIT POWER CHANGES
CPS 4002.01 ABNORMAL RPV LEVEL/LOSS OF FEEDWATER AT POWER

Explanation:
A mismatch exists between feed flow and steam flow, this in conjunction with a low reactor water level indicate that entry should be made into CPS 4002.01 ABNORMAL RPV LEVEL/LOSS OF FEEDWATER AT POWER. The immediate operator actions of the procedure require the operator to take manual control of feedwater to stabilize reactor water level and to match feedwater flow and steam flow.

Distracters:

A is incorrect because the procedure only requires a scram if Level is approaching 12” or 48”, and Level transient can not be recovered. Level is only slowly lowering through 30 inches and therefore attempts to stabilize level would be required at this time by the procedure.
B is incorrect as a RR flow reduction sufficient to match feed and steam flow would drive operation into the Restricted Zone.
C is incorrect as the procedure doesn't allow the use of control rods to match steam and feed flow.

Date Written: 10/21/2003 Author: Pickley

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
22	Both	1	2	295010	295010A202	3.8	3.9	High

System/Evolution Name:
High Drywell Pressure

Category Statement:
Ability to determine and/or interpret the following as they apply to HIGH DRYWELL PRESSURE:

KA Statement:
Drywell pressure

Question Stem:
The Reactor Operator identifies an increasing trend in Drywell Pressure, and it is currently 0.9 psig. There is a corresponding rising trend in Drywell Temperature from 105ºF to 150ºF. The operator also notes that all three channels of the Fission Product Monitors are operating and the trend shows NO change in activity.

Which of the following problems would give this indication?

A: Failure of Drywell Cooling

B: Small water leak in the Drywell

C: Small steam leak in the Drywell

D: Instrument Air leakage into the Drywell

Answer:
A

Objective PB400101.1.1

Question Source:
Bank: {21447}

Question Difficulty
Medium

Reference Provided:
None

Reference:
CPS 4001.01 REACTOR COOLANT LEAKAGE

Explanation:
The increasing drywell temperature and pressure in the absence of any increased activity indicate a loss of cooling to the drywell.

Distracters:

B is incorrect because a water leak in the drywell would result in some increase in activity in the DW atmosphere.
C is incorrect because a steam leak in the drywell would result in some increase in activity in the DW atmosphere.
D is incorrect because the instrument air leak would increase the DW temperature little because drywell cooling would remove the heat of adiabatic compression. Even if this heat removal were not considered the rise to 150ºF is greater than would be expected for that pressure increase.

Date Written: 10/21/2003 Author: Pickley

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
23	Both	1	2	295011	295011K101	4.0	4.1	High

System/Evolution Name:
High Containment Temperature (Mark III Containment Only)

Category Statement:
Knowledge of the operational implications of the following concepts as they apply to HIGH CONTAINMENT TEMPERATURE (MARK III CONTAINMENT ONLY):

KA Statement:
Containment pressure: Mark-III

Question Stem:
An accident occurred that required the initiation of containment sprays due to elevated containment temperatures and pressures. After an extended period of time the following containment/drywell conditions exist:

- Containment pressure 0.1 psig and lowering
- Containment temperature 185°F
- Drywell temperature 250°F

Which of the following actions is required and why?

A: Stop containment spray to avoid containment failure due to negative pressure.

B: Continue containment sprays to prevent exceeding containment design temperature.

C: Stop containment sprays due to entry into the unsafe region of the Containment spray initiation limit (Fig. O).

D: Continue containment sprays to maintain containment pressure below pressure suppression pressure (Fig. N).

Answer:
A

Objective LP87558.1.19

Question Source:
New

Question Difficulty
Medium

Reference Provided:
EOP-6 with the Entry Conditions Removed

Reference:
EOP Technical Bases Rev. 4 pg. 8-24

Explanation:
Containment sprays must be terminated by the time containment pressure decreases to 0 psig to ensure that pressure is not reduced below the negative design value.

Distracters:

B is incorrect as containment sprays are not allowed for containment pressure below 0 psig.
C is incorrect because even though sprays should be stopped the reason is incorrect. Entry into the shaded region is allowed following initiation of sprays.
D is incorrect as containment sprays are not allowed for containment pressure below 0 psig.

Date Written: 6/26/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
24	Both	1	2	295013	295013K201	3.6	3.7	Low

System/Evolution Name:
High Suppression Pool Temperature

Category Statement:
Knowledge of the interrelations between HIGH SUPPRESSION POOL TEMPERATURE and the following:

KA Statement:
Suppression pool cooling

Question Stem:
The plant is at 92% power when a Safety Relief Valve (SRV) becomes stuck open (100%) causing Suppression Pool (SP) temperature to increase. All actions taken to close the SRV have been unsuccessful. Both "A" and "B" Loops of RHR were placed in Suppression Pool Cooling by the time Suppression Pool temperature reached 95ºF.

What is the effect on Suppression Pool Temperature? Suppression Pool Temperature…

A: decreases very slowly.

B: levels off at approximately 95ºF.

C: continues to increase to approximately 100ºF and then remains steady.

D: continues to increase to greater than 100ºF.

Answer:
D

Objective PB400901.1.7

Question Source:
Bank: {03956}

Question Difficulty
Medium

Reference Provided:
None

Reference:
PB400901 INADVERTENT OPENING OF A SAFETY RELIEF VALVE

Explanation:
The heat input to the suppression pool exceeds the plants removal capabilities. The SRV is passing approximately 7% and the RHR system can only remove approximately 1-2% Temperature will continue to rise.

Distracters:

A is incorrect because the heat input from the stuck open relief exceeds the capacity of SP cooling.
B is incorrect because the heat input from the stuck open relief exceeds the capacity of SP cooling.
C is incorrect because the heat input from the stuck open relief exceeds the capacity of SP cooling.

Date Written: 10/21/2003 Author: Pickley

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
25	Both	1	2	295022	295022A102	3.6	3.6	Low

System/Evolution Name:
Loss of CRD Pumps

Category Statement:
Ability to operate and/or monitor the following as they apply to LOSS OF CRD

KA Statement:
RPS

Question Stem:
A reactor startup is in progress. Reactor pressure is 0 psig. Group 1 control rods have been withdrawn to position 48. Group 2 control rods are being withdrawn from 12 to 48 when CRD pump 'B' trips and attempts to start either CRD pump are unsuccessful. The Accumulator Fault annunciator is received for Rod 32-21 and the NLO reports Accumulator pressure at 1510 psig. Rod 32-21 is at notch position 48.

A: Declare the associated control rod scram time 'slow' within 8 hours.

B: Place the reactor mode switch in the shutdown position immediately.

C: Insert control rod 32-21 immediately and declare the control rod inoperable within 1 hour.

D: Restore charging water header pressure to 1520 psig or greater within 20 minutes and declare the associated control rod scram time 'slow' within 1 hour.

Answer:
B

Objective LP85201.1.17

Question Source:
Bank: {12191}

Question Difficulty
High

Reference Provided:
None

Reference:
TS LCO 3.1.5 C and D

Explanation:
An inop accumulator with reactor pressure less than 600 psig requires that the control rod to be immediately verified fully inserted. Since the accumulator alarm and associated low pressure is for a control rod that is withdrawn, it cannot be immediately verified fully inserted and therefore the Required Action is to Place the reactor mode switch in the shutdown position Immediately.

Distracters:

A is incorrect because the rod 32-21 is not fully inserted and the mode switch is therefore required to be placed to shutdown.
C is incorrect because first rod 32-21 is not fully inserted and the mode switch is therefore required to be placed to shutdown and with no CRD the control rod cannot be inserted except by scram.
D is incorrect because the mode switch is required to be placed to shutdown immediately.

Date Written: 6/29/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
26	Both	1	2	295036	295036K201	3.1	3.2	High

System/Evolution Name:
Secondary Containment High Sump/Area Water Level

Category Statement:
Knowledge of the interrelations between SECONDARY CONTAINMENT HIGH SUMP/AREA WATER LEVEL and the following:

KA Statement:
Secondary containment equipment and floor drain system

Question Stem:
The reactor is at 90% power when annunciator 5013-5D HIGH-HIGH LEVEL FLR/EQUIP DRN SUMP AUX BLDG alarms. The C Area Operator reports the leak is from a broken Fire Protection pipe. The LPCS AND RHR A Pump Rooms have 18 inches of water on the floor and the level is rising with the sump pumps running.

What actions are required and why?

A: Enter EOP-3, Blowdown because TWO MAX SAFE values have been exceeded.

B: Scram and enter EOP-1 RPV Control because ONE MAX SAFE value has been exceeded.

C: Shutdown the reactor per 3006.01 Unit Shutdown because TWO MAX SAFE values have been exceeded.

D: Continue attempts to Isolate the leak and continue operation because NO primary system discharging to containment.

Answer:
C

Objective LP87559.1.6

Question Source:
Bank: {11653}

Question Difficulty
Medium

Reference Provided:
EOPs without entry conditions

Reference:
EOP-8 Secondary Containment Control

Explanation:
Two max safe levels have been exceeded with a demonstration that the leakage rate exceeds the capacity of the sump pumps. Since the source of the water is not due to a primary system a shutdown is required.

Distracters:

A is incorrect because a blowdown would only be required if the source of the water were from the primary system.
B is incorrect because a scram is not required.
D is incorrect because with two sump levels currently above max safe a shutdown is required.

Date Written: 7/16/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
27	Both	1	2	500000	500000K301	2.9	3.3	Low

System/Evolution Name:
High Containment Hydrogen Concentration

Category Statement:
Knowledge of the reasons for the following responses as they apply to HIGH PRIMARY CONTAINMENT HYDROGEN CONCENTRATIONS:

KA Statement:
Initiation of containment atmosphere control system

Question Stem:
The plant was initially operating at power when an accident occurred. The following plant conditions are present:

- Containment pressure is 10 psig
- DW Hydrogen concentration is 8%
- Containment Hydrogen Concentration is 7%
- Hydrogen Igniters are ON
- Primary containment sample indicates that the radioactive release rate for a purge would NOT be within the limits permitted by the Off-Site Dose Calculation Manual (ODCM).

Why are the DW/CNMT Mixing compressors started?

The mixing compressors are started to…

A: dilute local regions of high hydrogen concentrations.
B: lower containment hydrogen below limits of deflagration.
C: maintain containment hydrogen below deflagration limits.
D: reduce the peak temperature and pressure if a deflagration occurs.

Answer:
A

Objective LP87600.1.2

Question Source:
New

Question Difficulty
High

Reference Provided:
EOP without entry conditions

Reference:
EOP Technical Bases
EOP-7

Explanation:
Application of the current conditions to EOP-7 determines that DW/CNMT Mixing compressors should be started. Conditions are below the deflagration limit (Figure R) and Drywell hydrogen is present. Operation of the mixers redistributes the hydrogen throughout the containment and drywell, thereby diluting localized regions of high hydrogen concentrations.

Distracters:

B is incorrect because containment hydrogen is below the deflagration limit.
C is incorrect because containment hydrogen is below the deflagration limit. Also DW Hydrogen concentration is 8% and Containment Hydrogen Concentration is 7%, so starting the Mixers may actually cause Containment Hydrogen Concentrations to increase.
D is incorrect because the purpose of starting the compressors is to dilute local regions of high hydrogen.

Date Written: 7/16/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
28	Both	2	1	203000	203000K118	3.8	3.8	High

System/Evolution Name:
RHR/LPCI: Injection Mode (Plant Specific)

Category Statement:
Knowledge of the physical connections and/or cause- effect relationships between RHR/LPCI: INJECTION MODE and the following:

KA Statement:
Reactor vessel: Plant-Specific

Question Stem:
The plant was operating at power with the "C" RHR system in full flow test at 5050 gpm. An accident occurs that results in increasing drywell pressure, lowering reactor water level and lowering reactor pressure. The following plant conditions exist:

Drywell pressure 2.1 psig (rising)
Reactor water level -150" (wide range, lowering)
Reactor pressure 450 psig (lowering)
RHR MOV Test Prep Switch is in TEST

What is the status of the "C" RHR system?

	Test Valve To Suppr Pool F021	LPCI C Injection Flow to the RPV
A:	closed	no
B:	closed	yes
C:	open	yes
D:	open	no

Answer:
A

Objective LP85205.1.7

Question Source:
New

Question Difficulty
High

Reference Provided:
None

Reference:
CPS 3312.01, RESIDUAL HEAT REMOVAL (RH)
CPS 9053.07 RHR B/C PUMPS & RHR B/C WATER LEG PUMP OPERABILITY

Explanation:
The LOCA results in an initiation signal for RHR. The test valve receives a close signal and the injection valve receives an open signal when reactor pressure is below 472. The testable check valve opens when RHR system pressure is greater than reactor pressure since reactor pressure remains greater than shutoff head the valve is closed.

Distracters:

B is incorrect because the testable check valve remains closed until RHR pump head exceeds vessel pressure.
C is incorrect because the test valve is closed and the testable check valve remains closed.
D is incorrect because the test valve is closed.

Date Written: 10/21/2003 Author: Pickley

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
29	Both	2	1	203000	203000K304	4.6	4.6	High

System/Evolution Name:
RHR/LPCI: Injection Mode (Plant Specific)

Category Statement:
Knowledge of the effect that a loss or malfunction of the RHR/LPCI: INJECTION MODE will have on following:

KA Statement:
Adequate core cooling

Question Stem:
The plant was operating at power with RHR B out of service due to a phase to ground short in the pump motor, when a small break Loss of Coolant Accident occurred. When the main generator tripped, a loss of offsite power occurred. ONLY EDG B started and loaded it's respective bus. Attempts to start the other EDGs were unsuccessful. The following plant conditions are present:

Reactor water level is -160" on Wide Range
Fuel Zone water level is trending down
Drywell pressure is 8 psig
Reactor pressure is 100 psig
Annunciator RHR B/C INJECTION VALVE PERM TO OPEN, 5065-3D is CLEAR

If the loss of power persists, how is adequate core cooling affected by these conditions?

Adequate core cooling is…

A: NOT assured, LPCI flow to the reactor is NOT available.
B: assured if LPCI Injection Valve control switch for the running pump is placed to OPEN.
C: assured if LPCI Injection Valve control switch for the running pump is opened at the Remote Shutdown Panel.
D: assured if LPCI Injection Valve control switch for the running pump is placed to OPEN and the Containment Spray Delay Timer Reset pushbutton is depressed every 10 minutes.

Answer:
A

Objective LP85205.1.4.15

Question Source:
New

Question Difficulty
High

Reference Provided:
None

Reference:
CPS No. 3312.01, RESIDUAL HEAT REMOVAL (RH)

Explanation:
The ONLY system that remains available to inject is RHR C and it lacks the permissive to open the injection valve so adequate core cooling is in jeopardy.

Distracters:

B is incorrect because this action will not open the valve unless the low reactor pressure permissive is satisfied.
C is incorrect because this action will not initiate injection flow because the running pump is C and no controls for the C pump exist at the RSP.
D is incorrect because the injection valve cannot be opened unless the low pressure permissive is satisfied.

Date Written: 8/4/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
30	Both	2	1	205000	205000A109	2.8	2.8	High

System/Evolution Name:
Shutdown Cooling System (RHR Shutdown Cooling Mode)

Category Statement:
Ability to predict and/or monitor changes in parameters associated with operating the SHUTDOWN COOLING SYSTEM/MODE controls including:

KA Statement:
SDC/RHR pump/system discharge pressure

Question Stem:
The plant is in Mode 4 with RHR "B" loop in Shutdown Cooling (SDC) the following plant and system conditions were present:

- RHR "B" system flow is 3000 gpm
- SX supplying flow to RHR "B" HX
- Reactor Coolant Temperature is 190ºF
- Cooldown rate is 15ºF/hr
- Heat exchanger Pressure is 140 psig

The operator throttles CLOSED 1E12-F053B, RHR B To Feedwater S/D Cooling Rtrn Vlv, for 10 seconds.

How does this effect cooldown rate and RHR HX pressure?

Cooldown rate…

A: decreases and HX pressure increases.
B: increases and HX pressure decreases.
C: increases and HX pressure increases.
D: decreases and HX pressure decreases.

Answer:
A

Objective LP85205.1.4.21

Question Source:
New

Question Difficulty
Medium

Reference Provided:
None

Reference:
CPS 3312.03 RHR - SHUTDOWN COOLING (SDC) & FUEL POOL COOLING AND ASSIST (FPC&A)

Explanation:
When throttling 1E12-F053B, RHR B To Feedwater S/D Cooling Rtrn Vlv in the close direction SDC flow is reduced. Since the HX is between the pump discharge and the throttled valve HX pressure increases and the reduced flow decreases cooldown rate.

Distracters:

B is incorrect because the cooldown rate decreases and HX pressure increases.
C is incorrect because the cooldown rate decreases.
D is incorrect because the HX pressure increases.

Date Written: 10/21/2003 Author: Pickley

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
31	Both	2	1	205000	205000A405	3.2	3.2	Low

System/Evolution Name:
Shutdown Cooling System (RHR Shutdown Cooling Mode)

Category Statement:
Ability to manually operate and/or monitor in the control room:

KA Statement:
Minimum flow valves

Question Stem:
The plant is shutdown with Shutdown Cooling in service. What minimum flow protection, if any, protects the RHR pump?

A: Minimum flow protection NOT required in the SDC mode.

B: Manual trip of the pump when flow is less than 1100 gpm.

C: Manual opening of the minimum flow valve when less than 1100 gpm.

D: Automatic opening of the minimum flow valve when flow is less than 1100 gpm.

Answer:
B

Objective LP85205.1.14

Question Source:
New

Question Difficulty
Medium

Reference Provided:

None

Reference:
3312.03 Rev3d pg.19

Explanation:
In the SDC mode the minimum flow valves are deenergized closed to prevent pumping reactor water to the suppression pool. Minimum flow protection is provided by manual pump trip if flow decreases to less than 1100 gpm.

Distracters:

A is incorrect because minimum flow protection is still required in SDC mode.
C is incorrect because the minimum flow valve is deenergized closed to prevent pumping reactor water to the suppression pool.
D is incorrect because automatic opening of the minimum flow valve is deenergized closed precluding any automatic operation.

Date Written: 6/29/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
32	Both	2	1	209001	209001A204	2.9	3.0	High

System/Evolution Name:
Low Pressure Core Spray System

Category Statement:
Ability to (a) predict the impacts of the following on the LOW PRESSURE CORE SPRAY SYSTEM; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations:

KA Statement:
D.C. failures

Question Stem:
The plant had been operating at power when an accident occurred. Multiple failures occurred that resulted in the loss of DC MCC 1A and a very low reactor water level. The failures require the crew to use LPCS to provide adequate core cooling.

How does the loss of DC MCC 1A effect LPCS, and what actions, if any, are required to inject with LPCS?

A: Power is lost to the initiation logic ONLY. LPCS can be lined up for injection and the pump started from the Main Control Room.

B: Power is lost for pump breaker control ONLY. LPCS injection can be started by Arming and Depressing the "LPCS/LPCI FM RHR A MANUAL INITIATION" push-button on P601.

C: Power is lost for pump breaker control ONLY. LPCS can be lined up for injection from the Main Control Room and the pump started by manually closing the pump breaker locally at the breaker.

D: Power is lost to the initiation logic and to pump breaker control. LPCS can be lined up for injection from the Main Control Room but control power to the breaker must be restored to start the LPCS pump.

Answer:
C

Objective LP85209.1.15.6

Question Source:
New

Question Difficulty
High

Reference Provided:
None

Reference:
CPS 3313.01 E001 LOW PRESSURE CORE SPRAY ELECTRICAL LINEUP
CPS 4201.01 C001 LOSS OF 125VDC MCC 1A (1DC13E) LOAD IMPACT LIST
CPS 4201.01 LOSS OF DC POWER

Explanation:
The loss of DC MCC 1A deenergizes the pump breaker control power. In order to start the system it could be aligned from the control room and the pump started by manually closing its breaker locally at the breaker.

Distracters:

A is incorrect because power is not lost to the initiation logic. Control power is lost to the LPCS pump breaker so the pump cannot be started from the MCR.
B is incorrect because power is lost to breaker control and the pump cannot be started from the MCR.
D is incorrect because power is not lost to the initiation logic.

Date Written: 10/21/2003 Author: Pickley

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
33	Both	2	1	209002	209002K603	2.5	2.6	High

System/Evolution Name:
High Pressure Core Spray System (HPCS)

Category Statement:
Knowledge of the effect that a loss or malfunction of the following will have on the HIGH PRESSURE CORE SPRAY SYSTEM (HPCS):

KA Statement:
Component cooling water systems: BWR-5, 6

Question Stem:
The plant experienced an accident that resulted in the following conditions:

- Reactor Water Level -140" and steady
- Reactor Pressure 650 psig slowly lowering
- HPCS automatically started and is injecting at full flow
- Loss of ALL Shutdown Service Water (SX) System occurred and can NOT be restored.
- The ONLY injection system available is High Pressure Core Spray (HPCS).

What is required?

A: Immediately Secure HPCS.
B: Operate HPCS as required to maintain adequate core cooling.
C: Operation of HPCS may ONLY continue until room temperature reaches 150°F.
D: Operation of HPCS may ONLY continue for 6 hours after HPCS room temperature reaches 212°F.

Answer:
B

Objective LP85380.1.14

Question Source:
New

Question Difficulty
Medium

Reference Provided:
None

Reference:
CPS 3309.01 Section 4.3

Explanation:
The HPCS procedure states that "ECCS shall not be secured or placed in manual override unless directed by the EOPs, or by at least two independent indications that: 1. Misoperation in automatic is confirmed, or 2. Adequate core cooling is assured." Since neither of these are true HPCS operation should continue.

Distracters:

A is incorrect even though the Shutdown Service Water Procedure directs HPCS to be secured due to the loss of service water the EOP use of HPCS and HPCS procedure direct its continued use in this condition.
C is incorrect as use of HPCS may continue beyond this condition if it is still required.
D is incorrect as use of HPCS may continue beyond this condition if it is still required.

Date Written: 7/11/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
34	Both	2	1	211000	211000K202	3.1	3.2	Low

System/Evolution Name:
Standby Liquid Control System

Category Statement:
Knowledge of electrical power supplies to the following:

KA Statement:
Explosive valves

Question Stem:
The plant was operating at power with 120 VAC FP Dist. Panel at A.B. MCC 1A1 deenergized due to a breaker failure. An accident occurred that eventually required the crew to start the Standby Liquid Control System (SLC).

What combination of SLC components provides the crew with the MAXIMUM available capacity from the Standby Liquid Control System (SLC)?

A: SLC pump 1C41-C001A and Squib Valve 1C41-F004A ONLY.

B: SLC pump 1C41-C001B and Squib Valve 1C41-F004B ONLY.

C: Both SLC pumps (1C41-C001A/B) and Squib Valve 1C41-F004A ONLY.

D: Both SLC pumps (1C41-C001A/B) and Squib Valve 1C41-F004B ONLY.

Answer:
D

Objective LP85211.1.4.4

Question Source:
New

Question Difficulty
High

Reference Provided:

None

Reference:
CPS 3314.01E001 STANDBY LIQUID CONTROL ELECTRICAL LINEUP

Explanation:
The loss of 120 VAC FP Dist. Panel at A.B. MCC 1A1 results in a loss of power to Squib Valve 1C41-F004A making it unavailable. Even though one of the squib valves is now unavailable both SLC pumps remain available because the single squib valve is capable of passing the flow from both SLC pumps.

Distracters:

A is incorrect because Squib Valve 1C41-F004A is without power and therefore unavailable.
B is incorrect because SLC pump 1C41C01A is available because it is powered and squib valve 1C41-F004B will pass the flow from both pumps.
C is incorrect because squib valve 1C41-F004A is without power and therefore unavailable to the crew.

Date Written: 7/8/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
35	Both	2	1	212000	212000K110	3.2	3.4	High

System/Evolution Name:
Reactor Protection System

Category Statement:
Knowledge of the physical connections and/or cause- effect relationships between REACTOR PROTECTION SYSTEM and the following:

KA Statement:
Main turbine

Question Stem:
An abnormal condition has resulted in the following plant conditions:

- Reactor Power 38%
- Main Turbine Load 23%
- Total Steam Flow 38%
- Bypass valves are partially open.
- Both TCV FST CL & TSV TRIP BYP annunciators are in ALARM.

If the Main Turbine tripped, how would the plant respond?

A: Continue to operate at 38% reactor power.
B: Scram due to high reactor pressure/high flux.
C: Scram immediately due to turbine stop valve closure.
D: Continue to operate on bypass valves at a slightly higher reactor power.

Answer:
B

Objective LP87498.1.10

Question Source:
Bank: {Edited 11604}

Question Difficulty
High

Reference Provided:
None

Reference:
CPS USAR Chapter 15

Explanation:
Below 33.3% , the Turbine Trip RPS Scram is Bypassed. The 38% steam flow is beyond the Bypass Valve Capacity (28.8%) resulting in a scram on high pressure/flux.

Distracters:

A is incorrect, because the current steam flow is greater than bypass valve capacity.
C is incorrect, trip is bypassed as referenced by the TCV FST CL & TSV TRIP BYP annunciators.
D is incorrect, bypass valves won’t pass 38%.

Date Written: 7/11/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
36	Both	2	1	212000	212000A304	3.9	3.8	High

System/Evolution Name:
Reactor Protection System

Category Statement:
Ability to monitor automatic operations of the REACTOR PROTECTION SYSTEM including:

KA Statement:
System status lights and alarms

Question Stem:
The reactor was at 92% power when the Main Turbine tripped.
Two minutes later:

- all 8 Scram Solenoid Energized lights (blue) are LIT at P-680
- all rods are in
- Reactor Pressure peaked at 1190 psig and is now 930 psig.

The control rods inserted due to…

A: ARI actuation that depressurized the Scram Air Header.
B: Backup scram valves energizing to depressurize the Scram Air Header.
C: TCV Fast Closure scram signal that deenergized the scram pilot valves.
D: Reactor High Pressure scram signal that deenergized the scram pilot valves.

Answer:
A
Objective LP85212.1.7

Question Source:
Bank: {11618}

Question Difficulty
Medium

Reference Provided:
None

Reference:
CPS 3305.01, Reactor Protective System

Explanation:
Since the 8 Scram Solenoid Energized lights (blue) are LIT at P-680, RPS has not initiated a scram. Since the rods are in and pressure peaked greater than the ARI setpoint of >1127 psig, the ARI actuation depressurized the scram air header and inserted the control rods.

Distracters:

B is incorrect because RPS solenoids remain energized and the RPS system did not generate a scram signal.
C is incorrect because RPS solenoids remain energized.
D is incorrect because RPS solenoids remain energized.

Date Written: 7/21/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
37	Both	2	1	215003	215003K304	3.6	3.6	High

System/Evolution Name:
Intermediate Range Monitor (IRM) System

Category Statement:
Knowledge of the effect that a loss or malfunction of the INTERMEDIATE RANGE MONITOR (IRM) SYSTEM will have on following:

KA Statement:
Reactor power indication

Question Stem:
The reactor scrammed from power. The crew placed the Reactor Mode Switch to SHUTDOWN but has been unable to verify all rods inserted. All APRMs indicate downscale. The IRMs could not be inserted due to the loss of power. The IRMs currently are all reading less than 25 on Range 1.

For the implementation of EOP-1A:

A: the reactor is subcritical but may NOT stay subcritical during a cooldown.

B: the reactor is subcritical and will stay subcritical during a cooldown.

C: reactor subcriticality cannot be determined.

D: the reactor is NOT subcritical.

Answer:
C

Objective LP87553.1.3.2

Question Source:
New

Question Difficulty
Medium

Reference Provided:
EOP-1A

Reference:
EOP Technical Bases R4

Explanation:
The IRMs are not a valid indication of reactor power unless fully inserted thus the determination of criticality cannot be made.

Distracters:

A is incorrect because the IRMs must be fully inserted, reading less than range 7 and lowering to make the determination that the reactor is subcritical.
B is incorrect because the IRMs must be fully inserted, reading less than range 7 and lowering to make the determination that the reactor is subcritical.
D is incorrect because the IRMs are not a valid indication of reactor power unless fully inserted thus the determination of criticality cannot be made.

Date Written: 10/21/2003 Author: Pickley

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
38	Both	2	1	215004	215004A304	3.6	3.6	High

System/Evolution Name:
Source Range Monitor (SRM) System

Category Statement:
Ability to monitor automatic operations of the SOURCE RANGE MONITOR (SRM) SYSTEM including:

KA Statement:
Control rod block status

Question Stem:
The plant is shutdown all rods are fully inserted and testing is in progress.

- Reactor Mode Switch in STARTUP/HOT STANDBY.
- SRM BYPASS SELECTOR SWITCH is in NEUTRAL.
- All IRMs are on Range 2 and fully inserted.
- All SRMs are partially withdrawn from the core.

- SRM A Failed Upscale
- SRM B 110 cps
- SRM C 105 cps
- SRM D 85 cps

What MINIMUM actions is/are required in order to CLEAR the SRM rod block(s)?

(NOTE: The choices are arranged in MIMIMUM to MAXIMUM order).

Position the SRM BYPASS SELECTOR SWITCH to SRM…

A: A only.

B: A and range IRM D and H to range 3.

C: D and range IRMs A and E to range 3.

D: D and range all IRMs to range 8.

Answer:
B

Objective LP85215.1.8

Question Source:
New

Question Difficulty
Medium

Reference Provided:
None

Reference:
CPS 3306.01 SOURCE/INTERMEDIATE RANGE MONITORS (SRM/IRM) pg.3

Explanation:
SRM A upscale and the SRM D less than 100 cps with divisional IRMs not on range 3 are generating rod blocks. In order to clear the rod blocks both must be cleared which requires bypassing the upscale SRM with the BYPASS SELECTOR SWITCH and ranging the IRMs associated with SRM D to range 3 or above. The IRMs associated with SRD D are IRMs D and H.

Distracters:

A is incorrect because this action alone will not clear the rod block due to IRM D less than 100 cps.
C is incorrect because this action alone will not clear the SRM upscale rod block generated by IRM A.
D is incorrect even though this would clear the rod blocks it does not represent the minimum actions listed that would clear the rod blocks.

Date Written: 10/21/2003 Author: Pickley

Question No:	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
39	Both	2	1	215005	2150052222	3.4	4.1	High

System/Evolution Name:
Average Power Range Monitor/Local Power Range Monitor System

Category Statement:
Equipment Control

KA Statement:
Knowledge of limiting conditions for operations and safety limits.

Question Stem:
The plant was operating at 92% power when turbine control valve failures result in a reactor pressure reduction. Reactor pressure decreases to 650 psig and indicated power on the APRMs decreased to 75%. The Group 1 isolation fails to actuate. The operating crew placed the Reactor Mode Switch to shutdown and closed the MSIVs.

What occurred during this event?

A: Fuel clad integrity safety limit was violated.
B: Likelihood of thermal hydraulic instabilities was increased.
C: Linear heat generation rate limit for some fuel was exceeded.
D: Average planar linear heat generation rate limit was exceeded.

Answer:
A

Objective LP85135.1.2.2

Question Source:
New

Question Difficulty
Medium

Reference Provided:
None

Reference:
T.S. 2.0 SAFETY LIMITS (SLs)

Explanation:
The scenario given represents the violation of the fuel clad integrity safety limit. Reactor power is greater than 21.6% with reactor pressure less than 785 psig.

Distracters:

B is incorrect the likelihood of thermal hydraulic instabilities is not increased by this event.
C is incorrect this reduction in power is global resulting in a power reduction for each core bundle. This would increase the margin to LHGR limit.
D is incorrect with the global reduction in power average linear heat generation rate would decrease and put operation farther away from the limit.

Date Written: 7/7/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
40	Both	2	1	217000	217000A404	3.6	3.6	Low

System/Evolution Name:
Reactor Core Isolation Cooling System (RCIC)

Category Statement:
Ability to manually operate and/or monitor in the control room:

KA Statement:
Manually initiated controls

Question Stem:
The plant was operating at power when a main steam line leak occurred. The reactor scrammed and the MSIVs were closed. Reactor water level decreased resulting in the automatic initiation of RCIC. Following several minutes of operation the RCIC WHITE reset permissive light illuminates.

What is the RCIC system response if the operator DEPRESSES the RCIC MANUAL ISOLATION pushbutton?

The RCIC Steam Supply…

A: Inboard (F063) isolation valve closes.

B: Outboard (F064) isolation valve closes.

C: Inboard (F063) and Outboard (F064) isolation valves close.

D: Inboard (F063) and Outboard (F064) isolation valves remain open.

Answer:
B

Objective LP85217.1.7.2

Question Source:
New

Question Difficulty
Medium

Reference Provided:

None

Reference:
CPS 3310.01 REACTOR CORE ISOLATION COOLING (RI)

Explanation:
The RCIC system automatically initiated on low level and enabled the manual isolation pushbutton. When level increased greater than the RCIC initiation setpoint the WHITE reset permissive light illuminates indicating that the signal to GETARS, the isolation enable, and the RED and WHITE lights can be cleared. Therefore the white light indicates that the manual isolation is enabled. Depressing the manual isolation with the isolation enabled results in a division 1 isolation (F064).

Distracters:

A is incorrect because the Inboard Isolation valve does not close.
C is incorrect because only the outboard valve closes.
D is incorrect because the outboard valve closes.

Date Written: 7/2/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
41	Both	2	1	218000	218000K501	3.8	3.8	High

System/Evolution Name:
Automatic Depressurization System

Category Statement:
Knowledge of the operational implications of the following concepts as they apply to AUTOMATIC DEPRESSURIZATION SYSTEM:

KA Statement:
ADS logic operation

Question Stem:
The plant had been operating at power when a loss of coolant accident occurred that resulted in a low reactor water level and elevated drywell pressure. Additional failures occurred resulting in the following conditions exactly at Noon:

No low pressure ECCS pumps could be started.
125 VDC MCC-1A is deenergized.
Reactor water level is -150"
Drywell pressure is 1.5 psig

Which event(s) would result in actuation of the Automatic Depressurization System (ADS) by 12:04?

A: LPCS starts at 12:06:01.

B: RHR pump B starts at 12:01:46.

C: Drywell pressure increases to1.69 psig at 12:01:00 and RHR pump A starts at 12:02:46.

D: Drywell pressure increases to 1.69 psig at 12:01:00 and RHR pump B starts at 12:02:46.

Answer:
D

Objective LP85218.1.4

Question Source:
New

Question Difficulty
Medium

Reference Provided:
None

Reference:
3101.01 MAIN STEAM (MS, IS & ADS)

Explanation:
The conditions are present to satisfy the logic for ADS actuation from division 1 but the lack of power to the solenoids from Division 1 prevents them opening. In order to satisfy the logic for division 2 the RHR B needs to start and a coincident high DW pressure.

Distracters:

A is incorrect because the loss of 125 VDC MCC-1A eliminates the ADS valve A solenoids. Even though all the conditions are present to satisfy the "A" logic for ADS actuation, the lack of power to the solenoids from Division 1 prevents them opening. In other words satisfying this logic would does not open ADS valves.
B is incorrect because without the high drywell pressure six (6) minutes would have to elapse for the B logic to initiate an ADS Blowdown.
C is incorrect because the loss of 125 VDC MCC-1A eliminates the ADS valve A solenoids. Even though all the conditions are present to satisfy the "A" logic for ADS actuation the lack of power to the solenoids from Division 1 prevents them opening.

Date Written: 7/7/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
42	Both	2	1	223002	2230022130	3.9	3.4	High

System/Evolution Name:
Primary Containment Isolation System/Nuclear Steam Supply Shut-Off

Category Statement:
Conduct of Operations

KA Statement:
Ability to locate and operate components, including local controls.

Question Stem:
The plant was at 75% power when the Reactor scrammed, the Secondary Containment Isolation Dampers (SCIDs) isolated, and the SGTS started on High Drywell Pressure.

Drywell pressure was subsequently restored to 0.7 psig.

To remove the Group 19 isolation to allow the SCIDs to be reopened, the operator must…

A: place both of the CNMT HVAC Isol. Vlv. Rad. INLK to TOTAL BYPASS.

B: push both the Outboard and Inboard Isolation (CRVICS) Seal-In reset pushbuttons.

C: place all 4 of the NSPS Sensor Bypass switches for Drywell Pressure Channel to BYPASS.

D: take the SCID switches to the CLOSED position before taking the SCID switches to OPEN.

Answer:
B

Objective LP85407.1.7

Question Source:
Bank: {18316}

Question Difficulty
High

Reference Provided:
None

Reference:
CPS 4001.02 AUTOMATIC ISOLATION

Explanation:
There are two Inbd/Outbd Isol Seal-In reset PBs in the MCR. When both PBs are depressed the Inbd/Outbd isolation logic for groups 1, 2, 3, 4, 8, 10, 12, 14, 15, 16, 19 and 20 reset, if the initiation signal is clear. Groups 7 & 9 are the only ones that auto reset. The Total Bypass Switch is only used to Reset CNMT, Refuel Pool or CCP Exh Rad Mon trips. The Sensor Channel Bypass switch is only used to ensure no isolation demand from the associated Div logic will be generated not reset.

Distracters:

A is incorrect because CNMT HVAC Isol. Vlv. Rad. INLK to TOTAL BYPASS is not performed to reset the isolation and would not reset the isolation signal that is causing the isolation (high drywell pressure).
C is incorrect because Placing all 4 of the NSPS Sensor Bypass switches to BYPASS is not required to reset the isolation and due to the logic associated with the NSPS Sensor Bypass switches, only (1) channel could be bypassed at a time.
D is incorrect because taking the SCID switches to the CLOSED position before taking the SCID switches to OPEN is not required to reset the isolation nor will it reset the isolation signal.

Date Written: 7/18/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
43	Both	2	1	239002	239002A203	4.1	4.2	High

System/Evolution Name:
Relief/Safety Valves

Category Statement:
Ability to (a) predict the impacts of the following on the RELIEF/SAFETY VALVES; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations:

KA Statement:
Stuck open SRV

Question Stem:
The plant was operating at 92% power when SRV F051G inadvertently opens. The crew attempted unsuccessfully to close the valve by cycling its associated control switch and by fuse removal. Suppression pool temperature is 90ºF.

How does reactor power respond and what actions is/are required? Reactor power..

A: remains at its initial value and a reactor scram per 4100.01 Reactor Scram is required.

B: increases above its initial value and a shutdown and cooldown per CPS 3006.01, Unit Shutdown is required.

C: decreases below its initial value and a shutdown and cooldown per CPS 3006.01, Unit Shutdown is required.

D: increases then decreases to approximately its original value and a reactor scram per 4100.01 Reactor Scram is required.

Answer:
B

Objective PB400901.1.6, PB400901.1.8

Question Source:
New

Question Difficulty
Medium

Reference Provided:

Reference:
CPS 4005.01 LOSS OF FEEDWATER HEATING
CPS 4009.01 INADVERTENT OPENING SAFETY/RELIEF VALVE

Explanation:
The steam passing through the SRV is bypassing the turbine and its drains. This results in a loss of feedwater heating and the resultant increase in reactor power. If the SRV cannot be closed a shutdown and cooldown is required per 4009.01.

Distracters:

A is incorrect power will increase.
C is incorrect because reactor power increases.
D is incorrect power would increase and remain above its original value.

Date Written: 8/4/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
44	Both	2	1	259002	259002K403	2.8	2.8	Low

System/Evolution Name:
Reactor Water Level Control System

Category Statement:
Knowledge of REACTOR WATER LEVEL CONTROL SYSTEM design feature(s) and/or interlocks which provide for the following:

KA Statement:
Reactor feedpump runout protection: MDFP

Question Stem:
What automatic feature would provide RUNOUT protection to the Motor Driven Reactor Feed Pump (MDRFP)?

A: RPV Level 8 pump trip

B: breaker trip on overcurrent

C: pump minimum flow valve operation

D: feedwater control system signal rate limiter

Answer:
B

Objective LP85259.1.8

Question Source:
New

Question Difficulty
Medium

Reference Provided:

None

Reference:
LP85259

Explanation:
The current levels for a pump in a runout condition is higher than design. The long term overcurrent trip can provide protection to the pump motor during this condition.

Distracters:

A is incorrect as this provides over fill protection.
C is incorrect as the minimum flow operation provides protection from conditions of low or no flow.
D is incorrect as a runout condition would occur irrespective of a rate limiter, although it may delay the condition it does not protect against runout

Date Written: 7/7/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
45	Both	2	1	261000	261000K302	3.6	3.9	High

System/Evolution Name:
Standby Gas Treatment System

Category Statement:
Knowledge of the effect that a loss or malfunction of the STANDBY GAS TREATMENT SYSTEM will have on following:

KA Statement:
Off-site release rate

Question Stem:
The plant had been operating at power when an accident occurred that resulted in a small unisolable steam leak into secondary containment. The Standby Gas Treatment system (SGTS) started as required. Shortly after starting a SGTS heater fails.

What effect does this have?

A: Reduced fan efficiency and flow rates.

B: Increased demister differential pressure.

C: Increases the carry over of Charcoal Fines to the HEPA filter.

D: Reduced rates of adsorption of iodine and other heavy gas atoms.

Answer:
D

Question Source:
New

Question Difficulty
High

Objective LP85261.1.4.6

Reference Provided:

None

Reference:
CPS 3319.01, STANDBY GAS TREATMENT (VG)

Explanation:
The loss of the heater results in increased humidity to the charcoal filter that reduces the filters ability to adsorb iodine and other heavy gases.

Distracters:

A is incorrect as this would not significantly impact the fan efficiency and system flow rates are controlled by the inlet damper to the VG train..
B is incorrect the demister is upstream of the heater and therefore unaffected by the heater failure.
C is incorrect because the increased humidity does not increase the production of Charcoal Fines.

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Date Written: 10/21/2003 Author: Pickley

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
46	Both	2	1	262001	262001K502	2.6	2.9	Low

System/Evolution Name:
A.C. Electrical Distribution

Category Statement:
Knowledge of the operational implications of the following concepts as they apply to A.C. ELECTRICAL DISTRIBUTION:

KA Statement:
Breaker control

Question Stem:
What combination of conditions below allows the RHR A Pump breaker to be cycled with the control switch locally at the breaker?

The breaker is racked to…

A: TEST and the Local-Remote selector switch is in LOCAL.

B: TEST and the Local-Remote selector switch is in ANY position.

C: ANY position and the Local-Remote selector switch is in LOCAL.

D: DISCONNECT and the Local-Remote selector switch is in LOCAL.

Answer:
A

Question Source:
New

Question Difficulty
Medium

Objective LP85571.1.6

Reference Provided:
None

Reference:
CPS No. 3501.01, High Voltage Auxiliary Power System
LP85571 AUXILIARY POWER

Explanation:
With the breaker racked to TEST (so that the TOCs, truck operated contacts, are not made-up and DC control power is available) and the Local-Remote switch in LOCAL, the breaker may be cycled locally.

Distracters:

B is incorrect because the Local-Remote selector switch must be in the LOCAL position.
C is incorrect because the breaker must be racked to the TEST position.
D is incorrect because the breaker must be in TEST to supply control power to operate the breaker.

Date Written: 7/14/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
47	Both	2	1	262002	262002A401	2.8	3.1	High

System/Evolution Name:
Uninterruptible Power Supply (A.C./D.C.)

Category Statement:
Ability to manually operate and/or monitor in the control room:

KA Statement:
Transfer from alternative source to preferred source

Question Stem:
The plant is operating at rated power with all Scram Solenoid Energized lights lit.

The C area operator transfers the NSPS Solenoid Bus B from Alternate Power to the Inverter.

During the transfer how many Scram Solenoid Energized lights on P-680 will deenergize?

A: 0

B: 2

C: 4

D: 8

Answer:
C

Objective LP85576.1.4.6

Question Source:
New

Question Difficulty
Low

Reference Provided:
None

Reference:
CPS 3509.01 INSTRUMENT POWER SYSTEM (IP)

Explanation:
The transfer is a break before make which will deenergize and then reenergize the solenoid bus. The B bus powers half of the RPS solenoids and thus half or 4 lights will deenergize.

Distracters:

A is wrong because the transfer is a break before make.
B is wrong because 4 lights will deenergize
D is wrong because 4 lights will deenergize

Date Written: 10/23/2003 Author: Pickley

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
48	Both	2	1	263000	263000K402	3.1	3.5	Low

System/Evolution Name:
D.C. Electrical Distribution

Category Statement:
Knowledge of D.C. ELECTRICAL DISTRIBUTION design feature(s) and/or interlocks which provide for the following:

KA Statement:
Breaker interlocks, permissives, bypasses and cross ties: Plant-Specific

Question Stem:
The Division 2 DC System Battery Charger high DC voltage shutdown relay has actuated.

What automatic action is initiated by this relay?

A: Battery Charger AC input breaker trips.

B: Interrupts control power to the charger.

C: Battery Charger DC output breaker trips.

D: 125 VDC BATTERY CHARGER 1B, 1DC07E TROUBLE annunciator ONLY.

Answer:
A

Objective LP85263.1.4

Question Source:
New

Question Difficulty
High

Reference Provided:
None

Reference:
CPS 5061.04

Explanation:
The battery chargers are equipped with high DC voltage shutdown relays. The relay actuates at a charger output of 138 VDC. A shunt trip device controlled by the relay opens the affected charger AC input breaker.

Distracters:

B is incorrect as this action occurs on the division 3 charger only.
C is incorrect as this action does not occur.
D is incorrect as the annunciation is NOT the ONLY action initiated by the high voltage.

Date Written: 7/7/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
49	Both	2	1	263000	263000A201	2.8	3.2	High

System/Evolution Name:
D.C. Electrical Distribution

Category Statement:
Ability to (a) predict the impacts of the following on the D.C. ELECTRICAL DISTRIBUTION; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations:

KA Statement:
Grounds

Question Stem:
The plant was operating at power when annunciator GROUND ON 125V DC MCC 1A OR DISTRIBUTION PANEL 1A, 5060-3E alarmed. The NLO reports that the ground detector supply breaker is closed and that a ground exists.

What is the operational concern with grounds in the Battery and DC Voltage System, and what action is required?

The ground could cause…

A: system instrumentation to read unreliably. Deenergize 125V DC MCC 1A immediately.

B: equipment to fail in the energized state. Locate and isolate the ground as soon as practical.

C: each DC load to draw more amps than normal. Locate and isolate the ground as soon as practical.

D: an increase in system voltage and reduction in load amps. Deenergize 125V DC MCC 1A immediately.

Answer:
B

Objective LP85263.1.10, .1.15

Question Source:
Modified: {11253}

Question Difficulty
Medium

Reference Provided:
None

Reference:
CPS 3503.01 BATTERY AND DC DISTRIBUTION (DC)
LP85263 BATTERY AND DC DISTRIBUTION SYSTEM

Explanation:
Grounds in the DC system can cause equipment to fail in the energized state instead of the de-energized state. This may affect a protective system performance. The ground detector is part of the available instrumentation for the system and is used to detect the presence of grounds on a bus by measuring voltage (potential to ground). CPS 3503.01 BATTERY AND DC DISTRIBUTION (DC) requires the ground be located and isolated as soon as practical.

Distracters:

A is incorrect because system instrumentation is largely unaffected and the procedure does not require immediate deenergization of the bus.
C is incorrect because a ground would not cause EACH load to draw more amps than normal.
D is incorrect as voltage would not increase and immediate deenergization of the bus is not required.

Date Written: 7/18/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
50	Both	2	1	264000	264000K506	3.4	3.5	Low

System/Evolution Name:
Emergency Generators (Diesel/Jet)

Category Statement:
Knowledge of the operational implications of the following concepts as they apply to EMERGENCY GENERATORS (DIESEL/JET):

KA Statement:
Load sequencing

Question Stem:
Which one of the following describes the RHR Pump start sequence on a LPCI initiation signal concurrent with a Loss of Offsite

A: Each pump starts 5 seconds after its respective Emergency Diesel Generator Output Breaker is closed.

B: Each pump starts immediately after its respective Emergency Diesel Generator Output Breaker is closed.

C: After their respective Emergency Diesel Generator Output Breaker is closed, RHR Pumps A and B start without delay, and RHR Pump C starts after a 5 second time delay.

D: After their respective Emergency Diesel Generator Output Breaker is closed, RHR Pumps A and B start after a 5 second time delay, and RHR Pump C starts immediately.

Answer:
D

Objective LP85571.1.15.4

Question Source:
Bank: {6565}

Question Difficulty
Medium

Reference Provided:
None

Reference:
CPS 3312.01 RESIDUAL HEAT REMOVAL (RHR)
LP85571

Explanation:
When automatically initiated, RH Pumps A and B start after a five-second time delay when the associated bus is powered by its diesel generator. This delay allows time for the diesel generator to accelerate and also permits the staggered application of starting loads to the bus. RH Pump C starts immediately upon receipt of an initiation signal.

Distracters:

A is incorrect because the C pump starts immediately.
B is incorrect because A and B pump start after a five second time delay.
C is incorrect because A and B pump start after a five second time delay and C pump starts immediately.

Date Written: 7/16/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
51	Both	2	1	300000	300000K403	2.8	2.8	High

System/Evolution Name:
Instrument Air System (IAS)

Category Statement:
Knowledge of (INSTRUMENT AIR SYSTEM) design feature(s) and or interlocks which provide for the following:

KA Statement:
Securing of IAS upon loss of cooling water

Question Stem:
The plant was operating when a very large pipe rupture occurred in the CCW system and resulted in the instantaneous loss of the CCW system.

Which of the following sensing points provides the FIRST signal to trip the Air Compressors?

A: lube oil temperature

B: cooling water pressure

C: discharge air temperature

D: interstage air temperature

Answer:
B

Objective LP85301.1.4.1

Question Source:
New

Question Difficulty
Medium

Reference Provided:

None

Reference:
CPS 4004.01 INSTRUMENT AIR LOSS
CPS 3214.01 PLANT AIR (IA & SA)

Explanation:
The near instantaneous rupture of the system and subsequent trip of the CC pumps would result in the loss of cooling water pressure to the compressors and their trip. The loss of cooling water pressure would be the first signal to trip the compressors.

Distracters:

A is incorrect because the compressors would trip on low cooling pressure before the high lube oil temperature trip would occur.
C is incorrect because the compressors would trip on low cooling pressure before discharge air temp reaches its trip point.
D is incorrect because a high interstage temperature generates an alarm and not a trip.

Date Written: 7/23/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
52	Both	2	1	300000	300000K201	2.8	2.8	Low

System/Evolution Name:
Instrument Air System (IAS)

Category Statement:
Knowledge of electrical power supplies to the following:

KA Statement:
Instrument air compressor

Question Stem:
What are the power supplies to the following Service Air Compressor motors?

	"0" Compressor	"1" Compressor
A:	4160 VAC Bus 1A	4160 VAC Bus 1B
B:	4160 VAC Bus 1A	4160 VAC Bus 1A
C:	4160 VAC Bus 1B	4160 VAC Bus 1B
D:	4160 VAC Bus 1B	4160 VAC Bus 1A

Answer:
A

Objective LP85301.1.4.1

Question Source:
New

Question Difficulty
Medium

Reference Provided:
None

Reference:
CPS No. 3214.01E001, PLANT AIR ELECTRICAL LINEUP

Explanation:
The Service Air Compressor motor power supplies are:
"0" Compressor - 4160 VAC Bus 1A
"1" Compressor - 4160 VAC Bus 1B
"2" Compressor - 4160 VAC Bus 1B

Distracters:

B is incorrect because 4160VAC Bus 1B provides power to "1" Compressor.
C is incorrect because 4160VAC Bus 1A provides power to "0" Compressor.
D is incorrect because 4160VAC Bus 1A provides power to "0" Compressor and 4160VAC Bus 1B provides power to "1" Compressor.

Date Written: 7/14/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
53	Both	2	1	400000	400000A301	3.0	3.0	Low

System/Evolution Name:
Component Cooling Water System (CCWS)

Category Statement:
Ability to monitor automatic operations of the CCWS including:

KA Statement:
Setpoints on instrument signal levels for normal operations, warnings, and trips that are applicable to the CCWS

Question Stem:
Which of the following describes the automatic actions(s) that occur for a lowering level in the Component Cooling Water (CC) Expansion Tank and the setpoint that the action occurs?

A: At 48" the expansion tank low level alarm annunciates and idle CC pump(s) start permissive is removed.

B: At 24" the operating CC pump(s) trip and the idle CC pump(s) start permissive is NOT removed

C: At 48" the operating CC pump(s) trips and the idle CC pump(s) start permissive is removed.

D: At 24" the operating CC pump(s) trip and the idle CC pump(s) start permissive is removed.

Answer:
D

Question Source:
New

Question Difficulty
Medium

Objective LP85208.1.10.1

Reference Provided:
None

Reference:
CPS No. 3203.01 Component Cooling Water (CC)

Explanation:
When CC expansion tank level goes below 24" the operating CC pumps trip and the idle pumps are locked out to prevent their start.

Distracters:

A is incorrect because the idle CC pump start permissive is not removed.
B is incorrect because the idle pumps are locked out.
C is incorrect because the operating pumps do not trip and the start permissive is not lost until level is below 24".

Date Written: 7/20/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
54	Both	2	2	201001	201001A110	2.8	2.6	High

System/Evolution Name:
Control Rod Drive Hydraulic System

Category Statement:
Ability to predict and/or monitor changes in parameters associated with operating the CONTROL ROD DRIVE HYDRAULIC SYSTEM controls including:

KA Statement:
CRD cooling water flow

Question Stem:
The plant was operating at normal pressure with C11-F002A, CRD Flow Control Valve A in service and in automatic control. The following CRD indications were present:

- Cooling water flow is 45 gpm
- Drive water D/P is 225 psid
- Cooling water D/P is 15 psid
- No Rod Motion is in Progress

The operator adjusts 1C11-F003, CRD Drive Pressure Control Valve in the closed direction.

What will be the FINAL effect on the CRD System parameters?

A: Drive water D/P increases and cooling water flow decreases.
B: Drive water D/P decreases and cooling water flow decreases.
C: Drive water D/P increases and cooling water flow remains the same.
D: Drive water D/P decreases and cooling water flow remains the same.

Answer:
C

Objective LP85201.1.10

Question Source:
New

Question Difficulty
Medium

Reference Provided:
None

Reference:
Control Rod Drive Hydraulics System, GEK-75641A

Explanation:
When the pressure control valve is throttled closed the drive water d/p increases but flow is maintained constant by the flow control valve. This results in maintaining cooling water flow constant.

Distracters:

A is incorrect because cooling water flow remains the same.
B is incorrect because drive water D/P increases.
D is incorrect because drive water D/P increases.

Date Written: 11/4/2003 Author: Pickley

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
55	Both	2	2	214000	214000K106	3.4	3.4	Low

System/Evolution Name:
Rod Position Information System

Category Statement:
Knowledge of the physical connections and/or cause- effect relationships between ROD POSITION INFORMATION SYSTEM and the following:

KA Statement:
RCIS: Plant-Specific

Question Stem:
A reactor startup is in progress with Control Rod 20-21 is at notch 44 with a failed open "A" channel reed switch.

The operator_____________ withdraw rod 20-21_____________ .

A: MAY, using Substitute Data from the good reed switch

B: MAY, WITHOUT Substituting Data from the good reed switch

C: MAY NOT, because BOTH reed switches are required by RC&IS

D: MAY NOT, because BOTH reed switches are required by Technical Specifications

Answer:
A

Objective LP85401.1.7.1

Question Source:
Bank: {11562}

Question Difficulty
Medium

Reference Provided:

None

Reference:
CPS 3304.02 Rev 15a, Rod Control and Information System

Explanation:
The use of Substitute Position Data may be used for stuck-open reed switches in 1 channel of the 2 channel position probe using data from the good reed switch.

Distracters:

B is incorrect because there is a disagreement between the two channels that will generate a Rod Block
C is incorrect because substitution is allowed by RC&IS.
D is incorrect because substitution is allowed and BOTH reed switches are not required by Technical Specifications.

Date Written: 7/16/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
56	Both	2	2	239003	239003A403	3.3	3.2	High

System/Evolution Name:
MSIV Leakage Control System

Category Statement:
Ability to manually operate and/or monitor in the control room:

KA Statement:
Main steamline pressures: BWR-4, 5, 6

Question Stem:
The following plant conditions exist:

- 1B21-F028A thru D are open
- 1B21-F098A thru D are open
- 1B21-F022A thru D are shut
- RPV pressure is 15 psig
- Main Steam pressure is 25 psig
- Annunciator 5067-2H PERMISSIVE TO INITIATE INBD MSIV LCS is NOT alarming

Which of the following would satisfy all interlocks for the initiation of the Inboard MSIV-LC system?

A: Close 1B21-F028A thru D

B: Close 1B21-F098A thru D

C: Reducing Main Steam pressure

D: Reducing RPV pressure

Answer:
C

Objective LP85431.1.4.1

Question Source:
New

Question Difficulty
High

Reference Provided:
None

Reference:
5067.02

Explanation:
The only interlock not satisfied is Main Steam pressure <20 psig

Distracters:

A is wrong the F028 valves do not need to shut for the Inboard MSIC-LC system.
B is wrong the F098 valves do not need to shut for the Inboard MSIC-LC system.
D is wrong because RPV pressure is less than the interlock of 20 psig

Date Written: 11/4/2003 Author: Pickley

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
57	Both	2	2	216000	216000A301	3.4	3.4	Low

System/Evolution Name:
Nuclear Boiler Instrumentation

Category Statement:
Ability to monitor automatic operations of the NUCLEAR BOILER Instrumentation including:

KA Statement:
Relationship between meter/recorder readings and actual parameter values: Plant-Specific

Question Stem:
The plant was initially at 92% power when a scram occurred. After a cooldown initiated by the crew the following conditions were present:

Reactor Pressure is 200 psig
Indicated Narrow Range (NR) Level is 35"

How does indicated Wide Range (WR) water level and actual water level compare to indicated Narrow Range (NR) level?

Indicated WR level is…
A: less than indicated NR level AND actual level is less than indicated NR level.
B: greater than indicated NR level AND actual level is less than indicated NR level.
C: greater than indicated NR level AND actual level is greater than indicated NR level.
D: less than indicated NR level AND actual level is approximately equal to indicated NR level.

Answer:
B

Objective LP85423.1.10.3

Question Source:
New

Question Difficulty
High

Reference Provided:
None

Reference:
Nuclear Boiler Instrumentation System Description

Explanation:
Both NR and the WR instruments are calibrated hot and because the Wide Range Variable Leg instrument tap is approximately 42 inches lower than the Narrow Range Variable Leg instrument tap, any deviation in variable leg (Reactor downcomer) density is more pronounced in the Wide Range Instrument. Due to this, when vessel temperature is lower than rated, the Wide Range Instruments will tend to read higher than the Narrow range instruments. The lower the temperature in the vessel the wider the gap between the Narrow and Wide Range instruments. In addition since conditions are cooler than calibration conditions both NR and WR indicate higher than actual level.

Distracters:

A is incorrect because WR will indicate greater than NR with the off calibration conditions.
C is incorrect because indicated WR level is greater than indicated NR and actual level is less than indicated NR.
D is incorrect because WR will indicate greater than NR and actual level is less than indicated NR.

Date Written: 10/21/2003 Author: Pickley

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
58	Both	2	2	226001	226001K604	2.7	2.7	High

System/Evolution Name:
RHR/LPCI: Containment Spray System Mode

Category Statement:
Knowledge of the effect that a loss or malfunction of the following will have on the RHR/LPCI: CONTAINMENT SPRAY SYSTEM MODE:

KA Statement:
Keep fill system

Question Stem:
The RHR B heat exchanger pressure was determined to be 0 psig.

What long term effect does this have on the usage of RHR B when needed in an emergency for Containment Spray?

A: RHR B can be used for Containment Spray and water hammer may occur.

B: RHR B can be used for Containment Spray and no system problems will occur.

C: RHR B shall NOT be used for Containment Spray and the pump breaker should be racked out.

D: RHR B shall NOT be used for Containment Spray and the pump control power fuses should be removed.

Answer:
A

Objective LP85205.1.15.2

Question Source:
New

Question Difficulty
Medium

Reference Provided:
None

Reference:
CPS 5065.05

Explanation:
The control power fuses should be removed but in an emergency the fuses would be replaced and the system used for containment spray.

Distracters:

B is incorrect because water hammer and system damage could occur.
C is incorrect because the breaker is not required to be racked out.

Date Written: 10/21/2003 Author: Pickley

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
59	Both	2	2	233000	233000K506	2.5	2.7	Low

System/Evolution Name:
Fuel Pool Cooling and Clean-up

Category Statement:
Knowledge of the operational implications of the following concepts as they apply to FUEL POOL COOLING AND CLEAN-UP:

KA Statement:
Maximum normal heat load

Question Stem:
What is the highest Spent Fuel Pool temperature, due to Maximum normal heat load, that is expected to occur using one FC pump and two FC heat exchangers.

A: 90 °F

B: 120 °F

C: 150 °F

D: 180 °F

Answer:
B

Objective LP85205.1.1.6

Question Source:
New

Question Difficulty
Medium

Reference Provided:

None

Reference:
CPS No. 3317.01 FUEL POOL COOLING AND CLEANUP (FC)

Explanation:
The spent fuel pool bulk temperature shall remain at or below 120°F for Maximum normal heat load with one of the two trains (1 pump and one heat exchanger operating) of the Fuel Pool Cooling and Cleanup System (FPCCS) assumed to be in operation. The other train (one pump and one heat exchanger) is assumed to be the single active failure.

Distracters:

A is an incorrect temperature
C is an incorrect temperature
D is an incorrect temperature

Date Written: 10/21/2003 Author: Pickley

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
60	Both	2	2	245000	245000A303	2.8	2.9	High

System/Evolution Name:
Main Turbine Generator and Auxiliary Systems

Category Statement:
Ability to monitor automatic operations of the MAIN TURBINE GENERATOR AND AUXILIARY SYSTEMS including:

KA Statement:
Generator megawatt output

Question Stem:
The Main Generator is operating at 980 MWe when the Main Turbine load setpoint is lowered from 1000 to 950 MWe without changing reactor power. What effect, if any, does this have on operation?

A: Reactor scrams due to high RPV pressure.

B: Plant operation continues with a Main Generator load of 980 MWe.

C: Turbine Bypass Valves open to control pressure and Main Generator load decreases to 950 MWe.

D: Turbine bypass valves remain closed due to bias. Main generator load decreases to 950 MWe and reactor pressure increases slightly.

Answer:
C

Objective LP85241.1.4.9

Question Source:
Bank: {Edited 06114}

Question Difficulty
Medium

Reference Provided:
None

Reference:
CPS USAR Section 10.2.2.3, Electrohydraulic Control System
Steam Bypass and Pressure Control System Description

Explanation:
When the load setpoint is lowered below the generator load an error is generated between the steam flow demand signal and the control valve flow signal. This error overcomes the bias that keeps the turbine BPVs closed. The BPVs open and control pressure.

Distracters:

A is incorrect because a reactor scram due to high RPV pressure does not occur.
B is incorrect because generator load is reduced.
D is incorrect because the BPVs open to control pressure.

Date Written: 7/14/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
61	Both	2	2	256000	2560002132	3.4	3.8	Low

System/Evolution Name:
Reactor Condensate System

Category Statement:
Conduct of Operations

KA Statement:
Ability to explain and apply system limits and precautions.

Question Stem:
Why is hotwell level maintained below 75 inches when the plant is shutdown?

A: Prevents exceeding the design mass of the condenser hotwell.

B: Reduce the total amount of absorbed CO_2 in the hotwell water.

C: Prevents excessive galvanic corrosion of condenser tube sheets.

D: Prevents path for leakage of radioactivity outside the condenser.

Answer:
D

Objective LP85256.1.18.9

Question Source:
New

Question Difficulty
Medium

Reference Provided:
None

Reference:
CPS 3104.01 CONDENSATE/CONDENSATE BOOSTER (CD/CB) pg.7

Explanation:
Maintaining level in the condenser hotwell less than 75 inches prevents condensate from contacting condenser tubes to assure that no path exists for leakage of radioactivity outside the condenser.

Distracters:

A is incorrect because the reason for the limit is radioactive leakage considerations.
B is incorrect because CO_2 reduction during a shutdown is accomplished by leaving the condensate polishers in service as long as possible because they reduce the CO_2 content of the water going to the reactor and not by maintenance of a low hotwell level.
C is incorrect even thought the possibility exists for galvanic corrosion at high hotwell levels, the reason for maintenance of lower hotwell levels is radioactive leakage considerations.

Date Written: 6/30/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
62	Both	2	2	268000	268000K304	2.7	2.8	Low

System/Evolution Name:
Radwaste

Category Statement:
Knowledge of the effect that a loss or malfunction of the RADWASTE will have on following:

KA Statement:
Drain sumps

Question Stem:
The plant was operating at power when the Radwaste Operating Center reported that equipment failures in radwaste required securing the lineup to receive pump discharge from the Aux Building Floor Drain Tank. This report is followed later in the Shift by the HIGH-HIGH LEVEL FLR/EQUIP DRN TANK-AUX BLDG 5013-5E alarm.

How/where is the Aux Building floor drain tank water directed?

Aux Building floor drain tank…

A: overflows to the RHR C Floor Drain Sump.

B: overflows to the Fuel Building Floor Drain Tank.

C: pump discharge is aligned to the Fuel Building Floor Drain Tank.

D: pump discharge is aligned to the RW Equipment Drain Collector Tank.

Answer:
B

Objective LP85304.1.4.18

Question Source:
New

Question Difficulty
High

Reference Provided:
None

Reference:
CPS No. 5013.05 ALARM PANEL 5013 ANNUNCIATORS
CPS No. 3219.01, CT, AB, FB FLOOR DRAIN (RF)

Explanation:
The AB Floor Drain Tank is provided with an overflow to the Fuel Building Floor Drain Tank.

Distracters:

A is incorrect as the tank overflow goes to the Fuel Building Floor Drain Tank.
C is incorrect as it is the tank overflow not the pump discharge that goes to the Fuel Building Floor Drain Tank.
D is incorrect as the pump discharge cannot be aligned to the RW Equipment Drain Collector Tank.

Date Written: 8/4/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
63	Both	2	2	271000	271000K508	2.5	2.6	Low

System/Evolution Name:
Offgas System

Category Statement:
Knowledge of the operational implications of the following concepts as they apply to OFFGAS SYSTEM:

KA Statement:
Charcoal absorption of fission product gases

Question Stem:
Why are the Off-gas system charcoal beds maintained at low temperatures?

The low temperatures . . .

A: freeze any remaining moisture in the Off-gas stream to prevent its intrusion onto the charcoal.

B: increase the adsorption coefficients of Krypton and Xenon increasing selective adsorption and retention.

C: reduces the relative humidity of the Off-gas stream in the charcoal beds increasing adsorption of Krypton and Xenon.

D: increases density of the charcoal thereby reducing the volume and increasing the stream contact time with the charcoal

Answer:
B

Objective LP85271.1.4.8

Question Source:
New

Question Difficulty
High

Reference Provided:
None

Reference:
LP85271, Offgas System
OFFGAS System Description

Explanation:
Low temperature improves the adsorption process efficiency of the charcoal for radioactive isotopes contained in the Off-gas (OG) System. The Off-gas HVAC system (VO) maintains the vault temperature at approximately 0°F.

Distracters:

A is incorrect as freezing water in or on the charcoal bed would not improve its ability to adsorb Xe and Kr. In addition the relative humidity of the off gas stream should be sufficiently below the temperature of the charcoal beds.
C is incorrect because the relative humidity of the off-gas stream is controlled by components upstream of the charcoal beds.
D is incorrect because increasing the charcoal density would reduce the contact time.

Date Written: 7/2/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
64	Both	2	2	286000	286000K303	3.6	3.8	Low

System/Evolution Name:
Fire Protection System

Category Statement:
Knowledge of the effect that a loss or malfunction of the FIRE PROTECTION SYSTEM will have on following:

KA Statement:
Plant protection

Question Stem:
In the Service Building, normal AC power was lost to Halon Fire Control Cabinet, 1FP24J, for the Security Computer Room.

How does this effect fire protection in the area served by this cabinet?

Automatic protection is lost…

A: immediately but the system can be manually actuated by the ELECTRIC CONTROL HEAD MANUAL PULL LEVER.

B: immediately but the system can be manually actuated by the MANUAL PULL STATION or from the MANUALLY OPERATED PRESSURE SWITCH.

C: after approximately 24 hours following which the system can be manually actuated by the ELECTRIC CONTROL HEAD MANUAL PULL LEVER.

D: after approximately 24 hours following which the system can be manually actuated by the MANUAL PULL STATION or from the MANUALLY OPERATED PRESSURE SWITCH.

Answer:
C

Objective LP85286.1.10.11

Question Source:
New

Question Difficulty
High

Reference Provided:

None

Reference:
CPS No. 3213.01, FIRE DETECTION AND PROTECTION

Explanation:
Following a loss of normal AC power the Halon systems are supplied power for approximately 24 hours from the DC batteries. On an extended loss of normal AC power, greater than 24 hours, the affected Halon system would be inoperable due to low DC voltage. The system would not actuate automatically, with the manual pull station, or from the manually operated pressure switch. It could be actuated manually with the manual pull lever located on the Electric Control Head.

Distracters:

A is incorrect because the battery will supply automatic protection for approximately 24 hours.
B is incorrect because the battery will supply automatic protection for approximately 24 hours.
D is incorrect because after the battery power is lost neither the manual pull station nor the manually operated pressure switch will actuate the system..

Date Written: 7/20/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
65	Both	2	2	290002	290002K507	3.9	4.4	High

System/Evolution Name:
Reactor Vessel Internals

Category Statement:
Knowledge of the operational implications of the following concepts as they apply to REACTOR VESSEL INTERNALS:

KA Statement:
Safety limits

Question Stem:
The plant was operating at rated power when a transient occurred. During the transient reactor water level fell to -180 inches on the fuel zone instruments before the crew recovered reactor water level with HPCS.

What is the MINIMUM authority that can authorize restart of the plant?

Power Plant Manager...

(Note: Choices are arranged in order from MINIMUM authority to MAXIMUM authority)

A: Only
B: and Site Vice President
C: and Executive Vice President responsible for overall plant nuclear safety
D: and the NRC

Answer:
D

Objective LP85135.1.2.2

Question Source:
New

Question Difficulty
Medium

Reference Provided:
None

Reference:
T.S. 2.0 SAFETY LIMITS (SLs)

Explanation:
The scenario given represents the violation of the fuel clad integrity safety limit. Reactor water level decreased below the TAF. Operation of the unit shall not be resumed until authorized by the NRC.

Distracters:

A is incorrect the Power Plant Manager cannot solely authorize restart after violation of safety limit.
B is incorrect the Power Plant Manager and Site Vice President cannot solely authorize restart after violation of safety limit.
C is incorrect the Power Plant Manager and Executive Vice President responsible for overall plant nuclear safety cannot solely authorize restart after a safety limit violation.

Date Written: 6/27/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
66	Both	3		294001	2940012117	3.5	3.6	Low

System/Evolution Name:
-1

Category Statement:
Conduct of Operations

KA Statement:
Ability to make accurate, clear and concise verbal reports.

Question Stem:
You are a Main Control Room drill participant for the annual emergency plan exercise. As part of the exercise you are required to direct an NLO to simulate closing the breaker for the LPCS Injection Shutoff Valve 1E21-F005 at Aux. Bldg.480 VAC MCC 1A3.

How is this REQUIRED to be communicated to the NLO participating in the drill?

A: "Simulate Closing LPCS Injection Shutoff Valve 1E21-F005 Breaker at Aux. Bldg.480 VAC MCC 1A3".

B: "This is a drill, Simulate Closing LPCS Injection Shutoff Valve 1E21-F005 Breaker at Aux. Bldg.480 VAC MCC 1A3".

C: "Simulate Closing LPCS Injection Shutoff Valve 1E21-F005 Breaker at Aux. Bldg.480 VAC MCC 1A3. This is a drill".

D: "This is a drill, Simulate Closing LPCS Injection Shutoff Valve 1E21-F005 Breaker at Aux. Bldg.480 VAC MCC 1A3. This is a drill".

Answer:
D

Objective PBAD004.25

Question Source:
New

Question Difficulty
Medium

Reference Provided:
None

Reference:
OP-AA-104-101, Communications

Explanation:
OP-AA-104-101, Communications procedure requires the operator to "PREFACE and END all drill emergency communications with “This is a Drill”."

Distracters:

A is incorrect because this communication does not begin with or end with "this is a drill".
B is incorrect because the communication is not also ended with "this is a drill".
C is incorrect because the communication is not prefaced with "this is a drill".

Date Written: 7/10/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
67	Both	3		294001	2940012118	2.9	3.0	Low

System/Evolution Name:
-1

Category Statement:
Conduct of Operations

KA Statement:
Ability to make accurate, clear and concise logs, records, status boards, and reports.

Question Stem:
With the plant operating at power, which event is REQUIRED to be logged in the RO narrative log?

A: near miss due to a clearance error

B: forecast with 80% chance of thunderstorms

C: minor main generator voltage adjustment to maintain south bus voltage

D: annunciators received associated with a scheduled and logged surveillance and that are expected

Answer:
A

Objective PBAD011.1.6

Question Source:
New

Question Difficulty
Medium

Reference Provided:

None

Reference:
OP-AA-111-101, OPERATING NARRATIVE LOGS AND RECORDS

Explanation:
The near miss is specifically indicated in OP-AA-111-101, OPERATING NARRATIVE LOGS AND RECORDS as an item to be logged.

Distracters:

B is incorrect as warnings and alerts of dangerous weather are logged not forecasts of that weather.
C is incorrect as no major equipment is STARTED or STOPPED.
D is incorrect as the annunciators are expected.

.
Date Written: 10/21/2003 Author: Pickley

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
68	Both	3		294001	2940012111	3.0	3.8	High

System/Evolution Name:
-1

Category Statement:
Conduct of Operations

KA Statement:
Knowledge of less than one hour technical specification action statements for systems.

Question Stem:
A plant startup was in progress with power at 19% and CRD pump A out of service for motor replacement when at 10:00 CRD pump B trips on overcurrent. The following accumulator trouble alarms were received due to low pressure:

At 10:10 CRD accumulator 16-09 with the control rod at position 00
At 10:15 CRD accumulator 28-21 with the control rod at position 12
At 10:20 CRD accumulator 44-13 with the control rod at position 48

If NO CRD pump is restored to service, what is the LATEST time allowed by Technical Specifications to place the Reactor Mode Switch to SHUTDOWN?

A: 10:20

B: 10:30

C: 10:35

D: 10:40

Answer:
C

Question Source:
New

Question Difficulty
High

Objective LP85201.1.17

Reference Provided:

None

Reference:
Technical Specification 3.1.5 Control Rod Scram Accumulators

Explanation:
Technical Specification 3.1.5 requires that when two or more accumulators are inoperable that charging water header pressure be restored to greater than or equal to 1520 psig (1600 psig). The completion time is 20 minutes from the time of discovery of the concurrent conditions of inop accumulators and low charging water pressure. When the 20 minutes expire the completion time is not met and 3.1.5.D requires the mode switch be placed to shutdown immediately.

Distracters:

A is incorrect as this would be only 5 minutes after discovery of the concurrent conditions of inop accumulators and low charging pressure.
B is incorrect as this would be only 15 minutes after discovery of the concurrent conditions of inop accumulators and low charging.
D is incorrect as this would be in excess of the 20 minutes allowed following discovery of the concurrent conditions. This distracter would be chosen if the candidate held the misconception that inserted control rod accumulators were not required to be operable.

Date Written: 7/9/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
69	Both	3		294001	2940012130	3.9	3.4	High

System/Evolution Name:
-1

Category Statement:
Conduct of Operations

KA Statement:
Ability to locate and operate components, including local controls.

Question Stem:
The plant was shutdown with maintenance in progress on HPCS. The breaker to HPCS Storage Tank Suction Valve, F001 was OFF. A change in the scope of the maintenance required the MANUAL CLOSURE of HPCS Storage Tank Suction Valve, F001. No actual work was performed on HPCS Storage Tank Suction Valve, F001.

Following completion of maintenance and removal of the clearance, what are the MINIMUM required action(s), to declare HPCS Storage Tank Suction Valve, F001 operable?

(Note: Choices are listed in order of MINIMUM to MAXIMUM)

A: Stroke the valve electrically twice.

B: Manually unseat the valve and demonstrate operation electrically.

C: Stroke the valve manually twice and demonstrate operation electrically.

D: Manually unseat the valve and stroke the valve electrically twice.

Answer:
B

Objective LP87465.1.5

Question Source:
New

Question Difficulty
Medium

Reference Provided:
None

Reference:
OP-CL-108-101-1001 GENERAL EQUIPMENT OPERATING REQUIREMENTS

Explanation:
An MOV which has been manually seated shall be declared inoperable, and manually unseated prior to attempting remote operation.

Distracters:

A is incorrect because the valve must first be unseated manually
C is incorrect because the valve need not be stroked twice manually.
D is incorrect because the valve need not be stroked twice electrically.

Date Written: 7/9/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
70	Both	3		294001	2940012224	2.6	3.8	Low

System/Evolution Name:
-1

Category Statement:
Equipment Control

KA Statement:
Ability to analyze the affect of maintenance activities on LCO status.

Question Stem:
RCIC was declared inoperable and taken out of service to perform preventative maintenance work on the governor valve. The governor valve maintenance was subsequently completed.

The earliest RCIC should be declared OPERABLE and the LCO exited is after the…

(Note: Choices are listed from the EARLIEST to the LATEST.)

A: field work is complete.

B: clearance is removed.

C: system is considered available.

D: surveillance run has been satisfactorily completed.

Answer:
D

Objective LP85135.1.2.1

Question Source:
Bank: {11640}

Question Difficulty
High

Reference Provided:
None

Reference:
Technical Specifications 1.1

Explanation:
RCIC should only be declared operable after demonstration of operability.

Distracters:

A is wrong, surveillance requirement must be met satisfactorily to be operable.
B is wrong, surveillance requirement must be met satisfactorily to be operable.
C is wrong, surveillance requirement must be met satisfactorily to be operable.

Date Written: 8/5/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
71	Both	3		294001	2940012202	4.0	3.5	Low

System/Evolution Name:
-1

Category Statement:
Equipment Control

KA Statement:
Ability to manipulate the console controls as required to operate the facility between shutdown and designated power levels.

Question Stem:
A plant startup and power ascension are in progress. During which one of the following evolutions would it be appropriate to concurrently withdraw control rods?

A: Shifting CCW pumps.

B: Opening the MSIVs and aligning MSL drains.

C: Manually lower reactor water level from 38 inches to 35 inches.

D: Manually raising reactor water level from 31 inches to 35 inches.

Answer:
A

Objective PBAD004.21

Question Source:
New

Question Difficulty
Medium

Reference Provided:
None

Reference:
OP-AA-103-104, Reactivity Management Controls
CPS 3002.01 HEATUP AND PRESSURIZATION pg.10

Explanation:
During a plant startup and power ascension, it is desirable to have core reactivity changing by only one operator initiated variable. Control rod manipulations should be avoided while manipulating systems that may affect reactivity, such as but not limited to:
Placing RCIC in standby;
Additions of FW in manual control,
Manipulations of steam line drains, etc.

Shifting CCW pumps is not a manipulation that would affect reactivity.

Distracters:

B is incorrect because this would be an operator initiated evolution that affects reactivity.
C is incorrect because even though water level is being lowered, it still effects reactivity and therefore would not be initiated while continuing to move control rods.
D is incorrect because this operator initiated event effects reactivity and would not be performed concurrently with rod movement during a startup.

Date Written: 9/1/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
72	Both	3		294001	2940012301	2.6	3.0	High

System/Evolution Name:
-1

Category Statement:
Radiological Controls

KA Statement:
Knowledge of 10 CFR 20 and related facility radiation control requirements.

Question Stem:
The RWCU pump room was recently surveyed and the following radiological conditions exist:

- General area radiation of 20 mRem per hour
- Smearable contamination of 100 dpm/100 cm2 (beta-gamma)

Which of the following postings should be applied to this area?

A: Radiation area only

B: High radiation area only

C: Radiation area and Contamination area

D: High radiation area and Contamination area

Answer:
A

Objective

Question Source:
Bank: {Dresden 2002 NRC Q #116}

Question Difficulty
Medium

Reference Provided:
None

Reference:
RP-AA-376

Explanation:
A Radiation Area is any area within an RPA accessible to individuals, in which radiation levels from radiation sources external to the body could result in an individual receiving a deep dose equivalent greater than 5 mrem/hr but less than 100 mrem/hr at 30 centimeters from the radiation source or from any surface that radiation penetrates. A Contamination Area has smearable contamination greater than 1000dpm/100 cm2.

B is incorrect because the area is not a High Radiation area.
C is incorrect because the area is not a Contamination area.
D is incorrect because the area is not a Contamination area.

Date Written: 1/1/2002 Author: Otten

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
73	Both	3		294001	2940012310	2.9	3.3	High

System/Evolution Name:
-1

Category Statement:
Radiological Controls

KA Statement:
Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure.

Question Stem:
Annunciator 5050-7M HI RADIATION CONT RM HVAC SYS DIV 1 has alarmed.

Associated monitors are reading:

PR009A	10mR/hr
PR009B	11 mR/hr
PR009C	5 mR/hr
PR009D	3 mR/hr

From the information listed above, and the attached page from CPS 3402.01 determine the correct lineup the minimum air dampers should be placed in.

A: 0VC01YA open; 0VC01YB open

B: 0VC01YA open; 0VC01YB closed

C: 0VC01YA closed; 0VC01YB open

D: 0VC01YA closed; 0VC01YB closed

Answer:
B

Objective

Question Source:
Bank: {2001 NRC}

Question Difficulty
Medium

Reference Provided:
Table from CPS 3402.01 8.3.3 Step 7

Reference:
CPS 3402.01 CONTROL ROOM HVAC (VC)

Explanation:
The lowest radiation level is associated with 0VC01YA so it is opened and 0VC01YB is closed.

Distracters:

A is incorrect because 0VC01YB should be closed.
C is incorrect because 0VC01YA should be open and 0VC01YB closed.
D is incorrect because 0VC01YA should be open.

Date Written: 8/27/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
74	Both	3		294001	2940012416	3.0	4.0	Low

System/Evolution Name:
-1

Category Statement:
Emergency Procedures and Plan

KA Statement:
Knowledge of EOP implementation hierarchy and coordination with other support procedures.

Question Stem:
As applicable to performance of EMERGENCY RESPONSE ACTIVITIES, which of the following lists of procedures is in hierarchal order from HIGHEST to LOWEST?

A: 1) EOP Flowcharts/EOP Support Procedures
2) Annunciator Response Procedure actions
3) Integrated Plant Operating Procedures

B: 1) SAG Flowcharts/SAG Support Procedures
2) Annunciator Response Procedure actions
3) Off-Normal Response Procedures

C: 1) EOP Flowcharts/EOP Support Procedures
2) SAG Flowcharts/SAG Support Procedures
3) Off-Normal Response Procedures

D: 1) Annunciator Response Procedure actions
2) Integrated Plant Operating Procedures
3) ABNORMAL OPERATING section actions located in the System Operating Procedures

Answer:
A

Objective LP87551.1.2

Question Source:
New

Question Difficulty
High

Reference Provided:

None

Reference:
CPS 1005.09 EMERGENCY OPERATING PROCEDURE (EOP) AND SEVERE ACCIDENT GUIDELINE (SAG)

Explanation:
The hierarchy relationship of CPS procedures applicable to performance of emergency response activities is established as follows:
1) SAG Flowcharts/SAG Support Procedures
2) EOP Flowcharts/EOP Support Procedures
3) Off-Normal Response Procedures
4) Annunciator Response Procedure actions
5) ABNORMAL OPERATING section actions located
in the System Operating Procedures
6) Integrated Plant Operating Procedures
7) NORMAL/INFREQUENT OPERATING section actions
located in the System Operating Procedures
8) All other CPS procedures.

Distracters:

B is incorrect because Off-normal response procedures are higher in the hierarchy of procedures than Annunciator Response Procedures.

C is incorrect because SAG Flowcharts/SAG Support Procedures are higher in the hierarchy of procedures than EOP Flowcharts/EOP Support Procedures.
D is incorrect because ABNORMAL OPERATING section actions located in the System Operating Procedures are higher in the hierarchy of procedures than Integrated Plant Operating Procedures.

Date Written: 9/1/2003 Author: Jensen

Printed 11/7/2003

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
75	Both	3		294001	2940012414	3.0	3.9	Low

System/Evolution Name:
-1

Category Statement:
Emergency Procedures and Plan

KA Statement:
Knowledge of general guidelines for EOP flowchart use.

Question Stem:
The plant had been operating at power when a loss of condenser vacuum resulted in a Group 1 isolation and reactor scram. The crew entered EOP-1, stabilized pressure with SRVs and initiated RCIC to control level. Reactor pressure stabilized at 800 psig and reactor level at 35 inches. A RCIC flow controller failure occurred that resulted in a lowering reactor water level. Reactor water level eventually dropped to 0 inches following the RCIC failure.

How are EOPs executed for this condition?

A: Re-entry of EOP-1 is required.

B: Only level leg re-entry is required.

C: Only level and pressure leg re-entry is required.

D: Only re-assessment of the preferred injection system is required.

Answer:
A

Objective LP87552.1.6

Question Source:
New

Question Difficulty
Medium

Reference Provided:
EOP-1 without entry conditions

Reference:
CPS 1005.09 EMERGENCY OPERATING PROCEDURE (EOP) AND SEVERE ACCIDENT GUIDELINE (SAG)

Explanation:
An EOP shall be reentered upon each receipt of an entry condition.

Distracters:

B is incorrect because reentry into EOP-1 is required.
C is incorrect because reentry into EOP-1 is required.
D is incorrect because reentry into EOP-1 is required.

Date Written: 6/30/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
76	SRO	1	1	295001	295001K104	2.5	3.3	High

System/Evolution Name:
Partial or Complete Loss of Forced Core Flow Circulation

Category Statement:
Knowledge of the operational implications of the following concepts as they apply to PARTIAL OR COMPLETE LOSS OF FORCED CORE FLOW CIRCULATION:

KA Statement:
Limiting cycle oscillation: Plant-Specific

Question Stem:
The plant was operating at rated power when a reactor recirculation pump trips. The following conditions are present:

Core Flow 41 Mlbm/hr
Average APRM Power indicates 60%
RO reports that APRM display on DCS oscillating 5%
RO reports that two LPRMs are cycling between upscale and downscale setpoints

What action is required? Direct the RO to…

A: use CPS 2202.01 CONTROL ROD SEQUENCE DETERMINATION to reduce power with the CRAM ARRAY.
B: use CPS 3005.01 UNIT POWER CHANGES increase core flow with the in service RR pump.
C: use CPS 3005.01 UNIT POWER CHANGES to reduce power with reverse rod sequence.
D: place the Reactor Mode Switch to SHUTDOWN and enter 4100.01 Reactor Scram.

Answer:
D
Objective PB400801.1.4

Question Source:
New

Question Difficulty
Medium

Reference Provided:
CPS Stability Control & Power/Flow Operating Map CPS 3005.01

Reference:
CPS 4008.01 ABNORMAL REACTOR COOLANT FLOW
Explanation:
LPRM oscillations are indicative of core thermal hydraulic instabilities and require a reactor scram.

Distracters:

A is incorrect because a scram is required due to core instabilities.
B is incorrect because a scram is required due to core instabilities.
C is incorrect because a scram is required due to core instabilities.

SRO Justification: SRO personnel assess plant response to transients to ensure the plant response is as designed, and based on that assessment, direct plant response to the event and direct entry into appropriate procedures.

55.43 section(s): (5)

Date Written: 7/23/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
77	SRO	1	1	295003	2950032222	3.4	4.1	High

System/Evolution Name:
Partial or Complete Loss of A.C. Power

Category Statement:
Equipment Control

KA Statement:
Knowledge of limiting conditions for operations and safety limits.

Question Stem:
A plant startup is in progress with the reactor critical and the Reactor Mode Switch in Startup. Reactor power is 6% with preparations being made to place the Reactor Mode Switch to RUN. The NLO reports that the Div I DG air receiver pressures are 184 psig and the Div II DG air receiver pressures are 115 psig.

What should be directed by the CRS and how is this direction justified?

A: Halt actions to Place the Reactor Mode Switch to RUN because Div II DG is inoperable.

B: Halt actions to Place the Reactor Mode Switch to RUN because BOTH Div I DG and Div II DG are inoperable.

C: Continue the startup including Placing the Reactor Mode Switch to RUN because Div I DG remains operable and therefore sufficient AC sources are operable.

D: Continue the startup including Placing the Reactor Mode Switch to RUN because BOTH Div I DG and Div II DG remain operable and therefore sufficient AC sources are operable.

Answer:
A

Objective LP85264.1.16

Question Source:
New

Question Difficulty
High

Reference Provided:
TS 3.8.1 and TS 3.8.3

Reference:
TS 3.8.1, TS 3.8.3 and TS 3.0.4

Explanation:
Div I DG remains operable with a 48 hour timer to restore air pressure. The low starting air pressure Div II DG requires it to be declared inoperable and all three DG are required to be operable to change to Mode 1, IAW TS 3.0.4.

Distracters:

B is incorrect because Div I DG remains operable.
C is incorrect because transfer to mode 1 is not allowed.
D is incorrect because Div II DG is inoperable and transfer to mode 1 is not allowed.

55.43 section(s): (2)

SRO Justification: SRO persons assess plant conditions and determine compliance with Technical Specification and action required for non-compliance.

Date Written: 8/28/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
78	SRO	1	1	295006	2950062132	3.4	3.8	High

System/Evolution Name:
SCRAM

Category Statement:
Conduct of Operations

KA Statement:
Ability to explain and apply system limits and precautions.

Question Stem:
A plant shutdown is in progress with all rods in and MDRFP running. The MSIVs are open and condenser vacuum is 28"HG VAC. The Aux boiler will be available in 20 minutes. Annunciator HIGH OR LOW PRESSURE STEAM SEAL HEADER 5019-3D alarmed and the operator reports steam seal pressure is 0 psig. The operator tries to open the pressure regulator bypass valve with no success.

What action is required and Why?

A: Use Main Steam to supply the steam seal header to prevent a loss of condenser vacuum.

B: When the Aux Boiler is available, Shift to steam seals Aux Steam to prevent a loss of vacuum.

C: Immediately break condenser vacuum to prevent drawing relatively cool air across the turbine seals.

D: Place the Div 1, 2, 3 & 4 Cond Low Vacuum Bypass Switches on 1H13-P601 to BYPASS to prevent MSIV closure.

Answer:
C

Objective LP85256.1.14

Question Source:
New

Question Difficulty
Medium

Reference Provided:
None

Reference:
CPS 3112.01 CONDENSER VACUUM (CA)

Explanation:
CPS 3112.01 CONDENSER VACUUM (CA) contains a caution that states "During shutdown, if gland sealing steam is lost, condenser vacuum must be broken immediately to prevent drawing cool air across the seals."

Distracters:

A is incorrect main steam should only be used in an emergency, the plant is being shutdown and all rods are already inserted.
B is incorrect as breaking vacuum is required. Aux steam will not be available for 20 minutes.
D is incorrect as breaking vacuum is required.

55.43 section(s): (5)

SRO Justification: SRO assess plant conditions during an abnormal events to determine appropriate procedure/actions to mitigate the event, as required. SRO from-memory knowledge of system precautions and limitations is required to make this assessment.

Date Written: 10/22/2003 Author: Pickley

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
79	SRO	1	1	295016	295016A202	4.2	4.3	High

System/Evolution Name:
Control Room Abandonment

Category Statement:
Ability to determine and/or interpret the following as they apply to CONTROL ROOM ABANDONMENT:

KA Statement:
Reactor water level

Question Stem:
The plant was operating at power when a loss of offsite power and other numerous failures resulted in the loss of control of all injection systems from the Main Control Room except RHR A and B. The following conditions are present:

- Reactor pressure is 1000 psig being controlled by manual actuation of SRVs.
- The Reactor Mode Switch is in SHUTDOWN and all control rods fully inserted.
- Reactor water level is 10 inches and slowly lowering with no systems injecting.

What should you direct?

A: Start and operate RCIC per 4003.01C002, RSP - RCIC OPERATION.

B: Reduce reactor pressure with SRVs and Start LPCS per 4003.01 at the RSP.

C: Terminate and prevent Feedwater injection, evacuate the Main Control Room and assign an operator to perform RSP - HARD CARD 'A" actions.

D: Terminate and prevent Feedwater injection, evacuate the Main Control Room and assign operators to perform RSP - HARD CARD 'A' AND RSP - HARD CARD 'B' actions.

Answer:
A

Objective PB400301.1.1

Question Source:
New

Question Difficulty
Medium

Reference Provided:
None

Reference:
CPS No. 4003.01 REMOTE SHUTDOWN (RS)

Explanation:
The failures have resulted in the loss of vital system control(s) (i.e., RCIC, SRV, etc.) which are necessary to mitigate extreme accident events from the MCR. CPS No. 4003.01 REMOTE SHUTDOWN (RS) directs that a licensed operator be dispatched to the Remote Shutdown panel to assume and maintain control of lost MCR system functions per applicable procedure checklists. Control of RCIC from the RSP is required per 4003.01C002, RSP - RCIC OPERATION.

Distracters:

B is incorrect because LPCS cannot be run from the RSD panel.
C is incorrect because Control Room evacuation is not required.
D is incorrect because Control Room evacuation is not required.

55.43 section(s): (5)

SRO Justification: SRO personnel assess plant response to transients to ensure the plant response is as designed, and based on that assessment, direct plant response to the event and direct entry into appropriate procedures.

Date Written: 8/29/2003 Author: Jensen

No:	RO SRO:	TIER:	GROUP:	Question Topic No:	KA No:	RO:	SRO:	Cog Level:
80	SRO	1	1	295018	2950182430	2.2	3.6	High

System/Evolution Name:
Partial or Complete Loss of Component Cooling Water

Category Statement:
Emergency Procedures and Plan

KA Statement:
Knowledge of which events related to system operations/status should be reported to outside agencies.

Question Stem:
The plant was operating at 92% power when a circuit failure resulted in an inadvertent group 8 and group 15 isolation that could NOT be reset. The crew immediately places the Reactor Mode Switch to shutdown.

What is the earliest NRC report/notification required?

A: One-Hour Notification to NRC

B: Four-Hour Notification to NRC

C: Eight-Hour Notification to NRC

D: Twenty-Four Hour Report to NRC

Answer:
B

Question Source:
New

Question Difficulty
Medium

Objective No: LP88602.1.24

Reference Provided:
Group 8 and Group 15 valve lists from 4001.02C001 and CPS 1405.04 NRC NOTIFICATION REQUIREMENTS No:

Reference:
CPS 1405.04 NRC NOTIFICATION REQUIREMENTS

Explanation:
The inadvertent isolations result in a loss component cooling water (CCW) to the drywell requiring the crew to scram the reactor. Even though the initiating event was not a valid isolation the crew initiating a scram is a VALID actuation. Four-Hour notification to the NRC Operations Center by telephone (as soon as practical and in all cases within eight hours of occurrence) are required for: Any event or condition that results in valid actuation of any of the systems listed below, except when the actuation results from and is part of a pre-planned sequence during testing or reactor operation. The systems to which this requirement applies are:

1) Reactor Protection System (RPS), including reactor scram and reactor trip.

Distracters:

A is incorrect because no criteria are met for one hour report.
C is incorrect because a four hour report is required.
D is incorrect because a four hour report is required.

55.43 section(s): (5)

SRO Justification: Senior license individuals determine the reportable requirements based on assessment of facility conditions.

Date Written: 10/21/2003 Author: Pickley

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
81	SRO	1	1	295019	295019A202	3.6	3.7	High

System/Evolution Name:
Partial or Complete Loss of Instrument Air

Category Statement:
Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF INSTRUMENT AIR:

KA Statement:
Status of safety-related instrument air system loads (see AK2.1-AK2.19)

Question Stem:
The plant is operating at 92% power when the following occurs:

- Reactor scrams
- Turbine trips
- MSIVs close
- All operating AC equipment deenergizes
- No diesel generator can be started

Is the plant in a Station Blackout?
How is pressure control required to be established with the SRVs?

A: No
Use ADS SRVs first.

B: Yes
Use non-ADS SRVs first.

C: No
Allow SRVs to cycle on safety function.

D: Yes
Backup Air bottles must be lined up before operating any SRVs.

Answer:
B

Objective

Question Source:
Bank: {Edited 11574}

Question Difficulty
Medium

Reference Provided:
None

Reference:
CPS 4200.01 LOSS OF AC POWER

Explanation:
The SBO procedure directs the crew to stabilize RPV pressure below 1065 psig using SRV's or RCIC. Minimize depressurization to maximize RCIC availability and to minimize suppression pool heat-up. The procedure also directs the crew to use non-ADS SRVs first, followed by ADS SRVs.

Distracters:

A is incorrect because the crew is directed to use non-ADS valves first and plant is in a Station Blackout.
C is incorrect because pressure is directed to be stabilized less than 1065 and plant is in a Station Blackout.
D is incorrect because the valves can be operated immediately.

55.43 section(s): (5)

SRO Justification: SROs assess plant conditions during an abnormal events. Assessment of plant conditions to determine that a Station Blackout has occurred is required to select the appropriate procedure and to establish appropriate pressure control.

Date Written: 7/24/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
82	SRO	1	1	295024	295024K101	4.1	4.2	Low

System/Evolution Name:
High Drywell Pressure

Category Statement:
Knowledge of the operational implications of the following concepts as they apply to HIGH DRYWELL PRESSURE:

KA Statement:
Drywell integrity: Plant-Specific

Question Stem:
Why must drywell pressure be maintained less than 1.0 psi above containment pressure?

A: Ensures that the possibility of weir wall overflow after an inadvertent upper pool dump is minimized.

B: Ensure that drywell pressure during a loss of coolant accident is less than the drywell design pressure.

C: Ensures that the induced thrust loads on the SRV discharge line resulting from "subsequent actuations" of the SRV during accidents is within acceptable limits.

D: Mitigates the potential bypass leakage paths to maintain the Primary Containment peak pressure below design limits and is accomplished in conjunction with one RHR Containment Spray Sub-System.

Answer:
B

Objective TS Bases

Question Source:
New

Question Difficulty
High

Reference Provided:
None

Reference:
TS Bases 3.6.5.4

Explanation:
The limitation on negative drywell-to-primary containment differential pressure ensures that changes in calculated peak LOCA drywell pressures due to differences in water level of the suppression pool and the drywell weir annulus are negligible. The limitation on positive drywell-to-primary containment differential pressure helps ensure that the horizontal vents are not cleared with normal weir annulus water level and limits drywell pressure during an accident to less than the drywell design pressure.

Distracters:

A is incorrect as this would only be a problem for low drywell pressures.
C is incorrect as this would be a bases for LLS LCO.
D is incorrect as this limits peak drywell pressure not containment pressure.

55.43 section(s): (2)

SRO Justification: SRO Knowledge of TS bases.

Date Written: 8/5/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
83	SRO	1	1	295026	2950262404	4.0	4.3	High

System/Evolution Name:
Suppression Pool High Water Temperature

Category Statement:
Emergency Procedures and Plan

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

Question Stem:
The plant had been operating when an accident occurred. After several hours the following conditions were present:

- All three DGs are running carrying their respective busses
- RCIC is the only injection system available and is maintaining RPV level
- Suppression Pool Level is 18'1"
- Suppression Pool Temperature is 170ºF
- Reactor Pressure is 500 psig controlled by SRVs (the ONLY pressure control system available)
- The reactor has been shutdown by injection of cold shutdown boron weight.
- Crew attempts to reduce pressure to within the limits of Figure P with SRVs are NOT successful.

What actions should you direct the crew to take?

A: Enter EOP-3 and blowdown.
B: Dump the upper pools per CPS 4411.03.
C: Exit all EOP Flowcharts and Enter all SAG Flowcharts.
D: Continue operation of RCIC and commence cooldown using SRVs.

Answer:
A

Objective LP87558.1.17

Question Source:
New

Question Difficulty
Medium

Reference Provided:
EOPs without entry conditions

Reference:
EOP-6 Primary Containment Control

Explanation:
Operation is above Figure P, Heat Capacity Limit and crew attempt to restore operation to within the limits have not been successful. RCIC is being used for level control but since the station is not in a Station Blackout entry into EOP-3 is required.

Distracters:

B is incorrect the upper pool should have already dumped on the 25 minute timer started during the terminate and prevent.
C is incorrect as the plant is still being controlled with EOP and no direction exists to exit.
D is incorrect because a blowdown is required.

55.43 section(s): (5)

SRO Justification: SRO personnel assess plant conditions, and based on that assessment, direct entry into appropriate procedures.

Date Written: 8/2/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
84	SRO	1	2	295009	295009A201	4.2	4.2	High

System/Evolution Name:
Low Reactor Water Level

Category Statement:
Ability to determine and/or interpret the following as they apply to LOW REACTOR WATER LEVEL:

KA Statement:
Reactor water level

Question Stem:
If both Fuel Zone instruments were inoperable, which of the following sets of additional conditions would require entry into EOP-2 RPV Flooding?

A: Indicated Reactor Level is -155 inches and rising
Drywell Temperature is 230 degrees F
Containment Temperature is 190 degrees F

B: Indicated Reactor Level is -120 inches and rising
Drywell Temperature is 180 degrees F
Containment Temperature is 110 degrees F

C: Indicated Reactor Level is -30 inches and lowering
Drywell Temperature is 240 degrees F
Containment Temperature is 180 degrees F

D: Indicated Reactor Level is -60 inches and rising
Drywell Temperature is 180 degrees F
Containment Temperature is 170 degrees F

Answer:
A
Objective LP87558.1.8.4

Question Source:
Bank: {21668}

Question Difficulty
Medium

Reference Provided:

EOPs and Graphs without Entry Conditions

Reference:
EOP-6 Figure A

Explanation:
Option A has reactor water level at -155, water level is below the minimum usable levels for available water level instrumentation.

Distracters:

B is incorrect because wide range level indication is available.
C is incorrect because wide range level indication is available.
D is incorrect because wide range level indication is available.

55.43 section(s): (5)

SRO Justification: SRO assesses plant conditions and determines procedures to enter to mitigate emergency events. SRO is responsible to determine availability of water level indication during EOP execution.

Date Written: 8/2/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
85	SRO	1	2	295011	2950112430	2.2	3.6	High

System/Evolution Name:
High Containment Temperature (Mark III Containment Only)

Category Statement:
Emergency Procedures and Plan

KA Statement:
Knowledge of which events related to system operations/status should be reported to outside agencies.

Question Stem:
The plant was operating when multiple failures occurred that resulted in the degradation of containment cooling. At 0100 primary containment average air temperature reached 115ºF and continued to slowly rise at 2ºF/hr and stabilized at 130ºF. The crew continued efforts unsuccessfully to restore containment cooling.

1) What is the LATEST time allowed to be shutdown without exceeding an LCO action completion time?

2) Assuming a plant shutdown will take 8 hours, what would be the LATEST time allowed to notify the NRC?

(Assume that the crew continues operation as long as allowed by Technical Specifications)

The plant is required to be in Mode 3 by…

A: 1) 1300
2) NRC should be notified no later than 1700.

B: 1) 1300
2) NRC should be notified no later than 2100.

C: 1) 2100
2) NRC should be notified no later than 1700.

D: 1) 2100
2) NRC should be notified no later than 2100.

Answer:
C

Objective LP85223.1.16

Question Source:
New

Question Difficulty
High

Reference Provided:
TS 3.6.1.5 and CPS 1405.04 NRC NOTIFICATION REQUIREMENTS

Reference:
CPS 1405.04 NRC NOTIFICATION REQUIREMENTS
Technical Specification 3.6.1.5 and associated bases.

Explanation:
When the containment temperature exceeds 115ºF, LCO 3.6.1.5 requires the temperature restored within 8 hours or be in Mode 3 within the next 12 hours. This results in 20 hours to be in Mode 3 without exceeding the LCO action completion time.
With time zero at 0100 the plant must be in Mode 3 by 2100. A Four-hour NRC notification is required at the initiation of Tech Spec required shutdown. With the shutdown requiring 8 hours to complete, it must be started no later than 1300. The NRC notification must be performed by 1700.

Distracters:

A is incorrect because the plant is not required to be in mode 3 until 2100.
B is incorrect because the plant is not required to be in mode 3 until 2100 and the NRC notification is required by 1700.
D is incorrect because NRC notification is required by 1700.

55.43 section(s): (2)
SRO Justification: SRO persons assess plant conditions and determine compliance with Technical Specification and action required for non-compliance. Senior license individuals also are responsible to determine the reportable requirements based on assessment of facility conditions.

Date Written: 11/5/2003 Author: Pickley

Printed 11/7/2003

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
86	SRO	1	2	295012	295012K202	3.6	3.7	High

System/Evolution Name:
High Drywell Temperature

Category Statement:
Knowledge of the interrelations between HIGH DRYWELL TEMPERATURE and the following:

KA Statement:
Drywell cooling

Question Stem:
A plant transient has created the following conditions:

- Drywell Pressure 1.97 psig
- Drywell Temperature 156 ° F
- A loss of all Drywell Cooling

Which of the following should be used to re-establish Drywell Cooling?

A: VP if interlocks are defeated.

B: VP if the shunt trips are reset.

C: VP & WO if shunt trips are reset.

D: VP & WO if interlocks are defeated and shunt trips reset.

Answer:
D

Objective LP87558.1.10

Question Source:
Bank: {INPO Bank}

Question Difficulty
Medium

Reference Provided:
EOPs without the entry conditions

Reference:
EOP-6 Primary Containment Control

Explanation:
Entry conditions are present for EOP-6 and since DW temperature cannot be held less than 150° F then direction is given in the DW temp leg to start all available DW cooling and it is OK to defeat VP/WO interlocks.

Distracters:

A is incorrect because the shunt trips must be reset and VP & WO are specified in the procedure.
B is incorrect because the interlocks must be defeated and then reset the shunt trips and VP & WO are specified in the procedure.
C is incorrect because the interlocks must be defeated and then reset the shunt trips.

55.43 section(s): (5)

SRO Justification: SRO licensed personnel assess plant conditions during implementation of the EOPs and, based on that assessment, direct EOP actions.

Date Written: 8/1/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
87	SRO	1	2	295022	295022K101	3.3	3.4	Low

System/Evolution Name:
Loss of CRD Pumps

Category Statement:
Knowledge of the operational implications of the following concepts as they apply to LOSS OF CRD PUMPS:

KA Statement:
Reactor pressure vs. rod insertion capability

Question Stem:
A plant startup was in progress with reactor pressure at 0 psig.

With these plant conditions what are the scram insertion times based on?

Control Rod insertion times are fast enough to…

A: prevent reactor pressure from exceeding the applicable ASME Code limits.

B: provide protection during a control rod drop accident to prevent violating fuel damage limits.

C: ensure that MCPR Safety Limit and LHGR Limit are not exceeded during a Control Rod Drop Accident.

D: prevent the actual MCPR from becoming less than the MCPR Safety Limit during the analyzed limiting power transient.

Answer:
B

Objective TS Bases

Question Source:
New

Question Difficulty
High

Reference Provided:
None

Reference:
TS 3.1.4 and Bases

Explanation:
Below 950 psig, the scram function is assumed to perform during the control rod drop accident (Ref. 7) and, therefore, also provides protection against violating fuel damage limits during reactivity insertion accidents (see Bases for LCO 3.1.6, "Control Rod Pattern").

Distracters:

A is incorrect because the insertion times are based on not violating fuel damage limits.
C is incorrect because MCPR SL and LHGR may be exceeded during a rod drop accident, the insertion time is based on limiting fuel damage.
D is incorrect because this is the bases for scram insertion times when reactor pressure is greater than 950 psig.

55.43 section(s): (2)

SRO Justification: SRO persons assess plant conditions and determine compliance with Technical Specification, knowledge of the bases is required to make these determinations.

Date Written: 8/1/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
88	SRO	2	1	205000	2050002123	3.9	4.0	High

System/Evolution Name:
Shutdown Cooling System (RHR Shutdown Cooling Mode)

Category Statement:
Conduct of Operations

KA Statement:
Ability to perform specific system and integrated plant procedures during different modes of plant operation.

Question Stem:
The plant is shutdown with a coolant temperature of 320 degrees F. Both loops of RHR Shutdown Cooling are operable but neither has been in operation for the last hour. Recirc loop 'A' is shutdown and isolated due to a failed pump seal. Recirc loop 'B' has just tripped for unknown reasons.

What action is required?

A: Verify reactor coolant temperature and pressure within limits once per 12 hours and restore one RHR Shutdown Cooling Subsystem to operation in 7 days or be in Mode 3 in 12 hours and Mode 4 in 36 hours.

B: Immediately initiate action to restore RHR Shutdown Cooling Subsystems(s) to operable and verify alternate decay heat removal available for each inoperable SDC loop in 1 hour and be in Mode 4 in 24 hours.

C: Immediately initiate action to restore one RHR Shutdown Cooling Subsystem to service and verify alternate coolant circulation method in 1 hour (and every 12 hours thereafter) and monitor coolant temperature and pressure once per

D: Verify an alternate method of decay heat removal is available for each inoperable RHR Shutdown Cooling Subsystem in 1 hour and once per 24 hours thereafter or be in Mode 3 in 12 hours and Mode 4 in 36 hours.

Answer:
C

Objective LP85205.1.16

Question Source:
Bank: {03287}

Question Difficulty
Medium

Reference Provided:

T.S.3.4.9 and 3.4.10

Reference:
T.S. 3.4.9

Explanation:
T.S. 3.4.9.B Requires that if no SDC pump in operation and no RR pump that "Initiate action to restore one RHR shutdown cooling subsystem or one recirculation pump to operation." The completion time is immediate. This Spec also requires verify alternate coolant circulation method in 1 hour (and every 12 hours thereafter) and monitor coolant temperature and pressure once per hour.

Distracters:

A is incorrect because action to restore SDC to service is an immediate time requirement.
B is incorrect because the action required by TS is to restore the loop to service not to operability.
D is incorrect because the action required by TS is to restore the loop to service not to operability.

55.43 section(s): (2)

SRO Justification: SRO persons assess plant conditions and determine compliance with Technical Specification and action required for non-compliance. Application of TS 3.4.9 Residual Heat Removal (RHR) Shutdown Cooling System Hot Shutdown is required.

Date Written: 8/5/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
89	SRO	2	1	259002	259002A204	3.0	3.1	High

System/Evolution Name:
Reactor Water Level Control System

Category Statement:
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 conditions or operations:

KA Statement:
RFP runout condition: Plant-Specific

Question Stem:
The plant is operating at 65% reactor power with both Turbine Driven Reactor Feed Pumps (TDRFPs) running in automatic on the Master Level Controller. The Master Controller level is set at 35 inches. The TDRFP A FLOW TRANSMITTER flow SIGNAL fails low.

1) What effect does this have on the control of reactor water level? Reactor water level initially...

2) How is level control restored?

.

A: 1) increases.
2) Verify that the TDRFP B speed decreases automatically and restores reactor water level to 35 inches.

B: 1) decreases.
2) Verify that the TDRFP B speed increases automatically and restores reactor water level to 35 inches.

C: 1) increases.
2) Take manual control of feedwater and restore reactor water level to 35 inches.

D: 1) decreases.
2) Take manual control of feedwater and restore reactor water level to 35 inches.

Answer:
C

Objective LP85570-02.1.15.6

Question Source:
New

Question Difficulty
Medium

Reference Provided:
None

Reference:
CPS 4002.01 ABNORMAL RPV LEVEL/LOSS OF FEEDWATER AT POWER
CPS 3103.01 FEEDWATER (FW)

Explanation:
A RFP flow signal failing low as feedback when on the Master Level Controller will result in an increase in the speed demand for that RFP. To maintain level the RO must take manual control of the system.

Distracters:

A is incorrect because TDRFP B cannot decrease in speed sufficiently to stabilize level.
B is incorrect because level initially increases and TDRFP B speed decreases.
D is incorrect because level increases.

55.43 section(s): (5)

SRO Justification: SRO knowledge of basic plant design is required to assess plant response to this abnormal events and to predict impacts of event to allow direction of appropriate actions.

Date Written: 10/24/2003 Author: Pickley

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
90	SRO	2	1	264000	264000A101	3.0	3.0	High

System/Evolution Name:
Emergency Generators (Diesel/Jet)

Category Statement:
Ability to predict and/or monitor changes in parameters associated with operating the EMERGENCY GENERATORS (DIESEL/JET) controls including:

KA Statement:
Lube oil temperature

Question Stem:
The plant is at rated power with all equipment normal except that the 1A Diesel Generator (DG) was tagged out three (3) days ago for repairs to the governor. The 'C' Area Operator reports that 1B Diesel Generator lube oil temperature is low at 74°F. (The recommended minimum temperature is 85°F to ensure starting time requirements are met).

What action is required?

A: Restore 1A or 1B DG to operable within the next 2 hours or be in Mode 3 within next 12 hours.

B: Restore 1A or 1B DG to operable within the next 24 hours or be in Mode 3 within the next 12 hours.

C: Verify DG 1C starts from standby conditions within 2 hours and restore 1A or 1B DG to operable within 24 hours.

D: Verify DG 1C starts from standby conditions within 24 hours and restore 1A or 1B DG to operable within 72 hours.

Answer:
A

Objective LP85264.1.16

Question Source:
Modified: {12217}

Question Difficulty
High

Reference Provided:
TS 3.8.1 AC Sources Operating

Reference:
TS 3.8.1 AC Sources Operating and bases.

Explanation:
The second DG INOP requires that 1A or 1B DG be restored to operable within the next 2 hours or be in Mode 3 within next 12 hours. Even though the DG will start and operate at 74°F it may not meet its starting time. The recommended minimum temperature is 85°F.

Distracters:

B is incorrect as only 2 hours are allowed to restore a DG to operability.
C is incorrect as 1A or 1B DG must be restored to operable within 2 hours.
D is incorrect as 1A or 1B DG must be restored to operable within 2 hours.

55.43 section(s): (2)

SRO Justification: SRO persons assess plant conditions and determine compliance with Technical Specification and action required for non-compliance. This requires assessment of DG operability and determination of required actions. In addition knowledge of Tech Spec Bases for DG operability is required to answer the question.

Date Written: 7/24/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
91	SRO	2	1	300000	300000A201	2.9	2.8	High

System/Evolution Name:
Instrument Air System (IAS)

Category Statement:
Ability to (a) predict the impacts of the following on the INSTRUMENT AIR SYSTEM and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation:

KA Statement:
Air dryer and filter malfunctions

Question Stem:
The plant is shutdown with preparations in progress to place SDC in service. The following plant and system conditions are present:

- RPV level letdown is from the RWCU system.
- Air compressor "0" is running with "1" and "2" out of service for repairs.

One of the inservice air dryers blowoff valve sticks open during a regeneration cycle with the dryer returned to service. All ring header isolation valves have closed and IA header pressure continues to rapidly decrease below 70 psig. The SA Dryer bypass valves open as required.

1) What effect does this have on air system pressure? IA System air pressure…

2) What action is required to control reactor water level? RPV letdown…

A: 1) continues to degrade
2) per CPS 3312.03 RHR - SHUTDOWN COOLING (SDC) SDC will be required.

B: 1) recovers when the Air Dryer bypass valves open
2) per CPS 3312.03 RHR - SHUTDOWN COOLING (SDC) SDC will be required.

C: 1) recovers when the Air Dryer bypass valves open
2) per CPS 3303.01 REACTOR WATER CLEANUP (RT) continues.

D: 1) continues to degrade
2) per CPS 3303.01 REACTOR WATER CLEANUP (RT) continues.

Answer:
A

Objective PB400401.1.4

Question Source:
New

Question Difficulty
High

Reference Provided:
None

Reference:
CPS 4004.01 INSTRUMENT AIR LOSS

Explanation:
The blowoff valve exceeds the capacity of a single SA compressor and bypassing the SA dryer will NOT recover system pressure as this does NOT isolate the blowoff line. Air is lost to the RWCU reject valve so letdown must transition to SDC.

Distracters:

B is incorrect because air dryer bypass will not isolate the blowoff valve.
C is incorrect because air dryer bypass will not isolate the blowoff valve.
D is incorrect because the loss of air will cause the RWCU reject valve to fail closed and flow control valves on the RT filter demins will shut resulting in a trip of the operating RT pumps.

55.43 section(s): (5)

SRO Justification: SRO assess plant conditions during an abnormal event and determine if the plant is responding per design. This knowledge would be used to select the appropriate procedure(s) to control plant parameters based on plant conditions.

Date Written: 10/22/2003 Author: Pickley

Question	RO SRO:	Topic TIER:	GROUP:	No:	KA No:	RO:	SRO:	Cog Level:
92	SRO	2	2	202002	2020022222	3.4	4.1	Low

System/Evolution Name:
Recirculation Flow Control System

Category Statement:
Equipment Control

KA Statement:
Knowledge of limiting conditions for operations and safety limits.

Question Stem:
The Recirc Flow Control Valves are required to Lockup on a high drywell pressure. What is the bases for this requirement?

A: Prevent the FCV from closing during a LOCA and decreasing the blowdown area.

B: Prevent the FCV from opening during a LOCA and increasing the blowdown area.

C: Prevent the FCV from closing during a LOCA and decreasing the coastdown flow on the broken loop.

D: Prevent the FCV from closing during a LOCA and decreasing the coastdown flow on the unbroken loop

Answer:
D

Objective LP85202.1.17

Question Source:
New

Question Difficulty
Medium

Reference Provided:
None

Reference:
Tech Spec B 3.4.2

Explanation:
Closing an FCV during a design basis LOCA could affect the recirculation flow coastdown for the unbroken loop, resulting in higher peak clad temperatures.

Distracters:

A is incorrect, the Tech Spec Bases does not address blowdown area.
B is incorrect, the Tech Spec Bases does not address blowdown area.
C is incorrect, coastdown flow is from the unbroken loop.

55.43 section(s): (2)

SRO Justification: SRO Knowledge of TS bases.

Date Written: 10/24/2003 Author: Pickley

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
93	SRO	2	2	290002	290002A206	4.0	4.5	High

System/Evolution Name:
Reactor Vessel Internals

Category Statement:
Ability to (a) predict the impacts of the following on the REACTOR VESSEL INTERNALS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations:

KA Statement:
Exceeding safety limits

Question Stem:
The plant was operating with the following conditions:

Reactor power is 79%
Core Flow is 60 Mlbm/hr

3D Monicore shows the following:

- Most limiting MFLCPR is 1.040 at location 41-36
- Most limiting MAPRAT is 0.974 at location 35-20-11
- Most limiting MFLPD is 0.969 at location 35-20-11

What is a consequence of continued operation with these conditions? What action would eliminate this consequence?

A: Some fuel is currently experiencing transition boiling; reduce power to < 21.6% Rated Thermal Power.

B: A transient initiated from this condition could result in clad failure due to inadequate cooling; insert control rods and increase core flow.

C: A Design Bases Accident initiated from this condition could result in NOT meeting the 10 CFR 50.46 ECCS acceptance criteria; increase core flow.

D: A transient initiated from this condition could cause excessive clad strain due to differential expansion between the pellet and clad, insert control rods and increase core flow.

Answer:
B

Objective TS Bases

Question Source:
New

Question Difficulty
Medium

Reference Provided:
None

Reference:
Technical Specification 3.2.2 MINIMUM CRITICAL POWER RATIO (MCPR) and associated bases.

Explanation:
To ensure that the MCPR Safety Limit is not exceeded during any transient event that occurs with moderate frequency, limiting transients have been analyzed to determine the largest reduction in critical power ratio (CPR). The types of transients evaluated are loss of flow, increase in pressure and power, positive reactivity insertion, and coolant temperature decrease. The limiting transient yields the largest change in CPR (?CPR). When the largest ?CPR is added to the MCPR SL, the required operating limit MCPR is obtained. Since operation is currently outside the limits a transient initiated from this condition could result in MCPR going below the Safety Limit value and result in transition boiling. Increased flows and lower rod lines increase CPR throughout the core by reducing bundle power and increasing critical power.

Distracters:

A is incorrect because transition boiling would not be expected until MCPR was below the safety limit.
C is incorrect because the consequence described is due to exceeding MAPLHGR .
D is incorrect because the consequence described is due to exceeding LHGR.

55.43 section(s): (2)

SRO Justification: SRO knowledge of Tech Spec Bases to determine compliance with TS.

Date Written: 10/22/2003 Author: Pickley

Question Topic

	RO SRO:	TIER:	GROUP:	No:	KA No:	RO:	SRO:	Cog Level:
94	SRO	3		294001	2940012113	2.0	2.9	Low

System/Evolution Name:
-1

Category Statement:
Conduct of Operations

KA Statement:
Knowledge of facility requirements for controlling vital / controlled access.

Question Stem:
The plant is operating at rated power when a fire started in secondary containment. The following conditions exist:

- The fire has been burning out of control for 20 minutes
- The fire brigade has been dispatched and is attempting to contain the fire
- The Shift Manager has requested off site assistance
- The Fire Department has arrived at the plant

What requirements, if any, SHALL occur to allow the emergency vehicle to enter the site?

A: The vehicle MAY enter the site immediately no mandatory requirements exist during an emergency.

B: A security escort SHALL BOARD the emergency response vehicle or DIRECT the driver to the line of sight escort path.

C: The emergency vehicle SHALL be searched and the emergency response personnel SHALL log into the protected area.

D: The names and social security numbers of the emergency response personnel SHALL be verified against the Personnel Denied Access list.

Answer:
B

Objective

Question Source:
Bank: {CNS SRO Only 2003 NRC Exam}

Question Difficulty
High

Reference Provided:
None

Reference:
SY-AA-101-114 PROCESSING EMERGENCY RESPONSE VEHICLES AND PERSONNEL

Explanation:
Upon arrival of emergency response vehicles: A security escort shall BOARD the emergency response vehicle or DIRECT the driver to the line of sight escort path.

Distracters:

A is incorrect because a security escort SHALL BOARD the emergency response vehicle or DIRECT the driver to the line of sight escort path.
C is incorrect because the vehicle need not be searched prior to entry during an emergency.
D is incorrect because this need not be performed until the vehicle exits the site.

55.43 section(s): (5)

SRO Justification: SRO personnel assess plant conditions and based on that assessment, direct plant response to the event and direct appropriate procedure use.

Date Written: 9/3/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
95	SRO	3		294001	2940012229	1.6	3.8	Low

System/Evolution Name:
-1

Category Statement:
Equipment Control

KA Statement:
Knowledge of SRO fuel handling responsibilities.

Question Stem:
Which of the following requires Refuel SRO permission prior to performance?

A: Store stainless steel double blade guides in upper pool.

B: Move new fuel from the new fuel storage vault to the spent fuel pool.

C: Move a spent fuel bundle from the IFTS to its storage location in the spent fuel pool.

D: Use of the refuel bridge travel override pushbutton and the overhoist pushbuttons to move a test weight.

Answer:
D

Objective

Question Source:
New

Question Difficulty
High

Reference Provided:

None

Reference:
CPS 3703.01 CORE ALTERATIONS

Explanation:
The travel override pushbutton and the overhoist pushbuttons may be used with Refuel SRO permission.

Distracters:

A is incorrect as Refuel SRO permission is not required to perform.
B is incorrect as Refuel SRO permission is not required to perform.
C is incorrect as Refuel SRO permission is not required to perform.

55.43 section(s): (7)

SRO Justification: SRO licensed personnel supervise refueling activities and direct the actions of the refuel bridge.

Date Written: 7/29/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
96	SRO	3		294001	2940012232	2.3	3.3	Low

System/Evolution Name:
-1

Category Statement:
Equipment Control

KA Statement:
Knowledge of the effects of alterations on core configuration.

Question Stem:
The plant was shutdown with refueling in progress and all SRMs operable. Fuel was currently being loaded in quadrant "A" when the RO reported that SRM B and SRM D are below 3 cps. SRM A and SRM C indicate 10 cps.

As the refueling SRO what should you direct?

A: Halt fuel loading in ALL quadrants.

B: Continue fuel loading in ALL quadrants.

C: Halt fuel loading in quadrants B and D ONLY.

D: Halt fuel loading in quadrants A and C ONLY.

Answer:
A

Objective LP85215.1.16

Question Source:
New

Question Difficulty
Medium

Reference Provided:
None

Reference:
3.3.1.2 Source Range Monitor (SRM) Instrumentation
CPS 3703.01 CORE ALTERATIONS

Explanation:
CPS 3703.01 directs that if SRM count rate on an operable SRM decreases to below 3 CPS in either of the following situations: 1. The SRM is in a quadrant where core alterations are being performed, OR 2. Both SRMs in the adjacent quadrants to the quadrant where core alterations are being performed, Immediately halt core alterations in that quadrant, insert all insertable control rods in fuel cells containing one or more fuel bundles and notify the Reactor Engineering Department. In this circumstance every quadrant is either less than 3 cps or is adjacent to a quadrant that is less than 3 cps.

Distracters:

B is incorrect because fuel handling should be halted in all quadrants.
C is incorrect because fuel handling should be halted in all quadrants.
D is incorrect because fuel handling should be halted in all quadrants.

55.43 section(s): (7)

SRO Justification: SRO licensed personnel supervise refueling activities and direct the actions of the refuel bridge operator.

Date Written: 7/24/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
97	SRO	3		294001	2940012307	2.0	3.3	High

System/Evolution Name:
-1

Category Statement:
Radiological Controls

KA Statement:
Knowledge of the process for preparing a radiation work permit.

Question Stem:
Which of the following would require the preparation of a Specific Radiation Work Permits (SRWPs)?

A: When ONLY historical survey data is available in the work area.

B: Removal and Replacement of the RWCU filter demineralizer septums.

C: Work outside the RCA to bench test a contaminated relief valve's setpoint.

D: Repair work to a pump motor coupling inside the RCA that does NOT require RP coverage and very little dose is

Answer:
B

Objective

Question Source:
New

Question Difficulty
Low

Reference Provided:

None

Reference:
RP-MW-403-1001 RADIATION WORK PERMIT PROCESSING

Explanation:
Specific Radiation Work Permits (SRWPs): RWP type used for performing work which does not meet the requirements for the use of a GRWP, such as equipment repair or breach of a contaminated system, that is radiologically classified as “H” or “R”. Opening of the RWCU FD for septum replacement meets this criteria.

Distracters:

A is incorrect because while historical data may be involved in the preparation of a SRWP it is not the criteria that initiates the development of the SRWP.
C is incorrect because this work is located outside the RCA. This work generally requires no RP planning or support.
D is incorrect because this work is general in nature and would not require a SRWP. Work s that do not involve significant radiation exposure and are not likely to spread contamination. This work has minor radiological significance and involves routine work in the RCA.

55.43 section(s): (4),(5)

SRO Justification: SRO persons assess plant conditions and determine compliance with station procedures. SRO importance rating is 3.3 and RO is 2.0. This knowledge would not be tested at the lower license level.

Date Written: 9/2/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
98	SRO	3		294001	2940012422	3.0	4.0	High

System/Evolution Name:
-1

Category Statement:
Emergency Procedures and Plan

KA Statement:
Knowledge of the bases for prioritizing safety functions during abnormal/emergency operations.

Question Stem:
The plant had been operating at power when an accident occurred. The following conditions are present:

- RHR A is the ONLY ECCS system available and the only Injection System available
- RHR A is injecting to the RPV at full flow`
- Reactor water level is -150" and steady
- Reactor Pressure is 50 psig
- All ADS valves are open
- Igniters are ON
- Recombiners have been Stopped
- Containment Hydrogen is 8%
- Containment Temperature is 250ºF
- Containment Pressure 10 psig
- Suppression Pool Level is 22 ft.
- Containment Sprays are OFF

What is required and why?

A: Start containment spray to prevent a loss of primary containment integrity due to a deflagration.

B: Continue injection to the reactor in order to maintain reactor water level greater than top of active fuel.

C: Start containment sprays to prevent the loss of primary containment integrity due to excessive temperatures.

D: Continue injection to the reactor until primary containment pressure reaches 45 psig then shift to containment spray to ensure continued primary containment integrity.

Answer:
A

Objective LP87600.1.11

Question Source:
New

Question Difficulty
High

Reference Provided:
EOPs without entry conditions.

Reference:
Clinton Power Station Emergency Operating Procedures Technical Bases

Explanation:
The excessive containment hydrogen require that sprays be started "Even if core cooling will be lost". So diverting RHR water to containment sprays is needed to ensure continued primary containment integrity.

Distracters:

B is incorrect because sprays are required due to high hydrogen in Containment.
C is incorrect because even though containment temperature is greater than design sprays are NOT used for CTNM temp unless adequate core cooling is assured.
D is incorrect because sprays are required NOW.

55.43 section(s): (5)

SRO Justification: The SRO assesses plant conditions and determines appropriate actions. This requires the determining priority of adequate core cooling vs. containment protection.

Date Written: 8/1/2003 Author: Jensen

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
99	SRO	3		294001	2940012446	3.5	3.6	High

System/Evolution Name:
-1

Category Statement:
Emergency Procedures and Plan

KA Statement:
Ability to verify that the alarms are consistent with the plant conditions.

Question Stem:
The plant was operating at rated power when a steam leak occurred in the RCIC pump room.
The operator states that RCIC isolation valves indicate closed and 2 minutes later reports the following alarms and indications:

- RCIC Div 2 differential pressure high annunciator 5063-4A is alarming.
- E31-N684B RCIC Steam Line D/P Analog Trip Module (ATM) reads 180"H2O.

When determining the Emergency Action Level which one of the following conditions is applicable?

A: An unisolable RCIC leak still exists in the secondary containment.

B: The RCIC leak is isolated but still depressurizing the pipe run to the RCIC pump room.

C: The RCIC leak is isolated but the alarm will NOT reset until the ATM has been taken in and out of CAL.

D: The RCIC leak is isolated but the annunciator will NOT clear until the operator presses the ACKNOWLEDGE

Answer:
A

Question Source:
New

Question Difficulty
Medium

Objective LP87537.1.10.5

Reference Provided:
None

Reference:
M05-1079 sheet 1, EP-AA-1003, Radiological Emergency Plan Annex For Clinton Station

Explanation:
E31-N684B is a RCIC Steam line D/P instrument that taps off between the vessel and RCIC steam supply inboard isolation valve. High flow as indicated by the alarm locked in and a high D/P indication on the ATM with the RCIC system isolated is a indication of RCIC break that is unisolable.

Distracters:

B is incorrect because if the leak was isolated the Steam Line D/P would indicate 0".
C is incorrect because the leak is not isolated as indicated by the high D/P.
D is incorrect because the leak is not isolated as indicated by the high D/P.

55.43 section(s): (5)

SRO Justification: SRO assess plant conditions during an emergency condition and determine if the plant is responding per design. in order to make the correct classification.

Date Written: 10/14/2003 Author: Russell

Question	RO SRO:	TIER:	GROUP:	Topic No:	KA No:	RO:	SRO:	Cog Level:
100	SRO	3		294001	2940012426	2.9	3.3	Low

System/Evolution Name:
-1

Category Statement:
Emergency Procedures and Plan

KA Statement:
Knowledge of facility protection requirements including fire brigade and portable fire fighting equipment usage.

Question Stem:
The Plant is operating at rated power. While performing rounds, the D-Area Operator discovers smoke rolling out from under the door to the operating A SJAE room. After several minutes, the Fire Brigade assembled at the A SJAE room. The A SJAE room door has a Restricted High Radiation Area sign on it and there is NO current RWP. The Fire Brigade requests permission to enter the room and fight the fire.

What are the MINIMUM requirements to authorize the Fire Brigade access to the SJAE room?

(NOTE: The choices are arranged in MIMIMUM to MAXIMUM order. Select the first choice that contains ALL the components needed to authorize access).

The use of the appropriate Restricted High Radiation Area key to access the SJAE room by the Fire Brigade is by authorization of …

A: RP ONLY.

B: the CRS ONLY.

C: the CRS AND the initiation of a condition report by shift management.

D: the CRS AND the initiation of a condition report by shift management AND continuous coverage provided by RP during the entry.

Answer:
D

Objective

Question Source:
Bank: {00051}

Question Difficulty
High

Reference Provided:
None

Reference:
CPS 1401.09 CONTROL OF SYSTEM AND EQUIPMENT STATUS

Explanation:
Shift Management may authorize the use of a Restricted High Radiation Area key in emergency situations (Fire, Plant Safety, etc.), without a RWP. The following restrictions shall apply:
1) Radiation Protection personnel shall provide continuous coverage for the entry.
2) The Shift Management shall initiate a CR.

Distracters:

A is incorrect because no current RWP is available.
B is incorrect because a CR is required to be initiated and continuous RP coverage is required.
C is incorrect because continuous coverage by RP is required.

55.43 section(s): (5)

SRO Justification: Shift Management (Senior Licensed) can authorize access under these conditions (RO licensed personnel cannot).

Date Written: 7/31/2003 Author: Jensen