

QUESTION NO. 1 For RO Exam

The plant was initially operating at 100% power. A transient occurred resulting in the following conditions:

- RPV level is 35 inches and stable after lowering to 25 inches.
- Reactor power lowered to 73% and is now stable
- Total core flow lowered to 51.5 Mlbm/hr and is now stable

The cause of this plant configuration was the receipt of a signal from the . . .

- A. EOC-RPT logic.
- B. ATWS/ARI logic.
- C. Recirculation Pump Cavitation Interlock circuitry.
- D. Recirculation Flow Control Valve Runback logic.

ANSWER: D

- A - Flow and power would be significantly lower due to pump downshift
- B - Flow would be much lower and power would be <1% due to rod insertion from ARI
- C - Same as A due to pump downshift

K/A

Statement: KA: Knowledge of the interrelations between Partial or Complete Loss of Forced Core Flow Circulation and the Recirculation System.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|---------------|-----------------------------|------------|------------------------------|-------------------------------------|----------------------|
| 295001 AK2.01 | 3.6 | 3.7 | 41.1 41.5 41.6 43.6 | ARP-P680-4A-A03 AOP-0024, Att. 1 | STM-053 OBJ- 2c |
| TIER/GROUP: | 1/1 | | | | LOK: H LOD: 3 |
| ORIGIN: | BANK | | | | |
| HISTORY: | River Bend NRC Exam 10/2000 | | | | BANK QID: 419 |

QUESTION NO. 2 For RO Exam

The plant is operating at rated conditions with Turbine Building Component Cooling Water pumps CCS-P1A and P1C running and CCS-P1B in standby. A partial loss of AC power to the plant occurs. As a result of the power loss, the following conditions now exist:

- CCS-P1A and P1B are running.
- Div 3 Standby Diesel is running and supplying the Div 3 Bus E22-S004

A loss of power to which one of the following caused the above conditions?

- A. NNS-SWG1A
- B. NNS-SWG1B
- C. NNS-SWG1C
- D. Preferred Station Service Transformer RTX-XSR1C

ANSWER: C

- A – Would result in loss of P1A and Div 3 DG would not be running
- B – Would result in loss of P1B and Div 3 DG would not be running
- D – Would result in loss of P1A & P1C and Div 1 DG would be running

K/A

Statement: Ability to determine/interpret the cause of partial or complete loss of A.C. power as it applies to partial or complete loss of A.C. power.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|---------------|-----------|------------|------------------|---------------------------------------|----------------------|
| 295003 AA2.01 | 3.4 | 3.7 | 41.4 | STM-300, Page 11 SOP-0017, Page 59 | STM-300 OBJ- H2 |

TIER/GROUP: 1/1

LOK: F LOD: 2

ORIGIN: NEW

HISTORY:

BANK QID: 888

QUESTION NO. 3 For RO Exam

The plant was operating at 100% power with the following conditions:

- Feed Water Level Control Level Channel A was selected with Channel B failed high.
- Offgas Post-Treat Rad Monitor RE-23B was in the High-High alarm condition.

A partial loss of DC power occurred and the reactor automatically scrammed. It has been determined that power was lost to BYS-PNL02A2.

AOP-0014, Attachment 1, is provided as EXAM HANDOUT MATERIAL.

Which one of the following was the reason for the automatic scram?

- A. Turbine trip due to loss of vacuum caused by an Offgas isolation.
- B. Turbine trip due to 2 out of 3 RPV High Water Level trip.
- C. Turbine trip due to Generator output breaker trip.
- D. ARI valves failed open on loss of power.

ANSWER: B AOP-0014, MUST BE INCLUDED IN EXAM HANDOUT MATERIALS.
Ch C High trip with Ch B failed high caused turbine trip which caused scram.

- A - Offgas Rad Monitor isolates only if B in HI-HI-HI, Downscale or INOP, HI-HI is just alarm.
- C - Loss of DC to aux relay circuit will not trip generator output breakers.
- D - ARI valves energize to open. Remain closed on Loss of power.

K/A

Statement: Knowledge of the reasons for Reactor SCRAM as it applies to partial or complete loss of D. C. Power.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|---------------|-----------|------------|------------------|--|----------------------|
| 295004 AK3.03 | 3.1 | 3.5 | 41.7 41.6 | AOP-0014, Attachment 1 STM-107, Page 47 | HLO-532 OBJ- 8 |

TIER/GROUP: 1/1

LOK: H LOD: 3

ORIGIN: NEW

HISTORY:

BANK QID: 889

QUESTION NO. 4 For RO Exam

During a plant startup the generator has been placed on the grid, a turbine trip occurs. Following the trip, the Turbine Bypass Valves and steam line drains, stabilize reactor pressure at 952 psig.

For the next 30 minutes, reactor power is held at 15% as the cause of the turbine trip is investigated. During this time, temperature of the feedwater entering the reactor vessel will . . .

- A. remain constant due to feedwater flow and reactor power remaining constant.
- B. lower due to the loss of extraction steam to the feedwater heaters.
- C. lower due to the lower feedwater flow through the feedwater heaters.
- D. rise due to the lower feedwater flow through the feedwater heaters.

ANSWER: B

A - Heating steam to the feedwater heaters will be lost causing it to drop.

C - Feedwater flow will not lower with reactor power remaining at 15%.

D - Temp will lower due to loss of heating steam with feedwater flow remaining constant.

K/A

Statement: Knowledge of the interrelations between Main Turbine Generator Trip and feedwater temperature.

| | | | | | |
|---------------|-----------|------------|------------------|-----------------------|----------------------|
| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
| 295005 AK2.02 | 2.9 | 3 | 41.4 41.14 | STM-108 | STM-108 OBJ- H16 |
| TIER/GROUP: | 1/1 | | | | LOK: H LOD: 2 |
| ORIGIN: | NEW | | | | |
| HISTORY: | | | | | BANK QID: 890 |

QUESTION NO. 5 For RO Exam

The plant is operating at 100% power when an automatic reactor scram occurs due to a High Scram Discharge Volume Level.

Which one of the following describes the INITIAL response of reactor water level due to the reactor scram and the reason for that response?

Level will initially . . .

- A. rise as control rods displace water volume in the core lowering core void content.
- B. rise as control rods displace water volume in the core raising core void content.
- C. lower as control rod insertion lowers core void content
- D. lower as the recirc pumps downshift to slow speed.

ANSWER: C

A - Level lowers with lowering core void content

B - Level and core voids initially lower due to control rods lowering fission rate

D - Recirc pumps will not immediately downshift and a downshift causes level to rise not lower.

K/A

Statement: Knowledge of the reasons for reactor water level response as they apply to SCRAM.

| | | | | | |
|---------------|-----------|------------|------------------|-----------------------|----------------------|
| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
| 295006 AK3.01 | 3.8 | 3.9 | 41.5 41.14 | Simulator response | HLO-315 OBJ- 2 |

TIER/GROUP: 1/1

LOK: H LOD: 3

ORIGIN: NEW

HISTORY:

BANK QID: 887

QUESTION NO. 6 For RO Exam

The Main Control Room was abandoned due to toxic gas and control has been transferred to the Remote Shutdown panel. The following has occurred:

- At 2000 reactor was shutdown and RPV pressure stabilized at 950 psig.
- At 2015 after RCIC operation to raise RPV level, RPV pressure dropped to 800 psig.
- At 2030, RPV pressure has been stable at 800 psig since 2015.
- All MSIVs are closed.

The CRS directs the operator at the Remote Shutdown Panel to establish a cooldown rate between 90°F/hr and 100°F/hr, not to exceed 100°F/hr using SRVs.

At 2100, which one of the following RPV pressures will meet the cooldown rate directed by the CRS? AOP-0031, Attachment 2 is included as EXAM HANDOUT MATERIAL.

- A. 500 psig
- B. 400 psig
- C. 350 psig
- D. 300 psig

ANSWER: B

From shutdown pressure of 950 psig = 540°F to 400 psig = 448°F one hr later = 92°F/hr C/D rate

A - 500 psig = 70°F/hr C/D rate.

C - 350 psig = 105°F/hr CD rate.

D - 300 psig = 119°F/hr CD rate.

K/A

Statement: Ability to determine/interpret cooldown rate as it applies to Control Room Abandonment.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|---------------|-----------|------------|------------------|---------------------------------|----------------------|
| 295016 AA2.06 | 3.3 | 3.5 | 41.10 41.14 | AOP-0031, Att 2 Steam Tables | HLO-537 OBJ- 4 |

TIER/GROUP: 1/1

LOK: H LOD: 3

ORIGIN: NEW

HISTORY:

BANK QID: 942

QUESTION NO. 7 For RO Exam

A total loss of CCP has occurred and the reactor has been scrambled. All automatic actions for the total loss of CCP have occurred including automatic initiation of Standby Service Water.

The CRS has directed the UO to align SSW to the CRD pump bearing coolers and to start a CRD pump per AOP-0011, Step 5.2. AOP-0011 is included as exam handout materials.

The purpose of placing the RPCCW DIV 1 TEST switch in TEST is to . . .

- A. prevent auto initiation of DIV 1 Standby Service Water Pumps, if they aren't running.
- B. prevent auto closure of the SSW-MOV510B when aligning CCP Loop B to the CRD pump coolers.
- C. allow CCP-MOV163 to be opened.
- D. allow starting either CRD pump.

ANSWER: D

Requires Div 1 in test to bypass <56 psig in Div 1 CCP loop.

A - The TEST switch does not bypass SSW pump start signals only valve closures.

B - Division 2 valve with no isolation on 56 psig in CCP.

C - Division 2 valve with isolation bypassed by Div 2 TEST switch.

K/A

Statement: Knowledge of the purpose and function of major system components and controls applicable to Partial or Total Loss of CCW.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|---------------|-----------|------------|-----------------------|--|----------------------|
| 295018 2.1.28 | 3.2 | 3.3 | 41.4 41.7 41.10 | AOP-0011, Step 5.2 STM-115, Page 15 | STM-115 OBJ- |

TIER/GROUP: 1/1

LOK: H LOD: 3

ORIGIN: NEW

HISTORY:

BANK QID: 891

QUESTION NO. 8 For RO Exam

A crack in the Instrument Air System (IAS) air compressor common discharge header has lowered header pressure to 100 psig. At this pressure, what is the expected status of the two automatic air-operated Service Air System valves listed below?

- SAS-AOV133, Service Air Header Block Valve
- SAS-AOV134, Instrument Air Header Cross-Tie Valve

| | AOV133 | AOV134 |
|----|--------|--------|
| A. | Open | Open |
| B. | Closed | Open |
| C. | Open | Closed |
| D. | Closed | Closed |

ANSWER: B.

A - 133 will auto close when pressure lowers to 110 psig.

C - Both A & D apply

D - 134 will auto open when pressure lowers to 113 psig.

K/A

Statement: KA: Operate/monitor service air isolation valves as they apply to Partial or Complete Loss of Instrument Air.

| | | | | | |
|---------------|-----------|------------|------------------|--|----------------------|
| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
| 295019 AA1.04 | 3.3 | 3.2 | 41.4 | ARP-P870-51A-B02 STM-121, Pages 28 & 29 | STM-121 OBJ- H3 |

TIER/GROUP: 1/1

LOK: H LOD: 2

ORIGIN: NEW

HISTORY:

BANK QID: 54

QUESTION NO. 9 For RO Exam

While operating RHR "A" in the Shutdown Cooling Mode, a spurious isolation signal actuates the INBOARD (Div. 2) Containment and Reactor Vessel Isolation Control System (CRVICS) isolation logic for RHR Shutdown Cooling. The Shutdown Protection Plan per SOP-0031 has NOT been implemented.

What is the final state of the following RHR System components after all automatic actions have occurred?

| | SDC OUTBD ISOLATION VLV E12-F008 | RHR PUMP A |
|----|--|---------------|
| A. | Closed | Running |
| B. | Closed | Tripped |
| C. | Open | Running |
| D. | Open | Tripped |

ANSWER: D

A - F008 is not closed by INBD Isolation logic, but if closed pump would be tripped.

B - F008 is not closed by INBD Isolation logic.

C - Pump is automatically tripped by closure of INBD SDC Suction Isolation Valve E12-F009.

K/A

Statement: Ability to operate/monitor RHR/Shutdown Cooling as it applies to Loss of Shutdown Cooling.

| | | | | | |
|---------------|-----------|------------|------------------|---------------------------------------|----------------------|
| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
| 295021 AA1.02 | 3.5 | 3.5 | 41.7 | STM-204, Fig. 10 AOP-0003, Page 15 | STM-204 OBJ- H |

TIER/GROUP: 1/1

LOK: F LOD: 3

ORIGIN: NEW

HISTORY:

BANK QID: 892

QUESTION NO. 10 For RO Exam

Containment Purge is in operation for humidity control using HVR-FN14 during a refueling outage.

An irradiated fuel bundle is dropped in the Reactor Cavity where strikes the tops of several other fuel bundles in the core. A large volume gas bubble was observed rising to the surface.

A short time later, the Containment Purge Radiation Monitors RMS-RE21A and B rapidly rise to above their High alarm on DRMS. How should the HVR-FN14, Containment Purge Filter Fan respond following this alarm?

- A. It will stop when its suction damper HVR-AOD240 closes.
- B. It will stop following the auto initiation of Standby Gas Treatment.
- C. It will stop when the containment isolation damper HVR-AOV128 closes.
- D. It will continue to run.

ANSWER: C

A - HVR-FN14 interlocked to close AOD240 when fan stops, NOT interlocked to stop fan

B - RE21 will not initiate Standby Gas treatment.

D - Interlocked to stop when AOV128 is closed by RE21.

K/A

Statement: Ability to operate/monitor Containment Building Ventilation as it applies to Refueling Accidents.

| | | | | | |
|---------------|-----------|------------|------------------|--|----------------------|
| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
| 295023 AA1.08 | 3.3 | 3.4 | 41.7 41.9 | STM-403, Page 19 ARP-P863-71A-F02 ARP-RMS-DSPL230, Page 12 | STM-403 OBJ- H10 |
| TIER/GROUP: | 1/1 | | | | LOK: H LOD: 2 |
| ORIGIN: | NEW | | | | |
| HISTORY: | | | | | BANK QID: 893 |

QUESTION NO. 11 For RO Exam

Given the following plant conditions:

- Reactor Power 0% (all rods in)
- Reactor Level +33 inches
- Reactor Pressure 890 psig
- Drywell Pressure 1.8 psid
- Drywell Temperature 138°F
- Containment Temperature 88°F
- Containment Pressure 0.35 psig
- Annulus Differential Pressure -4.5 in.WC

Based on the above conditions, which one of the following describes the Emergency Operating Procedures that should be entered?

- A. EOP-1 ONLY
- B. EOP-1 and 2
- C. EOP-2 ONLY
- D. EOP-2 and 3

ANSWER: B

A - High Containment pressure entry condition for EOP-2 also exists

C - High Drywell DP entry condition for EOP-1 also exists

D - Cont. Press is entry for EOP-2 but Annulus DP has not exceeded Max. Normal Operating for EOP-3 entry

K/A

Statement: KA: Ability to recognize abnormal indications which are entry-level conditions for EOPs and AOPs applicable to High Drywell Pressure.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|---------------|-----------|------------|-----------------------|-----------------------|----------------------|
| 295024 G2.4.4 | 4 | 4.3 | 41.10 41.9 43.2 | EOP-0001 EOP-0002 | HLO-514 OBJ- 4 |

TIER/GROUP: 1/1

LOK: F LOD: 3

ORIGIN: **MODIFIED**

HISTORY: **River Bend NRC Exam 2/2003**

BANK QID: **444**

QUESTION NO. 12 For RO Exam

The reactor scrammed and the MSIVs have closed do to a small break in the piping from the Main Steam Line Equalizing Header. SRVs are now being cycled to control reactor pressure. Suppression Pool level has risen to 21 feet 3 inches.

If Suppression Pool level CANNOT be lowered, Emergency Depressurization is required because . . .

- A. continued SRV operation may cause tailpipe damage and directly pressurize containment.
- B. continued SRV operation may cause tailpipe vacuum breaker damage and directly pressurize containment.
- C. continued SRV operation will cause extensive flooding of the drywell due to overflowing the weir wall.
- D. a large break LOCA will result in drywell pressure exceeding design due to the higher pressure required to uncover the horizontal vent holes.

ANSWER: A

B - Tailpipe vacuum breaker failure would pressurize the Drywell not containment.

C - may flood but not a reason for requiring ED

D - Would not raise DW pressure significantly.

K/A

Statement: Ability to determine/interpret suppression pool level as it applies to High Reactor Pressure.

| | | | | | |
|---------------|-----------|------------|------------------|-----------------------|----------------------|
| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
| 295025 EA2.04 | 3.9 | 3.9 | 41.9 41.10 | EPSTG-0002, B-8-26 | HLO-514 OBJ- 5 |

TIER/GROUP: 1/1

LOK: F LOD: 2

ORIGIN: NEW

HISTORY:

BANK QID: 948

QUESTION NO. 13 For RO Exam

A MSIV Closure - ATWS has occurred with the plant at 100% power.

Injecting boron when it has been determined that Suppression Pool temperature CANNOT be maintained below 110°F is done to . . .

- A. avoid exceeding the Heat Capacity Temperature Limit (HCTL) with the reactor still critical.
- B. eliminate any need for Emergency Depressurization during ATWS conditions.
- C. ensure Hot Shutdown Boron Weight will be injected before suppression pool temperature reaches the value at which a scram is required by Technical Specifications.
- D. ensure Cold Shutdown Boron Weight will be injected before suppression pool temperature reaches the value at which a scram is required by Technical Specifications.

ANSWER: A

B - ED may still be required due to inability to maintain RPV level or per EOP-3.

C - Boron Injection Initiation Temp is where TS requires scram. HSBW could not be injected if initiated at 109F.

D - Boron Injection Initiation Temp is where TS requires scram. CSBW could not be injected if initiated at 109F.

K/A

Statement: Knowledge of the reasons for SBLC injection as it applies to Suppression Pool High Water Temperature.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|---------------|-----------|------------|------------------|------------------------------|----------------------|
| 295026 EK3.04 | 3.7 | 4.1 | 41.9 41.10 | EOP-1A EPSTG-0002, B-7-68 | HLO-513 OBJ- 4 |

TIER/GROUP: 1/1

LOK: F LOD: 2

ORIGIN: **MODIFIED**

HISTORY: **River Bend NRC Exam 2/2003**

BANK QID: **816**

QUESTION NO. 14 For RO Exam

At what locations can the Operator confirm an EOP-0002, entry condition has been reached when a High Containment Temperature annunciator alarms.

- A. Emergency Response Information System (ERIS) in Technical Support Center (TSC) and CMS recorders on P808.
- B. Emergency Response Data System (ERDS) link to NRC and Local Temperature Indicators in Containment
- C. CMS Recorders on P808 and the Leakage Computer
- D. Emergency Response Information System (ERIS) in Main Control Room and the Leakage Computer

ANSWER: A

- B. ERDS does not transmit Containment Temperature; system is only started during emergencies.
- C. Leakage computer does not read Containment Temperature
- D. Same as C.

K/A

Statement: Knowledge of the interrelations between High Containment Temperature and ERIS.

| | | | | | |
|---------------|-----------|------------|------------------|-----------------------|----------------------|
| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
| 295027 EK2.04 | 2.6 | 3.2 | 41.7 41.9 | STM-514, Pages 6 & 7 | STM-514 OBJ- H4 |

TIER/GROUP: 1/1

LOK: F LOD: 2

ORIGIN: NEW

HISTORY:

BANK QID: 894

QUESTION NO. 15 For RO Exam

Which one of the following describes why EOP 1, "RPV Control," Caution number 2 directs the operator to open and leave open RHR Shutdown Cooling Inboard Isolation, IE12-F009, following a LOCA?

- A. High temperature steam conditions in the drywell may cause thermal overloads in the motor to trip, rendering the valve inoperable, unless the valve is opened early in the transient.
- B. High temperatures in the drywell could cause local boiling in the piping upstream of F009, resulting in water hammer if the valve is not open.
- C. High temperature steam conditions in the drywell may cause accelerated corrosion of the motor rotor resulting in insufficient torque to operate the valve.
- D. The motor on F009 is designed for only one cycle of operation at the maximum anticipated drywell temperatures.

ANSWER: C

K/A

Statement: Knowledge of the operational implications of equipment environmental qualification as they apply to High Drywell Temperature.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|---------------|-----------|------------|------------------|------------------------------------|----------------------|
| 295028 EK1.02 | 2.9 | 3.1 | 41.8 41.10 | EOP-0002 EPSTG-0002, Page B-5-9 | HLO-511 OBJ- H6 |

TIER/GROUP: 1/1

LOK: F LOD: 2

ORIGIN: **BANK**

HISTORY: **River Bend NRC Exam 1/1993**

BANK QID: **895**

QUESTION NO. 16 For RO Exam

The High Pressure Core Spray pump is injecting into the RPV with its suction aligned to the Suppression Pool following a low CST level. RPV flooding is in progress and HPCS injection is required to maintain RPV pressure above 42 psig for the next 25 minutes to establish the Minimum Core Flooding Interval.

Suppression pool level has been lowering and is now approaching 15 feet. The CST has been restored to 10 feet above the low level setpoint.

The CRS has directed that HPCS suction again be aligned to the CST, while maintaining maximum HPCS flow to the RPV. Which one of the following describes how this must be accomplished?

- A. First open the CST suction valve and when full open, close the Suppression Pool suction valve.
- B. First close the Suppression Pool suction valve and when dual position indication is obtained, open the CST suction valve.
- C. First open the CST suction valve and when dual position indication is obtained, close the Suppression Pool suction valve.
- D. First close the Suppression Pool suction valve and when full closed position indication is obtained, open the CST suction valve.

ANSWER: B

- A - CST suction valve will not open with SP suction valve in full open position.
- C - CST suction valve will not open with SP suction valve in full open position.
- D - Flow to the RPV is interrupted.

K/A

Statement: Ability to operate/monitor HPCS as it applies to Low Suppression Pool Water Level.

| | | | | | |
|---------------|-----------|------------|------------------|------------------------|----------------------|
| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
| 295030 EA1.03 | 3.4 | 3.4 | 41.7 | STM-203. Pages 13 & 14 | STM-203 OBJ- H4 |

TIER/GROUP: 1/1

LOK: H LOD: 2

ORIGIN: NEW

HISTORY:

BANK QID: 896

QUESTION NO. 17 For RO Exam

The setpoint setdown feature of the Feed Water Level Control System is activated _____(1)_____ and initially causes the Feedwater Regulating Valves to ____ (2)____ further .

- | (1) | (2) | |
|----------------------------|-------|--|
| A. on any reactor scram | open | |
| B. on any reactor scram | close | |
| C. at <9.7" RPV level | open | |
| D. at <9.7" RPV level | close | |

ANSWER: C

- A - Only on scrams where level reaches Level 3
- B - Only on scrams where level reaches Level 3 and FWRVs open
- D - FWRVs open initially

K/A

Statement: Knowledge of the interrelations between Reactor Low Water Level and Reactor Water Level Control.

| | | | | | |
|----------------------|------------|------------|------------------|-------------------------|---------------------------|
| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
| 295031 EK2.16 | 4.1 | 4.1 | 41.7 | STM-107, Page 54 | STM-107 OBJ- H4 |

TIER/GROUP: **1/1**

LOK: **F** LOD: **2**

ORIGIN: **NEW**

HISTORY:

BANK QID: **897**

QUESTION NO. 18 For RO Exam

A manual Reactor Scram has been inserted and the Scram Pilot Solenoid Valve white status lights are off but Control Rod Movement has not occurred. The Emergency Response Information System (ERIS) - Safety Parameter Display System (SPDS), Critical Plant Variables Screen will display the SCRAM condition in the box below the Power box as follows.

- A. The box will change from NO SCRAM to ATWS based on the Scram Relay position and indicated power above the APRM Downscale
- B. The box will remain NO SCRAM and be highlighted in green based on the control rods not fully inserting.
- C. The box will change from NO SCRAM to ????? in a magenta box to indicate bad data, based on the failure to scram.
- D. The box will remain NO SCRAM and be highlighted in red based on indicated power above the APRM Downscale

ANSWER: B

A - The box does not display the word ATWS

C - The box would not display magenta (bad data) because signal is still present and in range.

D - Since the scram relays repositioned as indicated by the pilot lights, ERIS would receive a valid scram signal and change the box from NO SCRAM to SCRAM

K/A

Statement: Knowledge of the interrelations between Scram Condition Present and Reactor Power Above APRM Downscale or Unknown and ERIS.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|---------------|-----------|------------|----------------------|-----------------------|----------------------|
| 295037 EK2.08 | 2.7 | 3.1 | 41.1 41.2 41.7 | STM-514 | STM-514 OBJ- H3 |
| TIER/GROUP: | 1/1 | | | | LOK: F LOD: 2 |
| ORIGIN: | NEW | | | | |
| HISTORY: | | | | | BANK QID: 898 |

QUESTION NO. 19 For RO Exam

EOP-3, Radioactive Release Control has been entered and is being executed due to a release occurring in the Turbine Building. Off-site power was lost during the event but has just been restored.

In order to restart Turbine Building Ventilation, per EOP-3, Step RR-2, it will be necessary for an operator to start . . .

- A. ONLY an exhaust fan at panel HVT-PNL162 located on the West side of the Turbine Building 123' elevation.
- B. BOTH an exhaust and supply fan at panel HVT-PNL162 located on the West side of the Turbine Building 123' elevation.
- C. ONLY an exhaust fan at panel HVT-PNL163 located in the Offgas area of the Turbine Building 123' elevation.
- D. BOTH an exhaust and supply fan at panel HVT-PNL163 located in the Offgas area of the Turbine Building 123' elevation.

ANSWER: B

A - Must also start Supply Fan or Exhaust will trip in 15 seconds.

C - Wrong local HVT panel and must also start Supply Fan or Exhaust will trip in 15 seconds.

D - Wrong local HVT panel.

K/A KA: Ability to locate and operate components, including local controls applicable to High Off-Site
Statement: Release Rate.

| | | | | | |
|---------------|-----------|------------|------------------------|-----------------------|----------------------|
| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
| 295038 2.1.30 | 3.9 | 3.4 | 41.4 41.10 41.13 | SOP-0064, Pages 4 & 6 | STM-408 OBJ- 5 |
| TIER/GROUP: | 1/1 | | | | LOK: F LOD: 2 |
| ORIGIN: | NEW | | | | |
| HISTORY: | | | | | BANK QID: 886 |

QUESTION NO. 20 For RO Exam

Which one of the following describes the response of the Fire Protection System to a fire in the charcoal bed of one of the Standby Gas Treatment Trains.

The fire would be detected by a . . .

- A. a smoke detector above the charcoal bed that causes an alarm in the Main Control Room AND auto opens a Fire Water valve to spray the bed.
- B. a smoke detector above the charcoal bed that causes an alarm in the Main Control Room. A manual Fire Water valve must be locally opened to spray the bed.
- C. a thermal detector inside the charcoal bed that causes an alarm in the Main Control Room AND auto initiates Fire Water flow to spray nozzles in the bed.
- D. a thermal detector inside the charcoal bed that causes an alarm in the Main Control Room. A manual Fire Water valve must be locally opened to spray the bed.

ANSWER: D

- A - Thermal detector is used with no automatic initiation feature.
- B - Thermal detector is used.
- C - No automatic initiation feature.

K/A

Statement: Knowledge of the interrelations between Plant Fire On Site and Fire Protection System sensors, detectors and valves.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|--------------|-----------|------------|------------------|-----------------------------------|----------------------|
| 286000 A3.06 | 3 | 3.1 | 41.4 | ARP-863-73-D04 STM-257, Page 6 | STM-257 OBJ- H6 |

TIER/GROUP: 1/1

LOK: F LOD: 2

ORIGIN: NEW

HISTORY:

BANK QID: 923

QUESTION NO. 21 For RO Exam

The plant is operating at 100 % power. The Feedwater Level Control (FWLC) System is in three element control with the “A” Reactor Water Level Channel selected. A rupture occurs on the “A” reference leg causing a level change.

Assuming no other instruments are affected by the rupture, which one of the following describes the required operator action?

- A. Manually control water level with RCIC.
- B. Select the "B" Reactor Water Level Channel.
- C. Transfer the FWLC System to single element control.
- D. Allow the level dominant signal to take control and return level to normal.

ANSWER: B

- A - AOP-0006 directs manual control of the FWLC System or reduce power
- C - Single element changes from level dominant to level only causing low level scram
- D - Level instrument is failed so level dominance will cause low level scram

K/A

Statement: KA: Ability to operate/monitor Reactor Water Level Control as it applies to Low Reactor Water Level.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|---------------|-----------|------------|------------------|-----------------------------|----------------------|
| 295009 AA1.02 | 4 | 4 | 41.7 | AOP-0006 ARP-P680-3A-C08 | STM-107B OBJ- H8 |

TIER/GROUP: 1/2

LOK: F LOD: 2

ORIGIN: BANK

HISTORY: River Bend NRC Exam 2/2003

BANK QID: 553

QUESTION NO. 22 For RO Exam

Following a Large Break LOCA inside the Drywell, Drywell temperature reached 265°F and Drywell-to-Containment ?P peaked at 15 psid. Ten minutes later, Drywell temperature has lowered to 205°F and Drywell-to-Containment ?P is -4 psid.

If NO OPERATOR ACTIONS have occurred since the LOCA, this value of Drywell-to-Containment ?P indicates which one of the following conditions?

- A. Excessive bypass leakage exists between the Drywell and Containment.
- B. The air in the drywell is being cooled by operation of all Drywell coolers.
- C. The steam in the drywell is being condensed by operation of all Drywell coolers.
- D. The steam in the drywell is being condensed by ECCS flow from the break.

ANSWER: D

A - Could cause ?P to lower to 0 psid, but not become negative.

B - Would be little if any air in Drywell and its coolers have no cooling water or power due to high drywell ?P.

C - Drywell coolers have no cooling water or power due to high drywell ?P.

K/A

Statement:

Ability to determine/interpret drywell pressure as it applies to High Drywell Pressure.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|---------------|-----------|------------|------------------|---------------------------------------|----------------------|
| 295010 AA2.02 | 3.8 | 3.9 | 41.9 | HLO-322, Page 10 USAR Figure 6.2-4 | HLO-322 OBJ- 3 |

TIER/GROUP: 1/2

LOK: H LOD: 2

ORIGIN: NEW

HISTORY:

BANK QID: 899

QUESTION NO. 23 For RO Exam

When Containment Temperature CANNOT be maintained below 90°F, EOP-0002 directs operating all available containment cooling to avoid . . .

- A. Suppression Pool temperature rising due to Containment heating.
- B. Emergency Depressurization being required.
- C. reference leg flashing in RPV level instrumentation.
- D. implementing Containment Flooding to lower containment temperatures.

ANSWER: B

A - No significant rise in SP temperature would result from containment temps rising above 90°F.

C - No mechanism for containment temps to reach >212°F

D - Would cool containment but not used for that purpose in the EOPs.

K/A

Statement: Knowledge of the reasons for increased containment cooling as they apply to High Containment Temperature.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|---------------|-----------|------------|-------------------------------|--|----------------------|
| 295011 AK3.01 | 3.6 | 3.9 | 41.8 41.9 41.10 43.5 | EOP-0002, Step CT-3 EPSTG-0002, Page B-8-9 & 10 | HLO-514 OBJ- 5 |
| TIER/GROUP: | 1/2 | | | | LOK: F LOD: 2 |
| ORIGIN: | NEW | | | | |
| HISTORY: | | | | | BANK QID: 900 |

QUESTION NO. 24 For RO Exam

Following a scram due to high Drywell pressure, EOP-2 was entered with Drywell temperature rising.

At a Drywell temperature of 145°F, Enclosure 20, Defeating Drywell Cooling Isolation Interlocks, was installed and all Drywell Unit Coolers placed in operation by 160°F. Drywell temperature reached a peak value of 230°F before beginning to lower. The following conditions now exist:

- RPV level reached a minimum of -35 inches and is now stable at 30 inches.
- Drywell pressure is 1.55 psid and lowering rapidly.
- Drywell temperature is 143°F and lowering rapidly.

With the above conditions, which one of the following is true?

- A. Enclosure 20 must be removed with Drywell temperature below 145°F.
- B. All available Drywell Unit Coolers must remain ON per EOP-2, Step DWT-3.
- C. All Drywell Unit Coolers must be secured. Drywell temperature was >200°F.
- D. Individual Drywell Unit Coolers can be secured to avoid a negative Drywell pressure.

ANSWER: D

A - Unless directed by EOP step, enclosures, once installed, are NOT to be removed until EOPs are exited.

B - "Operate all available" does not preclude turning on and off as necessary EPSTG/ OSP-0009.

C - NA. Service water was never completely isolated.

K/A

Statement: Knowledge of operator responsibilities during all modes of plant operation applicable to High Drywell Temperature.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|--------------|-----------|------------|-----------------------|--|----------------------|
| 295012 2.1.2 | 3 | 4 | 41.10 41.9 43.5 | EOP-2, Steps DWT-2 & 3 EPSTG-0002, Page B-8-6 | HLO-514 OBJ- 6 |

TIER/GROUP: 1/2

LOK: H LOD: 3

ORIGIN: BANK

HISTORY: River Bend NRC Exam 2/2003

BANK QID: 901

QUESTION NO. 25 For RO Exam

While operating RCIC pump flow surveillance testing, one of the RHR loops is placed in Suppression Pool Cooling Mode to ensure . . .

- A. adequate mixing of the suppression pool water to avoid temperature stratification.
- B. maximum RCIC turbine efficiency for the most conservative pump flow test data.
- C. the RCIC suction strainer remains free of any debris that could affect test results.
- D. minimum RCIC exhaust line check valve chatter during the test.

ANSWER: A

B - Will not significantly affect RCIC turbine efficiency and affect would be nonconservative.

C - Would want test results to show any suction strainer fouling.

D - RHR suppression pool cooling would not affect exhaust line check valve chatter.

K/A

Statement: Knowledge of the operational implications of pool stratification as they apply to High Suppression Pool Temperature.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|---------------|-----------|------------|------------------------|-----------------------|----------------------|
| 295013 AK1.01 | 2.5 | 2.6 | 41.8 41.10 41.14 | SOP-0035, Page 4 | STM-209 OBJ- H6 |

TIER/GROUP: 1/2

LOK: F LOD: 2

ORIGIN: NEW

HISTORY:

BANK QID: 953

QUESTION NO. 26 For RO Exam

A fuel bundle has been dropped and fuel pins have ruptured in the spent fuel pool. The Fuel Building Exhaust Rad Monitors are both in alarm condition and automatic realignment of Fuel Building Ventilation is in progress.

Under these conditions, the Alternate Air Supply Dampers HVF-AOD37A and B automatically open to . . .

- A. provide air flow across the spent fuel pools.
- B. provide a permissive for the Charcoal Filtration Fans to auto start.
- C. prevent damage to the Exhaust Filter Charcoal Filtration Trains.
- D. prevent damage to the Fuel Building due to excessive internal negative pressure.

ANSWER: A

B - Only the inlet isolation dampers for the Filter train fans are intlocked with the fans.

C - Filtration trains will operate without damage with no alternate air supply dampers open.

D - The filtration trains do not create a negative pressure high enough to damage the Fuel Building with HVF-AOD37A and B closed.

K/A

Statement: Knowledge of the reasons for the Fuel Building Ventilation responses as they apply to Secondary Containment Ventilation High Radiation.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|---------------|-----------|------------|------------------|-----------------------|----------------------|
| 295034 EK3.04 | 3.7 | 3.8 | 41.9 | STM-406 Pages16 &17 | STM-406 OBJ- H3 |

TIER/GROUP: 1/2

LOK: F LOD: 2

ORIGIN: NEW

HISTORY:

BANK QID: 903

QUESTION NO. 27 For RO Exam

A leak in the RCIC room has resulted in the RCIC room sump overflowing and a rise in the Auxiliary Building Ventilation Radiation Monitor RMS-RE110 indication on DRMS.

After RMS-RE110 exceeds the High Alarm, if NO OPERATOR ACTION is taken, what type of radioactive release will be in progress?

- A. Monitored AND filtered
- B. Monitored, BUT NOT filtered
- C. Unmonitored, BUT filtered
- D. Unmonitored AND NOT filtered

ANSWER: B

No automatic isolation of Aux Building Vent so it remains monitored, and no filter trains start on RE110 alarm.

A - Requires operator action to isolate the Aux Building Ventilation and/or start SGTS

C - Has rad monitor but no filter train on the Aux Building Ventilation

D - Only if operator action was taken to isolate Aux Building with no SGTS operation.

K/A

Statement: Knowledge of the operational implications of radiation releases as they apply to Secondary Containment High Sump/Area Water Level.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|---------------|-----------|------------|-------------------------|---|----------------------|
| 295036 EK1.01 | 2.9 | 3.1 | 41.11 41.12 41.13 | ARP-RMS-DSPL230/GP110 STM-409, Page 15 | STM-409 OBJ- H6 |
| TIER/GROUP: | 1/2 | | | | LOK: F LOD: 2 |
| ORIGIN: | NEW | | | | |
| HISTORY: | | | | | BANK QID: 904 |

QUESTION NO. 28 For RO Exam

To ensure that the RHR Low Pressure Coolant Injection can provide core cooling such that the ECCS Acceptance Criteria are met, the plant must be operating within the limits specified in which one of the following Technical Specification LCOs prior to the DBA LOCA?

- A. Average Planar Linear Heat Generation Rate (APLHGR).
- B. Fraction of Core Boiling Boundary (FCBB).
- C. Minimum Critical Power Ratio (MCPR).
- D. Linear Heat Generation Rate (LHGR).

ANSWER: A

B - Applies to normal operation in Restricted Region of P/F map to prevent instability.

C - Applies to normal power operation and transients, not accident conditions.

D - Applies to normal power operations and transients, not accident conditions.

K/A

Statement: Knowledge of the operational implications of core cooling methods as applied to RHR/LPCI.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|--------------|-----------|------------|-----------------------|-----------------------|----------------------|
| 203000 K5.02 | 3.5 | 3.7 | 41.8 41.14 43.2 | TS Bases, Page 3.2-1 | HLO-321 OBJ- 1 |

TIER/GROUP: 2/1

LOK: F LOD: 2

ORIGIN: NEW

HISTORY:

BANK QID: 905

QUESTION NO. 29 For RO Exam

Given the following initial plant conditions:

RHR loop "B" is in Shutdown Cooling (SDC) mode.

Coolant temperature is 300 degrees F.

RPV pressure is 125 psig and rising.

SELECT the statement that describes the effect on the Shutdown Cooling (SDC) Suction Isolation Inboard and Outboard Valves (E12-MOVF009 and E12-MOVF008) if the 4.16 KV bus ENS-SWG1B trips and locks out.

- A. F008 and F009 will both auto close on loss of power to the SDC isolation logic.
- B. F008 and F009 will remain open until RPV pressure reaches 135 psig then both will close.
- C. F009 will close when RPV pressure reaches 135 psig, F008 will not due to loss of power.
- D. F008 will close when RPV pressure reaches 135 psig, F009 will not due to loss of power.

ANSWER: D

Isolation logic will initiate closure of both valves at 135 psig but MOVF009 has no power to close with ENS-SWG1B lost.

A - Isolation logic is powered from RPS and an inverter which remain energized.

B - loss of power to MOVF009 will prevent it from closing.

C - Outboard valve MOVF008 is powered from ENS-SWG1A and will not lose power.

K/A

Statement: Knowledge of the electrical power supplies to Shutdown Cooling motor operated valves.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|--------------|-----------|------------|------------------|--|----------------------|
| 205000 K2.02 | 2.5 | 2.7 | 41.4 41.7 | SOP-0031, Pages 114 & 115 AOP-0003, Page 15 | STM-204 OBJ- H10 |

TIER/GROUP: 2/1

LOK: F LOD: 3

ORIGIN: MODIFIED

HISTORY: Perry NRC Exam 1994

BANK QID: 906

QUESTION NO. 30 For RO Exam

The Division 1 Standby Diesel Generator has been operating in parallel with off-site power for a one-hour load test surveillance. It's load is at 1000 KW and being lowered to remove it from the bus when a spurious LPCS/RHR A LOCA initiation signal is received.

Which one of the following describes the response of the Standby Diesel and ENS Bus to the LOCA signal and LPCS pump breaker closing?

- A. The normal feeder breaker to ENS-SWGR1A will trip due to the LOCA signal and the LPCS pump will start with the Diesel Generator supplying the bus.
- B. The Standby Diesel Output Breaker will trip due to overcurrent from the LPCS pump starting current and the LPCS pump will start with Off-site power supplying the bus.
- C. The Standby Diesel Output Breaker will trip due to the LOCA signal and the LPCS pump will start on Off-site power.
- D. The load from the LPCS pump start will be shared between Off-site power and the Diesel Generator operating in Droop Mode. NO breakers will trip.

ANSWER: C

A - No undervoltage on bus. LOCA signal does not trip normal breaker.

B - EDG output breaker will open then LPCS pump will start on Off-site power as designed for a non-LOP LOCA.

D - See B.

K/A

Statement: Knowledge of the effect a loss or malfunction of the LPCS will have on emergency generators.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|--------------|-----------|------------|------------------|-----------------------|----------------------|
| 209001 K3.03 | 2.9 | 3 | 41.7 41.8 | SOP-0053, Page 5 | STM-309 OBJ- H8 |

TIER/GROUP: 2/1

LOK: H LOD: 3

ORIGIN: **MODIFIED**

HISTORY: **River Bend NRC Exam 2/2003**

BANK QID: **819**

QUESTION NO. 31 For RO Exam

An inadvertent initiation of High Pressure Core Spray occurred at rated power. Conditions stabilized as follows:

- Reactor power is 97%
- RPV water level is 44 inches
- Reactor pressure is 1005 psig

The CRS has directed the Unit Operator to secure HPCS injection by closing the injection valve. As the injection valve is closed, reactor pressure will . . .

- A. Remain constant.
- B. Rise and stabilize at 1020 psig.
- C. Lower and stabilize at 1000 psig.
- D. Rise, then lower and stabilize at 1000 psig.

ANSWER: B

- A - Power will return to rated and EHC will respond raising pressure.
- C - Pressure will rise as HPCS spray is removed from core exit.
- D - Power will return to rated and EHC will respond with higher flow raising RPV pressure

K/A Ability to predict/monitor changes in reactor pressure with operating HPCS controls.
Statement:

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|--------------|-----------|------------|------------------|-----------------------|----------------------|
| 209002 A1.04 | 3.3 | 3.3 | 41.5 41.8 | USAR Fig. 15.5-1 | HLO-318 OBJ- H2 |

TIER/GROUP: 2/1

LOK: H LOD: 2

ORIGIN: NEW

HISTORY:

BANK QID: 907

QUESTION NO. 32 For RO Exam

The Standby Liquid Control injection sparger senses ____ (1) ____ core plate pressure to provide the ____ (2) ____ pressure side of core plate differential pressure.

- | (1) | (2) |
|----------|------|
| A. below | high |
| B. below | low |
| C. above | high |
| D. above | low |

ANSWER: A

B - High not low pressure side
C - Below core plate pressure
D - B and C apply

K/A

Statement: KA: Knowledge of the physical connections/cause-effect relationships between SLC and core plate ?P indication.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|--------------|-----------|------------|------------------|-----------------------|----------------------|
| 211000 K1.02 | 2.7 | 2.7 | 41.2 | STM-201, Page 5 | STM-201 OBJ- H6 |

TIER/GROUP: 2/1

LOK: F LOD: 2

ORIGIN: NEW

HISTORY:

BANK QID: 1078

QUESTION NO. 33 For RO Exam

After resetting RPS for a reactor startup, all four CRD SCRAM DISCH VOL HI WTR LVL BYPASS keylocked switches were inadvertently left in the BYPASS position. The Mode switch was placed in START/HOT STBY.

After withdrawing 10 control rods for the approach to critical, one of the RPS Scram Discharge Volume level transmitters fails high.

Which one of the following is the expected plant response?

- A. BOTH a control rod withdrawal block and a RPS half scram will occur.
- B. ONLY a control rod withdrawal block will occur.
- C. ONLY a RPS half scram will occur.
- D. NEITHER a control rod withdrawal block NOR a RPS half scram will occur.

ANSWER: C

A and B - The control rod block transmitters are separate from RPS, no rod block
D - Placing the mode switch in START / HOT STBY position disables the keylock switch CRD SDV Bypass.

K/A

Statement: Knowledge of the effect that a loss or malfunction of the sensor inputs will have on the RPS.

| | | | | | |
|--------------|-----------|------------|------------------|-----------------------|----------------------|
| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
| 212000 K6.05 | 3.5 | 3.8 | 41.7 | STM-508, Page 19 | STM-508 OBJ- H5 |

TIER/GROUP: 2/1

LOK: H LOD: 4

ORIGIN: NEW

HISTORY:

BANK QID: 885

QUESTION NO. 34 For RO Exam

Given the following plant conditions:

IRM "G" is bypassed
Reactor Mode switch is in START/HOT STANDBY
All operable IRMs are reading 65/125 on Range 9

During the troubleshooting of IRM "G," I&C requests that the ATC operator withdraw IRM "G." In error, the ATC withdraws IRM "C" instead.

How does the plant respond?

- A. An IRM Detector Wrong Position rod block is generated in RC&IS.
- B. An IRM Downscale rod block is generated when the detector gets full-out.
- C. Nothing, at this time all IRM rod blocks and scrams are bypassed.
- D. An IRM INOP rod block and 1/2 scram signal are generated when the detector leaves the "full-in" position.

ANSWER: A

K/A KA: Ability to manually operate/monitor IRMs in the CR to verify proper functioning/operability.
Statement:

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|--------------|-----------|------------|------------------|-----------------------|----------------------|
| 215003 A4.07 | 3.6 | 3.6 | 41.2 41.7 | SOP-0074, ATT4 | STM-503 OBJ- H4 |

TIER/GROUP: 2/1

LOK: H LOD: 2

ORIGIN: BANK

HISTORY: River Bend NRC Exam 7/1997

BANK QID: 29

QUESTION NO. 35 For RO Exam

A plant startup is in progress and the reactor is nearing critical when RPS MG Set A generator output breaker trips.

What will be the status of the SRM A trip unit indicating lights on P680?

- A. The UPSC TRIP, ALARM OR INOP, and DNSC lights will ALL be lit.
- B. ONLY the ALARM OR INOP, and DNSC lights will be lit.
- C. ONLY the ALARM OR INOP light will be lit.
- D. NONE of the trip unit lights will be lit.

ANSWER: A

B and C - All trip units on SRM output fail to trip condition on loss of power.

D - Trip unit status indication on P680 will still have power and indicate their status.

K/A

Statement: Knowledge of the effect a loss or malfunction of RPS will have on the SRMs.

| | | | | | |
|--------------|-----------|------------|------------------|-----------------------|----------------------|
| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
| 215004 K6.01 | 3.2 | 3.3 | 41.7 41.2 | AOP-0010, Page 3 | STM-503 OBJ- H7 |

TIER/GROUP: 2/1

LOK: H LOD: 2

ORIGIN: NEW

HISTORY:

BANK QID: 908

QUESTION NO. 36 For RO Exam

A plant startup is in progress and the following conditions exist:

- The reactor is critical with a positive 60 second period.
- Overlap between the IRMs and SRMs has been verified.
- The ATC operator has selected all SRM detectors for withdrawal.

Drawing of SRM Period response included in EXAM HANDOUT MATERIAL.

With no change in core reactivity, as the detectors are withdrawn from the core, their indicated reactor period will . . .

- A. remain at positive 60 seconds or become slightly shorter initially, then lengthen to infinity becoming negative as the detectors move away from the core midplane.
- B. remain at positive 60 seconds, continuing to accurately indicate actual reactor period as the detectors are withdrawn from the core.
- C. immediately lengthen to infinity, then gradually become negative as the detectors pass the bottom of the core.
- D. immediately drop through infinity to the shortest indicated negative value of period and will remain there throughout detector withdrawal.

ANSWER: A REQUIRES DRAWING FOR QUESTION INCLUDED IN EXAM HANDOUT MATERIAL

B - changes throughout because flux levels the detector sees are changing throughout.

C & D - initially remains positive or shortens as it moves through the high flux region toward core midplane and becomes negative before reaching bottom.

K/A

Statement: Ability to predict/monitor changes in reactor power indication with operating the SRM controls.

| | | | | | |
|--------------|-----------|------------|------------------|-----------------------|----------------------|
| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
| 215004 A1.02 | 3.6 | 3.7 | 41.2 | STM-503, Page 12 | STM-503 OBJ- 6 |

TIER/GROUP: 2/1

LOK: H LOD: 3

ORIGIN: NEW

HISTORY:

BANK QID: 799

QUESTION NO. 37 For RO Exam

With the reactor operating at 60% power and 70% of rated flow, the Recirculation System Flow Converter for APRM Channel C fails to its full scale value.

Which one of the following describes the expected status of the APRM C rod block and scram trip units?

- A. Neither the APRM C Flow Biased Upscale Rod Block nor the Flow Biased Thermal Scram trip unit will be tripped.
- B. ONLY the APRM C Flow Biased Upscale Rod Block trip unit will be tripped.
- C. ONLY the APRM C Flow Biased Thermal Scram trip unit will be tripped.
- D. BOTH the APRM C Flow Biased Upscale Rod Block and the Flow Biased Thermal Scram trip units will be tripped.

ANSWER: A

B - Flow converter upscale will raise APRM flow biased rod block setpoint. However, a Flow Converter Upscale rod block will occur.

C - Flow converter upscale will raise APRM flow biased scram setpoint.

D - See B and C

K/A Knowledge of the effect a loss or malfunction of flow converter/comparator network will have on
Statement: APRM/LPRM.

| | | | | | |
|--------------|-----------|------------|------------------|-------------------------------------|----------------------|
| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
| 215005 K6.07 | 3.2 | 3.3 | 41.2 | STM-503, Page 63 ARP-P680-6A-B02 | STM-503 OBJ- 28 |

TIER/GROUP: 2/1

LOK: H LOD: 3

ORIGIN: NEW

HISTORY:

BANK QID: 884

QUESTION NO. 38 For RO Exam

The following conditions exist,

- Reactor core thermal power is 100% of rated
- APRM Channel B is reading 100%
- The lowest reading LPRM input to APRM B is LPRM 06-31D and it is reading 50%

LPRM 06-31D then failed to its full scale value of 125% and subsequently was bypassed.

Which one of the following describes how the indicated value of APRM B was affected by (1) the LPRM failing upscale and (2) after the failed LPRM was bypassed?

- | (1) with failed LPRM | (2) after failed LPRM was bypassed |
|---|--------------------------------------|
| A. It indicated power greater than 100% | It indicated power less than 100% |
| B. It indicated power greater than 100% | It indicated power greater than 100% |
| C. It indicated power equal to 100% | It indicated power greater than 100% |
| D. It indicated power equal to 100% | It indicated power less than 100% |

ANSWER: B

- (1) Raises the flux sum of LPRM inputs, raising average flux calculated by averaging amplifier
- (2) When bypassed lowers count by one and removes what was a low flux reading input so new APRM average of remaining LPRMs will be higher for the same core power.

A - See (2)

C - See (1)

D - See (1) & (2)

K/A

Statement: Knowledge of the effect a loss or malfunction of the APRM/LPRM will have on reactor power indication.

| | | | | | |
|---------------------|------------|------------|------------------|-----------------------------------|----------------------------|
| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
| 215005 K3.05 | 3.8 | 3.8 | 41.2 | STM-503, Pages 60 & 61 | STM-503 OBJ- H31 |

TIER/GROUP: **2/1**

LOK: **H** LOD: **3**

ORIGIN: **NEW**

HISTORY:

BANK QID: **952**

QUESTION NO. 39 For RO Exam

Following at plant transient, RCIC is being operated with its flow controller in AUTO set at 600 gpm. RCIC is aligned with flow to both the RPV and the CST to maintain RPV water level AND remove decay heat from the RPV.

As RPV water level begins rising and approaches the high end of the level control band provided by the CRS, which one of the following control manipulations at P601 will lower RCIC flow to the RPV while maintaining maximum decay heat removal by RCIC?

- A. Throttle E51-F013, RCIC INJECT ISOL VALVE closed.
- B. Adjust RCIC Flow Controller tape setting to a lower value.
- C. Throttle E51-F022, RCIC TEST BYPASS VLV TO CST open.
- D. Throttle E51-F022, RCIC TEST BYPASS VLV TO CST closed.

ANSWER: C

 Lowers injection flow while maintaining total flow and max decay heat removal.

 A - Will go fully closed reducing decay heat removal.

 B - Total system flow is lowered by lowering steam flow to RCIC turbine reducing decay heat removal.

 D - Will raise, not lower flow to RPV.

K/A

Statement: Ability to manually operate (RCIC)/monitor in the control room reactor water level.

| | | | | | |
|--------------------|-----------|------------|-----------------------|-----------------------|----------------------|
| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
| 217000 A4.05 | 4.1 | 4.1 | 41.7 41.8 41.10 | SOP-0035, Page 11 | STM-209 OBJ- H12 |
| TIER/GROUP: 2/1 | | | | | LOK: H LOD: 3 |
| ORIGIN: NEW | | | | | |
| HISTORY: | | | | | BANK QID: 943 |

QUESTION NO. 40 For RO Exam

Shortly after an automatic initiation, the RCIC turbine tripped. On Main Control Room Panel P601, the DIV 1 RCIC ISOL TURB EXH PRESS HIGH annunciator is alarming.

Under these conditions, the RCIC turbine Trip & Throttle valve may be reset . . .

- A. using the Trip & Throttle Valve hand switch control room after the trip condition is cleared.
- B. locally at the turbine after the trip condition is cleared.
- C. locally at the turbine at any time even if the condition is not cleared.
- D. using the trip reset push button on panel P601, in the control room after the condition is clear.

ANSWER: A

K/A

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

| | | | | | |
|--|-----------|------------|-----------------------|-----------------------|----------------------|
| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
| 217000 2.4.31 | 3.3 | 3.4 | 41.10 41.7 41.8 | ARP-P601-21-C03 | STM-209 OBJ- H10 |
| TIER/GROUP: 2/1 | | | | | LOK: F LOD: 2 |
| ORIGIN: BANK | | | | | |
| HISTORY: River Bend NRC Exam 7/1997 | | | | | BANK QID: 820 |

QUESTION NO. 41 For RO Exam

An earthquake has resulted in a Loss of Offsite Power and the following conditions exist:

- The reactor is shutdown, all rods inserted.
- Drywell pressure is 2.2 psig.
- RHR A is the only ECCS pump running and aligned to the RPV.
- RPV pressure is 500 psig and slowly lowering.
- RPV level is -163" and slowly lowering.

EOP-0004, Alternate Level Control has just been entered after determining that RPV level cannot be restored and maintained above -162 inches. The CRS has directed the Unit Operator (UO) to inhibit ADS per Step ALC-2.

The UO places the DIV 2 ADS INHIBIT switch in INHIBIT, but the DIV 1 ADS INHIBIT switch will NOT rotate to the INHIBIT position.

What action(s), if any, are appropriate to Inhibit ADS?

- A. No action required, Div 1 ADS logic will not actuate without the LPCS pump running.
- B. RHR A pump must be tripped to prevent ADS from initiating.
- C. The DIV 1 ADS TIMER/LEVEL 3 SEAL-IN RESET Pushbutton must be depressed at least every 105 seconds to prevent ADS from initiating.
- D. The DIV 1 ADS TIMER/LEVEL 3 SEAL-IN RESET Pushbutton must be depressed at least every 5 minutes to prevent ADS from initiating.

ANSWER: C

A - Div 1 ADS logic will initiate with RHR A running

B - RHR A is currently the only injection source available and should not be shutdown before adequate core cooling is assured.

D - With high drywell pressure, the 5 minute timer for Level 1 is not affecting the ADS logic.

K/A

Statement: Ability to predict impacts of initiation signals present on the ADS; and use procedures to correct, control, or mitigate.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|--------------|-----------|------------|------------------|-----------------------|----------------------|
| 218000 A2.06 | 4.2 | 4.3 | 41.10 41.7 | SOP-0011, Page 19 | STM-202 OBJ- H7 |

TIER/GROUP: 2/1

LOK: H LOD: 3

ORIGIN: NEW

HISTORY:

BANK QID: 910

QUESTION NO. 42 For RO Exam

A Loss of RPS Bus A has occurred. After the RPS bus is transferred to alternate power, AOP-0010 directs the operator to depress the INBD and OUTBD SEAL-IN RESET pushbuttons to reset the CRVICS logic.

The INBD SEAL-IN RESET pushbutton must be depressed to reset the trip in which CRVICS logic channel that was sealed in on the loss of RPS Bus A?

- A. B Channel of the BOP Isolation Logic
- B. B Channel of the MSIV Isolation Logic
- C. C Channel of the BOP Isolation Logic
- D. C Channel of the MSIV Isolation Logic

ANSWER: D

A - INBD pushbutton resets but did not lose power on loss of RPS Bus A.

B - INBD pushbutton resets but logic is powered by RPS Bus B.

C - INBD pushbutton resets and lost power, but single logic channel trip does not seal-in. Resets when re-energized.

K/A

Statement: Knowledge of the electrical power supplies to the PCIS/NSSSS logic power supplies.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|--------------|-----------|------------|------------------|---|----------------------|
| 223002 K2.01 | 2.4 | 2.7 | 41.7 | STM-058, Pages 8 & 10 AOP-0010, Page 8 | STM-058 OBJ- H3 |

TIER/GROUP: 2/1

LOK: F LOD: 3

ORIGIN: NEW

HISTORY:

BANK QID: 911

QUESTION NO. 43 For RO Exam

A faulty MSIV pilot solenoid valve results in a FAST CLOSURE of one MSIV at 100% power during a surveillance test of the CRVICS MSIV isolation logic. Which one of the following describes the result of this condition?

RPV pressure will . . .

- A. rise rapidly, then lower due to a MSIV closure scram.
- B. rise slightly as the EHC stabilizes turbine throttle pressure.
- C. rise rapidly until a High RPV Pressure reactor scram occurs.
- D. remain constant due to the EHC control actions and steam flow rising in the three other main steam lines.

ANSWER: C

A - MSIV closure scram requires at least two MSIVs closing to actuate.

B - EHC will not be able to stabilize pressure before high press. scram is reached.

D - Pressure will rise, EHC will not be able to stabilize pressure before high press. scram is reached.

K/A

Statement: Knowledge of the effect a loss or malfunction of the PCIS/NSSSS will have on reactor pressure.

| | | | | | |
|--------------|-----------|------------|------------------|-----------------------|----------------------|
| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
| 223002 K3.07 | 3.7 | 3.8 | 41.5 | USAR Page 15.2-20 | HLO-316 OBJ- 2 |

TIER/GROUP: 2/1

LOK: H LOD: 2

ORIGIN: NEW

HISTORY:

BANK QID: 912

QUESTION NO. 44 For RO Exam

A plant scram has occurred as a result of an MSIV Closure. The ATC Operator is controlling level between 10" and 51" with manual operation of the Startup Feedwater Regulating Valve. The Unit Operator is controlling pressure between 800 and 1000 psig by cycling an SRV as necessary. Currently, the following conditions exist:

- RPV level is stable at 30" with the Startup FWRV closed.
- RPV pressure is approaching 1000 psig.

Which one of the following describes the expected RPV level response as the Unit Operator cycles one SRV open, then closed to lower pressure to 800 psig?

Assuming NO OTHER OPERATOR ACTION(S), when the SRV is opened, RPV water level will . . .

- A. rise while the SRV is open, then drop and stabilize at a level slightly below 30" when the SRV is closed.
- B. rise while the SRV is open, then drop and stabilize at 30" when the SRV is closed.
- C. gradually lower, then rise and stabilizes at nearly 30" when the SRV is closed.
- D. gradually lower, then stabilize at the level reached at the time the SRV is closed.

ANSWER: A

Rises due to core voiding then drops to below original level due to inventory removed.

B - Loss of inventory through SRV results in final level less than original (30").

C - rises due to core voiding while SRV is open

D - rises due to core voiding while SRV is open

K/A

Statement: Ability to predict/monitor changes in reactor water level associated with operating SRV controls.

| | | | | | |
|--------------|-----------|------------|------------------|-----------------------|----------------------|
| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
| 239002 A1.05 | 3.7 | 3.8 | 41.5 | USAR Figure 15.2-8 | HLO-315 OBJ- 2 |

TIER/GROUP: 2/1

LOK: H LOD: 3

ORIGIN: NEW

HISTORY:

BANK QID: 913

QUESTION NO. 45 For RO Exam

Which one of the following describes the plant response to the loss of ONE steam flow signal input to the Feedwater Level Control System while operating in three element control at 50% power?

- A. Reactor level will rise high enough to cause a High Reactor Water Level scram.
- B. Reactor level will rise but stabilize at a higher level below the High Reactor Water Level scram setpoint.
- C. Reactor level will drop low enough to cause the Low Reactor Water Level scram.
- D. Reactor level will lower, but stabilize at a lower level above the Low Reactor Water Level scram setpoint.

ANSWER: D

- A - Will lower total SF causing SF/FF error closing FWRVs and lowering level.
- B - Will lower total SF causing SF/FF error closing FWRVs and lowering level.
- C - At 50% power the SF/FF error will be nulled by level error before reaching Level 3 9.7"

K/A

Statement: Knowledge of the physical connections/cause-effect relationships between Reactor Water Level Control and main steam flow.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|--------------|-----------|------------|------------------|-----------------------|----------------------|
| 259002 K1.02 | 3.2 | 3.3 | 41.5 41.14 | STM-107, Page 50 | STM-107 OBJ- H7 |

TIER/GROUP: 2/1

LOK: H LOD: 3

ORIGIN: NEW

HISTORY:

BANK QID: 941

QUESTION NO. 46 For RO Exam

With containment pressures above 2 psig, the EOP's direct the use of Enclosure 21, Emergency Containment Venting rather than normal containment venting when it becomes necessary to vent containment.

Above 2 psig, Emergency Containment Venting is used to . . .

- A. bypass Standby Gas Treatment which may fail at pressures above 2 psig.
- B. bypass the Containment Ventilation ductwork which may fail at pressures above 2 psig.
- C. bypass the Annulus Mixing System which may fail at pressures above 2 psig.
- D. align the Standby Gas Treatment suction to the Annulus Pressure Control System for a more rapid containment pressure reduction.

ANSWER: B

A - SGTS is used in Emergency Containment Venting.
C and D - SGTS is aligned to Annulus Mixing, not APC.

K/A Knowledge symptom based EOP mitigation strategies.
Statement:

| | | | | | |
|--------------|-----------|------------|-------------------------------|---|----------------------|
| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
| 261000 2.4.6 | 3.1 | 4 | 41.8 41.9 41.10 43.5 | EOP-0005, Encl 21 EPSTG-0002, B-8-12 | HLO-514 OBJ- 5 |
| TIER/GROUP: | 2/1 | | | | LOK: F LOD: 3 |
| ORIGIN: | NEW | | | | |
| HISTORY: | | | | | BANK QID: 812 |

QUESTION NO. 47 For RO Exam

The plant is operating at rated conditions when a fault in the primary windings of transformer RCS-X1A results in NPS-SWG1A voltage lowering to 50% of rated.

Which one of the following describes the (1) final state of Reactor Recirculation Pump A and (2) any actions required for this condition (NO automatic scram occurred)?

- A. (1) Recirc Pump A is operating at slow speed
 (2) Lower flow in Recirc Loop B to < 33 kgpm
- B. (1) Recirc Pump A is operating at slow speed
 (2) Downshift Recirc Pump B to slow speed
- C. (1) Recirc Pump A is tripped
 (2) Lower flow in Recirc Loop B to < 33 kgpm
- D. (1) Recirc Pump A is tripped
 (2) Initiate a Manual Scram

ANSWER: C

A - Recirc Pump A will not start on slow speed, LFMG also lost power from NPS-SWG1A and if A in slow no requirement to lower flow in B.

B - Recirc Pump A will not start on slow speed LFMG also lost power from NPS-SWG1A and would deliberately enter Power-to-flow exclusion zone on B downshift

D - Scram not required by procedure

K/A

Statement:

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|--------------|-----------|------------|------------------|-------------------------------------|----------------------|
| 262001 A2.09 | 3.1 | 3.4 | 41.4 41.7 | GOP-0004, Page 7 ARP-P680-4A-A01 | HLO-503 OBJ- 2 |

TIER/GROUP: 2/1

LOK: F LOD: 3

ORIGIN: NEW

HISTORY:

BANK QID: 914

QUESTION NO. 48 For RO Exam

The UO is preparing to parallel the Division I Standby Diesel Generator with ENS-SWG1A through ENS-ACB07, STBY D/G A OUTPUT BRKR. At P877, the UO has the following indications:

- V1IN-1SYDA01 (Incoming Voltage): 120 VAC
- V1RUN-1SYDA01 (Running Voltage): 120 VAC
- SY-1-1SYDA01 (Stby Bus A Synchroscope): Rotating slowly in the SLOW direction

Which one of the following describes the action that must be taken by the UO to ensure that the EDG will pickup some KW load when it's output breaker is closed connecting it to the ENS-SWG1A bus?

- A. Raise Incoming Voltage to be slightly higher than Running Voltage.
- B. Raise Running Voltage to be slightly higher than Incoming Voltage.
- C. Raise EDG speed until the synchroscope is rotating slowly in the FAST direction.
- D. Lower EDG speed until the synchroscope is rotating slowly in the FAST direction..

ANSWER: C

K/A KA: Knowledge of the operational implications of the principle involved with paralleling two AC
Statement: sources as applied to AC Distribution.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|--------------|-----------|------------|------------------|-----------------------|----------------------|
| 262001 K5.01 | 3.1 | 3.4 | 41.7 | SOP-0053 | STM-309 OBJ- H3 |

TIER/GROUP: 2/1

LOK: H LOD: 2

ORIGIN: MODIFIED

HISTORY: River Bend NRC Exam 10/2000

BANK QID: 818

QUESTION NO. 49 For RO Exam

The plant has just shutdown and a cooldown is in progress with reactor coolant temperature at 400°F. An inverter malfunction has resulted in the loss of Instrument Bus VBN-PNL01A1.

AOP-0042, Loss of Instrument Bus, Attachment 7 for VBN-PNL01A1 is included as EXAM HANDOUT MATERIAL.

Which one of the following can be used to continue monitoring the reactor coolant system temperature for determining cooldown rate?

- A. Vessel Head and Flange metal temperature recorder on P614.
- B. Recirc loop suction temperature recorder on P614.
- C. RWCU Temperature recorder on P680.
- D. Reactor pressure recorders on P601.

ANSWER: D

- A - Lost, fed from VBN-PNL01A1 breaker #1
- B - Lost, fed from VBN-PNL01A1 breaker #2
- C - Lost, fed from VBN-PNL01A1 breaker #14

K/A

Statement: Knowledge of the physical connections/cause-effect relationships between UPS (AC/DC) and control room recorders.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|--------------|-----------|------------|------------------|-----------------------|----------------------|
| 262002 K1.11 | 2.5 | 2.6 | 41.7 | AOP-0042, Att. 7 | HLO-540 OBJ- 4 |

TIER/GROUP: 2/1

LOK: F LOD: 2

ORIGIN: NEW

HISTORY:

BANK QID: 951

QUESTION NO. 50 For RO Exam

The plant was operating at 100% power when a turbine trip occurred concurrent with a loss of 125 VDC bus ENB-PNL-02B.

The following conditions exist:

- The reactor is shutdown (all rods in)
- RPV pressure is 1050 psig
- RPV level is +4 inches on narrow range indication
- All MSIVs are closed

Which one of the following statements correctly describes the pressure control for the plant?

- A. Due to a loss of ENB-PNL02B, the SRVs are unable to actuate on high pressure RELIEF mode or MANUAL mode and will only control pressure in the SAFETY mode.
- B. Due a loss of ENB-PNL02B, the SRVs will actuate on high pressure RELIEF mode or MANUAL mode utilizing the "A" SRV solenoid ONLY.
- C. Due to a loss of ENB-PNL02B, the SRVs are unable to actuate on high pressure RELIEF mode but may be manually operated using the "A" SRV solenoid.
- D. Due to a loss of ENB-PNL02B, the SRVs will not operate in the Low-Low Set mode of operation however, the high pressure RELIEF mode and MANUAL mode is available using either the "A" or "B" SRV solenoids.

ANSWER: B

K/A Knowledge of the effect a loss or malfunction of the DC Distribution will have on systems with DC
Statement: components.

| | | | | | |
|--------------|-----------------------------|------------|------------------|--------------------------------------|----------------------|
| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
| 263000 K3.03 | 3.4 | 3.8 | 41.7 41.4 | AOP-0014, Att. 2 ARP-P601-19A-C10 | STM-109 OBJ- H4 |
| TIER/GROUP: | 2/1 | | | | LOK: H LOD: 3 |
| ORIGIN: | BANK | | | | |
| HISTORY: | River Bend NRC Exam 10/2000 | | | | BANK QID: 679 |

QUESTION NO. 51 For RO Exam

The Division 1 Emergency Diesel Generator (EDG) Operability surveillance test STP-309-0201 is in progress with the following conditions:

- EDG is running and parallel to offsite via the ENS-SWG1A 4 kV Bus.
- The STP is completed and the UO is unloading the diesel.
- The diesel is at 150 kilowatts when a governor problem causes the diesel to reverse power.

Based on the above conditions, complete the statement that correctly predicts the response of the Diesel Generator (EDG) and ENS 4KV DG Output breaker.

The reverse power condition will cause a . . .

- A. trip of the Output Breaker and the EDG continues to run unloaded.
- B. diesel engine emergency shutdown signal resulting in the trip of the Output Breaker.
- C. generator lockout (86GB) resulting in a Diesel shutdown and Trip of the Output Breaker.
- D. DIESEL GENERATOR EGS-EG1A SYSTEM TROUBLE alarm indicating the EDG is running with a reverse power condition.

ANSWER: C

- A. Logic for reverse Power and Diesel in Normal Start mode trips both ENS-ACB07 and energizes EGS-SOV24A Diesel Stop Solenoid.
- B. Normal Stop Solenoid, diesel is in normal not emergency mode.
- D. Same as A.

K/A

Statement: Ability to predict/monitor maintaining minimum load associated with operating EDG controls.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|--------------|-----------|------------|------------------|-----------------------|----------------------|
| 264000 A1.09 | 3 | 3.1 | 41.7 41.8 | ARP-P877-31A-H02 | STM-309S OBJ- H5 |

TIER/GROUP: 2/1

LOK: H LOD: 2

ORIGIN: BANK

HISTORY: Peach Bottom 2 NRC Exam 9/2002 (INPO 24743)

BANK QID: 916

QUESTION NO. 52 For RO Exam

The instrument air compressors are all available and operating with the local SEQUENCE CONTROL switch in Position 3 (C-A-B). Only the IAS-C2C compressor has been operating to maintain system pressure.

A relay failure in the control circuit for compressor IAS-C2C causes it to shutdown.

With no change in Instrument Air System usage, which one of the following describes the effect of the compressor shutdown on the Instrument Air System?

- A. Compressor IAS-C2A operates to maintain a lower header pressure.
- B. Compressor IAS-C2B operates to maintain a lower header pressure.
- C. Both Compressors IAS-C2A and C2B operate to maintain the same header pressure.
- D. Both Compressors IAS-C2A and C2B operate to maintain a lower header pressure.

ANSWER: A

B - Sequencer setting cycles C2A at a higher pressure than C2B, so C2B will not start.

C - With no air load change the C2A can maintain pressure but lower than C2C, sequencer does not alternate the operating compressor.

D - With no air load change the C2A can maintain pressure and C2B start pressure is below C2A. Sequencer does not alternate the operating compressor.

K/A

Statement: Knowledge of the effect a loss or malfunction of breakers, relays and disconnects will have on the Instrument Air System.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|--------------|-----------|------------|------------------|------------------------|----------------------|
| 300000 K6.12 | 2.9 | 2.9 | 41.4 | STM-121, Pages 13 & 15 | STM-121 OBJ- H3 |

TIER/GROUP: 2/1

LOK: F LOD: 2

ORIGIN: NEW

HISTORY:

BANK QID: 917

QUESTION NO. 53 For RO Exam

The plant is operating at rated conditions with no equipment out of service. The Reactor Plant Component Cooling Water (CCP) System is in normal operation with CCP-P1A and P1B running. CCP-P1C is in standby.

RPCCW SYSTEM LOW HEADER PRESSURE alarmed on P870-55. An investigation revealed that the CCP header pressure transmitter, PT-127 has failed low. No other alarms or automatic actions occurred.

What automatic feature failed to function as designed?

- A. Trip of the running CRD pump.
- B. Start of standby pump CCP-P1C.
- C. Initiation of both Standby Service Water Divisions.
- D. Isolation of cooling water to the CCP heat exchangers.

ANSWER: B

- A - Either CCP vital loop at <56 psig.
- C - Both CCP vital loops at <56 psig.
- D - Div II CCP vital loop at <56 psig.

K/A KA: Knowledge of design feature(s)/interlocks which provide for automatic start of standby pump.
Statement:

| | | | | | |
|---------------|-----------|------------|------------------|------------------------------------|----------------------|
| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
| 400000 AK4.01 | 3.4 | 3.9 | 41.4 | ARP-P870-55-F04 STM-115, Page 9 | STM-115 OBJ- H4 |
| TIER/GROUP: | 2/1 | | | | LOK: F LOD: 2 |
| ORIGIN: | NEW | | | | |
| HISTORY: | | | | | BANK QID: 405 |

QUESTION NO. 54 For RO Exam

The Control Rod Drive Hydraulic System is being placed in service in preparation for a cold reactor startup. The next step in SOP-0002, Control Rod Drive Hydraulics, for placing the CRD System in Operation is as follows:

"Using C11-R600, CRD HYDRAULICS FLOW FLOW CONTROLLER C11-F002A/B in MANUAL mode, and C11-F003, CRD DRIVE WATER PRESSURE CONTROL VAVLE, establish a Drive Water Differential Pressure of 250 psid at a flow rate of 41 to 49 gpm."

Based on the conditions below,

- (1) What action(s) is/are necessary to accomplish the step and
- (2) why must CRD Drive Header ?P be raised to 250 psid?

- CRD Drive Header ?P is 200 psid
- CRDH System Flow is 41 gpm

- A. (1) Throttle C11-F003 further closed and adjust C11-R600 further closed
 (2) to establish normal rod movement speed.
- B. (1) Throttle C11-F003 further closed and adjust C11-R600 further open
 (2) to establish normal rod movement speed.
- C. (1) Throttle C11-F003 further open and adjust C11-R600 further closed
 (2) to meet Tech Spec control rod scram time limits.
- D. (1) Throttle C11-F003 further open and adjust C11-R600 further open
 (2) to meet Tech Spec control rod scram time limits.

ANSWER: B

- A - Closing both will lower system flow out of the flow band required by the step.
C - Actions would lower ?P and adjustment not required to meet tech spec scram times.
D - Not required to meet tech spec scram times.

K/A

Statement: Ability to predict the impacts of low drive header pressure on CRDH; and use procedures to correct, control, or mitigate.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|--------------|-----------|------------|------------------|--------------------------------------|----------------------|
| 201001 A2.14 | 2.8 | 2.8 | 41.6 43.6 | SOP-0002, Page 8 STM-052, Page 19 | STM-052 OBJ- 1 |

TIER/GROUP: 2/2

LOK: H LOD: 3

ORIGIN: NEW

HISTORY:

BANK QID: 918

QUESTION NO. 55 For RO Exam

During withdrawal of a control rod, a stabilizing valve ____ (1) ____ to maintain ____ (2) ____ constant.

- | | (1) | (2) |
|----|--------|----------------------|
| A. | opens | drive water pressure |
| B. | opens | cooling water flow |
| C. | closes | drive water pressure |
| D. | closes | cooling water flow |

ANSWER: C

- A - Stab valve closes
- B - Stab valve closes and cooling water flow lowers
- D - Cooling water flow lowers

K/A

Statement: Ability to predict/monitor changes in CRD drive pressure with operating the CRDM controls.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|--------------|-----------|------------|------------------|-----------------------|----------------------|
| 201003 A1.02 | 2.8 | 2.8 | 41.2 41.14 | STM-052, Page 18 | STM-052 OBJ- 2 |

TIER/GROUP: 2/2

LOK: H LOD: 2

ORIGIN: NEW

HISTORY:

BANK QID: 813

QUESTION NO. 56 For RO Exam

RCI&S indicates power below the High Power Set Point. APRMs indicate a steady state reactor power of 71%.

Which one of the following can cause the discrepancy above?

- A. A failed open Turbine Bypass Valve
- B. A Recirc flow control valve runback
- C. A loss of feedwater heating
- D. A xenon transient

ANSWER: A

With BPV open, pressure regulator will reduce steam flow through turbine reducing 1st stage press.

B - First stage shell pressure will follow power

C - First stage shell pressure will follow power

D - First stage shell pressure will follow power, APRMs will have representative sample of core

K/A

Statement: Knowledge of the physical connections/cause-effect relationships between RCIS and the reactor pressure control system.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|--------------|-----------|------------|------------------|--|----------------------|
| 201005 K1.02 | 3.3 | 3.5 | 41.5 41.6 | STM-500, Page 34 TS Bases Page B 3.3-47 | STM-500 OBJ- H5 |

TIER/GROUP: 2/2

LOK: H LOD: 3

ORIGIN: NEW

HISTORY:

BANK QID: 811

QUESTION NO. 57 For RO Exam

Which one of the following design features or interlocks prevents Reactor Recirc Pump damage from overheating at minimum flow conditions?

- A. The pump start interlock requiring FCV position to be at 0% INDICATED position.
- B. The design of the FCVs being physically 22% open at the 0% INDICATED position.
- C. The capability of the Recirc Pump seal cooler to remove no-flow pump heat.
- D. The pump downshift on low steam dome to loop suction ?T.

ANSWER: B

- A - Places FCV at minimum position to minimize pump starting current.
- C - Does NOT have the capacity to remove enough heat from pump casing.
- D - Protects the pump from inadequate NPSH.

K/A

Statement: Knowledge of the Recirculation System design feature(s)/interlocks which provide for pump minimum flow limit.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|--------------|-----------|------------|------------------|-----------------------|----------------------|
| 202001 K4.09 | 2.7 | 2.9 | 41.3 | STM-053, Page 16 | STM-053 OBJ- H2 |

TIER/GROUP: 2/2

LOK: F LOD: 2

ORIGIN: NEW

HISTORY:

BANK QID: 919

QUESTION NO. 58 For RO Exam

The plant is operating at rated conditions with all systems in their normal full power lineup. A bus fault on 480V NHS-MCC10B in the Control Building causes a trip of its power supply breaker from NJS-SWG1D.

Following this bus loss, what is the status of the RWCU System?

- A. The Inboard Containment isolation valves closed and both RWCU pumps tripped.
- B. The Inboard Containment isolation valves closed and the 'B' RWCU pump tripped.
- C. The Outboard Containment isolation valves closed and both RWCU pumps tripped.
- D. The RWCU System continues to operate normally.

ANSWER: A

Loss of RPS power to Div 2 Isolation Logic causes Inboard isolation resulting in pump trips due to Inboard isolation valve F001 closure.

B - Both pumps trip on loss of suction lineup due to F001 closure.

C - Outboard Isolation Logic remains energized.

D - Loss of power to Div 2 Isolation Logic causes Inboard isolation causes pump trips.

K/A

Statement: Knowledge of the effect a loss or malfunction of AC power will have on RWCU.

| | | | | | |
|--------------|-----------|------------|------------------|---|----------------------|
| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
| 204000 K6.05 | 2.6 | 2.6 | 41.7 | STM-601, Page 13 STM-508, Page 36 AOP-0003, Page 18 | STM-601 OBJ- H7 |
| TIER/GROUP: | 2/2 | | | | LOK: F LOD: 3 |
| ORIGIN: | NEW | | | | |
| HISTORY: | | | | | BANK QID: 920 |

QUESTION NO. 59 For RO Exam

While making local adjustments to the MSR-1 heating steam valves at 60% power, the following changes in Main Steam Line Flow are observed on P680:

- MSL A flow rises from 2 Mlbm/hr to 2.9 Mblm/hr
- MSL B flow falls from 1.9 Mlbm/hr to 1.6 Mblm/hr
- MSL C flow falls from 2.1 Mlbm/hr to 1.8 Mblm/hr
- MSL D flow falls from 2 Mlbm/hr to 1.7 Mblm/hr

The above changes in MSL flows indicate which one of the following is full open?

- A. SRV F047A
- B. Turbine Control Valve, CV-1
- C. Turbine Steam Bypass Valve, BPV-1
- D. MSR-1 heating steam supply High Load valve

ANSWER: A

F047A is downstream of MSL A flow elbow. EHC causes flow in other MSLs to lower.

B - TCV-1 is downstream of the Equalizing header and would cause all steam line flows to rise.

C - The BPV manifold is connected to Equalizing header and would cause all steam line flows to rise.

D - High Load valve is connected to equalizing header and would cause all steam line flows to rise.

K/A

Statement:

Ability to manually operate/monitor Main and Reheat Steam system flow in the control room.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|--------------|-----------|------------|------------------|---|----------------------|
| 239001 A4.03 | 3.5 | 3.5 | 41.5 | AOP-0035, Page 3 STM-109, Pages 8 & 27 | STM-109 OBJ- H13 |

TIER/GROUP: 2/2

LOK: F LOD: 2

ORIGIN: NEW

HISTORY:

BANK QID: 921

QUESTION NO. 60 For RO Exam

A LOCA has occurred inside the Drywell. Twenty minutes later the following annunciators were alarming:

- PERMISSIVE TO OPERATE INBOARD MSIV PLCS
- PERMISSIVE TO OPERATE OUTBOARD MSIV PLCS

Both Divisions of the Main Steam Line Positive Leakage Control System were then initiated. Six minutes later the following annunciator is received:

- INBOARD MSIV PLCS HIGH AIR FLOW

What should be the indicated position of the following valves on the Inboard MSIV PLCS control section of backpanel P655?

| | Injection Valve F005 | Drain Valve F006 | Isolation Valve F007 |
|----|----------------------|------------------|----------------------|
| A. | Open | Closed | Closed |
| B. | Closed | Open | Closed |
| C. | Closed | Closed | Open |
| D. | Closed | Closed | Closed |

ANSWER: D

A - F005 should be closed to stop excessive air loss.

B - Normal configuration before initiation or if RPV pressure >25 psig. F006 should be closed.

C - F007 should be closed to isolate any possible rad release path if a break exists upstream.

K/A

Statement: Ability to manually operate/monitor MSIV Leakage Control status lights and alarms in the control room.

| | | | | | |
|--------------|-----------|------------|------------------|-----------------------|----------------------|
| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
| 239003 A4.07 | 2.8 | 2.7 | 41.9 | ARP-601-17A-C05 | STM-208 OBJ- H4 |

TIER/GROUP: 2/2

LOK: F LOD: 3

ORIGIN: NEW

HISTORY:

BANK QID: 922

QUESTION NO. 61 For RO Exam

The following conditions exist on the Main Generator:

- MVARs = negative 125 (leading power factor)
- MW = 500
- VOLTAGE REGULATOR MODE SELECT is in AUTO

If the LOWER pushbutton on the VOLTAGE REGULATOR AUTO ADJUST is depressed, which one of the following describes the expected change in Main Generator output parameters?

- A. MW will remain the same, MVARs will become more negative.
- B. MW will remain the same, MVARs will become less negative.
- C. MW will lower, MVARs will become more negative.
- D. MW will lower, MVARs will remain the same.

ANSWER: A

B - Must raise Auto voltage setting to reduce negative MVARs.

C - MW will not change, and must raise Auto voltage setting to reduce negative MVARs.

D - MW will not change, but MVARs will change with voltage adjust.

K/A

Statement: Ability to monitor auto operations of the Main Turbine Generator output voltage/reactive load.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|--------------|-----------|------------|------------------|---|----------------------|
| 245000 A3.10 | 2.5 | 2.6 | 41.7 | HLO-154a, Page 59 STM-310, Pages 34 & Fig. 9 | STM-310 OBJ- |

TIER/GROUP: 2/2

LOK: H LOD: 3

ORIGIN: NEW

HISTORY:

BANK QID: 404

QUESTION NO. 62 For RO Exam

The plant is operating at 100 % power with Offgas Post Treatment Radiation Monitor Channel 'B' in a downscale trip condition when the Offgas Post Treatment Radiation Monitor 'A' channel fails high (to full scale).

Which one of the following describes the effects on the Offgas System and the Main Condenser?

- A. Offgas will shift into a bypass mode to maintain Main Condenser vacuum constant.
- B. Offgas will isolate only the charcoal adsorbers inlet and outlet valves causing Main Condenser vacuum to be lost.
- C. Offgas will continue to operate normally to maintain Main Condenser vacuum constant.
- D. Offgas will isolate causing Main Condenser vacuum to be lost.

ANSWER: D

K/A

Statement: Knowledge of the effect a loss or malfunction of the Offgas will have on condenser vacuum.

| | | | | | |
|--------------|-----------|------------|------------------|--------------------------------------|----------------------|
| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
| 271000 K3.01 | 3.5 | 3.5 | 41.4 | ARP-P601-22A-E03 ARP-P601-22A-A03 | STM-606 OBJ- H4 |

TIER/GROUP: 2/2

LOK: H LOD: 3

ORIGIN: MODIFIED

HISTORY: River Bend NRC Exam 2/1999

BANK QID: 881

QUESTION NO. 63 For RO Exam

Given the following conditions:

- Reactor water level is -90 inches and lowering.
- Drywell pressure is 2.2 psig and rising.
- Smoke from an outside fire is entering the Control Room.

An operator is attempting to manually place the Control Room ventilation in the smoke removal mode.

Under these conditions the Control Room Smoke Removal Dampers (AOD 107/108) will:

- A. open and the Smoke Removal Fan will start.
- B. open but the Smoke Removal Fan will be interlocked off.
- C. remain closed and the Smoke Removal Fan will run on recirc.
- D. remain closed and the Smoke Removal Fan will be interlocked off.

ANSWER: D

K/A

Statement: Ability to monitor automatic operations of the Fire Protection System fire dampers.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|---------------|-----------|------------|------------------|--|----------------------|
| 600000 AK2.01 | 2.6 | 2.7 | 41.4 | AOP-0003, Pages 10 & 19 STM-402, Page 11 & 23 | STM-402 OBJ- 7 |

TIER/GROUP: 2/2

LOK: H LOD: 3

ORIGIN: BANK

HISTORY: River Bend NRC Exam 7/1997

BANK QID: 167

QUESTION NO. 64 For RO Exam

A pipe rupture has resulted in a complete loss of Normal Service Water. All automatic actions for the loss of Normal Service Water have occurred.

Which one of the following describes how this event ultimately affects the Containment Unit Coolers?

- A. The cooling capability of HVR-UC1A will be lost and cannot be restored.
- B. The cooling capability of HVR-UC1B will be lost and cannot be restored.
- C. The cooling capability of HVR-UC1C will be lost and cannot be restored.
- D. Loss of Normal Service Water will have no affect on the Containment Unit Coolers.

ANSWER: C

Loss of NSW will result in loss of TB Chill Water the only cooling to UC1C.

A - Loss of NSW will result in loss of TB Chill Water to UC1A, but SSW can be aligned to restore.

B - Loss of NSW will result in loss of TB Chill Water to UC1B, but SSW can be aligned to restore.

C - Loss of NSW will result in loss of TB Chill Water to all three UCs.

K/A

Statement: Knowledge of the effect a loss or malfunction of the applicable component cooling water system will have on the Plant Ventilation.

| | | | | | |
|--------------|-----------|------------|------------------|---|----------------------|
| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
| 288000 K6.02 | 2.5 | 2.5 | 41.4 41.9 | STM-403, Fig 3 AOP-0009, Page 3 SOP-0059, Page 41 | STM-403 OBJ- H11 |
| TIER/GROUP: | 2/2 | | | | LOK: F LOD: 2 |
| ORIGIN: | NEW | | | | |
| HISTORY: | | | | | BANK QID: 924 |

QUESTION NO. 65 For RO Exam

Following a LOCA, Drywell pressure is 1.80 psid. The B Charcoal Filter Train of the Control Room HVAC is tagged out for CR Filter Unit Fan HVC-FN1B replacement. The following indication exists for A Charcoal Filter Train in the Control Room on P863:

- Filter Inlet Damper HVC-AOD43A - BOTH red and green lights lit
- CR Filter Unit Fan HVC-FN1A - green light lit
- Filter Fan Discharge Damper HVC-AOD3A - red light lit

All other Control Room Ventilation automatic actions have occurred. Which one of the following describes the actions required for the above conditions and the expected results?

- A. Locally open HVC-AOD43A fully in order to start HVC-FN1A and establish POSITIVE pressure in the control room.
- B. Locally open HVC-AOD43A fully in order to start HVC-FN1A to establish NEGATIVE pressure in the control room.
- C. Place the P863 control switch for HVC-FN1A to START and establish POSITIVE pressure in the control room.
- D. Place the P863 control switch for HVC-FN1A to START to establish NEGATIVE pressure in the control room.

ANSWER: A

- B - Will establish a positive pressure in the control room.
- C - Fan can't be started until inlet damper is full open.
- D - See B and C.

K/A

Statement: Ability to predict impact of Control Room HVAC reconfiguration failure and correct, control, or mitigate.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|--------------|-----------|------------|------------------|---------------------------------------|----------------------|
| 290003 A2.03 | 3.4 | 3.6 | 41.7 | SOP-0058, Page 11 STM-402, Page 13 | STM-402 OBJ- H7 |

TIER/GROUP: 2/2

LOK: H LOD: 3

ORIGIN: BANK

HISTORY: River Bend NRC Exam 2/2003

BANK QID: 864

QUESTION NO. 66 For RO Exam

The following conditions exist:

- Reactor coolant temperature is 135°F.
- All ECCS systems are in standby.
- The Reactor Mode Switch is in SHUTDOWN.
- One reactor vessel head closure bolt is de-tensioned.
- Primary and Secondary Containment are SET (OPERABLE).

Which one of the following is the Plant Operational Mode?

- A. Mode 2 – Startup
- B. Mode 3 – Hot Shutdown
- C. Mode 4 – Cold Shutdown
- D. Mode 5 – Refueling

ANSWER: D

K/A

Statement: Ability to determine Mode of Operation.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|------------|-----------|------------|------------------|-----------------------|----------------------|
| 2.1.22 | 2.8 | 3.3 | 41.5 43.2 | TS 1.1-1 | HLO-419 OBJ- 4 |

TIER/GROUP: 3

LOK: H LOD: 2

ORIGIN: BANK

HISTORY: River Bend NRC Exam 2/2003

BANK QID: 870

QUESTION NO. 67 For RO Exam

Which one of the following describes the conventions used to depict:

- (1) the state of electrical relays in a S & W Electrical Schematic Drawing (ESK) and
(2) the state of manually-operated gate or globe valves in a EOI Piping and Instrumentation Diagram (PID)?
- A. (1) ESK relays are shown in their energized state.
 (2) PID valve positions are shown for the plant in normal operating mode.
- B. (1) ESK relays are shown in their de-energized state.
 (2) PID valve positions are shown for the plant in normal operating mode.
- C. (1) ESK relays are shown in their energized state.
 (2) PID valve positions are shown for the plant in shutdown mode.
- D. (1) ESK relays are shown in their de-energized state.
 (2) PID valve positions are shown for the plant in shutdown mode.

ANSWER: B

A - Relays shown de-energized.

C - Relays shown de-energized. Valves in normal operating mode.

D - Valves in normal operating mode.

K/A

Statement: Ability to obtain and interpret station electrical and mechanical drawings.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|------------|-----------|------------|------------------|--|----------------------|
| 2.1.24 | 2.8 | 3.1 | 41.7 | Print Reading Handout, Page PID Notes | HLO-542 OBJ- 3 |

TIER/GROUP: 3

LOK: F LOD: 2

ORIGIN: **MODIFIED**

HISTORY: **Browns Ferry NRC Exam 6/1995**

BANK QID: **925**

QUESTION NO. 68 For RO Exam

Which of the following describes how an independent verification is performed on a valve that is already “locked open” per a valve lineup?

The independent verifier shall . . .

- A. verify the locking device is in place as required.
- B. remove the locking device, verify the valve is fully open and reinstall the locking device.
- C. attempt to move the valve in the “closed” direction to verify the locking device holds the valve open.
- D. have another individual verify the position and then verify the locking device installed.

ANSWER: A

K/A

Statement: Knowledge of how to conduct and verify valve lineups.

| | | | | | |
|------------|-----------|------------|------------------|-----------------------|----------------------|
| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
| 2.1.29 | 3.4 | 3.3 | 41.10 | ADM-0076, Page 12 | HLO-258 OBJ- 3 |

TIER/GROUP: 3

LOK: F LOD: 2

ORIGIN: BANK

HISTORY: River Bend NRC Exam 1/1997

BANK QID: 949

QUESTION NO. 69 For RO Exam

During Startup while in Mode 2 , Leakage Computer report contains the following:

- 0.37 gpm Unidentified Leakage
- 3.34 gpm Identified Leakage.

Which one of the following subsequent changes in leakage requires entry into the Technical Specification LCO for Reactor Coolant System Leakage?

Technical Specification 3.4.5 is included as EXAM HANDOUT MATERIAL.

- A. Additional 2.1 gpm leakage into the Containment Building Floor Drain Sump in the next 24 hours
- B. A leak from the E12-F0041B RHR Injection check valve bonnet seal inside the Drywell
- C. Additional leakage of 26.66 gpm leakage into the Containment Building Equipment Drain Sump averaged over 12 hours
- D. Additional 4.66 gpm leak into the Pedestal Floor Drain

ANSWER: D REQUIRES TS 3.4.5 INCLUDED IN EXAM HANDOUT MATERIAL.

A - Tech Spec 3.4.5.d only required in Mode 1

B - Bonnet Seal Leakage is exempt from Pressure Boundary Leakage

C - Required to be averaged over 24 hours.

K/A

Statement:

Knowledge of limiting conditions for operations and safety limits.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|------------|-----------|------------|------------------|-----------------------|----------------------|
| 2.2.22 | 3.4 | 4.1 | 41.3 41.5 | TS LCO 3.4.5 | STM-207 OBJ- H8 |

TIER/GROUP: 3

LOK: H LOD: 2

ORIGIN: NEW

HISTORY:

BANK QID: 926

QUESTION NO. 70 For RO Exam

During a refueling outage, fuel assemblies designated to be moved from the core to the spent fuel pool are being transferred from the core to the upper fuel storage racks. Which one of the following would require that the transfer of fuel be suspended?

- A. Realigning SFC to place the B Cleanup pump on the Fuel Building Spent Fuel Pool.
- B. Transferring fuel from the refuel floor to the Fuel Building with the Inclined Fuel Transfer System.
- C. Moving fuel assemblies in the Fuel Building spent fuel pool.
- D. Aligning SFC to lower water level several inches in the Fuel Building spent fuel pool.

ANSWER: A

Potential to inadvertently lower level in refuel cavity due to many hidden pathways in SFC.

B - Both are allowed to be performed simultaneously.

C - Can do both simultaneously.

D - Exception made for this to make minor adjustments in level required during IFTS ops.

K/A

Statement: Knowledge of refueling administrative requirements.

| | | | | | |
|------------|-----------|------------|------------------|-----------------------|----------------------|
| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
| 2.2.26 | 2.5 | 3.7 | 41.10 43.6 | SOP-0091, Page 5 | STM-602 OBJ- H6 |

TIER/GROUP: 3

LOK: F LOD: 2

ORIGIN: NEW

HISTORY:

BANK QID: 927

QUESTION NO. 71 For RO Exam

A 28 year old nuclear worker has been contracted to work during the upcoming refuel outage. His NRC Form 4 is current and his annual whole-body (TEDE) dose to date is 1.25 rem.

What is the MAXIMUM additional radiation dose he can be authorized to receive during the remainder of this year in accordance with NRC limits?

- A. 1.75 rem
- B. 2.75 rem
- C. 3.75 rem
- D. 5.00 rem

ANSWER: C

K/A

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

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|------------|-----------|------------|------------------|-----------------------|----------------------|
| 2.3.4 | 2.5 | 3.1 | 41.12 | RWT Page 22 | RWT-013 OBJ- 30 |

TIER/GROUP: 3

LOK: H LOD: 2

ORIGIN: BANK

HISTORY: River Bend NRC Exam 7/1997

BANK QID: 434

QUESTION NO. 72 For RO Exam

Due to a steam leak the Main Steam Line Tunnel area temperatures are all between 160°F and 170°F. All automatic isolations have occurred as designed. Because of the leak location and isolation actions, NO LOCA signal occurred from high drywell pressure or RPV low level.

An ALERT has been declared based on offsite release rates.

Which one of the following will reduce the UNMONITORED release rate?

- A. Shutdown the Turbine Building Ventilation System if operating.
- B. Shutdown the Radwaste Building Ventilation System if operating.
- C. Start the Turbine Building Ventilation System if NOT operating.
- D. Start the Fuel Building Charcoal Filtration trains if NOT operating.

ANSWER: C

A - Will raise the unmonitored release rate from the turbine building.

B - Will raise unmonitored release rate from Radwaste Building.

D - Would not affect unmonitored release rate. Both normal ventilation and filtered exhausts are monitored.

K/A

Statement: Ability to control radiation releases.

| | | | | | |
|-------------|----------------------------|------------|------------------|-----------------------|----------------------|
| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
| 2.3.11 | 2.7 | 3.2 | 41.10 | EOP-3, RR-2 | HLO-515 OBJ- 6 |
| | | | 41.12 | EPSTG-2, Page 10-4 | |
| | | | 43.4 | | |
| TIER/GROUP: | 3 | | 43.5 | | LOK: H LOD: 3 |
| ORIGIN: | BANK | | | | |
| HISTORY: | River Bend NRC Exam 2/2003 | | | | BANK QID: 797 |

QUESTION NO. 73 For RO Exam

A containment isolation has resulted in entry into AOP-0003, Automatic Isolations. Shortly after an annunciator alerts the crew that EOP entry is required.

At this point, a step yet to be completed in AOP-0003 can only be executed . . .

- A. before the EOPs are entered.
- B. after the EOPs have been exited.
- C. concurrently with EOP execution if it does NOT degrade EOP-required equipment.
- D. concurrently with EOP execution provided it is specifically directed in an EOP step.

ANSWER: C

- A - Can be executed concurrently.
- B - Can be executed concurrently.
- D - Not required and typically not in EOP steps.

K/A

Statement: Knowledge of how the event-based emergency/abnormal operating procedures are used in conjunction with the symptom-based EOPs.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|------------|-----------|------------|------------------|------------------------|----------------------|
| 2.4.8 | 3 | 3.7 | 41.10 43.5 | EPSTG-0002, Page B-4-7 | HLO-511 OBJ- 1 |

TIER/GROUP: 3

LOK: F LOD: 2

ORIGIN: NEW

HISTORY:

BANK QID: 928

QUESTION NO. 74 For RO Exam

Should it become necessary to lower reactor level during an ATWS per EOP-0001A Step RLA-15, the following systems are specified for use to maintain level when injection is reinitiated in Step RLA-20:

Condensate/feedwater
CRD
RCIC
RHR through SDC injection valves

The reason only these systems are to be used is because . . .

- A. these systems provide the cleanest source of water for injection into the reactor.
- B. their point of injection ensures mixing of the cold injection water with warmer water prior to core entry.
- C. these systems can operate automatically so the operator need only verify lineups when this step is reached.
- D. at this point in the ATWS, reactor pressure precludes use of other systems.

ANSWER: B

K/A KA: Knowledge of the specific bases for EOPs.
Statement:

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|--|------------|------------|------------------|---------------------------|-----------------------------|
| 2.4.18 | 2.7 | 3.6 | 41.1 | EPSTG-0002, B-7-30 | HLO-513 OBJ- 4 |
| | | | 41.2 | | |
| | | | 41.5 | | |
| TIER/GROUP: 3 | | | 41.10 | | LOK: F LOD: 2 |
| | | | 43.6 | | |
| ORIGIN: BANK | | | | | |
| HISTORY: River Bend NRC Exam 1/1995 | | | | | BANK QID: 210 |

QUESTION NO. 75 For RO Exam

A plant startup is in progress at 45% power following the upshift of both Reactor Recirc Pumps to fast speed. Recirc flow is being raised when the RECIRC LOOP A LOW ΔT annunciator alarms. The following conditions exist:

- PMS displays are out of service.
- Reactor Dome Pressure on P680 meter C33-R605 is 985 psig.
- A Recirc loop suction temperature on recorder B33-R604 is 538°F.

The CRS directs you to consult the ARP and validate the low ΔT condition. 16 minutes later the alarm is still in and no automatic actions have occurred.

Which one of the following is the correct assessment of the alarm condition and required action? ARP for RECIRC LOOP A LOW ΔT included in exam handout materials.

- A. Alarm condition is NOT VALID and key operated switch B33-S125A should be placed in BYPASS.
- B. Alarm condition IS VALID and the A Recirc Pump XFER TO LFMDG pushbutton should be depressed.
- C. Alarm condition IS VALID and both Recirc Pump XFER TO LFMDG pushbuttons should be depressed.
- D. Alarm condition IS VALID and the A Recirc Pump STOP pushbutton should be depressed.

ANSWER: D ARP-P680-4A-A05 MUST BE INCLUDED IN EXAM HANDOUT MATERIALS
Alarm condition is valid per A below and auto action (which failed to occur) per ARP with both pumps in fast speed.
A - Based on dome pressure of 1000 psia, dome temp = 544.6°F. $\Delta T=6.6^\circ\text{F}$ which is <8.6 .
B - With both pumps on fast speed downshift is not automatic action for this condition.
C - Normal action for downshift of both pumps.

K/A

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

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|------------|-----------|------------|------------------|-----------------------|----------------------|
| 2.4.50 | 3.3 | 3.3 | 41.10 41.14 | ARP-P680-4A-A05 | STM-053 OBJ- H12 |

TIER/GROUP: 3

LOK: H LOD: 4

ORIGIN: NEW

HISTORY:

BANK QID: 852

QUESTION NO. 76 For SRO Exam

The plant is operating in mode 1 at 100% of rated power. STP-053-3001 (Jet Pump Operability) has just been completed. Upon review of the STP the CRS has discovered that Jet Pump No. 7 is inoperable.

The CRS enters T.S. 3.4.3 Action A, requiring the plant to be in Hot Shutdown within 12 hours.

Which one of the following correctly describes the basis behind this required tech spec action?

- A. A failed jet pump increases the probability of instability events at lower power levels during low flow conditions.
- B. With a failed jet pump, neutron flux distribution across the core changes due to the change in core flow, thereby making the APRM indications unreliable.
- C. A failed jet pump increases the blowdown area and reduces the capability of reflooding to two thirds (2/3) core height following a LOCA.
- D. A failed jet pump causes the APRM Flow Biased scram and rod block setpoints to drift due to the increase or decrease in flow in the affected loop.

ANSWER: C

K/A

Statement: Knowledge of bases in technical specifications for limiting conditions for operations and safety limits applicable to Reactor Vessel Internals.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|---------------|-----------|------------|------------------|------------------------|----------------------|
| 290002 2.2.25 | 2.5 | 3.7 | 41.3 43.2 | TS Bases Page B 3.4-14 | HLO-405 OBJ- 1 |

TIER/GROUP: 1/1

LOK: F LOD: 2

ORIGIN: BANK

HISTORY: River Bend NRC Exam 2/2003

BANK QID: 833

QUESTION NO. 77 For SRO Exam

The plant was operating at rated power when a loss of offsite power occurred. Of the three Diesel Generators, only the HPCS Diesel Generator is operating.

Ten (10) minutes after the loss of power the following conditions exist:

- Post Accident Monitor recorders B21-R623A and B on P601 are indicating
 - (1) RPV pressure is cycling between approximately 926 psig and 1064 psig
 - (2) RPV level is 0 inches and slowly rising.
- SRV F051C is cycling open and closed.
- SRV F051D opened and remained open.

The above conditions indicate that the reactor is . . .

- A. critical with power above 5%. RCIC and HPCS are maintaining RPV level.
- B. critical with power below 5%. RCIC is maintaining RPV level.
- C. shutdown with SRVs removing decay heat and RCIC maintaining RPV level.
- D. shutdown with a stuck open SRV and HPCS maintaining RPV level.

ANSWER: A

B - One SRV open and one cycling indicates power above 5%, RCIC cannot maintain level at this power.

C - Pressure would be lowering decay heat will not keep one SRV open and one cycling

D - Pressure would be lowering if SD with an SRV stuck open.

K/A

Statement: Ability to determine/interpret reactor power, pressure, and level as they apply to Partial or Complete Loss of AC Power.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|---------------|-----------|------------|------------------|-----------------------|----------------------|
| 295003 AA2.02 | | 4.3 | 43.5 43.6 | AOP-0031, Page 11 | HLO-513 OBJ- 3 |

TIER/GROUP: 1/1

LOK: H LOD: 3

ORIGIN: NEW

HISTORY:

BANK QID: 929

QUESTION NO. 78 For SRO Exam

The plant was operating at 100% power when a large steam leak on the MSR A reheat steam line required reheat steam to be isolated. Five minutes later the TURBINE HIGH VIBRATION annunciator on P870 alarms. The following are reported as steady values of vibration:

- Bearing No. 5 indicates 11 mils
- Bearing No. 6 indicates 13 mils
- Bearing No. 4 indicates 5 mils

What action should be taken?

- A. Continue to monitor the vibrations and initiate a reactor scram and trip the turbine if 15 mils is reached.
- B. Begin a rapid load reduction and initiate a reactor scram and trip the turbine if vibrations cannot be reduced below 10 mils within 14 minutes.
- C. Immediately scram the reactor and trip the turbine.
- D. Monitor bearing temperatures and scram the reactor and trip the turbine if bearing temperature exceeds 240 degrees F.

ANSWER: C

K/A

Statement: Ability to determine/interpret turbine vibration as it applies to Main Turbine Generator Trip.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|--------------|-----------|------------|------------------|------------------------------------|----------------------|
| 295005 A2.02 | 2.9 | 3 | 43.5 | AOP-0002, Page 3 ARP-870-54-D08 | HLO-521 OBJ- 3 |

TIER/GROUP: 1/1

LOK: H LOD: 2

ORIGIN: BANK

HISTORY: River Bend NRC Exam 7/1997

BANK QID: 71

QUESTION NO. 79 For SRO Exam

Following a refueling outage, a Xenon free reactor startup is in progress with RCS temperature at 130°F. The first five control rods have been fully withdrawn with no detectable change in SRM count rates. At this time, the operating CRD pump trips and the other CRD pump cannot be started. Several minutes later a RPV low water level scram at Level 3 occurs.

The ATC reports that none of the five withdrawn control rods inserted on the scram. All are still fully withdrawn. SRM count rates remain unchanged.

Which one of the following is the correct implementation of the EOPs for this situation?

- A. No EOP entry is required, the reactor was never critical.
- B. ONLY enter EOP-1, RPV Control, sufficient evidence exists that transitioning to EOP-1A, RPV Control - ATWS is unnecessary.
- C. Enter EOP-1, RPV Control, transition to EOP-1A, RPV Control - ATWS, and remain in EOP-1A until Reactor Engineering concurs that the reactor was never critical.
- D. Enter EOP-1, RPV Control, transition to EOP-1A, RPV Control - ATWS, and remain in EOP-1A until Reactor Engineering determines the reactor will remain shutdown.

ANSWER: D

A - Level 3 is EOP entry condition

B and C - RCS temperatures below minimum for critical could cause criticality unless RE determines otherwise.

K/A

Statement: Knowledge of the operational implications of reactivity control as it applies to scram.

| | | | | | |
|---------------|-----------|------------|------------------|-------------------------------|----------------------|
| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
| 295006 AK1.03 | 3.7 | 4 | 43.5 43.6 | EOP-0001 EPSTG-0002, B-6-6 | HLO-513 OBJ- 3 |

TIER/GROUP: 1/1

LOK: H LOD: 3

ORIGIN: NEW

HISTORY:

BANK QID: 814

QUESTION NO. 80 For SRO Exam

The plant was operating at 100% power with a Division 3 Diesel Generator 'Super' outage is in progress when a loss of Offsite Power occurred.

With the reactor shutdown and SRVs being used for RPV pressure control, the following conditions now exist:

- SWP-P2A Failed to Start
- SWP-FR60A indicates: SSW Supply Flow = 0
SSW Return Flow = 1500 gpm
- SWP-FR60B indicates: SSW Supply Flow = 14,780gpm
SSW Return Flow = 13,280gpm

Which one of the following actions should be directed by the CRS for these conditions?

- A. Close SWP-AOV599, STBY CLG TWR INLET
- B. Close the 'A' Header Supply and Return Isolation valves, SWP-V1210 and SWP-V1213
- C. Place ADHR in Suppression Pool Cooling mode.
- D. Align SSW to both the CCP and RHR Heat Exchangers.

ANSWER: B

A - Not operated except in Station Blackout

C - Not operated due to run out concerns in this mode P&L 2.9 (2.8 and 2.9 and only if RHR HX has flow)

D - Violates P&L 2.3

K/A

Statement: Ability to operate/monitor backup systems as they apply to Partial or Complete Loss of Component Cooling Water.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|---------------|-----------|------------|------------------|-----------------------|----------------------|
| 295018 AA1.01 | | 3.4 | 43.5 | AOP-0016, Page 7, 8 | STM-118 OBJ- H17 |

TIER/GROUP: 1/1

LOK: H LOD: 3

ORIGIN: NEW

HISTORY:

BANK QID: 930

QUESTION NO. 81 For SRO Exam

A plant startup to rated power is in progress. The plant is operating at 95% power and 95% of rated core flow when a failure of the air supply to the "A" Heater Drain Recirc controller results in a loss of feedwater heating and entry into AOP-0007.

The Reactor Engineer runs a Core Monitoring Case and reports that CMFLCPR is 1.002.

Tech Spec LCO 3.2.2 and the applicable COLR pages are included as EXAM HANDOUT MATERIAL.

Which one of the following describes the actions, if any, that are required for this condition?

- A. No action is required.
- B. Restore MCPR to within the limits within two (2) hours or reduce power to <23.8% within the next four (4) hours.
- C. Restore MCPR to within the limits within two (2) hours or reduce power to <23.8% within the next two (2) hours.
- D. Restore MCPR to within the limits and insert all insertable control rods within two (2) hours

ANSWER: B REQUIRES TS 3.2.2 AND COLR PAGES 25 & 30 INCLUDED AS EXAM HANDOUTS

A - Exceeded LCO when CMFLCPR is greater than 1.0 requiring action.

C - The four hours to reduce power is in addition to the two hours to restore to within limits.

D - Using COLR limiting value of MCPR_p at 1.2 and CMFLCPR value of 1.002, measured MCPR is:

$MCPR = MCPR_p / CMFLCPR = 1.21 / 1.002 = 1.207$ which does not violate SL.

K/A

Statement:

Ability to recognize indications for system operating parameters which are entry-level conditions for

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|---------------|-----------|------------|------------------|--|---------------------------|
| 295019 2.1.33 | 3.4 | 4 | 43.2 | COLR Pages 25 & 30 TS 3.2.2 | STM-011 OBJ- 11 |

TIER/GROUP: 1/1

LOK: **H** LOD: **2**

ORIGIN: **MODIFIED**

HISTORY: **River Bend NRC Exam 10/2000**

BANK QID: **815**

QUESTION NO. 82 For SRO Exam

The plant is performing the In-Service Pressure Test (Vessel Hydro) on the reactor following refueling operations. A miscommunication results in a significant rise in reactor pressure. The following RPV pressure indications were observed in the Main Control Room:

- Wide range Reactor Pressure C33-R605 on P680 went offscale high (>1200 psig).
- Post Accident recorders B21-R623A and B on P601 indicated RPV pressure had reached 1350 psig.

Which one of the following is a correct assessment of this condition regarding the RBS Technical Specifications and any required reporting?

- A. The TS Safety Limit for reactor pressure was exceeded and the NRC Operations Center must be notified within 1 hour.
- B. The TS Safety Limit for reactor pressure was exceeded and the NRC Operations Center must be notified within 24 hours.
- C. Only the TS LCO for Reactor Steam Dome Pressure must be entered and NO reporting is required.
- D. NO TS Safety Limits or LCOs were violated and NO reporting is required.

ANSWER: A

- B - Reporting time for Plant Manager and VP following SL violation.
- C - Pressure exceeded 1075 psig, but LCO is only applicable in Modes 1 and 2.
- D - SL violation with dome pressure on PAM recorders >1325 psig.

K/A

Statement: Knowledge of which events related to system operations/status that should be reported to outside agencies as it applies to High Reactor Pressure.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|---------------|-----------|------------|------------------|-----------------------|----------------------|
| 295025 2.4.30 | | 3.6 | 43.2 | RBS TS Page 2.0-1 | HLO-219 OBJ- 1 |

TIER/GROUP: 1/1

LOK: F LOD: 2

ORIGIN: MODIFIED

HISTORY: River Bend NRC Exam 2/1999

BANK QID: 931

QUESTION NO. 83 For SRO Exam

With the plant operating at 100% power, the following sequence of events and actions have occurred at the times specified.

- 1020 Large Break LOCA in the Drywell and the reactor scrammed.
- 1030 EOP-0004, RPV Flooding was entered due to high Drywell temperature and RPV pressure at 5 psig
- 1031 6 SRVs were opened and remain open
- 1036 Injection sources for RPV Flooding raised RPV pressure above 42 psig and Drywell temperatures were lowering.

Assuming RPV pressure is maintained above 42 psig until the Minimum Core Flooding Interval is achieved, what are the times for the Minimum Core Flooding Interval (MCFI) and the Maximum Core Uncovery Time Limit (MCUTL)?

| | MCFI | MCTUL |
|----|---------|----------|
| A. | 46 min. | 2.8 min. |
| B. | 46 min. | 3.4 min. |
| C. | 64 min. | 3.4 min. |
| D. | 64 min. | 4.5 min. |

ANSWER: C

A - Incorrect MCFI (for 7 SRVs open) and MCUTL was determined using MCFI instead of time after Shutdown

B - Incorrect MCFI, (for 7 SRVs open)

D - Correct MCFI but miscalculated time after shutdown making MCUTL too high.

K/A

Statement: Ability to perform specific system and integrated plant procedures during different modes of plant operation as applicable to High Drywell Temperature.

| | | | | | |
|---------------|-----------|------------|------------------|-------------------------|----------------------|
| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
| 295028 2.1.23 | | 4 | 43.5 | EOP-0004, RF-10 & RF-12 | HLO-512 OBJ- 7 |

TIER/GROUP: 1/1

LOK: H LOD: 3

ORIGIN: NEW

HISTORY:

BANK QID: 932

QUESTION NO. 84 For SRO Exam

The CRVICS logic for a full MSIV closure and Inboard Balance of Plant isolation was inadvertently actuated with the plant at 100% power. All isolation valves and dampers closed as expected and an automatic reactor scram occurred from the MSIV closure.

Fifteen minutes later, Suppression Pool level has lowered to 18.5 feet and Containment pressure has risen to 5 psig.

Which of the following would be the reason for the containment pressure and any required actions.

- A. Loss of containment cooling requiring normal containment venting
- B. Loss of containment cooling requiring emergency containment venting
- C. Excessive Post-LOCA drywell bypass leakage requiring emergency containment venting
- D. Excessive Post-LOCA Drywell bypass leakage requiring Emergency Depressurization

ANSWER: D

ED required due to being in unsafe region of PSP curve.

A - Pressure too high for just loss of containment cooling and prohibits normal containment venting

B - Pressure too high for just loss of containment cooling and emergency venting not required (C)

C - Emergency containment venting is not required until pressure is approaching 30 psig.

K/A

Statement: Knowledge of the reasons for Drywell/containment pressure response as they apply to Inadvertent Containment Isolation.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|---------------|-----------|------------|------------------|-------------------------|----------------------|
| 295020 AK3.02 | | 3.5 | 41.9 43.5 | EOP-0002, CP-4 & Fig. 4 | HLO-514 OBJ- 6 |

TIER/GROUP: 1/2

LOK: H LOD: 3

ORIGIN: NEW

HISTORY:

BANK QID: 933

QUESTION NO. 85 For SRO Exam

Given the following conditions

- RCIC tripped and Isolation Valves E51-F063, E51-F064 failed to close.
- RCIC Area Radiation – 1.2 E+04 mr/hr
- RCIC Area Temperature - 207°F

Which of the following is the bases for initiating a Reactor Scram with the above conditions.

- A. The scram will begin to reduce the energy that the RPV will discharge to the RCIC room to that of decay heat.
- B. Emergency Depressurization is required.
- C. Failure of Secondary Containment due to high temperatures must be assumed and the scram will stop the radioactive release.
- D. A scram will immediately reduce the driving head and flow through the break in the RCIC room.

ANSWER: A

B - Correct for EOP-3 SC-21

C - Secondary Containment is not assumed to have failed at this point.

D - Correct for EOP-3 SC-21, The Scram in itself will not significantly decrease driving head until RPV pressure is lowered.

K/A

Statement: Knowledge of the reasons for reactor SCRAM as they apply to High Secondary Containment Area Temperature.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|---------------|-----------|------------|------------------|-------------------------|----------------------|
| 295032 EK3.02 | | 3.8 | 43.5 | EPSTG-0002, Page B-9-13 | HLO-515 OBJ- 4 |

TIER/GROUP: 1/2

LOK: F LOD: 3

ORIGIN: NEW

HISTORY:

BANK QID: 934

QUESTION NO. 86 For SRO Exam

During plant operation at rated power, the ANNULUS PRESSURE HIGH alarm on P863 is received. The following parameter values exist:

- Outside air temperature is 81°F
- Annulus air temperature is 85°F
- Annulus pressure on LMS-TR127 reads -2.9 inches water column
- Auxiliary building pressure on HVR-PDI247 reads -0.25 inches water column

The ARP for ANNULUS PRESSURE HIGH, applicable pages of STP-000-0001 and Technical Specifications are included as EXAM HANDOUT MATERIAL.

Given the conditions above determine if Annulus pressure is within Technical Specification limits and if EOP-0003 entry is required.

- A. NEITHER EOP-0003 NOR TS LCO entry is required.
- B. EOP-0003 entry IS NOT required, TS LCO entry IS required.
- C. EOP-0003 entry IS required, TS LCO entry IS NOT required.
- D. BOTH EOP-0003 and TS LCO entry ARE required.

ANSWER: A REQUIRES ARP-P863-72A-A01, STP-000-001, PAGES 16 & 33, AND TS 3.4.6.1 AS EXAM HANDOUT MATERIALS

Based on the corrected value being in acceptable side of STP-000-0001, Page 33 curve.

B - While Annulus pressure value of -2.9" WC is less than LCO limit of =3.0 inches vacuum, when corrected to 3.15 it is acceptable. Correction to make annulus pressure relative to atmospheric.

C - EOP-0003 matches TS in that it is Annulus pressure relative to atmospheric

D - See B & C

K/A

Statement: Ability to determine/interpret secondary containment pressure as it applies to Secondary Containment High Differential Pressure.

| | | | | | |
|---------------|-----------|------------|------------------|---|----------------------|
| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
| 295035 EA2.01 | | 3.9 | 43.5 | ARP-P863-72A-A01 STP-000-0001, Pages 16 & 33 TS 3.6.4.1 EOP-0003, Entry Conditions | STM-403 OBJ- H10 |
| TIER/GROUP: | 1/2 | | | | LOK: H LOD: 3 |
| ORIGIN: | NEW | | | | |
| HISTORY: | | | | | BANK QID: 950 |

QUESTION NO. 87 For SRO Exam

Complete the following statement, regarding the Containment Hydrogen Deflagration Overpressure Limit (HDOL) curve in the EOPs.

As containment pressure rises, . . .

- A. the maximum allowed hydrogen concentration lowers due to the reduced capability of the Hydrogen Recombiners at higher containment pressure.
- B. the maximum allowed hydrogen concentration lowers because the deflagration pressure of hydrogen lowers.
- C. the maximum allowed hydrogen concentration rises because it takes a higher concentration of hydrogen to burn at higher pressures.
- D. the maximum allowed hydrogen concentration lowers to ensure that a hydrogen deflagration at the limit combined with current pressure will not exceed containment overpressure failure limits.

ANSWER: D

K/A

Statement: Ability to determine/interpret combustible limits for wetwell as they apply to High Primary Containment Hydrogen Concentrations.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|---------------|-----------|------------|------------------|--------------------------------------|----------------------|
| 500000 EA2.04 | 3.3 | 3.3 | 43.5 | EPSTG-0002, App. A EOP-1 Figure 5 | HLO-514 OBJ- 8 |

TIER/GROUP: 1/2

LOK: H LOD: 2

ORIGIN: BANK

HISTORY: River Bend NRC Exam 10/2000

BANK QID: 674

QUESTION NO. 88 For SRO Exam

RHR A has just been placed in Shutdown Cooling Mode following a plant shutdown for a refuel outage.

During the outage, which one of the following changes in the status of Shutdown Cooling REQUIRES Duty Manager notification?

- A. Adjusting the cooldown rate of the operating shutdown cooling loop by closing the RHR Heat Exchanger Bypass Valve.
- B. Shifting shutdown cooling from RHR A to RHR B loops in order to conduct scheduled outage maintenance on Division 1 equipment.
- C. Placing RHR B in service for shutdown cooling due to a trip of the RHR A pump.
- D. Removing RHR A from shutdown cooling in preparation for a reactor startup after the refueling outage.

ANSWER: C

AOP entry (AOP-0051 for Loss of Decay Heat Removal) requires Duty Manager Notification

A - Normal system adjustment for shutdown cooling ops.

B - Planned evolution during an outage.

D - Planned evolution in preparation for mode change.

K/A

Statement: Knowledge of Shutdown Cooling system status criteria which require the notification of plant personnel.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|---------------|-----------|------------|------------------|-----------------------|----------------------|
| 205000 2.1.14 | | 3.3 | 43.5 | OSP-0046, Page 8 | HLO-206 OBJ- |

TIER/GROUP: 2/1

LOK: F LOD: 2

ORIGIN: NEW

HISTORY:

BANK QID: 936

QUESTION NO. 89 For SRO Exam

The plant is operating at 85% power. The Manual Scram Pushbutton Surveillance is being performed. After arming and depressing the last Manual Scram Pushbutton for DIV 4, the half scram is reset. However, a failure of the K14D relay contacts to reclose when re-energized results in the "B" RPS DIV 4 SCRAM SOV VALVES OPEN light above the DIV 4 Manual Scram Pushbutton on P680 remaining out. All other RPS scram solenoid valve white lights on P680 are lit.

If a loss of RPS Bus A occurs at this time, which one of the following is the expected response and appropriate action to be taken?

- A. None of the control rods will scram. Transfer RPS Bus A to Alternate power per AOP-0010, Loss of RPS Bus.
- B. Approximately $\frac{1}{4}$ of the control rods will scram. Manually scram the reactor and enter AOP-0001 and AOP-0010.
- C. Approximately $\frac{1}{4}$ of the control rods will scram. Transfer RPS Bus A to Alternate power per AOP-0010, Loss of RPS Bus.
- D. All of the control rods will scram. Manually scram the reactor and enter AOP-0001 and AOP-0010.

ANSWER: B

Manual Scram to close SDV vent and drain valves and prevent fuel damage.

A - $\frac{1}{4}$ of the control rods will scram due to both scram pilot valve solenoids being de-energized.

C - SDV vent and drain valves may be open with $\frac{1}{4}$ of control rods scrambled.

D - Only $\frac{1}{4}$ of the control rods will scram.

K/A

Statement: Ability to predict the impacts of the failure of individual relays to reposition on RPS; and use procedures to correct, control, or mitigate.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|--------------------|-----------|------------|------------------|---|----------------------|
| 212000 A2.21 | | 3.9 | 43.5 43.6 | STM-508, Figures 7 & 16 STM-508, Page 22 | STM-508 OBJ- H8 |
| TIER/GROUP: 2/1 | | | | | LOK: H LOD: 3 |
| ORIGIN: NEW | | | | | |
| HISTORY: | | | | | BANK QID: 937 |

QUESTION NO. 90 For SRO Exam

Unless the backup charger is connected to the HPCS bus, the Backup Charger Supply Breaker (E22-CB10) from E22-PNL001 should be locked in the open position.

This ensures that . . .

- A. the backup battery charger is not overloaded.
- B. the backup charger continuously meets Technical Specification operability requirements.
- C. separation between redundant Safety Related systems is maintained.
- D. damage to the rectifier stack does not occur.

ANSWER: C

K/A

Statement: Ability to explain and apply D. C. Electrical Distribution system limits and precautions.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|---------------|-----------|------------|------------------|-----------------------|----------------------|
| 263000 2.1.32 | | 3.8 | 43.5 | SOP-0049, P&L 2.4 | STM-305 OBJ- H6 |

TIER/GROUP: 2/1

LOK: F LOD: 2

ORIGIN: BANK

HISTORY: River Bend NRC Exam 10/2000

BANK QID: 946

QUESTION NO. 91 For SRO Exam

The following plant conditions exist:

- An inadvertent Division 2 LOCA initiation signal occurred.
- The inadvertent Division 2 LOCA initiation signal has been reset.
- The Division 2 Diesel Generator (DG) has been running at unloaded for twenty minutes.

Which one of the following describes the appropriate action that the CRS should direct the operator to perform for the Division 2 DG in order to restore from this event, including the reason for this action?

- A. Load the Division 2 DG to greater than 2300 KW for 1 hour to minimize carbon buildup in the engine cylinders.
- B. Load the Division 2 DG to greater than 2300 KW for 1 hour to minimize the accumulation of explosive fumes/vapors inside the crankcase.
- C. Immediately shutdown the Division 2 DG and restore to Standby to minimize carbon buildup in the engine cylinders.
- D. Immediately shutdown the Division 2 DG and do not restore to Standby for 15 minutes to allow any accumulation of explosive fumes/vapors inside the crankcase to dissipate.

ANSWER: A

- B. Accumulation of explosive gases is a concern if High Crankcase pressure is observed.
- C. Carbon build up has already occurred; operation above 2300KW for an hour is intended to dislodge this carbon buildup.
- D. This for the removal of engine covers, not a loading issue.

K/A

Statement: Ability to predict the impacts of operating unloaded, lightly loaded, and highly loaded on the EDGs; and use procedures to correct, control, or mitigate.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|--------------|-----------|------------|------------------|-----------------------|----------------------|
| 264000 A2.03 | | 3.4 | 43.5 | SOP-0053, P&L 2.18 | STM-309S OBJ- H7 |

TIER/GROUP: 2/1

LOK: H LOD: 2

ORIGIN: BANK

HISTORY: Perry NRC Exam 3/2002 (INPO 22012)

BANK QID: 939

QUESTION NO. 92 For SRO Exam

Given the following initial conditions for the Inclined Fuel Transfer (IFTS) System:

- IFTS Tube full
- Upper upender vertical
- Carriage at upper terminal
- Lower upender inclined
- System powered up and neither bridge in the IFTS area

SELECT the correct statement regarding IFTS operation.

- A. The transfer tube can be drained.
- B. The refueling bridge can enter the IFTS area.
- C. The fuel handling bridge can enter the IFTS area in the Fuel Building.
- D. The winch can be lowered using the "lower" pushbutton on the upper control panel.

ANSWER: B

K/A

Statement: Ability to monitor automatic operations of Fuel Handling Equipment including interlock operation.

| | | | | | |
|--------------|----------------------------|------------|----------------------|------------------------|----------------------|
| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
| 234000 A3.02 | 3.1 | 3.7 | 41.4 41.6 43.7 | STM-055, Pages 12 & 37 | STM-055 OBJ- H4 |
| TIER/GROUP: | 2/2 | | | | LOK: H LOD: 3 |
| ORIGIN: | BANK | | | | |
| HISTORY: | River Bend NRC Exam 2/2003 | | | | BANK QID: 882 |

QUESTION NO. 93 For SRO Exam

During a refueling outage, an irradiated fuel bundle being moved from the Reactor to the Dryer Storage Pool. The fuel bundle's lifting bail fails and the bundle falls into the reactor vessel between the vessel wall and the shroud (downcomer area) on the Northeast side of the Reactor Vessel. It appears that bundle integrity is maintained as NO BUBBLES are rising to the surface of the Reactor Cavity.

Personnel working in which one of the following locations would run the highest risk of overexposure due to high radiation levels?

- A. The Drywell.
- B. The Refuel floor.
- C. The Containment.
- D. The Steam Tunnel.

ANSWER: A

Only shielded by RPV wall.

B - Shielded by depth of water in RPV and Refuel Cavity

C - Shielded by Drywell wall.

D - Shielded by RPV water based on location of bundle and Drywell wall.

K/A

Statement: Knowledge of the effect a loss or malfunction of the Reactor Vessel Internals will have on plant radiation levels.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|--------------|-----------|------------|----------------------|-----------------------|----------------------|
| 290002 K3.04 | | 3.2 | 43.4 43.6 43.7 | AOP-0027, Page 4 | HLO-535 OBJ- 5 |

TIER/GROUP: 2/2

LOK: H LOD: 2

ORIGIN: MODIFIED

HISTORY: FitzPatrick NRC 7/2003 (INPO 25621)

BANK QID: 940

QUESTION NO. 94 For SRO Exam

During an Emergency, the CRS determines that the only action appropriate to maintain the plant in a safe condition will NOT be in compliance with the station's operating license.

Whose permission, at a MINIMUM, is required to take that action and when must the NRC be notified?

- A. Licensed Senior Reactor Operator (SRO); notify the NRC within one (1) hour
- B. General Manager-Operations; notify the NRC within four (4) hours
- C. Licensed Reactor Operator (RO); notify the NRC within one (1) hour
- D. Site Duty Manager; notify the NRC within four (4) hours

ANSWER: A

K/A

Statement: Knowledge of conduct of operations requirements.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|------------|-----------|------------|------------------|-----------------------|----------------------|
| 2.1.1 | 3.7 | 3.8 | 43.3 43.1 | LI-108 REAP, RAF 1.5 | HLO-206 OBJ- 6 |

TIER/GROUP: 3

LOK: F LOD: 2

ORIGIN: BANK

HISTORY: River Bend Audit Exam 1/2003

BANK QID: 1063

QUESTION NO. 95 For SRO Exam

In implementing AOP-0031, "Shutdown From Outside The Main Control Room," after evacuation of the Control Room the Operations Shift Manager is required to report to the . . .

- A. Div I Remote Shutdown Panel to assist the CRS in directing plant operations.
- B. Div II Remote Shutdown Panel to provide oversight and support for the CRS.
- C. Operations Support Center to coordinate support required by the CRS.
- D. Technical Support Center to implement the EIPs as Emergency Director.

ANSWER: D

A - May report here initially but not required

B - CRS will be at Div I RSP not Div II and OSM is required to report to TSC.

C - Building Operators report to OSC and a designated OSC Manager coordinates support.

K/A

Statement: Knowledge of operator responsibilities during all modes of plant operation.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|------------|-----------|------------|------------------|-----------------------|----------------------|
| 2.1.2 | 3 | 4 | 43.5 41.10 | AOP-0031, Page 5 | HLO-537 OBJ- 1 |

TIER/GROUP: 3

LOK: F LOD: 2

ORIGIN: **MODIFIED**

HISTORY: **River Bend NRC Exam 1/1997**

BANK QID: **624**

QUESTION NO. 96 For SRO Exam

A proposed plant modification must have prior approval from the NRC if . . .

- A. it requires a 50.59 evaluation.
- B. it involves a system described in the RBS USAR.
- C. it involves a system included in the RBS Technical Specifications.
- D. it results in a design basis limit for Primary Containment being altered.

ANSWER: D

- A - This evaluation will determine if NRC approval is required
- B - Must have a 50.59 evaluation but not necessarily NRC approval
- C - Must have a 50.59 evaluation but not necessarily NRC approval

K/A

Statement: Knowledge of the process for making changes in the facility as described in the SAR.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|------------|-----------|------------|------------------|-----------------------|----------------------|
| 2.2.5 | 1.6 | 2.7 | 43.3 | 10CFR50.59 LI-101 | HLO-200 OBJ- 2 |

TIER/GROUP: 3

LOK: F LOD: 3

ORIGIN: NEW

HISTORY:

BANK QID: 876

QUESTION NO. 97 For SRO Exam

The annunciator for the RCIC Turbine Exhaust Drain Trap level high is intermittently alarming. Maintenance personnel and the System Engineer have reported to the Main Control Room to troubleshoot the problem.

In accordance with ADM-0082, CONTROL OF TROUBLESHOOTING, which one of the following is the responsibility of the OSM/CRS during the troubleshooting evolution?

- A. Determining the operability of the RCIC based on information gained during troubleshooting.
- B. Directly supervising the maintenance personnel performing any of the troubleshooting activities in the Main Control Room.
- C. Ensuring all troubleshooting activities are covered by an approved plant operating procedure (SOP, AOP, or ARP).
- D. Ensuring any part of the RCIC System involved in troubleshooting has been isolated and/or de-energized.

ANSWER: A

- B - Responsibility of Maintenance Supervisor.
- C - Not necessarily required for troubleshooting.
- D - Not necessarily required for troubleshooting.

K/A

Statement: Knowledge of the process for managing troubleshooting activities.

| | | | | | |
|------------|-----------|------------|------------------|-----------------------|----------------------|
| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
| 2.2.20 | | 3.3 | 43.5 | ADM-0082, Page 5 | HLO- OBJ- |

TIER/GROUP: 3

LOK: F LOD: 2

ORIGIN: NEW

HISTORY:

BANK QID: 945

QUESTION NO. 98 For SRO Exam

The plant is operating at 100% power.

The Control Room Supervisor has a tagout that requires independent verification.

The Operations Shift Manager should grant a waiver for independent verification under which one of the following conditions?

- A. The components to be tagged are required to continue power operation.
- B. The valves to be tagged are located near the Main Turbine Control Valves.
- C. The components are located inside the Containment in a contaminated area.
- D. The components involve a Temporary Alteration on the HPCS Diesel Generator Air Start System.

ANSWER: B

K/A

Statement: Knowledge of 10CFR20 and related facility radiation control procedures.

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|------------|-----------|------------|------------------|-----------------------|----------------------|
| 2.3.1 | 2.6 | 3 | 43.4 41.10 | ADM-0076, Page 15 | HLO-201 OBJ- 12 |

TIER/GROUP: 3

LOK: F LOD: 2

ORIGIN: **MODIFIED**

HISTORY: **River Bend NRC Exam 2/2003**

BANK QID: **632**

QUESTION NO. 99 For SRO Exam

Given the following conditions:

- The Main Control Room has been evacuated due to a fire.
- All AOP-0031 immediate operator actions are complete, however the shutdown status of the reactor could not be determined prior to evacuation.
- Control of the plant has been established at the Remote Shutdown Panel.
- Indications of an ATWS exist 12 minutes after evacuating the control room

Which one of the following describes the correct action to be taken by the CRS?

- A. Carry out the actions of AOP-0031 (Shutdown From Outside the Main Control Room) ONLY.
- B. Enter EOP-0001, then execute EOP-0001A, RPV Control - ATWS and continue to carry out the actions of AOP-0031.
- C. Execute EOP-0001, RPV Control and continue to carry out the actions of AOP-0031.
- D. Execute EOP-0001A, RPV Control and exit AOP-0031.

ANSWER: B

A - EOPs take priority over AOPs

C - Must transition to execute EOP-0001A with ATWS conditions present

D - Must enter EOP-0001A through EOP-0001 and should not exit AOP-0031.

K/A

Statement:

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|------------|-----------|------------|------------------|-----------------------|----------------------|
| 2.4.5 | 2.9 | 3.6 | 43.5 | EPSTG-0002, B-4-7 | HLO-537 OBJ- 1 |

TIER/GROUP: 3

LOK: F LOD: 2

ORIGIN: **MODIFIED**

HISTORY: **River Bend NRC Exam 10/2000**

BANK QID: **675**

QUESTION NO. 100 For SRO Exam

The reactor is shutdown with no injection subsystems or alternate injection subsystems running?

Given the following RPV level and pressure conditions, in which case is adequate core cooling NOT assured?

- A. Level is -170 inches and rapidly lowering,
Pressure is 300 psig and rapidly lowering.
- B. Level is -180 inches and slowly lowering,
Pressure is 200 psig and slowly rising.
- C. Level is -190 inches and slowly lowering,
Pressure is 300 psig and slowly rising.
- D. Level is -200 inches and slowly lowering,
Pressure is 450 psig and rapidly lowering.

ANSWER: C

A - Adequate core cooling exists with level above the MSCRWL (-186") regardless of trends.

B - Adequate core cooling exists with level above the MSCRWL (-186") regardless of trends.

D - Expected conditions for steam cooling, pressure lowering does not invalidate MZIRWL calcs as does rising pressure in answer C.

K/A

Statement: Knowledge of the parameters and logic used to assess the status of safety functions including ... (2)
Core cooling and heat removal ...

| <u>K/A</u> | <u>RO</u> | <u>SRO</u> | <u>10 CFR 55</u> | <u>TECHNICAL REFs</u> | <u>OBJECTIVE REF</u> |
|------------|-----------|------------|------------------------|--|----------------------|
| 2.4.21 | 4.6 | 4.3 | 41.10 43.5 41.14 | EOP-4, ALC and STC EPSTG-2, Page 12-8 | HLO-512 OBJ- 7 |

TIER/GROUP: 3

LOK: H LOD: 3

ORIGIN: BANK

HISTORY: River Bend NRC Exam 2/2003

BANK QID: 19

PARENT QUESTION FOR MODIFIED RO QUESTION NO. 11

Given the following plant conditions:

- Reactor Power 0% (all rods in)
- Reactor Level +33 inches
- Reactor Pressure 890 psig
- Drywell Pressure 1.5 psid
- Drywell Temperature 138°F
- Containment Temperature 88°F
- Containment Pressure 0.35 psig
- Annulus Differential Pressure -4.5 in.WC

Based on the above conditions, which one of the following describes the Emergency Operating Procedures that should be entered?

- A. EOP-1 ONLY
- B. EOP-1 and 2
- C. EOP-2 ONLY
- D. EOP-2 and 3

ANSWER: C

| | | | | |
|---------------------------|--------------------------------|--------------|-----------|------------|
| <u>TRAINING OBJECTIVE</u> | <u>TECHNICAL REFs</u> | <u>K/A</u> | <u>RO</u> | <u>SRO</u> |
| HLO-514OBJ- 4 | EOP-2, Entry Conditions | 2.4.4 | 4 | 4.3 |

BANK QID: 10

PARENT QUESTION FOR MODIFIED RO QUESTION NO. 13

A MSIV Closure - ATWS has occurred with the plant at 35% power.

Injecting boron BEFORE reaching the Boron Injection Initiation Temperature (BIIT) of 110°F . . .

- A. prevents exceeding the Heat Capacity Temperature Limit (HCTL).
- B. ensures that Emergency Depressurization will NOT be required during ATWS conditions.
- C. violates the intent of EOP-1A, Step RQA-13, "WHEN it has been determined that SP temp. CANNOT be maintained below 110°F."
- D. ensures Hot Shutdown Boron Weight will be injected before suppression pool temperature reaches the value at which a scram is required by Technical Specifications.

ANSWER: A

| | | | | |
|---------------------------|---------------------------|----------------------|------------|------------|
| <u>TRAINING OBJECTIVE</u> | <u>TECHNICAL REFs</u> | <u>K/A</u> | <u>RO</u> | <u>SRO</u> |
| HLO-513OBJ- 4 | EPSTG-2, Page 7-68 | 295026 EK3.04 | 3.7 | 4.1 |

BANK QID: 848

PARENT QUESTION FOR MODIFIED RO QUESTION NO. 29

Given the following initial plant conditions:

RHR loop "B" is in Shutdown Cooling (SDC) mode.
Coolant temperature is 300 degrees F.
RPV pressure is 65 psig.

SELECT the statement that describes the effect on the Shutdown Cooling (SDC) Suction Isolation Inboard and Outboard Valves (E12-F009 and E12-F008) if the 4.16 KV bus ENS*SWG1B trips and locks out.

- a. E12-F008 and E12-F009 will isolate due to the loss of power.
- b. E12-F008 will isolate due to the loss of power, E12-F009 will not.
- c. E12-F009 isolates if RPV level reaches 9.7", E12-F008 will not isolate due to a loss of power.
- d. E12-F008 isolates if RPV level reaches 9.7", E12-F009 will not isolate due to a loss of power.

ANSWER: d.

| | | | | |
|---------------------------|-----------------------|--------------|-----------|------------|
| <u>TRAINING OBJECTIVE</u> | <u>TECHNICAL REFs</u> | <u>K/A</u> | <u>RO</u> | <u>SRO</u> |
| HLO-021OBJ- 6b | SOP-0031 ATT 3 | 205000 K6.01 | 3.3 | 3.4 |
| | AOP-0003 TBL 2 SIG A | | | |
| BANK QID: 828 | SOP-0031 2.2.3.1 | | | |

PARENT QUESTION FOR MODIFIED RO QUESTION NO. 30

The Division 1 Standby Diesel is operating in parallel with off-site power loaded to 3100 KW for a one-hour load test surveillance. A LPCS/RHR A LOCA initiation signal is received.

Which one of the following describes the response of the Standby Diesel Bus to the LOCA signal and LPCS pump breaker closing?

- A. The normal feeder breaker to ENS-SWGR1A will trip due to the LOCA signal to isolate the bus from Off-site power with the diesel connected.
- B. The normal feeder breaker to ENS-SWGR1A will trip due to overcurrent from the LPCS pump starting current.
- C. The Standby Diesel Output Breaker will trip due to the LOCA signal and ENS-SWGR1A will be supplied by Off-site power.
- D. The load from the LPCS pump start will be shared between Off-site power and the Diesel Generator operating in Droop Mode. NO breakers will trip.

ANSWER: C

TRAINING OBJECTIVE
STM-309 OBJ- H8

TECHNICAL REFs
SOP-0053, Page 5
STM-300

K/A
264000 K1.07

RO SRO
3.9 4.1

BANK QID: 792

PARENT QUESTION FOR MODIFIED RO QUESTION NO. 48

At P877, the UO is preparing to parallel the Division I EDG with its respective bus and load to support the monthly run. You note the following indications:

- V1IN-1SYDA01 (Incoming Voltage): 120 VAC
- V1RUN-1SYDA01 (Running Voltage): 120 VAC
- SY-1-1SYDA01 (Stby Bus A Synchroscope): Rotating slowly in the SLOW direction

Which one of the following describes the required actions to be taken by the UO to ensure that the two AC sources are paralleled without incident?

- A. Raise EDG output voltage to ensure that the EDG output (Incoming Voltage) is slightly higher than bus voltage (Running Voltage).
- B. Lower EDG output voltage to ensure that the EDG output voltage (Incoming Voltage) is slightly lower than bus voltage (Running Voltage)
- C. Raise EDG speed (frequency) to ensure that the synchroscope (Stby Bus A Synchroscope) is rotating slowly in the FAST direction.
- D. No further adjustments are necessary prior to closing the EDG output breaker.

ANSWER: C

TRAINING OBJECTIVE
STM-309 OBJ- H3

TECHNICAL REFs
SOP-0053

K/A
262001 K5.01

RO SRO
3.1 3.4

BANK QID: 693

PARENT QUESTION FOR MODIFIED RO QUESTION NO. 62

The plant is operating at 100 % power.

Both Offgas Post Treatment Radiation monitors have alarmed on a High-High-High Radiation signal.

Which one of the following describes the effects on the Offgas System and the Main Condenser?

- A. Offgas will shift into a bypass mode of operation causing Main Condenser vacuum to be lost.
- B. Offgas will isolate only the charcoal adsorbers inlet and outlet valves causing Main Condenser vacuum to be lost.
- C. Offgas will continue operation allowing Main Condenser vacuum to remain constant.
- D. The Offgas System will isolate causing Main Condenser vacuum to be lost.

ANSWER: D

| | | | | |
|---------------------------|-------------------------|---------------------|------------|------------|
| <u>TRAINING OBJECTIVE</u> | <u>TECHNICAL REFs</u> | <u>K/A</u> | <u>RO</u> | <u>SRO</u> |
| OBJ- | AOP-0005 | 271000 K3.01 | 3.5 | 3.5 |
| BANK QID: 607 | ARP-P601-22A-A03 | | | |

PARENT QUESTION FOR MODIFIED RO QUESTION NO. 67

Which ONE of the following describes the BFN print and drawing convention regarding relays?

- a. All relays are shown in their energized condition.
- b. All relays are shown in their de-energized condition.
- c. All relays are shown in their NORMAL condition.
- d. All relays are shown in their ABNORMAL condition.

ANSWER: b

TRAINING OBJECTIVE

TECHNICAL REFs
BFN Prints

K/A
2.1.24

RO SRO
2.8 3.1

BANK QID: 318

PARENT QUESTION FOR MODIFIED SRO QUESTION NO. 81

The plant is operating at 95% power starting up to 100% rated power. A failure of the air supply to the "A" Heater Drain Recirc controller results in a loss of feedwater heating and entry into AOP-0007.

The Reactor Engineer is contacted and runs a Thermal Limits Calculation and determines that MCPR is 1.12

Which one of the following describes the correct actions to be taken for this condition?

- A. No action is required.
- B. Restore MCPR to within the limits within one (1) hour and notify the plant manager within 24 hours.
- C. Restore MCPR to within the limits and insert all insertable control rods within two (2) hours
- D. Restore MCPR to within the limits within two (2) hours and continue the plant startup, otherwise be in Hot Shutdown within six (6) hours.

ANSWER: C

| | | | | |
|---------------------------|----------------------------|------------|-----------|------------|
| <u>TRAINING OBJECTIVE</u> | <u>TECHNICAL REFs</u> | <u>K/A</u> | <u>RO</u> | <u>SRO</u> |
| HLO-401 OBJ- | T.S. 2.1.1.2 T.S. 2.2.2 | 2.2.22 | 3.4 | 4.1 |

BANK QID: 676

PARENT QUESTION FOR MODIFIED SRO QUESTION NO. 82

The plant is performing the In-Service Leak Test (Vessel Hydro) on the reactor following refueling operations. A miscommunication results in a significant reactor pressure increase. Pressure as read on the Control Room Wide Range Pressure indication on 1H13*P680 is pegged upscale.

The Post Accident Pressure recorders on 1H13*P601 indicate pressure has reached 1350 psig.

Which one of the following is a correct statement with regard to the RBS Safety Limit for Reactor Pressure?

- A. Reactor Pressure was greater than the Safety Limit of 1190 psig, as read on the 1H13*P680 Wide Range Instrument for Tech Specs.
- B. Reactor Pressure was greater than the Safety Limit of 1325 psig as read on the Post Accident Pressure indication (on 1H13*P601), which comes from the Water Level instrument's reference legs.
- C. Reactor Pressure was greater than the Safety Limit of 1375 psig as read on the Post Accident Pressure indication (on 1H13*P601), which comes from the Bottom Head pressure tap.
- D. Reactor Pressure was within the Safety Limit of 1550 psig.

ANSWER: B

TRAINING OBJECTIVE
STM-050 OBJ- 10

TECHNICAL REFs
TS 2.0

K/A
2.1.32

RO SRO
3.8

BANK QID: 647

PARENT QUESTION FOR MODIFIED SRO QUESTION NO. 93

Core Alterations are in progress. An irradiated fuel bundle being moved from the reactor cavity to the Spent Fuel Pool becomes ungrappled and falls in to the reactor vessel downcomer area. (Between the vessel wall and the shroud). Bundle integrity is maintained.

Which of the below describes the person at greatest risk?

- A. Mechanic working on SRVs.
- B. Mechanic working on Torus to Drywell Vacuum Breaker.
- C. Refuel SRO on the Bridge.
- D. I&C Technician at SLC Skid.

ANSWER: A

KA 295023 AK1.01 FitzPatrik 7/1/2003 NRC Exam

PARENT QUESTION FOR MODIFIED SRO QUESTION NO. 95

Following the decision to implement AOP-0031, “Shutdown From Outside The Main Control Room”, where must the Operations Shift Manager report?

- A. Division I Remote Shutdown Panel
- B. Division II Remote Shutdown Panel
- C. Operations Support Center
- D. Technical Support Center

ANSWER: d. Technical Support Center

TRAINING OBJECTIVE
HLO-066 OBJ- 12

TECHNICAL REFs
AOP-0031, Page 5

K/A
2.1.8

RO SRO
3.8 3.6

BANK QID: 451

PARENT QUESTION FOR MODIFIED SRO QUESTION NO. 98

The plant is operating at 100% power.

The Control Room Supervisor has a tagout that requires independent verification.

Under which one of the following conditions should a waiver for independent verification be obtained from the Operations Shift Manager?

- A. The components are located inside the Containment over the Hydraulic Control Units.
- B. The valves to be tagged are located near the Main Turbine Stop Valves.
- C. The components involve a Temporary Alteration on the HPCS Diesel Generator Air Start System.
- D. The components to be tagged are required to continue power operation.

ANSWER: B

TRAINING OBJECTIVE
HLO-201 OBJ- 12

TECHNICAL REFs
ADM-0076, Page 15

K/A
2.3.1

RO SRO
2.6 3

BANK QID: 632

PARENT QUESTION FOR MODIFIED SRO QUESTION NO. 99

Given the following conditions:

- The Main Control Room has been evacuated due to a fire.
- All AOP-0031 immediate operator actions are complete, however the shutdown status of the reactor could not be determined prior to evacuation.
- Control of the plant has been established at the Remote Shutdown Panel.
- RPV Water Level is +40 inches being maintained by HPCS and RCIC
- RPV Pressure is being maintained between 926 psig and 1064 psig with SRVs
- SRV B21-F051C is open
- SRV B21-F051G is being cycled to maintain pressure within the pressure band
- Indications of an ATWS exist 12 minutes after evacuating the control room

Which one of the following describes the correct action to be taken by the CRS?

- A. Carry out the actions of AOP-0031 (Shutdown From Outside the Main Control Room) ONLY.
- B. Enter EOP-0001A, RPV Control - ATWS and continue to carry out the actions of AOP-0031.
- C. Enter EOP-0001, RPV Control and continue to carry out the actions of AOP-0031.
- D. Enter EOP-0001, RPV Control and exit AOP-0031.

ANSWER: B

| | | | | |
|---------------------------|-----------------------|------------|-----------|------------|
| <u>TRAINING OBJECTIVE</u> | <u>TECHNICAL REFs</u> | <u>K/A</u> | <u>RO</u> | <u>SRO</u> |
| HLO-537 OBJ- 1 | EPSTG-0002, B-4-7 | 2.4.5 | 2.9 | 3.6 |

BANK QID: 675