U.S. Nuclear Regulatory Commission

Site-Specific RO Written Examination

Applicant Information	
Name:	
Date:	Facility/Unit:
Region: I ☐ II ☐ III ☐ IV ☐	Reactor Type: W ☐ CE ☐ BW ☐ GE ☐
Start Time:	Finish Time:

Instructions

Use the answer sheets provided to document your answers. Staple this cover sheet on top of the answer sheets. To pass the examination, you must achieve a final grade of at least 80.00 percent. Examination papers will be collected 6 hours after the examination begins.

Applicant Certification

All work done on this examination is my own. I have neither given nor received aid.

_____
Applicant's Signature

Results	
Examination Value	_____ Points
Applicant's Score	_____ Points
Applicant's Grade	_____ Percent

Turkey Point Nuclear Plant 2011
Reactor Operator License Examination

1.

Initial Conditions:

- A Loss of Offsite Power has occurred on both Unit 3 and 4 due an electrical grid imbalance.

Current Conditions:

- The crew is performing actions of 3-EOP-ES-0.1, Reactor Trip Response.
- Offsite Power has NOT been restored.
- RCS Thot is 565°F and slowly lowering.
- RCS Tcold is 540°F and slowly lowering.
- S/G Steam Dumps to Atmosphere are modulated open.
- Total AFW flow is 450 gpm and stable.
- All S/G levels indicate 1% NR and rising slowly.

Which ONE of the following describes the MINIMUM required actions In accordance with 3-EOP-ES-0.1?

A. Continue dumping steam. Continue at 450 gpm AFW flow until one S/G is greater than 6% narrow range and then lower AFW flow to just above 345 gpm.

B. Stop dumping steam. Reduce AFW flow to just above 345 gpm until at least one S/G is greater than 32% narrow range.

C. Continue dumping steam. Continue at 450 gpm AFW flow until one S/G is greater than 50% narrow range and then control flow as necessary to maintain 50-60% level.

D. Stop dumping steam. Continue at 450 gpm AFW flow. If cooldown continues, then reduce AFW flow to just above 345 gpm until at least one S/G is greater than 6% narrow range.

2.

Given the following:

- Unit 3 was manually tripped and safety injection was manually actuated due to a Pressurizer Safety Valve leaking.
- The crew is performing actions of 3-EOP-E-0, Reactor Trip or Safety Injection.

Subsequently,

- All Unit 3 RCPs are manually tripped.
- Tcold is 548°F and slowly RISING.
- Pressurizer Pressure is 1700 psig and slowly LOWERING.
- PZR Level is 33% and slowly RISING.
- PRT Pressure is 30 psig.
- S/G Pressures are at 1015 psig.
- PI-3-1406, Condenser Vacuum, indicates 18" Hg and stable.

Which ONE of the following completes the statements below?

The downstream tailpipe temperature is ___(1)___.

The Steam Dump To Atmosphere Valves are operated by ____(2)____ to meet the RCS temperature requirements in accordance with 3-EOP-E-0.

REFERENCE PROVIDED

A. (1) 275°F
(2) Manually adjust the S/G Steam Dump To Atmosphere Controller Setpoint in Automatic by pushing the "SV Decrease Key "(arrow points down).

B. (1) 275°F
(2) Manually adjust the S/G Steam Dump To Atmosphere Controller Setpoint in Automatic by pushing the "MV Increase Key "(arrow points to the right).

C. (1) 400°F
(2) Manually adjust the S/G Steam Dump To Atmosphere Controller Setpoint in Automatic by pushing the "SV Decrease Key "(arrow points down).

D. (1) 400°F
(2) Manually adjust the S/G Steam Dump To Atmosphere Controller Setpoint in Automatic by pushing the "MV Increase Key "(arrow points to the right).

3.

Given the following conditions:

- The crew is performing the actions in 3-EOP-ES-1.2, Post LOCA Cooldown and Depressurization.
- SI pumps have been stopped.
- Normal charging is aligned.
- The crew is cooling down and depressurizing the RCS using normal spray.

Which ONE of the following identifies the reason why subcooling is controlled during RCS depressurization while in 3-EOP-ES-1.2?

A. To ensure continued RCP operation.

B. To reduce RCS break flow.

C. To prevent a challenge to the Core Cooling CSF.

D. To prevent a challenge to the Integrity CSF.

4.

The following plant conditions exist when exiting 3-EOP-E-0, Reactor Trip or Safety Injection:

- Containment Pressure is 29 psig and lowering.
- RCPs have been stopped.
- Core Exit Thermocouples are 710°F and rising.
- PZR Level is off scale low.
- RCS Pressure is 400 psig and lowering.
- RCS Wide Range Hot Leg Temperatures are 680°F and rising.

Which ONE of the following identifies (1) the initiating event and (2) the NEXT required procedure?

A. (1) A Faulted S/G Inside Containment
(2) Transition to 3-EOP-FR-Z.1, Response to High Containment Pressure

B. (1) A Faulted S/G Inside Containment
(2) Transition to 3-EOP-FR-C.2, Response to Degraded Core Cooling

C. (1) A RCS Cold Leg Break
(2) Transition to 3-EOP-FR-Z.1, Response to High Containment Pressure

D. (1) A RCS Cold Leg Break
(2) Transition to 3-EOP-FR-C.2, Response to Degraded Core Cooling

5.

Given the following:

- Unit 3 was operating at 100% power when a Loss of Offsite Power occurred on both units.
- The operating crew has implemented 3-EOP-ES-0.1, Reactor Trip Response.
- RCS Pressure is 2210 psig and stable.
- Pressurizer Level is 35% and lowering.
- Tavg is 552 °F and lowering.
- Containment Temperature is 170°F.
- Offsite Power is expected to be restored within 24 hours.

Which ONE of the following identifies the required S/G level control band setpoints and the reason for the band in accordance with 3-EOP-ES-0.1, Reactor Trip Response, Basis Document?

A. (1) BETWEEN 15% and 50%
(2) to preclude AFW auto re-initiation AND establish a heat sink which will enhance natural circulation

B. (1) BETWEEN 32% and 50%
(2) to preclude AFW auto re-initiation AND establish a heat sink which will enhance natural circulation

C. (1) BETWEEN 15% and 50%
(2) to enhance natural circulation AND ensure a Steam Generator Tube Leak is NOT in progress

D. (1) BETWEEN 32% and 50%
(2) to enhance natural circulation AND ensure a Steam Generator Tube Leak is NOT in progress

6.

The crew has transitioned from 3-EOP-ECA-0.0, Loss of All AC Power, to 3-EOP-ECA-0.1, Loss of All AC Power Recovery Without SI Required.

The following plant conditions exist:

- Annunciator A 1/2, RCP THERMAL BARR COOLING WATER HI TEMP, is lit.
- Annunciator A 1/6, RCP #1 SEAL LEAK OFF HI TEMP, is lit.
- Common Seal Water Return Temperature to CVCS is 250°F.
- No. 1 Seal Water Outlet Temperature for all RCPs is 250°F.
- RCP Thermal Barrier CCW Outlet Valve, MOV-3-626, is closed.
- RCP Seal Injection Throttle Valves, 3-297A, 3-297B, and 3-297C were initially isolated.

Which ONE of the following describes (1) the required actions and (2) the reason for this action?

A. (1) RCP Seal Injection Throttle Valves, 3-297A, 3-297B, and 3-297C, must be left closed.

(2) To prevent thermal shock to the RCP Seals

B. (1) RCP Seal Injection Throttle Valves, 3-297A, 3-297B, and 3-297C, must be left closed.

(2) To prevent water hammer in the RCP Thermal Barrier Heat Exchanger

C. (1) RCP Seal Injection Throttle Valves, 3-297A, 3-297B, and 3-297C are required to be locally throttled open to establish flow of 2 gpm.

(2) To prevent thermal shock to the RCP Seals

D. (1) RCP Seal Injection Throttle Valves, 3-297A, 3-297B, and 3-297C, are required to be locally throttled open to establish flow of 2 gpm.

(2) To prevent water hammer in the RCP Thermal Barrier Heat Exchanger

7.

Given the following initial conditions:

- Unit 3 is cooling down using 'A' RHR Train.
- RCS temperature is 310°F.
- RCS pressure is 340 psig.
- PZR level is 22%.

Subsequently:

- PZR level is at 10% and slowly lowering.
- Charging is at maximum flow.
- Letdown is isolated.
- Containment radiation levels are rising.
- The running RHR pump trips.

Which ONE of the following actions is performed FIRST in accordance with 3-ONOP-041.7, Shutdown LOCA [Mode 3 (Less than 1000 PSIG) or Mode 4]?

A. Actuate Safety Injection

B. Manually align High Head Safety Injection Pumps to RCS Cold Legs

C. Restore power and open Unit 3 SI Accumulator Outlet Valves

D. Manually align the non-operating train of RHR for Injection

8.

Given the following conditions:

- Unit 3 Reactor power is 100%.
- Pressurizer Pressure Control is in automatic.
- An operator inadvertently sets PC-3-444J, Pressurizer Pressure Controller potentiometer, fully clockwise (10.0).

Which ONE of the following describes the IMMEDIATE response of the Pressurizer Pressure Control System?

A. Pressurizer PORV, PCV-3-455C will open.

B. Both Pressurizer Spray Valves will open.

C. Backup Group A and B Pressurizer Heaters energize.

D. Control Group Pressurizer Heaters reduce to minimum current.

9.

Given the following conditions:

- Unit 3 is at 90% power.
- RPS Testing is in progress.
- Reactor Trip Breaker A (RTA) is CLOSED.
- Reactor Trip Breaker B (RTB) is OPEN.
- Reactor Trip Bypass Breaker B (BYB) is Racked In and CLOSED.

During the testing the following occurs:

- The "A" RCP shaft seizes.
- A Reactor Trip signal is NOT generated by Protection Train B.
- Protection Train A generates a Reactor Trip signal as designed.
- The Reactor does NOT automatically trip.
- Manual Reactor Trip was successful.

Which ONE of the following identifies ALL the Reactor Trip Breaker Trip Coils and Reactor Trip Bypass Breaker Trip Coils that have changed state to trip the Reactor?

A. The RTA Undervoltage Trip Coil and the BYB Shunt Trip Coil only.

B. The RTA Shunt Trip Coil and the BYB Shunt Trip Coil only.

C. The RTA Undervoltage Trip Coil, the RTA Shunt Trip Coil, and the BYB Undervoltage Trip Coil only.

D. The RTA Undervoltage Trip Coil, the RTA Shunt Trip Coil, the BYB Undervoltage Trip Coil, and the BYB Shunt Trip Coil only.

10.

Given the following:

- A Steam Generator Tube Rupture has occurred on 3C S/G.
- RCS cooldown and depressurization is complete.
- Preparations are made to transition to 3-EOP-ES-3.1, Post SGTR Cooldown using Backfill.
- Pressurizer Level is 38%.
- 3B RCP is running.
- RCS Subcooling is 40°F.
- Letdown is isolated and unavailable.
- 3C S/G Narrow Range Level is 73% and slowly rising.

Which ONE of the following identifies the MINIMUM required action and the reason in accordance with 3-EOP-E-3, Steam Generator Tube Rupture?

A. Open one Pressurizer PORV to raise PZR Level

B. Open one Pressurizer PORV to minimize RCS leakage

C. Open PCV-3-455B Pressurizer Spray Valve to minimize RCS leakage

D. Open PCV-3-455A Pressurizer Spray Valve to raise PZR Level

11.

Given the following conditions:

- A steamline break has occurred on Unit 3 Turbine Deck.
- The Main Steamline Isolation Valves are OPEN and cannot be closed using the control switches on Console 3C02 or pushbuttons on VPB.

Which ONE of the following identifies the NEXT required action and where it is accomplished in accordance with 3-EOP-ECA-2.1, Uncontrolled Depressurization of All Steam Generators?

A. Pull fuses behind Console 3C02 for **ONLY** ONE train of solenoids for the MSIVs

B. Pull fuses behind Console 3C02 for **BOTH** trains of solenoids for the MSIVs

C. Pull fuses at the Alternate Shutdown Panel for **ONLY** ONE train of solenoids for the MSIVs

D. Pull fuses at the Alternate Shutdown Panel for **BOTH** trains of solenoids for the MSIVs

12.

Given the following:

- Unit 4 is at 70% power.
- Steam Generator Main Feed Pumps 4A and 4B are in service.

Subsequently,

- 4A Steam Generator Main Feed Pump trips.
- Alarm SGFP A/B MOTOR OVERLOAD TRIP (D 6/1) is received.
- Turbine Load remains stable.

Which ONE of the following describes the required action and the reason for this action?

A. Manually open the Main Feedwater Regulating Valves to stabilize S/G levels

B. Start the standby Condensate Pump to maintain Main Feed Pump suction pressure

C. Manually reduce turbine load to prevent exceeding rod insertion limits

D. Manually reduce turbine load to reduce steam demand to stabilize S/G levels

13.

Given the following:

- A station blackout occurred on Unit 3.
- The operating crew is performing 3-EOP-ECA-0.0, Loss of All AC Power.
- NEITHER Unit 3 EDG can be started.
- The 4KV Bus 3B Lockout Blue lights are flashing.
- BOTH Unit 4 EDGs are operating and supplying their respective 4 KV Busses.
- Off-Site power availability is NOT expected within the next 2 hours.

Which ONE of the following describes the actions that are necessary to restore power?

Align 4KV Bus ___(1)___ using the Station Blackout Tie Line in accordance with ___(2)___.

A. (1) 3A
(2) 3-ONOP-004.1, System Restoration Following Loss of Offsite Power

B. (1) 3B
(2) 3-ONOP-004.3, Loss of 3B 4KV Bus

C. (1) 3B
(2) 3-ONOP-004.1, System Restoration Following Loss of Offsite Power.

D. (1) 3A
(2) 3-ONOP-004.2, Loss of 3A 4KV Bus

14.

Given the following:

- The station experiences a Loss of Offsite Power.
- One of the undervoltage relays for the 4B 4KV Bus fails to actuate.
- All 480V Load Center undervoltage and degraded voltage relays operate properly.

For Unit 4, which ONE of the following describes (1) the bus-stripping response and (2) the response of the EDG(s) Output Breakers?

A. (1) Bus stripping will occur ONLY on Bus 4A;
(2) ONLY the 'A' EDG output breaker will close.

B. (1) Bus stripping will occur on Bus 4A AND on Bus 4B;
(2) ONLY the 'A' EDG output breaker will close.

C. (1) Bus stripping will occur ONLY on Bus 4A;
(2) BOTH the 'A' EDG AND the 'B' EDG output breakers will close.

D. (1) Bus stripping will occur on Bus 4A AND on Bus 4B;
(2) BOTH the 'A' EDG AND the 'B' EDG output breakers will close.

15.

Unit 3 is operating at 100% power when VITAL AC BUS INVERTER TROUBLE (F 1/2) alarms.

Subsequently, the following annunciators are received (NOT all inclusive):

- POWER RANGE LOSS OF DETECTOR VOLTAGE (B 6/5)
- INTERM RANGE N-35 LOSS OF COMP VOLTAGE (B 5/3)
- SEQUENCER 3B TROUBLE (X1/4)

Which one of the following identifies the vital panel that has lost power and the expected consequence?

A. 3P08 lost power; control 3A S/G level in manual

B. 3P08 lost power; control 3C S/G level in manual

C. 3P06 lost power; control 3A S/G level in manual

D. 3P06 lost power; control 3C S/G level in manual

16.

Given the following:

- At Unit 3, a loss of Component Cooling Water (CCW) occurs and the operating crew implements 3-ONOP-030, Component Cooling Water Malfunction.
- Emergency cooling water is being aligned to the operating 3A Charging Pump's Oil Cooler per Attachment 1, Control of Emergency Cooling Water to Charging Pumps, of 3-ONOP-030.
- Subsequently, a Loss of Offsite Power occurs and the Diesel Driven Service Water pump cannot be started.

Which ONE of the choices below completes both statements regarding 3A Charging Pump operation in accordance with 3-ONOP-030 Attachment 1?

The 3A Charging Pump is required to be operated at ___(1)___ speed until Attachment 1 is complete.

If hydraulic coupling oil temperature (indicated temperature at the oil cooler outlet) reaches 195°F, the required action is to ___(2)___ .

A. (1) REDUCED (but above minimum)
(2) stop 3A Charging Pump

B. (1) REDUCED (but above minimum)
(2) reduce 3A Charging Pump speed to MINIMUM speed

C. (1) MAXIMUM
(2) stop 3A Charging Pump

D. (1) MAXIMUM
(2) reduce 3A Charging Pump speed to MINIMUM speed

17.

Given the following:

- Unit 3 is in MODE 4, cooling down to MODE 5.
- 3B RCP is running.
- ONE train of Unit 3 RHR is operating in the cooldown mode.
- Unit 4 is operating at 100% power.
- Instrument Air Pressure for both units cannot be maintained greater than 65 psig.

Which ONE of the following completes both statements in accordance with ONOP-013, Loss of Instrument Air?

In order to safely continue the Unit 3 cooldown the operators are required to ____(1)____.

The Unit 4 Reactor is required to be tripped because of the challenge to ____(2)____.

	UNIT 3	**UNIT 4**
A.	Start / Stop RHR Pumps on VPB	Reactivity Control
B.	Start / Stop RHR Pumps on VPB	Reactor Coolant Heat Removal
C.	Throttle from VPB MOV-3-749A/B, RHR Hx 3A/B CCW Outlet Valves	Reactivity Control
D.	Throttle from VPB MOV-3-749A/B, RHR Hx 3A/B CCW Outlet Valves	Reactor Coolant Heat Removal

18.

Unit 3 has experienced a unit trip with a failure of Auxiliary Feedwater to supply feed flow to S/Gs. The crew has entered 3-EOP-FR-H.1, Response to Loss of Secondary Heat Sink.

Other plant conditions are as follows:

- All RCPs have been tripped
- Safety Injection Signal has been reset

Containment Conditions
- Atmospheric Air Temperature: 155°F
- Pressure: 0.5 psig
- CHRRMS Radiation Levels: 1R/hr

S/G Wide Range (WR) Levels
- 3A S/G: 24%
- 3B S/G: 34%
- 3C S/G: 25%

In accordance with 3-EOP-FR-H.1, which ONE of the following identifies whether (1) the Feedwater Bypass Isolation Reset Pushbuttons are required to be depressed to restore Feedwater to the S/Gs and (2) if any, feedwater flow restrictions apply?

A. (1) NOT required to be depressed
(2) Main Feedwater flow may be adjusted with no restrictions

B. (1) Required to be depressed
(2) Main Feedwater flow may be adjusted with no restrictions

C. (1) NOT required to be depressed
(2) Main Feedwater flow is limited to 25 gpm

D. (1) Required to be depressed
(2) Main Feedwater flow is limited to 25 gpm

19.

Given the following:

- Unit 4 is operating at 80% power with all parameters at program values.
- All control systems are aligned in automatic.
- Control Bank "D" control rods are at 215 steps.
- ONE Control Bank "C" control rod is dropped, indicating 0 steps.

Which ONE of the following describes (1) the INITIAL Rod Control Power Mismatch Circuit response to the dropped rod and (2) whether power is required to be reduced?

A. (1) A Rod Control Insertion Demand Signal is generated.
(2) Perform a power reduction.

B. (1) A Rod Control Insertion Demand Signal is generated.
(2) A power reduction is NOT required.

C. (1) A Rod Control Withdrawal Demand Signal is generated.
(2) Perform a power reduction.

D. (1) A Rod Control Withdrawal Demand Signal is generated.
(2) A power reduction is NOT required.

20.

Given the following:

- Unit 3 is at 88% power
- During a load reduction, it was determined that 2 rods are mechanically bound.
- One Control Rod in Bank D Group 1 is stuck at 196 steps.
- One Control Rod in Bank D Group 2 is stuck at 196 steps.
- All other Control Bank D Rods are at 192 steps.

In accordance with Technical Specification 3.1.3.1, Movable Control Assemblies - Group Height, which ONE of the following identifies the MINIMUM required action within ONE hour?

A. Perform 0-OSP-028.8, Shutdown Margin Calculation.

B. Be in HOT STANDBY.

C. Perform 3-OSP-059.10, Quadrant Power Tilt Ratio Calculation.

D. Perform 3-OSP-059.9, Computer Axial Flux Monitor Verification.

21.

Given the following:

- Unit 3 is at 100% power.
- Boron Concentration is 450 ppm.
- Shutdown Margin (SDM) is 1.25% $\Delta k/k$.

Which ONE of the following describes the MINIMUM required actions, if any, by Technical Specification 3.1.1.1, Shutdown Margin - Tavg Greater than 200°F?

REFERENCE PROVIDED

A. No Tech Spec actions are required.

B. Immediately initiate RCS boration with at least 16 gpm.

C. Immediately initiate an emergency boration with at least 45 gpm.

D. Be in HOT STANDBY within 6 hours.

22.

Given the following:

- A reactor startup is in progress on Unit 4.
- Tavg is 547°F.
- Control Bank "D" is at 50 steps.
- Both Source Range channels indicate approximately 2 X 10^{3} CPS.
- Both Intermediate Range channels indicate approximately 3 X 10^{-11} amps.
- Source Range Channel N-31 fails LOW.
- Audio Count Rate Selector is selected to N-31.

Which ONE of the following describes whether the startup may continue in accordance with Technical Specifications and the reason?

A. The startup may continue because Gammametrics are available.

B. The startup may continue because the plant is above P-6.

C. The startup may NOT continue because of a loss of the SR Audio Count Rate

D. The startup may NOT continue because the plant is below P-6.

23.

Given the following:

- Unit 3 is at 25% power and raising power.
- Annunciator INTERM RANGE N-35 LOSS OF COMP VOLTAGE (B 5/3) alarms.

Intermediate Range N-35 Drawer Indications

- N-35 Drawer – LOSS OF DETECTOR VOLT light is ON.
- N-35 Drawer – LOSS OF COMP. VOLT light is ON.
- N-35 Drawer – HIGH LEVEL TRIP light is ON.

For the given indications, which ONE of the following describes the indications on the INTERMEDIATE RANGE N-35 Drawer and status of the Reactor Trip Breakers?

	Intermediate Range N-35 Drawer Indications	Reactor Trip Breakers
A.	CONTROL POWER ON status light is OFF	are tripped
B.	CONTROL POWER ON status light is OFF	NOT tripped
C.	INSTRUMENT POWER ON status light is OFF	are tripped
D.	INSTRUMENT POWER ON status light is OFF	NOT tripped

24.

Which two of the following Area Radiation Monitors are inputs to Control Room annunciator X 4/1, ARMS HI RADIATION?

A. 1) U-3 Ctmnt High Range Rad. Monitors
AND
2) RAI-6642, Control Room HVAC Radiation Monitor

B. 1) U-3 Ctmnt High Range Rad. Monitors
AND
2) U-4 New Fuel Storage Area

C. 1) Spent Fuel Pit Exhaust Duct
AND
2) U-4 New Fuel Storage Area

D. 1) Spent Fuel Pit Exhaust Duct
AND
2) RAI-6642, Control Room HVAC Radiation Monitor

25.

Given the following:

The Control Room directs the ANPO to perform a Emergency/Manual Start of the Diesel Driven Fire Pump (DDFP).

The MINIMUM required action(s) to locally start the DDFP in accordance with 0-OP-016.1, Fire Protection Water System, Section 7.8, Emergency/Manual Start of the DDFP is/are to....

A. Throttle open the Gauge Test Line Drain, 10-1054.

B. Throttle closed the DDFP Mercoid Sensing Line Isolation Valve 10-769.

C. Ensure Battery 1 & 2 Switches are ON, place the Control Switch to MANUAL, and push the CRANK 1 pushbutton.

D. Ensure Battery 1 & 2 Switches are ON and push the CRANK 1 & CRANK 2 pushbuttons simultaneously.

26.

Which ONE of the following describes the LOWEST S/G pressure that will meet the entry conditions of 3-EOP-FR-H.2, Response to Steam Generator Overpressure, and a required action listed in this procedure?

A. 1075 psig; manually open the S/G Steam Dump to Atmosphere Valve

B. 1135 psig; manually open the S/G Steam Dump to Atmosphere Valve

C. 1075 psig; initiate S/G Blowdown flow from the affected S/G

D. 1135 psig; initiate S/G Blowdown flow from the affected S/G

27.

Given the following:

- A LOCA has occurred on Unit 3.
- RCS pressure is 100 psig.
- Containment pressure is 38 psig.
- Containment High Range Area Radiation Monitors (CHRRMS) are 6E5 R/HR.
- Actions of 3-EOP-FR-Z.3, Response to High Containment Radiation Level, are in progress.

In accordance with 3-EOP-FR-Z.3, which ONE of the following describes (1) the bases for starting Emergency Containment Filter Fans and (2) the reason for installing the Containment Purge Isolation Valve fuses?

A. (1) To reduce the iodine concentration in the Containment atmosphere
(2) To verify the Containment Ventilation Isolation Valves are closed

B. (1) To provide mixing and cooling of Containment atmosphere
(2) To lower Containment pressure when normal methods are unavailable

C. (1) To reduce the iodine concentration in the Containment atmosphere
(2) To lower Containment pressure when normal methods are unavailable

D. (1) To provide mixing and cooling of Containment atmosphere
(2) To verify the Containment Ventilation Isolation Valves are closed

28.

Given the following:

- Unit 3 is operating at 100% power with all controls in Automatic.
- HIC-3-121, Charging Flow to Regen Hx Controller, is at 50% demand.

Which ONE of the following completes the following statement?

IF the pneumatic supply is lost to HCV-3-121, Charging Flow to Regen HX, THEN HCV-3-121 will fail to the fully _____ position, and the RCP seal injection flow rate will _____.

A. (1) open
(2) rise

B. (1) open
(2) lower

C. (1) closed
(2) rise

D. (1) closed
(2) lower

29.

Given the following:

- Unit 4 is at 100% power.
- Pressurizer level is 55% and stable following IST on the 4A Charging Pump.
- Letdown Orifice CV-4-200C is in service.
- Excess Letdown is in service.
- VCT level is 30% and stable.

The crew places letdown orifice CV-4-200A in service to lower Pressurizer level.

Which ONE of the following identifies (1) if a CVCS Demineralizer Letdown flow design limit was exceeded after the second orifice was placed in service AND (2) the effect on Letdown flow if PCV-4-145, Low Pressure Letdown Valve, subsequently fails OPEN?

A. (1) WAS exceeded
(2) Will initially rise

B. (1) WAS NOT exceeded
(2) Will initially rise

C. (1) WAS exceeded
(2) Will initially lower

D. (1) WAS NOT exceeded
(2) Will initially lower

30.

Given the following conditions:

- Unit 3 is in Mode 4 and shutting down for refueling.
- 3B RHR Cooling Train is in service.
- A tube leak occurs in the 3B RHR Exchanger.

Which ONE of the following identifies (1) a symptom of the tube leak and (2) assuming no operator action, the response of the RHR Hx Bypass Flow Valve, FCV-3-605?

A. (1) CCW Head Tank level lowers
(2) Closes

B. (1) CCW Head Tank level lowers
(2) Opens

C. (1) RCS level lowers
(2) Closes

D. (1) RCS level lowers
(2) Opens

31.

Emergency Core Cooling System components operate in the following Modes of Operation: passive accumulator injection, ____(1)____, and cold/hot leg recirculation.

When these ECCS Modes of Operation are unavailable during a Large Break Loss of Coolant Accident, then the General Design Criteria of 10 CFR 50.46 could exceed the Peak Cladding Temperature Limit of ___(2)___ .

(Assume NO operator action.)

A. (1) hot leg injection
(2) 1800°F

B. (1) hot leg injection
(2) 2200°F

C. (1) cold leg injection
(2) 1800°F

D. (1) cold leg injection
(2) 2200°F

32.

Given the following:

- Unit 3 was initially at 100% power.
- RCS Activity level is 5.61×10^{-2} µCi/gm.
- A Reactor Trip and Safety Injection (SI) occurred due to Pressurizer Safety Valve RV-3-551B failing open.
- PRT pressure was 85 psig and rising steadily.

Which ONE of the following predicts Containment conditions within the next hour?

A. Containment Sump levels will remain constant
Containment Conditions will become ADVERSE

B. Containment Sump levels will rise
Containment Conditions will become ADVERSE

C. Containment Sump levels will remain constant
Containment Conditions will NOT become ADVERSE

D. Containment Sump levels will rise
Containment Conditions will NOT become ADVERSE

33.

Unit 3 is at 100% power.

- Total CCW Thermal Barrier Return Flow is 85 gpm.

Subsequently,

- The 3A RCP Thermal Barrier Heat Exchanger develops a leak of 25 gpm.
- CCW Head Tank Level is 80% and slowly rising.
- PRMS HI RADIATION H 1/4 is in alarm due to CCW Radiation Monitor R-3-17A/B.

Which ONE of the following states (1) the position of RCV-3-609, Head Tank Vent Valve, and (2) the position of MOV-3-626, RCP Thermal Barrier Return Isolation Valve, based on the above conditions?

A. (1) open
(2) open

B. (1) open
(2) closed

C. (1) closed
(2) open

D. (1) closed
(2) closed

34.

Given the following:

- Unit 3 is operating at 50% power.
- ALL Pressurizer pressure controls are in AUTO.
- PT-3-444, Pressurizer Pressure Transmitter, fails LOW.

Which ONE of the choices below completes the following sentence?

With no operator action over the next half hour, Unit 3 will ___(1)___ and RCS pressure will cycle around ___(2)___.

A. (1) trip
(2) PORV PCV-3-456 Setpoint

B. (1) trip
(2) PORV PCV-3-455C Setpoint

C. (1) remain at power
(2) PORV PCV-3-456 Setpoint

D. (1) remain at power
(2) PORV PCV-3-455C Setpoint

35.

In accordance with 0-ADM-536, Technical Specification Bases Control Program, which ONE of the following Reactor Trip Setpoints provides reactor core protection against Departure from Nucleate Boiling (DNB)?

A. Steam/Feedwater Flow Mismatch and Low Steam Generator Water Level

B. Reactor Coolant Pump Breaker Position Trip

C. Pressurizer Water Level

D. Power Range Neutron Flux – Low Range

36.

Given the following:

- Unit 3 is at 100% power.
- Pressurizer Pressure is at 2235 psig.
- Pressurizer Pressure Protection Channel PT-3-455 failed.
- All actions of 3-ONOP-049.1, Deviation or Failure of Safety Related or Reactor Protection Channels, were completed.

Which ONE of the following identifies (1) the status of the permissive "BLOCK LOW PRZ. PRESS. S.I." light on VPA and (2) the MINIMUM number of additional Pressurizer Pressure Channels required to automatically actuate a Safety Injection on Pressurizer Low Pressure?

	Block Light (permissive)	Channels
A.	On	One
B.	On	Two
C.	Off	One
D.	Off	Two

37.

Given the following:

- Unit 3 is at 100% power.
- An automatic Safety Injection occurs.

Which ONE of the following identifies (1) the Emergency Containment Coolers (ECCs) which will receive an automatic start signal and (2) the position of the associated CCW Cooling Water Outlet Valve if one of these ECCs fails to start?

A. (1) 3A and 3C ECC
(2) closed

B. (1) 3A and 3C ECC
(2) open

C. (1) 3B and 3C ECC
(2) closed

D. (1) 3B and 3C ECC
(2) open

38.

Given the following:

- Unit 4 was operating at 100% power.
- Unit 4 has experienced a Loss of Coolant Accident (LOCA) with a Loss of Offsite Power (LOOP).
- The crew has entered to 4-EOP-E-1, Loss of Reactor or Secondary Coolant.
- RCS pressure lowered to 475 psig.
- Containment pressure peaked at 22 psig and is now 13 psig and lowering.

In accordance with 4-EOP-E-1, Loss of Reactor or Secondary Coolant, which ONE of the following identifies (1) the temperature at which the Containment Spray Pump must be stopped and (2) the time when two Emergency Containment Coolers are required to be in operation?

	Containment Temperature	Time After LOCA Initiation
A.	<180°F	12 hrs
B.	<122°F	24 hrs
C.	<180°F	24 hrs
D.	<122°F	12 hrs

39.

Which ONE of the following completes the statement below with respect to how the High Main Steam Line Flow with Low Tavg Isolation Setpoint changes with power?

The isolation setpoint is _____ steam flow at _____ power and then increases linearly to about 120% steam flow at 100% power.

A. 40%; 0%

B. 20%; 0%

C. 40%; 20%

D. 20%; 20%

40.

Given the following:

- Unit 4 experienced a Reactor Trip from 100% power due to a failed open Main Feedwater Regulating Valve.
- A Feedwater Isolation Signal was generated.

With repairs complete, Unit 4 is preparing for startup:

- S/G Narrow Range Levels are 45%, 55%, 68% and stable.
- Tave is 543°F and stable.
- Pressurizer Pressure is 2235 psig and stable.

Which ONE of the following describes the MINIMUM action(s) necessary to reset the Main Feedwater Regulating Valve's SLOW Close Solenoid?

A. Reset Feedwater Bypass Isolation using the pushbuttons on VPB ONLY

B. Close the Reactor Trip Breakers ONLY

C. Close the Reactor Trip Breakers AND Reset Feedwater Bypass Isolation using the pushbuttons on VPB ONLY

D. Raise Tave to greater than 554°F, close the Reactor Trip Breakers, AND Reset Feedwater Bypass Isolation using the pushbuttons on VPB

41.

Given the following:

- Unit 4 was operating at 100% power.
- A Reactor Trip due to a Loss of Main Feedwater.
- 4B 4KV Bus is locked out.
- Due to equipment malfunctions, ONLY 'A' AFW Pump is in service.
- The 'A' AFW Pump speed has begun to slowly LOWER due to a malfunctioning governor.

Which ONE of the following describes how the change in AFW flow will affect Pressurizer Level, including the reason?

Indicated Pressurizer Level will initially ...

A. rise due to a bubble formation in the Rx Vessel Head

B. rise due to decreased primary to secondary heat transfer

C. lower due to the density change in the RCS

D. lower due to decreasing Charging flow

42.

Given the following:

- Unit 3 is operating at 100% power.
- 3D 4KV Bus is aligned to the 3A 4KV Bus.
- A Loss of Offsite Power occurs.
- A 3A 4KV Bus undervoltage condition occurs and clears after 15 seconds.
- During the transient, the Supply From 4KV Bus 3A, 3AD01, trips OPEN.

(Assume no operator action.)

Which ONE of the following lists the components that have lost their power supply?

A. Component Cooling Water Pump 3C and Emergency Containment Filter Fan 3C

B. Intake Cooling Water Pump 3A and Emergency Containment Cooler Fan 3C

C. Intake Cooling Water Pump 3C and Component Cooling Water Pump 3C

D. Emergency Containment Filter Fan 3A and Emergency Containment Cooler Fan 3C

43.

In accordance with 0-NOP-003.01, 125V Vital DC System, which ONE of the choices below completes the following statements?

If two battery chargers are connected to the battery bank, each battery charger is required to have a minimum output of ___(1)___ amps.

The 125 VDC Battery Terminal MINIMUM Voltage is required to be greater than or equal to ___(2)___ VDC.

A. (1) 10
(2) 129

B. (1) 10
(2) 105

C. (1) 20
(2) 129

D. (1) 20
(2) 105

44.

Given the following:

- Unit 3 is operating at 100%.
- 3A Emergency Diesel Generator (EDG) has been started manually from the control room in accordance with 3-OSP-023.1, Diesel Generator Operability Test.

Which ONE of the following completes the following statements?

In accordance with 3-OSP-23.1 the desired ratio of load (watts) to reactive load (vars) is required to be maintained approximately ___(1)___.

The generator is operated in the LAG position to protect against ___(2)___.

A. (1) 1:1
(2) overheating generator windings

B. (1) 1:1
(2) disruption of the rotor/stator coupled magnetic field

C. (1) 2:1
(2) disruption of the rotor/stator coupled magnetic field

D. (1) 2:1
(2) overheating generator windings

45.

Which ONE of the following describes (1) an initiating signal to cause a Control Room Ventilation Isolation and (2) the order in which the Emergency Air Supply Fans, SF-1A (V-29A) and SF-1B (V-29B) start in Recirculation mode?

A. (1) RAI-6642, Control Room HVAC Radiation Monitor high alarm
(2) SF-1A starts first, SF-1B starts only on LOW flow

B. (1) RI-1420B, Unit 3 & 4 Control Room Area Radiation Monitor high alarm
(2) SF-1A starts first, SF-1B starts only on LOW flow

C. (1) RAI-6642, Control Room HVAC Radiation Monitor high alarm
(2) SF-1B starts first, SF-1A starts only on LOW flow

D. (1) RI-1420B, Unit 3 & 4 Control Room Area Radiation Monitor high alarm
(2) SF-1B starts first, SF-1A starts only on LOW flow

46.

Which ONE of the choices completes the statement below regarding limitations placed on the Intake Cooling Water Pump in accordance with 3-NOP-019, Intake Cooling Water System?

If an ICW Pump has a MAXIMUM flow greater than ___(1)___ gpm for more than twenty minutes, then the MINIMUM required action(s) is/are to ___(2)___ .

A. (1) 10,000
(2) reduce ICW flow as soon as possible. NO pump vibration and d/p testing is required

B. (1) 10,000
(2) reduce ICW flow as soon as possible AND perform pump vibration and d/p testing

C. (1) 18,500
(2) reduce ICW flow as soon as possible. NO pump vibration and d/p testing is required

D. (1) 18,500
(2) reduce ICW flow as soon as possible AND perform pump vibration and d/p testing

47.

Given the following:

- The Motor Driven Air Compressor (3CM) is in LEAD.
- The Motor Driven Air Compressor (4CM) is OOS.
- The Diesel Driven Air Compressor (3CD) is in LAG.

Subsequently the following events occur,

- 0100: A valve alignment error caused Instrument Air header pressure to drop to 88 psig.
- 0115: The error was discovered and corrected.
- 0130: Instrument Air header pressure is 94 psig and rising.

Which ONE of the following identifies the status of the Instrument Air Compressors at 0130?

A. 3CD off; 3CM running loaded

B. 3CD running unloaded; 3CM running loaded

C. 3CD running loaded; 3CM running unloaded.

D. 3CD running loaded; 3CM running loaded

48.

Given the following:

- Unit 3 was at 100% power.
- A manual Reactor Trip was initiated.
- A manual Safety Injection was initiated.
- Containment Pressure is 10.0 psig
- ONLY one Containment Phase A pushbutton was depressed.

Which ONE of the following correctly describes the status of the Phase A and Phase B isolation valves BEFORE any additional operator action(s)?

A. NOT all Phase A valves are closed; all Phase B valves are closed.

B. NOT all Phase A valves are closed; all Phase B valves are open.

C. All Phase A valves are closed; all Phase B valves are closed.

D. All Phase A valves are closed; all Phase B valves are open.

49.

Initial conditions:

- Unit 4 is operating at 100% power.
- Annunciator SEAL WATER INJ FILTER HI ΔP (A 6/6) actuates.
- Local investigation indicates that the ΔP is 23 psid.
- RCP seal injection flow is 6.5 GPM per RCP.

Current conditions:

- Standby Seal Water Injection filter was placed in service.
- Filter ΔP is 24 psid.
- RCP Seal Injection flow is 5 GPM per RCP.

Which ONE of the following describes (1) the action required and (2) the impact on RCP operation in accordance with ARP A 6/6 and 3-ONOP-041.1, Reactor Coolant Pump Off-Normal?

A. (1) Bypass the Seal Water Injection Filters
(2) RCPs may be operated indefinitely if CCW is available

B. (1) Isolate Seal Injection
(2) RCPs may be operated indefinitely if CCW is available

C. (1) Bypass the Seal Water Injection Filters
(2) RCPs may ONLY be run for 24 hours without Seal Injection even if CCW is available.

D. (1) Isolate Seal Injection
(2) RCPs may ONLY be run for 24 hours without Seal Injection even if CCW is available.

50.

Given the following:

- Unit 3 is at 100% power.
- Both of the Pressurizer Backup Heater Groups were manually placed in the "ON" position one hour ago for RCS boron equalization.
- Subsequently, PCV-3-455A, Spray Control Valve, fails to 100% OPEN.

With NO operator action, which ONE of the following completes the statement below?

PCV-3-455B Spray Valve _____ and the reactor will_____.

A. closes; trip

B. closes; remain at power

C. remains open; trip

D. remains open; remain at power

51.

The ___(1)___ RPS Trip provides core protection from Departure from Nucleate Boiling (DNB).

The trip setpoint is automatically reduced when RCS pressure ___(2)___.

	(1)	(2)
A.	Overpower ΔT	rises
B.	Overtemperature ΔT	rises
C.	Overpower ΔT	lowers
D.	Overtemperature ΔT	lowers

52.

Which ONE of the following identifies the power supply to 3A EDG Sequencer, and an operational implication when this power supply is lost?

A. 3P07; associated AFW actuation signal is lost

B. 3P07; associated EDG will fail to auto start on undervoltage

C. 3P06; associated AFW actuation signal is lost

D. 3P06; associated EDG will fail to auto start on undervoltage

53.

The CCW flow rate to a Containment Spray Pump Seal Water Heat Exchanger is pre-adjusted to _____.

The CSP A/B COOLING WATER LO FLOW annunciator (H 7/5) setpoint is _____.

A. 38 gpm; 5.0 gpm

B. 15 gpm; 7.7 gpm

C. 15 gpm; 5.0 gpm

D. 38 gpm; 7.7 gpm

54.

Given the following condition:

- Unit 3 is in MODE 1 and all Vital AC Systems are in their normal lineups.
- 3P06 Panel lost power and remained de-energized.

Which ONE of the following completes the statements below?

In accordance with 3-ONOP-003.6, Loss of 120V Vital Instrument Panel 3P06, Panel 3P06 is required to be re-energized from the ___(1)___.

In accordance with Technical Specification 3.8.3.1 Onsite Power Distribution, the LCO is ___(2)___ after 3P06 is re-energized.

A. (1) CS Spare Inverter
   (2) Met

B. (1) CS Spare Inverter
   (2) NOT Met

C. (1) Constant Voltage Transformer (CVT)
   (2) Met

D. (1) Constant Voltage Transformer (CVT)
   (2) NOT Met

55.

Given the following:

- Unit 4 is operating in Mode 3.
- All equipment is operating in a normal lineup.
- The 125 VDC Control Power FU1-UT-P Fuse to 4A RCP Breaker (4AA01) is blown.
- Main Control Board breaker indicating lights for 4A RCP are extinguished.

Which ONE of the following choices identifies (1) the status of the local breaker position indicating lights for 4A RCP Breaker (4AA01) and (2) the effect on the 4A RCP Breaker (4AA01) operation?

REFERENCE PROVIDED

A. (1) Local indicating lights are EXTINGUISHED for 4A RCP Breaker (4AA01).
(2) The 4A RCP Breaker (4AA01) will ONLY open by depressing the Manual Trip Latch on the local breaker.

B. (1) Local indicating lights are EXTINGUISHED for 4A RCP Breaker (4AA01).
(2) The 4A RCP Breaker (4AA01) can be opened locally by placing the NORMAL/ISOLATE switch in ISOLATE and operating the Test Switch for the breaker.

C. (1) Local indicating lights are LIT for 4A RCP Breaker (4AA01).
(2) The 4A RCP Breaker (4AA01) will ONLY open by depressing the Manual Trip Latch on the local breaker.

D. (1) Local indicating lights are LIT for 4A RCP Breaker (4AA01).
(2) The 4A RCP Breaker (4AA01) can be opened locally by placing the NORMAL/ISOLATE switch in ISOLATE and operating the Test Switch for the breaker.

56.

Unit 3 is at 100% power.

3B S/G Steam Dump To Atmosphere Valve, CV-3-1607, fails open.

The 3B RCS Loop ΔT will rise due to ___(1)___.

In accordance with 0-ADM-200, Conduct of Operations, the required operator action to turn and reduce power below 100% is to ___(2)___.

A. (1) Thot initially rising
(2) insert Control Rods

B. (1) Tcold initially lowering
(2) insert Control Rods

C. (1) Tcold initially lowering
(2) reduce Turbine load

D. (1) Thot initially rising
(2) reduce Turbine load

57.

Given the following:

- The plant is operating at 88% power.
- Tref is 571°F.
- Rod Control is in MANUAL.
- Control Bank D rods are at 200 steps.

RCS Tavg Channels

- TI-3-412D, A Loop Temp Avg.: 574.8°F
- TI-3-422D, B Loop Temp Avg.: 575.0°F
- TI-3-432D, C Loop Temp Avg.: 575.2°F

Which ONE of the following completes the statement if the Rod Control Bank Select Switch is placed to the AUTO position?

Rods will initially move at _____and will stop as soon as the difference between Tavg and Tref is _____.

A. 68 SPM; 1.0°F

B. 68 SPM; 1.5°F

C. 40 SPM; 1.0°F

D. 40 SPM; 1.5°F

58.

Which ONE of the following identifies (1) the pressure input to the Subcooled Margin Monitor, and (2) the Core Exit Thermocouple input value used for the associated QSPDS Subcooling Train?

A. (1) Wide Range RCS Pressure
(2) the average of all Core Exit Thermocouple temperatures

B. (1) Narrow Range Pressurizer Pressure
(2) the average of all Core Exit Thermocouple temperatures

C. (1) Wide Range RCS Pressure
(2) the average of the three highest Core Exit Thermocouple temperatures

D. (1) Narrow Range Pressurizer Pressure
(2) the average of the three highest Core Exit Thermocouple temperatures

59.

Given the following:

- Unit 3 is at 100% power.
- A Containment entry will be performed in accordance with 0-ADM-009, Containment Entries When Containment Integrity Is Established.
- A Unit 3 Containment Purge is ongoing in accordance with 3-NOP-053, Containment Purge System with the following fans running:
  - 3V9, U-3 Cntmt Purge Supply Fan
  - 4V20, U-4 Cntmt Purge Exhaust Fan
- 5 minutes after Containment is entered, R-3-12, Gaseous Containment Radiation Monitor, alarms high.
- H 1/4, PRMS Hi Radiation, annunciator is lit.

Which ONE of the following completes the statement below?

Containment entry ___(1)___.

The status of the Containment Purge Supply and Exhaust Fans are ___(2)___.

(Assume no operator actions.)

A. (1) may not proceed

   (2) 3V9, U-3 Cntmt Purge Supply Fan, is running
   4V20, U-4 Cntmt Purge Exhaust Fan, is tripped

B. (1) may not proceed

   (2) 3V9, U-3 Cntmt Purge Supply Fan, is tripped
   4V20, U-4 Cntmt Purge Exhaust Fan, is running

C. (1) may proceed

   (2) 3V9, U-3 Cntmt Purge Supply Fan, is running
   4V20, U-4 Cntmt Purge Exhaust Fan, is tripped

D. (1) may proceed

   (2) 3V9, U-3 Cntmt Purge Supply Fan, is tripped
   4V20, U-4 Cntmt Purge Exhaust Fan, is running

60.

Given the following:

- Unit 3 is at 100% power.
- Turbine First Stage Pressure transmitter 3-PT-447 fails low.
- All applicable actions in 3-ONOP-049.1, "Deviation or Failure of Safety Related or Reactor Protection Channels" have been completed.

Which ONE of the following identifies the status of the Condenser Steam Dumps?

A. Steam Dumps are reset and can ONLY be armed by a turbine trip.

B. Steam Dumps are reset and can ONLY be armed by a load reject.

C. Steam Dumps are armed and will actuate if Tave exceeds Tref by 9.5°F.

D. Steam Dumps are armed and, if actuated, will close when Tave is within 5°F of Tref.

61.

Given the following conditions:

- Unit 4 is at 25% power with all systems in normal alignments.
- 4A Main Steam Isolation Valve closes on a spurious signal.

Assuming the reactor does NOT trip, which ONE of the following describes the INITIAL effect (1) on 4A S/G indicated Level and (2) on the S/G Feedwater Regulating Valve (FRV) response for 4B and 4C S/Gs?

	4A S/G Indicated Level	**4B/4C** FRV position
A.	higher	open more
B.	higher	closed more
C.	lower	closed more
D.	lower	open more

62.

Given the following:

- Unit 4 is in STARTUP at 7% power.
- The Steam Dump Control MODE SELECTOR Switch on the Control Room Console is in the MAN position.
- The Steam Pressure Controller is in automatic.
- The Steam Pressure Controller demand is at 30%.

Which ONE of the following listed below describes (1) the Condenser Steam Dump(s) that are armed and (2) the Condenser Steam Dump Valve(s) position?

	ARMED	**POSITION**
A.	ONLY CV-2827	PARTIALLY OPEN
B.	ONLY CV-2827	FULLY OPEN
C.	BOTH CV-2827 & CV-2828	CV-2827 IS FULLY OPEN CV-2828 IS PARTIALLY OPEN
D.	BOTH CV-2827 & CV-2828	BOTH CV-2827 & CV-2828 ARE PARTIALLY OPEN

63.

The initial conditions on Unit 3:

- This is the first plant startup after a refueling outage.
- Moderator Temperature Coefficient (MTC) is slightly positive.
- The unit is at 8% power.
- Control Rods are in Manual.

Which ONE of the following predicts the INITIAL response of RCS Tavg and Reactor Trip Breakers, if the Main Turbine is manually tripped?

	RCS Tavg	Reactor Trip Breakers
A.	Rises	Remain Closed
B.	Rises	Trip Open
C.	Lowers	Remain Closed
D.	Lowers	Trip Open

64.

Unit 3 has experienced a slow loss of Main Condenser vacuum with the current conditions listed below:

- Main Condenser vacuum is at 23" Hg and stable.
- E 5/3, CONDENSER LO VACUUM, annunciator is LIT.
- Main Turbine load at 300 MW.

Which ONE of the following identifies (1) the required IMMEDIATE operator action in accordance with 3-ONOP-014, Main Condenser Loss of Vacuum, and (2) whether the Reactor is required to be manually tripped?

A. (1) Place the standby set of Air Ejectors in service.
(2) Reactor Trip is NOT required.

B. (1) Place the SJAE Hogging Jet in service.
(2) Reactor Trip is NOT required.

C. (1) Place the standby set of Air Ejectors in service.
(2) Trip the Reactor.

D. (1) Place the SJAE Hogging Jet in service.
(2) Trip the Reactor.

65.

Which ONE of the choices below correctly completes the following statements regarding preparing for a liquid release?

In accordance with 0-NCOP-003, Attachment 1 – Radioactive Release Permit, a MINIMUM of ____(1)____ hour(s) recirc time is required when using the 1" mini recirc on Waste Monitor Tanks.

If the WMT recirc time was too short, and the chemist's specific activity result was less than actual, then this will cause the____(2)____.

A. (1) one
(2) total calculated activity released will be higher than listed on the radioactive discharge permit

B. (1) two
(2) discharge flowrate requirement listed on the radioactive discharge permit to be lower than it should be

C. (1) two
(2) total calculated activity released will be higher than listed on the radioactive discharge permit

D. (1) one
(2) discharge flowrate requirement listed on the radioactive discharge permit to be lower than it should be

66.

Unit 4 is Operating in Mode 1.

In accordance with 0-ADM-202, Shift Relief and Turnover, which ONE of the following describes the MINIMUM requirement to review (1) the Special Instructions Book and (2) active clearances back to the last shift worked?

A. (1) prior to assuming EACH shift watch;
(2) prior to assuming EACH shift watch

B. (1) prior to assuming EACH shift watch;
(2) as soon as is practical after shift turnover

C. (1) as soon as is practical after shift turnover;
(2) prior to assuming EACH shift watch

D. (1) as soon as is practical after shift turnover;
(2) as soon as is practical after shift turnover

67.

Which ONE of the following completes both statements with respect to the ATWS Mitigation System Actuation Circuitry (AMSAC)?

The AMSAC initiation logic is designed such that it _____.

Once armed, AMSAC will actuate after S/G Levels are < 8.65% for _____.

A. Energizes to actuate; 360 seconds

B. De-energizes to actuate; 360 seconds

C. Energizes to actuate; 25 seconds

D. De-Energizes to actuate; 25 seconds

68.

Given the following:

- A loss of instrument air is in progress on Unit 3.
- Instrument Air header pressure is currently 83 psig and lowering slowly as read on PI-3-1444.

Which ONE of the following describes the CURRENT status of (1) CV-3-1605, Distribution Header Pressure Control Valve and (2) the INSTR AIR SYSTEM HI TEMP/PRESS LOW (I 6/1) annunciator?

A. (1) CLOSING
   (2) Alarm is NOT lit.

B. (1) OPENING
   (2) Alarm is NOT lit.

C. (1) CLOSING
   (2) Alarm is lit.

D. (1) OPENING
   (2) Alarm is lit.

69.

In accordance with Technical Specification Safety Limit 2.1.2, Reactor Coolant System Pressure, the Reactor Coolant System pressure shall NOT exceed _____.

IF the limit is exceeded when the unit is in Mode 3, THEN RCS pressure must be reduced to within its limit within _____.

A. 2485 psig; 5 minutes

B. 2485 psig; 1 hour

C. 2735 psig; 5 minutes

D. 2735 psig; 1 hour

70.

Given the following:

- Unit 4 is in a refueling outage.
- A clearance order will defeat a Control Room annunciator associated with a required RHR Pump (pump is required to be operable).

In accordance with 0-ADM-219, Annunciator Response Procedure Usage, which ONE of the choices below completes both statements?

The MINIMUM requirement for tracking the defeated annunciator is in the ____(1)____.

The applicable portions of 0-OSP-200.5, Miscellaneous Tests, and Operating Evolutions, for Defeated/Out-Of-Service Annunciators must be completed ____(2)____.

A. (1) Annunciator Status Log ONLY
(2) within ONE hour after the annunciator has been disabled

B. (1) Annunciator Status Log ONLY
(2) PRIOR to defeating the annunciator

C. (1) Annunciator Status Log and Equipment Out of Service Book (EOOS)
(2) within ONE hour after the annunciator has been disabled

D. (1) Annunciator Status Log and Equipment Out of Service Book (EOOS)
(2) PRIOR to defeating the annunciator

71.

Given the following:

- A Steam Generator Tube Rupture has occurred on Unit 3.
- The operating crew has implemented 3-EOP-E-3, Steam Generator Tube Rupture and has prepared for RCS cooldown using Steam Dumps To Condenser.
- The crew desires to stop Auxiliary Feedwater Pumps.

Which ONE of the following identifies the PREFERRED method of providing feedwater to the SGs during the cooldown, including the reason for this preference, in accordance with 3-EOP-E-3?

A. Standby Feedwater System; The volume of contaminated secondary water released to the environment (post tube rupture) will be less.

B. Standby Feedwater System; The amount of radioactivity released via an unmonitored pathway (during RCS cooldown) will be less.

C. Normal Feedwater System; The volume of contaminated secondary water released to the environment (post tube rupture) will be less.

D. Normal Feedwater System; The amount of radioactivity released via an unmonitored pathway (during RCS cooldown) will be less.

72.

Unit 3 is in a refueling outage and fuel assemblies are being moved from the core to the Spent Fuel Pool.

Which ONE of the subsequent plant conditions will require the control room operator to evacuate non-essential personnel from the Unit 3 Containment?

A. Containment Integrity is lost

B. Unit 3 Containment Purge Supply Fan (3V9) trips

C. Source Range N-31 fails low

D. Containment Air Particulate Monitor R-3-11 red LED light illuminates

73.

Which ONE of the following identifies a plant parameter that is required to determine the status of the **Heat Sink** Critical Safety Function (CSF) in accordance with EOP-F-0, Critical Safety Function Status Trees?

A. Total FW flow

B. Core Exit Thermocouple temperatures

C. RCS Subcooling

D. RCS Cold Leg temperatures

74.

Which ONE of the following choices identifies a Control Board Instrument required by Technical Specification 3.3.3.3, Accident Monitoring Instrumentation, and the required color of the instrument label in accordance with 0-ADM-209, Equipment Tagging and Labeling?

A. PI-3-444, Pressurizer Pressure; blue

B. PI-3-444, Pressurizer Pressure; purple

C. TI-3-410A, Loop A T-cold Wide Range; blue

D. TI-3-410A, Loop A T-cold Wide Range; purple

75.

Given the following:

- Unit 3 is in Mode 5 for a refueling outage.
- 3A RHR Train is in operation for shutdown cooling.
- Time to boil in the reactor vessel is 2 hrs.
- No extensions are authorized for the containment closure time limit in accordance with 0-ADM-051, Outage Risk Assessment and Control.

Subsequently,

- ALL running CCW Pumps are tripped after showing signs of cavitation.
- RCS temperature is rising, and the crew enters 3-ONOP-050, Loss of RHR.

Which ONE of the following identifies (1) how often RCS Heatup Rate is required to be calculated (2) the MAXIMUM time allowed prior to setting Containment Closure after RHR lost in accordance with 3-ONOP-050, Loss of RHR?

A. (1) every 30 minutes
   (2) 30 minutes
B. (1) every 30 minutes
   (2) 2 hrs
C. (1) every 15 minutes
   (2) 2 hrs
D. (1) every 15 minutes
   (2) 30 minutes

Reference for Question #2

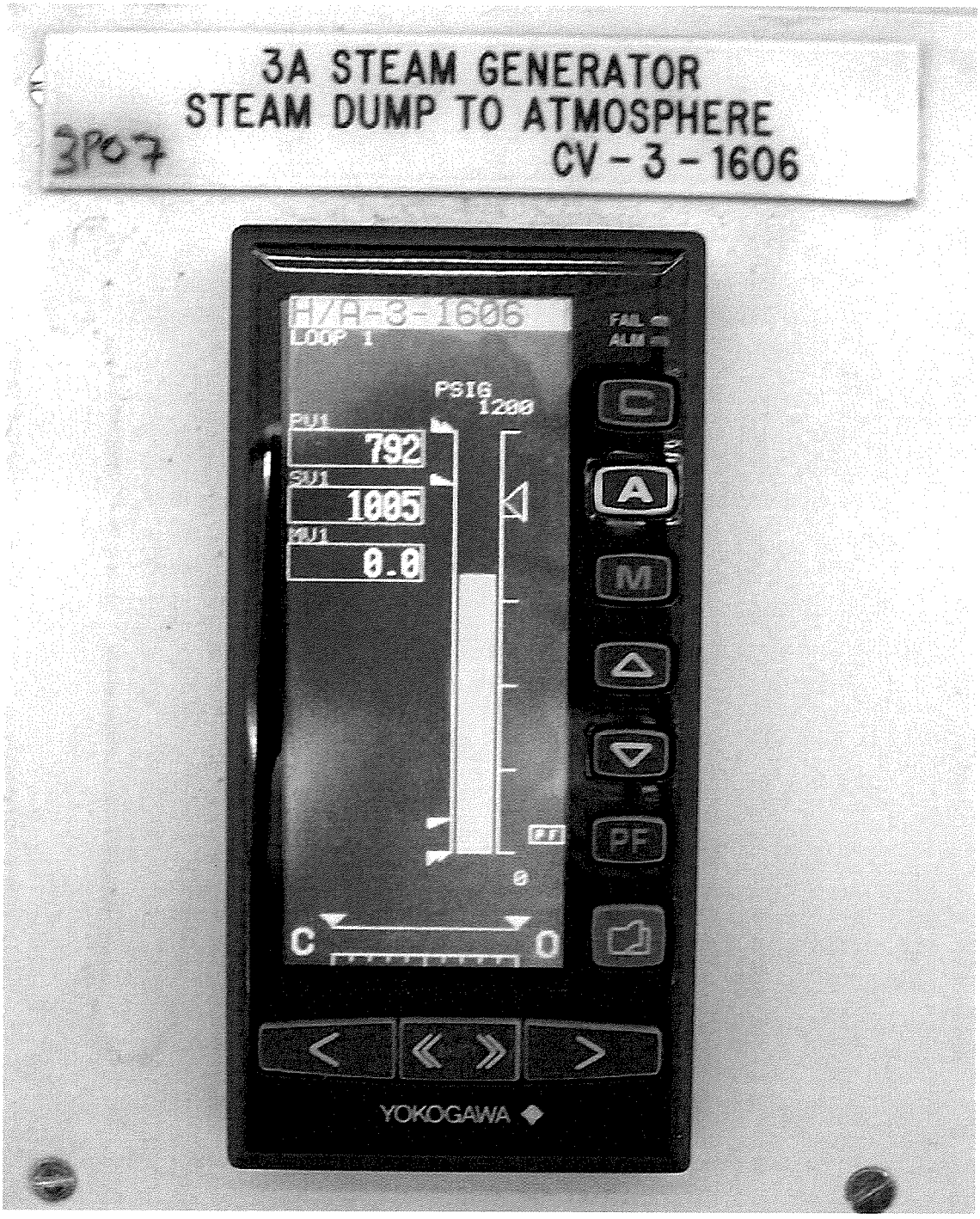
Header pages are only for ease of NRC Exam review process. They will not be included with the student exam package. In addition, References will be randomly arranged so as not to inappropriately queue students during the exam.

- SRO Exam includes all references.
- RO Exam includes references for questions 1-75.

Picture of 3A S/G Steam Dump to Atmosphere Controller CV-3-1606

3A STEAM GENERATOR
STEAM DUMP TO ATMOSPHERE
CV - 3 - 1606

3P07



Reference for Question #21

Tech Spec 3.1.1.1, page 3/4 1-3

Figure 3.1-1 Required Shutdown Margin vs Reactor Coolant Boron Concentration

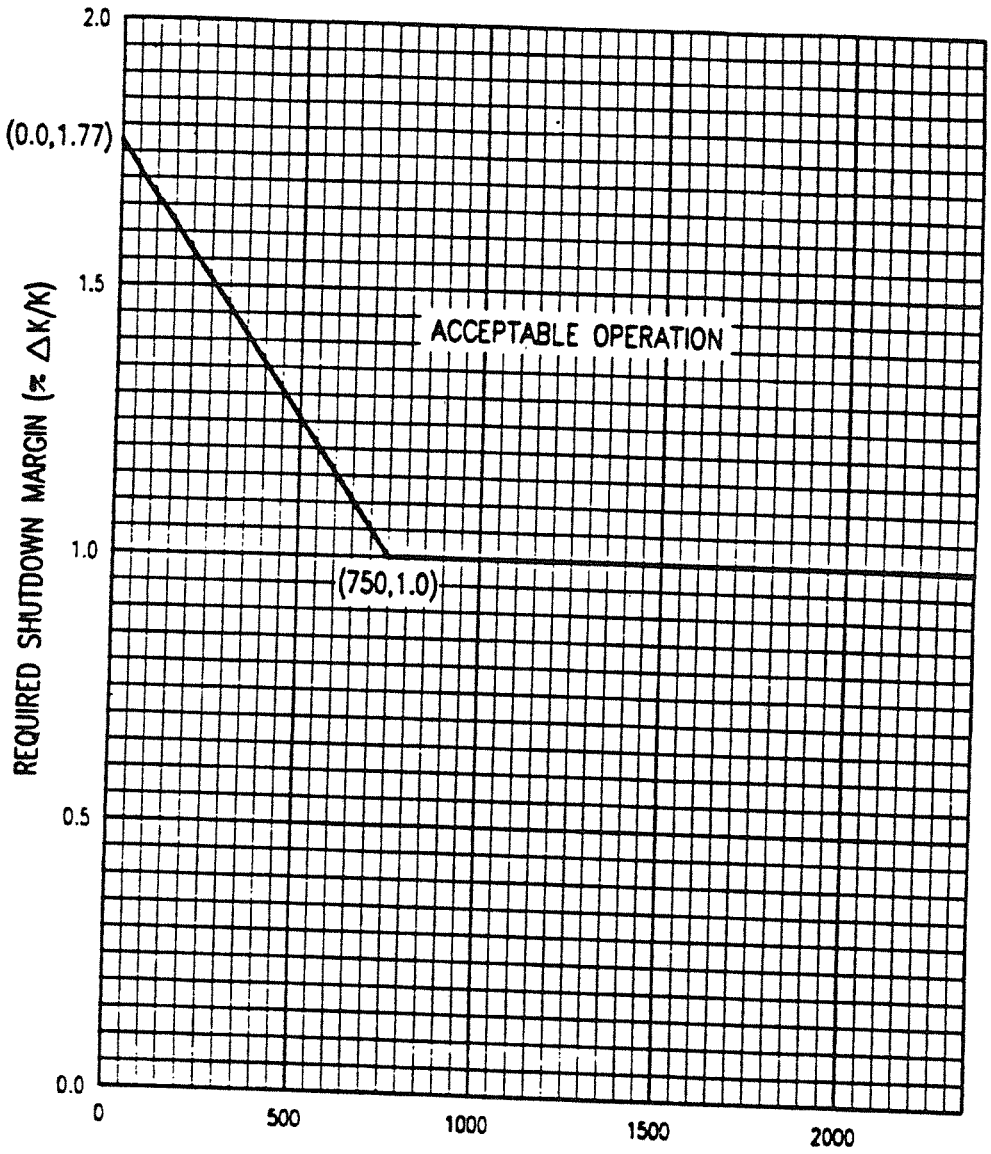
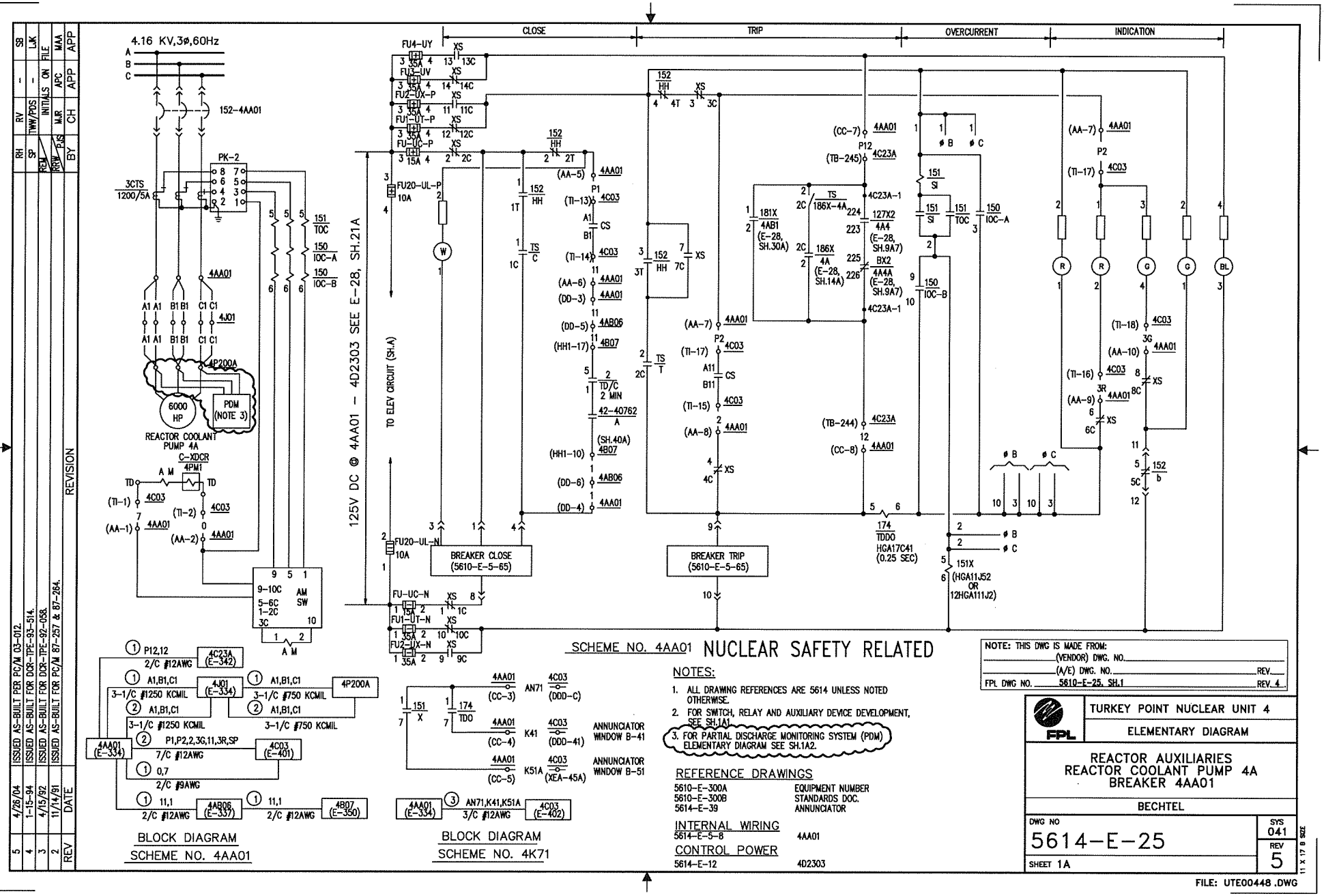


Figure 3.1-1
Required Shutdown Margin vs Reactor Coolant
Boron Concentration

Reference for Question #55

Drawing # 5614-E-25, Sheet 1A,
Reactor Auxiliaries Reactor Coolant Pump 4A
Breaker 4AAØ1

Drawing # 5614-E-25, Sheet 1A1
Reactor Auxiliaries Reactor Coolant Pump 4A
Breaker 4AAØ1



NOTES:

1. ALL DRAWING REFERENCES ARE 5614 UNLESS NOTED OTHERWISE.
2. FOR SWITCH, RELAY AND AUXILIARY DEVICE DEVELOPMENT, SEE SH.1A1.
3. FOR PARTIAL DISCHARGE MONITORING SYSTEM (PDM) ELEMENTARY DIAGRAM SEE SH.1A2.

REFERENCE DRAWINGS

5610-E-300A	EQUIPMENT NUMBER
5610-E-300B	STANDARDS DOC.
5614-E-39	ANNUNCIATOR

INTERNAL WIRING

5614-E-5-8	4AA01

CONTROL POWER

5614-E-12	4D2303

NOTE: THIS DWG IS MADE FROM:
(VENDOR) DWG. NO.
(A/E) DWG. NO. REV.
FPL DWG NO. 5610-E-25, SH.1 REV. 4

FPL

TURKEY POINT NUCLEAR UNIT 4

ELEMENTARY DIAGRAM

REACTOR AUXILIARIES
REACTOR COOLANT PUMP 4A
BREAKER 4AA01

BECHTEL

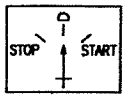
DWG NO 5614-E-25
SYS 041
REV 5
SHEET 1A

11 X 17 B SIZE

FILE: UTE00448 .DWG

REV	DATE	REVISION	BY	CH	APP
5	4/26/04	ISSUED AS-BUILT PER PC/M 03-012.	SB	LJK	MAA
4	1-15-94	ISSUED AS-BUILT FOR DCR-TPE-93-514.	-	-	APC
3	4/15/92	ISSUED AS-BUILT FOR DCR-TPE-92-058.	RCH	RRW	MJR
2	11/14/91	ISSUED AS-BUILT FOR PC/M 87-257 & 87-264.	SP	TMW/PDS	INITIALS
REV	DATE	REVISION	RH	SP	ON

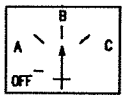
REV	DATE	REVISION	BY	CH	APP	APP
2	11-17-91	ISSUED AS-BUILT FOR 87-257.	RBV	JC	MJD	



CONTROL SWITCH
THREE POSITION
SPRING RETURN
TO MID POSITION
TAG: CS

CONTACTS	POSITION				FUNCTION	DRAWING	
	STOP	MID STOP	AFTER START	START			
A11–B11	X				TRIP CKT	E-25	SH.1A
A12–B12		X	X		SPARE		
A1–B1				X	CLOSE CKT	E-25	SH.1A
A5–A6	X	X			SPARE		
A6–A7			X	X	SPARE		
B5–B6	X	X			SPARE		
B6–B7			X	X	SPARE		
C11–D11	X				SPARE		
C12–D12		X	X		SPARE		
C1–D1				X	SPARE		
C5–C6	X	X			SPARE		
C6–C7			X	X	SPARE		
D5–D6	X	X			SPARE		
D6–D7			X	X	SPARE		

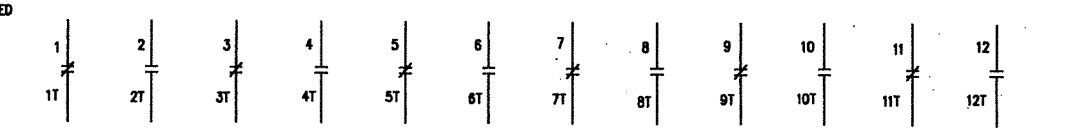
X – DENOTES CONTACT CLOSED



AMMETER SWITCH
FOUR POSITION
MAINTAINED CONTACTS
GE TYPE SB-1
MODEL 16SB1FD0A14
TAG: AM SW

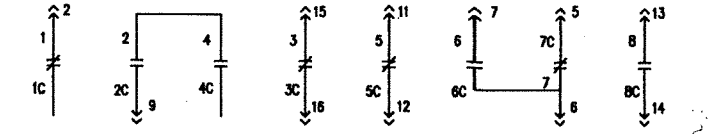
CONTACTS HANDLE END ODD	EVEN	OFF	*	A	*	*	*	B	*	*	*	C	FUNCTION	DRAWING	
1 1C–2C 2	1	x	x		x	x	x	x	x	x	x	x	AMMETER CIRCUIT	E-25	SH.1A
	2		x	x	x								NOT USED		
3 3C	3			x	x								AMMETER CIRCUIT	E-25	SH.1A
5 5C–6C 6	5	x	x	x	x	x	x		x	x	x	x	AMMETER CIRCUIT	E-25	SH.1A
	6						x	x	x				AMMETER CIRCUIT	E-25	SH.1A
7 7C	7						x	x	x				NOT USED		
9 9C–10C 10	9	x	x	x	x	x	x	x	x	x			AMMETER CIRCUIT	E-25	SH.1A
	10									x	x		AMMETER CIRCUIT	E-25	SH.1A
11 11C	11									x	x		NOT USED		

X – DENOTES CONTACT CLOSED
* – DENOTES MAKE-BEFORE-BREAK



BUS CLEARING RELAYS UNIT 3 (E-28,SH.21A)
SPARE
BUS CLEARING RELAYS UNIT 3 (E-28,SH.21A)
SPARE
TO MOTOR HTR CKT (E-28,SH.28B)
SPARE
TO MOTOR HTR CKT (E-28,SH.28B)
SPARE
TO MOTOR HTR CKT (E-28,SH.28B)
TO REACTOR TRIP CKT (M-430-146,SH.9)
SPARE
TO REACTOR TRIP CKT (M-430-146,SH.9)

152 STA CONTACTS

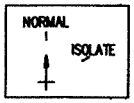


CLOSING CKT (5610-E-5-65)
TRIPPING CKT (5610-E-5-65)
SPARE
INDICATION (E-25,SH.1A)
SPARE
SPDS (E-28,SH.93F)

152 AUXILIARY CONTACTS

DECK	CONTACTS HANDLE END ODD	EVEN	CON.NO.	POSITION NORMAL	ISOLATE	FUNCTION	DRAWING	
1	1-1C	2C-2	1	X		CLOSE CKT	E-25	SH.1A
			2	X		CLOSE CKT	E-25	SH.1A
2	3-3C	4C-4	3	X		TRIP CKT	E-25	SH.1A
			4	X		TRIP CKT	E-25	SH.1A
3	5-5C	6C-6	5	X		SPARE		
			6	X		INDICATION CKT	E-25	SH.1A
4	7-7C	8C-8	7		X	TRIP CKT	E-25	SH.1A
			8	X		INDICATION CKT	E-25	SH.1A
5	9-9C	10C-10	9		X	TRANSFER FUSES	E-25	SH.1A
			10	X		TRANSFER FUSES	E-25	SH.1A
6	11-11C	12C-12	11		X	TRANSFER FUSES	E-25	SH.1A
			12	X		TRANSFER FUSES	E-25	SH.1A
7	13-13C	14C-14	13		X	TRANSFER FUSES	E-25	SH.1A
			14	X		TRANSFER FUSES	E-25	SH.1A
8	15-15C	16C-16	15		X	ANNUNCIATOR CKT	E-27	SH.25B
			16	X		SPARE		
9	17-17C	18C-18	17		X	SPARE		
			18	X		SPARE		
10	19-19C	20C-20	19		X	SPARE		
			20	X		SPARE		

X – DENOTES CONTACT CLOSED



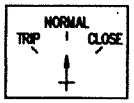
TRANSFER SWITCH
TWO POSITION
MAINTAINED CONTACTS
G.E. TYPE SB-1
TAG: XS-4AA01

152HH – BREAKER POSITION SWITCH

CONTACTS OPER. ARM END	CONT. NO.	POSITION LOWERED	NORM	RAISED	FUNCTION	DRAWING	
1T 1 2 2T	1	x			CLOSE CKT	E-25	SH.1A
	2			x	CLOSE CKT	E-25	SH.1A
3T 3 4 4T	3	x			TRIP CKT	E-25	SH.1A
	4			x	TRIP CKT	E-25	SH.1A
5T 5 6 6T	5	x			SPARE		
	6			x	SPARE		

GE MODEL NO. SBM10AX008G003

X – DENOTES CONTACT CLOSED



TEST SWITCH
THREE POSITION
SPRING RETURN
TO NORMAL
G.E. TYPE SB-1
MODEL NO. SB1AB303
TAG: TS

CONTACTS HANDLE END ODD	EVEN	CONT.NO.	POSITION TRIP	NORMAL	CLOSE	FUNCTION	DRAWING	
1-1C	2C-2	1			X	CLOSE CKT	E-25	SH.1A
		2	X			TRIP CKT	E-25	SH.1A

X – DENOTES CONTACT CLOSED

151X

CONT.	POS.	DESCRIPTION	BREAKER	DRAWING	
1-7	N.O.	ANNUNCIATION	4AA01	E-25	SH.1A
3-7	N.C.	NOT USED			
2-8	N.O.	SPARE			
4-8	N.C.	SPARE			

174 TDDO(.25SEC)

CONT.	POS.	DESCRIPTION	BREAKER	DRAWING	
1-7	N.O.	ANNUNCIATION	4AA01	E-25	SH.1A
3-7	N.C.	NOT USED			
2-8	N.O.	SPARE			

NOTE: THIS DWG IS MADE FROM:
(VENDOR) DWG. NO.
(A/E) DWG. NO. REV.
FPL DWG NO. 5610-E-25, SH.1 REV. 4

NOTES:

1. ALL DRAWING REFERENCES ARE 5614 UNLESS NOTED OTHERWISE.
2. FOR ASSOCIATED CONTROL CKT SEE E-25, SH.1A.

NUCLEAR SAFETY RELATED

FPL

TURKEY POINT NUCLEAR UNIT 4

ELEMENTARY DIAGRAM

REACTOR AUXILIARIES
REACTOR COOLANT PUMP 4A
BREAKER 4AA01

BECHTEL

DWG NO 5614-E-25

SYS 041

REV 2

SHEET 1A1

ATTACHMENT TO L-2011-535

Turkey Point

Questions 1-75 RO

Questions 76-100 SRO only

Examination Answer Key December 14, 2011

1	D	26	B	51	D	76	B
2	A	27	A	52	A	77	A
3	B	28	B	53	B	78	A
4	D	29	B	54	A	79	C
5	A	30	D	55	B	80	A
6	A	31	D	56	C	81	B
7	B	32	B	57	C	82	A
8	C	33	C	58	C	83	A
9	C	34	C	59	B	84	B
10	C	35	B	60	A	85	B
11	A	36	C	61	A/D	86	D
12	D	37	A	62	C	87	A
13	D	38	B	63	A	88	D
14	D	39	C	64	D	89	D
15	C	40	B	65	C	90	D
16	C	41	B	66	A	91	C
17	B	42	C	67	C	92	A
18	B	43	A	68	C	93	D
19	C	44	C	69	C	94	B
20	A	45	C	70	D	95	C
21	B	46	D	71	C	96	D
22	D	47	D	72	D	97	B
23	D	48	D	73	A	98	C
24	C	49	D	74	D	99	D
25	C	50	A	75	D	100	C

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	007	EK1.06
	Importance Rating	3.7	

Knowledge of the operational implications of the following concepts as they apply to the reactor trip: Relationship of emergency feedwater flow to S/G and decay heat removal following reactor trip

Proposed Question: RO Question # 1

Initial Conditions:

- A Loss of Offsite Power has occurred on both Unit 3 and 4 due an electrical grid imbalance.

Current Conditions:

- The crew is performing actions of 3-EOP-ES-0.1, Reactor Trip Response.
- Offsite Power has NOT been restored.
- RCS Thot is 565°F and slowly lowering.
- RCS Tcold is 540°F and slowly lowering.
- S/G Steam Dumps to Atmosphere are modulated open.
- Total AFW flow is 450 gpm and stable.
- All S/G levels indicate 1% NR and rising slowly.

Which ONE of the following describes the MINIMUM required actions In accordance with 3-EOP-ES-0.1?

A. Continue dumping steam. Continue at 450 gpm AFW flow until one S/G is greater than 6% narrow range and then lower AFW flow to just above 345 gpm.

B. Stop dumping steam. Reduce AFW flow to just above 345 gpm until at least one S/G is greater than 32% narrow range.

C. Continue dumping steam. Continue at 450 gpm AFW flow until one S/G is greater than 50% narrow range and then control flow as necessary to maintain 50-60% level.

D. Stop dumping steam. Continue at 450 gpm AFW flow. If cooldown continues, then reduce AFW flow to just above 345 gpm until at least one S/G is greater than 6% narrow range.

Proposed Answer: D

Explanation (Optional):

A. Incorrect because heat sink requirements are met with AFW flow at 450 gpm and stable. Plausible because these actions are similar to those taken in 3-EOP-ES-0.1, RNO Step 3, when Tcold is increasing.

B. Incorrect because 32% NR is not required for secondary heat sink. Actions are correct but level is higher than required by the procedure.

C. Incorrect because heat sink requirements are met with AFW flow at 450 gpm and stable. Also, incorrect because 32% NR is not required for secondary heat sink. Plausible because these actions are similar to those taken in 3-EOP-ES-0.1, RNO Step 3, when Tcold is increasing.

D. CORRECT. When Tcold is below 547 degrees F and decreasing, 3-EOP-ES-0.1, RNO Step 3 requires operator to reduce total feed flow to greater than 345 gpm until NR level in at least 1 SG is >6%.

Technical Reference(s): 3-EOP-ES-0.1, Step 3 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 69-00323 Obj 3 (As available)

Question Source: Bank # WTSI 63679
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2007 Harris

Question Cognitive Level: Memory or Fundamental Knowledge

Comprehension or Analysis (2RI)

Question Difficulty: Moderate (B)

10 CFR Part 55 Content: 55.41 10

55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.

Comments:

K/A Match Justification:

This question matches the K/A in that the operational implications of "required adjustments for AFW flow", during decay heat removal, are tested.

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	008	AA1.03
	Importance Rating	2.8	

Ability to operate and / or monitor the following as they apply to the Pressurizer Vapor Space Accident: Turbine bypass in manual control to maintain header pressure

Proposed Question: RO Question # 2

Given the following:

- Unit 3 was manually tripped and safety injection was manually actuated due to a Pressurizer Safety Valve leaking.
- The crew is performing actions of 3-EOP-E-0, Reactor Trip or Safety Injection.

Subsequently,

- All Unit 3 RCPs are manually tripped.
- Tcold is 548°F and slowly RISING.
- Pressurizer Pressure is 1700 psig and slowly LOWERING.
- PZR Level is 33% and slowly RISING.
- PRT Pressure is 30 psig.
- S/G Pressures are at 1015 psig.
- PI-3-1406, Condenser Vacuum, indicates 18" Hg and stable.

Which ONE of the following completes the statements below?

The downstream tailpipe temperature is ___(1)___.

The Steam Dump To Atmosphere Valves are operated by ___(2)___ to meet the RCS temperature requirements in accordance with 3-EOP-E-0.

REFERENCE PROVIDED

A. (1) 275°F
(2) Manually adjust the S/G Steam Dump To Atmosphere Controller Setpoint in Automatic by pushing the "SV Decrease Key "(arrow points down).

B. (1) 275°F
(2) Manually adjust the S/G Steam Dump To Atmosphere Controller Setpoint in Automatic by pushing the "MV Increase Key "(arrow points to the right).

C. (1) 400°F
(2) Manually adjust the S/G Steam Dump To Atmosphere Controller Setpoint in Automatic by pushing the "SV Decrease Key "(arrow points down).

D. (1) 400°F
(2) Manually adjust the S/G Steam Dump To Atmosphere Controller Setpoint in Automatic by pushing the "MV Increase Key "(arrow points to the right).

Proposed Answer: A

Explanation (Optional):

A. CORRECT. Leakage is determined by an isenthalpic process. 3-EOP-E-0, RNO Step 10.b requires dumping steam, by either condenser or atmospheric steam dump valves, if Tcold is greater than 547°F and increasing.

B. Incorrect because the MV Increase Key works while in the Manual mode of control. 3-EOP-E-0, RNO Step 10.b requires dumping steam, by either condenser or atmospheric steam dump valves, if Tcold is greater than 547°F and increasing. The first half is correct.

C. Incorrect. Plausible because this temperature is at the top of the instrument band. The applicant calculates a temperature greater than 400°F and selects this answer. Also, plausible because the second part is correct.

D. Incorrect. Plausible because this temperature is at the top of the instrument band. The applicant calculates a temperature greater than 400°F and selects this answer. Plausible because the manually adjusting the Steam Dump Controller is available and because the desired response of RCS temperature is correct.

Technical Reference(s): 3-EOP-E-0, RNO Step 10.b (Attach if not previously provided)

Proposed References to be provided to applicants during examination: Control Board

Picture

Learning Objective: 6918321, Obj. 4 (PowerPoint) (As available)

Question Source: Bank # WTSI 70173
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2007 Comanche Peak

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis (2RI)

Question Difficulty: Moderate (B)

10 CFR Part 55 Content: 55.41 7
55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.

Comments:

K/A Match Justification:

This question matches the K/A in that, during the onset of a PRZ vapor space accident (PORV stuck open), manual operation of the atmospheric steam dump valves (to lower RCS temperature) is tested.

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	009	EK3.21
	Importance Rating	4.2	

Knowledge of the reasons for the following responses as the apply to the small break LOCA: Actions contained in EOP for small break LOCA/leak

Proposed Question: RO Question # 3

Given the following conditions:

- The crew is performing the actions in 3-EOP-ES-1.2, Post LOCA Cooldown and Depressurization.
- SI pumps have been stopped.
- Normal charging is aligned.
- The crew is cooling down and depressurizing the RCS using normal spray.

Which ONE of the following identifies the reason why subcooling is controlled during RCS depressurization while in 3-EOP-ES-1.2?

A. To ensure continued RCP operation.

B. To reduce RCS break flow.

C. To prevent a challenge to the Core Cooling CSF.

D. To prevent a challenge to the Integrity CSF.

Proposed Answer: B

Explanation (Optional):

A: Incorrect. RCP operation is not required for this event, although desired.

B: Correct. Strategy is to depressurize and attempt to minimize subcooling so that break flow is reduced due to the minimal makeup provided by charging pumps.

C: Incorrect. Core cooling should not be challenged on a loss of subcooling at these temperatures and pressures at this point in the cooldown.

D: Incorrect because the Integrity status tree will not be challenged with a cooldown rate <100 degrees/hr.

Technical Reference(s): 3-EOP-ES-1.2 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: No

Learning Objective: (As available)

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

Question History: Beaver Valley 2002

Question Cognitive Level: Memory or Fundamental Knowledge (1P)
Comprehension or Analysis

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 10
55.43

Comments:

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	011	EA2.10
	Importance Rating	4.5	

Ability to determine or interpret the following as they apply to a Large Break LOCA: Verification of adequate core cooling

Proposed Question: RO Question # 4

The following plant conditions exist when exiting 3-EOP-E-0, Reactor Trip or Safety Injection:

- Containment Pressure is 29 psig and lowering.
- RCPs have been stopped.
- Core Exit Thermocouples are 710°F and rising.
- PZR Level is off scale low.
- RCS Pressure is 400 psig and lowering.
- RCS Wide Range Hot Leg Temperatures are 680°F and rising.

Which ONE of the following identifies (1) the initiating event and (2) the NEXT required procedure?

A. (1) A Faulted S/G Inside Containment
(2) Transition to 3-EOP-FR-Z.1, Response to High Containment Pressure

B. (1) A Faulted S/G Inside Containment
(2) Transition to 3-EOP-FR-C.2, Response to Degraded Core Cooling

C. (1) A RCS Cold Leg Break
(2) Transition to 3-EOP-FR-Z.1, Response to High Containment Pressure

D. (1) A RCS Cold Leg Break
(2) Transition to 3-EOP-FR-C.2, Response to Degraded Core Cooling

Proposed Answer: D

Explanation (Optional):

A. Incorrect. Incorrect event, incorrect procedure entry.

B. Incorrect. Incorrect event, correct procedure entry.

C. Incorrect. Correct event, incorrect procedure entry.

D. Correct. Requires applicant to distinguish between Orange Path on core cooling is a higher priority than an Orange Path on Containment pressure.

Technical Reference(s): 3-EOP-F-0, Critical Safety Function Status Trees - Core Cooling CSF Status Tree (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 69-321, Obj. 6 (As available)

Question Source: Bank # WTSI 64357
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2007 Sequoyah

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis (2RI)

Question Difficulty: Moderate (B)

10 CFR Part 55 Content: 55.41 10
55.43

Comments:

K/A Match Justification:

This question matches the K/A in that, during a LOCA, it requires the operator to determine that core cooling is not adequate because subcooling indicates 0°F and no HHSI pumps are running.

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	015	AK3.07
	Importance Rating	4.1	

Knowledge of the reasons for the following responses as they apply to the Reactor Coolant Pump Malfunctions (Loss of RC Flow) : Ensuring that S/G levels are controlled properly for natural circulation enhancement

Proposed Question: RO Question # 5

Given the following:

- Unit 3 was operating at 100% power when a Loss of Offsite Power occurred on both units.
- The operating crew has implemented 3-EOP-ES-0.1, Reactor Trip Response.
- RCS Pressure is 2210 psig and stable.
- Pressurizer Level is 35% and lowering.
- Tavg is 552 °F and lowering.
- Containment Temperature is 170°F.
- Offsite Power is expected to be restored within 24 hours.

Which ONE of the following identifies the required S/G level control band setpoints and the reason for the band in accordance with 3-EOP-ES-0.1, Reactor Trip Response, Basis Document?

A. (1) BETWEEN 15% and 50%
(2) to preclude AFW auto re-initiation AND establish a heat sink which will enhance natural circulation

B. (1) BETWEEN 32% and 50%
(2) to preclude AFW auto re-initiation AND establish a heat sink which will enhance natural circulation

C. (1) BETWEEN 15% and 50%
(2) to enhance natural circulation AND ensure a Steam Generator Tube Leak is NOT in progress

D. (1) BETWEEN 32% and 50%
(2) to enhance natural circulation AND ensure a Steam Generator Tube Leak is NOT in progress

Proposed Answer: A

Explanation (Optional):

A. CORRECT. Step 24.c of 3-EOP-ES-0.1 requires SG levels to be maintained 15-50%. BD-EOP-ES-0.1, Page 37, states: "S/G level is maintained in the narrow range with the low end of the control band at the AFW actuation setpoint plus 5% to preclude AFW actuation."

B. Incorrect since the control band is 15-50%, not 32-50%. Plausible because the 2nd part is correct. Also plausible because the control band of 32-50% (adverse value) is the range of operation which prevents RPS actuation.

C. Incorrect since the control band is based on establishing heat sink. Plausible because the 1st part is correct. Also plausible because it does enhance natural circulation and the upper limit will ensure a tube rupture is not in progress, not a tube leak.

D. Incorrect since the control band is based on establishing heat sink. Also incorrect since the control band is 15-50%, not 32-50%. Plausible because the control band of 32-50% (adverse value) will prevent RPS actuation. Also plausible because it does enhance natural circulation and the upper limit will ensure a tube rupture is not in progress, not a tube leak.

Technical Reference(s): 3-EOP-ES-0.1, Reactor Trip Response
BD- 3-EOP-ES-0.1, Reactor Trip Response
(Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6902323, Obj. 3 (As available)

Question Source: Bank #

Modified Bank # (Note changes or attach parent)

New X

Question History: Last NRC Exam:

Question Cognitive Level: Memory or Fundamental Knowledge

Comprehension or Analysis (2DR)

Question Difficulty: Moderate (B)

10 CFR Part 55 Content: 55.41 10

55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.

Comments:

K/A Match Justification:

This question matches the K/A in that it tests why S/G levels are maintained (establish heat sink to enhance natural circulation) during a loss of RCS flow (RCPs lost due to LOOP)

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	022	AK1.01
	Importance Rating	2.8	

Knowledge of the operational implications of the following concepts as they apply to Loss of Reactor Coolant Makeup: Consequences of thermal shock to RCP seals

Proposed Question: RO Question # 6

The crew has transitioned from 3-EOP-ECA-0.0, Loss of All AC Power, to 3-EOP-ECA-0.1, Loss of All AC Power Recovery Without SI Required.

The following plant conditions exist:

- Annunciator A 1/2, RCP THERMAL BARR COOLING WATER HI TEMP, is lit.
- Annunciator A 1/6, RCP #1 SEAL LEAK OFF HI TEMP, is lit.
- Common Seal Water Return Temperature to CVCS is 250°F.
- No. 1 Seal Water Outlet Temperature for all RCPs is 250°F.
- RCP Thermal Barrier CCW Outlet Valve, MOV-3-626, is closed.
- RCP Seal Injection Throttle Valves, 3-297A, 3-297B, and 3-297C were initially isolated.

Which ONE of the following describes (1) the required actions and (2) the reason for this action?

A. (1) RCP Seal Injection Throttle Valves, 3-297A, 3-297B, and 3-297C, must be left closed.

(2) To prevent thermal shock to the RCP Seals

B. (1) RCP Seal Injection Throttle Valves, 3-297A, 3-297B, and 3-297C, must be left closed.

(2) To prevent water hammer in the RCP Thermal Barrier Heat Exchanger

C. (1) RCP Seal Injection Throttle Valves, 3-297A, 3-297B, and 3-297C are required to be locally throttled open to establish flow of 2 gpm.

(2) To prevent thermal shock to the RCP Seals

D. (1) RCP Seal Injection Throttle Valves, 3-297A, 3-297B, and 3-297C, are required to be locally throttled open to establish flow of 2 gpm.

(2) To prevent water hammer in the RCP Thermal Barrier Heat Exchanger

Proposed Answer: A

Explanation (Optional):

A. Correct. With charging pumps off, and valves already closed. Thermal shock resulting in seal failure is prevented due to the isolation of the RCP seals.

B. Incorrect. Valves remain closed to prevent thermal shocking of the RCPS Seal, not to prevent water hammer in the RCP Thermal Barrier Heat Exchanger. Plausible because water hammer is the reason CCW remains isolated. Also plausible because the first half is correct.

C. Incorrect. RCP Seal Injection Manual Valves and Thermal Barrier Cooling Outlet Valves are SLOWLY OPENED in a controlled manner. Plausible because it is logical to believe that slowly establishing seal injection flow is a requirement.

D. Incorrect. RCP Seal Injection Manual Valves and Thermal Barrier Cooling Outlet Valves are SLOWLY OPENED in a controlled manner. Plausible because it is logical to believe that slowly establishing seal injection flow is a requirement. Also plausible because water hammer is the reason CCW remains isolated.

Technical Reference(s): 3-EOP-ECA-0.1 Step 1 and RNO (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: 6902349 Obj 3,8 (As available)

Question Source: Bank # WTSI 62337

Modified Bank # (Note changes or attach parent)

New

Question History: Last NRC Exam: 2005 Turkey Point

Question Cognitive Level: Memory or Fundamental Knowledge

Comprehension or Analysis (2RI)

Question Difficulty: Moderate (B)

10 CFR Part 55 Content: 55.41 10

55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.

Comments:

Turkey Point 2005. Not in last 3 exams

Changed wording of stem, all distractors and changed distractor analysis. Could be considered new

Meets KA because loss of RCS makeup is initiated with loss of AC Power. Operational implication of thermal shock to RCP seals must be evaluated in conjunction with a loss of CCW, and procedure action for this event is an implication.

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	025	AA1.02
	Importance Rating	3.8	

Ability to operate and / or monitor the following as they apply to the Loss of Residual Heat Removal System: RCS inventory

Proposed Question: RO Question # 7

Given the following initial conditions:

- Unit 3 is cooling down using 'A' RHR Train.
- RCS temperature is 310°F.
- RCS pressure is 340 psig.
- PZR level is 22%.

Subsequently:

- PZR level is at 10% and slowly lowering.
- Charging is at maximum flow.
- Letdown is isolated.
- Containment radiation levels are rising.
- The running RHR pump trips.

Which ONE of the following actions is performed FIRST in accordance with 3-ONOP-041.7, Shutdown LOCA [Mode 3 (Less than 1000 PSIG) or Mode 4]?

A. Actuate Safety Injection

B. Manually align High Head Safety Injection Pumps to RCS Cold Legs

C. Restore power and open Unit 3 SI Accumulator Outlet Valves

D. Manually align the non-operating train of RHR for Injection

Proposed Answer: B

Explanation (Optional):

A. Incorrect because SI actuation at this point could cause overpressurization of the RCS. Plausible because if the plant was in Mode 3 SI would be actuated

B. CORRECT. Per 3-ONOP-041.7, first action is to raise charging and isolate letdown, which has been performed. Second action is to align one train of HPSI to cold legs.

C. Incorrect but plausible because this action is performed in 3-EOP-E-1 for valve operation.

D. Incorrect but plausible because this check is made after aligning SI to cold legs. If not aligned for injection, RHR is realigned.

Technical Reference(s): 3-ONOP-041.7 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6902210, Obj. 4 (As available)

Question Source: Bank #

Modified Bank # (Note changes or attach parent)

New X

Question History: Last NRC Exam:

Question Cognitive Level: Memory or Fundamental Knowledge

Comprehension or Analysis (2RI)

Question Difficulty: Moderate (B)

10 CFR Part 55 Content: 55.41 10

55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.

Comments:

K/A Match Justification:

The K/A is matched in that, during implementation of 3-ONOP-041.7, Shutdown LOCA, Mode 3 less than 1000 psig or Mode 4, the operator must determine appropriate actions, given a lowering RCS inventory.

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	027	AK2.03
	Importance Rating	2.6	

Knowledge of the interrelations between the Pressurizer Pressure Control Malfunctions and the following: Controllers and positioners

Proposed Question: RO Question # 8

Given the following conditions:

- Unit 3 Reactor power is 100%.
- Pressurizer Pressure Control is in automatic.
- An operator inadvertently sets PC-3-444J, Pressurizer Pressure Controller potentiometer, fully clockwise (10.0).

Which ONE of the following describes the IMMEDIATE response of the Pressurizer Pressure Control System?

A. Pressurizer PORV, PCV-3-455C will open.

B. Both Pressurizer Spray Valves will open.

C. Backup Group A and B Pressurizer Heaters energize.

D. Control Group Pressurizer Heaters reduce to minimum current.

Proposed Answer: C

Explanation (Optional):

A. Incorrect because PCV-455C will only open with demand from PC-3-444J. Plausible because PCV-455C will only open when the PZR Pressure Controller rises above setpoint.

B. Incorrect because a demand will exist to raise pressure, not lower it via spray valve

operation. Plausible because the spray valves will only open to maintain pressure at to 2475 psig.

C. CORRECT.

D. Incorrect because a demand will exist to raise pressure, not lower it via turning off any energized heaters. Plausible because ALL heaters are controlled via PC-3-444J, Pressurizer Pressure Controller and it is a common misconception that the PZR PCS works to raise pressure as demand increases.

Technical Reference(s): SD-009, Pressurizer & Relief System (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6902109A, Obj. 7 & 8 (As available)

Question Source: Bank # WTSI 65121
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2008

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis (2DR)

Question Difficulty: Moderate (B)

10 CFR Part 55 Content: 55.41 7
55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:

K/A Match Justification:

Question matches the K/A in that it tests the response of the PZR PCS components to a malfunction within the Master Pressurizer Pressure Controller.

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	029	EK2.06
	Importance Rating	2.9	

Knowledge of the interrelations between the following and ATWS: Breakers, relays, and disconnects

Proposed Question: RO Question # 9

Given the following conditions:

- Unit 3 is at 90% power.
- RPS Testing is in progress.
- Reactor Trip Breaker A (RTA) is CLOSED.
- Reactor Trip Breaker B (RTB) is OPEN.
- Reactor Trip Bypass Breaker B (BYB) is Racked In and CLOSED.

During the testing the following occurs:

- The "A" RCP shaft seizes.
- A Reactor Trip signal is NOT generated by Protection Train B.
- Protection Train A generates a Reactor Trip signal as designed.
- The Reactor does NOT automatically trip.
- Manual Reactor Trip was successful.

Which ONE of the following identifies ALL the Reactor Trip Breaker Trip Coils and Reactor Trip Bypass Breaker Trip Coils that have changed state to trip the Reactor?

A. The RTA Undervoltage Trip Coil and the BYB Shunt Trip Coil only.

B. The RTA Shunt Trip Coil and the BYB Shunt Trip Coil only.

C. The RTA Undervoltage Trip Coil, the RTA Shunt Trip Coil, and the BYB Undervoltage Trip Coil only.

D. The RTA Undervoltage Trip Coil, the RTA Shunt Trip Coil, the BYB Undervoltage Trip Coil, and the BYB Shunt Trip Coil only.

Proposed Answer: C

Explanation (Optional):

A. Incorrect because the RTA UV coil and BYB shunt trip are not the only RTB breaker coils to actuate. Plausible because the Reactor *will* trip if the RTA UV coil were the only UV coil to deenergize or the BYB shunt trip coil were to energize if in service.

B. Incorrect because the RTA Shunt trip and the RTB Shunt Trip Coil are not the only RTB breaker coils to actuate. Plausible because the Reactor *will* trip if the RTA shunt trip coil were the only coil to energize or if the RTB Shunt Trip Coil were to energize.

C. CORRECT. According to SD-063, Page 35, Protection Train A actuates the RTA UV and Shunt Trip Coils and the BYB UV coil ONLY.

D. Incorrect because the BYB Shunt Trip Coil does not actuate on a Reactor Trip signal. According to Page 35 of SD-063, the BYB Shunt Trip Coil is used only when testing. Plausible because the first two coils are correct, because the complicated control scheme of the RTB coils is easily misunderstood, and because the bypass breaker shunt trip coils <u>are</u> used to trip the breakers when in the TEST position.

Technical Reference(s): SD-063, Reactor Protection and Safeguards Actuation System (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6902163, Obj. 5 (As available)

Question Source: Bank # WTSI 59478
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2008 McGuire

Question Cognitive Level: Memory or Fundamental Knowledge (1l)
Comprehension or Analysis

Question Difficulty: Moderate (B)

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	038	EK1.02
	Importance Rating	3.2	

Knowledge of the operational implications of the following concepts as they apply to the SGTR: Leak rate vs. pressure drop

Proposed Question: RO Question # 10

Given the following:

- A Steam Generator Tube Rupture has occurred on 3C S/G.
- RCS cooldown and depressurization is complete.
- Preparations are made to transition to 3-EOP-ES-3.1, Post SGTR Cooldown using Backfill.
- Pressurizer Level is 38%.
- 3B RCP is running.
- RCS Subcooling is 40°F.
- Letdown is isolated and unavailable.
- 3C S/G Narrow Range Level is 73% and slowly rising.

Which ONE of the following identifies the MINIMUM required action and the reason in accordance with 3-EOP-E-3, Steam Generator Tube Rupture?

A. Open one Pressurizer PORV to raise PZR Level

B. Open one Pressurizer PORV to minimize RCS leakage

C. Open PCV-3-455B Pressurizer Spray Valve to minimize RCS leakage

D. Open PCV-3-455A Pressurizer Spray Valve to raise PZR Level

Proposed Answer: C

Explanation (Optional):

A. Incorrect because opening one Pressurizer PORV to raise PZR Level is an effect of the action but not the reason for lowering S/G Level. Also, the preferred method to depressurize with a RCP running is with a PZR Spray Valve

B. Incorrect because opening one Pressurizer PORV to minimize leakage is the correct reason. However, the preferred method to depressurize with a RCP running is with a PZR Spray Valve.

C. Correct

D. Incorrect because it lists the wrong spray valve for the running RCP.

Technical Reference(s): LP 6902919, TAA SGTR (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6902119, Obj. 2 (As available)

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

Question History: Last NRC Exam: 2007 Farley

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis (3PEO)

Question Difficulty: Moderate (B)

10 CFR Part 55 Content: 55.41 5
55.43

Facility operating characteristics during steady state and transient conditions, including coolant chemistry, causes and effects of temperature, pressure and reactivity changes, effects of load changes, and operating limitations and reasons for these operating characteristics.

Comments:

10 CFR Part 55 Content: 55.41 7

55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	E12	2.1.30
	Importance Rating	3.4	

Conduct of Operations: Ability to locate and operate components, including local controls.

Proposed Question: RO Question # 11

Given the following conditions:

- A steamline break has occurred on Unit 3 Turbine Deck.
- The Main Steamline Isolation Valves are OPEN and cannot be closed using the control switches on Console 3C02 or pushbuttons on VPB.

Which ONE of the following identifies the NEXT required action and where it is accomplished in accordance with 3-EOP-ECA-2.1, Uncontrolled Depressurization of All Steam Generators?

A. Pull fuses behind Console 3C02 for **ONLY** ONE train of solenoids for the MSIVs

B. Pull fuses behind Console 3C02 for **BOTH** trains of solenoids for the MSIVs

C. Pull fuses at the Alternate Shutdown Panel for **ONLY** ONE train of solenoids for the MSIVs

D. Pull fuses at the Alternate Shutdown Panel for **BOTH** trains of solenoids for the MSIVs

Proposed Answer: A

Explanation (Optional):

A. CORRECT. Per 3-EOP-ECA-2.1, when the MSIVs fail to automatically close, RNO Step 1 directs the crew to first try to manually close the valves (from the control switches on the console). If that is unsuccessful, the Step then directs the crew to pull fuses behind the console.

B. Incorrect since fuses for only one train of solenoids need to be pulled. Plausible because the 2nd part is correct. Also plausible because there are two sets of solenoids that operate to close the valves and two trains of MSIS will actuate the solenoids. (See LP 6902117, Pages 30 and 36-37 for a description of the MSIV control switches and solenoids).

C. Incorrect since the fuses are located behind the console, not at the ASP. Plausible because the 1st part is correct. Also plausible because there are control switches for the MSIVs on the ASP (See LP 6902117, Pages 30 and 36-37 for a description of the MSIV control switches and solenoids).

D. Incorrect since fuses for only one train of solenoids need to be pulled. Also incorrect since the fuses are located behind the console, not at the ASP. Plausible because there are two sets of solenoids that operate to close the valves and two trains of MSIS will actuate the solenoids. Also plausible because there are control switches for the MSIVs on the ASP. (See LP 6902117, Pages 30 and 36-37 for a description of the MSIV control switches and solenoids).

Technical Reference(s): 3-EOP-ECA-2.1, Uncontrolled Depressurization of All Steam Generators
LP 6902117, Main and Extraction Steam System (Attach if not previously provided)

Proposed References to be provided to applicants during examination:

Learning Objective: LP 6902335, Obj. 3 (As available)

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

Question History: Last NRC Exam:

Question Cognitive Level: Memory or Fundamental Knowledge (1B)
Comprehension or Analysis

Question Difficulty: Moderate (B)

10 CFR Part 55 Content: 55.41 10

55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.

Comments:

K/A Match Justification:

This question matches the K/A in that it tests location of control power fuses to the MSIV solenoid valves, during an uncontrolled depressurization of all SGs.

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	054	AK3.02
	Importance Rating	3.4	

Knowledge of the reasons for the following responses as they apply to the Loss of Main Feedwater (MFW): Matching of feedwater and steam flows

Proposed Question: RO Question # 12

Given the following:

- Unit 4 is at 70% power.
- Steam Generator Main Feed Pumps 4A and 4B are in service.

Subsequently,

- 4A Steam Generator Main Feed Pump trips.
- Alarm SGFP A/B MOTOR OVERLOAD TRIP (D 6/1) is received.
- Turbine Load remains stable.

Which ONE of the following describes the required action and the reason for this action?

A. Manually open the Main Feedwater Regulating Valves to stabilize S/G levels

B. Start the standby Condensate Pump to maintain Main Feed Pump suction pressure

C. Manually reduce turbine load to prevent exceeding rod insertion limits

D. Manually reduce turbine load to reduce steam demand to stabilize S/G levels

Proposed Answer: D

Explanation (Optional):

A. Incorrect. Based on the equipment lineup given, available feedwater flow is not sufficient for 70% power; therefore, SG levels will not stabilize. Plausible because this would be the correct actions, per 4-ARP-097-CR.C, (1/1, 1/2, 1/3) for power below 55%.

B. Incorrect. Based on the equipment lineup given, available feedwater flow is not sufficient for 70% power. Plausible because starting the standby Condensate may stabilize Main Feed Pump suction pressure but it is not the first action operators will take.

C. Incorrect. The matching of Tavg/Tref is a secondary concern due to the instability of the secondary and loss of feed flow for the current power level. Plausible – The first part is correct. Also, the plant heatup will cause RCS Temperature to increase which can result in deep rod insertion.

D. CORRECT.

Technical Reference(s): 3-ONOP-089, Turbine Runback (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6902248, Obj. 4 (As available)

Question Source: Bank # WTSI 66606
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2008 South Texas

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis (2RI)

Question Difficulty: Moderate (B)

10 CFR Part 55 Content: 55.41 5
55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.

Comments:

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	055	EA2.03
	Importance Rating	3.9	

Ability to determine or interpret the following as they apply to a Station Blackout: Actions necessary to restore power

Proposed Question: RO Question # 13

Given the following:

- A station blackout occurred on Unit 3.
- The operating crew is performing 3-EOP-ECA-0.0, Loss of All AC Power.
- NEITHER Unit 3 EDG can be started.
- The 4KV Bus 3B Lockout Blue lights are flashing.
- BOTH Unit 4 EDGs are operating and supplying their respective 4 KV Busses.
- Off-Site power availability is NOT expected within the next 2 hours.

Which ONE of the following describes the actions that are necessary to restore power?

Align 4KV Bus ___(1)___ using the Station Blackout Tie Line in accordance with ___(2)___.

A. (1) 3A
(2) 3-ONOP-004.1, System Restoration Following Loss of Offsite Power

B. (1) 3B
(2) 3-ONOP-004.3, Loss of 3B 4KV Bus

C. (1) 3B
(2) 3-ONOP-004.1, System Restoration Following Loss of Offsite Power.

D. (1) 3A
(2) 3-ONOP-004.2, Loss of 3A 4KV Bus

Proposed Answer: D

Explanation (Optional):

A. Incorrect. Plausible because 3A bus will be energized through the Station Blackout tie line but the procedure listed is incorrect.

B. Incorrect because the 3B 4Kv bus is normally aligned to the 3D Bus and is the preferred choice unless unavailable. Plausible because the correct procedure is listed if the 3B bus was able to be restored.

C. Incorrect because the wrong procedure is listed. Plausible because the 3B 4Kv bus is normally aligned to the 3D Bus and is the preferred choice unless unavailable.

D. CORRECT.

Technical Reference(s): 3-EOP-ECA-0.1, Step10
3-ONOP-004.2, Steps 8-14 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6902349, Obj. 3 (As available)

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

Question History: Last NRC Exam:

Question Cognitive Level: Memory or Fundamental Knowledge (1P)
Comprehension or Analysis

Question Difficulty: Moderate (B)

10 CFR Part 55 Content: 55.41 10
55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.

Comments:

K/A Match Justification:

Question matches the K/A in that it tests actions required to restore power to a 4KV Bus during a blackout.

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	056	AA2.54
	Importance Rating	2.9	

Ability to determine and interpret the following as they apply to the Loss of Offsite Power: Breaker position (remote and local)

Proposed Question: RO Question # 14

Given the following:

- The station experiences a Loss of Offsite Power.
- One of the undervoltage relays for the 4B 4KV Bus fails to actuate.
- All 480V Load Center undervoltage and degraded voltage relays operate properly.

For Unit 4, which ONE of the following describes (1) the bus-stripping response and (2) the response of the EDG(s) Output Breakers?

A. (1) Bus stripping will occur ONLY on Bus 4A;
(2) ONLY the 'A' EDG output breaker will close.

B. (1) Bus stripping will occur on Bus 4A AND on Bus 4B;
(2) ONLY the 'A' EDG output breaker will close.

C. (1) Bus stripping will occur ONLY on Bus 4A;
(2) BOTH the 'A' EDG AND the 'B' EDG output breakers will close.

D. (1) Bus stripping will occur on Bus 4A AND on Bus 4B;
(2) BOTH the 'A' EDG AND the 'B' EDG output breakers will close.

Proposed Answer: D

Explanation (Optional):

A. Incorrect since both EDGs will start and load and both Bus 4A and 4B will load shed. Plausible because this would be true if the 2/2 UV relays on the 4KV Busses were the

only relays which initiate load shedding and start of the respective EDG.

B. Incorrect since both EDGs will start. Plausible because the 1st part is correct. Also plausible because the 2nd part would be true if the 2/2 UV relays on the 4KV Busses were the only relays which start the respective EDG.

C. Incorrect since both Bus 4A and 4B will load shed. Plausible because the 2nd part is correct. With a start of the EDG and given no other failures, the EDG output breakers should close as designed. Also plausible because this would be true if the 2/2 UV relays on the 4KV Busses were the only relays which initiate load shedding.

D. CORRECT. When offsite power is lost, the 4160 V Vital busses 4A and 4B will sense the UV and actuate the UV relays. 2/2 UV relays must actuate on the bus to start the respective EDG. See SD-140, Main Power Distribution, Pages 58 states: "4.16KV bus A and B each have voltage sensing relays that will actuate bus associated Emergency Load Sequencer to strip the bus loads. Additionally, the vital 480 volt load centers associated with each bus also have voltage sensing relays that on degraded voltage will input the Emergency Load Sequencer to cause the same bus stripping actions. Detailed information may be found in System 024, Emergency Load Sequencer Lesson and Logic Sheets 12, 12A, 12B, 13 and 13A." Additionally, SD-140, Page 59 states: "The four emergency diesel generators (EDGs), located in two emergency diesel buildings, automatically provide power to 4.16kV safety-related (ESF) buses A and B within 15 seconds following a loss of power to those buses. Should either A or B bus experience a complete loss of voltage or a sustained undervoltage (degraded voltage) condition, as sensed on A, B, C, or D load center, the associated bus Emergency Load Sequencer will strip the buses, send a start signal to its EDG and a close signal to the EDG output breaker, which will close when the bus is cleared. LP 6902136, Page 197 states: "A and B 4kV buses each have two loss of voltage sensing relays, both of which must see approximately 30 to 50% of nominal bus voltage (2975 volts) for 1 second or more to pick up their associated X2 (for "A" bus) and/or Z2 (for "B" bus) BUS STRIPPING RELAYS." With a start of the EDG and given no other failures, the EDG output breakers should close as designed.

Technical Reference(s): SD-140, Main Power Distribution
LP 6902136, Emergency Diesel Generator & Auxiliaries (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6902136, Obj. 10 (As available)

Question Source: Bank # WTSI 56489

Modified Bank # (Note changes or attach parent)

New

Question History: Last NRC Exam: 2005 Davis Besse

Question Cognitive Level: Memory or Fundamental Knowledge

Comprehension or Analysis (2RI)

Question Difficulty: Moderate (B)

10 CFR Part 55 Content: 55.41 7

55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	057	2.4.50
	Importance Rating	4.2	

Emergency Procedures / Plan: Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.

Proposed Question: RO Question # 15

Unit 3 is operating at 100% power when VITAL AC BUS INVERTER TROUBLE (F 1/2) alarms.

Subsequently, the following annunciators are received (NOT all inclusive):

- POWER RANGE LOSS OF DETECTOR VOLTAGE (B 6/5)
- INTERM RANGE N-35 LOSS OF COMP VOLTAGE (B 5/3)
- SEQUENCER 3B TROUBLE (X1/4)

Which one of the following identifies the vital panel that has lost power and the expected consequence?

A. 3P08 lost power; control 3A S/G level in manual

B. 3P08 lost power; control 3C S/G level in manual

C. 3P06 lost power; control 3A S/G level in manual

D. 3P06 lost power; control 3C S/G level in manual

Proposed Answer: C

Explanation (Optional):

A. Incorrect since a failure of panel 3P08 has not occurred. Plausible because the 2nd part is correct for the loss of P06. Also plausible because the VITAL AC BUS INVERTER TROUBLE (F 1/2) and POWER RANGE LOSS OF DETECTOR VOLTAGE (B 6/5) annunciators are common to a failure of both panels.

B. Incorrect since a failure of panel 3P08 has not occurred, wrong Steam Generator level control failure. Plausible because the 2nd part is correct for the loss of P08. Also plausible because the VITAL AC BUS INVERTER TROUBLE (F 1/2) and POWER RANGE LOSS OF DETECTOR VOLTAGE (B 6/5) annunciators are common to a failure of both panels.

C. CORRECT. The INTERM RANGE N-35 LOSS OF COMP VOLTAGE (B 5/3) will alarm. S/G level control is affected and if manual actions are not performed a SG A NARROW RANGE HI LEVEL (C 2/1) can occur. This is indicative of a loss of 3P06 vs. 3P08. According to 3-ARP-097.CR.C, 2/1, the first Prompt Action is: "TAKE manual control of level." This is also required by 3-ONOP-003.6, Loss of 120V Vital Instrument Panel 3P06, Step 5.

D. Incorrect since a failure of panel 3P06 will fail the automatic Steam Generator level control for A Steam Generator. Plausible because the first half is correct. Also plausible because the VITAL AC BUS INVERTER TROUBLE (F 1/2) and POWER RANGE LOSS OF DETECTOR VOLTAGE (B 6/5) annunciators are common to a failure of both panels.

Technical Reference(s): 3-ONOP-003.8, Loss of 120V Vital Instrument Panel 3P08
3-ONOP-003.6, Loss of 120V Vital Instrument Panel 3P06,
3-ARP-097.CR.C, 2/1, SG A NARROW RANGE HI LEVEL
3-ARP-097.CR.E, 2/6, HI-HI SG LVL TURB TRIP/FEEDWATER ISOLATION
(Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6900260, Obj. 4 (As available)

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

Question History: Last NRC Exam:

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis (2RI)

Question Difficulty: Moderate (B)

10 CFR Part 55 Content: 55.41 7

55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	062	AA1.03
	Importance Rating	3.6	

Ability to operate and / or monitor the following as they apply to the Loss of Nuclear Service Water: SWS as a backup to the CCWS

Proposed Question: RO Question # 16

Given the following:

- At Unit 3, a loss of Component Cooling Water (CCW) occurs and the operating crew implements 3-ONOP-030, Component Cooling Water Malfunction.
- Emergency cooling water is being aligned to the operating 3A Charging Pump's Oil Cooler per Attachment 1, Control of Emergency Cooling Water to Charging Pumps, of 3-ONOP-030.
- Subsequently, a Loss of Offsite Power occurs and the Diesel Driven Service Water pump cannot be started.

Which ONE of the choices below completes both statements regarding 3A Charging Pump operation in accordance with 3-ONOP-030 Attachment 1?

The 3A Charging Pump is required to be operated at ___(1)___ speed until Attachment 1 is complete.

If hydraulic coupling oil temperature (indicated temperature at the oil cooler outlet) reaches 195°F, the required action is to ___(2)___ .

A. (1) REDUCED (but above minimum)
(2) stop 3A Charging Pump

B. (1) REDUCED (but above minimum)
(2) reduce 3A Charging Pump speed to MINIMUM speed

C. (1) MAXIMUM
(2) stop 3A Charging Pump

D. (1) MAXIMUM

(2) reduce 3A Charging Pump speed to MINIMUM speed

Proposed Answer: C

Explanation (Optional):

A. Incorrect since the charging pump should be operated at maximum speed, not reduced speed. Plausible because the 2nd part is correct. Also plausible because a novice applicant may believe that it is better to operate at reduced speed because it would generate less heat than at maximum speed.

B. Incorrect since the charging pump should be operated at maximum speed, not reduced speed. Also incorrect since reducing 3A Charging Pump speed if running above MINIMUM speed is the wrong action. Plausible because the 2nd part is logical and a novice applicant may believe that it is better to operate at reduced speed because it would generate less heat than at maximum speed.

C. CORRECT.

Reference
3-ONOP-030, Attachment 1

D. Incorrect since reducing 3A Charging Pump speed if running above MINIMUM speed is the wrong action. Plausible because the 2nd part is logical and a novice applicant may believe that it is better to operate at reduced speed because it would generate less heat than at maximum speed. Also plausible because the 1st part is correct.

Reference
3-ONOP-030, Attachment 1

NOTE
Maximum charging pump oil temperature is 220°F to prevent oil break down.

Technical Reference(s): 3-ONOP-030, Component Cooling Water Malfunction
LP 6902229, Component Cooling Water Malfunction (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6902229, Obj. 4, 8 (As available)

Question Source: Bank #

Modified Bank # (Note changes or attach parent)

New X

Question History: Last NRC Exam:

Question Cognitive Level: Memory or Fundamental Knowledge (1P)

Comprehension or Analysis

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 7

55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	065	2.4.21
	Importance Rating	4.0	

Emergency Procedures / Plan: Knowledge of the parameters and logic used to assess the status of safety functions, such as reactivity control, core cooling and heat removal, reactor coolant system integrity, containment conditions, radioactivity release control, etc.

Proposed Question: RO Question # 17

Given the following:

- Unit 3 is in MODE 4, cooling down to MODE 5.
- 3B RCP is running.
- ONE train of Unit 3 RHR is operating in the cooldown mode.
- Unit 4 is operating at 100% power.
- Instrument Air Pressure for both units cannot be maintained greater than 65 psig.

Which ONE of the following completes both statements in accordance with ONOP-013, Loss of Instrument Air?

In order to safely continue the Unit 3 cooldown the operators are required to ____(1)____.

The Unit 4 Reactor is required to be tripped because of the challenge to ____(2)____.

	UNIT 3	**UNIT 4**
A.	Start / Stop RHR Pumps on VPB	Reactivity Control
B.	Start / Stop RHR Pumps on VPB	Reactor Coolant Heat Removal
C.	Throttle from VPB MOV-3-749A/B, RHR Hx 3A/B CCW Outlet Valves	Reactivity Control

D. Throttle from VPB MOV-3-749A/B, RHR Hx 3A/B CCW Outlet Valves — Reactor Coolant Heat Removal

Proposed Answer: B

Explanation (Optional):

A. Incorrect due to the Feed Regulating Valves will fail closed. Therefore, the heat sink is lost to the S/Gs. Also, a boration flowpath is maintained by locally aligning the Charging Pump Suction to the RWST. Plausible due to the first part is correct and the makeup system operation is affected by a loss of instrument air.

B. CORRECT.

0-ONOP-013, Foldout Page:

A dual unit loss of instrument air (less than 60 psig) results in the loss of the additional functions:

- Inability to control RCS cooldown using HCV-*-758 and FCV-*-605 and may require stopping the RHR Pump to stop a cooldown, if in progress when air was lost.

Maintain Instrument Air Available To The Auxiliary Building Greater Than 65 PSIG Perform the following on both Unit 3 and Unit 4.

A single unit loss of instrument air (less than 65 psig) results in the loss or partial loss of function depending on the spring bench setting of the following valve(s):

- Feedwater Reg Valves
- Feedwater Bypass Valves

Therefore, the heat sink is lost to the S/Gs.

C. Incorrect since it is not proceduralize to close MOV-3-749A/B, RHR Hx 3A CCW Outlet, on a loss of Instrument Air to RHR. In addition MOV-3-749 A/B are not inching valves and cannot be throttled from VPB. Reactivity control is the incorrect reason the Rx is tripped. The Feed Regulating Valves will fail closed. Therefore, the heat sink is lost to the S/Gs. Also, a boration flowpath is maintained by locally aligning the Charging Pump Suction to the RWST.

D. Incorrect since it is not in procedure to close MOV-3-749A/B, RHR Hx 3A CCW Outlet, on a loss of Instrument Air to RHR. However, plausible because closing MOV-3-749A/B, RHR Hx 3A/B CCW Outlet would eventually stop the cooldown. Also plausible because the second part is correct.

Technical Reference(s): 0-ONOP-013, Loss of Instrument Air; LP 6902286, Loss of Instrument Air (Attach if not previously provided)

Proposed References to be provided to applicants during examination:

Learning Objective: LP 6902286, Obj. 7 (As available)

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

Question History: Last NRC Exam:

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis (3SPK)

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 10
55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.

Comments:

K/A Match Justification:

This question matches the K/A in that, during a Loss of IA, it tests knowledge of parameters (IA pressure and RCS temperature) related to safety systems (RHR) during implementation of abnormal procedures (3-ONOP-013, Loss IA).

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	E05	EK2.1
	Importance Rating	3.7	

Knowledge of the interrelations between the (Loss of Secondary Heat Sink) and the following: Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Proposed Question: RO Question # 18

Unit 3 has experienced a unit trip with a failure of Auxiliary Feedwater to supply feed flow to S/Gs. The crew has entered 3-EOP-FR-H.1, Response to Loss of Secondary Heat Sink.

Other plant conditions are as follows:

- All RCPs have been tripped
- Safety Injection Signal has been reset

Containment Conditions
- Atmospheric Air Temperature: 155°F
- Pressure: 0.5 psig
- CHRRMS Radiation Levels: 1R/hr

S/G Wide Range (WR) Levels
- 3A S/G: 24%
- 3B S/G: 34%
- 3C S/G: 25%

In accordance with 3-EOP-FR-H.1, which ONE of the following identifies whether (1) the Feedwater Bypass Isolation Reset Pushbuttons are required to be depressed to restore Feedwater to the S/Gs and (2) if any, feedwater flow restrictions apply?

A. (1) NOT required to be depressed
(2) Main Feedwater flow may be adjusted with no restrictions

B. (1) Required to be depressed
(2) Main Feedwater flow may be adjusted with no restrictions

C. (1) NOT required to be depressed
(2) Main Feedwater flow is limited to 25 gpm

D. (1) Required to be depressed
(2) Main Feedwater flow is limited to 25 gpm

Proposed Answer: B

Explanation (Optional):

A. Incorrect because the reset pushbuttons are required to be depressed to open Feed Water Regulating Bypass valves. Plausible because 2nd half is correct.

B. CORRECT. The reset pushbuttons are required to be depressed to open Feed Water Regulating Bypass valves. There are no feed restrictions with WR > 22%.

C. Incorrect because the reset pushbuttons are required to be depressed to open Feed Water Regulating Bypass valves and there are no feed restrictions with WR > 22%. Plausible because there are feed restrictions when the Steam Generator meets Hot and Dry conditions.

D. Incorrect because there are no feed restrictions with WR > 22%. Plausible because there are feed restrictions when the Steam Generator meets Hot and Dry conditions and the first half of the question is correct.

Technical Reference(s): 3-EOP-FR-H.1, Response to Loss of Secondary Heat Sink. (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6902337, Obj. 6 (As available)

Question Source: Bank #

Modified Bank # (Note changes or attach parent)

New X

Question History: Last NRC Exam:

Question Cognitive Level: Memory or Fundamental Knowledge

Comprehension or Analysis (2DR)

Question Difficulty: Moderate (B)

10 CFR Part 55 Content: 55.41 10

55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.

Comments:

K/A Match Justification:

This question matches the K/A in that it tests how feedwater is manually controlled during a Loss of Secondary Heat Sink.

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	2	
	K/A #	003	AK1.02
	Importance Rating	3.1	

Knowledge of the operational implications of the following concepts as they apply to Dropped Control Rod: Effects of turbine-reactor power mismatch on rod control

Proposed Question: RO Question # 19

Given the following:

- Unit 4 is operating at 80% power with all parameters at program values.
- All control systems are aligned in automatic.
- Control Bank "D" control rods are at 215 steps.
- ONE Control Bank "C" control rod is dropped, indicating 0 steps.

Which ONE of the following describes (1) the INITIAL Rod Control Power Mismatch Circuit response to the dropped rod and (2) whether power is required to be reduced?

A. (1) A Rod Control Insertion Demand Signal is generated.
(2) Perform a power reduction.

B. (1) A Rod Control Insertion Demand Signal is generated.
(2) A power reduction is NOT required.

C. (1) A Rod Control Withdrawal Demand Signal is generated.
(2) Perform a power reduction.

D. (1) A Rod Control Withdrawal Demand Signal is generated.
(2) A power reduction is NOT required.

Proposed Answer: C

Explanation (Optional):

A. Incorrect. A rod insertion demand will not be present because the rate of change of

reactor power will be higher than that of turbine power, and Tave will be lowering below Tref due to the dropped rod. Plausible because the second part is correct.

B. Incorrect. First part incorrect for same reason as in option A. Additionally second part is incorrect but plausible because student may not recognize a power reduction is required prior to restoring a dropped rod and that only Tave/Tref need to be matched with may be accomplished by adjusting Turbine load.

C. CORRECT. On a dropped rod, reactor power immediately lowers and Tave immediately lowers.

D. Incorrect. First part is correct, second part is incorrect but plausible because student may not recognize a power reduction is required prior to restoring a dropped rod and that only Tave/Tref need to be matched with may be accomplished by adjusting Turbine load.

Technical Reference(s): LP 6900105, Full Length Rod Control (Attach if not previously provided)
3-ONOP-28.3
TS Basis 0-ADM-536

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6900105, Obj. 10 (As available)

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

Question History: Last NRC Exam:

Question Cognitive Level: Memory or Fundamental Knowledge

Comprehension or Analysis (3PEO)

Question Difficulty: Moderate (B)

10 CFR Part 55 Content: 55.41 7
55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:

K/A Match Justification:

This question matches the K/A in that it tests the impact that a dropped rod has on the power mismatch circuit of the Full Length Rod Control System.

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	2	
	K/A #	005	AA2.03
	Importance Rating	3.5	

Ability to determine and interpret the following as they apply to the Inoperable / Stuck Control Rod: Required actions if more than one rod is stuck or inoperable

Proposed Question: RO Question # 20

Given the following:

- Unit 3 is at 88% power
- During a load reduction, it was determined that 2 rods are mechanically bound.
- One Control Rod in Bank D Group 1 is stuck at 196 steps.
- One Control Rod in Bank D Group 2 is stuck at 196 steps.
- All other Control Bank D Rods are at 192 steps.

In accordance with Technical Specification 3.1.3.1, Movable Control Assemblies - Group Height, which ONE of the following identifies the MINIMUM required action within ONE hour?

A. Perform 0-OSP-028.8, Shutdown Margin Calculation.

B. Be in HOT STANDBY.

C. Perform 3-OSP-059.10, Quadrant Power Tilt Ratio Calculation.

D. Perform 3-OSP-059.9, Computer Axial Flux Monitor Verification.

Proposed Answer: A

Explanation (Optional):

A. CORRECT. Technical Specifications 3.1.3.1, *Movable Control Assemblies - Group Height*, Action a, requires SDM verification within 1 hour.

B. Incorrect because a reactor shutdown will not be required if shutdown margin requirements are met.

C. Incorrect since a QPTR verification is not required for an inoperable rod. Plausible since rod misalignment can cause power peaks within the core and severe misalignment can cause QPTR to exceed the limits of TS 3.2.4.

D. Incorrect since an AFD verification is not required for an inoperable rod. Plausible since, per 0-ADM-536, *Technical Specification Bases Control Program*, Page 37, rod alignment is related to AFD. Also plausible since some AFD T.S. Actions are less than 1 hour.

Technical Reference(s): Tech Spec 3.1.3.1, *Movable Control Assemblies - Group Height* (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6902521, Obj. 3 (As available)

Question Source: Bank #
Modified Bank # 67498 (Note changes or attach parent)
New

Question History: Last NRC Exam:

Question Cognitive Level: Memory or Fundamental Knowledge (1P)
Comprehension or Analysis

Question Difficulty: Moderate (B)

10 CFR Part 55 Content: 55.41 5
55.43

Design, components, and function of reactivity control mechanisms and instrumentation.

Comments:
2008 DC Cook significantly modified

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	2	
	K/A #	024	2.2.42
	Importance Rating	3.9	

Equipment Control: Ability to recognize system parameters that are entry-level conditions for Technical Specifications.

Proposed Question: RO Question # 21

Given the following:

- Unit 3 is at 100% power.
- Boron Concentration is 450 ppm.
- Shutdown Margin (SDM) is 1.25% $\Delta k/k$.

Which ONE of the following describes the MINIMUM required actions, if any, by Technical Specification 3.1.1.1, Shutdown Margin - Tavg Greater than 200°F?

REFERENCE PROVIDED

A. No Tech Spec actions are required.

B. Immediately initiate RCS boration with at least 16 gpm.

C. Immediately initiate an emergency boration with at least 45 gpm.

D. Be in HOT STANDBY within 6 hours.

Proposed Answer: B

Explanation (Optional):

A. Incorrect because boration is required since the SDM is not in the "Acceptable Operation" region of T.S. Figure 3.3-1. Plausible because the given conditions place

the SDM near the "Acceptable Region" and the graph could be misread.

B. CORRECT. For the given conditions, the SDM is slightly below the "Acceptable Operation" region. The Action for TS 3.1.1.1 states: "With the SHUTDOWN MARGIN less than the applicable value shown in Figure 3.1-1, immediately initiate and continue boration at greater than or equal to 16 gpm of a solution containing greater than or equal to 3.0 wt% (5245 ppm) boron or equivalent until the required SHUTDOWN MARGIN is restored."

C. Incorrect because emergency boration is not required until you have been below the Rod Insertion Limit for >1 hour and boration has not been successful.

D. Incorrect because there is no requirement to shutdown if SDM is not satisfied. Plausible since other action times require one hour to meet or be in Hot Stby.

Technical Reference(s): Technical Specification 3.1.1.1, Shutdown Margin - Tavg Greater Than 200°F

TS 3.1.1.2, Shutdown Margin - Tavg Less Than Or Equal To 200°F

3-ONOP-046.1, Emergency Boration

(Attach if not previously provided)

Proposed References to be provided to applicants during examination: T.S. Figure 3.3-1

Learning Objective: LP 6902521, Obj. 3 (As available)

Question Source: Bank #

Modified Bank # (Note changes or attach parent)

New X

Question History: Last NRC Exam:

Question Cognitive Level: Memory or Fundamental Knowledge (1F)

Comprehension or Analysis

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 5

55.43

Facility operating characteristics during steady state and transient conditions, including coolant chemistry, causes and effects of temperature, pressure and reactivity changes, effects of load changes, and operating limitations and reasons for these operating characteristics.

Comments:

K/A Match Justification:

This question matches the K/A in that it tests a T.S. Action requiring immediate boration. While not an exact match, this question meets the intent of the K/A because "immediate" boration is, in a sense, "emergency" boration. At PTN, TS do not require "emergency" boration. 3-ONOP-046.1, *Emergency Boration*, contains only 1 Symptom/Entry Condition that relates to TS (2.4). In part, Section 2.4 states: "Two or more control or two or more shutdown rods not fully inserted after a reactor shutdown or trip, and shutdown margin is not confirmed to be in compliance with Figure 3.1-1 of Technical Specifications." So, the only relationship between TS and 3-ONOP-046.1 is through SDM, which requires "immediate" boration, not necessarily "emergency" boration.

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	2	
	K/A #	032	AK3.01
	Importance Rating	3.2	

Knowledge of the reasons for the following responses as they apply to the Loss of Source Range Nuclear Instrumentation: Startup termination on source-range loss

Proposed Question: RO Question # 22

Given the following:

- A reactor startup is in progress on Unit 4.
- Tavg is 547°F.
- Control Bank "D" is at 50 steps.
- Both Source Range channels indicate approximately 2 X 10^{3} CPS.
- Both Intermediate Range channels indicate approximately 3 X 10^{-11} amps.
- Source Range Channel N-31 fails LOW.
- Audio Count Rate Selector is selected to N-31.

Which ONE of the following describes whether the startup may continue in accordance with Technical Specifications and the reason?

A. The startup may continue because Gammametrics are available.

B. The startup may continue because the plant is above P-6.

C. The startup may NOT continue because of a loss of the SR Audio Count Rate

D. The startup may NOT continue because the plant is below P-6.

Proposed Answer: D

Explanation (Optional):

A. Incorrect. Cannot continue to Mode 1 or go above P-6. In a startup, 2 are required to continue, cannot account for gammametrics

B. Incorrect. BOTH Source Ranges are required for Rx Trip at the current power level, which is currently below P-6. TS does not allow power escalation

C. Incorrect. Audio count rate is not required for plant and reactor startups.

D. Correct

Technical Reference(s): TS 3.3.1 and TS Table 3.3-1 (Attach if not previously provided)

LP 6900104 section 2.9

Proposed References to be provided to applicants during examination: None

Learning Objective: 6900104, Obj. 14a, 15 (As available)

Question Source: Bank # WTSI 66211

Modified Bank # (Note changes or attach parent)

New

Question History: Last NRC Exam: 2007 Ginna

Question Cognitive Level: Memory or Fundamental Knowledge

Comprehension or Analysis (2DR)

Question Difficulty: Moderate (B)

10 CFR Part 55 Content: 55.41 7 & 10

55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:

Ginna 2007 NRC Exam

Matches KA because it tests the reason for termination of the startup, while also testing whether the RO knows that startup must be terminated under conditions where P-6 is not satisfied IAW TS 3.3.1

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	2	
	K/A #	033	AA1.01
	Importance Rating	2.9	

Ability to operate and / or monitor the following as they apply to the Loss of Intermediate Range Nuclear Instrumentation: Power-available indicators in cabinets or equipment drawers

Proposed Question: RO Question # 23

Given the following:

- Unit 3 is at 25% power and raising power.
- Annunciator INTERM RANGE N-35 LOSS OF COMP VOLTAGE (B 5/3) alarms.

Intermediate Range N-35 Drawer Indications

- N-35 Drawer – LOSS OF DETECTOR VOLT light is ON.
- N-35 Drawer – LOSS OF COMP. VOLT light is ON.
- N-35 Drawer – HIGH LEVEL TRIP light is ON.

For the given indications, which ONE of the following describes the indications on the INTERMEDIATE RANGE N-35 Drawer and status of the Reactor Trip Breakers?

	Intermediate Range N-35 Drawer Indications	Reactor Trip Breakers
A.	CONTROL POWER ON status light is OFF	are tripped
B.	CONTROL POWER ON status light is OFF	NOT tripped
C.	INSTRUMENT POWER ON status light is OFF	are tripped
D.	INSTRUMENT POWER ON status light is OFF	NOT tripped

Proposed Answer: D

Explanation (Optional):

A. Incorrect because the conditions presented would not result in a reactor trip. Additionally, control power is still available as indicated by drawer lights being illuminated. Plausible because there are 2 power supplies to the instrument.

B. Incorrect because drawer indication would be out if control power was lost. Plausible because the condition presented would not result in a reactor trip.

C. Incorrect because loss of compensating voltage would not result in a reactor trip at 25% power. Plausible because if the unit was at lower power, this could result in a reactor trip.

D. Correct. Indications are consistent with a loss of instrument power. Because reactor power is at 25%, Intermediate Range Neutron Flux Trip will remain blocked, so a reactor trip will not occur.

Technical Reference(s): SD-004, Excore Nuclear Instrumentation
LP 6900104, Excore Nuclear Instrumentation (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6900104, Obj. 7 (As available)

Question Source: Bank # WTSI 68971
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2009 TMI

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis (2DR)

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 7

55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	2	
	K/A #	061	AK2.01
	Importance Rating	2.5	

Knowledge of the interrelations between the Area Radiation Monitoring (ARM) System Alarms and the following: Detectors at each ARM system location

Proposed Question: RO Question # 24

Which two of the following Area Radiation Monitors are inputs to Control Room annunciator X 4/1, ARMS HI RADIATION?

A. 1) U-3 Ctmnt High Range Rad. Monitors
AND
2) RAI-6642, Control Room HVAC Radiation Monitor

B. 1) U-3 Ctmnt High Range Rad. Monitors
AND
2) U-4 New Fuel Storage Area

C. 1) Spent Fuel Pit Exhaust Duct
AND
2) U-4 New Fuel Storage Area

D. 1) Spent Fuel Pit Exhaust Duct
AND
2) RAI-6642, Control Room HVAC Radiation Monitor

Proposed Answer: C

Explanation (Optional):

A. Incorrect because these locations do not input into X 4/1. Plausible because they are high radiation monitors which alarm for personnel protection.

B. Incorrect because the U-3 Ctmnt High Range Rad. Monitors do not input into X 4/1. Plausible because they are high radiation monitors which alarm for personnel protection.

C. Correct

D. Incorrect because the RAI-6642 does not input into X 4/1.

Technical Reference(s): 3-ARP-097.CR.H and .X (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6902168, Obj. 4 (As available)

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

Question History: Last NRC Exam:

Question Cognitive Level: Memory or Fundamental Knowledge (1F)
Comprehension or Analysis

Question Difficulty: Moderate (B)

10 CFR Part 55 Content: 55.41 11
55.43

Purpose and operation of radiation monitoring systems, including alarms and survey equipment.

Comments:

Turkey Point 2005 – Not last 2

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	2	
	K/A #	067	2.1.30
	Importance Rating	4.4	

Conduct of Operations: Ability to locate and operate components, including local controls.

Proposed Question: RO Question # 25

Given the following:

The Control Room directs the ANPO to perform a Emergency/Manual Start of the Diesel Driven Fire Pump (DDFP).

The MINIMUM required action(s) to locally start the DDFP in accordance with 0-OP-016.1, Fire Protection Water System, Section 7.8, Emergency/Manual Start of the DDFP is/are to....

A. Throttle open the Gauge Test Line Drain, 10-1054.

B. Throttle closed the DDFP Mercoid Sensing Line Isolation Valve 10-769.

C. Ensure Battery 1 & 2 Switches are ON, place the Control Switch to MANUAL, and push the CRANK 1 pushbutton.

D. Ensure Battery 1 & 2 Switches are ON and push the CRANK 1 & CRANK 2 pushbuttons simultaneously.

Proposed Answer: C

Explanation (Optional):

A. Incorrect since these actions are for surveillance operation, not an emergency start. Plausible because this valve is operated during surveillance testing to locally start this pump.

B. Incorrect since these actions are for surveillance operation, not an emergency start. Plausible because this valve is operated during surveillance testing to locally start this

pump.

C. CORRECT. Per Section 7.8 of 0-OP-016.1, Fire Protection Water

D. Incorrect since these actions are not complete for an emergency start. Also, the start does not require both pushbuttons. Plausible because these components are operated during the emergency start process to locally start this pump.

0-OSP-016.2, Diesel Driven Fire Pump Annual Surveillance Test

NOTES

- *There is a 5 second time delay in the starting circuit so pressure should be reduced slowly.*
- *Due to a solid flow of water, a second operator may be required to observe water flow through the sightglass when the fire pump auto starts.*
- *The following step may be repeated, as required, to slowly reduce pressure.*

7.14 Perform the following steps, as required, to slowly reduce the pressure sensed at the Mercoid pressure switch:

7.14.1 Throttle open Precision Gauge Test Line Drain, 10-1054, until a few drops per second is obtained.

7.14.2 Unlock DDFP Mercoid Sensing Line Isolation 10-769.

7.14.3 Slowly throttle closed DDFP Mercoid Sensing Line Isolation 10-769 while observing the gauge.

0-OP-016.1, Fire Protection Water System

7.8 Emergency/Manual Start of the Diesel Driven Fire Pump

7.8.1 Verify both Battery 1 and Battery 2 switches are ON.

7.8.2 Place control switch to MANUAL.

7.8.3 Push the CRANK 1 pushbutton.

7.8.4 IF engine does NOT start, THEN push the CRANK 2 pushbutton.

Technical Reference(s): LP 6902143, Fire Protection (Attach if not previously provided)

0-OP-016.1, Fire Protection Water System
0-OSP-016.2, Diesel Driven Fire Pump Annual Surveillance Test

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6902143, Obj. 11 (As available)

Question Source: Bank #

Modified Bank # (Note changes or attach parent)

New X

Question History: Last NRC Exam:

Question Cognitive Level: Memory or Fundamental Knowledge (1P)

Comprehension or Analysis

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 8

55.43

Components, capacity, and functions of emergency systems.

Comments:

K/A Match Justification:

This question matches the K/A in that it tests local controls (Panel C286) and operation of equipment (Main/Reserve switch) during a fire in the Cable Spreading Room.

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	2	
	K/A #	E13	EA1.2
	Importance Rating	3.0	

Ability to operate and / or monitor the following as they apply to the (Steam Generator Overpressure) Operating behavior characteristics of the facility.

Proposed Question: RO Question # 26

Which ONE of the following describes the LOWEST S/G pressure that will meet the entry conditions of 3-EOP-FR-H.2, Response to Steam Generator Overpressure, and a required action listed in this procedure?

A. 1075 psig; manually open the S/G Steam Dump to Atmosphere Valve

B. 1135 psig; manually open the S/G Steam Dump to Atmosphere Valve

C. 1075 psig; initiate S/G Blowdown flow from the affected S/G

D. 1135 psig; initiate S/G Blowdown flow from the affected S/G

Proposed Answer: B

Explanation (Optional):

A. Incorrect because 1100 psig is below the SG pressure for entry to FR-H.2. Second part is correct

B. CORRECT. 3-EOP-FR-H.2 allows for different methods of limiting pressure in the affected S/G. One is via the Steam Dump to Atmosphere steam supply. Entry condition (Yellow Path) is 1130 psig

C. Incorrect since using S/G Blowdown is a strategy in 3-EOP-FR-H.3. Also, S/G blowdown would remove mass from the S/G, but this is provided in 3-EOP-FR-H.3

when narrow range level is greater than 80%. S/G pressure is too low for entry conditions

D. Incorrect. Plausible because the first part is correct. Also plausible because the second method would remove mass from the S/G, but this is provided in 3-EOP-FR-H.3 when narrow range level is greater than 80%.

Technical Reference(s): 3-EOP-FR-H.2, Response to Steam Generator Overpressure (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6902337, Obj. 4 (As available)

Question Source: Bank # 70872
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2009 VC Summer

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis (2RI)

Question Difficulty: Moderate (B)

10 CFR Part 55 Content: 55.41 10
55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.

Comments:

This was modified from VCS 2009 exam but left as bank item because the bank contains several similar items

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	2	
	K/A #	E16	EK3.2
	Importance Rating	2.9	

Knowledge of the reasons for the following responses as they apply to the (High Containment Radiation) Normal, abnormal and emergency operating procedures associated with (High Containment Radiation).

Proposed Question: RO Question # 27

Given the following:

- A LOCA has occurred on Unit 3.
- RCS pressure is 100 psig.
- Containment pressure is 38 psig.
- Containment High Range Area Radiation Monitors (CHRRMS) are 6E5 R/HR.
- Actions of 3-EOP-FR-Z.3, Response to High Containment Radiation Level, are in progress.

In accordance with 3-EOP-FR-Z.3, which ONE of the following describes (1) the bases for starting Emergency Containment Filter Fans and (2) the reason for installing the Containment Purge Isolation Valve fuses?

A. (1) To reduce the iodine concentration in the Containment atmosphere
(2) To verify the Containment Ventilation Isolation Valves are closed

B. (1) To provide mixing and cooling of Containment atmosphere
(2) To lower Containment pressure when normal methods are unavailable

C. (1) To reduce the iodine concentration in the Containment atmosphere
(2) To lower Containment pressure when normal methods are unavailable

D. (1) To provide mixing and cooling of Containment atmosphere
(2) To verify the Containment Ventilation Isolation Valves are closed

Proposed Answer: A

Explanation (Optional):

A. CORRECT. The SI signal starts the emergency containment filtration (ECF) system filter fans. During the accident, iodine removal is by the ECF system filters. Also, the steps of 3-EOP-FR-Z.3 re-energize the Containment Purge Isolation Valves to verify Containment Ventilation Isolation to limit any release.

B. Incorrect because the Emergency Filters are started specifically to remove iodine. Plausible because it could be easily assumed that the Containment Spray System operation is sufficient to remove iodine and that the Emergency Filters were required to assist in mixing and cooling containment. Also, it is logical for the applicant to believe steps of 3-EOP-FR-Z.3 re-energize the Containment Purge Isolation Valves to lower Containment pressure when normal methods are unavailable which is not correct per this guidance.

C. Incorrect. Plausible – The first part is correct. Also, it is logical for the applicant to believe steps of 3-EOP-FR-Z.3 re-energize the Containment Purge Isolation Valves to lower Containment pressure when normal methods are unavailable which is not correct per this guidance.

D. Incorrect because the Emergency Filters are started specifically to remove iodine. Plausible because it could be easily assumed that the Containment Spray System operation is sufficient to remove iodine and that the Emergency Filters were required to mix and cool containment. Also, the second part is correct.

Technical Reference(s): 3-EOP-FR-Z.3, Response to High Containment Radiation Level (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6902129, Obj. 2
LP 6902338, Obj. 20 (As available)

Question Source: Bank # 70885
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2009 VC Summer

Question Cognitive Level: Memory or Fundamental Knowledge (1B)
Comprehension or Analysis

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 10
55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.

Comments:

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	003	A3.01
	Importance Rating	3.3	

Ability to monitor automatic operation of the RCPS, including: Seal injection flow

Proposed Question: RO Question # 28

Given the following:

- Unit 3 is operating at 100% power with all controls in Automatic.
- HIC-3-121, Charging Flow to Regen Hx Controller, is at 50% demand.

Which ONE of the following completes the following statement?

IF the pneumatic supply is lost to HCV-3-121, Charging Flow to Regen HX, THEN HCV-3-121 will fail to the fully _____ position, and the RCP seal injection flow rate will _____.

A. (1) open
(2) rise

B. (1) open
(2) lower

C. (1) closed
(2) rise

D. (1) closed
(2) lower

Proposed Answer: B

Explanation (Optional):

A. Incorrect since Seal Injection flow lowers. Plausible – The applicant assumes HCV-3-121, Charging Flow to Regen Hx, fails open which would logically protect the RCP Seals by sending more flow to them. This would be a misunderstanding of the flow branch for CVCS

B. CORRECT. HCV-3-121, Charging Flow to Regen Hx, fails open which allows less restriction to flow to the RCS and more Charging flow.

C. Incorrect since HCV-3-121 fails open. Plausible – The applicant assumes HCV-3-121, Charging Flow to Regen Hx, fails closed which would force more flow to the RCP Seals.

D. Incorrect since HCV-3-121 fails open and Seal Injection flow rises. Plausible – The applicant assumes HCV-3-121, Charging Flow to Regen Hx, fails closed which causes total charging flow to lower. This would be a misunderstanding of the flow branch for CVCS

Technical Reference(s): LP 6902108, RCPs (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6902108, Obj 4.a (As available)

Question Source: Bank # 47503

Modified Bank # (Note changes or attach parent)

New

Question Difficulty Level: B

Question History: Last NRC Exam: 2003 Point Beach

Question Cognitive Level: Memory or Fundamental Knowledge

Comprehension or Analysis (2DR)

10 CFR Part 55 Content: 55.41 7

55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	004	A1.07
	Importance Rating	2.7	

Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the CVCS controls including: Maximum specified letdown flow

Proposed Question: RO Question # 29

Given the following:

- Unit 4 is at 100% power.
- Pressurizer level is 55% and stable following IST on the 4A Charging Pump.
- Letdown Orifice CV-4-200C is in service.
- Excess Letdown is in service.
- VCT level is 30% and stable.

The crew places letdown orifice CV-4-200A in service to lower Pressurizer level.

Which ONE of the following identifies (1) if a CVCS Demineralizer Letdown flow design limit was exceeded after the second orifice was placed in service AND (2) the effect on Letdown flow if PCV-4-145, Low Pressure Letdown Valve, subsequently fails OPEN?

A. (1) WAS exceeded
(2) Will initially rise

B. (1) WAS NOT exceeded
(2) Will initially rise

C. (1) WAS exceeded

(2) Will initially lower

D. (1) WAS NOT exceeded

(2) Will initially lower

Proposed Answer: B

Explanation (Optional):

A. Incorrect since the maximum letdown flow (per 4-OP-047, Precaution 4.2) of 120 gpm has not been exceeded. When CV-4-200A was placed in service, this raised letdown flowrate from a nominal 60 gpm to a nominal 105 gpm. Plausible because the 2nd part is correct. Also plausible because placing CV-4-200B in service, vs CV-4-200A, would place nominal letdown flow *at* the maximum limit. Placing all three letdown orifice isolation valves in service *would* exceed the limit.

B. CORRECT. The maximum letdown flow (per 4-OP-047, Precaution 4.2) of 120 gpm has not been exceeded. When CV-4-200A was placed in service, this raised letdown flowrate from a nominal 60 gpm to a nominal 105 gpm. If the LP Letdown valve fails open, flow rises in the letdown line

C. Incorrect since the maximum letdown flow (per 4-OP-047, Precaution 4.2) of 120 gpm has not been exceeded. Plausible if the applicant mistakes this reverse acting backpressure control valve for a flow controller. This is the effect if it failed closed

D. Incorrect pressure actually lowers, does not rise. Plausible if the applicant mistakes this reverse acting backpressure control valve for a flow controller. This is the effect if it failed closed. Also plausible because first part is correct

Technical Reference(s): 4-OP-047, CVCS - Charging and Letdown
LP 6902113, CVCS (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6902113, Obj. 9 (As available)

Question Source: Bank # 67185

Modified Bank # (Note changes or attach parent)

New

Question History: Last NRC Exam: 2009 Millstone 3

Question Cognitive Level: Memory or Fundamental Knowledge

Comprehension or Analysis (2DR)

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 5

55.43

Facility operating characteristics during steady state and transient conditions, including coolant chemistry, causes and effects of temperature, pressure and reactivity changes, effects of load changes, and operating limitations and reasons for these operating characteristics.

Comments:

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	005	K6.03
	Importance Rating	2.5	

Knowledge of the effect of a loss or malfunction on the following will have on the RHRS: RHR heat exchanger

Proposed Question: RO Question # 30

Given the following conditions:

- Unit 3 is in Mode 4 and shutting down for refueling.
- 3B RHR Cooling Train is in service.
- A tube leak occurs in the 3B RHR Exchanger.

Which ONE of the following identifies (1) a symptom of the tube leak and (2) assuming no operator action, the response of the RHR Hx Bypass Flow Valve, FCV-3-605?

A. (1) CCW Head Tank level lowers
(2) Closes

B. (1) CCW Head Tank level lowers
(2) Opens

C. (1) RCS level lowers
(2) Closes

D. (1) RCS level lowers
(2) Opens

Proposed Answer: D

Explanation (Optional):

A. Incorrect since CCW Head Tank level rises and FCV-3-605 will Open. Plausible because the applicant believes CCW discharge pressure is higher than RHR.

B. Incorrect since CCW Head Tank level rises. Plausible because the applicant believes CCW discharge pressure is higher than RHR. Also plausible because the second half is correct.

C. Incorrect. Plausible because 1st part is correct. Also plausible because this effect is true if CCW were to leak into the RHR System.

D. Correct.

Technical Reference(s): 3-5613-M-3050 Sheet 1, Unit 3 RHR System (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6900121A, Obj. 11 (As available)

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

Question History: Last NRC Exam:

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis (2RI)

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 7
55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	006	K3.02
	Importance Rating	4.3	

Knowledge of the effect that a loss or malfunction of the ECCS will have on the following Fuel

Proposed Question: RO Question # 31

Emergency Core Cooling System components operate in the following Modes of Operation: passive accumulator injection, ____(1)____, and cold/hot leg recirculation.

When these ECCS Modes of Operation are unavailable during a Large Break Loss of Coolant Accident, then the General Design Criteria of 10 CFR 50.46 could exceed the Peak Cladding Temperature Limit of ___(2)___ .

(Assume NO operator action.)

A. (1) hot leg injection
(2) 1800°F

B. (1) hot leg injection
(2) 2200°F

C. (1) cold leg injection
(2) 1800°F

D. (1) cold leg injection
(2) 2200°F

Proposed Answer: D

Explanation (Optional):

A. Incorrect because injection does not enter into the RCS hot legs. The 10 CFR 50.46 acceptance criteria is 2200°F vice 1800°F. Plausible because the Zircaloy water reaction starts at 1800°F

B. Incorrect because injection does not enter into the RCS hot legs. Plausible because the second half of the question is correct.

C. Incorrect the 10 CFR 50.46 acceptance criteria is 2200°F vice 1800°F. Plausible because the Zircaloy water reaction starts at 1800°F and the first half of the question is correct.

D. CORRECT

LP 6902121, ECCS Safety Injection Accumulators

Technical Reference(s): LP 6902918, Transient and Accident Analysis Loss of Coolant Accidents (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6902121b, Obj. 6
LP 6902918, Obj. 5 (As available)

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

Question History: Last NRC Exam: Turkey Point

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis (2DR)

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 8
55.43

Components, capacity, and functions of emergency systems.

Comments:

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	007	K3.01
	Importance Rating	3.3	

Knowledge of the effect that a loss or malfunction of the PRTS will have on the following: Containment

Proposed Question: RO Question # 32

Given the following:

- Unit 3 was initially at 100% power.
- RCS Activity level is 5.61×10^{-2} µCi/gm.
- A Reactor Trip and Safety Injection (SI) occurred due to Pressurizer Safety Valve RV-3-551B failing open.
- PRT pressure was 85 psig and rising steadily.

Which ONE of the following predicts Containment conditions within the next hour?

A. Containment Sump levels will remain constant
Containment Conditions will become ADVERSE

B. Containment Sump levels will rise
Containment Conditions will become ADVERSE

C. Containment Sump levels will remain constant
Containment Conditions will NOT become ADVERSE

D. Containment Sump levels will rise
Containment Conditions will NOT become ADVERSE

Proposed Answer: B

Explanation (Optional):

A. Incorrect. The PRT Rupture Discs will blow at 100 psig nominal pressure. On a vapor space event such as stuck open safety valve, it is predicted that the PRT will relieve to Containment within 1 hour. The student may believe the vapor contents are directed to the Containment atmosphere in the form of steam with minimal condensation. Therefore, there is not a noticeable increase in the Containment Sump level. Along with this perception, the atmosphere is heated to adverse Containment conditions of 180°F.

B. Correct. The PRT Rupture Discs will blow at 100 psig nominal pressure. On a vapor space event such as stuck open safety valve, it is predicted that the PRT will relieve to containment within 1 hour. The wet vapor contents are directed to Containment atmosphere. Condensation of the wet vapor will collect in the Containment Sump. The atmosphere is heated to adverse Containment conditions of 180°F.

C. Incorrect: The PRT Rupture Discs will blow at 100 psig nominal pressure. On a vapor space event such as stuck open safety valve, the student may believe the vapor contents directed into the PRT are not sufficient to cause a PRT rupture after energy is removed from the quench volume in the tank. Therefore, there is no increase in Containment atmospheric conditions. Containment will not go ADVERSE.

D. Incorrect. The PRT Rupture Discs will blow at 100 psig nominal pressure. On a vapor space event such as stuck open safety valve, it is predicted that the PRT will relieve to containment within 1 hour. The student may believe the energy of wet vapor contents inside the PRT is not sufficient once the PRT is ruptured to cause the Containment conditions to go ADVERSE.

3-EOP-F-0

1 Determine Containment Conditions

a. Check containment temperature - LESS THAN 180°F

- TE-3-6700
- TE-3-6701
- TE-3-6702

b. Check containment radiation - HAS REMAINED LESS THAN 1.3×10^5 R/HR

Technical Reference(s): 3-EOP-F-0 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6902109, Obj. 9, 11 (As available)

Question Source: Bank #

Modified Bank # 64069 (Note changes or attach parent)

New

Question History: Last NRC Exam:

Question Cognitive Level: Memory or Fundamental Knowledge

Comprehension or Analysis (2DR)

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 8

55.43

Components, capacity, and functions of emergency systems.

Comments:

Modified from North Anna 2008

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	008	K4.02
	Importance Rating	2.9	

Knowledge of CCWS design feature(s) and/or interlock(s) which provide for the following: Operation of the surge tank, including the associated valves and controls

Proposed Question: RO Question # 33

Unit 3 is at 100% power.

- Total CCW Thermal Barrier Return Flow is 85 gpm.

Subsequently,

- The 3A RCP Thermal Barrier Heat Exchanger develops a leak of 25 gpm.
- CCW Head Tank Level is 80% and slowly rising.
- PRMS HI RADIATION H 1/4 is in alarm due to CCW Radiation Monitor R-3-17A/B.

Which ONE of the following states (1) the position of RCV-3-609, Head Tank Vent Valve, and (2) the position of MOV-3-626, RCP Thermal Barrier Return Isolation Valve, based on the above conditions?

A. (1) open
(2) open

B. (1) open
(2) closed

C. (1) closed
(2) open

D. (1) closed
(2) closed

Proposed Answer: C

Explanation (Optional):

A. Incorrect. With high radiation, the vent valve will close. Second part is correct.

B. Incorrect. Both parts incorrect but plausible because the applicant may believe that the vent will close on high head tank level. Additionally, there is abnormally high flow in the TBHX. However, the alarm is at 130 gpm and the closure is as well

C. Correct.

D. Incorrect. First part correct. Second part plausible as in B

3-ARP-097.CR.H

Technical Reference(s): LP 6902140, *Component Cooling Water System* (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6902140, Obj. 5 (As available)

Question Source: Bank #
Modified Bank # 70107 (Note changes or attach parent)
New

Question History: Last NRC Exam:

Question Cognitive Level: Memory or Fundamental Knowledge (1F)
Comprehension or Analysis

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 7
55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:
Modified from VCS 2009

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	010	K6.01
	Importance Rating	2.7	

Knowledge of the effect of a loss or malfunction of the following will have on the PZR PCS: Pressure detection systems

Proposed Question: RO Question # 34

Given the following:

- Unit 3 is operating at 50% power.
- ALL Pressurizer pressure controls are in AUTO.
- PT-3-444, Pressurizer Pressure Transmitter, fails LOW.

Which ONE of the choices below completes the following sentence?

With no operator action over the next half hour, Unit 3 will ___(1)___ and RCS pressure will cycle around ___(2)___.

A. (1) trip
(2) PORV PCV-3-456 Setpoint

B. (1) trip
(2) PORV PCV-3-455C Setpoint

C. (1) remain at power
(2) PORV PCV-3-456 Setpoint

D. (1) remain at power
(2) PORV PCV-3-455C Setpoint

Proposed Answer: C

Explanation (Optional):

A. Incorrect since the plant will NOT trip and pressure will stabilize at 2335. Plausible because plant will trip when PT-444 fails HIGH. Also, the plant will cycle around the PORV PCV-3-456 Setpoint.

B. Incorrect since the plant will NOT trip and pressure will stabilize at 2335. PCV-3-455C signal is low due to PT-3-444, Pressurizer Pressure Transmitter, failing LOW. Plausible because plant will trip when PT-444 fails HIGH. Also, the plant will cycle around the PORV PCV-3-456 Setpoint, not PORV PCV-3-455C Setpoint.

C. CORRECT since pressure will stabilize at 2335 psig at PORV PCV-3-456 Setpoint.

D. Incorrect. PT-444 is failed LOW. This signal inputs as a low pressure to PCV-3-455C which will not open. Plausible since RCS pressure cycles at the PORV setpoint on PORV PCV-3-456.

Technical Reference(s): LP 6902109A, *Pressurizer Pressure Control* (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6902109A, Obj.8 (As available)

Question Source: Bank # 61060
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2006 Surrey

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis (3PEO)

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 7
55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	012	K4.02
	Importance Rating	3.9	

Knowledge of RPS design feature(s) and/or interlock(s) which provide for the following: Automatic reactor trip when RPS setpoints are exceeded for each RPS function; basis for each

Proposed Question: RO Question # 35

In accordance with 0-ADM-536, Technical Specification Bases Control Program, which ONE of the following Reactor Trip Setpoints provides reactor core protection against Departure from Nucleate Boiling (DNB)?

A. Steam/Feedwater Flow Mismatch and Low Steam Generator Water Level

B. Reactor Coolant Pump Breaker Position Trip

C. Pressurizer Water Level

D. Power Range Neutron Flux – Low Range

Proposed Answer: B

Explanation (Optional):

A. Incorrect. This trip protects the RCS pressure boundary. Plausible because the applicant will know that RCS pressure is an input to DNBR, but must understand that the trip is designed to avoid high RCS pressures, where the DNBR concern becomes apparent as RCS pressure is lowered.

B. Correct. RCS flow is reduced as RCPs are tripped, and if there was no reactor trip on RCS low flow (or RCP breaker position) DNBR would be reduced

C. Incorrect. PZR water level is a trip on high level, and serves as a backup to PZR high pressure, which is protection of the RCS pressure boundary. Plausible for same reason as option A as well

D. Incorrect. This trip is designed to protect the RCS core, particularly from a rod withdrawal accident at low power. The reactor core safety limit is protected by this trip.

Technical Reference(s): LP 6902163, *RPS and ESFAS* (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6902163, Obj. 7 (As available)

Question Source: Bank # X (PTN)
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam:

Question Cognitive Level: Memory or Fundamental Knowledge (1F)
Comprehension or Analysis
Question Difficulty Level: B
10 CFR Part 55 Content: 55.41 7
55.43
Components, capacity, and functions of emergency systems.

Comments:

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	013	A3.01
	Importance Rating	3.7	

Ability to monitor automatic operation of the ESFAS including: Input channels and logic

Proposed Question: RO Question # 36

Given the following:

- Unit 3 is at 100% power.
- Pressurizer Pressure is at 2235 psig.
- Pressurizer Pressure Protection Channel PT-3-455 failed.
- All actions of 3-ONOP-049.1, Deviation or Failure of Safety Related or Reactor Protection Channels, were completed.

Which ONE of the following identifies (1) the status of the permissive "BLOCK LOW PRZ. PRESS. S.I." light on VPA and (2) the MINIMUM number of additional Pressurizer Pressure Channels required to automatically actuate a Safety Injection on Pressurizer Low Pressure?

	Block Light (permissive)	Channels
A.	On	One
B.	On	Two
C.	Off	One
D.	Off	Two

Proposed Answer: C

Explanation (Optional):

A. Incorrect. The Block light for LOW PRZ. PRESS. S.I. is not on, but off since defeating one channel wouldn't affect the block status (2/3 coincidence). Second half is correct, as placing one bistable in trip leaves only one more channel to trip for an actuation.

B. Incorrect. The Block light for LOW PRZ. PRESS. S.I. is not on, but off since defeating one channel wouldn't affect the block status (2/3 coincidence). Second half incorrect but plausible because if applicant believes that channel is placed in bypass instead of trip, this would be correct.

C. Correct. The Block light for LOW PRZ. PRESS. S.I. is off since defeating one channel wouldn't affect the block status (2/3 coincidence). Since one channel is placed in trip, only 1 more channel is required to cause the actuation.

D. Incorrect. Plausible because the first part is correct and also because second half would be correct if an applicant believed a channel was bypassed rather than tripped when it was taken out of service.

Technical Reference(s): LP 6902163, RPS and ESFAS (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6902163, Obj. 11 (As available)

Question Source: Bank # 66862
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2010 Diablo Canyon

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis (2DR)

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 7
55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:

Changed significantly but left as bank item

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	022	K1.01
	Importance Rating	3.5	

Knowledge of the physical connections and/or cause-effect relationships between the CCS and the following systems: SWS/cooling system

Proposed Question: RO Question # 37

Given the following:

- Unit 3 is at 100% power.
- An automatic Safety Injection occurs.

Which ONE of the following identifies (1) the Emergency Containment Coolers (ECCs) which will receive an automatic start signal and (2) the position of the associated CCW Cooling Water Outlet Valve if one of these ECCs fails to start?

A. (1) 3A and 3C ECC
(2) closed

B. (1) 3A and 3C ECC
(2) open

C. (1) 3B and 3C ECC
(2) closed

D. (1) 3B and 3C ECC
(2) open

Proposed Answer: A

Explanation (Optional):

A. CORRECT.

B. Incorrect. First part is correct. However, 2nd part incorrect, as the fan start circuit sends a signal to solenoids that open the CCW outlet and close the CCW bypass for each ECC

C. Incorrect. Plausible because the B and C ECCs would start on Unit 4, Also plausible because second part is correct.

D. Incorrect. First part incorrect because it lists the wrong ECCS starting. 2nd part incorrect, as the fan start circuit sends a signal to solenoids that open the CCW outlet and close the CCW bypass for each ECC. Plausible because the B and C ECCs would start on Unit 4.

Technical Reference(s): LP 6902129, Containment Ventilation and Heat Removal Systems

4-NOP-057, Containment Normal Ventilation and Cooling System (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6902129, Obj. 9 (As available)

Question Source: Bank # 68599

Modified Bank # (Note changes or attach parent)

New

Question History: Last NRC Exam: 2008 Harris

Question Cognitive Level: Memory or Fundamental Knowledge (1F)

Comprehension or Analysis

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 7

55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	026	A1.02
	Importance Rating	3.6	

Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the CSS controls including: Containment temperature

Proposed Question: RO Question # 38

Given the following:

- Unit 4 was operating at 100% power.
- Unit 4 has experienced a Loss of Coolant Accident (LOCA) with a Loss of Offsite Power (LOOP).
- The crew has entered to 4-EOP-E-1, Loss of Reactor or Secondary Coolant.
- RCS pressure lowered to 475 psig.
- Containment pressure peaked at 22 psig and is now 13 psig and lowering.

In accordance with 4-EOP-E-1, Loss of Reactor or Secondary Coolant, which ONE of the following identifies (1) the temperature at which the Containment Spray Pump must be stopped and (2) the time when two Emergency Containment Coolers are required to be in operation?

	Containment Temperature	Time After LOCA Initiation
A.	<180°F	12 hrs
B.	<122°F	24 hrs
C.	<180°F	24 hrs
D.	<122°F	12 hrs

Proposed Answer: B

Explanation (Optional):

A. Incorrect. Plausible because as 180°F is the adverse Containment value for Containment temperature. Also, 12 hours is the number which is used for hot leg recirc. The student may assume this point is the same for starting a second Containment Cooler.

B. Correct.

C. Incorrect. Plausible because as 180°F is the adverse Containment value for Containment temperature. 24 hours is correct.

D. Incorrect. 122°F is correct. Plausible because 12 hours is the number which is used for hot leg recirc. The student may assume this point is the same for starting a second Containment Cooler.

Technical Reference(s): 3-EOP-E-1, steps 12 and 33 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6902129, Obj. 9 (As available)

Question Source: Bank #

Modified Bank # (Note changes or attach parent)

New X

Question History: Last NRC Exam:

Question Cognitive Level: Memory or Fundamental Knowledge (1F)

Comprehension or Analysis

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 7

55.43

Components, capacity, and functions of emergency systems.

Comments:

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	039	K4.05
	Importance Rating	3.7	

Knowledge of MRSS design feature(s) and/or interlock(s) which provide for the following: Automatic isolation of steam line

Proposed Question: RO Question # 39

Which ONE of the following completes the statement below with respect to how the High Main Steam Line Flow with Low Tavg Isolation Setpoint changes with power?

The isolation setpoint is _____ steam flow at _____ power and then increases linearly to about 120% steam flow at 100% power.

A. 40%; 0%

B. 20%; 0%

C. 40%; 20%

D. 20%; 20%

Proposed Answer: C

Explanation (Optional):

A. Incorrect since linear increase does not start until 20%. Plausible because the numbers are the same as the values for the correct setpoint, but the constant value of 40% steam flow limit from 0% - 20% is left out of this choice.

B. Incorrect since linear increase does not start until 20%. Plausible because the numbers are similar to the correct setpoint, but the constant value of 40% steam flow limit from 0% - 20% is left out of this choice.

C. CORRECT. 5610-J-844, Sheet 6A

D. Incorrect since constant setpoint is 40% not 20%. Plausible because this choice correctly states that there is a constant value of Steam Flow setpoint up to a certain power. The setpoint at 100% power is correct, as is the fact that the setpoint increases nearly linearly.

Technical Reference(s): LP 6902163. *RPS and ESFAS* (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6902163, Obj. 8 (As available)

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

Question History: Last NRC Exam: 2010 Farley

Question Cognitive Level: Memory or Fundamental Knowledge (1F)
Comprehension or Analysis

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 7
55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	059	A4.11
	Importance Rating	3.1	

Ability to manually operate and monitor in the control room: Recovery from automatic feedwater isolation

Proposed Question: RO Question # 40

Given the following:

- Unit 4 experienced a Reactor Trip from 100% power due to a failed open Main Feedwater Regulating Valve.
- A Feedwater Isolation Signal was generated.

With repairs complete, Unit 4 is preparing for startup:

- S/G Narrow Range Levels are 45%, 55%, 68% and stable.
- Tave is 543°F and stable.
- Pressurizer Pressure is 2235 psig and stable.

Which ONE of the following describes the MINIMUM action(s) necessary to reset the Main Feedwater Regulating Valve's SLOW Close Solenoid?

A. Reset Feedwater Bypass Isolation using the pushbuttons on VPB ONLY

B. Close the Reactor Trip Breakers ONLY

C. Close the Reactor Trip Breakers AND Reset Feedwater Bypass Isolation using the pushbuttons on VPB ONLY

D. Raise Tave to greater than 554°F, close the Reactor Trip Breakers, AND Reset Feedwater Bypass Isolation using the pushbuttons on VPB

Proposed Answer: B

Explanation (Optional):

A. Incorrect since this will not reset the Main Feedwater Regulating Valve's Slow Close Solenoid. The applicant believes returning high S/G levels to program clears the initiating high S/G level signal. Plausible because this is part of the Fast Close circuitry associated with the Main Feedwater Regulating Valves.

B. CORRECT. Feedwater Isolation occurs when there is a Reactor Trip and Tavg is less than 554°F. The Main Feedwater Regulating Valves slowly close (20 seconds). Increasing Tavg does not reset this Feedwater Isolation condition. The Reactor Trip Breakers must be closed to remove the circuit seal-in and reset Feedwater Isolation.

C. Incorrect. First part is correct and is the only action required (see B). Second part is incorrect (see A). Plausible because applicant may confuse requirement since applicant uses these pushbuttons to reset Feedwater flow.

D. Incorrect since the Feedwater Bypass Isolation Reset pushbuttons allow opening the Feedwater Bypass Valves not the Main Feedwater Regulating Valves. Plausible since the applicant uses these pushbuttons in restoration of Feedwater Flow. Also plausible since the novice applicant believes these buttons reset any Feedwater Isolation signal.

Technical Reference(s): 5610-T-L1 Sheet 14A (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: 37048 - Analyze automatic features and interlocks associated with the RPS (As available)

Question Source: Bank #
Modified Bank # 66866 (Note changes or attach parent)
New

Question History: Last NRC Exam:

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis (2DR)

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 7

55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.

Comments:
Modified from 2010 Diablo Canyon

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	061	K5.01
	Importance Rating	3.6	

Knowledge of the operational implications of the following concepts as the apply to the AFW: Relationship between AFW flow and RCS heat transfer

Proposed Question: RO Question # 41

Given the following:

- Unit 4 was operating at 100% power.
- A Reactor Trip due to a Loss of Main Feedwater.
- 4B 4KV Bus is locked out.
- Due to equipment malfunctions, ONLY 'A' AFW Pump is in service.
- The 'A' AFW Pump speed has begun to slowly LOWER due to a malfunctioning governor.

Which ONE of the following describes how the change in AFW flow will affect Pressurizer Level, including the reason?

Indicated Pressurizer Level will initially ...

A. rise due to a bubble formation in the Rx Vessel Head

B. rise due to decreased primary to secondary heat transfer

C. lower due to the density change in the RCS

D. lower due to decreasing Charging flow

Proposed Answer: B

Explanation (Optional):

A. Incorrect since a bubble should not form in the Reactor Vessel Head with an RCP running. Plausible because "rises" could be correct if such a bubble was to form.

B. CORRECT. As AFW Pump speed decreases due to the governor valve closing, less heat is removed from the RCS via less steam to the pump turbine and less feedwater flow generated. PZR will rise as the RCS fluid expands.

C. Incorrect since PZR level will rise, not lower. Plausible because density decrease in Pressurizer level is possible with an insurge of cooler water lowering the saturation temperature of the fluid. This effect will cause the water volume to contract.

D. Incorrect since PZR level will rise, not lower. Plausible because PZR level will lower after the initial increase as charging pump speed adjusts to the rising level. This is a subsequent effect

Technical Reference(s): (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: (As available)

Question Source: Bank # 68080
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2004 Indian Point 2

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis (2RI)

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 14
55.43

Principles of heat transfer, thermodynamics and fluid mechanics.

Comments:

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	062	K2.01
	Importance Rating	3.3	

Knowledge of bus power supplies to the following: Major system loads

Proposed Question: RO Question # 42

Given the following:

- Unit 3 is operating at 100% power.
- 3D 4KV Bus is aligned to the 3A 4KV Bus.
- A Loss of Offsite Power occurs.
- A 3A 4KV Bus undervoltage condition occurs and clears after 15 seconds.
- During the transient, the Supply From 4KV Bus 3A, 3AD01, trips OPEN.

(Assume no operator action.)

Which ONE of the following lists the components that have lost their power supply?

A. Component Cooling Water Pump 3C and Emergency Containment Filter Fan 3C

B. Intake Cooling Water Pump 3A and Emergency Containment Cooler Fan 3C

C. Intake Cooling Water Pump 3C and Component Cooling Water Pump 3C

D. Emergency Containment Filter Fan 3A and Emergency Containment Cooler Fan 3C

Proposed Answer: C

Explanation (Optional):

A. Incorrect since Emergency Filter Cooler Fan 3C still has power available. Plausible – With an undervoltage condition on the 3A 4KV Bus, the applicant assumes UV load stripping of the Emergency Filter Cooler Fan 3C. Also, plausible because Component Cooling Water Pump 3C will be without power available without operator manual action in 3-EOP-E-0.

B. Incorrect since Intake Cooling Water Pump 3A and Emergency Containment Cooler Fan 3C still have power available. Plausible – With an undervoltage condition on the 3A 4KV Bus, the applicant assumes UV load stripping of the Intake Cooling Water Pump 3A and Emergency Containment Cooler Fan 3C.

C. CORRECT. When breaker 3AD01 opens, power was lost to the 3D 4KV Bus. Intake Cooling Water Pump 3C and Component Cooling Water Pump 3C will have power restored with operator manual action in 3-EOP-E-0.

D. Incorrect since Intake Emergency Containment Filter Fan 3A and Emergency Containment Cooler Fan 3C still have power available. Plausible – With an undervoltage condition on the 3A 4KV Bus, the applicant assumes UV load stripping of the Emergency Containment Filter Fan 3A and Emergency Containment Cooler Fan 3C.

Technical Reference(s): 5610-T-E, Operating Diagram Electrical Distribution; 3-OP-055, Emergency Containment Cooling and Filtering Systems, Attachment 2; SD-170, Emergency Load Sequencers (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6902157, Obj. 6 (As available)

Question Source: Bank # WTSI 61491

Modified Bank # (Note changes or attach parent)

New

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	063	K1.03
	Importance Rating	2.9	

Knowledge of the physical connections and/or cause-effect relationships between the dc electrical system and the following systems: Battery charger and battery

Proposed Question: RO Question # 43

In accordance with 0-NOP-003.01, 125V Vital DC System, which ONE of the choices below completes the following statements?

If two battery chargers are connected to the battery bank, each battery charger is required to have a minimum output of ___(1)___ amps.

The 125 VDC Battery Terminal MINIMUM Voltage is required to be greater than or equal to ___(2)___ VDC.

A. (1) 10
(2) 129

B. (1) 10
(2) 105

C. (1) 20
(2) 129

D. (1) 20
(2) 105

Proposed Answer: A

Learning Objective: LP 6902139, Obj. 12 (As available)

Question Source: Bank #

Modified Bank # (Note changes or attach parent)

New X

Question History: Last NRC Exam: Turkey Point

Question Cognitive Level: Memory or Fundamental Knowledge (1F)

Comprehension or Analysis

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 8

55.43

Components, capacity, and functions of emergency systems.

Comments:

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	064	A2.07
	Importance Rating	2.5	

Ability to (a) predict the impacts of the following malfunctions or operations on the ED/G system; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Consequences of operating under/over-excited

Proposed Question: RO Question # 44

Given the following:

- Unit 3 is operating at 100%.
- 3A Emergency Diesel Generator (EDG) has been started manually from the control room in accordance with 3-OSP-023.1, Diesel Generator Operability Test.

Which ONE of the following completes the following statements?

In accordance with 3-OSP-23.1 the desired ratio of load (watts) to reactive load (vars) is required to be maintained approximately ___(1)___.

The generator is operated in the LAG position to protect against ___(2)___.

A. (1) 1:1
(2) overheating generator windings

B. (1) 1:1
(2) disruption of the rotor/stator coupled magnetic field

C. (1) 2:1
(2) disruption of the rotor/stator coupled magnetic field

D. (1) 2:1
(2) overheating generator windings

Proposed Answer: C

Explanation (Optional):

A. Incorrect. Plausible because the machine would be operating at low load with high amps and the generators are designed to load share reactive load. Also because 2nd part lists consequence for being overexcited and student may confuse over and under excited.

B. Incorrect. Plausible because the machine would be operating at low load with high amps and the generators are designed to load share reactive load. Also plausible because 2nd part is correct.

C. Correct.

D. Incorrect. Plausible because 1st part is correct and 2nd part lists consequence for being overexcited and student may confuse over and under excited.

Technical Reference(s): LP 6902136, Emergency Diesel Generators and Auxiliaries
3-OP-023, Emergency Diesel Generator (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6902136, Obj. 11 (As available)

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

Question History: Last NRC Exam: 2004 Catawba

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis (2DR)

Question Difficulty Level: C

10 CFR Part 55 Content: 55.41 8

55.43

Components, capacity, and functions of emergency systems.

Comments:

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	073	A1.01
	Importance Rating	3.2	

Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the PRM system controls including: Radiation levels

Proposed Question: RO Question # 45

Which ONE of the following describes (1) an initiating signal to cause a Control Room Ventilation Isolation and (2) the order in which the Emergency Air Supply Fans, SF-1A (V-29A) and SF-1B (V-29B) start in Recirculation mode?

A. (1) RAI-6642, Control Room HVAC Radiation Monitor high alarm
(2) SF-1A starts first, SF-1B starts only on LOW flow

B. (1) RI-1420B, Unit 3 & 4 Control Room Area Radiation Monitor high alarm
(2) SF-1A starts first, SF-1B starts only on LOW flow

C. (1) RAI-6642, Control Room HVAC Radiation Monitor high alarm
(2) SF-1B starts first, SF-1A starts only on LOW flow

D. (1) RI-1420B, Unit 3 & 4 Control Room Area Radiation Monitor high alarm
(2) SF-1B starts first, SF-1A starts only on LOW flow

Proposed Answer: C

Explanation (Optional):

A. Incorrect since SF-1B does start first. Plausible because the 1st part is correct. Also plausible because normally an "A" component will start before a "B" component. "A" will start if "B" is out of service.

B. Incorrect since SF-1B does start first and RAI-6642, Control Room HVAC Radiation Monitor is the initiating signal. Plausible because normally an "A" component will start

before a "B" component. Also, "A" will start if "B" is out of service.

C. CORRECT

D. Incorrect since RAI-6642, Control Room HVAC Radiation Monitor is the initiating signal. Plausible because 2nd part is right. Also, the applicant assumes the initiating signal to protect the Control Room is generated from RI-1420B, Unit 3 & 4 Control Room Area Radiation Monitor.

Technical Reference(s): LP 6902155, Ventilation System and Air Conditioning (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6902155, Obj. 5 (As available)

Question Source: Bank # WTSI 52577
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2006 VC Summer

Question Cognitive Level: Memory or Fundamental Knowledge (1F)
Comprehension or Analysis

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 7
55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:

K/A Match Justification:

This question matches the K/A in that it tests the ability to predict changes to parameters (CR ventilation lineup - start of fan on low flow) on HIGH radiation level (in the CR ventilation intake).

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	076	2.2.12
	Importance Rating	3.7	

Equipment Control: Knowledge of surveillance procedures.

Proposed Question: RO Question # 46

Which ONE of the choices completes the statement below regarding limitations placed on the Intake Cooling Water Pump in accordance with 3-NOP-019, Intake Cooling Water System?

If an ICW Pump has a MAXIMUM flow greater than ___(1)___ gpm for more than twenty minutes, then the MINIMUM required action(s) is/are to ___(2)___ .

A. (1) 10,000
(2) reduce ICW flow as soon as possible. NO pump vibration and d/p testing is required

B. (1) 10,000
(2) reduce ICW flow as soon as possible AND perform pump vibration and d/p testing

C. (1) 18,500
(2) reduce ICW flow as soon as possible. NO pump vibration and d/p testing is required

D. (1) 18,500
(2) reduce ICW flow as soon as possible AND perform pump vibration and d/p testing

Proposed Answer: D

Explanation (Optional):

A. Incorrect since the flowrate limit is 18,500, not 10,000 gpm and pump vibration and d/p testing is required. Plausible because 10,000 gpm is maximum allowed through a singe heat exchanger to prevent vibration damage.

B. Incorrect since the flowrate limit is 18,500, not 10,000 gpm. Plausible because part 2 is correct.

C. Incorrect because if an ICW pump has operated at flows greater than 18,500 gpm for more than twenty (20) minutes, then once pump flow has been reduced to 18,500 gpm or less, the IST Coordinator should be notified to perform vibration and pump DP testing per 3-OSP-019.1, Intake Cooling Water Pump Inservice Test to ensure integrity of the affected pump." Plausible because the first part is correct.

D. CORRECT. Per 3-NOP-019, Section 2.2.2.5: "Maximum ICW Pump flowrate is permitted up to 18,500 gpm. If an ICW Pump is operated in excess of 18,500 gpm, then flow should be reduced to less than 18,500 gpm as soon as possible. If an ICW pump has operated at flows greater than 18,500 gpm for more than twenty (20) minutes, then once pump flow has been reduced to 18,500 gpm or less, the IST Coordinator should be notified to perform vibration and pump DP testing per 3-OSP-019.1, Intake Cooling Water Pump Inservice Test to ensure integrity of the affected pump."

Technical Reference(s): 3-NOP-019, Intake Cooling Water System; 3-OSP-019.1, Intake Cooling Water Pump Inservice Test (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: (As available)

Question Source: Bank #

Modified Bank # (Note changes or attach parent)

New X

Question History: Last NRC Exam:

Question Cognitive Level: Memory or Fundamental Knowledge (1F)

Comprehension or Analysis

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 10

55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.

Comments:

K/A Match Justification:

This question matches the K/A in that it tests what portions of a surveillance procedure have to be performed when an ICW (Service Water) pump exceeds flow limits.

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	078	A4.01
	Importance Rating	3.1	

Ability to manually operate and/or monitor in the control room: Pressure gauges

Proposed Question: RO Question # 47

Given the following:

- The Motor Driven Air Compressor (3CM) is in LEAD.
- The Motor Driven Air Compressor (4CM) is OOS.
- The Diesel Driven Air Compressor (3CD) is in LAG.

Subsequently the following events occur,

- 0100: A valve alignment error caused Instrument Air header pressure to drop to 88 psig.
- 0115: The error was discovered and corrected.
- 0130: Instrument Air header pressure is 94 psig and rising.

Which ONE of the following identifies the status of the Instrument Air Compressors at 0130?

A. 3CD off; 3CM running loaded

B. 3CD running unloaded; 3CM running loaded

C. 3CD running loaded; 3CM running unloaded.

D. 3CD running loaded; 3CM running loaded

Proposed Answer: D

Explanation (Optional):

A. Incorrect. The 3CD will start and run loaded in LAG when pressure drops below 95psig.

B. Incorrect. 3CD will be running in LAG loaded.

C. Incorrect, the 3CM and 3CD will be running loaded.

D. CORRECT.

Technical Reference(s): 0-ONOP-013, Loss of Instrument Air
LP 6902286, Loss of Instrument Air
(Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6902286, Obj. 3 (As available)

Question Source: Bank # 70365
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2009 Braidwood

Question Cognitive Level: Memory or Fundamental Knowledge (1F)
Comprehension or Analysis

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 7
55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	103	K1.02
	Importance Rating	3.9	

Knowledge of the physical connections and/or cause-effect relationships between the containment system and the following systems: Containment isolation/containment integrity

Proposed Question: RO Question # 48

Given the following:

- Unit 3 was at 100% power.
- A manual Reactor Trip was initiated.
- A manual Safety Injection was initiated.
- Containment Pressure is 10.0 psig
- ONLY one Containment Phase A pushbutton was depressed.

Which ONE of the following correctly describes the status of the Phase A and Phase B isolation valves BEFORE any additional operator action(s)?

A. NOT all Phase A valves are closed; all Phase B valves are closed.

B. NOT all Phase A valves are closed; all Phase B valves are open.

C. All Phase A valves are closed; all Phase B valves are closed.

D. All Phase A valves are closed; all Phase B valves are open.

Proposed Answer: D

Explanation (Optional):

A. Incorrect since Containment pressure is not rising for this event; therefore, a Phase B isolation signal will not be generated. Plausible because a novice applicant could believe that Phase B isolation was setup the same way as Phase A.

B. Incorrect. Both train of Phase A Valves will close. Plausible - Phase A isolation valves are setup where one Train of Phase A closes one of the valves (either inside or outside Containment) and the other Train closes the other valve for that penetration. Since Containment pressure is not rising for this event, a Phase B isolation signal will not be generated.

C. Incorrect since Containment pressure is not rising for this event; therefore, a Phase B isolation signal will not be generated. The 1st part is plausible because it is correct.

D. Correct since one Phase A pushbutton will cause all valves to close. Phase B Valves will remain open due to Containment pressure remaining <20 psig.

Technical Reference(s): LP 6902163, RPS and ESFAS (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6902163, Obj. 8 (As available)

Question Source: Bank # 18706
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2003 Indian Point 3

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis (2RI)

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 7
55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	004	A2.23
	Importance Rating	2.6	

Ability to (a) predict the impacts of the following malfunctions or operations on the CVCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: High filter D/P

Proposed Question: RO Question # 49

Initial conditions:

- Unit 4 is operating at 100% power.
- Annunciator SEAL WATER INJ FILTER HI ΔP (A 6/6) actuates.
- Local investigation indicates that the ΔP is 23 psid.
- RCP seal injection flow is 6.5 GPM per RCP.

Current conditions:

- Standby Seal Water Injection filter was placed in service.
- Filter ΔP is 24 psid.
- RCP Seal Injection flow is 5 GPM per RCP.

Which ONE of the following describes (1) the action required and (2) the impact on RCP operation in accordance with ARP A 6/6 and 3-ONOP-041.1, Reactor Coolant Pump Off-Normal?

A. (1) Bypass the Seal Water Injection Filters
(2) RCPs may be operated indefinitely if CCW is available

B. (1) Isolate Seal Injection

(2) RCPs may be operated indefinitely if CCW is available

C. (1) Bypass the Seal Water Injection Filters
(2) RCPs may ONLY be run for 24 hours without Seal Injection even if CCW is available.

D. (1) Isolate Seal Injection
(2) RCPs may ONLY be run for 24 hours without Seal Injection even if CCW is available.

Proposed Answer: D

Explanation (Optional):

A. Incorrect. Plausible because RCPs may be run for an extended period as long as CCW is available. Bypassing the filter would lower the DP to clear the alarm and allow higher seal injection flow but is not allowed in the ARP.

B. Incorrect. Plausible because RCPs may be run for an extended period as long as CCW is available. Also plausible because the 1st part is correct.

C. Incorrect. Plausible because 2nd part is correct and 1st part is logical to lower DP across the filter and clear the alarm.

D. CORRECT

Technical Reference(s): 4-ARP-097.CR.A, Control Room Response - Panel A (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6902113, Obj. 7 (As available)

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

Question History: Last NRC Exam:

Question Cognitive Level: Memory or Fundamental Knowledge

Comprehension or Analysis (2RI)

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 10

55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.

Comments:

K/A Match Justification:

This question matches the K/A by testing use of procedures (4-ARP-097.CR.A) to mitigate the effects of a CVCS malfunction (high seal injection filter ΔP).

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	010	K6.03
	Importance Rating	3.2	

Knowledge of the effect of a loss or malfunction of the following will have on the PZR PCS: PZR sprays and heaters

Proposed Question: RO Question # 50

Given the following:

- Unit 3 is at 100% power.
- Both of the Pressurizer Backup Heater Groups were manually placed in the "ON" position one hour ago for RCS boron equalization.
- Subsequently, PCV-3-455A, Spray Control Valve, fails to 100% OPEN.

With NO operator action, which ONE of the following completes the statement below?

PCV-3-455B Spray Valve _____ and the reactor will_____.

A. closes; trip

B. closes; remain at power

C. remains open; trip

D. remains open; remain at power

Proposed Answer: A

Explanation (Optional):

A. CORRECT. Both spray valves should initially be open. Due to the integral nature of the PZR pressure master controller, a short time after the backup heater group was energized, the spray valves should have opened and will be the first pressure control

component to respond (valve close) as PZR pressure decreases. With a failed Spray Valve, heaters will not be able to maintain pressure, and reactor will trip

B. Incorrect since heaters will not be able to maintain pressure with an open spray valve, and the reactor will trip due to low pressurizer pressure. If action is not subsequently taken to reduce spray flow, SI will actuate

C. Incorrect since the spray valve 455B will close. Plausible because a novice applicant may overlook the fact that the spray valves modulated open after the backup heaters were energized. Given that, the applicant may assume that the spray valves were closed in the first place; therefore, would 455B will not be affected. Additionally, a failed valve is not the same as a failed Master Pressure controller. Plausibility assisted by reactor trip occurring

D. Incorrect since the spray valve 455B will close. Plausible because a novice applicant may overlook the fact that the spray valves modulated open after the backup heaters were energized. Given that, the applicant may assume that the spray valves were closed in the first place; therefore, 455B will not be affected. If they were not affected, then it would be logical to assume that the reactor does not trip

Technical Reference(s): LP 6902109A, Pressurizer Pressure Control (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6902109A, Obj. 7 (As available)

Question Source: Bank # 66916
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2010 Diablo Canyon

Question Cognitive Level: Memory or Fundamental Knowledge (2DR)
Comprehension or Analysis

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 7
55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	012	K5.01
	Importance Rating	3.3	

Knowledge of the operational implications of the following concepts as the apply to the RPS: DNB

Proposed Question: RO Question # 51

The ___(1)___ RPS Trip provides core protection from Departure from Nucleate Boiling (DNB).

The trip setpoint is automatically reduced when RCS pressure __(2)__.

	(1)	(2)
A.	Overpower ΔT	rises
B.	Overtemperature ΔT	rises
C.	Overpower ΔT	lowers
D.	Overtemperature ΔT	lowers

Proposed Answer: D

Explanation (Optional):

A. Incorrect since OPDT protects from overpower in the fuel (kw/ft). Plausible because its calculation is similar to OTDT, with the exception of a pressure input.

B. Incorrect since this trip setpoint becomes lower as PZR pressure is reduced. Plausible because this trip does provide DNB protection as well as kw/ft.

C. Incorrect since this trip does not take pressure into consideration. Plausible because this trip protects against power excursion.

D. CORRECT. TS Table 2.2.1, Reactor Trip System Instrumentation Trip Setpoints.

Technical Reference(s): TS Table 2.2.1, Reactor Trip System Instrumentation Trip Setpoints (Attach if not previously provided)

0-ADM-536, Technical Specification Bases Control Program

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6902163, Obj. 7 (As available)

Question Source: Bank # 48221

Modified Bank # (Note changes or attach parent)

New

Question History: Last NRC Exam: 2004 Wolf Creek

Question Cognitive Level: Memory or Fundamental Knowledge

Comprehension or Analysis (2RI)

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 7

55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	013	K2.01
	Importance Rating	3.6	

Knowledge of bus power supplies to the following: ESFAS/safeguards equipment control

Proposed Question: RO Question # 52

Which ONE of the following identifies the power supply to 3A EDG Sequencer, and an operational implication when this power supply is lost?

A. 3P07; associated AFW actuation signal is lost

B. 3P07; associated EDG will fail to auto start on undervoltage

C. 3P06; associated AFW actuation signal is lost

D. 3P06; associated EDG will fail to auto start on undervoltage

Proposed Answer: A

Explanation (Optional):

A. CORRECT
3A bus sequencer is out of service, due to Vital Panel 3P07 deenergized, resulting in the following Tech Spec implications:
1) AFW actuation signals from bus stripping on 3A 4KV bus will NOT be generated, placing the unit in Tech Spec 3.0.3 (Tech Spec 3.3.2, Table 3.3-2, Functional Unit 6d action 23 invokes Tech Spec 3.0.3.)
2) Loss of Power signals are lost via the 3A bus sequencer, placing the unit in Tech Spec 3.0.3 (Tech Spec 3.3.2, Table 3.3-2, Functional Unit 7a, b, and c.)
3) Bus stripping will NOT automatically occur, 3A EDG will NOT automatically close in on the bus and is out of service (actions of Tech Spec 3.8.1.1 apply).

B. Incorrect since the EDG will start on 4KV Bus 3A undervoltage, independent of the sequencer.

C. Incorrect since 3P06 is the power supply to the 3B sequencer. Plausible because 3P06 and 3P07 are logically supplies to 3A and 3B respectively

D. Incorrect. Same as C, as well as second part same as B.

Technical Reference(s): 3-ONOP-003.7, Loss of 120V Vital Instrument Panel 3P07 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6900139, Obj. 11 (As available)

Question Source: Bank #
Modified Bank # 59789 (Note changes or attach parent)
New

Question History: Last NRC Exam:

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis (2DR)

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 8

55.43

Components, capacity, and functions of emergency systems.

Comments:
Modified from Diablo Canyon 2008 exam

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	026	A3.02
	Importance Rating	3.9	

Ability to monitor automatic operation of the CSS, including: Verification that cooling water is supplied to the containment spray heat exchanger

Proposed Question: RO Question # 53

The CCW flow rate to a Containment Spray Pump Seal Water Heat Exchanger is pre-adjusted to _____.

The CSP A/B COOLING WATER LO FLOW annunciator (H 7/5) setpoint is _____.

A. 38 gpm; 5.0 gpm

B. 15 gpm; 7.7 gpm

C. 15 gpm; 5.0 gpm

D. 38 gpm; 7.7 gpm

Proposed Answer: B

Explanation (Optional):

A. Incorrect. Both parts of answer are wrong. Plausible because 38 GPM is the CCW flow to the High Head Safety Injection Pumps, and 5 gpm is Low Flow Setpoint for RCP Lower Bearing Oil Cooler

B. Correct

C. Incorrect. Plausible because 5 gpm is Low Flow Setpoint for RCP Lower Bearing Oil Cooler and first part of the answer is correct.

D. Incorrect. Plausible because 38 GPM is the CCW flow to the High Head Safety Injection pumps, and second part of answer is correct.

Technical Reference(s): LP 6902140, Component Cooling Water System (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6902125 Obj 3, 4, 5 (As available)

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

Question History: Last NRC Exam:

Question Cognitive Level: Memory or Fundamental Knowledge (1F)
Comprehension or Analysis

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 7
55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	062	2.2.37
	Importance Rating	3.6	

Equipment Control: Ability to determine operability and / or availability of safety related equipment.

Proposed Question: RO Question # 54

Given the following condition:

- Unit 3 is in MODE 1 and all Vital AC Systems are in their normal lineups.
- 3P06 Panel lost power and remained de-energized.

Which ONE of the following completes the statements below?

In accordance with 3-ONOP-003.6, Loss of 120V Vital Instrument Panel 3P06, Panel 3P06 is required to be re-energized from the ___(1)___.

In accordance with Technical Specification 3.8.3.1 Onsite Power Distribution, the LCO is ___(2)___ after 3P06 is re-energized.

A. (1) CS Spare Inverter
   (2) Met

B. (1) CS Spare Inverter
   (2) NOT Met

C. (1) Constant Voltage Transformer (CVT)
   (2) Met

D. (1) Constant Voltage Transformer (CVT)
(2) NOT Met

Proposed Answer: A

Explanation (Optional):

A. CORRECT. 3Y06, CS Spare Inverter is an operable 3P06 power source for vital instrumentation.

B. Incorrect. 3Y06, CS Spare Inverter is an operable 3P06 power source for vital instrumentation. Plausible because this is a backup lineup and the LCO is met.

C. Incorrect. The Constant Voltage Transformer (CVT) is an operable 3P06 power source for vital instrumentation with limitations. However, with a loss of 3P06 Panel the CVT may not have worked. Therefore, 3-ONOP-003.6 only allows the option of connecting to a spare inverter. Plausible since this distribution panel transfers to this source on loss of inverter.

D. Incorrect. With a loss of 3P06 Panel, the CVT may not have worked. Therefore, 3-ONOP-003.6 only allows the option of connecting to a spare inverter. Plausible since this distribution panel transfers to this source on loss of inverter. Also, the Constant Voltage Transformer (CVT) is an operable 3P06 power source for vital instrumentation with limitations.

Technical Reference(s): 3-ONOP-003.6, Loss of 120V Vital Instrument Panel 3P06
3-OP-003, 120V Vital Instrument AC System
TS 3.8.3.1
(Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6900139, Obj. 11, 12 (As available)

Question Source: Bank #

Modified Bank # (Note changes or attach parent)

New X

Question History: Last NRC Exam:

Question Cognitive Level: Memory or Fundamental Knowledge

Comprehension or Analysis (2DR)

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 7

55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	063	K3.02
	Importance Rating	3.5	

Knowledge of the effect that a loss or malfunction of the dc electrical system will have on the following: Components using dc control power

Proposed Question: RO Question # 55

Given the following:

- Unit 4 is operating in Mode 3.
- All equipment is operating in a normal lineup.
- The 125 VDC Control Power FU1-UT-P Fuse to 4A RCP Breaker (4AA01) is blown.
- Main Control Board breaker indicating lights for 4A RCP are extinguished.

Which ONE of the following choices identifies (1) the status of the local breaker position indicating lights for 4A RCP Breaker (4AA01) and (2) the effect on the 4A RCP Breaker (4AA01) operation?

REFERENCE PROVIDED

A. (1) Local indicating lights are EXTINGUISHED for 4A RCP Breaker (4AA01).
(2) The 4A RCP Breaker (4AA01) will ONLY open by depressing the Manual Trip Latch on the local breaker.

B. (1) Local indicating lights are EXTINGUISHED for 4A RCP Breaker (4AA01).
(2) The 4A RCP Breaker (4AA01) can be opened locally by placing the NORMAL/ISOLATE switch in ISOLATE and operating the Test Switch for the breaker.

C. (1) Local indicating lights are LIT for 4A RCP Breaker (4AA01).
(2) The 4A RCP Breaker (4AA01) will ONLY open by depressing the Manual Trip Latch on the local breaker.

D. (1) Local indicating lights are LIT for 4A RCP Breaker (4AA01).
(2) The 4A RCP Breaker (4AA01) can be opened locally by placing the

NORMAL/ISOLATE switch in ISOLATE and operating the Test Switch for the breaker.

Proposed Answer: B

Explanation (Optional):

A. Incorrect. First part is correct, but since a fuse is blown, the breaker may be operated by placing the NORMAL/ISOLATE switch in ISOLATE, placing another set of fuses in the circuit. Second part is correct except that ONLY is incorrect..

B. CORRECT

C. Incorrect. First part plausible because applicant may believe that control power to breaker is available since only fuses blew. This is close to correct, but action must be taken to get the lights to illuminate. Second part is correct except that ONLY is incorrect

D. Incorrect. First part plausible because applicant may believe that control power to breaker is available since only fuses blew. This is close to correct, but action must be taken to get the lights to illuminate. Second part is correct.

Technical Reference(s): 5614-E-25, Sheets 1A & 1A1
0-NOP-003.01 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: 5614-E-25, Sheets 1A & 1A1

Learning Objective: Loss DC Control Power discussed in EPU SD-140, Main Power Distribution. No LP available (As available)

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

Question History: Last NRC Exam:

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis (2DR)

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 7

55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	002	K5.11
	Importance Rating	4.0	

Knowledge of the operational implications of the following concepts as they apply to the RCS: Relationship between effects of the primary coolant system and the secondary coolant system

Proposed Question: RO Question # 56

Unit 3 is at 100% power.

3B S/G Steam Dump To Atmosphere Valve, CV-3-1607, fails open.

The 3B RCS Loop ΔT will rise due to __(1)__.

In accordance with 0-ADM-200, Conduct of Operations, the required operator action to turn and reduce power below 100% is to __(2)__.

A. (1) Thot initially rising
(2) insert Control Rods

B. (1) Tcold initially lowering
(2) insert Control Rods

C. (1) Tcold initially lowering
(2) reduce Turbine load

D. (1) Thot initially rising
(2) reduce Turbine load

Proposed Answer: C

Explanation (Optional):

A. Incorrect since in accordance with 0-ADM-200, secondary power excursions are mitigated by Turbine load reduction. Plausible because the applicant may believe that Thot rises due to increased heat output for that loop. Also plausible because inserting rods would initially reduce reactor power.

B. Incorrect since in accordance with 0-ADM-200, secondary power excursions are mitigated by Turbine load reduction. Plausible because inserting rods would initially reduce reactor power. Also plausible because Tcold does lower as more heat is removed from the associated SG.

C. CORRECT. 0-ADM-200, Conduct of Operations, Enclosure 4

D. Incorrect. Plausible because the applicant may believe that Thot rises due to increased heat output for that loop. Also plausible since in accordance with 0-ADM-200, secondary power excursions are mitigated by Turbine load reduction.

Technical Reference(s): 0-ADM-200, Conduct of Operations (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6902337, Obj. 2, 4 (As available)

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

Question History: Last NRC Exam:

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis (2DR)

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 10
55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.

Comments:

K/A Match Justification:

Question Selection Methodology:

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	014	A4.01
	Importance Rating	3.3	

Ability to manually operate and/or monitor in the control room: Rod selection control

Proposed Question: RO Question # 57

Given the following:

- The plant is operating at 88% power.
- Tref is 571°F.
- Rod Control is in MANUAL.
- Control Bank D rods are at 200 steps.

RCS Tavg Channels

- TI-3-412D, A Loop Temp Avg.: 574.8°F
- TI-3-422D, B Loop Temp Avg.: 575.0°F
- TI-3-432D, C Loop Temp Avg.: 575.2°F

Which ONE of the following completes the statement if the Rod Control Bank Select Switch is placed to the AUTO position?

Rods will initially move at _____and will stop as soon as the difference between Tavg and Tref is _____.

A. 68 SPM; 1.0°F

B. 68 SPM; 1.5°F

C. 40 SPM; 1.0°F

D. 40 SPM; 1.5°F

Proposed Answer: C

Explanation (Optional):

A. Incorrect since, with a 4.0 degree mismatch, rod control will be at 40 SPM. Plausible because 68 SPM is the rod speed when rods are operated in the manual mode.

B. Incorrect because rods will move in at 40 SPM. Plausible because rod control is designed to maintain Tave and Tref matched and rod motion will stop at 1.0°F vice 1.5°F

C. CORRECT. Since Tavg is greater than Tref the Reactor Control Unit will call for inward rod motion. Speed is 8 SPM at 3°F mismatch linearly up to 72 SPM at 5°F mismatch. (72-8 = 64 SPM; 5-3=2°F) = 32 SPM/°F. At a 4.0°F mismatch, (4 - 3)°F x 32 SPM/°F = 32 SPM. Add + 8 SPM (initial speed at 3°F mismatch) to the 32 SPM for a total speed of 40 SPM.

D. Incorrect. Correct speed. Plausible because rod motion will stop at 1.0°F vice 1.5°F

Technical Reference(s): LP, 6902105, Full Length Rod Control System
SD-005, Full Length Rod Control System (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6902105, Obj. 9 (As available)

Question Source: Bank # 65007
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2009 Wolf Creek

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis (2DR)

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 6

55.43

Design, components, and function of reactivity control mechanisms and instrumentation.

Comments:

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	017	K4.01
	Importance Rating	3.4	

Knowledge of ITM system design feature(s) and/or interlock(s) which provide for the following: Input to subcooling monitors

Proposed Question: RO Question # 58

Which ONE of the following identifies (1) the pressure input to the Subcooled Margin Monitor, and (2) the Core Exit Thermocouple input value used for the associated QSPDS Subcooling Train?

A. (1) Wide Range RCS Pressure
(2) the average of all Core Exit Thermocouple temperatures

B. (1) Narrow Range Pressurizer Pressure
(2) the average of all Core Exit Thermocouple temperatures

C. (1) Wide Range RCS Pressure
(2) the average of the three highest Core Exit Thermocouple temperatures

D. (1) Narrow Range Pressurizer Pressure
(2) the average of the three highest Core Exit Thermocouple temperatures

Proposed Answer: C

Explanation (Optional):

A. Incorrect. Plausibility – The candidate understands correctly that Wide Range RCS Pressure is used. Also, they believe that an average of all (REP CET) will provide input to QSPDS. Plausible because an average of all 3 is used for REP CET

B. Incorrect. Plausibility – The candidate understands Narrow Range Pressurizer Pressure is more accurate. Also, they believe that an average of all (REP CET) will provide input

to QSPDS. Plausible because an average of all 3 is used for REP CET

C. CORRECT.

D. Incorrect. Plausibility – The candidate understands Narrow Range Pressurizer Pressure is more accurate. Also, they correctly understand the hottest part of the RCS will be the most limiting on Subcooling, which is the average of the three highest CETs.

LP 6900171, *QSPDS*

Technical Reference(s): LP 6902103, *Incore Instrumentation System* (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6900171, Obj. 4 (As available)

Question Source: Bank # 65245
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2007 TMI

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis (2DR)

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 7
55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	029	K3.02
	Importance Rating	2.9	

Knowledge of the effect that a loss or malfunction of the Containment Purge System will have on the following: Containment entry

Proposed Question: RO Question # 59

Given the following:

- Unit 3 is at 100% power.
- A Containment entry will be performed in accordance with 0-ADM-009, Containment Entries When Containment Integrity Is Established.
- A Unit 3 Containment Purge is ongoing in accordance with 3-NOP-053, Containment Purge System with the following fans running:
  - 3V9, U-3 Cntmt Purge Supply Fan
  - 4V20, U-4 Cntmt Purge Exhaust Fan
- 5 minutes after Containment is entered, R-3-12, Gaseous Containment Radiation Monitor, alarms high.
- H 1/4, PRMS Hi Radiation, annunciator is lit.

Which ONE of the following completes the statement below?

Containment entry ___(1)___.

The status of the Containment Purge Supply and Exhaust Fans are ___(2)___.

(Assume no operator actions.)

A. (1) may not proceed

(2) 3V9, U-3 Cntmt Purge Supply Fan, is running
4V20, U-4 Cntmt Purge Exhaust Fan, is tripped

B. (1) may not proceed

(2) 3V9, U-3 Cntmt Purge Supply Fan, is tripped
4V20, U-4 Cntmt Purge Exhaust Fan, is running

C. (1) may proceed

(2) 3V9, U-3 Cntmt Purge Supply Fan, is running
4V20, U-4 Cntmt Purge Exhaust Fan, is tripped

D. (1) may proceed

(2) 3V9, U-3 Cntmt Purge Supply Fan, is tripped
4V20, U-4 Cntmt Purge Exhaust Fan, is running

Proposed Answer: B

Explanation (Optional):

A. Incorrect. The U-4 Cntmt Purge Exhaust Fan does not receive a trip signal. Plausibility - The candidate assumes both fans receive a trip signal from a signal which causes a Containment Ventilation signal. Also, plausible because the 1st part is correct.

B. CORRECT. 3-NOP-053, Step 4.1.1 CAUTION: Unit 4 Containment Purge Exhaust Fan 4V20 may be used for purging operations. Section 2.1 Step 3 lists automatic fan trip signals that are lost when using 4V20. U-4 Cntmt Purge Exhaust Fan remains running.

C. Incorrect. The U-4 Cntmt Purge Exhaust Fan does not receive a trip signal. However, 3V9, U-3 Cntmt Purge Supply Fan is tripped. Plausibility - The candidate assumes only the U-4 Cntmt Purge Exhaust Fan receives a trip signal from a signal which causes a Containment Ventilation signal. Tripping the Purge Exhaust Fan will eliminate discharge to the atmosphere. Also, plausible because the applicant understands the need to supply Ctmnt, a confined space, with fresh air. Thus, the Supply remains running.

D. Incorrect. Containment is evacuated. Plausibility - The candidate assumes neither fan receive a trip signal from a failed instrument. Therefore, they do not evacuate Containment.

3-NOP-053, Containment Purge System

Technical Reference(s): 0-ADM-009, Containment Entries When Containment Integrity is Established (Attach if not previously provided)

0-ADM-713, Confined Space Entry
Procedure

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 690004, Obj. 5 (As available)

Question Source: Bank #
Modified Bank # PTN - Item: 1.1.24.29.5.8 (Note changes or attach parent)
New

Question History: Last NRC Exam: Turkey Point

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis (2RI)

Question Difficulty Level: C

10 CFR Part 55 Content: 55.41 10
55.43

Radiological safety principles and procedures.

Comments:

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	016	A3.01
	Importance Rating	2.9	

Ability to monitor automatic operation of the non-nuclear instrumentation system including automatic selection of NNIS inputs to control systems.

Proposed Question: RO Question # 60

Given the following:

- Unit 3 is at 100% power.
- Turbine First Stage Pressure transmitter 3-PT-447 fails low.
- All applicable actions in 3-ONOP-049.1, "Deviation or Failure of Safety Related or Reactor Protection Channels" have been completed.

Which ONE of the following identifies the status of the Condenser Steam Dumps?

A. Steam Dumps are reset and can ONLY be armed by a turbine trip.

B. Steam Dumps are reset and can ONLY be armed by a load reject.

C. Steam Dumps are armed and will actuate if Tave exceeds Tref by 9.5°F.

D. Steam Dumps are armed and, if actuated, will close when Tave is within 5°F of Tref.

Proposed Answer: A

Explanation (Optional):

A. Correct.

B. Incorrect because this is the effect of PT-447 failing prior to actions being taken per the applicable site ONOP. First part of question is correct.

C. Incorrect because the Dumps are able to be reset and the actions of ONOP-049.1 will reset the dumps. Plausible because 2nd part of the question is an actual trip signal.

D. Incorrect because the Dumps are able to be reset and the actions of ONOP-049.1 will reset the dumps. Plausible because 2nd part of the question is an closing signal for a load rejection.

Technical Reference(s): 3-ONOP-0-49.1, Deviation of Failure of Safety Related or Reactor Protection Channels. (Attach if not previously provided)

5610-T-LI sheet 22

Proposed References to be provided to applicants during examination: None

Learning Objective: 6902243-03 (As available)

Question Source: Bank # X

Modified Bank # (Note changes or attach parent)

New

Question History: Last NRC Exam:

Question Cognitive Level: Memory or Fundamental Knowledge (2DR)

Comprehension or Analysis

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 10

55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.

Comments:

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	035	K6.01
	Importance Rating	3.2	

Knowledge of the effect of a loss or malfunction on the following will have on the S/GS: MSIVs

Proposed Question: RO Question # 61

Given the following conditions:

- Unit 4 is at 25% power with all systems in normal alignments.
- 4A Main Steam Isolation Valve closes on a spurious signal.

Assuming the reactor does NOT trip, which ONE of the following describes the INITIAL effect (1) on 4A S/G indicated Level and (2) on the S/G Feedwater Regulating Valve (FRV) response for 4B and 4C S/Gs?

	4A S/G Indicated Level	**4B/4C** FRV position
A.	higher	open more
B.	higher	closed more
C.	lower	closed more
D.	lower	open more

Proposed Answer: D (also accept A based on post exam comment) BJC 1/4/12

Explanation (Optional):

A. Incorrect. Plausibility – 1st part is incorrect correct. The applicant believes S/G level will rise due to the loss of steam flow while maintaining feedwater flow. This is an incorrect initial response which does not take into account the S/G shrink & swell effect. The 2nd part is correct.

B. Incorrect. Plausibility – The applicant believes FWRV will close due to steam/feed flow

mismatch. Also, the applicant believes S/G level will rise do to the loss of steam flow while maintaining feedwater flow. This is an incorrect initial response which does not take into account the S/G shrink & swell effect.

C. Incorrect. Plausibility – The 1st part of the question is correct.

D. CORRECT. S/G pressure initial rises due to heat no longer being removed from the S/G. With this pressure increase, the S/G level will shrink or lower due to the saturation pressure rising. FWRV will see increased steam demand and open on the in-service generators to compensate.

Technical Reference(s): LP 6900912, *Abnormal Transient Accident Analysis* (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6902117, Obj. 10
LP 6900912, Obj. 3 (As available)

Question Source: Bank #
Modified Bank # 70214 (Note changes or attach parent)
New

Question History: Last NRC Exam:

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis (2DR)

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 14
55.43

Principles of heat transfer, thermodynamics and fluid mechanics.

Comments:
Modified from 2007 Comanche Peak

55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.

Comments:

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	041	A4.04
	Importance Rating	2.7	

Ability to manually operate and/or monitor in the control room: Pressure mode

Proposed Question: RO Question # 62

Given the following:

- Unit 4 is in STARTUP at 7% power.
- The Steam Dump Control MODE SELECTOR Switch on the Control Room Console is in the MAN position.
- The Steam Pressure Controller is in automatic.
- The Steam Pressure Controller demand is at 30%.

Which ONE of the following listed below describes (1) the Condenser Steam Dump(s) that are armed and (2) the Condenser Steam Dump Valve(s) position?

	ARMED	**POSITION**
A.	ONLY CV-2827	PARTIALLY OPEN
B.	ONLY CV-2827	FULLY OPEN
C.	BOTH CV-2827 & CV-2828	CV-2827 IS FULLY OPEN CV-2828 IS PARTIALLY OPEN
D.	BOTH CV-2827 & CV-2828	BOTH CV-2827 & CV-2828 ARE PARTIALLY OPEN

Proposed Answer: C

Explanation (Optional):

A. Incorrect. In pressure control mode, steam dumps are armed and the signal to the steam dumps would have one valve fully open at 8 ma, and the second valve

modulating open at 8 ma. 30% demand is approximately 9 ma

B. Incorrect. In pressure control mode, steam dumps are armed and the signal to the steam dumps would have one valve fully open at 8 ma, and the second valve modulating open at 8 ma. 30% demand is approximately 9 ma

C. CORRECT. In pressure control mode, steam dumps are armed and the signal to the steam dumps would have one valve (2827) fully open at 8 ma, and the second valve (2828) modulating open at 8 ma. 30% demand is approximately 9 ma

D. Incorrect. This is plausible because in trip open mode, steam dumps do not open sequentially. The applicant may confuse pressure control mode operation for trip open mode. Valves open sequentially as demand is raised

Technical Reference(s): SD-105, *Steam Dump System*
LP-6902118, *Steam Dump System* (Attach if not previously provided)

Proposed References to be provided to applicants during examination:

Learning Objective: LP 6902118, Obj. 7 (As available)

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

Question History: Last NRC Exam:

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis (2DR)

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 7
55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:

K/A Match Justification:

This question matches the K/A in that it tests monitoring the condenser dumps in the Control Room, via the output from the steam pressure controller.

Question Selection Methodology:

Question derived from the bank question below; Found only two multiple choice questions in the PTN exam bank that matched the K/A. Used a random number generator to select this one.

69021180634
Given the following: Unit at Hot Zero Power Tavg = 549°F Steam Dump in STM PRESS mode with 1005 psig set into steam pressure controller in automatic. The Steam Dump System response is _____.

a. Arm Only
b. Arm and Actuate
c. Disarm
d. none/no effect

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	045	A1.05
	Importance Rating	3.8	

Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the MT/G system controls including: Expected response of primary plant parameters (temperature and pressure) following T/G trip

Proposed Question: RO Question # 63

The initial conditions on Unit 3:

- This is the first plant startup after a refueling outage.
- Moderator Temperature Coefficient (MTC) is slightly positive.
- The unit is at 8% power.
- Control Rods are in Manual.

Which ONE of the following predicts the INITIAL response of RCS Tavg and Reactor Trip Breakers, if the Main Turbine is manually tripped?

	RCS Tavg	Reactor Trip Breakers
A.	Rises	Remain Closed
B.	Rises	Trip Open
C.	Lowers	Remain Closed
D.	Lowers	Trip Open

Proposed Answer: A

Explanation (Optional):

A. Correct. Steam pressure goes up, causing Tcold to go up. This causes Tavg to go up. This causes a positive reactivity due to the Positive MTC present

B. Incorrect. Steam pressure goes up, causing Tcold to go up. This causes Tavg to go up. This causes a positive reactivity due to the Positive MTC present. Plausibility-Reactor trip will eventually occur without operator intervention.

C. Incorrect. The first part is incorrect (see A). Plausible, since the Steam Dumps and/or SG Atmospheric relief valves will open to reduce SG pressure and Tavg, but prior to the Steam Dumps and/or SG Atmospherics opening, Tavg will go up. The second part is correct (see A).

D. Incorrect. The first part is incorrect (see C). The second part is incorrect (see B). This choice would be the correct response for temperature after the initial response.

Technical Reference(s): LP 6902915, Transient and Accident Analysis - Decreased Heat Removal (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6902915, Obj. 2 (As available)

Question Source: Bank # 71040
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2010 Farley

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis (2DR)

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 7
55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	055	2.2.44
	Importance Rating	4.2	

Equipment Control: Ability to interpret control room indications to verify the status and operation of a system, and understand how operator actions and directives affect plant and system conditions.

Proposed Question: RO Question # 64

Unit 3 has experienced a slow loss of Main Condenser vacuum with the current conditions listed below:

- Main Condenser vacuum is at 23" Hg and stable.
- E 5/3, CONDENSER LO VACUUM, annunciator is LIT.
- Main Turbine load at 300 MW.

Which ONE of the following identifies (1) the required IMMEDIATE operator action in accordance with 3-ONOP-014, Main Condenser Loss of Vacuum, and (2) whether the Reactor is required to be manually tripped?

A. (1) Place the standby set of Air Ejectors in service.
(2) Reactor Trip is NOT required.

B. (1) Place the SJAE Hogging Jet in service.
(2) Reactor Trip is NOT required.

C. (1) Place the standby set of Air Ejectors in service.
(2) Trip the Reactor.

D. (1) Place the SJAE Hogging Jet in service.
(2) Trip the Reactor.

Proposed Answer: D

Explanation (Optional):

A. Incorrect since placing the standby set of Air Ejectors in service is not an IOA. Plausible due to placing an additional set of Air Ejectors in service will improve vacuum. Also, incorrect the Turbine and the Reactor must be tripped when above 10% power. Also plausible because the 2nd part would be correct if power was less than 10%.

B. Incorrect the Turbine and the Reactor must be tripped when above 10% power. Plausible because the 1st part is correct. Also plausible because the 2nd part would be correct if power was less than 10%.

C. Incorrect since placing the standby set of Air Ejectors in service is not an IOA. Plausible due to placing an additional set of Air Ejectors in service will improve vacuum. Plausible because the 2nd part is correct. Also plausible because closing the drain valve is the 1st Subsequent Action and 2nd action overall.

D. CORRECT.

3-ONOP-014:
4.0 IMMEDIATE ACTIONS
4.1 Place the SJAE hogging jet in service as follows:
4.1.1 Open the Steam Supply to Hogging Jet Valve, 3-30-043.
4.1.2 Slowly open Steam Supply to Hogging Jet Valve, 3-30-44, to obtain 250 to 260 psig (3-PI-1597) hogging jet supply pressure.
4.1.3 Open the Condenser Air Removal to Hogging Jet Valve, 3-30-010.

5.5 IF reactor power is greater than 10% (At Power Trips enabled) AND vacuum can NOT be maintained greater than required by Enclosure 1, THEN perform the following:
5.5.1 Trip the Reactor.
5.5.2 Trip the Turbine.
5.5.3 Go to 3-EOP-E-0, Reactor Trip and Safety Injection.

Technical Reference(s): 3-ONOP-014, Main Condenser Loss of Vacuum (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6902131, Obj. 10 (As available)

Question Source: Bank #

Modified Bank # (Note changes or attach parent)

New X

Question History: Last NRC Exam:

Question Cognitive Level: Memory or Fundamental Knowledge (1P)

Comprehension or Analysis

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 10

55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.

Comments:

K/A Match Justification:

This question matches the K/A in that it tests interpretation of CR indications (condenser vacuum) and understanding of directives (3-ONOP-014) and their affect on the plant (Turbine and Reactor tripped).

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	068	A2.02
	Importance Rating	2.7	

Ability to (a) predict the impacts of the following malfunctions or operations on the Liquid Radwaste System ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Lack of tank recirculation prior to release

Proposed Question: RO Question # 65

Which ONE of the choices below correctly completes the following statements regarding preparing for a liquid release?

In accordance with 0-NCOP-003, Attachment 1 – Radioactive Release Permit, a MINIMUM of ____(1)____ hour(s) recirc time is required when using the 1" mini recirc on Waste Monitor Tanks.

If the WMT recirc time was too short, and the chemist's specific activity result was less than actual, then this will cause the____(2)_____.

A. (1) one
(2) total calculated activity released will be higher than listed on the radioactive discharge permit

B. (1) two
(2) discharge flowrate requirement listed on the radioactive discharge permit to be lower than it should be

C. (1) two
(2) total calculated activity released will be higher than listed on the radioactive discharge permit

D. (1) one
(2) discharge flowrate requirement listed on the radioactive discharge permit to be lower than it should be

Proposed Answer: C

Explanation (Optional):

A. Incorrect. Plausibility – To potentially exceed the radioactive discharge permit to the environment is a valid concern, however the mini recirc time does not meet the minimum time of 2 hours required by 0-NCOP-003, Preparation of Liquid Waste Release Permits.

B. Incorrect. Plausibility – The discharge flowrate on the radioactive discharge permit to be lower than required is incorrect, but the calculated flowrate is affected and will be higher. Also, the correct mini recirc time of 2 hours is stated in accordance with 0-NCOP-003, Preparation of Liquid Waste Release Permits.

C. Correct.

D. Incorrect. Plausibility – The discharge flowrate on the radioactive discharge permit to be lower than required is incorrect, but the calculated flowrate is affected and will be higher. Also, the mini recirc time does not meet the minimum time of 2 hours required by 0-NCOP-003, Preparation of Liquid Waste Release Permits.

Technical Reference(s): 0-NOP-061.11A - E Controlled Release from Recycle and Waste Monitor Tanks
0-NCOP-003, Preparation of Liquid Waste Release Permits (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6902149, Obj. 11 (As available)

Question Source: Bank # 18686
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2003 Indian Point 3

Question Cognitive Level: Memory or Fundamental Knowledge

Comprehension or Analysis (2DR)

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 13

55.43

Procedures and equipment available for handling and disposal of radioactive materials and effluents.

Comments:

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	
	Group #	1	
	K/A #	G1	2.1.15
	Importance Rating	2.7	

Conduct of Operations: Knowledge of administrative requirements for temporary management directives, such as standing orders, night orders, Operations memos, etc.

Proposed Question: RO Question # 66

Unit 4 is Operating in Mode 1.

In accordance with 0-ADM-202, Shift Relief and Turnover, which ONE of the following describes the MINIMUM requirement to review (1) the Special Instructions Book and (2) active clearances back to the last shift worked?

A. (1) prior to assuming EACH shift watch;
(2) prior to assuming EACH shift watch

B. (1) prior to assuming EACH shift watch;
(2) as soon as is practical after shift turnover

C. (1) as soon as is practical after shift turnover;
(2) prior to assuming EACH shift watch

D. (1) as soon as is practical after shift turnover;
(2) as soon as is practical after shift turnover

Proposed Answer: A

Explanation (Optional):

A. CORRECT. 0-ADM-202, section 5.1.3

B. Incorrect. First part is correct. Second part required to be reviewed prior to assuming each shift as part of turnover.

C. Incorrect. Plausible because the correct answers are listed, but in incorrect order

D. Incorrect since first part must be performed prior to relieving the shift. Second part is correct

Technical Reference(s): 0-ADM-200, *Conduct of Operations* (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6900025, Obj. 5 (As available)

Question Source: Bank # 66395
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2009 Seabrook

Question Cognitive Level: Memory or Fundamental Knowledge (1P)
Comprehension or Analysis

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 10
55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.

Comments:

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	
	Group #	1	
	K/A #	G1	2.1.27
	Importance Rating	3.9	

Conduct of Operations: Knowledge of system purpose and / or function.

Proposed Question: RO Question # 67

Which ONE of the following completes both statements with respect to the ATWS Mitigation System Actuation Circuitry (AMSAC)?

The AMSAC initiation logic is designed such that it _____.

Once armed, AMSAC will actuate after S/G Levels are < 8.65% for _____.

A. Energizes to actuate; 360 seconds

B. De-energizes to actuate; 360 seconds

C. Energizes to actuate; 25 seconds

D. De-Energizes to actuate; 25 seconds

Proposed Answer: C

Explanation (Optional):

A. Incorrect. First part is correct but the 360 time delay is a signal to keep AMSAC armed below its setpoint.

B. Incorrect. First part wrong but plausible because reactor trip breaker circuitry is de-energize to actuate. Second part plausible same reason as option A

C. CORRECT

D. Incorrect. First part plausible same reason as Option B. Second part is correct.

Technical Reference(s): SD-013, CVCS
LP 6902113, CVCS (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6902113, Obj. 5 (As available)

Question Source: Bank # 47874
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2003 Indian Point 3

Question Cognitive Level: Memory or Fundamental Knowledge (1B)
Comprehension or Analysis

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 3
55.43

Mechanical components and design features of reactor primary system.

Comments:

Words modified significantly but considered bank as there are a number of test items that cover this material

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	
	Group #	1	
	K/A #	G1	2.1.28
	Importance Rating	4.1	

Conduct of Operations: Knowledge of the purpose and function of major system components and controls.

Proposed Question: RO Question # 68

Given the following:

- A loss of instrument air is in progress on Unit 3.
- Instrument Air header pressure is currently 83 psig and lowering slowly as read on PI-3-1444.

Which ONE of the following describes the CURRENT status of (1) CV-3-1605, Distribution Header Pressure Control Valve and (2) the INSTR AIR SYSTEM HI TEMP/PRESS LOW (I 6/1) annunciator?

A. (1) CLOSING
   (2) Alarm is NOT lit.

B. (1) OPENING
   (2) Alarm is NOT lit.

C. (1) CLOSING
   (2) Alarm is lit.

D. (1) OPENING
   (2) Alarm is lit.

Proposed Answer: C

Explanation (Optional):

A. Incorrect because the annunciator actuates at 95 psig, so it will be lit at 83 psig. Plausible because the 1st part is correct. Also plausible because Step 2 of 0-ONOP-013 requires the crew to maintain IA pressure greater than 65 psig. Step 13 requires the same for maintaining Aux Building IA pressure.

B. Incorrect since CV-4-1605 will throttle closed, not open when pressure is below 88 psig. Plausible because, according to RNO Step 4 of 0-ONOP-013, the Service Air System *can* be aligned to backup the IA System. Also plausible because Step 2 of 0-ONOP-013 requires the crew to maintain IA pressure greater than 65 psig. Step 13 requires the same for maintaining Aux Building IA pressure.

C. CORRECT. The Unit 3 and 4 headers are cross-connected by two control valves and two check valves. These control valves (CV-3/4-1605) operate to isolate a faulted instrument air system, throttling closed between 88 and 75 PSIG, decreasing. If one unit suffers a major line break, its CV-3/4-1605 valve will go closed. The non-faulted unit is now supplying air both to its loads and to the affected unit via the check valve. As the non-faulted units instrument air pressure drops, its CV-3/4-1605 valve will also throttle closed until closure allows pressure to be maintained greater than or equal to 75 PSIG.

   0-ONOP-013, Symptom/Entry Condition 2.5, states: "Distribution Header Pressure Control Valve, CV-*-1605 throttles closed (occurs at 88 psig) to protect the unaffected unit. Per 4-ARP-097.CR.I, 6/1, the INSTR AIR HI TEMP/PRESS LOW actuates at 95 psig.

D. Incorrect since CV-4-1605 will throttle closed, not open when pressure is below 88 psig. Plausible because the 2nd part is correct. Also plausible because, according to RNO Step 4 of 0-ONOP-013, the Service Air System *can* be aligned to backup the IA System.

Technical Reference(s): 0-ONOP-013, *Loss of Instrument Air*; LP 6900145, *Instrument Air System* (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6900145, Obj. 7 (As available)

Question Source: Bank # 63614

Modified Bank # (Note changes or attach parent)

New

Question History: Last NRC Exam: 2007 Harris

Question Cognitive Level: Memory or Fundamental Knowledge (1l)

Comprehension or Analysis

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 7

55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	
	Group #	2	
	K/A #	G2	2.2.22
	Importance Rating	4.0	

Equipment Control: Knowledge of limiting conditions for operations and safety limits.

Proposed Question: RO Question # 69

In accordance with Technical Specification Safety Limit 2.1.2, Reactor Coolant System Pressure, the Reactor Coolant System pressure shall NOT exceed _____.

IF the limit is exceeded when the unit is in Mode 3, THEN RCS pressure must be reduced to within its limit within _____.

A. 2485 psig; 5 minutes

B. 2485 psig; 1 hour

C. 2735 psig; 5 minutes

D. 2735 psig; 1 hour

Proposed Answer: C

Explanation (Optional):

A. Incorrect. The candidate recalls the correct Action time associated with MODE 3, 4, and 5 operation. Incorrectly, they believe the RCS Pressure Safety Limit is 2485 psig which is the same as the Pressurizer Safety Valves.

B. Incorrect. Plausibility – The candidate believes the RCS Pressure Safety Limit is 2485 psig which is the same as the Pressurizer Safety Valves. Also, they use the Action time associated with MODE 1 & 2 operation.

C. CORRECT.

D. Incorrect. Plausibility – The candidate correctly recalls the correct RCS Pressure Safety Limit. However, they use the Action time associated with MODE 1 & 2 operation.

Technical Reference(s): Technical Specifications, 2.1 Safety Limits (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6902521, Obj. 1 (As available)

Question Source: Bank # 62494
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2007 Farley

Question Cognitive Level: Memory or Fundamental Knowledge (1F)
Comprehension or Analysis

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 5
55.43

Facility operating limitations in the technical specifications and their bases.

Comments:
Left as bank item after mods

55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.

Comments:

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	
	Group #	2	
	K/A #	G2	2.2.43
	Importance Rating	3.0	

Equipment Control: Knowledge of the process used to track inoperable alarms.

Proposed Question: RO Question # 70

Given the following:

- Unit 4 is in a refueling outage.
- A clearance order will defeat a Control Room annunciator associated with a required RHR Pump (pump is required to be operable).

In accordance with 0-ADM-219, Annunciator Response Procedure Usage, which ONE of the choices below completes both statements?

The MINIMUM requirement for tracking the defeated annunciator is in the ____(1)____.

The applicable portions of 0-OSP-200.5, Miscellaneous Tests, and Operating Evolutions, for Defeated/Out-Of-Service Annunciators must be completed ____(2)____.

A. (1) Annunciator Status Log ONLY
(2) within ONE hour after the annunciator has been disabled

B. (1) Annunciator Status Log ONLY
(2) PRIOR to defeating the annunciator

C. (1) Annunciator Status Log and Equipment Out of Service Book (EOOS)
(2) within ONE hour after the annunciator has been disabled

D. (1) Annunciator Status Log and Equipment Out of Service Book (EOOS)
(2) PRIOR to defeating the annunciator

Proposed Answer: D

Explanation (Optional):

A. Incorrect since the 0-ADM-219 actions only apply to those systems that are required to be operable in Mode 6. Plausible because the 2nd part is correct for an annunciator associated with a nuisance alarm.

B. Incorrect since the 0-ADM-219 actions only apply to those systems that are required to be operable in Mode 6. Plausible because 2nd part is correct.

C. Incorrect since the within ONE hour requirement is only applicable for an annunciator associated with a nuisance alarm. Plausible because the 1st part is correct.

D. CORRECT per the requirements of 0-ADM-219, Annunciator Response Procedure Usage. Additionally, for a clearance order, the requirements are to complete 0-OSP-200.5, Miscellaneous Tests, and Operating Evolutions, for Defeated/Out-Of-Service Annunciators prior to defeating the annunciator.

Technical Reference(s): 0-ADM-219, Annunciator Response Procedure Usage (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6900041, Obj. 2 (As available)

Question Source: Bank # 59738
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2008 Diablo Canyon

Question Cognitive Level: Memory or Fundamental Knowledge (1F)
Comprehension or Analysis

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 10

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	
	Group #	3	
	K/A #	G3	2.3.11
	Importance Rating	3.8	

Radiation Control: Ability to control radiation releases.

Proposed Question: RO Question # 71

Given the following:

- A Steam Generator Tube Rupture has occurred on Unit 3.
- The operating crew has implemented 3-EOP-E-3, Steam Generator Tube Rupture and has prepared for RCS cooldown using Steam Dumps To Condenser.
- The crew desires to stop Auxiliary Feedwater Pumps.

Which ONE of the following identifies the PREFERRED method of providing feedwater to the SGs during the cooldown, including the reason for this preference, in accordance with 3-EOP-E-3?

A. Standby Feedwater System; The volume of contaminated secondary water released to the environment (post tube rupture) will be less.

B. Standby Feedwater System; The amount of radioactivity released via an unmonitored pathway (during RCS cooldown) will be less.

C. Normal Feedwater System; The volume of contaminated secondary water released to the environment (post tube rupture) will be less.

D. Normal Feedwater System; The amount of radioactivity released via an unmonitored pathway (during RCS cooldown) will be less.

Proposed Answer: C

Explanation (Optional):

A. Incorrect because the normal feedwater train, not the Standby Feedwater System is the preferred method if the condenser dumps will be used. Plausible because the 2nd part is correct. Also plausible because the Standby Feedwater System will be used if atmospheric dumps are used (per 3-EOP-E-3, NOTES Step 49).

B. Incorrect because the normal feedwater train, not the Standby Feedwater System is the preferred method if the condenser dumps will be used. Also incorrect since, if dumping to the condenser, the release pathways will be monitored, not unmonitored. Plausible because this would be correct if the steam dumps to atmosphere were used for the cooldown.

C. CORRECT. Per 3-EOP-E-3, NOTES Step 49: "If the condenser steam dumps are being used for RCS cooldown, the normal feedwater train is preferred to limit the amount of secondary water that will have to be RELEASED post Tube Rupture."

D. Incorrect since, if dumping to the condenser, the release pathways will be monitored, not unmonitored. Plausible because the 1st part is correct. Also plausible because the second note for 3-EOP-E-3, Step 49, contains verbiage related to unmonitored releases.

Technical Reference(s): 3-EOP-E-3, *Steam Generator Tube Rupture*
LP 6902339, *SGTR* (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6902339, Obj. 5 (As available)

Question Source: Bank #
Modified Bank # 58817 (Note changes or attach parent)
New

Question History: Last NRC Exam: 2007 Waterford 3

Question Cognitive Level: Memory or Fundamental Knowledge (1P)
Comprehension or Analysis

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 10

55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.

Comments:

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	
	Group #	3	
	K/A #	G3	2.3.12
	Importance Rating	3.2	

Radiation Control: Knowledge of Radiological Safety Principles pertaining to licensed operator duties, such as containment entry requirements, fuel handling responsibilities, access to locked high-radiation areas, aligning filters, etc.

Proposed Question: RO Question # 72

Unit 3 is in a refueling outage and fuel assemblies are being moved from the core to the Spent Fuel Pool.

Which ONE of the subsequent plant conditions will require the control room operator to evacuate non-essential personnel from the Unit 3 Containment?

A. Containment Integrity is lost

B. Unit 3 Containment Purge Supply Fan (3V9) trips

C. Source Range N-31 fails low

D. Containment Air Particulate Monitor R-3-11 red LED light illuminates

Proposed Answer: D

Explanation (Optional):

A. Incorrect. Plausibility – With Containment Integrity not established, fuel movement activities are halted. The candidate draws an incorrect conclusion that Containment must be evacuated. Also, the candidate may possibly connect Containment Integrity with Containment Habitability which is incorrect.

B. Incorrect. Plausibility – The candidate understands Containment Habitability is required. Incorrectly, they believe continuous Containment Purge is required for Containment occupancy.

C. Incorrect. Plausibility – With 1 Source Range Instrument available, the audio count rate in Containment is required to move fuel. The student incorrectly believes if N-31 and audio count rate is lost, then Containment must be evacuated as a precaution.

D. CORRECT. 3-ARP-097.CR.B, 4/1, Operator Actions #1, states: "IF a startup is NOT in progress, THEN ENSURE actuation of Containment Evacuation alarm." Since a startup is not stipulated in the given information, then containment evacuation is required.

Technical Reference(s): 3-ONOP-067, Radioactive Effluent Release; 3-ONOP-059.5, Source Range Nuclear Instrumentation Malfunction; 3-ONOP-053, Loss of Containment Integrity; 3-NOP-053, Containment Purge (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: (As available)

Question Source: Bank #

Modified Bank # 67762 (Note changes or attach parent)

New

Question History: Last NRC Exam:

Question Cognitive Level: Memory or Fundamental Knowledge

Comprehension or Analysis (2DR)

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 11

55.43

Purpose and operation of radiation monitoring systems, including alarms and survey equipment.

Comments:

Modified from SONGS 2009

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	
	Group #	4	
	K/A #	G4	2.4.22
	Importance Rating	3.6	

Emergency Procedures / Plan: Knowledge of the bases for prioritizing safety functions during abnormal/emergency operations.

Proposed Question: RO Question # 73

Which ONE of the following identifies a plant parameter that is required to determine the status of the **Heat Sink** Critical Safety Function (CSF) in accordance with EOP-F-0, Critical Safety Function Status Trees?

A. Total FW flow

B. Core Exit Thermocouple temperatures

C. RCS Subcooling

D. RCS Cold Leg temperatures

Proposed Answer: A

Explanation (Optional):

A. CORRECT.

B. Incorrect. CETs are used for the Core Cooling CSF status tree, which could ultimately be challenged if there is an unmitigated Red Path on the Heat Sink Status Tree

C. Incorrect. RCS subcooling is an input to the Heat Sink CSF Status Tree, and will be lost on a loss of secondary heat sink

D. Incorrect. RCS cold leg temperatures are plausible because they will start rising on a loss of secondary heat sink as SG inventory is boiled dry. Cold leg temperatures rising is a primary indicator of loss of heat sink

Technical Reference(s): BD-EOP-F-0, *Critical Safety Function Status Trees* (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6900353, Obj. 1 & 3 (As available)

Question Source: Bank #

Modified Bank # (Note changes or attach parent)

New X

Question History: Last NRC Exam: Turkey Point

Question Cognitive Level: Memory or Fundamental Knowledge (1P)

Comprehension or Analysis

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 10

55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.

Comments:

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	
	Group #	4	
	K/A #	G4	2.4.3
	Importance Rating	3.7	

Emergency Procedures / Plan: Ability to identify post-accident instrumentation.

Proposed Question: RO Question # 74

Which ONE of the following choices identifies a Control Board Instrument required by Technical Specification 3.3.3.3, Accident Monitoring Instrumentation, and the required color of the instrument label in accordance with 0-ADM-209, Equipment Tagging and Labeling?

A. PI-3-444, Pressurizer Pressure; blue

B. PI-3-444, Pressurizer Pressure; purple

C. TI-3-410A, Loop A T-cold Wide Range; blue

D. TI-3-410A, Loop A T-cold Wide Range; purple

Proposed Answer: D

Explanation (Optional):

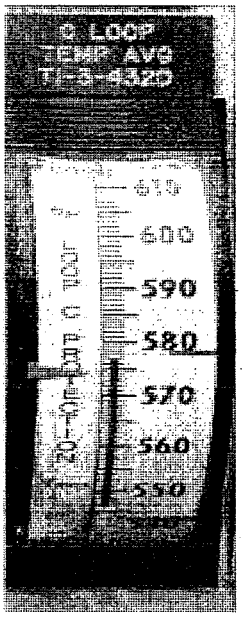
A. Incorrect since WR, not PZR, RCS pressure instrumentation is required by TS Table 3.3-5. Also incorrect since WR Tcold *is* an Accident Monitoring instrument and 0-ADM-201, *Equipment Tagging and Labeling*, Definition 4.6, requires a purple label, not a blue label. Plausible because TS Table 3.3-1, Reactor Trip System Instrumentation requires the Functional Units 7 & 8, Pressurizer Pressure.

Also plausible since TS Table 3.3-2, ESF Actuation System Instrumentation requires the Functional Unit 1d, Pressurizer Pressure. Also plausible because many safety-related instruments in the Control Room have blue labels.

B. Incorrect since WR, not PZR, RCS pressure instrumentation is required by TS Table 3.3-5. Plausible because the 2nd part is correct. Also plausible because TS Table 3.3-1, Reactor Trip System Instrumentation, requires the Functional Units 7 & 8, Pressurizer Pressure. Also plausible since TS Table 3.3-2, ESF Actuation System Instrumentation, requires the Functional Unit 1d, Pressurizer Pressure.

C. Incorrect since WR Tcold *is* an Accident Monitoring instrument and 0-ADM-201, *Equipment Tagging and Labeling*, Definition 4.6, requires a purple label, not a blue label. Plausible because the 1st part is correct. Also plausible because many safety-related instruments in the Control Room have blue labels.

D. CORRECT. TS Table 3.3-5, Accident Monitoring Instrumentation, Instrument 4, requires WR Tcold. Per 0-ADM-201, *Equipment Tagging and Labeling*, Definition 4.6, Reg Guide 1.97, Common Markings - A fade resistant vinyl type tape colored purple which will enable Control Room Operators to identify instruments/indicators which may be relied upon in a Post Accident Condition.



Technical Reference(s): TS Tables 3.3.1, 3.3-2, 3.3-5 (Attach if not previously provided)

0-ADM-201, *Equipment Tagging and Labeling*

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6900523, Obj. 3 (As available)

Question Source: Bank #
Modified Bank # 62401 (Note changes or attach parent)
New

Question History: Last NRC Exam:

Question Cognitive Level: Memory or Fundamental Knowledge (1F)
Comprehension or Analysis

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 7
55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:
Modified from VC Summer 2008

Facility: Turkey Point

Vendor: WEC

Exam Date: 2011

Exam Type: RO

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	
	Group #	4	
	K/A #	G4	2.4.9
	Importance Rating	3.8	

Emergency Procedures / Plan: Knowledge of low power / shutdown implications in accident (e.g., loss of coolant accident or loss of residual heat removal) mitigation strategies.

Proposed Question: RO Question # 75

Given the following:

- Unit 3 is in Mode 5 for a refueling outage.
- 3A RHR Train is in operation for shutdown cooling.
- Time to boil in the reactor vessel is 2 hrs.
- No extensions are authorized for the containment closure time limit in accordance with 0-ADM-051, Outage Risk Assessment and Control.

Subsequently,

- ALL running CCW Pumps are tripped after showing signs of cavitation.
- RCS temperature is rising, and the crew enters 3-ONOP-050, Loss of RHR.

Which ONE of the following identifies (1) how often RCS Heatup Rate is required to be calculated (2) the MAXIMUM time allowed prior to setting Containment Closure after RHR lost in accordance with 3-ONOP-050, Loss of RHR?

A. (1) every 30 minutes
   (2) 30 minutes

B. (1) every 30 minutes
   (2) 2 hrs

C. (1) every 15 minutes
(2) 2 hrs

D. (1) every 15 minutes
(2) 30 minutes

Proposed Answer: D

Explanation (Optional):

A. Incorrect since heatup rate is calculated every 15 minutes. Also plausible because Containment closure time is correct.

B. Incorrect since heatup rate is calculated every 30 minutes. Also plausible because 2 hrs is the required amount of time to ensure Containment closure is set which is equivalent to the time to boil.

C. Incorrect since Containment closure is required within 30 minutes per 3-ONOP-050. Plausible - the candidate incorrectly believes 2 hrs is the required amount of time to ensure Containment closure is set which is equivalent to the time to boil.

D. CORRECT. Heatup rate calculated every 15 minutes by taking CET readings each minute for 5 minutes and establishing a trend. Containment closure is set within 30 minutes.

Technical Reference(s): 3-ONOP-030, Component Cooling Water Malfunction
3-ONOP-050, Loss of RHR (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: LP 6900229, Obj. 4 (As available)

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

Question History: Last NRC Exam:

Question Cognitive Level: Memory or Fundamental Knowledge

Comprehension or Analysis (3SPK)

Question Difficulty Level: B

10 CFR Part 55 Content: 55.41 10

55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.

Comments: