

# **EXAM MATERIAL**

Which of the responses below best completes the following statement to describe indications of a failed inlet elbow hold down bolt causing the inlet ram's head to separate from a pair of Reactor Recirculation Jet Pumps?

Jet Pump Total Flow will \_\_\_\_(1)\_\_\_ and the affected loop's Recirculation Loop Flow will \_\_\_\_(2)\_\_\_.

- A. (1) decrease due to a reduction in core flow  
(2) increase due to a reduction in system head loss
- B. (1) increase due to an increase in core flow  
(2) increase due to a reduction in system head loss
- C. (1) increase due to an increase in core flow  
(2) decrease due to an increase in system head loss
- D. (1) decrease due to a reduction in core flow  
(2) decrease due to an increase in system head loss

# EXAM MATERIAL

Following a loss of 120 kV, the following indications exist on panel H11-P809:

Breaker Positions

• BUS 64B POS B8, 4160V X-Tie to Bus 11EA .....	CLOSED
• BUS 64B POS B6, 4160V Normal Feed to Bus 64B .....	TRIPPED
• BUS 11EA POS EA3, EDG 11 4160V Output Breaker .....	CLOSED
• BUS 12EB POS EB3, EDG 12 4160V Output Breaker .....	OPEN
• BUS 64C POS C8, 4160V X-Tie to Bus 12EB .....	CLOSED
• BUS 64C POS C6, 4160V Normal Feed to Bus 64C .....	TRIPPED

Based on these indications what event has occurred?

- A. Lockout of BUS 64B
- B. Lockout of BUS 64C
- C. EDG 11 failure
- D. EDG 12 failure

# EXAM MATERIAL

The plant is operating at full power when the following annunciators alarm:

- 9D17 DIV I ESS 130 V BATTERY 2PA TROUBLE
- 9D21 DIV I EDG SEQUENCER TROUBLE
- 1D6 DIV I CSS LOGIC POWER FAILURE
- 1D8 RHR LOGIC A 125 VDC BUS POWER FAILURE
- 1D62 STM LK DET HPCI LOGIC POWER FAILURE

Select the correct diagnosis and effect, if any, on Division I EDGs.

- A. ONLY the Division I Batteries have been lost. Division I EDGs will AUTO START upon receipt of a valid start signal.
- B. ONLY the Division I Batteries have been lost. Division I EDGs will NOT START upon receipt of a valid start signal.
- C. BOTH Division I Battery Chargers AND Division I Batteries have been lost. Division I EDGs will AUTO START upon receipt of a valid start signal.
- D. BOTH Division I Battery Chargers AND Division I Batteries have been lost. Division I EDGs will NOT START upon receipt of a valid start signal.

# EXAM MATERIAL

Reactor power is 50% during a plant startup with the following in alarm:

- 4D9, Main Turbine Vibration High-High.
- 4D13, Main Turbine Vibration High.

The CRLNO reports the following main turbine vibration levels:

Bearing	Vibration level
1	1 mil
2	1 mil
3	1 mil
4	2 mils
5	3 mils
6	4 mils
7	4 mils
8	7 mils
9	11 mils
10	7 mils

Which action(s) will the crew perform?

- A. Scram the reactor, and trip the main turbine.
- B. Lower turbine load by 50 MWe and reevaluate.
- C. Fully unload the turbine, and shutdown to hot standby.
- D. Maintain turbine load at the present load and contact system engineering.



# EXAM MATERIAL

To ensure sufficient time is allowed to fully insert the control rods following a scram, the scram signal from the \_\_\_(1)\_\_\_ is present \_\_\_(2)\_\_\_.

- A. (1) RPS manual pushbuttons  
(2) for 10 seconds
- B. (1) RPS manual pushbuttons  
(2) until bypassed with a keylock switch
- C. (1) Reactor Mode Switch  
(2) for 10 seconds
- D. (1) Reactor Mode Switch  
(2) until bypassed with a keylock switch

# EXAM MATERIAL

Which one of the following correctly identifies the RCIC controls or indications available BOTH in the Main Control Room AND at the Remote Shutdown Panel?

- A. RCIC Pump Flow indication.
- B. RCIC Pump Discharge Pressure indication.
- C. E5150-F010, RCIC Pump CST Suction Isolation Valve, control pushbuttons.
- D. RCIC Pump Flow controller with Manual and Automatic Setpoint Adjustments.

# EXAM MATERIAL

The plant is operating at 100% power.

The following then occurs:

- 2D112, RBCCW Makeup Tank Level High/Low is received.
- 2D116, RBCCW Makeup Tank Flow High is received
- G1101-C001A, RW DW Floor Drain Sump West Sump Pump starts.
- P42-F410, RBCCW Head Tank Demin Water Makeup LCV is 100% open
- P42-R400, RBCCW Head Tank Level Ind is -18" and lowering.
- Both running RBCCW pumps trip.

Which of the following describes actions the crew will take and the reason for those actions?

- A. Commence GOP shutdown to allow for leak isolation.
- B. Commence GOP shutdown to comply with Technical Specifications.
- C. Place the Reactor Mode Switch in Shutdown because of the total loss of RBCCW.
- D. Trip Recirc Pump A, Isolate Div 1 EECW to and from the Drywell and then monitor reactor power to perform leak isolation.

# EXAM MATERIAL

Due to a leak in the pipe supplying NIAS from IAS, the following conditions currently exist in the plant's air systems (NOTE: The air pressures listed are the LOWEST sensed during the transient):

- Division 1 NIAS to Dryer Pressure ..... 84 psig (lowering)
- Division 2 NIAS to Dryer Pressure ..... 84 psig (lowering)
- Interruptible Air to NIAS Header Pressure ..... 79 psig (lowering)

Based on these conditions, the current status of plant air system components is:

(1) P5002-D001(D002) Division 1(2) Control Air Compressors are \_\_\_\_\_.  
(2) P5000-F440(F441) Division 1(2) Control Air Isolation Valves are \_\_\_\_\_.

- A. (1) running  
(2) closed
- B. (1) not running  
(2) closed
- C. (1) running  
(2) open
- D. (1) not running  
(2) open



# EXAM MATERIAL

The plant is in HOT SHUTDOWN, with the following conditions:

- Reactor Pressure is 25 psig.
- RPV Water Level is 250 inches.
- RHR Pump B is operating in Shutdown Cooling Mode.
- 2D26, Div II RHR System Low Flow Bypass Initiated, alarms due to a faulty flow switch.
- E1150-F007B, Div 2 RHR Pmps Min Flow Vlv, OPENS

Which one of the following describes the effect of the above on ACTUAL flow through the B RHR Pump and continued RHR Loop B Shutdown Cooling operation?

- A. Flow will increase; Reactor Water Level will lower until Shutdown Cooling isolates.
- B. Flow will remain the same; RHR Loop B will remain operating in Shutdown Cooling with this condition.
- C. Flow will decrease; Reactor Water Level will lower until Shutdown Cooling isolates.
- D. Flow will increase; RHR Heat Exchanger Bypass Valve has opened; Reactor Coolant System flow will decrease until Shutdown Cooling isolates.

# EXAM MATERIAL

A refueling accident has caused the following:

- 16D1, RB Refueling Area Fifth Floor High Radiation is received.
- D21-K717, RB5 Refuel Floor Lo Range ARM Ind trip Unit, indicates 10 mR/hr and slowly lowering.
- 3D35, Div I/II FP Vent Exh Radn Monitor Upscale Trip is received.
- All Fuel Pool Vent Exhaust Radiation Monitors peaked at 3.5 mR/hr and are now slowly lowering.

(1) What automatic actions, if any, will occur AND (2) which of the following procedure(s) entry conditions is (are) met?

- A. (1) RBHVAC isolates.  
(2) 20.000.02, Abnormal Release of Radioactive Material, ONLY
- B. (1) RBHVAC isolates.  
(2) 20.710.01, Refueling Floor High Radiation, AND 20.000.02, Abnormal Release of Radioactive Material
- C. (1) No automatic actions occur.  
(2) 20.710.01, Refueling Floor High Radiation, AND 20.000.02, Abnormal Release of Radioactive Material
- D. (1) No automatic actions occur.  
(2) 20.710.01, Refueling Floor High Radiation, AND 29.100.01, Sheet 5, Secondary Containment Control

**EXAM MATERIAL**

Which of the responses below completes the following regarding the operational implications of High Drywell Pressure? In MODES 1, 2 and 3 the maximum Drywell Pressure allowed by Technical Specification LCO 3.6.1.4, Primary Containment Pressure, is \_\_ (1) \_\_. This limit is based on \_\_ (2) \_\_.

A. (1) 1.5 psig

(2) maintaining the resultant differential pressure below the maximum primary containment design differential pressure in the event of inadvertent drywell spray actuation.

B. (1) 2.0 psig

(2) maintaining the resultant differential pressure below the maximum primary containment design differential pressure in the event of inadvertent drywell spray actuation.

C. (1) 1.5 psig

(2) maintaining the resultant peak primary containment accident pressure below the primary containment design pressure in the event of a Design Basis Accident (DBA).

D. (1) 2.0 psig

(2) maintaining the resultant peak primary containment accident pressure below the primary containment design pressure in the event of a Design Basis Accident (DBA).

**EXAM MATERIAL**

The plant is operating at 90% power. The #1 pressure regulator is in service, and you are asked to raise the setpoint 1 PSI. When you take your finger off the raise button, the button stays depressed, and you are unable to release it from this position.

Which of the following describes the response of the plant?

- A. Reactor pressure will lower and the reactor will scram on MSIV closure.
- B. Reactor pressure will raise and the reactor will scram on high reactor pressure.
- C. The #2 pressure regulator will take over and control reactor pressure approximately 3.5 psi below the setpoint of the #1 regulator.
- D. The #2 pressure regulator will take over and control reactor pressure approximately 3.5 psi above the setpoint of the #1 regulator.



**EXAM MATERIAL**

The Reactor Core Isolation Cooling (RCIC) system is the only high pressure injection source available.

It is operating and supplying the RPV from the Torus with the following conditions:

- RCIC Turbine supply pressure ..... 900 psig
- RCIC Turbine exhaust pressure ..... 45 psig
- RCIC area ambient temperature ..... 145°F
- RCIC Discharge flow ..... 500 gpm
- Torus Temperature ..... 175°F
- RPV level ..... 10" and stable

(1) What operator action(s) will be taken for these conditions, and (2) what indications will the operator verify / monitor?

- A. (1) Arm & Depress the RCIC Manual Isolation Pushbutton.  
(2) Verify E5150-F008, RCIC Stm Line Otbd Iso Vlv, closes.
- B. (1) Arm & Depress the RCIC Manual Trip Pushbutton.  
(2) Verify E5150-F059, RCIC Turb Trip Throttle Vlv, closes.
- C. (1) Place RHR in Torus Cooling.  
(2) Monitor the RCIC Turbine for signs of damage or unusual operation.
- D. (1) Place the RCIC Discharge Flow Controller in Manual, and lower RCIC Turbine speed.  
(2) Monitor the RCIC Turbine for signs of damage or unusual operation.

**EXAM MATERIAL**

A LOCA and ATWS have occurred, with the following plant conditions:

- Drywell pressure is 27 psig
- Drywell temperature is 260°F
- Torus pressure is 20 psig
- Torus temperature is 125°F
- Torus level is 10"
- HPCI is maintaining RPV level at -15"
- RPV pressure is 750 psig

You have been directed to place division 1 of RHR in the Torus Cooling, Torus Spray and Drywell Spray Mode to lower Drywell temperature.

To place Division 1 of RHR into Torus Cooling, Torus Spray and Drywell Spray, the Containment Spray 2/3 Core Height Override keylock switch will \_\_\_\_ (1) \_\_\_\_.

The maximum flow allowed from Division 1 of RHR is \_\_\_\_ (2) \_\_\_\_.

- A. (1) remain in OFF  
(2) 28,000 gpm
- B. (1) remain in OFF  
(2) 14,000 gpm
- C. (1) be placed in MANUAL OVERRIDE  
(2) 28,000 gpm
- D. (1) be placed in MANUAL OVERRIDE  
(2) 14,000 gpm

**EXAM MATERIAL**

With a Torus Water Level < -112 inches (1) which of the following Reactor Pressures require EOP action and (2) what action must be taken?

- A. (1) 50 PSIG.  
(2) Depressurize the RPV by opening 5 SRVs (ADS preferred)
- B. (1) 50 PSIG.  
(2) Rapidly depressurize the RPV ignoring cooldown rates using the Main Condenser and other steam Loads.
- C. (1) 500 PSIG.  
(2) Depressurize the RPV by opening 5 SRVs (ADS preferred)
- D. (1) 500 PSIG.  
(2) Rapidly depressurize the RPV ignoring cooldown rates using the Main Condenser and other steam Loads.

**EXAM MATERIAL**

The plant was operating at 100% power when ONE Reactor Feed Pump tripped.

- RPV Water Level is 190", trending down SLOWLY
- Reactor power is stable at 68%
- Recirc flow is stable at 55% of rated

Which of the following IMMEDIATE ACTIONS must the crew take?

- A. Restore RPV level using HPCI.
- B. Restore RPV level using SBFW and one RFP.
- C. Place the reactor mode switch to SHUTDOWN.
- D. Depress the RECIRC MANUAL RUNBACK pushbutton.



**EXAM MATERIAL**

You are the Control Room LNO (CRLNO).

The plant has experienced a FAILURE TO SCRAM. Conditions are as follows:

- RPV pressure is stable at 900 psig.
- Standby Liquid Control is injecting.
- SLC tank level is 70" and lowering.

(1) At what SLC tank level will a cooldown be allowed?

While cooling down at 50°F/hr you observe the following:

- Power on IRMs and SRMs begins to rise.
- Period is positive and getting shorter.

(2) How will you proceed?

- A. (1) 15".  
(2) Stabilize RPV Pressure at the current value.
- B. (1) 15".  
(2) Lower cooldown rate to 25°F/hr.
- C. (1) 44".  
(2) Stabilize RPV Pressure at the current value.
- D. (1) 44".  
(2) Lower cooldown rate to 25°F/hr.

**EXAM MATERIAL**

Following an unisolable steam leak in the Turbine Building, the following conditions exist:

- An Offsite Radiation Release is in progress.
- 29.100.01 Sheet 5, Radioactivity Release has been entered.
- Turbine Building Ventilation has TRIPPED and ISOLATED.

Which of the following actions, if any, are required and why?

- A. Maintain Turbine Building Ventilation ISOLATED to lower the radioactivity released.
- B. Maintain Turbine Building Ventilation ISOLATED to prevent an unmonitored release.
- C. Defeat the isolation and RESTART Turbine Building Ventilation to ensure the release is monitored.
- D. Defeat the isolation and RESTART Turbine Building Ventilation to lower the radioactivity release rate.

**EXAM MATERIAL**

The plant is operating at 100% power when the following alarms/indications are received:

- 16D27, Fire Alarm.
- White FIRE light is lit for Zone 5, RCIC Quad on H11-P816.
- 7D6, Diesel Fire Pump Auto Start.
- 7D10, Electric Fire Pump Auto Start.

Which of the following actions needs to be performed FIRST and WHY?

- A. An operator needs to be dispatched to investigate because indications of a confirmed fire have NOT been received.
- B. 20.000.18, Control of the Plant from the Dedicated Shutdown Panel, must be performed because equipment malfunctions, due to hot shorts, may jeopardize safe operation of the plant.
- C. 2PA2-6 Ckt 10, HPCI Valve Logic, must be opened because HPCI is the preferred HP feed source and isolation logic is de-energized to prevent spurious isolations.
- D. The Fire Alarm must be sounded and the fire announced because plant personnel, including the fire brigade, need to be alerted.

**EXAM MATERIAL**

The plant is operating at 80% power during a rod pattern adjustment. The Systems Operations Center notifies the main control room that there is potential for degraded grid conditions due to erratic loading in Monroe County.

The following conditions exist for the Fermi 2 Main Generator:

- S13-R800, MTG XFMR Output Voltage -- 119.5 Meter Volts
- S13-R809 MTG Frequency Recorder -- 57.70 Hertz

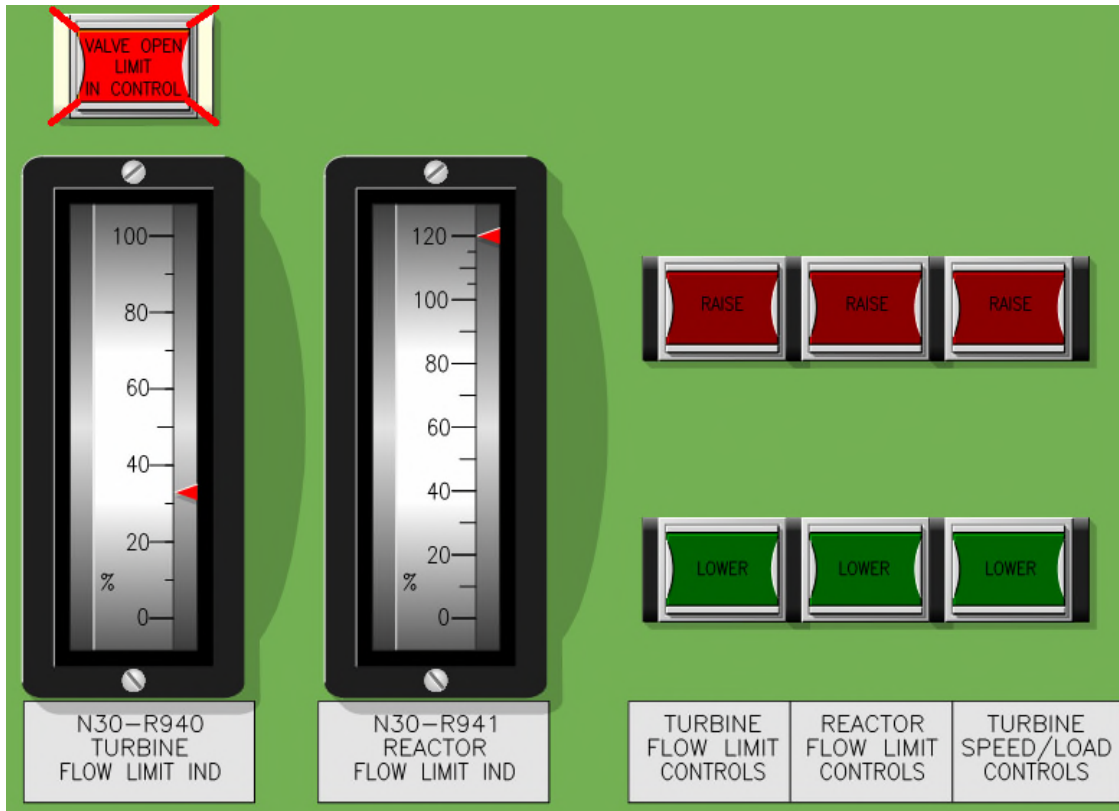
Which of the following operator actions is required and why?

- A. Reduce generator load to raise frequency.
- B. Raise generator voltage to stabilize the grid.
- C. Start CTG 11-1 to minimize the impact of a potential loss of the 120Kv Mat.
- D. Place the Mode Switch in SHUTDOWN to protect the plant from conditions that might damage the Main Generator.



**EXAM MATERIAL**

The plant was initially at 60% power. A malfunction occurred, as shown below:



Additionally:

- Generator output lowers to 350 MWe
- Turbine bypass valves (TBVs) open to 100%
- RPV pressure rises and stabilizes at 1055 psig
- Reactor power is stable at 62%

The Crew attempts to raise the TURBINE FLOW LIMIT. There is no response.

What action will the crew take?

- trip the main turbine
- lower Reactor Recirc flow
- throttle closed on the TBVs
- manually open A or G SRV

**EXAM MATERIAL**

The plant has scrammed due to a LOCA. You have been directed to Spray the Drywell.

(1) What is the MINIMUM Torus Water Level above which initiation of Drywell Spray is prohibited?

(2) Why is Drywell Spray prohibited above this level?

- A. (1) 569 feet as read on T50-R810, Div 2 Primary Containment Water Level Recorder.  
(2) The Suppression Chamber to Drywell Vacuum Breakers are being submerged.
- B. (1) 569 feet as read on T50-R810, Div 2 Primary Containment Water Level Recorder.  
(2) Water has reached the elevation of the Torus Vent.
- C. (1) 45 inches as read on T50-R804A(B) Div 1(2) Torus Level Recorder.  
(2) The Suppression Chamber to Drywell Vacuum Breakers are being submerged.
- D. (1) 45 inches as read on T50-R804A(B) Div 1(2) Torus Level Recorder.  
(2) Water has reached the elevation of the Torus Vent.

**EXAM MATERIAL**

Power ascension is in progress.

Reactor power is 80%.

The EARLIEST the Rod Block Monitor system will prevent control rod withdrawal is when RBM A \_\_\_(1)\_\_\_ RBM B reach the trip setpoint.

The basis for this rod block is \_\_\_(2)\_\_\_.

- A. (1) OR  
(2) to terminate an inadvertant rod withdrawal
- B. (1) OR  
(2) to mitigate the consequences of a dropped rod event
- C. (1) AND  
(2) to terminate an inadvertant rod withdrawal
- D. (1) AND  
(2) to mitigate the consequences of a dropped rod event

**EXAM MATERIAL**

The plant was operating at 100% power when an ATWS occurred.

- The CRS has directed 29.ESP.03, ALTERNATE CONTROL ROD INSERTION METHODS
- The P603 operator is preparing to manually insert control rods per section 3.0

Which one of the following methods must be used by the P603 operator to manually insert control rods initially?  
Insert rods...

- A. in a spiral pattern using the "Rod Movement Control" switch.
- B. in a spiral pattern using the "Rod Out Notch Override" switch.
- C. from the cram array using the "Rod Movement Control" switch.
- D. from the cram array using the "Rod Out Notch Override" switch.



**EXAM MATERIAL**

The plant is at 100% power.

A rupture of the instrument line on the VARIABLE leg associated with the below level instruments occurs.

- B21-N080A, Div 1 Reactor Level Narrow Range Transmitter
- B21-N080B, Div 1 Reactor Level Narrow Range Transmitter
- B21-N095A, Div 1 Reactor Level Narrow Range Transmitter
- B21-N095C, Div 1 Reactor Level Narrow Range Transmitter

The associated excess flow check valve closed and the instrument line depressurized.

Of the following automatic actions, which should occur based on this event?

- Trip of Main Turbine and Reactor Feed Pumps
  - Group 13: Drywell Sump Pump Isolation
  - Trip of the North and South Reactor Recirc Pumps
- A. Group 13: Drywell Sump Pump Isolation ONLY
- B. Trip of Main Turbine and Reactor Feed Pumps ONLY
- C. Trip of the North and South Reactor Recirc Pumps ONLY
- D. Group 13: Drywell Sump Pump Isolation AND Trip of the North and South Reactor Recirc Pumps

**EXAM MATERIAL**

The plant has experienced an ATWS with significant fuel damage.

Which one of the following activities contains a caution that, when performed under these conditions, could release radioactive steam into secondary containment and significantly increase secondary containment radiation levels?

- A. Venting the scram air header
- B. Injecting into the RPV using RCIC
- C. Venting the control rod over piston volume
- D. Bypassing isolations and re-opening MSIVs

**EXAM MATERIAL**

If 8D46 DIV 1 REACTOR BLDG PRESSURE HIGH/LOW alarms and pressure is +1" wc, why is 29.100.01 SH 5 "Secondary Containment and Rad Release" entered?

- A. A primary system is discharging into the Secondary Containment.
- B. An indication that radioactivity will not be treated or monitored prior to release exists.
- C. The continued operability of equipment needed to stabilize the plant may be compromised.
- D. Radioactivity is being released to the environment when the system should have automatically isolated.

**EXAM MATERIAL**

The plant is operating at 100% power with RHR Pump "A" operating in Torus Cooling. A transient occurs, resulting in the following conditions:

- Control Rods ..... All fully inserted
- MSIVs ..... All closed
- 1D6, DIV I CSS LOGIC POWER FAILURE ..... Alarming
- 1D8, RHR LOGIC A 125V DC BUS POWER FAILURE ..... Alarming
- 9D17, DIV I ESS 130V BATTERY TROUBLE ..... Alarming
- ALL Div. 1 ECCS Pumps ..... CMC indication lost (no lights)

Immediately after the above conditions are evident, but before operator action, a LOCA occurs.

Based on these conditions, RHR Pump "A" is \_\_\_\_ (1) \_\_\_\_ and \_\_\_\_ (2) \_\_\_\_.

- A. (1) RUNNING  
(2) CAN be tripped from the MCR
- B. (1) RUNNING  
(2) CANNOT be tripped from the MCR
- C. (1) TRIPPED  
(2) WILL auto start on receipt of a valid signal
- D. (1) TRIPPED  
(2) WILL NOT auto start on receipt of a valid signal



**EXAM MATERIAL**

Initial conditions:

- The plant is at 100% power.
- LCO 3.5.1 Condition A was entered due to RHR pump A out of service for a planned outage.

Event:

- RHR Pump B has just been declared inoperable.
- LCO 3.5.1 Condition B was entered as a result.

Which of the following additional inoperabilities would require entry into LCO 3.0.3?

- A. SRV H
- B. CS Pump A
- C. RCIC System
- D. SBFW System

**EXAM MATERIAL**

The plant is cooling down in mode 3, with Division 1 of Shutdown Cooling (SDC) in service

- SDC Flow is 10,000 gpm
- E1150-F003A, Div 1 RHR Hx Outlet Vlv, is throttled
- E1150-F048A, Div 1 RHR Hx Bypass Vlv, is full open

You have been directed to raise the cooldown rate. What is the proper method to raise cooldown rate in this condition?

- A. Throttle open E1150-F003A ONLY
- B. Throttle closed E1150-F048A ONLY
- C. Throttle closed E1150-F017A, then throttle open E1150-F003A.
- D. Throttle closed E1150-F048A, then throttle open E1150-F017A

**EXAM MATERIAL**

A transient results in the following:

- Drywell pressure is 4 psig and rising.
- HPCI automatically starts and injects.
- HPCI then trips on High RPV Water Level.
- RPV Level is 200" and lowering slowly.

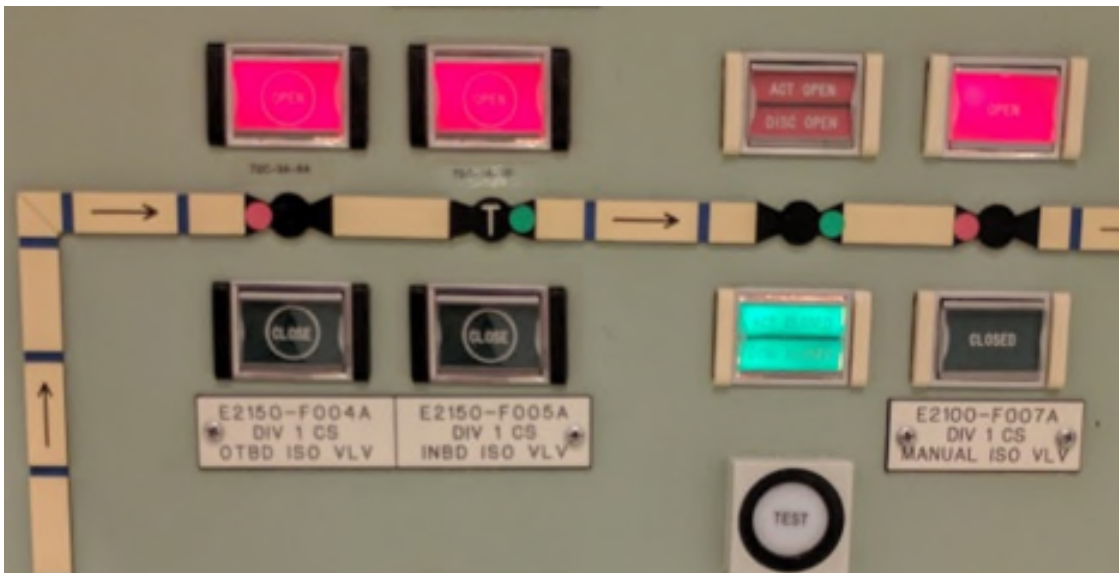
How will the HPCI system valve lineup change if the Reactor High Water Level Signal RESET Pushbutton is depressed?

- A. E4150-F067, HPCI Turbine Steam Stop Valve will immediately re-open.
- B. E4150-F001, HPCI Turbine Steam Supply Isolation Valve will immediately re-open.
- C. E4150-F067, HPCI Turbine Steam Stop Valve will re-open if RPV level reaches 110".
- D. E4150-F001, HPCI Turbine Steam Supply Isolation Valve will re-open if RPV level reaches 110".

**EXAM MATERIAL**

The plant is at 100% power

An electrician was investigating the MCC for E2150-F005A and made a mistake, causing E2150-F005A to open, as shown below:



A fault exists on testable check valve E2150-F006A, allowing 6 gpm of reverse flow at full d/p:

(1) What Alarm is consistent with these conditions?

To correct the condition, the crew will close E2150-F005A and then (2) \_\_\_\_\_.

- A. (1) 1D14 - DIV I CSS INJ VAL LEAK PRESS HIGH  
(2) Close F004A. Cycle F005A open then shut. Open F004A. Relieve pressure through E2150-F015A, Div 1 CS Test Line Iso Vlv. Close E2150-F015A
- B. (1) 1D14 - DIV I CSS INJ VAL LEAK PRESS HIGH  
(2) Close F007A. Cycle F005A open then shut. Relieve pressure through E2150-F015A, Div 1 CS Test Line Iso Vlv, close E2150-F015A. Open F007A
- C. (1) 1D10 - CORE PLATE TO SP HDR A DIFF PRESS HIGH  
(2) Close F007A. Cycle F005A open then shut. Open F007A.
- D. (1) 1D10 - CORE PLATE TO SP HDR A DIFF PRESS HIGH  
(2) Close F004A. Cycle F005A open then shut. Open F004A.



**EXAM MATERIAL**

The plant is operating at 100% power. The control power fuse for Motor Control Center (MCC) 72B-4C Pos 2A-R, which provides power to ONE of the SLC Pump control circuits, has blown.

Which of the responses below accurately completes the following statement regarding the status of the SLC system?

Currently, only the \_\_ (1) \_\_ squib circuit continuity light is lit and \_\_ (2) \_\_ squib valve(s) would open upon system initiation.

- A. A; both
- B. B; both
- C. A; only the A
- D. B; only the B

**EXAM MATERIAL**

The plant is operating at 96% Power.

A transient results in indicated RPV pressure rising to 1100 psig.

During the transient, the following instruments respond as indicated:

- B21-N678A, Reactor Vessel Steam Dome Pressure - High Trip Unit, remains UNTRIPPED.
- B21-N678B, Reactor Vessel Steam Dome Pressure - High Trip Unit, TRIPPED.
- B21-N678C, Reactor Vessel Steam Dome Pressure - High Trip Unit, remains UNTRIPPED.
- B21-N678D, Reactor Vessel Steam Dome Pressure - High Trip Unit, TRIPPED.

How will the Reactor Protection System (RPS) be affected by the above conditions?

- A. BOTH RPS Trip Systems will TRIP.
- B. ONLY RPS Trip System A will TRIP.
- C. ONLY RPS Trip System B will TRIP.
- D. NEITHER RPS Trip System will TRIP.

**EXAM MATERIAL**

The reactor is critical during a reactor startup. IRM Ranges and indications are as follows:

IRM A	30 (Range 1)	IRM B	32 (Range 1)
IRM C	40 (Range 2)	IRM D	BYPASSED
IRM E	28 (Range 1)	IRM F	25 (Range 1)
IRM G	45 (Range 2)	IRM H	30 (Range 2)

Which of the following describes the status of the IRM Retract Permit lights and the ability to withdraw IRM detectors?

- A. NONE of the IRMs have a Retract Permit light lit but ALL would retract.
- B. NONE of the IRMs have a Retract Permit light lit and NONE would retract.
- C. Only IRM D has a Retract Permit light lit and ONLY it could be retracted without receiving a rod block.
- D. IRMs C, D, G and H have a Retract Permit light lit and ALL 4 could be retracted without receiving a rod block.

**EXAM MATERIAL**

A startup is in progress:

- SRM C Bypassed and fully withdrawn.
- All other IRMs and SRMs fully inserted.
- IRMs A, C, E and G on Range 2.
- IRMs B, D, F and H on range 3.
- All IRMs and SRMs rising.

Predict the impact on RPS if the "A" SRM high voltage power supply was to drift to 250 VDC and the only operator action taken was to range the IRMs during the power ascension.

A half scram on RPS A will ...

- A. not occur.
- B. immediately occur.
- C. occur later than expected.
- D. occur earlier than expected.



**EXAM MATERIAL**

The plant is in MODE 2 with a reactor startup in progress.

Control rod withdrawal results in the following SRM channel indications:

- SRM A =  $3 \times 10^5$  counts per second
- SRM B =  $1 \times 10^5$  counts per second
- SRM C =  $5 \times 10^4$  counts per second
- SRM D =  $6 \times 10^4$  counts per second

This condition will result in...

- A. ONLY a FULL control rod withdrawal block
- B. a FULL scram AND a FULL control rod withdrawal block
- C. a HALF scram on RPS channel A AND a FULL control rod withdrawal block
- D. a HALF scram on RPS channel A AND a HALF control rod withdrawal block

**EXAM MATERIAL**

A plant startup is in progress. Reactor power is 30% by the APRMs and being increased by control rod withdrawal. APRM 2 malfunctions and is indicating 0% power.

Which one of the following describes the effect on the Rod Block Monitors because of the APRM failure?

- A. RBM A and B are OPERABLE. Control rod withdrawal can continue.
- B. RBM A and B are INOPERABLE. Control rod withdrawal is blocked.
- C. RBM A is INOPERABLE. Bypassing APRM 2 will allow control rod withdrawal.
- D. RBM B is INOPERABLE. Bypassing APRM 2 will allow control rod withdrawal.

**EXAM MATERIAL**

A loss of power to RCIC Inverter, E51-K603, will result in a loss of...

- A. ability to automatically control RCIC flow.
- B. ability to automatically trip the RCIC turbine if running.
- C. isolation capability for E5150-F008, RCIC Stm Line Otbd Iso Valve ONLY.
- D. isolation capability for E5150-F007, RCIC Stm Line Inbd Iso Valve AND E5150-F008, RCIC Stm Line Otbd Iso Valve.

**EXAM MATERIAL**

The plant is experiencing a LOCA and loss of all High Pressure Feedwater sources.

- Drywell pressure is 0.6 psig, stable
- RPV Water level is 77", lowering

If operators do NOT bypass ADS, how will ADS SRVs be affected when RPV level reaches the level 1 setpoint?

- A. Open after a 105 second time delay ONLY.
- B. Open after a 7 minute plus 105 sec time delay.
- C. Remain closed until drywell pressure rises above 1.68 psig.
- D. Remain closed until a low pressure ECCS pump can be manually started.



**EXAM MATERIAL**

The plant was operating at 100% power when the following occurred:

- Main Turbine trip.
- ATWS.
- Reactor Power is 55%.
- RPV level is 150" and lowering.

You have been directed to "Bypass and Restore Drywell Pneumatics."

Which of the following actions, or sets of actions, is/are the minimum necessary to carry out the order as directed?

- A. Place Division 1 and 2 Drywell Pneumatic Supply Isolation Bypass Keylock switches to ON ONLY
- B. Place Division 1 and 2 Drywell Pneumatic Supply Isolation Bypass Keylock switches to ON  
AND  
Open T4901-F465(468), Div 1(2) DW Pneumatics Supply Outboard Iso Valves  
AND  
Open T4901-F601(602), Div 1(2) DW Pneumatics Supply Inboard Iso Valves
- C. Depress A7100-M120(M146), Inboard (Outboard) MSIV Iso Reset Switches  
AND  
Open T4901-F465(468), Div 1(2) DW Pneumatics Supply Outboard Iso Valves  
AND  
Open T4901-F601(602), Div 1(2) DW Pneumatics Supply Inboard Iso Valves
- D. Place Division 1 and 2 Drywell Pneumatic Supply Isolation Bypass Keylock switches to ON  
AND  
Depress A7100-M120(M146), Inboard (Outboard) MSIV Iso Reset Switches  
AND  
Open T4901-F465(468), Div 1(2) DW Pneumatics Supply Outboard Iso Valves  
AND  
Open T4901-F601(602), Div 1(2) DW Pneumatics Supply Inboard Iso Valves

**EXAM MATERIAL**

Which of the responses below completes the following statement from the Precautions and Limitations section of 23.201, Safety Relief Valves and Automatic Depressurization System?

Reactor Water Level should be as near to normal level as possible during manual SRV operation to prevent inadvertent Reactor \_\_ (1) \_\_ Level trips due to \_\_ (2) \_\_.

- A. (1) Low  
(2) shrink
- B. (1) High  
(2) swell
- C. (1) Low  
(2) inventory loss
- D. (1) High  
(2) increased injection

**EXAM MATERIAL**

The plant is operating at 100% power with the following:

- C32-R616A North Reactor Feedwater Pump (RFP) Controller in AUTO.
- C32-R616B South Reactor Feedwater Pump (RFP) Controller in AUTO.
- RPV Startup LCV Mode Switch in RUN.
- Level Control Mode Switch in 3-Element.

A reactor scram subsequently occurs.

Two minutes after the scram, (1) what is the status of the RFP Controllers and (2) what are the approximate RFP Turbine speeds?

- A. (1) Auto  
(2) 1600 rpm
- B. (1) Auto  
(2) 2650 rpm
- C. (1) Manual  
(2) 1600 rpm
- D. (1) Manual  
(2) 2650 rpm

**EXAM MATERIAL**

The plant is operating in MODE 1 when an SRV fails open.

After the plant stabilizes with the SRV open, the feedwater control system (FWCS) will control RPV water level ...

- A. HIGHER than normal because the additional steam flow results in a rise in feedwater flow.
- B. at the normal setpoint because feedwater flow will rise to compensate for the added steam flow.
- C. LOWER than normal because the steam flow through the open SRV is NOT sensed by the FWCS.
- D. at the normal setpoint because the SRV failure will cause the FWLC system to shift to single element.



**EXAM MATERIAL**

The plant is operating at 100% power.

- Standby Gas Treatment System (SGTS) Div 1 is out of service for maintenance
- A spurious Secondary Containment isolation signal is received

Five minutes later the CRLNO reports that Reactor Building HVAC is tripped, and SGTS Div 2 is running with system flow at 1000 SCFM and stable.

SGTS Div 2 flow is...

- A. normal and secondary containment  $\Delta P$  will remain within limits.
- B. insufficient and secondary containment  $\Delta P$  may become less negative than allowable.
- C. slightly lower than normal but secondary containment  $\Delta P$  will remain stable and within limits.
- D. higher than normal and secondary containment  $\Delta P$  may become more negative than allowable.

**EXAM MATERIAL**

Initial Conditions:

- Drywell pressure is 12 psig.
- Both trains of SGTS auto-started.
- Division 1 of SGTS was stopped per 23.404 Enclosure A, Shutdown a Division of SGTS.
- RB differential pressure is stable at -0.6" wc.

Event:

- The exhaust fan for Division 2 SGTS trips on overload.

RB differential pressure will begin to trend \_\_\_(1)\_\_\_ negative.

Division 1 of SGTS \_\_\_(2)\_\_\_ in response to the event.

- A. (1) less  
(2) will be restarted per the hard card
- B. (1) less  
(2) will automatically restart
- C. (1) more  
(2) will be restarted per the hard card
- D. (1) more  
(2) will automatically restart

**EXAM MATERIAL**

- Plant conditions: 100% power
- 24.307.14, Emergency Diesel Generator 11 Start and Load Test is in progress.
- Conditions have been established to parallel the EDG with the grid.

Which of the following describes the indications immediately after Bus 11EA Pos EA3, EDG 11 Generator Output Breaker is closed?

Bus 11EA voltage will \_\_\_(1)\_\_\_ voltage.

Diesel KVAR \_\_\_(2)\_\_\_ rise.

- A. (1) rise to EDG output  
(2) will
- B. (1) rise to EDG output  
(2) will NOT
- C. (1) remain at previous  
(2) will
- D. (1) remain at previous  
(2) will NOT

**EXAM MATERIAL**

A complete failure of UPS "A" static inverter occurs.  
UPS "A" loads will now be supplied by the UPS ...

- A. "A" rectifier from the UPS battery.
- B. "B" rectifier from Bus 72R.
- C. "A" voltage regulator from Bus 72M.
- D. "A" voltage regulator from Bus 72R.



**EXAM MATERIAL**

The plant is operating at 100% power with the following:

- Division 1 130V ESF Batteries are undergoing an equalizing charge.
- T4100-B033, Battery Room AC Unit is in operation.
- Division 1 and 2 Battery Room Temperatures are at 72°F.

T4100-C007 and T4100-C008, Division 1 Battery Room East and West Exhaust Fans ...

- A. are running to prevent undesirable buildup of explosive hydrogen gas.
- B. will run If Battery Room AC Unit air flow stops to prevent unacceptable room temperatures.
- C. will run if Battery Room ambient temperature exceeds 75°F to prevent unacceptable room temperatures.
- D. will run if Battery Room AC Unit air flow stops to prevent undesirable buildup of explosive hydrogen gas.

**EXAM MATERIAL**

Following a Loss of Offsite Power, the grid has been restored, conditions are as follows:

- EDG 11 is supplying ESF Bus 64B by way of EDG Bus 11EA and ESF-EDG Bus Tie Breaker B8.
- Synchroscope Switch for ESF Bus 64B Normal Feeder Breaker B6 is ON.
- ALL conditions are met for paralleling the EDG with Offsite Power.

When the B6 Breaker is CLOSED, the operating mode of EDG 11 will shift to the \_\_\_\_ (1) \_\_\_\_ mode.

Following breaker closure, the EDG 11 Governor must be immediately adjusted to prevent a(n) \_\_\_\_ (2) \_\_\_\_ condition.

- A. (1) Speed Droop  
(2) reverse power
- B. (1) Speed Droop  
(2) overload
- C. (1) Isochronous  
(2) overload
- D. (1) Isochronous  
(2) reverse power

**EXAM MATERIAL**

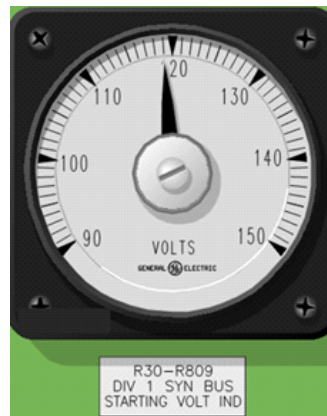
The following conditions exist:

- ESF Bus 64B is being supplied from System Service Transformer #64.
- EDG Bus 11EA is being supplied from EDG 11.
- ESF-EDG Bus Tie Breaker B8 is open.
- No faults or trips exist.
- The CRS has directed you to synchronize the EDG with Bus 64B using 64B Pos B8, 4160V X-Tie to Bus 11EA.

When you place the Synchronize Switch for Bus 64B Pos B8, 4160V X-Tie to Bus 11EA in ON, you observe:



**NOTE:** The Synchroscope is rotating at 10 revolutions per minute (rpm) in the direction shown by the red arrow.



Which of the following adjustments are necessary to close ESF-EDG Bus Tie Breaker Pos. B8?

- (1) The EDG Governor Control Switch would have to be operated in the LOWER direction.  
(2) The EDG Voltage Control Switch would have to be operated in the LOWER direction.
- (1) The EDG Governor Control Switch would have to be operated in the RAISE direction.  
(2) The EDG Voltage Control Switch would have to be operated in the LOWER direction.
- (1) The EDG Governor Control Switch would have to be operated in the LOWER direction.  
(2) The EDG Voltage Control Switch would have to be operated in the RAISE direction.
- (1) The EDG Governor Control Switch would have to be operated in the RAISE direction.  
(2) The EDG Voltage Control Switch would have to be operated in the RAISE direction.

**EXAM MATERIAL**

If the instrument air line to P42-F400, RBCCW Temperature Control Valve is severed, temperature in the RBCCW system will \_\_\_\_ (1) \_\_\_\_.

If the instrument air line to P42-F403, RBCCW Recirculation Pressure Differential Control Valve is severed, differential pressure in the RBCCW system will \_\_\_\_ (2) \_\_\_\_.

- A. (1) increase  
(2) increase
- B. (1) increase  
(2) decrease
- C. (1) decrease  
(2) increase
- D. (1) decrease  
(2) decrease



**EXAM MATERIAL**

If a loss of offsite power occurs, when will the P4400-F603B, Div 2 EECW Supply Iso Valve and the P4400-F601B, Div 2 EECW Return Iso Valve, CLOSE?

- A. Only after offsite power is restored to Bus 72C.
- B. Only after offsite power is restored to Bus 72F.
- C. When the EDG 12 Output Breaker closes.
- D. When the EDG 14 Output Breaker closes.

**EXAM MATERIAL**

The plant is operating in MODE 1 with C1106-C001B, West CRD Pump in service.

Loss of AC power to 4160V Bus \_\_\_\_(1)\_\_\_ will cause the CRD Pump to trip.

One minute later, after the above bus is restored by its respective EDG, the CRD Pump will be \_\_\_\_(2)\_\_\_.

- A. (1) 65E  
(2) tripped
- B. (1) 65E  
(2) running
- C. (1) 65F  
(2) tripped
- D. (1) 65F  
(2) running

**EXAM MATERIAL**

A power reduction is in progress. Plant conditions are as follows:

- feed flow is 32% and lowering
- steam flow is 28% and lowering

The EARLIEST the Rod Worth Minimizer will enforce control rod blocks is when \_\_\_\_\_.

- A. EITHER feed flow OR steam flow is below 27%
- B. BOTH feed flow AND steam flow are below 27%
- C. EITHER feed flow OR steam flow is below 11%
- D. BOTH feed flow AND steam flow are below 11%

**EXAM MATERIAL**

The plant is at 100% power

A Feedwater transient occurs, resulting in a RPV level reduction to 170".

(1) What is a possible impact of this condition?

(2) What procedure will be used to correct the condition?

- A. (1) Lowering Reactor Recirc Pump NPSH due to carryunder  
(2) 29.100.01 Sheet 1, RPV Control
- B. (1) Lowering Reactor Recirc Pump NPSH due to carryunder  
(2) 23.623 Enclosure I, Rapid Power Reduction
- C. (1) Neutron Flux instability due to saturated conditions in the downcomer  
(2) 29.100.01 Sheet 1, RPV Control
- D. (1) Neutron Flux instability due to saturated conditions in the downcomer  
(2) 23.623 Enclosure I, Rapid Power Reduction



**EXAM MATERIAL**

The plant is in Mode 2 with reactor heatup in progress and:

- RPV temperature is 205°F.
- The Reactor Water Cleanup System (RWCU) is lined up to blowdown to the Main Condenser.

The following events then occur:

- 2D119, RBCCW PUMPS DIFF PRESS HIGH / LOW, alarms.
- 2D46, MOTOR TRIPPED, alarms.
- Both operating RBCCW pumps indicate TRIPPED.

How will RWCU respond to these conditions?

- A. G3352-F119, RWCU Inlet Isolation Valve, closes.
- B. G3300-F033, Blowdown Flow Control Valve, closes.
- C. G3352-F220 and G3352-F004, RWCU Containment Isolation Valves ONLY, close.
- D. G3352-F220, G3352-F004, and G3352-F001, RWCU Containment Isolation Valves, close.

**EXAM MATERIAL**

Reactor Power is 10% with a startup in progress.

An EDGE ROD is selected for withdrawal.

What is the status of rod blocks provided by the Rod Block Monitors (RBMs)? How would this compare to the status of the rod blocks if power was 40% with the SAME rod selected?

- A. All rod blocks would be active for both conditions.
- B. All rod blocks would be bypassed for both conditions.
- C. Rod blocks would be bypassed at the lower power and active at the higher power.
- D. Rod blocks would be active at the lower power and bypassed at the higher power.

**EXAM MATERIAL**

The plant is at 100% power.

Surveillance procedure 24.204.01, DIV. 1 LPCI AND SUPPRESSION POOL COOLING/SPRAY PUMP AND VALVE OPERABILITY TEST is in progress.

The surveillance is performed with E1150-F048A, Div 1 RHR Hx Bypass Vlv, fully closed.

The maximum allowed RHR flow through the RHR HX while performing this test is \_\_\_\_ (1) \_\_\_\_.

The minimum allowed RHRSW flow through the RHR HX while performing this test is \_\_\_\_ (2) \_\_\_\_.

- A. (1) 10,700 gpm  
(2) 500 gpm
- B. (1) 10,700 gpm  
(2) 5,250 gpm
- C. (1) 14,000 gpm  
(2) 500 gpm
- D. (1) 14,000 gpm  
(2) 5,250 gpm

**EXAM MATERIAL**

The plant is operating at 100% power when the STA comes back from the Relay Room with the following report:

- The DC Solenoid ammeter for the A INBOARD MSIV indicates 0 amps (de-energized).
- The DC Solenoid ammeter for the D OUTBOARD MSIV indicates 0 amps (de-energized).

Which MSIV(s), if any, would close if the A RPS MG Set were to trip?

- A. None
- B. Only A Inboard.
- C. Only D Outboard.
- D. Both A Inboard and D Outboard.



**EXAM MATERIAL**

The plant is operating at 100% power with the following:

- ALL Reactor Building water tight doors closed.
- G11-R654, SW Corner Sump G1101-D076 Level Recorder is trending up at a very fast rate.
- Both D076 sump pumps are running.

The RB NO, who was dispatched to locally inspect the SW Corner Room, reports the following:

- Flooding is apparent in the SW Corner Room.
- Water level is above the elevation of the sump and rising.
- Source of the flooding is unknown.
- It is NOT possible to enter the SW Corner Room.

Operability of which system(s) may be impacted?

- A. Division 1 RHR.
- B. Division 2 Core Spray.
- C. HPCI and Division 2 RHR.
- D. RCIC and Division 1 Core Spray.

**EXAM MATERIAL**

The plant is operating at 100% power when offgas radiation monitor indications stabilize at a higher than normal value due to fuel cladding failure.

If the offgas system chillers fail to maintain temperature, then \_\_\_\_ (1) \_\_\_\_ because \_\_\_\_ (2) \_\_\_\_.

- A. (1) offsite radioactivity release rate will RISE  
(2) the efficiency of the offgas charcoal beds will be reduced
- B. (1) offgas oxygen concentration will RISE  
(2) the effectiveness of the hydrogen recombiners will be reduced
- C. (1) offgas hydrogen concentration will RISE  
(2) the effectiveness of the hydrogen recombiners will be reduced
- D. (1) offsite radioactivity release rate will RISE  
(2) the sand filter's efficiency in removing particulates will be reduced

**EXAM MATERIAL**

A fire has resulted in actuation of a wet pipe automatic sprinkler system, the following conditions exist:

- Fire Water Header Pressure lowered to 125 psig and is now steady.
- General Service Water Header Pressure lowered to 105 psig and is now steady.

Which Fire Protection System pump(s) automatically initiated, if any, to maintain Fire Header Pressure?

- A. None.
- B. ONLY the Electric Fire Pump.
- C. ONLY the Diesel Fire Pump.
- D. BOTH the Electric and Diesel Fire Pumps.

**EXAM MATERIAL**

The plant is in MODE 1 with the following:

- Division 1 CCHVAC in operation.
- Division 1 EESW is running for chemistry control of the RHRSW reservoir.

Which of the following sets of conditions will require declaring Division 1 CCHVAC INOPERABLE and why?

- A. Outside air temperature drops below 68°F due to possible CCHVAC chiller surging and loss of oil pressure.
- B. Division 1 EESW TCV is taken to Manual due to the inability to ensure cooling water to the CCHVAC chiller remains >68°F.
- C. Outside air temperature drops below 68°F, for 40 minutes or more, due to freon boiling in the CCHVAC evaporator and condensing in the compressor.
- D. Division 1 EESW TCV is taken to Manual, for 40 minutes or more, due to the potential for freon boiling in the CCHVAC evaporator and condensing in the compressor.



**EXAM MATERIAL**

The reactor is operating at 100% power.

Due to a logic relay failure, the G3352-F001 RWCU Inboard Isolation valve receives an isolation signal and automatically closes.

Which one of the following describes the effect on the plant if this malfunction cannot be corrected for several weeks?

- A. Increased reactor thermal power.
- B. Decreased RPV bottom head thermal gradients.
- C. Decreased hydrogen buildup in the offgas system.
- D. Increased fouling of RPV internal heat transfer surfaces.

**EXAM MATERIAL**

10 CFR 55.25 states "If, during the term of the license, the licensee develops a permanent physical or mental condition that causes the licensee to fail to meet the requirements of § 55.21 of this part, the facility licensee shall notify the Commission..."

To ensure that Fermi 2 meets these requirements, MGA13, Fermi Medical Requirements, requires that licensed individuals shall be responsible to immediately notify Medical and their immediate supervisor.

What other individuals (if any) must be immediately notified?

- A. Supervisor, Nuclear Licensing
- B. Supervisor, Operations Training
- C. Supervisor, Radiation Protection
- D. No other notifications must be made immediately

**EXAM MATERIAL**

According to MOP06, "Recordkeeping", which one of the following actions could be performed without a subsequent unit log entry by the CRLNO?

- A. Start of the third condenser pump during plant startup
- B. Changes in mode switch position directed by a plant procedure
- C. Recirc Flow increase to maintain power at 100% due to fuel burnout
- D. Recirc Flow increase to raise power to 100% after a preplanned turbine test

**EXAM MATERIAL**

Per MOP13, Conduct of Refueling and Core Alterations, the Refuel Floor Supervisor is in charge of what on the Refuel Floor?

- A. ALL activities.
- B. Core Alterations ONLY.
- C. ANY movement of fuel ONLY.
- D. Everything EXCEPT Core Alterations.



**EXAM MATERIAL**

Per MOP05, Control of Equipment, while performing lineups, components located in a locked high radiation area are not required to be verified in correct position if:

- A. Lineup is for a non-safety related system.
- B. The lineup is being performed on an operating system.
- C. The valve is required to be in a throttled position, and flow can be verified from the MCR.
- D. Documentation is available showing no personnel entries could affect component positioning.

**EXAM MATERIAL**

The following conditions exist:

- ALL RPV Head Closure Bolts are FULLY TENSIONED.
- Reactor Coolant System Temperature is 185°F.
- The Reactor Mode Switch is in SHUTDOWN.

Based on these conditions, which ONE of the following is the correct MODE of operation per Technical Specifications?

- A. MODE 2, Startup.
- B. MODE 3, Hot Shutdown.
- C. MODE 4, Cold Shutdown.
- D. MODE 5, Refuel.

**EXAM MATERIAL**

An operator is preparing to Inspect equipment located in a HIGH RADIATION AREA while performing rounds per 27.000.05, Operator Rounds, using a GREEN TRIP TICKET.

In accordance with plant administrative procedures, the operator must perform the inspection by which of the following methods?

- A. Perform a visual inspection at the barrier to the area.
- B. Obtain Radiation Protection verbal approval, then enter the area.
- C. Obtain a hand-held radiation monitoring device, then enter the area.
- D. Enter the area after the entry is preplanned and maintain dose ALARA.

**EXAM MATERIAL**

The plant is at 100% power.

You are the Shift Foreman.

You are briefing multiple clearance applications which will require the clearance appliers to hang a single tag in each area listed below.

The appliers believe each tag will take the same amount of time to hang.

In which area is it expected that the clearance appliers will recieve the highest dose?

- A. Near the standby CRD pump
- B. Near the RCIC turbine, in standby
- C. Near one of the in-service Condenser Pumps
- D. Near one of the in-service Heater Feed Pumps



**EXAM MATERIAL**

Per MOP01, who is normally assigned the Command and Control Function in the control room during (1) NORMAL and (2) EMERGENCY conditions?

- A. (1) CRS  
(2) CRS
- B. (1) CRS  
(2) SM
- C. (1) SM  
(2) CRS
- D. (1) SM  
(2) SM

**EXAM MATERIAL**

What is the MINIMUM emergency event classification level in which the Emergency Response Organization (ERO) is REQUIRED to be fully activated?

- A. Unusual Event
- B. Alert
- C. Site Area Emergency
- D. General Emergency

**EXAM MATERIAL**

The plant was initially at 100% power.

A hostile force has penetrated the protected area and has damaged equipment causing multiple safety systems to become degraded.

The SM has declared the appropriate Emergency Action Level, and the E-plan has been activated.

Per MOP01, who on the shift is relied upon to assess plant conditions that result, monitor challenges to the critical safety functions, and through knowledge of plant diverse and flexible coping strategies, provide valuable technical input to support key decisions.

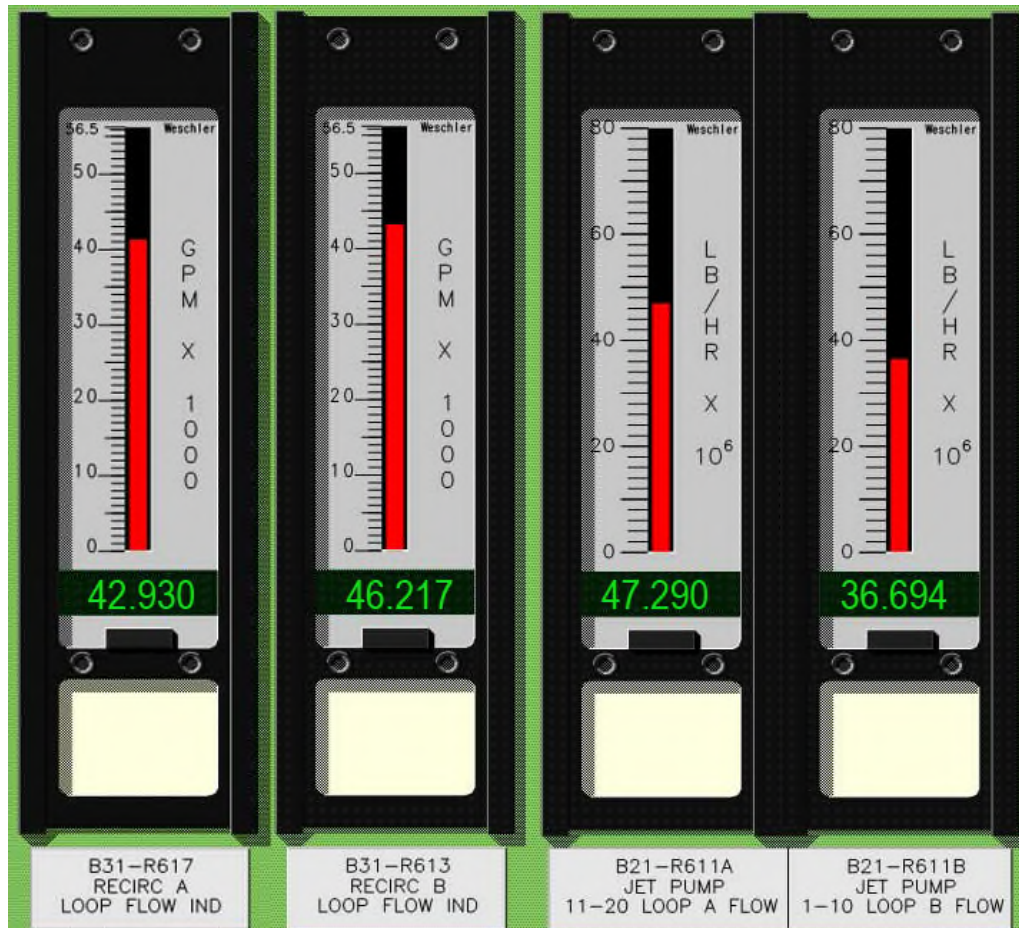
- A. SM
- B. STA
- C. CRS
- D. CRNLO

**EXAM MATERIAL**

The plant was operating at 100% power when a transient is observed.

The plant has stabilized with the following indications:

- Generator Megawatt Output is 1047 Mwe.
- Reactor Power is 91%.
- RPV Level is 197 inches.
- Reactor Pressure is 1017 psig.
- Total core flow 84 Mlbm/hr.



Based on these conditions, (1) What has occurred and (2) which of the following action must the CRS Direct?

- (1) Jet Pump Failure  
(2) Raise South RRMG set speed to match loop jet pump flows
- (1) Jet Pump Failure  
(2) Monitor core for thermal-hydraulic instability using 24.000.01 Att.34B
- (1) Uncontrolled Recirc Flow Change.  
(2) Raise South RRMG set speed to match loop jet pump flows and verify total Core Flow is less than or equal to pre-transient Core Flow.
- (1) Uncontrolled Recirc Flow Change.  
(2) Lower North RRMG set speed to match loop jet pump flows and monitor core for thermal-hydraulic instability using 24.000.01 Att.34B



# EXAM MATERIAL

The plant was operating at 100% power when the following occurred:

- The Main Turbine Tripped due to Load Rejection.
- Turbine Stop Valve (TSV) #1 indicates OPEN.
- Turbine Control Valve (TCV) #1 indicates OPEN.

The CRS must enter \_\_\_\_ (1) \_\_\_\_ and direct action to \_\_\_\_ (2) \_\_\_\_.

- A. (1) 23.109 section 7.8, On-Load Closure of a Turbine Stop Valve  
(2) Close #1 TSV to prevent turbine damage due to overspeed
- B. (1) AOP 20.000.21, Reactor Scram  
(2) Close Outboard MSIVs to prevent turbine damage due to overspeed
- C. (1) 23.109 section 7.8, On-Load Closure of a Turbine Stop Valve  
(2) Close #1 TSV to prevent over-pressurizing the high pressure turbine casing
- D. (1) AOP 20.000.21, Reactor Scram  
(2) Close Outboard MSIVs to prevent over-pressurizing the high pressure turbine casing

**EXAM MATERIAL**

The plant is operating at 68% power when the Control Room is evacuated. A reactor scram could not be completed prior to evacuation.

All other plant areas are accessible.

Which of the following is the PREFERRED method of scrambling the reactor and determining actions were successful?

- A. Open Generator output breaker CF/CM, and verify APRMs indicate decreasing Reactor Power.
- B. Open CB2A (C71-P001A) and CB2B (C71-P001B) and verify RPS Testability cabinet de-energized.
- C. Turn off circuits 5 & 6 on Dist Cab 2PA-2 and 2PB-2, and verify RPS white Group Scram lights indicate off.
- D. Take 2 operable APRM Mode switches out of operate, and verify APRMs indicate decreasing Reactor Power.

**EXAM MATERIAL**

The plant operating at 100% power with all plant equipment available for the current MODE. A plant cleaner slips in front of the H11-P601 panel and causes the following:

- 1D80 DIV I/II EECW/EESW SYS IN MANUAL OVERRIDE alarms.
- The Division 1 key associated with this alarm breaks off inside the keylock switch.

What is the status of Division 1 RHR Suppression Pool Cooling?

- A. OPERABLE; EECW can be MANUALLY initiated in an emergency.
- B. OPERABLE; EECW will still AUTOMATICALLY initiate in an emergency.
- C. INOPERABLE; Conditions and Required Actions of its LCO are NOT required to be entered if a loss of Safety Function does NOT exist.
- D. INOPERABLE; Conditions and Required Actions of its LCO are required to be entered REGARDLESS of the result of the Safety Function Determination.

**EXAM MATERIAL**

Stem information.

You are the CRS. The plant is executing RPV Control with the following conditions:

- Reactor Water Level 175 inches and rising
- Torus Pressure 1 psig
- Core Spray 1 pump injecting at 2500 gpm
- RHR 1 pump injecting at 7500 gpm
- Torus water level -90 inches
- Torus water temperature 180° F

Which one of the following actions will you direct to ensure there is no Core Spray or RHR pump damage?

- A. Raise Core Spray flow to 3400 gpm and shutdown the RHR pump.
- B. Raise Core spray flow to 3600 gpm and shutdown the RHR pump.
- C. Raise Core Spray flow to 3400 gpm and increase RHR flow to 10,000 gpm.
- D. Raise Core spray flow to 3600 gpm and increase RHR flow to 10,000 gpm.



**EXAM MATERIAL**

You are the Control Room Supervisor (CRS). The plant scrammed and is experiencing an ATWS with the following:

- Reactor power is 30% and lowering.
- SLC is injecting with tank level 68" and lowering.
- Manual control rod insertion is in progress.
- RPV level is 90" and steady.
- RPV pressure is 970 psig and steady.

Under which of the following conditions will you direct performance of 20.000.21, Reactor Scram AOP?

- A. SLC tank indicates empty.
- B. 178 Control Rods Full-In, 7 at Position 02.
- C. 184 Control Rods at Position 02, 1 Full-Out.
- D. Reactor power is below the Point of Adding Heat.

**EXAM MATERIAL**

The plant is in MODE 1.

The Main Control Room has just been notified of the following by the System Operations Center (SOC):

- Southeast Michigan is experiencing degraded grid conditions due to high winds and loss of several large power generators.
- If Fermi 2 were to trip off line, 345kV mat POST TRIP VOLTAGE would not be sufficient to sustain operability of safety-related loads.

What is the CRS required to perform?

Declare \_\_\_(1)\_\_\_ offsite circuit(s) INOPERABLE and enter LCO \_\_\_(2)\_\_\_.

- A. (1) One  
(2) 3.8.1, AC Sources - Operating
- B. (1) Two  
(2) 3.8.1, AC Sources - Operating
- C. (1) One  
(2) 3.8.7, Distribution Systems - Operating
- D. (1) Two  
(2) 3.8.7, Distribution Systems - Operating

**EXAM MATERIAL**

You are the Control Room Supervisor (CRS).

The plant has entered the EOPs due to a large steam leak in the Drywell. Primary Containment Conditions are:

- Drywell Temperature is 250°F and rising.
- Drywell Pressure is 4 psig and rising.

Which of the following will you direct and what is the basis for directing that action?

- A. Isolate EECW to and from the Drywell to prevent a loss of EECW due to a rupture inside the Drywell.
- B. Spray the Drywell to prevent exceeding component qualification and structural design temperature limits of the Drywell.
- C. Emergency Depressurize due to exceeding component qualification and structural design temperature limits of the Drywell.
- D. Operate all available Drywell Cooling to prevent exceeding component qualification and structural design temperature limits of the Drywell.

**EXAM MATERIAL**

The plant is operating at 100% power when the running CRD Pump trips.

When would the first Control Rod Scram Accumulator(s) be considered INOPERABLE?

When CRD \_\_ (1) \_\_ pressure drops below \_\_ (2) \_\_ psig.

- A. (1) Accumulator  
(2) 940
- B. (1) Accumulator  
(2) 1300
- C. (1) Charging Water  
(2) 940
- D. (1) Charging Water  
(2) 1300



**EXAM MATERIAL**

Failure of \_\_\_(1)\_\_\_ would require entry into LCO 3.3.3.1 PAM Instrumentation.

PAM instruments are provided \_\_\_(2)\_\_\_.

- A. (1) T50-N406A PCAM PC TORUS WTR LVL MON DIV1 LVL XMTR  
(2) as an input to the protection system to cause automatic actions.
- B. (1) E41-N062B HPCI HI LVL SIGNAL TO SUPR POOL SUCT VLV LVL TRANSMITTER  
(2) as an input to the protection system to cause automatic actions.
- C. (1) T50-N406A PCAM PC TORUS WTR LVL MON DIV1 LVL XMTR  
(2) to cue the operating crew to perform preplanned manual actions.
- D. (1) E41-N062B HPCI HI LVL SIGNAL TO SUPR POOL SUCT VLV LVL TRANSMITTER  
(2) to cue the operating crew to perform preplanned manual actions.

**EXAM MATERIAL**

The plant was operating at 75% power when a trip of the South RFP occurred. Current conditions are as follows:

- Recirc pump speeds lower ..... 37%
- Reactor power ..... 63%
- SBFW ..... injecting at 600 gpm
- RPV level ..... 196" and stable

HPCI logic then malfunctions causing an automatic initiation of HPCI. Which of the following actions would the CRS direct in accordance with 20.107.01, Loss of Feedwater or Feedwater Control?

- A. Raise North RFP speed
- B. Stop injecting with SBFW
- C. Perform a Rapid Power Reduction.
- D. Place the Mode Switch in Shutdown.

**EXAM MATERIAL**

- The plant is in MODE 5 with the Reactor Vessel Head removed.
- Emergent work to replace 48/24V DC Battery 2IA is in progress.
- To support this work, a non-qualified spare battery has been connected to keep loads normally powered by this battery energized.

The temporary power supply requires IRMs to be declared inoperable within \_\_ (1) \_\_ trip system(s).

If testing which requires IRMs to be operable were to begin now, RPS Trip Capability \_\_ (2) \_\_ be maintained.

- A. (1) both  
(2) would
- B. (1) both  
(2) would NOT
- C. (1) ONLY the A  
(2) would
- D. (1) ONLY the A  
(2) would NOT

**EXAM MATERIAL**

You are the Control Room Supervisor (CRS).

The plant scrammed from 100% power due to a Station Blackout (SBO)

Plant conditions:

- RPV level is being controlled by RCIC at 193"
- HPCI is unavailable.
- Transformer #64 has just been energized by CTG 11-1.

The following then occurs:

- The low side tap to E51N003, "RCIC PUMP DISCHARGE FLOW TRANSMITTER" has ruptured, and has been isolated with the low side depressurized.
- The CRLNO attempts to take manual control of the RCIC turbine with E51-K615, "RCIC PUMP FLOW CONTROLLER", and reports he is unable to transfer the controller to manual.

(1) What is the result on ACTUAL RCIC flow due to this condition?

(2) What action will you direct?

- A. (1) RCIC flow rises to maximum.  
(2) Verify E5150-F045 "RCIC TURB STM INLET ISO MOV" closes at 214" per 20.000.23, "HIGH RPV WATER LEVEL."
- B. (1) RCIC flow rises to maximum.  
(2) Intermittently Shutdown and then Restart RCIC per 23.206, "REACTOR CORE ISOLATION COOLING SYSTEM" to control RPV level in the band 173" - 214"
- C. (1) RCIC turbine lowers to idle speed, with no system flow.  
(2) Start SBFW per 20.300.SBO and control RPV water level in the band 173" - 214"
- D. (1) RCIC turbine lowers to idle speed, with no system flow.  
(2) Emergency Depressurize the RPV per 20.100.01 Sh 3 and control level per 20.100.01 Sh 1.



**EXAM MATERIAL**

The plant is in MODE 2, STARTUP, following a Refueling Outage. Engineering has determined that ALL Inboard and Outboard MSIVs have had unqualified valve control manifolds installed during outage maintenance which has caused stroke times to EXCEED THE MAXIMUM ALLOWED VALUE.

Which ONE of the following is the MINIMUM Required Action, if any, AND the REASON for that action per Technical Specifications?

- A. NO ACTIONS are required, because Primary Containment Isolation capability is OPERABLE.
- B. NO ACTIONS are required, because Primary Containment Isolation capability is NOT REQUIRED to be OPERABLE in MODE 2.
- C. It is REQUIRED to SHUT ONLY ONE MSIV in EACH Main Steam Line. The basis for this action is to limit the MAXIMUM Radiological Release following a Design Basis Accident.
- D. It is REQUIRED to SHUT ONLY ONE MSIV in EACH Main Steam Line. The basis for this action is to limit the severity of the MAXIMUM Reactor Pressure spike following a spurious MSIV closure at power.

**EXAM MATERIAL**

You are the Control Room Supervisor (CRS). The plant is operating at 100% power with operators attempting to isolate a ground on the Division II ESF battery. The following sequence of events was performed for EVERY load supplied by Division II ESF DC electrical power distribution:

1. Breaker opened.
2. Ground verified to still exist.
3. Breaker re-closed.

The next item to be performed is to isolate the Division II ESF Battery Charger 2B-1. When 2PB-2 Ckt. 8, Div 2 130 VDC Battery Charger, is opened the ground CLEARS.

Which of the following will you direct next and within what allowable time?

- A. Place Spare Battery Charger 2B1-2 in service within 4 hours.
- B. Place Spare Battery Charger 2B1-2 in service within 12 hours.
- C. Restore the 2PB-2 130VDC Distribution Cabinet to service within 2 hours.
- D. Restore the 2PB-2 130VDC Distribution Cabinet to service within 16 hours.

**EXAM MATERIAL**

Two weeks ago, while in MODE 1, control rod 18-31 was discovered to be stuck at position 48. All procedural and Tech Spec required actions were taken, and the plant continued full power operation.

It is now discovered that control rod 38-31 is stuck at position 06. The plant is still in MODE 1.

Which one of the following is the required action?

- A. Be in MODE 3 within 12 hours.
- B. Disarm control rod 38-31, then continue power operation.
- C. Initiate action to fully insert all insertable control rods immediately.
- D. Perform 24.106.01, Operable Control Rod Check, then continue power operation.

**EXAM MATERIAL**

You are the CRS. The plant has scrammed due to High Drywell Pressure caused by an instrument line break inside the Drywell.

The instrument line leakage has caused temperature near the RPV Level Instrument Reference Leg vertical runs inside the Drywell to reach 170°F.

You should inform the crew that this will cause \_\_\_ (1) \_\_\_ level instrument(s) to indicate higher than actual and the minimum indicated level for this(these) instrument(s) is \_\_\_ (2) \_\_\_ inches?

- A. (1) Flood Up  
(2) 175
- B. (1) Flood Up  
(2) 191
- C. (1) Wide Range  
(2) 21
- D. (1) Wide Range  
(2) 27



**EXAM MATERIAL**

You are the Control Room Supervisor (CRS).

The plant is operating at 80% power in preparation for performing a Rod Pattern Adjustment.

Shortly after turnover, the following conditions are observed:

- RPV Pressure rises by 3.5 psig.
- Pressure System Fault white light comes on.
- Pressure System Unhealthy white light comes on.

(1) Which alarm is consistent with these plant conditions?

(2) What action will you direct?

- A. (1) 4D53, AVR General Alarm.  
(2) Lower power to reduce generator field current to 2400 amps.
- B. (1) 4D53, AVR General Alarm.  
(2) Perform 54.000.07, Core Performance Parameter Check.
- C. (1) 4D91, Electric Governor Trouble.  
(2) Lower power to reduce generator field current to 2400 amps.
- D. (1) 4D91, Electric Governor Trouble.  
(2) Perform 54.000.07, Core Performance Parameter Check.

**EXAM MATERIAL**

The plant is operating at 100% power on night shift with the following shift assignments:

**Date: Today**

	<b>Nights</b>
<b>SM</b>	SRO1
<b>CRS</b>	YOU
<b>CRLNO</b>	RO1
<b>COP H11-P603</b>	RO2
<b>Shift Foreman</b>	** RO3
<b>Turbine Bldg</b>	* NO1
<b>Reactor Bldg</b>	* NO2
<b>Outside/Fermi 1</b>	NO3
<b>Radwaste Op-Assigned</b>	# NO4
<b>Dedicated Shutdown NO</b>	NO5
<b>Other</b>	* NO6
<b>Other</b>	* NO7
<b>Other</b>	@ Fire Protection Inspector 1 (FB Only)

\* Fire Brigade Member \*\* Fire Brigade Leader # CR Communicator

@ Fire Brigade Qualified Fire Protection Inspector

At 0300 Fire Protection Inspector 1 has a medical emergency and leaves site.

As the Control Room Supervisor, which of the following actions, if any, are required by MOP10, Fire Brigade?

- A. Fire Brigade manning is at minimum manning, no action is required.
- B. Fire Brigade manning is below minimum, inform NO5 that he is now on the fire brigade.
- C. Fire Brigade manning is below minimum, however, it is acceptable to wait until turnover at 0700.
- D. Fire Brigade manning is below minimum, and cannot be filled from personnel already on shift. Start calling for a Fire Brigade member to arrive by 0500.

**EXAM MATERIAL**

To perform Refueling Operations, the Tech Spec required minimum Reactor Vessel Water Level is 20 ft 6 inches above the \_\_\_\_ (1) \_\_\_\_.

The Technical Specification Basis for this requirement is to ensure water depth \_\_\_\_ (2) \_\_\_\_.

- A. (1) RPV flange  
(2) will provide sufficient shielding to the operators to maintain dose within limits
- B. (1) RPV flange  
(2) is sufficient to ensure radioactive iodine released from a damaged fuel assembly is retained in the water
- C. (1) top of active fuel  
(2) will provide sufficient shielding to the operators to maintain dose within limits
- D. (1) top of active fuel  
(2) is sufficient to ensure radioactive iodine released from a damaged fuel assembly is retained in the water

**EXAM MATERIAL**

The plant is at 100% power

While performing 24.137.01, OPERABILITY OF 480V SWING BUS 72CF AUTOMATIC THROWOVER SCHEME, the throwover failed to occur after the Auto Throwover Permissive Test switch at Bus 72C, Position 1A was taken to CLOSE. The CRS has entered LCO 3.0.3 based on failure of the surveillance.

Maintenance personnel have submitted a Troubleshooting Datasheet for approval with the following information:

- The troubleshooting boundary is Bus 72C, Position 1A cubicle plane
- A flashlight must break the cubicle plane to perform an adequate visual inspection based on orientation

Based on the information given, what is the LOWEST level of approval required for the MMA26 Troubleshooting Plan?

- A. SRO
- B. Maintenance Director
- C. Maintenance Manager
- D. Troubleshooting Team Lead



**EXAM MATERIAL**

The plant is operating at 100% when a review of valid 3D Monicore data indicates the following:

- MFLCPR ...1.275
- MAPRAT... 0.812
- MFLPD..... 0.875
- MCPR .....1.05

The crew should restore compliance with all limits AND \_\_\_\_ (1) \_\_\_\_, because \_\_\_\_ (2) \_\_\_\_.

- A. (1) Insert all insertable control rods.  
(2) Fuel rods may reach transition boiling during a transient.
- B. (1) Insert all insertable control rods.  
(2) Peak centerline fuel temperature may exceed 2200°F during a LOCA.
- C. (1) Reduce Recirc flow to stabilize THERMAL POWER <25%.  
(2) Fuel rods may reach transition boiling during a transient
- D. (1) Reduce Recirc flow to stabilize THERMAL POWER <25%.  
(2) Peak centerline fuel temperature may exceed 2200°F during a LOCA.

**EXAM MATERIAL**

A MCE06005 discharge permit has been submitted to the Shift Manager for approval. The permit includes the following information:

- The water to be discharged is not potentially contaminated.
- The discharges will occur only on dayshift.
- The discharges will require at least 7 days of pumping.
- The area containing the water is not subject to radiological restrictions.
- The source of the water is always collected ground water.

Upon deciding to approve the discharge permit, the Shift Manager should assign a maximum expiration not to exceed:

- A. 4 hours
- B. 24 hours
- C. 5 days
- D. 30 days

# EXAM MATERIAL

The plant is in the EOPs and AOPs due to a loss of offsite and onsite power.

As the CRS, which of the following actions should be directed first and what is the basis for this prioritization?

- A. Injecting with SBFW to prevent uncovering the reactor core.
- B. Closing 13.2 kV Pos A6 to prevent uncovering the reactor core.
- C. Restoring EECW to service to ensure systems remain available to prevent boil down to Rx low level 1.
- D. Inhibiting the RCIC/HPCI room temperature trips to ensure the systems remain available to prevent boil down to Rx low level 1.

**EXAM MATERIAL**

The plant was operating at 100% power when a plant event occurred that resulted in declaration of the following event classifications at the listed times:

- Site Area Emergency (SAE) at 1100.
- General Emergency (GE) at 1130.

(1) By what time must the Emergency Director provide an initial Protective Action Recommendation (PAR) to the appropriate offsite authorities?

(2) Once made, who is responsible for IMPLEMENTING protective actions?

- A. (1) 1115  
(2) state officials
- B. (1) 1115  
(2) the Emergency Director
- C. (1) 1145  
(2) state officials
- D. (1) 1145  
(2) the Emergency Director