QUESTION 1

Following a Loss of Coolant Accident, plant conditions are as follows:

- RPV Water Level is -25 inches.
- Reactor Pressure is 50 psig.
- The Reactor Building is **NOT** accessible due to High Radiation Levels.

Which **ONE** of the following paths can be used to inject from the Condensate Storage Tank (CST) into the reactor, using **ONLY Main Control Room** manipulations?

The CST can be injected by using the:

_____ A. Residual Heat Removal System with suction aligned from the Torus.

_____ B. Standby Liquid Control System with suction aligned from the Test Tank.

_____ C. Core Spray System with suction aligned from the Condensate Storage Tank.

_____ D. High Pressure Coolant Injection System with suction aligned from the Condensate Storage Tank.

QUESTION 2

The plant is in MODE 4, COLD SHUTDOWN, conditions are as follows:

- RPV Water Level is 230 inches.
- Reactor Coolant Temperature is 175°F.
- RHR Loop B is operating in Shutdown Cooling Mode at 9,200 gpm.
- Reactor Coolant System cooldown rate is 90°F per hour.
- E1150-F003B, Div 2 RHR Hx Outlet Vlv is **THROTTLED OPEN 60 SECONDS**.
- E1150-F048B, Div 2 RHR Hx Bypass Vlv is **OPEN**.

Which **ONE** of the following will **REDUCE** cooldown rate?

_____ A. **FULLY OPEN** E1150-F003B, Div 2 RHR Hx Outlet Valve.

_____ B. **FULLY SHUT** E1150-F048B, Div 2 RHR Hx Bypass Valve.

_____ C. **THROTTLE SHUT** E1150-F048B, Div 2 RHR Hx Bypass Valve.

_____ D. **THROTTLE SHUT** E1150-F003B, Div 2 RHR Hx Outlet Valve.

QUESTION 3

Following a transient, HPCI is being used to maintain RPV Water Level per 29.100.01 Sheet 1, RPV Control. Alarm 2D54, HPCI INVERTER CIRCUIT FAILURE actuates with the following indications failing **DOWNSCALE**:

- E41-R609, HPCI Pump Suction/Discharge Pressure.
- E41-R608, HPCI Turbine Steam Inlet/Exhaust Pressure.
- E41-R613, HPCI Pump Flow Indicator.
- E41-K615, HPCI Flow Controller.

With these indications, which **ONE** of the following caused the loss of AC power from the HPCI Inverter, and what actions are required?

AC power from the HPCI Inverter was produced by a **LOSS** of:

_____ A. Division 1 130 VDC power, it is required to **OPERATE** HPCI to maintain RPV Water Level.

_____ B. Division 1 130 VDC power, it is required to **SHUTDOWN** HPCI and use RCIC to maintain RPV Water Level.

_____ C. Division 2 130 VDC power, it is required to **OPERATE** HPCI to maintain RPV Water Level.

_____ D. Division 2 130 VDC power, it is required to **SHUTDOWN** HPCI and use RCIC to maintain RPV Water Level.

QUESTION 4

With the plant operating at full power, a relay malfunction resulted in the following annunciators:

- 1D1, DIV I CSS ACTUATED.
- 1D48, ADS ECCS PUMP CH A PERMISSIVE.

What will be the affect, if any, of this failure on Emergency Diesel Generators?

_____ A. Emergency Diesel Generators 11 and 12 will remain in **STANDBY**.

_____ B. Emergency Diesel Generators 11 and 12 will **START** and **LOAD** with **ALL** trips active.

_____ C. Emergency Diesel Generators 11 and 12 will **START** and **LOAD** with **ONLY** essential trips active.

_____ D. Emergency Diesel Generators 11 and 12 will **START** and operate **UNLOADED** with **ONLY** essential trips active

QUESTION 5

Which **ONE** of the following Reactor Pressure Vessel piping taps is **SHARED** by the Standby Liquid Control System Injection Line?

_____ A. Jet Pump Differential Pressure tap

_____ B. Core Plate Differential Pressure tap

_____ C. Core Spray Line Break Detection tap

_____ D. Control Rod Drive Water Differential Pressure tap

QUESTION 6

Following a manual reactor scram the following occurred:

- The Reactor Mode Switch was placed in **SHUTDOWN**.
- Scram Reset Switch, C7100-M605 was turned to the GP 1/4 AND GP 2/3 positions and released.
- SRM and IRM detectors were selected and the **DRIVE IN** pushbutton was depressed.
- A few minutes later a **SECOND** automatic scram signal was received.
- **ALL** RPV and Containment parameters remained constant prior to the second scram.

What was the cause of the **SECOND** scram and why did it occur?

_____ A. Alarm 3D51, SRM PERIOD SHORT, was received due to driving in SRM and IRM detectors and an automatic scram resulted.

_____ B. Alarm 3D97, APRM NEUTRON FLUX UPSCALE TRIP, was received due to the production of delayed neutrons from delayed neutron precursors.

_____ C. Alarm 3D86, MN STM LINE ISO VALVE CLOSURE CHANNEL TRIP, was received due to the failure to adjust Gland Seal Pressure resulting in an MSIV isolation on loss of vacuum and the subsequent scram.

_____ D. Alarm 3D94, DISCH WATER VOL HI LEVEL CHANNEL TRIP, was received and the reactor scram occurred because the SDV High Level Bypass Switch was not placed in BYPASS and the SDV filled faster than it drained after the first scram was reset.

QUESTION 7

A reactor startup is in progress. The reactor has been declared critical and the operator has established a 150 sec period. **ALL** IRMs are at 50/125 on range 4.

The following indications are observed:

- 3D63, IRM UPSCALE alarms.
- 3D59, IRM CH A/E/C/G UPSCALE TRIP/INOP alarms.
- 3D73, TRIP ACTUATORS A1/A2 TRIPPED alarms.
- 3D113, CONTROL ROD WITHDRAWAL BLOCK alarm

These indications were **CAUSED** by:

_____ A. IRM E power supply failure

_____ B. IRM E being ranged to range 3.

_____ C. IRM E being ranged to range 5.

_____ D. IRM E being withdrawn from the core.

QUESTION 8

Which **ONE** of the following **PROVIDES POWER** for the Intermediate Range Channel B instrument drawer?

_____ A. 120/208 VAC Cabinet 72E-2B-1

_____ B. 120 VAC UPS Distribution Cabinet B

_____ C. 48/24 VDC DC Distribution Cabinet 2IA1-3

_____ D. 48/24 VDC DC Distribution Cabinet 2IB1-3

QUESTION 9

A reactor startup is in progress, the following conditions exist:

- The Mode Switch is in the START & HOT STBY position.
- **NO** SRMs are bypassed.
- The SRM detectors are **PARTIALLY WITHDRAWN**.

Which **ONE** of the following sets of conditions will **RESULT** in a rod withdrawal block?

_____ A. IRMs on range 3. **ALL** SRMs indicating 90 cps.

_____ B. IRMs on range 1. **ALL** SRMs indicating 120 cps.

_____ C. IRMs on range 2. SRM "A" indicating 90 cps, **ALL OTHER SRMs** indicating 150 cps.

_____ D. IRMs on range 4. SRM "A" indicating 90 cps, **ALL OTHER SRMs** indicating 120 cps.

QUESTION 10

Plant shutdown is in progress. A control rod is being inserted from position 48 to position 00. The "B" Level LPRM readings will most **SIGNIFICANTLY DECREASE** as the rod passes through positions _____.

_____ A. 08 to 04

_____ B. 20 to 16

_____ C. 32 to 28

_____ D. 44 to 40

QUESTION 11

Reactor Core Isolation Cooling (RCIC) is operating in the **TEST MODE** with the following conditions:

- E51-R614, RCIC Pump Flow Controller is in "**AUTOMATIC**".
- RCIC Turbine Speed is 2950 rpm.
- P1100-F606, CST Common Return Isolation Valve is **OPEN**.
- E41-K820, Test Isolation/PCV E41-F011 Controller, is in **MANUAL at 20% OPEN**.

Which **ONE** of the following describes the **STABILIZED** response of RCIC Turbine Speed **AND** system flow **AFTER** PCV E41-F011 is **THROTTLED** an **ADDITIONAL 5%** in the **CLOSED** direction?

_____ A. RCIC Turbine **SPEED** will be **HIGHER**
System indicated **FLOW** will be **HIGHER**

_____ B. RCIC Turbine **SPEED** will be **LOWER**
System indicated **FLOW** will be **LOWER**

_____ C. RCIC Turbine **SPEED** will be **HIGHER**
System indicated **FLOW** will be **AT THE INITIAL VALUE**

_____ D. RCIC Turbine **SPEED** will be **LOWER**
System indicated **FLOW** will be **AT THE INITIAL VALUE**

QUESTION 12

Ten minutes ago, the Primary Containment Pneumatic Supply System DIV I Inboard and Outboard Isolation Valves, T4901-F601 **AND** F465 **SHUT**.

How are the Automatic Depressurization System Valves affected?

_____ A. ADS Valves **WILL** operate if logic is actuated **WITHOUT** any further operator action.

_____ B. ADS Valves **WILL NOT** operate if logic is actuated. Operators **MUST** use Alternate Depressurization systems.

_____ C. ADS Valves **WILL** operate if logic is actuated. NIAS automatically aligns, **WITHOUT** any further operator action.

_____ D. ADS Valves **WILL NOT** operate if logic is actuated. Operators **MUST** clear and reset isolation and realign Nitrogen to the Drywell.

QUESTION 13

While monitoring the Primary Containment Isolation System (PCIS) Group Isolation mimic (ISO MIMIC) on P601, an Isolation signal is received.

For the statements below, which **ONE** is correct for valve groups that have received an isolation signal and the isolation is complete?

When the Isolation signal has initiated, for a group of valves **NOT** wired in series, a:

_____ A. **GREY** ISO SIG PRESENT message is displayed on the P601 PCIS mimic to indicate an isolation signal is present and when **ALL** isolation valves in that PCIS Group are **CLOSED**, they indicate **RED**.

_____ B. **GREY** ISO SIG PRESENT message is displayed on the P601 PCIS mimic to indicate an isolation signal is present and when **ALL** isolation valves in that PCIS Group are **CLOSED**, they indicate **GREEN**.

_____ C. **YELLOW** ISO SIG PRESENT message is displayed on the P601 PCIS mimic to indicate an isolation signal is present. When **ALL** isolation valves in that PCIS are **CLOSED**, they indicate **RED**.

_____ D. **YELLOW** ISO SIG PRESENT message is displayed on the P601 PCIS mimic to indicate an isolation signal is present. When **ALL** isolation valves in that PCIS are **CLOSED**, they indicate **GREEN**.

QUESTION 14

Safety Relief Valve G Tailpipe Vacuum Breaker is **STUCK OPEN**.
Which **ONE** of the following affects will result from this condition?

_____ A. Steam will be released to the **TORUS** when SRV G is **OPEN**.

_____ B. Steam will be released to the **DRYWELL** when SRV G is **OPEN**.

_____ C. Damage may occur to the SRV **TAILPIPE** when SRV G is **OPEN**.

_____ D. Water will be drawn up the SRV **TAILPIPE** after SRV G is **SHUT**.

QUESTION 15

Which ONE of the following indicates an **OPEN** Safety Relief Valve?

_____ A. Reactor Thermal Power **LOWERING** from 3430 Mwt to 3258 Mwt.

_____ B. Safety Relief Valve Tailpipe Temperature **RISING** from 170°F to 290°F.

_____ C. Total Indicated Steam Flow **RISING** from 13.4 Mlbm/hr to 14.1 Mlbm/hr.

_____ D. Total Feed flow **LOWERING** to 13.4 Mlbm/hr **WITH** Total Steam Flow at 14.1 Mlbm/hr.

QUESTION 16

During a startup, the North RFPT is operating.
The following conditions exist:

- Reactor Power is 1% CTP.
- Reactor pressure is 650 psig.
- SULCV is 40% open.
- SULCV M/A Station is in **AUTO**.
- North Feedwater Flow Control M/A Station is in **MANUAL**.
- The Interruptible Air Supply to the SULCV is **LOST.**

(1) How will this failure **FIRST** affect RPV Water Level? **AND**

(2) Which **ONE** of the following actions will mitigate this failure?

_____ A. (1) RPV Water Level will **RISE**.
(2) **PLACE** the C32-R620, N21-F403 RPV Startup Level Controller SULCV M/A Station in **MANUAL** and lower the **OUTPUT** signal to **CLOSE** the SULCV.

_____ B. (1) RPV Water Level will **RISE**.
(2) **TRIP** the North RFPT, **START** the West Standby Feedwater Pump and control RPV Water Level using N2103-F003, SBFW 4" Disch Flow Ctrl Vlv.

_____ C. (1) RPV Water Level will **LOWER**.
(2) **START** the West Standby Feedwater Pump and control RPV Water Level using N2103-F003, SBFW 4" Disch Flow Ctrl Vlv.

_____ D. (1) RPV Water Level will **LOWER**.
(2) **PLACE** the Feedwater Flow Control M/A Station is in **AUTO** and **OPEN** N2100-F607, N RFP Disch Line Iso Valve.

QUESTION 17

Both HPCI and SGTS received an auto start signal due to Low RPV Water Level.

How would the HPCI system respond to a **LOSS** of SGTS?

_____ A. HPCI continues to operate properly, since Barometric Condenser Vacuum Pump is **NOT REQUIRED** for operation.

_____ B. HPCI cannot operate properly without a discharge path for the Barometric Condenser Vacuum Pump and will **AUTOMATICALLY TRIP.**

_____ C. HPCI cannot operate properly without a discharge path for the Barometric Condenser Vacuum Pump and must be **MANUALLY TRIPPED.**

_____ D. HPCI continues to operate properly because automatic trips associated with the Barometric Condenser Vacuum pump are automatically **BYPASSED.**

QUESTION 18

The plant is operating at full power with Div 2 SGTS OUT OF SERVICE for maintenance. The following indications occur:

- 3D85, PRIMARY CONTAINMENT HIGH PRESS CHANNEL TRIP, alarms.
- 8D35, DIV I SGTS AIR FLOW STOPPED, alarms
- T4600-F004A, Div 1 SGTS Exhaust Fan Inlet Isolation Damper, is CLOSED.

Which **ONE** of the following describes the affect of these conditions, if any, and the Emergency Operating Procedure Leg required to mitigate the condition, if any?

_____ A. NO CHANGE IN DIFFERENTIAL PRESSURE between the Reactor Building and the environs, **NO** EOP usage is required.

_____ B. INCREASING DIFFERENTIAL PRESSURE between the Reactor Building and the environs, which would **FIRST** result in an Entry Condition for the Secondary Containment Control EOP Leg.

_____ C. DECREASING DIFFERENTIAL PRESSURE between the Reactor Building and the environs, which would **FIRST** result in an Entry Condition for the Radiation Release Control EOP Leg.

_____ D. DECREASING DIFFERENTIAL PRESSURE between the Reactor Building and the environs, which would **FIRST** result in an Entry Condition for the Secondary Containment Control EOP Leg.

QUESTION 19

When operating the 480V ESF Bus Maintenance Tie Breakers for Live Bus Transfer, the 4160V ESF Buses are verified powered from their normal offsite power source.

Attempting **LOCAL MANUAL** operation of these breakers with either bus powered from an EDG may result in _____.

_____ A. no breaker closure

_____ B. an overspeed trip of an EDG

_____ C. a sustained overload condition of the EDG

_____ D. equipment damage from paralleling out of phase

QUESTION 20

Reactor Pressure is 400 psig and RHR Loop B is running in response to a valid LPCI initiation signal.

Which **ONE** of the following is the indicated flow on the Division II RHR System Flow Recorder?

_____ A. 0 gpm

_____ B. 3,000 gpm

_____ C. 10,000 gpm

_____ D. 20,000 gpm

QUESTION 21

With a loss of Division 2 ESF 260/130 VDC Batteries and Chargers, which **ONE** of the following will result?

_____ A. Breakers on 4160V Busses 64B and 11EA will lose control power.

_____ B. Breakers on 4160V Busses 65E and 13EC will lose control power.

_____ C. MCC 72CF Feed will auto throw-over from 72C Pos 3C to 72F Pos 5C.

_____ D. C11-F110B, Scram Pilot Air Header Backup Scram Valve, will actuate.

QUESTION 22

With the plant operating at full power, 10D72, BOP 260/130V BATTERY 2PC TROUBLE alarms. A **COMPLETE LOSS** of BOP DC has occurred.

Which **ONE** of the following operator actions is required under this condition?

_____ A. **TRIP** Breakers CM and CF using COP H11-P804 control switches.

_____ B. **TRIP** the Generator Field Breaker using COP-H11-P804 control switch.

_____ C. **TRIP** Breakers CM and CF using **LOCAL** Emergency Trip pushbuttons.

_____ D. **TRIP** the Turbine Generator by **ARMING AND DEPRESSING** the Turbine Trip pushbutton.

QUESTION 23

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) overload

_____ B. (1) Speed Droop
(2) reverse power

_____ C. (1) Isochronous
(2) overload

_____ D. (1) Isochronous
(2) reverse power

QUESTION 24

Which **ONE** of the following Air Compressors will **DIRECTLY TRIP** due to a Low Cooling Water Flow signal? (**NOT** a High Temperature signal.)

_____ A. D001, Control Air Compressor

_____ B. D002, Control Air Compressor

_____ C. D001, East Station Air Compressor

_____ D. D002, Center Station Air Compressor

QUESTION 25

Interruptible Air System (IAS) Air Header Pressure supplied to the RBCCW Temperature Control Valve and Differential Pressure Control Valve is **LOWERING** due to an Air Header leak causing RBCCW Air Operated Valves to move towards their **FAIL** position.

How will Non Interruptible Air System (NIAS) Aftercooler Air Temperature be affected by this condition?

Aftercooler Air Temperature will:

_____ A. **RISE** due to Differential Pressure Control Valve failing **SHUT**.

_____ B. **LOWER** due to Differential Pressure Control Valve failing **OPEN**.

_____ C. **RISE** due to RBCCW Temperature Control Valve failing **SHUT**.

_____ D. **LOWER** due RBCCW Temperature Control Valve failing **OPEN**.

QUESTION 26

With the plant operating at 100% power, when the following occurs:

- 9D10, DIV 1 480 V ESS BUS 72C BKR TRIPPED, alarms.
- CMC Switch for BUS 64C POS C11, 4160V FEED TO BUS 72C, indicates **TRIPPED**.

Given these indications, which **ONE** of the following correctly describes the impact on the Reactor Building Closed Cooling Water (RBCCW) Pumps?

_____ A. **ONLY** P4200-C001, North RBCCW Pump, has lost power.

_____ B. **ONLY** P4200-C003, South RBCCW Pump, has lost power.

_____ C. **BOTH** P4200-C001 **AND** P4200-C002, North and Center RBCCW Pumps, have lost power.

_____ D. **BOTH** P4200-C003 **AND** P4200-C002, South and Center RBCCW Pumps, have lost power.

QUESTION 27

The reactor is at 5% power during a plant startup. While a control rod is being withdrawn, Rod Select Power is **LOST**.

Which **ONE** of the following describes the affect of this loss?

When Rod Select Power is **LOST**, the control rod motion will:

_____ A. **STOP**; the control rod may eventually settle due to leakage but NO settle function will occur.

_____ B. **STOP**; the control rod settles to the next notch as the Settle Bus is automatically energized for 4.4 seconds.

_____ C. **CONTINUE UNTIL** the Rod Movement Control Switch is released; the control rod settles to the next notch as the Settle Bus is automatically energized for 4.4 seconds.

_____ D. **CONTINUE ONLY** if the Rod Out Notch Override Switch is positioned to Emergency In; the control rod may eventually settle due to leakage but **NO** settle function will occur.

QUESTION 28

Following a transient, the following conditions exist:

- RPV Water Level is 192 inches.
- Reactor Pressure is 1000 psig.
- Blowdown Mode of RWCU is being used as an Alternate Pressure Control System per EOP-1 RPV Control.
- Pressure on the Blowdown Line between RWCU and the Main Condenser is **RISING**.

Which **ONE** of the following describes the **FIRST AUTOMATIC** response of RWCU valves to this condition?

_____ A. **BEFORE** piping failure occurs, the G3300-F033, RWCU Blowdown FCV will automatically close due to Pressure Upstream of F033.

_____ B. **BEFORE** piping failure occurs, the G3300-F033, RWCU Blowdown FCV will automatically close due to Pressure Downstream of F033.

_____ C. **AFTER** piping failure occurs, G3352-F001 and G3352-F004, RWCU Containment Isolation Valves will automatically close due to **HIGH** Differential Flow.

_____ D. **AFTER** piping failure occurs, G3352-F001 and G3352-F004, RWCU Containment Isolation Valves will automatically close due to **HIGH** Area Temperature.

QUESTION 29

The plant was operating at rated power when a manual reactor scram was inserted. The following conditions exist:

- **ALL** control rods have fully inserted.
- The Reactor Mode Switch has been placed in **SHUTDOWN**.
- The scram has **NOT** been reset.

What are the **MINIMUM** actions necessary to reset the Control Rod Drift indications on the Full Core Display (vertical section of panel H11-P603)?

_____ A. **MOMENTARILY** rotate ROD DRIFT ALARM Switch to RESET.

_____ B. **RESET** the reactor scram. After Control Rods have settled at position 00, **MOMENTARILY** rotate ROD DRIFT ALARM Switch to RESET.

_____ C. **RESET** the reactor scram. **SELECT** each Control Rod with a drift alarm. After Control Rod has settled at position 00, **MOMENTARILY** rotate ROD DRIFT ALARM Switch to RESET. **REPEAT** for each Control Rod with a drift alarm.

_____ D. **SELECT** each Control Rod with a drift alarm. **MOMENTARILY** place ROD MOVEMENT CONTROL Switch to OUT NOTCH. After Control Rod has settled at position 00, **MOMENTARILY** rotate ROD DRIFT ALARM Switch to RESET. **REPEAT** for each Control Rod with a drift alarm.

QUESTION 30

Traversing In-core Probe (TIP) Channel A Detector is **INSERTING INTO THE CORE** for calibration of Local Power Range Monitors (LPRMs). The **IN CORE** Light is **LIT**. The **CORE TOP** Light is **NOT LIT**. A **TRIP** of **ONE** Reactor Feed Pump occurs and RPV Water Level lowers to 160 inches before recovering to 195 inches.

Which of the following describes the automatic TIP response?

_____ A. C51F001A, TIP Channel A Shear Valve **FIRES**, **ISOLATING** the drive mechanism.

_____ B. The TIP detector **WITHDRAWS** into the shield chamber, **AND** C51F002A, TIP Channel A Ball Valve, **CLOSES**.

_____ C. The TIP detector **WITHDRAWS AND STOPS** outboard of the Indexer, and C51F002A, TIP Channel A Ball Valve, **CLOSES.**

_____ D. The TIP drive **CONTINUES TO INSERT** the detector to the Core Top Limit **AND** completes the TIP trace. The detector then withdraws into the shield chamber and C51F002A, TIP Channel A Ball Valve, **CLOSES.**

QUESTION 31

With Reactor Power at 65%, the **TRIP SETPOINT** of the Rod Block Monitor is:

_____ A. 107.2 %; and if exceeded, a Control Rod Block **WILL** result.

_____ B. 107.2%; and if exceeded, a Control Rod Block **WILL NOT** result.

_____ C. 112.2 %; and if exceeded, a Control Rod Block **WILL** result.

_____ D. 112.2 %; and if exceeded, a Control Rod Block **WILL NOT** result.

QUESTION 32

Core reload is in progress. The following indications are observed after a Fuel Bundle has been inserted into the core:

- Source Range Monitors (SRMs) indicate 250 cps, slowly rising.
- SRM Period is slightly positive and stable.
- All control rods are fully inserted.

Which **ONE** of the following statements describes present conditions and what action should be performed?

The indicated conditions are:

_____ A. NORMAL. Determination of SRM signal to noise ratio should be directed.

_____ B. ABNORMAL. Immediate core unloading near the SRMs should be performed.

_____ C. NORMAL. Continued Core Reload should be directed per the Fuel Movement Sheets.

_____ D. ABNORMAL. Fuel Handling shall be terminated until a complete evaluation is performed

QUESTION 33

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

- Cooling Water Flow is 45 gpm.
- Drive Water D/P is 235 psid.
- Cooling Water D/P is 15 psid.
- **NO** Rod Motion is in progress.

The P603 operator adjusts C1152-F003, CRD Drive/Cooling Water PCV in the **CLOSED** direction.

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

_____ A. Drive Water D/P **INCREASES** and Cooling Water Flow **DECREASES**.

_____ B. Drive Water D/P **DECREASES** and Cooling Water Flow **DECREASES**.

_____ C. Drive Water D/P **INCREASES** and Cooling Water Flow **REMAINS THE SAME**.

_____ D. Drive Water D/P **DECREASES** and Cooling Water Flow **REMAINS THE SAME**.

QUESTION 34

With the plant operating at full power, when the following occurs:

- 4D97, GENERATOR BUS COOLING TEMPERATURE HIGH alarms.
- GENERATOR BUS CLG FAN DISCHARGE PRESSURE Red Light is **ON**.

Which **ONE** of the following failures is **INDICATED** by these conditions?

_____ A. 480 VAC Bus 72R has **TRIPPED**.

_____ B. **ALL** TBCCW Pumps have **TRIPPED**.

_____ C. Iso Phase Bus South Cooling Fan, S1200-C002, has **TRIPPED**.

_____ D. TBCCW Cooling Water Valve, P43-F209 has **LOST** Instrument Air.

QUESTION 35

With the plant in **COLD SHUTDOWN**, the following conditions exist:

- Control Rods are being exercised.
- Control Rod Drive is providing RPV Makeup.
- Reactor Water Cleanup Blowdown Valve is throttled 30%.
- RPV Water Level is 195 inches, **STABLE**.

Which **ONE** of the following describes the **EXPECTED** affect, if any, on RPV Water Level when the **LAST** operating Condenser Pump **TRIPS**?

_____ A. RPV Water Level will **NOT CHANGE**, due to a redundant suction supply.

_____ B. RPV Water Level will **LOWER**, due a Low Suction Pressure **TRIP** of the operating CRD Pump.

_____ C. RPV Water Level will **LOWER THEN RISE**, due the effect of suction transfer on the operating CRD Pump.

_____ D. RPV Water Level will **LOWER THEN RISE**, due a Low Suction Pressure TRIP of the operating CRD Pump followed by a Reactor Scram.

QUESTION 36

With the plant operating at full power, the following alarms and indications exist:

- 6D21, E/W OFF GAS RECOMBINER TEMPERATURE HIGH/LOW alarms.
- The West Off Gas Recombiner is in service and is indicating 805°F on N62-R815, Off Gas Components Temperature Recorder.

Which **ONE** of the following should be performed to control Off Gas Recombiner Temperature?

_____ A. **VERIFY** N62-F400, 18" Manifold Steam Supply TCV, is **OPEN**.

_____ B. **VERIFY** N62-F400, 18" Manifold Steam Supply TCV, is **SHUT**.

_____ C. **VERIFY** N6200-D010, West Off Gas Chiller Unit is **RUNNING**.

_____ D. **VERIFY** N62-N013A, C Thermostatic Controlled Electric Heaters, **at 600°F**.

QUESTION 37

Which **ONE** of the following provides power for D11-K609A, Fuel Pool (EAST) Vent Exhaust Duct Radiation Monitor?

_____ A. 24/48 VDC

_____ B. 130/260 VDC

_____ C. 120 VAC RPS

_____ D. 120 VAC UPS

QUESTION 38

The plant is in **MODE 5** with movement of **RECENTLY** irradiated fuel in progress. Due to a damper malfunction, Reactor Building Vacuum is 0 inches water gauge.

Which **ONE** of the following actions is **REQUIRED** by Technical Specifications?

_____ A. Suspend fuel movement **IMMEDIATELY**.

_____ B. Restore Secondary Containment Pressure **WITHIN ONE HOUR**.

_____ C. Start **BOTH** Divisions of Standby Gas Treatment System **IMMEDIATELY**.

_____ D. Verify at least **ONE** door is closed at each Reactor Building access **WITHIN ONE HOUR**.

QUESTION 39

Following a trip of **ONE** Reactor Recirculation Pump, why is it necessary to limit operating Recirculation Pump Speed to 75%?

_____ A. To **PREVENT** Recirculation Pump runout due to reduced backpressure.

_____ B. To **PREVENT** excessive vibration of Reactor Vessel internal components.

_____ C. To **REDUCE** Reactor Power to within the Technical Specification Limit for Single Loop Operation.

_____ D. To **REDUCE** APRM Simulated Thermal Power Trip Setpoints until the setpoints are adjusted for Single Loop Operation.

QUESTION 40

The reactor has scrammed due to a **LOSS** of Offsite Power.
ONLY EDGs 13 & 14 have started and loaded.

What is the **SOURCE** of power to the station DC loads?

_____ A. Div 1 Chargers are supplying Div 1 DC loads.
Div 2 Chargers are supplying Div 2 DC loads.

_____ B. Div 1 Batteries are supplying Div 1 DC loads.
Div 2 Chargers are supplying Div 2 DC loads.

_____ C. Div 1 Chargers are supplying Div 1 DC loads.
Div 2 Batteries are supplying Div 2 DC loads.

_____ D. Div 1 Batteries are supplying Div 1 DC loads.
Div 2 Batteries are supplying Div 2 DC loads.

QUESTION 41

The plant is operating at full power when the following annunciators and indications are received:

- 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
- Div I DC powered valves position indicating lights are OFF.
- Breaker position indicating lights for Div I ESF Bus breakers are OFF.

Based on these alarms, select the correct **DIAGNOSIS AND AFFECT**, if any, on Division I EDGs ability to mitigate a Loss of Offsite Power.

_____ A. **ONLY** the Division I Batteries have been lost. Division I EDGs will **NOT START** if Offsite Power is **LOST**.

_____ B. **ONLY** the Division I Batteries have been lost. Division I EDGs will **AUTO START** if Offsite Power is **LOST**.

_____ C. **BOTH** Division I Battery Chargers **AND BOTH** Division I Batteries have been lost. Division I EDGs will **NOT START** if Offsite Power is **LOST**.

_____ D. **BOTH** Division I Battery Chargers **AND BOTH** Division I Batteries have been lost. Division I EDGs will **AUTO START** if Offsite Power is

QUESTION 42

The plant is at 35% power when the turbine trips. The reactor will _____.

_____ A. **SCRAM AND** reactor pressure will **INCREASE** due to decay heat

_____ B. **SCRAM AND** reactor pressure will **REMAIN CONSTANT** due to BPV operation

_____ C. **REMAIN OPERATING AND** reactor power will **INCREASE** due to Feedwater Temperature change

_____ D. **REMAIN OPERATING AND** reactor power will **DECREASE** due to Feedwater Temperature change

QUESTION 43

With the plant operating at 85% power, the in-service 52 inch Manifold Pressure Transmitter fails **HIGH**.

Which **ONE** of the following describes the affect of this failure, with no operator actions?

Reactor Pressure and Reactor Power will:

_____ A. **RISE** until an automatic Reactor Scram occurs. Pressure will then be controlled by **MANUAL** operation of the Bypass Valves.

_____ B. **RISE** until an automatic Reactor Scram occurs. Pressure will then be controlled by **AUTOMATIC** operation of the Bypass Valves.

_____ C. **LOWER** until an automatic Reactor Scram occurs. Pressure will then be controlled by **AUTOMATIC** operation of the Bypass Valves.

_____ D. **LOWER** until an automatic Reactor Scram occurs. Pressure will then be controlled by **AUTOMATIC** operation of the Safety Relief Valves.

QUESTION 44

The plant has entered 20.000.19, SHUTDOWN FROM OUTSIDE THE CONTROL ROOM.

The transfer of certain CR controls to **OUTSIDE** the CR is needed to:

_____ A. continue to remove decay heat.

_____ B. allow rapid re-entry into the CR.

_____ C. preclude the effects of hot shorts.

_____ D. allow proper fire fighting response.

QUESTION 45

Foreign material has partially covered the tube sheet at the inlet to the Stator Cooling Water Heat Exchanger.

Which **ONE** of the following describes the **AUTOMATIC** response of the system?

The Temperature Control Valve throttling:

_____ A. Stator Water will reposition to permit more flow to **BYPASS** the Heat Exchanger.

_____ B. Stator Water will reposition to permit more flow **THROUGH** the Heat Exchanger.

_____ C. Turbine Building Closed Cooling Water will reposition to permit more flow to **BYPASS** the Heat Exchanger.

_____ D. Turbine Building Closed Cooling Water will reposition to permit more flow **THROUGH** the Heat Exchanger.

QUESTION 46

The plant is operating at 100% power.

- P50-R802, Station Air Header Pressure is 90 psig (lowering).

Which **ONE** of the following is required per 20.129.01, “Loss of Station and / or Control Air” and the reason for that action?

It is required to:

_____ A. **START ANY** available Station Air Compressors to prevent the **INBOARD** Main Steam Isolation Valves from drifting shut.

_____ B. **START ANY** available Station Air Compressors to prevent the **OUTBOARD** Main Steam Isolation Valves from drifting shut.

_____ C. **CLOSE** P5000-F401, Station Air to TB Hdr Iso Vlv to prevent the **INBOARD** Main Steam Isolation Valves from drifting shut.

_____ D. **CLOSE** P5000-F401, Station Air to TB Hdr Iso Vlv to prevent the **OUTBOARD** Main Steam Isolation Valves from drifting shut.

QUESTION 47

The plant is in MODE 4, with RHR Pump A operating in Shutdown Cooling Mode AND BOTH Reactor Recirculation Pumps shut down.

Due to a leak between E1150-F008, RHR SDC Outboard Isolation Valve and E1150-F009, RHR SDC Inboard Suction Isolation Valve, RPV Water Level lowered to 170 inches.

Per 23.800.04, Alternate Coolant Circulation and Decay Heat Removal, which **ONE** of the following will provide Core Circulation?

_____ A. Natural Circulation

_____ B. Reactor Recirculation Pump START

_____ C. Reactor Water Cleanup Pump START

_____ D. Residual Heat Removal Pump START

QUESTION 48

With the plant in MODE 5, REFUELING, with Core Alterations is progress.
Which **ONE** of the following is the **MINIMUM** acceptable Water Level above the Reactor Vessel Flange, and the reason for that limit?

_____ A. 20.5 feet provides adequate Iodine absorption following an accident.

_____ B. 20.5 feet provides adequate shielding of personnel during core alterations.

_____ C. 22.0 feet provides adequate Iodine absorption following an accident.

_____ D. 22.0 feet provides adequate shielding of personnel during core alterations.

QUESTION 49

Which malfunction below, were it to occur during a Design Basis Loss of Coolant Accident (DBA-LOCA), would threaten Primary Containment Integrity?

Consider each malfunction, independently, as the **ONLY** malfunction.
Assume that **NO** operator action is taken in response to the malfunction.

_____ A. Safety Relief Valve B2104-F013H has a break in its Tailpipe located in the Drywell.

_____ B. SST 65 TRIPS and Emergency Diesel Generator 13 FAILS TO START.

_____ C. **ALL** Drywell Spray Valves FAIL TO OPEN when attempting to initiate Drywell Spray.

_____ D. **ALL** Torus to Drywell Vacuum Breaker Check Valves FAIL TO OPEN when Drywell Spray is in operation.

QUESTION 50

Following a Main Steam Line Break, outside of containment, **AND** an automatic reactor scram, the following conditions exist:

- **ALL** Control Rods inserted.
- Reactor Pressure is 1115 psig, **LOWERING**.
- RPV Water Level lowered to 150 inches **AND** recovered.

Which **ONE** of the following describes how Decay Heat will be removed from the reactor **WITHOUT** operator action?

_____ A. Safety Relief Valves will **AUTOMATICALLY OPEN**.

_____ B. Main Turbine Bypass Valves will **AUTOMATICALLY OPEN**.

_____ C. Reactor Core Isolation Cooling (RCIC) will **AUTOMATICALLY START**.

_____ D. Reactor Feedwater Pump Turbines will **OPERATE** on **MINIMUM FLOW**.

QUESTION 51

Following a plant transient and a reactor scram, the following conditions exist:

- RHR Pump A is injecting with **ONE** Pump at 13,500 gpm.
- Div 1 Core Spray is injecting with **TWO** Pumps at 7,750 gpm.
- Torus Pressure is 5.5 psig.
- Torus Level is -60 inches.
- Torus Temperature is 205°F.
- RPV Pressure is 85 psig (steady).
- RPV Water Level is -10 inches (rising).

The Nuclear Operator in the reactor building calls to report the RHR and Core Spray Pumps are rattling.

To maintain long term injection capability, which of the following is the **MAXIMUM** injection permissible?

_____ A. Core Spray Div 1 Flow – 7,000 gpm
RHR Flow - 11,000 gpm

_____ B. Core Spray Div 1 Flow - 7,000 gpm
RHR Flow - 12,500 gpm

_____ C. Core Spray Div 1 Flow - 8,000 gpm
RHR Flow - 11,000 gpm

_____ D. Core Spray Div 1 Flow – 8,000 gpm
RHR Flow - 12,500 gpm

QUESTION 52

E2101-C001A and C, Div 1 Core Spray Pumps are being operated in Full Flow Test, when a transient occurs resulting in the following plant conditions:

- Drywell Pressure is 1.48 psig.
- RPV Water Level is 30 inches, lowering 1 inch per minute.
- Reactor Pressure is 520 psig, lowering 5 psig per minute.
- **ALL** High Pressure Injection Systems have failed to inject.
- **ALL** RHR Pumps will **NOT** start.
- Core Spray Pumps B and D will **NOT** start.

Which **ONE** of the following describes the affect of Core Spray Pump operation on RPV Water Level?

Core Spray Pumps A and C:

_____ A. **REMAIN** in Full Flow Test, and RPV Water Level continues to **LOWER**.

_____ B. **TRIP** and RPV Water Level continues to **LOWER** because a start signal has **NOT** been received.

_____ C. **REMAIN** operating and RPV Water Level continues to **LOWER** because a permissive condition has **NOT** been satisfied.

_____ D. **REMAIN** operating and RPV Water Level will **RISE** because **ALL** permissive conditions **HAVE** been satisfied.

QUESTION 53

The plant is in an emergency condition and the following Primary Containment parameters exist:

- Torus Water Level is 0 inches
- Drywell Temperature is 275°F.
- Drywell Pressure is 4 psig.
- Torus Pressure is 3 psig.

If Drywell Sprays were **INITIATED**, which **ONE** of the following will occur?

_____ A. The Torus to Drywell Vacuum Breakers will **NOT** operate due to low Differential Pressure.

_____ B. Convective Cooling **WILL RESULT** in Nitrogen being drawn into the Drywell by operation of the Torus to Drywell Vacuum Breakers.

_____ C. The Torus to Drywell Vacuum Breakers capacity **WILL BE EXCEEDED** and damage to the Primary Containment Vent system will occur.

_____ D. Evaporative Cooling **WILL RESULT** in Oxygen being drawn in to the Torus by operation of the Reactor Building to Torus Vacuum Breakers.

QUESTION 54

RCIC is being used to control RPV Water Level with its suction aligned to the Torus when a leak in the Torus occurs.

Which **ONE** of the following will occur **FIRST** as Torus Level continues to lower?

_____ A. RCIC will **TRIP** due to Low Suction Pressure.

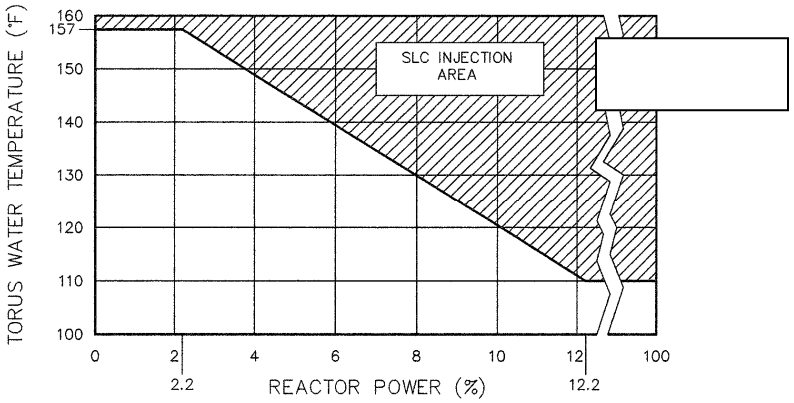
_____ B. RCIC will **TRIP** due to Low Cooling Water Flow.

_____ C. RCIC suction will **AUTO TRANSFER** to the CST due to Low Suction Pressure.

_____ D. RCIC suction will **AUTO TRANSFER** to the CST due to Low Torus Water Level.

QUESTION 55

While mitigating an ATWS per 29.100.01 Sheet 1A, based on the attached curve, what is the significance of Torus Water Temperature reaching 120°F while Reactor Power is 10% ?



_____ A. If Emergency Depressurization is conducted at this point, the Heat Capacity Limit will NOT be exceeded.

_____ B. If Torus Water Temperature continues to increase AND is being used as the injection source, Reactor Power will LOWER.

_____ C. If Standby Liquid is injected at this point, Hot Shutdown Boron Weight will be injected before the Heat Capacity Limit is reached.

_____ D. If ALL injection to the RPV is Terminated and Prevented at this point, RPV Water Level will remain ABOVE TAF when Reactor Power reaches 3%.

QUESTION 56

Why does 29.100.01 Sheet 5, **RADIOACTIVITY RELEASE CONTROL LEG** permit the **RESTART** of isolated HVAC Systems?

While executing the Radioactivity Release Control Leg, restarting HVAC Systems:

_____ A. ensures a **POSITIVE** pressure is maintained in the Control Room.

_____ B. ensures **ACCESSIBILITY** is maintained **INSIDE** the Secondary Containment.

_____ C. provides **FILTRATION** and **ADSORPTION** of radioactivity and an elevated release path.

_____ D. ensures **ACCESSIBILITY** is maintained in buildings **OUTSIDE** the Secondary Containment.

QUESTION 57

Following a Loss of Offsite Power, a fire is in progress.
RCIC has started **WITHOUT** an initiation signal.

Which **ONE** of the following actions is **REQUIRED** and **WHY**?

Complete the plant shutdown using:

_____ A. RCIC; because **NO** operator action is required to achieve injection.

_____ B. Standby Feedwater; because RCIC **CANNOT** be relied upon as a makeup source and is required to be disabled.

_____ C. HPCI; because RCIC **CANNOT** be relied upon as a makeup source and is required to remain running as a backup source.

_____ D. HPCI; because RCIC **AND** Standby Feedwater **CANNOT** be relied upon as a makeup source and are required to remain running as a backup source.

QUESTION 58

Following a Grid Disturbance, conditions are as follows:

- Generator Power is 1200 Mwe.
- Reactive Power is 360 MVAR (LAG).
- Generator Hydrogen Pressure is 75 psig.

The System Dispatcher has requested additional reactive load support to maintain grid voltage.

Considering the attached Capability Curve, which **ONE** of the following actions is required?

_____ A. **RAISE** Recirculation Flow to increase the Reactive Load on the Generator.

_____ B. **LOWER** Recirculation Flow, because Generator Load limits have been **EXCEEDED**.

_____ C. **MANUALLY RAISE** the Voltage Regulator setting to increase the Reactive Load on the Generator.

_____ D. **MANUALLY LOWER** the Voltage Regulator setting, because Reactive Load limits have been **EXCEEDED**.

QUESTION 59

The plant is at 100% when a Main Turbine Trip occurred.

Which **ONE** of the following describes the plant conditions that will **CAUSE** a Main Turbine Trip **AND** the **BASIS** for that trip?

The Main Turbine has tripped due to:

_____ A. **TWO** of the Narrow Range Level instruments having a level of 214". This will prevent the erosion of the Main Turbine Blades.

_____ B. the **SELECTED** Narrow Range Level instrument having a level of 214". This will prevent the erosion of the Main Turbine Blades.

_____ C. **TWO** of the Narrow Range Level instruments having a level of 214". This will prevent the erosion of the Main Steam piping and Main Control Valve seats.

_____ D. the **SELECTED** Narrow Range Level instrument having a level of 214". This will prevent the erosion of the Main Steam piping and Main Control Valve seats.

QUESTION 60

With the plant operating at full power, a Nitrogen Regulator failure caused Drywell Pressure to rise to 1.75 psig.

- **NO** RPS actuation occurred.
- **ALL OTHER** isolations and actuations occurred.

Which **ONE** of the following describes the resulting trend of Drywell Temperature?

Drywell Temperature will:

_____ A. **RISE** due to isolation of EECW.

_____ B. **RISE** due to continued Nitrogen Addition.

_____ C. **RISE** due to the Two Speed Drywell Cooling Fans shifting from **FAST** to **OFF**.

_____ D. **LOWER** due Two Speed Drywell Cooling Fans shifting from **SLOW** to **FAST**.

QUESTION 61

The plant is operating at full power and the following conditions exist:

- 8D41, Div 1 DW Temperature High alarms.
- 14 DW Cooling Fans are operating.
- T47-R803A, point 16 indicates > 185°F.
- P42-K803, RBCCW to TCV P42-F400 CTRLR, valve position indicates 100%.
- Lake Temperature is 71°F.

The **AVERAGE** Drywell Temperature has risen from 132°F to 135°F during the last 8 hours.

Which **ONE** of the following actions is appropriate?

_____ A. Operate **ALL** available Drywell Cooling per 29.100.01, Sheet 2, Primary Containment Control.

_____ B. **SHIFT** DW Cooling Fans 1, 2, 3, and 4 to LOW speed per 23.415, Drywell Cooling System.

_____ C. **PLACE** RBCCW Supplemental Cooling in service, per 23.127.01, RBCCW Supplemental Cooling System.

_____ D. Manually **INITIATE** EECW and EESW Systems per 20.127.01, Loss of Reactor Building Closed Cooling Water System.

QUESTION 62

The reactor is in **MODE 2**, with Reactor Pressure at 800 psig when the following occurs:

- The operating CRD pump **TRIPS**.
- 3D10, CRD ACCUMULATOR TROUBLE, alarms for Control Rod 30-27.
- Control Rod 30-27 is at position 48.

What action is **REQUIRED** in accordance with procedure 20.106.01, CRD Hydraulic System Failure?

_____ A. **PLACE** the Mode Switch in **SHUTDOWN**.

_____ B. **IMMEDIATELY START** the standby CRD pump.

_____ C. Within 20 minutes, **CLOSE** C1100-F034, CRD Charging Water Header Isolation Valve

_____ D. Within 20 minutes **START** at least one CRD pump and **FULLY INSERT** Control Rod 30-27.

QUESTION 63

Which **ONE** of the following is the reason for having the Main Steam Tunnel High Temperature Isolation?

The Main Steam Tunnel High Temperature Isolation will:

_____ A. **LIMIT** the escape of radioactivity from the MSL Tunnel to the Reactor Building HVAC system.

_____ B. **PREVENT** exceeding the Environmental Qualification temperature limits on the MSIV control solenoids.

_____ C. **PROTECT** the integrity of the Secondary Containment **AND** ensure the continued operability of safe shutdown equipment.

_____ D. **MINIMIZE** radioactive releases to the environment **AND** limit the inventory loss from the reactor under all accident conditions.

QUESTION 64

The plant is operating at 100% power. 16D6, REAC/AUX BLDG FIRST FLOOR HIGH RADN alarms. Area Radiation Monitors associated with this alarm indicate:

- D21-K702 (RB1 RR Airlock) indicates 4 mr/hr.
- D21-K712 (RB1 Inside TIP Room) indicates 420 mr/hr.
- D21-K713 (RB1 Outside TIP Room) indicates 85 mr/hr.
- D21-K732 (AB1 Near Blowout Panel) indicates 3 mr/hr.
- D21-K733 (RB1 South Airlock) indicates 2 mr/hr.
- D21-K745 (Drywell) indicates 12 mr/hr.

Which **ONE** of the following plant conditions would be consistent with these indications?

_____ A. A steam leak has developed in RCIC piping.

_____ B. Spent Fuel Handling operations are in progress.

_____ C. Traversing In-core Probe movement is in progress.

_____ D. SRM detectors are being withdrawn for post maintenance testing.

QUESTION 65

29.100.01, Sheet 5, Secondary Containment and Rad Release, directs operating available sump pumps whenever Secondary Containment area or sump levels exceed their Max Normal Operating levels.

What is the **BASIS** for this action?

This action is **BASED** on:

_____ A. **MINIMIZING** the spread of contamination within the Secondary Containment.

_____ B. **MAINTAINING** water levels below the point at which equipment required for safe shutdown will fail.

_____ C. **PREVENTING** the uncontrolled release of liquid radioactive effluents from the Secondary Containment.

_____ D. **CONTAINING** leakage from a primary system within systems design for storage of radioactive liquids.

QUESTION 66

During a Refuel Outage, with the Reactor Mode Switch in **REFUEL**, the following conditions exist:

- 3D113, CONTROL ROD WITHDRAWAL BLOCK alarms.
- **ONE** Control Rod is **SELECTED**.
- **ALL** Control Rods are **INSERTED** to position 00.

Which **ONE** of the following conditions caused the alarm?

The Refuel Bridge is:

_____ A. over the core with the Grapple **FULL UP** and the Trolley Hoist is **NOT LOADED**.

_____ B. over the core with the Grapple **FULL DOWN** and the Trolley Hoist is **NOT LOADED**.

_____ C. **NOT** over the core with the Grapple **FULL UP** and the Trolley Hoist is **LOADED**.

_____ D. **NOT** over the core with the Grapple **FULL DOWN** and the Trolley Hoist is **LOADED**.

QUESTION 67

After a **ONE WEEK VACATION**, a Nuclear Station Operator is scheduled to work the following schedule:

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
OFF	12 hrs	12 hrs	12 hrs	12 hrs	8 hrs	OFF

Per MGA 17, Working Hour Limits, which **ONE** of the following is the **MAXIMUM ADDITIONAL** hours this person can be scheduled to work **WITHOUT** exceeding any administrative limits?

_____ A. 4 hours on Tuesday

_____ B. 8 hours on Thursday

_____ C. 10 hours on Saturday

_____ D. 12 hours on Sunday

QUESTION 68

The plant is operating at 50% power. What is the **MAXIMUM** amount of **TOTAL** Reactor Coolant System Leakage allowed for continued plant operation?

_____ A. 2 gpm

_____ B. 5 gpm

_____ C. 25 gpm

_____ D. 50 gpm

QUESTION 69

Which **ONE** of the following is required when a visible break **CANNOT** be used to disconnect a piece of equipment from its power supply?

_____ A. Independent verification of the danger tag.

_____ B. An approved grounding device installed on the load side.

_____ C. A safety observer is stationed for all work performed on the equipment.

_____ D. An approved blocking device and a method for determining that power is removed.

QUESTION 70

With the plant operating at 80% power, at 0800 on February 8, 2008, EDG 11 is discovered INOPERABLE.

Which **ONE** of the following describes **LATEST TIME** that SR 3.8.1.1 must be completed **WITHOUT** entering into a condition which requires a unit shutdown?

_____ A. 0815 on February 8, 2008

_____ B. 0850 on February 8, 2008

_____ C. 0905 on February 8, 2008

_____ D. 0915 on February 9, 2008

QUESTION 71

With core alterations in progress, a fuel assembly contacts the core top guide, resulting in 16D1, RB REFUELING **AREA** FIFTH FLOOR HIGH RADN alarm.
Indications are as follows:

- **AREA** Radiation Monitor 15, RB5 Spent Fuel Pool **AREA** Radiation Monitor (ARM) indicates 25 mr/hr, rising.
- **AREA** Radiation Monitor 17, RB5 Refuel Floor Lo Range **AREA** Radiation Monitor (ARM) indicates 30 mr/hr, rising.

Which **ONE** of the following is the Control Room action required?

_____ A. Ensure automatic isolations have occurred.

_____ B. Alert personnel by using the Plant Area alarm.

_____ C. Ensure that Standby Gas Treatment is operating.

_____ D. Ensure that Control Room HVAC is operating in the filtered mode

QUESTION 72

Which **ONE** of the following conditions will cause the Division 1 AXM to automatically shift from **STANDBY** to **OPERATE**?

_____ A. Automatic start of Division 1 SGTS.

_____ B. Automatic shift of CCHVAC to the Recirc Mode.

_____ C. High Radiation Trip of Div 1 or 2 Containment High Range Radiation Monitors.

_____ D. High Radiation Alarm on the Div 1 SGTS SPING Medium Range Noble Gas Channel.

QUESTION 73

With the plant operating at 100% power, the following conditions exist:

- Drywell Pressure increased to 1.75 psig.
- **NO** RPS actuations occurred.
- **NO** Control Rod motion occurred.

With these conditions, which **ONE** of the following actions is **REQUIRED**?

It is **IMMEDIATELY** required to:

_____ A. **ENTER** 29.100.01 Sheet 1, RPV Control **ONLY**, **THEN** place the Reactor Mode Switch in **SHUTDOWN**.

_____ B. **PLACE** the Reactor Mode Switch in **SHUTDOWN**, **THEN** enter 29.100.01 Sheet 2, Primary Containment Control **ONLY**.

_____ C. **INITIATE** Standby Liquid Control **THEN** enter 29.100.01 Sheet 1A, ATWS Control **AND** 29.100.01 Sheet 2, Primary Containment Control.

_____ D. **PLACE** the Reactor Mode Switch in **SHUTDOWN AND** enter 29.100.01 Sheet 1, RPV Control **AND** 29.100.01 Sheet 2, Primary Containment Control.

QUESTION 74

Which **ONE** of the following is an **IMMEDIATE** Action for a **CONFIRMED** fire in accordance with 20.000.22, Plant Fires?

_____ A. Identify the type or class of fire.

_____ B. Announce the fire alarm over the Hi-Com system.

_____ C. Dispatch an operator to verify the magnitude and location of the fire.

_____ D. Establish communications between the Control Room and the Fire Brigade.

QUESTION 75

An ALERT Emergency Action Level has been declared. The Technical Support Center and the Emergency Operations Facility are **NOT** activated.

Per EP-290, Emergency Notifications, which **ONE** of the following communications methods is used to make an **INITIAL** notification to the US Nuclear Regulator Commission?

INITIAL notification to the US Nuclear Regulator Commission is made by:

_____ A. contacting the NRC Resident Inspector.

_____ B. using the HPN (Health Physics Network) telephone system.

_____ C. using the ENS (Emergency Notification System) telephone.

_____ D. using the ECOS (Emergency Call Out System) telephone system.

SRO 76	Tier 1	K/A Number 295004	Statement 2.2.25	IR 4.2	Origin N	Source Question NA
LOK F	Grp 1	10 CFR 55.43(b) 2	LOD (1-5)	Reference Documents Technical Specification B3.8.5 Rev 31		
Partial or Total Loss of DC Pwr Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.						

QUESTION 76

With the plant in **MODE 4**, Cold Shutdown, which **ONE** of the following describes the **MINIMUM** DC Sources **REQUIRED OPERABLE** and the reason for that requirement?

_____ A. **ONE** subsystem consisting of **TWO** 130 VDC Batteries **AND TWO** Chargers. This will provide power necessary to mitigate a Design Basis Loss of Coolant Accident.

_____ B. **ONE** subsystem consisting of **TWO** 130 VDC Batteries **AND TWO** Chargers. This will provide power necessary to mitigate an inadvertent Reactor Vessel Draindown.

_____ C. **TWO** subsystems consisting of **TWO** 130 VDC Batteries **AND TWO** Chargers. This will provide power necessary to mitigate a Design Basis Loss of Coolant Accident.

_____ D. **TWO** subsystems consisting of **TWO** 130 VDC Batteries **AND TWO** Chargers. This will provide power necessary to mitigate an inadvertent Reactor Vessel Draindown.

Correct Answer: B LCO 3.8.5 requires ONE 130 VDC subsystem OPERABLE in MODE 4. This is based on mitigating fuel handling accidents and reactor vessel Draindown postulated to occur during COLD SHUTDOWN conditions.

Plausible Distractors:
A is plausible; DBA LOCA is the analyzed failure for MODES 1, 2, and 3.
C is plausible; In MODE 4, TWO subsystems OPERABLE is NOT the MINIMUM. DBA LOCA is the analyzed failure for MODES 1, 2, and 3.
D is plausible; In MODE 4, TWO subsystems OPERABLE is NOT the MINIMUM.

Objective Link: LP-OP-315-0164-C012

SRO 77	Tier 1	K/A Number 295016	Statement 2.4.4	IR 4.7	Origin M	Source Question Fermi-2 Bank EQ-OP-213-0427-000-0001-002
LOK H	Grp 1	10 CFR 55.43(b)5	LOD (1-5)	Reference Documents 20.000.18 Rev 38		
Control Room Abandonment Ability to recognize abnormal indications for system operating parameters that are entry-level conditions for emergency and abnormal operating procedures.						

QUESTION 77

The plant was operating at full power when a fire in the Cable Spreading Room (Zone 11) occurred. A Loss of Offsite Power has occurred resulting in an EOP entry condition due to RPV Water Level. This transient has been complicated by the spurious operation of numerous components and smoke in the control room.

Which **ONE** of the following procedures contains measures which will **MITIGATE** the **SPURIOUS OPERATION** of components?

_____ A. 29.100.01, Sheet 1, RPV CONTROL

_____ B. 20.300.OFFSITE, LOSS OF OFFSITE POWER

_____ C. 20.000.18, SHUTDOWN FROM THE DEDICATED SHUTDOWN PANEL

_____ D. 20.000.19, SHUTDOWN FROM OUTSIDE THE CONTROL ROOM

Correct Answer: C 20.000.18, SHUTDOWN FROM THE DEDICATED SHUTDOWN PANEL will mitigate the effects of spurious operation of components?

Plausible Distractors:
A is plausible; will NOT mitigate spurious operation, but would be appropriate in the absence of spurious operation.
B is plausible; will NOT mitigate spurious operation, but would be appropriate in the absence of spurious operation.
D is plausible; would be appropriate if Control Room evacuation were required and in the absence of spurious operation.

Objective Link: LP-OP-315-0199-A001

SRO 78	Tier 1	K/A Number 295024	Statement EA2.01	IR 4.4	Origin B	Source Question Fermi-2 Bank EQ-OP-202-0121-000-A002-007
LOK H	Grp 1	10 CFR 55.43(b) 5	LOD (1-5)	Reference Documents 29.100.01 Sheet 2 Rev 9		
Ability to determine and/or interpret the following as they apply to HIGH DRYWELL PRESSURE: Drywell Pressure						

QUESTION 78

During an accident condition after Emergency RPV Depressurization, the following conditions exist:

- RPV Water Level is 20 inches and lowering.
- RPV Pressure is 70 psig, lowering.
- Drywell Temperature is 250°F, rising.
- Drywell Pressure is 42 psig, rising.
- Torus Pressure is 42.5 psig, rising.
- Primary Containment Water Level is 580 ft, **RISING**.
- Torus Venting is in progress.

Which **ONE** of the following actions is required?

_____ A. **VENT** the Drywell.

_____ B. **RESTART** Drywell Coolers.

_____ C. **PREVENT** Core Spray and LPCI.

_____ D. **ENTER** the Reactor Flooding Procedure.

Correct Answer: A With Drywell Pressure approaching PCPL, it is required to vent the Drywell IRRESPECTIVE of offsite release rate limits. Torus Venting is not maintaining Containment below PCPL.
Plausible Distractors: B is plausible; CANNOT restart Drywell Coolers >242°F. C is plausible; RPV Water Level is very LOW, preventing Core Spray and LPCI threatens adequate core cooling. D is plausible; would be true if RPV Water Level cannot be determined. With RPV Pressure at 70 psig, Drywell Temperature at 250°F is BELOW saturation temperature.
Objective Link: LP-OP-802-3004-0002

SRO 79	Tier 1	K/A Number 295025	Statement EA2.06	IR 3.8	Origin B	Source Question 2003 LaSalle NRC Exam
LOK H	Grp 1	10 CFR 55.43(b) 5	LOD (1-5)	Reference Documents 29.100.01 Sheet 1A ATWS RPV Control		
Ability to determine and/or interpret the following as they apply to HIGH REACTOR PRESSURE: Reactor water level						

QUESTION 79

An ATWS is in progress following a condenser boot rupture, with plant conditions as follows:

- RPV Water Level is 150 inches.
- APRM DOWNSCALE Lights are **NOT** lit.
- Suppression Pool Temperature is 118°F.
- Low-Low Set is controlling reactor pressure at 1020 psig.

If the above parameters remain **CONSTANT**, which **ONE** of the following is the **HIGHEST** RPV Water Level that may be **MAINTAINED**?

_____ A. +214 inches

_____ B. +114 inches

_____ C. 0 inches

_____ D. -25 (minus 25) inches

Correct Answer: B with Reactor Power > 3% (APRM DOWNSCALE Lights NOT Lit) and RPV Water Level above 114 inches, it is required to Terminate and Prevent Injection until RPV Water Level lowers to 114 inches. High Reactor Pressure condition is met by having Low Low Set controlling Reactor Pressure.
Plausible Distractors: A is plausible; +214 inches is the HIGHEST RPV Water Level allowed if power were BELOW 3%. (APRM DOWNSCALE Lights LIT) C is plausible; 0 inches is the end point of the Terminate and Prevent Injection statement IF RPV Water Level was initially between +114 and 0 inches. D is plausible; is the LOWEST RPV Water Level allowed.
Objective Link: LP-OP-802-3003-0010

SRO 80	Tier 1	K/A Number 295030	Statement EA2.01	IR 4.2	Origin N	Source Question NA
LOK H	Grp 1	10 CFR 55.43(b) 5	LOD (1-5)	Reference Documents 29.100.01 Sheet 2 Rev 9		
Ability to determine and/or interpret the following as they apply to LOW SUPPRESSION POOL WATER LEVEL : Suppression pool level						

QUESTION 80

Following a transient, the following conditions exist:

- **ONLY** HPCI and RCIC are injecting.
- RPV Water Level is 16 inches, **LOWERING** 2 inches per minute.
- Reactor Pressure is 1000 psig.
- **ALL** Control Rods are fully inserted.
- Torus Water Level is -38 inches, **LOWERING** 2 inches per minute.

Which **ONE** of the following actions should be ordered **FIRST**?

_____ A. **DEPRESSURIZE** the reactor by opening Turbine Bypass Valves.

_____ B. **DEPRESSURIZE** the reactor by opening **FIVE** Safety Relief Valves.

_____ C. **SHUTDOWN** the HPCI Turbine to prevent direct pressurization of the Torus.

_____ D. **PREVENT** Core Spray **AND** LPCI Pump Injection, because injection is **NOT** needed.

Correct Answer: B Emergency Depressurization is required with Torus Water Level < 38 inches.
Plausible Distractors: A is plausible; would be true prior to reaching ED criteria. C is plausible; would be true if Torus Water level were approaching -68 inches. RPV Water Level is very low. D is plausible; would be true if RPV Water Level were substantially higher. RPV Water Level is very low and injection systems (HPCI and RCIC) will be lost after Emergency Depressurization. With these conditions, it is NOT appropriate to secure CS and LPCI.
Objective Link: LP-OP-802-3004-0001

SRO 81	Tier 1	K/A Number 295038	Statement EA2.03	IR 4.3	Origin B	Source Question 2001 Fermi-2 NRC Exam
LOK H	Grp 1	10 CFR 55.43(b)5	LOD (1-5)	Reference Documents 29.100.01 Sheet 5 Rev 7		
Ability to determine and/or interpret the following as they apply to HIGH OFF-SITE RELEASE RATE : Radiation levels						

QUESTION 81

While operating the reactor in **MODE 1**, a restriction of cooling water flow through a fuel bundle causes fuel clad overheating and fission product release into the reactor coolant. The following plant conditions exist:

- Reactor Power is 18%.
- Reactor Pressure is 940 psig.
- RPV Water Level is 100 inches.
- Main Steam Line B Inboard **AND** Outboard MSIVs have failed **OPEN**.
- Main Turbine is **TRIPPED**.
- Site Boundary Release corresponds to 4.90 REM to an Adult's Thyroid **AND** is **RISING**.

Given these conditions, which **ONE** of the following actions is **REQUIRED**?

_____ A. Use the Safety Relief Valves to perform a reactor cool down at **LESS THAN** a 90°F/hr rate.

_____ B. Use HPCI and RCIC in the Test Mode to perform a reactor cool down at **LESS THAN** a 90°F/hr rate.

_____ C. Use the Safety Relief Valves to perform a reactor cool down at **GREATER THAN** a 90°F/hr rate.

_____ D. Use Main Turbine Bypass Valves to perform a reactor cool down at **GREATER THAN** a 90°F/hr rate.

Correct Answer: C With Site Boundary Dose approaching the EPA PAG, or General Emergency EAL, it is required to perform an Emergency Depressurization. ED utilizes Safety Relief Valves and GREATER THAN a 90°F/hr rate.

Plausible Distractors: A is plausible; >90°F/hr is expected and permitted during an Emergency Depressurization to quickly put the reactor in a low energy state and reduce the release rate. B is plausible; >90°F/hr is expected and permitted during an Emergency Depressurization to quickly put the reactor in a low energy state and reduce the release rate. D is plausible; using Turbine Bypass Valves is NOT permitted after Emergency Depressurization is required.
Objective Link: LP-OP-802-3005-0009

SRO	Tier	K/A Number	Statement	IR	Origin	Source Question
82	1	600000	2.4.41	4.6	N	NA
LOKH	Grp 1	10 CFR 55.43(b) 5	LOD (1-5)	Reference Documents EP-101 Enclosure A TAB H Rev 30		
Plant Fire On Site - Knowledge of the emergency action level thresholds and classifications.						

QUESTION 82

The plant is operating at full power.
At time 1200, a fire was reported in Bus 64B, position B10, the power supply breaker for E2101-C001A Division 1 Core Spray Pump A. At time 1215, the Fire Brigade has requested that the Bus be deenergized prior to attempting extinguishment.

Which **ONE** of the following Emergency Action Levels (EAL) is required, and what is the criterion for that EAL?

It is required to declare an:

_____ A. UNUSUAL EVENT, due a fire inside the PROTECTED AREA.

_____ B. UNUSUAL EVENT, due to Loss of Offsite Power.

_____ C. ALERT, due to Loss of Offsite and Onsite AC Power.

_____ D. ALERT, due to a fire involving SAFE SHUTDOWN EQUIPMENT.

Correct Answer: D ALERT EAL HA2 is required due to a fire involving SAFE SHUTDOWN EQUIPMENT. Candidate must know loss of one bus does not indicate a Loss of Offsite Power, and that Bus 64B is a power source for Safe Shutdown equipment
Plausible Distractors: A is plausible; fires on site for 15 minutes require HU 2 Unusual Event. This has been exceeded by HA2. B is plausible; SU1 is not met because SST 64 and 65 are energized. C is plausible; SA1 is only applicable in Mode 4 and 5.
Objective Link: LP-ER-832-0001-0004

SRO 83	Tier 1	K/A Number 295008	Statement AA2.05	IR 3.1	Origin N	Source Question NA
LOK H	Grp 2	10 CFR 55.43(b) 5	LOD (1-5)	Reference Documents 23.107 Rev 105		
Ability to determine and/or interpret the following as they apply to HIGH REACTOR WATER LEVEL : Swell						

QUESTION 83

The plant was operating at full power, when the following occurred:

- **BOTH** Feedwater Pumps **TRIPPED**.
- The reactor automatically scrammed.
- **ONLY ONE** Control Rod is at position **48**.
- **ALL OTHER** Control Rods are **FULLY INSERTED**.
- HPCI initiation **RAISED** RPV Water Level from 110 inches.
- HPCI was **MANUALLY TRIPPED** as RPV Water Level reached 210 inches.

Plant conditions are currently:

- Reactor pressure 700 psig, rising at 10 psig per minute.
- MSIVs are **OPEN**.
- The **OPERATING** CRD Pump **TRIPPED**.

What is the expected RPV Water Level response over the next **TEN MINUTES,** and what action will be required to be directed?

Over the next **TEN MINUTES**, RPV Water Level will . . .

_____ A. **RISE** due to **SWELL**. It is required to direct operators to allow steam off to lower RPV Water Level **BELOW** 214 inches.

_____ B. **LOWER** due to **SHRINK** . It is required to direct operators to use **HPCI** to maintain RPV Water Level **ABOVE** 173.4 inches.

_____ C. **LOWER** due to **SHRINK**. It is required to direct operators to use **ONLY RCIC** to maintain RPV Water Level **ABOVE** 0 inches.

_____ D. **RISE** due to **SWELL**. It is required to direct operators to **TERMINATE AND PREVENT** Injection Systems to lower RPV Water Level **BELOW** 114 inches.

Correct Answer: A HPCI injected (100 inches x 200 gal per inch=) 20,000 gallons of cold CST water. As this water is heated, SWELL occurs. It is required to maintain RPV Water Level below Level 8 (214 inches). The SRO is required to direct operators to allow steaming to lower RPV Water Level. Shrink cannot occur because heatup and pressurization of saturated system is in progress with NO steam voids. ALL SRVs and TBVs are shut for the next ten minutes because Reactor Pressure will be below 800 psig.

Plausible Distractors:
B is plausible; identifies misconception about shrink and swell.
C is plausible; identifies misconception about shrink and swell. 0 inches is the MINIMUM for the ATWS RPV Water Level Control Band. ATWS is plausible because ONE Control Rod did not fully insert.
D is plausible; 114 inches is the MAXIMUM for the ATWS RPV Water Level Control Band. ATWS is plausible because ONE Control Rod did not fully insert.

Objective Link: None

SRO 84	Tier 1	K/A Number 295012	Statement 2.2.22	IR 4.7	Origin N	Source Question NA
LOK H	Grp 2	10 CFR 55.43(b) 2	LOD (1-5)	Reference Documents TS Basis B3.6.1.5 Rev 0		
High Drywell Temperature - Knowledge of limiting conditions for operations and safety limits.						

QUESTION 84

With the plant operating at full power, the following conditions exist:

- Drywell Temperature is 155°F.
- Drywell Pressure is 0.70 psig.
- Torus Water Level is (-1) inch.
- Torus Water Temperature is 94°F.

Which **ONE** of the following actions is required with these conditions and why?

_____ A. **RESTORE** Drywell Temperature below 145°F within 8 hours to preserve the function of RPV Water Level Instrumentation.

_____ B. **RAISE** Torus Water Level to zero inches within 2 hours to preserve to preserve Net Positive Suction Head to ECCS Pumps.

_____ C. **RAISE** Torus Water Level to zero inches within 2 hours to preserve the pressure suppression function of the Primary Containment.

_____ D. **RESTORE** Drywell Temperature below 145°F within 8 hours to preserve the initial conditions assumed in the Loss of Coolant Accident Analysis.

Correct Answer: D Drywell Average Air Temperature exceeds 145°F, which is listed in LCO 3.6.1.5

Plausible Distractors:
A is plausible; RPV Water Level Instruments can be threatened by High Drywell Temperature in Emergency Conditions.
B is plausible; Torus Water Level is low, but within the LCO. Low Torus Water Level can threaten ECCS Pumps from cavitation in Emergency Conditions.
C is plausible; Torus Water Level is low, but within the LCO. Low Torus Water Level can threaten the Suppression function in Emergency Conditions.

Objective Link: None

SRO	Tier	K/A Number	Statement	IR	Origin	Source Question
85	1	295033	EA2.02	3.2	N	NA

LOK	Grp	10 CFR 55.43(b) 5	LOD (1-5)	Reference Documents
F	2			29.100.01 Sheet 5 Rev 7

Ability to determine and/or interpret the following as they apply to HIGH SECONDARY CONTAINMENT AREA RADIATION LEVELS : Equipment operability

QUESTION 85

During the execution of 29.100.01 Sheet 5, Secondary Containment and Radiation Release, the operability of equipment required to perform a safe shutdown is assured by which **ONE** of the following?

Emergency Depressurization is **REQUIRED** when the:

_____ A. Radiation Level in any **ONE AREA** exceeds the **MAX NORMAL** value.

_____ B. Radiation Levels in **MORE THAN ONE AREA** exceed the **MAX SAFE** value.

_____ C. Radiation Levels in **MORE THAN ONE AREA** exceed the **MAX NORMAL** value.

_____ D. Radiation Level in any **ONE AREA** exceeds the **MAX SAFE** value and Water Level exceeds a **MAX SAFE** Water Level in the **SAME AREA**.

Correct Answer: B Emergency Depressurization is required when the Radiation Levels in **MORE THAN ONE AREA exceed the MAX SAFE** value.

Plausible Distractors:
A is plausible; and is an entry condition for 29.100.01 Sheet 5.
C is plausible; does NOT require Emergency Depressurization.
D is plausible; does NOT require Emergency Depressurization.

Objective Link: LP-OP-802-3005-0009

SRO 86	Tier 2	K/A Number 223002	Statement 2.2.36	IR 4.2	Origin N	Source Question NA
LOK H	Grp 1	10 CFR 55.43(b) 2	LOD (1-5)	Reference Documents Technical Specification LCO 3.6.1.3 Amendment 134 and B3.6.1.3 rev 0		
PCIS/Nuclear Steam Supply Shutoff - Ability to analyze the effect of maintenance activities, such as degraded power sources, on the status of limiting conditions for operations.						

QUESTION 86

The plant is in MODE 2, STARTUP, following a Refueling Outage. Engineering has determined that ALL the MSIVs have had unqualified valve control manifolds installed during outage maintenance which will cause LONGER stroke times over the cycle.

Which **ONE** of the following is the **MINIMUM** Required Action and the reason for that action, according to Technical Specifications?

_____ A. NO ACTIONS are required, because Primary Containment Isolation capability is NOT REQUIRED OPERABLE in MODE 2.

_____ B. 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.

_____ 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 BOTH MSIVs in all Main Steam Lines. The basis for this action is to limit the MAXIMUM Radiological Release following a Design Basis Accident.

Correct Answer: 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.

Plausible Distractors:
A is plausible; would be true for MODE 4, COLD SHUTDOWN.
B is plausible; would be true if the Maintenance error resulted in SHORTER stroke times over the cycle.
D is plausible; is NOT the MINIMUM Required Action.

Objective Link: LP-OP-804-0001-0012

SRO	Tier	K/A Number	Statement	IR	Origin	Source Question
87	2	218000	A2.06	4.3	N	NA

LOK	Grp	10 CFR 55.43(b) 5	LOD (1-5)	Reference Documents
H	1			29.100.01 Sheet 1 Rev 11

Ability to (a) predict the impacts of the following on the AUTOMATIC DEPRESSURIZATION SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: ADS initiation signals present

QUESTION 87

Following a Loss of Offsite Power, the following conditions occur at the listed time:

- 12:00 Reactor Scram occurred, all Control Rods are inserted.
- 12:01 **ONLY** EDG 14 has started and loaded.
- 12:05 Drywell Pressure is 1.0 psig and stable.
- 12:10 RPV Water Level is 64 inches, lowering 4 inches per minute.

Given these conditions;

(1) Which **ONE** of the following describes the response of the Automatic Depressurization System (ADS)? **AND**

(2) What operator actions which should be ordered?

_____ A. (1) ADS will **OPEN** Safety Relief Valves at 12:20.
(2) It is required to **INHIBIT ADS** prior to automatic actuation and **MANUALLY** Emergency Depressurize the reactor at a specified RPV Water Level.

_____ B. (1) ADS will **OPEN** Safety Relief Valves at 12:27.
(2) It is required to **INHIBIT ADS** prior to automatic actuation and **MANUALLY** Emergency Depressurize the reactor at a specified RPV Water Level.

_____ C. (1) ADS will **OPEN** Safety Relief Valves at 12:20.
(2) It is required to **VERIFY ADS** automatically actuates and **MAXIMIZE** Injection with Low Pressure ECCS Pumps and restore RPV Water Level to a specified Water Level Band.

_____ D. (1) ADS will **OPEN** Safety Relief Valves at 12:27.
(2) It is required to **VERIFY ADS** automatically actuates and **MAXIMIZE** Injection with Low Pressure ECCS Pumps and restore RPV Water Level to a specified Water Level Band.

Correct Answer: B With NO High Drywell Pressure signal present, L1 (31.8 inches) will cause ADS Timer to initiate in 7 minutes. The ADS Timer lasts 105 seconds or 2 minutes. A total of 9 minutes later, SRVs will OPEN. L1 will be reached in 8 minutes. 8 minutes + 9 minutes = 17 minutes 12:10 + 17 minutes = 12:27
29.100.01 Sheet 1 requires ADS INHIBITED when L1 is reached.

Plausible Distractors:
A is plausible; time would be true with Drywell Pressure above 1.68 psig.
C is plausible; time would be true with Drywell Pressure above 1.68 psig, it is required to verify ALL other ECCS actuations and MAXIMIZE Injection.
D is plausible; it is required to verify ALL other ECCS actuations and MAXIMIZE Injection.

Objective Link: LP-OP-315-0142-OBJ C

SRO 88	Tier 2	K/A Number 215003	Statement 2.4.31	IR 4.1	Origin N	Source Question NA
LOK H	Grp 1	10 CFR 55.43(b) 2	LOD (1-5)	Reference Documents LCO 3.3.1.1 Amendment 134		
Intermediate Range Monitors - Emergency Procedures / Plan: Knowledge of annunciator alarms, indications, or response procedures.						

QUESTION 88

A reactor startup is in progress with Intermediate Range Monitor (IRM) Channel A is **INOPERABLE** and **BYPASSED**, when the following occurs:

- IRM Channel D indicates upscale at 125/125, irrespective of Range Switch position.
- IRM Channels B, C, E, F, G, and H indicate 32/40 on Range 7.
- **ALL** Average Power Range Monitors (APRMs) are **DOWNSCALE**.

Which **ONE** of the following actions should be directed?

_____ A. **PLACE** IRM Channel D in a **TRIPPED** condition and continue the Reactor Startup.

_____ B. **SHUTDOWN** per GOP 22.000.04, Plant Shutdown from 25% power; because **REQUIRED** Intermediate Range Monitors are **INOPERABLE**.

_____ C. **BYPASS** the IRM Channel D ROD BLOCK using the joystick per 23.603, Intermediate Range Monitors; **RESET** the Half Scram, and **CONTINUE** the Reactor Startup.

_____ D. **BYPASS IRM** Channel D ROD BLOCK by placing the Reactor Mode Switch in **RUN** per GOP 22.000.02, Plant Startup from 25% power; **RESET** the Half Scram, and **CONTINUE** the Reactor Startup.

Correct Answer: C 3 IRMs per RPS Trip System are OPERABLE. Directed actions include BYPASSING the IRM Channel D ROD BLOCK using the joystick per 23.603, Intermediate Range Monitors; RESETTING the Half Scram, and continuing the Reactor Startup.
Plausible Distractors: A is plausible; IRM is in a TRIPPED condition, needs to be BYPASSED to continue startup. B is plausible; would be true with an additional IRM in either TRIP System INOPERABLE. D is plausible; Reactor Power is too low to place the Reactor Mode Switch in RUN.
Objective Link: None

SRO 89	Tier 2	K/A Number 215005	Statement A2.03	IR 3.8	Origin N	Source Question NA
LOK H	Grp 1	10 CFR 55.43(b) 2	LOD (1-5)	Reference Documents LCO 3.3.1.1. Action A.1 Amendment 139		
Ability to (a) predict the impacts of the following on the AVERAGE POWER RANGE MONITOR/LOCAL POWER RANGE MONITOR SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions : Inoperative trip (all causes)						

QUESTION 89

The plant is operating at 50% power with Average Power Range Monitor (APRM) Channel 1 **INOPERABLE** and **BYPASSED**. APRM Channel 3 has multiple in-service LPRM inputs as follows:

A Level LPRMs …….5
B Level LPRMs …….5
C Level LPRMs …….4
D Level LPRMs …….6

3D118, LPRM DOWNSCALE, alarms.

The P603 selects the LPRM Display on the APRM 3 ODA and determines that LPRM 08-17C is DOWNSCALE. The STA recommends bypassing LPRM 08-17C.

Which **ONE** of the following describes the affect of BYPASSING LPRM 08-17C on APRM Channel 3, and what action is required?

When LPRM 08-17C is BYPASSED, APRM Channel 3 will be INOPERABLE because there are ONLY:

_____ A. 19 LPRMs providing input. Technical Specifications are satisfied by the TWO remaining APRMs.

_____ B. 3 LPRMs providing input at the C Level. Technical Specifications are satisfied by the TWO remaining APRMs.

_____ C. 19 LPRMs providing input. Technical Specifications will be satisfied by placing APRM Channel 3 in TRIPPED condition.

_____ D. 3 LPRMs providing input at the C Level. Technical Specifications will be satisfied by placing APRM Channel 3 in TRIPPED condition.

Correct Answer: C With 19 TOTAL LPRMs providing input, APRM Channel 3 is made INOPERABLE. 3 is the REQUIRED Number of APRM Channels, and with 1 REQUIRED APRM INOPERABLE, a channel must be placed in TRIP.
Plausible Distractors: A is plausible; misconception that MINIMUM Required Channels are 2. B is plausible; misconception that 3 LPRMs per axial location renders an APRM INOPERABLE and misconception that MINIMUM Required Channels are 2. INOPERABLE. D is plausible; misconception that 3 LPRMs per axial location renders an APRM INOPERABLE.
Objective Link: None

SRO 90	Tier 2	K/A Number 262001	Statement 2.4.8	IR 4.5	Origin N	Source Question NA
LOK H	Grp 1	10 CFR 55.43(b) 5	LOD (1-5)	Reference Documents 20.307.01 Rev 21		
AC Electrical Distribution Knowledge of how abnormal operating procedures are used in conjunction with EOPs.						

QUESTION 90

Following a Loss of Coolant Accident with an electrical plant malfunction, plant conditions are as follows:

- RPV Water Level is 35 inches, **LOWERING**.
- Reactor Pressure is 250 psig, **LOWERING**.
- 345 kV Mat Power Indicating Lights are **OFF**.
- EDG 13 is **LOADED** carrying Bus 65E.
- Bus 65F and Bus 14ED Power Indicating Lights are **OFF**.
- Bus 72F and Bus 72ED Power Indicating Lights are **OFF**.
- 65F-F6 Breaker is **TRIPPED**.
- 65F-F8 Breaker is **CLOSED**.

Which **ONE** of the following lists the electrical procedure which **SHOULD** be executed to provide **MAXIMUM** Low Pressure ECCS Injection to support 29.100.01, Sheet 1, RPV Control actions?

_____ A. 20.300.65F, Loss of Bus 65F, due to Bus 65F being LOCKED OUT.

_____ B. 20.300.72F, Loss of Bus 72F, due to Bus 72F being LOCKED OUT.

_____ C. 20.307.01, Emergency Diesel Generator Failure, due to EDG 14 failing to start.

_____ D. 20.300.SBO, Loss of Offsite and Onsite Power, due to a combination of electrical malfunctions.

Correct Answer: C A loss of 345kv power is indicated, resulting in loss of ESF Div 2 AC Power. An EDG 14 START FAILURE has resulted in Bus 65F being deenergized. 20.307.01 may restore power to a Core Spray Pump and an RHR Pump to allow Maximum ECCS Injection.

Plausible Distractors: A is plausible; 65F LOCKOUT condition is excluded by 65F-F8 Breaker being CLOSED. B is plausible; 72F LOCKOUT condition is excluded by 65F-F6 Breaker being TRIPPED. D is plausible; Station Blackout is excluded by Div 1 ESF Buses energized and EDG 13 LOADED.
Objective Link: LP-OP-802-2001- OBJ A

SRO 91	Tier 2	K/A Number 219000	Statement 2.4.11	IR 4.2	Origin N	Source Question NA
LOK H	Grp 2	10 CFR 55.43(b) 2	LOD (1-5)	Reference Documents LCO 3.6.2.1 Amendment 134		
RHR/LPCI: Torus/Pool Cooling Mode - Knowledge of abnormal condition procedures.						

QUESTION 91

With the plant operating at full power, the following conditions exist:

- **ONE** Safety Relief Valve **OPENED**.
- **ALL** available Torus Cooling was initiated.

Which **ONE** of the following describes how Torus Cooling operation will affect Torus Temperature?
Operating **ALL** available Torus Cooling with **ONE FULLY OPEN** Safety Relief Valve will:

_____ A. **LOWER** Torus Water Temperature below the **LOWEST** Technical Specification LCO value.

_____ B. **MAINTAIN** Torus Water Temperature at a **CONSTANT** temperature until the Safety Relief Valve is successfully **CLOSED**.

_____ C. **NOT MAINTAIN** Torus Water Temperature **BELOW** the Technical Specification LCO value which requires a Reactor Shutdown.

_____ D. **MAINTAIN** Torus Water Temperature **BELOW** the Technical Specification LCO value applicable when testing which adds heat to the Torus is in progress.

Correct Answer: C ONE SRV open substantially exceeds the capacity of all available Torus Cooling. Torus Water Temperature will exceed 110°F, which Technical Specification LCO 3.6.2.1 Condition D requires a reactor shutdown.
BOTH RHR HXs 41.6 x 10^6 BTU/hr x 2 = **93.2 x 10^6 BTU/hr**
ONE SRV = 6% power 3430 Mwt x 6% = 205.8 Mwt x 3.413 x 10^6 BTU/ Mw-hr = **702.4 x 10^6 BTU/hr**

Plausible Distractors:
A is plausible; would be true if RHR capacity exceeded SRV heat addition.
B is plausible; would be true if RHR capacity matched SRV heat addition.
D is plausible; TS LCO 3.6.2.1C specifies a higher allowable Torus Temperature when testing is in progress.

Objective Link: LP-OP-315-0141-C013

SRO 92	Tier 2	K/A Number 223001	Statement 2.2.42	IR 4.6	Origin B	Source Question Fermi-2 Bank EQ-OP-315-0116-000-0003-016
LOK H	Grp 2	10 CFR 55.43(b) 2	LOD (1-5)	Reference Documents LCO 3.4.4 Amendment 134		
Primary Containment and Auxiliaries Ability to recognize system parameters that are entry-level conditions for Technical Specifications.						

QUESTION 92

The plant is operating at full power.
The following Drywell Floor and Equipment Drain Sump Effluent Integrator readings (total gallons pumped) have been noted for the past 24 hours:

TIME	Floor Drain Integrator	Equipment Drain Integrator	Leak Rate Floor (gpm)	Leak Rate Equipment (gpm)
0000	89321	27861	2.3	16.4
0800	90543	35805	2.54	16.55
1600	92079	44181	3.2	17.45
0000	94383	52821	4.8	18.0

With these conditions, which **ONE** of the following is correct?

_____ A. **NO** Drywell Leakage limit has been exceeded.

_____ B. **TOTAL LEAKAGE** has exceeded the leakage limit.

_____ C. **IDENTIFIED LEAKAGE** has exceeded the leakage limit.

_____ D. **UNIDENTIFIED LEAKAGE INCREASE** has exceeded limits within a 24 hour period.

Correct Answer: D a 2 gpm increase in UNIDENTIFIED DRYWELL LEAKAGE within a twenty four hour period has been exceeded. 2.3 gpm increased to 4.8 gpm in 24 hours.
Plausible Distractors: A is plausible; would be true in MODE 2 STARTUP, because the 2 gpm increase in 24 hours is NA in MODE 2. B is plausible; would be true if 5.0 gpm Equipment Leakage were exceeded (4.8 gpm max). C is plausible; would be true if 24 hour Total Leakage exceed 25 gpm (20.46 gpm actual).
Objective Link: LP-OP-315-0116-C013

SRO	Tier	K/A Number	Statement	IR	Origin	Source Question
93	2	271000	A2.17	3.1	N	NA

LOK	Grp	10 CFR 55.43(b) 5	LOD (1-5)	Reference Documents
H	2			ARP 3D12 Rev 12

Ability to (a) predict the impacts of the following on the OFFGAS SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Reactor power changes

QUESTION 93

During a reactor startup, Control Rod withdrawal is in progress at 20% power.
The following indications are received:

- 3D8, DIV I/II OFF GAS RADN MONITOR UPSCALE alarms.
- 3D12, DIV I/II OFF GAS RADN MONITOR HIGH-HIGH alarms.
- D11-K601A and B Off Gas Radiation Monitors indicate 1200 mr/hr, **RISING**.
- At H21-P275A, Hydrogen Analyzer Panel, **BOTH** Channels indicate 1.2% H_2.
- Main Condenser Vacuum is 1.0 psia.
- Off Gas Flow is 10 cfm.

Which **ONE** of the following **CAUSED** these indications, and what action is **REQUIRED**?

These indications are **CAUSED** by:

_____ A. a fuel cladding failure. It is required to enter 20.000.07, Fuel Cladding Failure.

_____ B. increased Main Condenser air inleakage. It is required to enter 20.125.01, Loss of Main Condenser Vacuum.

_____ C. an Off Gas Recombiner malfunction. It is required to enter 20.712.01, High Hydrogen Concentration / Explosion in the Off-Gas System.

_____ D. an expected increase in Nitrogen-16 (N^{16}) production from the reactor. It is required to notify Chemistry of the power increase and obtain samples per 74.000.19, Chemistry Routine Surveillances.

Correct Answer: A A fuel cladding failure will cause Off Gas Radiation to increase.
It is required to enter 20.000.07, Fuel Cladding Failure.

Plausible Distractors: B is plausible; increased air inleakage initially increases radionuclide transport rate, short lived nuclides will cause a momentary increase in Radiation Level until air dilution subsequently lowers it. Excluded by Main Condenser Vacuum and OG Flow. C is plausible; Off Gas alarms can be indicative of Recombiner Failure. Excluded by low Hydrogen Analyzer indication. D is plausible; higher power does raise N-16 production, Off Gas Delay piping is designed to preclude N-16 changes from causing High Radiation alarms.
Objective Link: LP-OP-315-0135- OBJ B

SRO 94	Tier 3	K/A Number Generic	Statement 2.1.43	IR 4.3	Origin N	Source Question NA
LOK F	Grp NA	10 CFR 55.43(b) 6	LOD (1-5)	Reference Documents GOP 22.000.03 Rev 74		
Ability to use procedures to determine the effects on reactivity of plant changes, such as RCS temperature, secondary plant, fuel depletion, etc.						

QUESTION 94

With the plant in end of cycle coast down, all Control Rods are at position 48 and Reactor Power is 97%. Preparations are being made to shutdown for a Refuel Outage.

Which **ONE** of the following is an **APPROVED** method of adding positive reactivity and obtaining additional energy from the core?

_____ A. **SECURE** Heater Drain Pumps per 23.108, Extraction Steam and Heater Drains.

_____ B. **RAISE** Core Flow to 110 Mlbm/hr per 22.000.03, Power Operation 25% to 100% to 25%.

_____ C. **RAISE** the Pressure Regulator setting per 22.000.03, Power Operation 25% to 100% to 25%.

_____ D. **BYPASS** Feedwater Heater #6 North and South by opening N2100-F603, #6 FW Heaters Bypass Valve per 23.108, Extraction Steam and Heater Drains.

Correct Answer: C RAISE the Pressure Regulator setting per 22.000.03, Power Operation 25% to 100% to 25% is approved at this power level.
Plausible Distractors: A is plausible; can be performed at <65% power, will cause a Recirculation Runback at this power level. B is plausible; lower rod lines accommodate greater core flow, it is NOT permitted to exceed the Licensed Core Flow Limit. D is plausible; can be performed <50% power, when isolating Feedwater Heaters.
Objective Link: LP-OP-802-1002-0001

SRO 95	Tier 3	K/A Number Generic	Statement 2.2.14	IR 4.3	Origin B	Source Question Fermi-2 Bank
LOK F	Grp NA	10 CFR 55.43(b) 5	LOD (1-5)	Reference Documents MOP05 Rev 18		
Knowledge of the process for controlling equipment configuration or status.						

QUESTION 95

A Work Request has been released to replace the Div 1 RHRSW Radiation Monitor Sample Pump. Due to parts difficulties, the work group is requesting that the Work Request be **DEACTIVATED** with the Sample Pump removed.

Per MOP05, Control of Equipment, which **ONE** of the following describes when the Shift Manager **MAY** deactivate the package?

The Shift Manager **MAY** deactivate the package:

_____ A. once the protection has been released **AND** the existing configuration has been evaluated per ODE 6, Operator Challenges.

_____ B. once the protection has been released **AND** the existing configuration has been evaluated per MES12, Performing Temporary Modifications

_____ C. after noting the deactivation on the Safety Tagging Record **AND** the existing configuration has been evaluated per ODE 6, Operator Challenges.

_____ D. after noting the deactivation on the Safety Tagging Record **AND** the existing configuration has been evaluated per MES12, Performing Temporary Modifications

Correct Answer: B Per MOP05, Control of Equipment, a Work Request shall not be deactivated when either personnel protection is in effect OR an interim alteration exists that has not been evaluated in accordance with MES12, Performing Temporary Modifications.

Plausible Distractors:
Noting deactivation on the Safety Tagging Record is considered plausible but incorrect. Notes are used frequently on tagouts, but are not in accordance with MOP05. Operator Challenges involve documentation of work arounds, and do not meet the requirements of Temporary Modification Evaluations.

Objective Link: : LP-OP-802-4101-0022

SRO 96	Tier 3	K/A Number Generic	Statement 2.2.35	IR 4.5	Origin N	Source Question NA
LOK F	Grp NA	10 CFR 55.43(b) 2	LOD (1-5)	Reference Documents Table 1.1-1 Amendment 134		
Ability to determine Technical Specification Mode of Operation.						

QUESTION 96

Following a Refueling Outage, 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 **REFUEL** and Control Rod exercising is in progress.

NOTE: For this particular instance, Special Operations TS 3.10.4 does NOT apply.

Which **ONE** of the following is the correct **MODE** of operation, based on these conditions?

_____ A. MODE 2, STARTUP

_____ B. MODE 3, HOT SHUTDOWN

_____ C. MODE 4, COLD SHUTDOWN

_____ D. MODE 5, REFUEL

Correct Answer: A MODE 2 STARTUP, with the Reactor Mode Switch in REFUEL and all RPV Head Closure Bolts Fully Tensioned.
Plausible Distractors: B is plausible; would be true if RCS Temperature exceeded 200°F with the Reactor Mode Switch in SHUTDOWN C is plausible; would be true with Reactor Mode Switch in SHUTDOWN. D is plausible; would be true with ONE RPV Head Closure Bolt Less Than Fully Tensioned.
Objective Link: LP-OP-8004-0001-0004

SRO 97	Tier 3	K/A Number Generic	Statement 2.3.5	IR 2.9	Origin N	Source Question NA
LOK H	Grp NA	10 CFR 55.43(b) 4	LOD (1-5)	Reference Documents EP-547 Rev 6		
Ability to use radiation monitoring systems, such as fixed radiation monitors and alarms, portable survey instruments, personnel monitoring equipment, etc. (10 CFR 55.43(b) 4 - assessment of an abnormal radiation hazard)						

QUESTION 97

Emergency Operations Facilities are **NOT** manned.
Following an accident, it is required to estimate Core / Fuel Damage using the following Containment High Range Radiation Monitor (CHRRM) readings and conditions:

- Reactor was **SHUTDOWN** at 1200.
- CHRRM Readings were taken at 1300.
- DIV 1 CHRRM indicates 2.0 x 10^4 R/hr.
- DIV 2 CHRRM indicates 1.5 x 10^4 R/hr.

Note: See attached references.

Which **ONE** of the following is the **CORRECT** Core / Fuel Damage calculation, based on these readings?

	% Gap Release (H)	% of Fermi-2 Upper Bound LOCA (J)	% of Regulatory Guide 1.3 LOCA (K)
_____ A.	21.4	5.0	1.9
_____ B.	28.6	6.7	2.5
_____ C.	115.4	30.0	8.8
_____ D.	153.8	40.0	11.8

Correct Answer: B Calculated using Div 1 CHRRM and Enclosure B 1 hour values for (E) 7 x 10^4 R/hr, (F) 3 x 10^5 R/hr , (G)8 x 10^5 R/hr

Plausible Distractors: A is plausible; miscalculated using LOWEST reading CHRRM. C is plausible; miscalculated using 10 hours vice 1 hour after Shutdown and LOWEST reading CHRRM. D is plausible; miscalculated using 10 hours vice 1 hour after Shutdown.
Objective Link: LP-ER-832-0001-0016 LP-OP-801-0001-A002

SRO 98	Tier 3	K/A Number Generic	Statement 2.3.4	IR 3.7	Origin B	Source Question 2003 Fermi-2 NRC Exam
LOK F	Grp NA	10 CFR 55.43(b)4	LOD (1-5)	Reference Documents MRP05 Rev 6		
Knowledge of radiation exposure limits under normal or emergency conditions.						

QUESTION 98

During a **DECLARED EMERGENCY**, a leak develops in an area that is accessible, but now radiologically contaminated. The Shift Manager has directed that an investigation be performed **IMMEDIATELY**.

In accordance with MRP05, ALARA / RWPs, what are the **RWP REQUIREMENTS** for entry into the area for investigation?

_____ A. A written Specific RWP must be issued.

_____ B. A General RWP already exists for this type of event.

_____ C. A revision to the General RWP for that area must be issued.

_____ D. A verbally issued RWP may be used for timely plant response.

Correct Answer: D A verbally issued RWP may be used for timely plant response.
Plausible Distractors: A is plausible; but not required under emergency conditions. B is plausible; existing General RWP would not be useful since conditions have changed. C is plausible; but not required under emergency conditions.
Objective Link: LP-OP-802-4101-0032

SRO 99	Tier 3	K/A Number Generic	Statement 2.4.20	IR 4.3	Origin N	Source Question NA
LOK H	Grp NA	10 CFR 55.43(b) 5	LOD (1-5)	Reference Documents 29.100.01 Sheet 1A Rev 10		
Knowledge of operational implications of EOP warnings, cautions, and notes.						

QUESTION 99

While executing 29.100.01 Sheet 1A, ATWS RPV Control, Emergency Depressurization is **REQUIRED**. Conditions are as follows:

- Standby Liquid Injection has been **INITIATED**.
- RPV Level is -15 inches.
- Reactor Pressure is 1000 psig.
- Injection has been Terminated and Prevented as required.
- **FIVE** Safety Relief Valves have been **OPENED**.
- Reactor Pressure is 850 psig **LOWERING**.
- RPV Water Level is -30 inches **LOWERING**.

Which **ONE** of the following actions is required to be ordered?

_____ A. **RAISE** RPV Water Level above -25 inches using **INSIDE** the shroud systems **FIRST**.

_____ B. **RAISE** RPV Water Level above -25 inches using **OUTSIDE** the shroud systems **FIRST**.

_____ C. **WAIT** until RPV Pressure **LOWERS** to 230 psig, **THEN RAISE** RPV Water Level above -25 inches using **INSIDE** the shroud systems **FIRST**.

_____ D. **WAIT** until RPV Pressure **LOWERS** to 230 psig, **THEN RAISE** RPV Water Level above -25 inches using **OUTSIDE** the shroud systems **FIRST**.

Correct Answer: D with ATWS conditions, ED requires initial pressure reduction to MSCP without injection. THEN, using OUTSIDE the shroud systems FIRST, RPV Water Level may be restored.
Plausible Distractors: A is plausible; below MINIMUM ATWS Level Control Band. B is plausible; Would be true if reactor was shutdown under all conditions, per RPV Control. D is plausible; OUTSIDE the shroud sources are required to be used FIRST, then augmented with INSIDE the shroud sources.
Objective Link: None

SRO 100	Tier 3	K/A Number Generic	Statement 2.4.23	IR 4.4	Origin N	Source Question NA
LOK H	Grp NA	10 CFR 55.43(b) 5	LOD (1-5)	Reference Documents 29.100.01 Sheet 1A Rev 10		
Knowledge of the bases for prioritizing emergency procedure implementation during emergency operations.						

QUESTION 100

The plant is operating at full power, when a transient occurs, resulting in the following conditions:

- **NO** Control Rod movement occurred.
- Blue Scram Valve Lights on the Full Core Display are **ALL** LIT.
- The Turbine Generator is **ON LINE**.
- Reactor Power is 30%.
- ADS is **INHIBITED**.
- FSQ 1-8 is **COMPLETE**.
- RPV Water Level is at 60 inches, **LOWERING** at 4 inches per minute.
- Torus Water Temperature is 90°F, due to HPCI starting.

Which **ONE** of the following **EOP ACTIONS** should have **HIGHEST PRIORITY**, based on these conditions?

_____ A. Start Torus Cooling per 23.205.

_____ B. Vent the Scram Air Header per 29.ESP.03.

_____ C. Deenergize Scram Solenoids per 29.ESP.03.

_____ D. Defeat RPV Level 1 MSIV Isolation Signals per 29.ESP.11.

Correct Answer: D RPV Level 1 will isolate MSIVs in three minutes. At 30% power, MSIV Closure represents a substantial containment threat.

Plausible Distractors:
A is plausible; Torus Cooling is required, but cannot mitigate the heat load of 30% power dumped to the Suppression Pool.
B is plausible; Control Rod insertion is required. Blue Scram Valve Lights indicate Scram Valves are OPEN and efforts to vent scram air header will be ineffective.
C is plausible; Control Rod insertion is required. Blue Scram Valve Lights indicate Scram Valves are OPEN and efforts to deenergize scram solenoids will be ineffective.

Objective Link: LP-OP-802-3003-003

FERMI 2008 Written Exam Answer Key

RO

1. A
2. D
3. D
4. D
5. B
6. D
7. B
8. D
9. C
10. C
11. C
12. A
13. D
14. B
15. B
16. B
17. A
18. D
19. D
20. A
21. B
22. C
23. B
24. D
25. D
26. A
27. A
28. B
29. B
30. B
31. C
32. D
33. C
34. B
35. A
36. A
37. D
38. A
39. B
40. D
41. C
42. B
43. D
44. A
45. D
46. B
47. B
48. A
49. C AND D
50. A
51. A
52. C
53. D
54. A
55. C
56. D
57. B
58. C
59. A
60. A
61. C
62. A
63. D
64. C
65. B
66. B
67. D
68. C
69. D
70. B
71. B
72. D
73. D
74. B
75. C

SRO

76. B
77. C
78. A
79. B
80. B
81. C
82. D
83. A
84. D
85. B
86. C
87. B
88. C
89. C
90. C
91. C
92. D
93. A
94. C
95. B
96. A
97. B
98. D
99. D
100. D