

QUESTION 1

Following a plant transient, the following conditions exist:

- Drywell Pressure is 2.5 psig, rising.
- RPV Water Level is 90 inches, lowering at 1 inch per minute.
- Reactor Pressure is 500 psig, lowering at 5 psig per minute.
- THEN annunciator 601447, RHR A INJ VLV 24A OPEN PERMISSIVE alarms.

Which one of the following is the indicated flow on the 2RHS*FI14A Division 1 RHS Loop Total Flow Indicator five minutes after annunciator 601447 is received?

- A. 0 gpm
- B. 1,000 gpm
- C. 3,500 gpm
- D. 7,000 gpm

QUESTION 2

The following conditions exist:

- The reactor is in Mode 3.
- RHR Loop "A" is in Shutdown Cooling.
- RHR Loop "B" is in Suppression Pool Cooling.
- DIVISION I RHR/LPCS REAC WTR LVL LOW alarms.
- DIVISION II RHR REAC WTR LVL LOW alarms.

Which one of the following describes the automatic RHR system response?

- A. RHR Loop A continues to operate to shutdown cooling and RHR B pumps trips.
- B. RHR A and B pumps trip, RHR Loop B realigns to the injection mode and the RHR B pump restarts.
- C. RHR pump A trips and RHR Loop B realigns to the injection mode and the RHR B pump continues to run.
- D. RHR Loop A continues to operate in shutdown cooling and RHR Loop B.

QUESTION 3

RHS B Loop is operating in Shutdown Cooling Mode, with conditions as follows:

- The plant is in MODE 4, Cold Shutdown.
- NO Reactor Recirculation Pumps are in operation.
- RHR B Loop Flow is 5000 gpm.
- Cooldown Rate is 100°F/hr.
- RHS*MOV8B, HEAT EXCHANGER 1B INLET BYPASS VLV THROTTLE is 50% open.

Which one of the following valve throttling manipulations is required to operate at rated system flow conditions?

- A. RHS*MOV40B, SDC B RETURN THROTTLE in the **OPEN** direction and throttling RHS*MOV8B, HEAT EXCHANGER 1B INLET BYPASS VLV in the **OPEN** direction.
- B. RHS*MOV40B, SDC B RETURN THROTTLE in the **OPEN** direction and throttling RHS*MOV8B, HEAT EXCHANGER 1B INLET BYPASS VLV in the **CLOSED** direction.
- C. RHS*MOV40B, SDC B RETURN THROTTLE in the **CLOSED** direction and throttling RHS*MOV8B, HEAT EXCHANGER 1B INLET BYPASS VLV in the **OPEN** direction.
- D. RHS*MOV40B, SDC B RETURN THROTTLE in the **CLOSED** direction and throttling RHS*MOV8B, HEAT EXCHANGER 1B INLET BYPASS VLV in the **CLOSED** direction.

QUESTION 4

The plant is in Mode 2, with the following:

- Annunciator 870121, DIVISION I UNIT COOLERS MOTOR OVERLOAD alarms.
- Computer Point HVRTC08, LPCS PMP RM UC402B MOT, Source 49X-2HVRB12 caused the alarm.

Which one of the following describes the affect, if any, of this condition on the operation of the Low Pressure Core Spray System?

If the Low Pressure Core Spray System is INITIATED due to a Design Basis Loss of Coolant Accident (DBA LOCA), excessive motor temperatures:

- A. will not occur due to this failure, because of the present Mode.
- B. will not occur due to this failure, because one Unit Cooler will meet the cooling requirements of the Low Pressure Core Spray System.
- C. will not occur due to this failure, because Reactor Building HVAC Supply Fans provides the required cooling for the Low Pressure Core Spray System.
- D. will occur as a result of this failure, because BOTH Unit Coolers are required to meet the cooling requirements of the Low Pressure Core Spray System.

QUESTION 5

Following a Loss of Coolant Accident, the following conditions exist:

- ALL Control Rods are inserted.
- Reactor Pressure is 950 psig.
- ONLY High Pressure Core Spray is injecting.
- NO OTHER Injection Systems are operating.
- When RPV Water Level LOWERED to -30 (actual) inches, Automatic Depressurization System Safety Relief Valves were MANUALLY OPENED.
- RPV Water Level LOWERED and stabilized at -60 (actual) inches, with High Pressure Core Spray injecting 6500 gpm.

Which one of the following describes the status of adequate core cooling during this event sequence?

- A. NOT been maintained, because RPV Water Level LOWERED below the Minimum Zero Injection RPV Water Level.
- B. NOT been maintained, because RPV Water Level LOWERED below the Minimum Steam Cooling RPV Water Level.
- C. IS maintained because RPV Water Level has continuously provided adequate cooling to the fuel by SUBMERGENCE.
- D. IS maintained, because RPV Water Level and Core Spray Flow provided adequate cooling by CORE SPRAY COOLING.

QUESTION 6

The plant is operating at 100% power with the Standby Liquid Control System (SLS) in a normal standby configuration.

Which one of the following abnormal conditions will result in a loss of continuity to (SLS) Explosive Valve 2SLS*VEX3A?

- A. Trip of SLS Pump A motor thermal overload device.
- B. Trip of SLS Pump A suction valve power supply breaker.
- C. Blown power supply fuse for Div I Redundant Reactivity Control logic.
- D. Blown control power fuse for SLS Pump A motor power supply breaker.

QUESTION 7

The plant is operating at full power. Both NORM-TEST-SRI Toggle Switches are placed in TEST on the Hydraulic Control Unit of a withdrawn control rod.

Which one of the following is the control rod response, if any?

- A. Remains at the same position.
- B. Inserts at SCRAM speed. Displaced water will drain from the Scram Discharge Volume.
- C. Inserts at SCRAM speed. Displaced water will accumulate in the Scram Discharge Volume resulting in a Control Rod Block.
- D. Inserts at SCRAM speed. Displaced water will completely fill the Scram Discharge Volume resulting in a Reactor Scram.

QUESTION 8

A reactor startup is in progress, with the following:

- IRM D and F are the highest reading IRM's, reading 65 on Range 4.
- All other IRM's are reading 30 on Range 4.
- Reactor Period is stable at 100 seconds.

With no operator action, which one of the following correctly identifies the Reactor Protection System response in 70 seconds?

- A. No RPS trip systems will trip.
- B. RPS trip systems A and B will both trip.
- C. RPS trip system A trips and B does not trip.
- D. RPS trip system B trips and A does not trip.

QUESTION 9

Which one of the following conditions will cause the IRM B Detector Retract Permit green indicating lamp to be illuminated?

- A. The Reactor Mode Switch in RUN.
- B. ALL IRMs are on Range 3 or above.
- C. IRM Channel B Detector is fully withdrawn.
- D. IRM Channel B indicates greater than 108/125.



QUESTION 10

The following conditions exist for SRM A, during a plant startup:

- SRMs are fully inserted.
- SRM Channel A indicates 1×10^5 cps.
- Annunciator 603203, SRM UPSC/INOPERABLE alarms.
- Annunciator 603442, CONTROL ROD OUT BLOCK alarms.
- Amber SRM "UPSC ALARM OR INOP" light on P603 is LIT.
- Red SRM "UPSC TRIP" lights on P603 are OFF.
- White "INOP" light at the drawer is OFF.

Which one of the following actions is required, by procedure, to clear the Control Rod Out Block being generated by SRM A?

- A. Retract SRM Detector to clear the UPSC condition.
- B. Bypass SRM A Channel to clear the INOP condition.
- C. Wait until ALL IRMs are on Range 8, THEN retract SRM Detector to clear the UPSC condition.
- D. Wait until ALL IRMs are on Range 3, THEN verify the Control Rod Out Block automatically clears.

QUESTION 11

With the plant operating at full power, a loss of power from 2VBB-UPS3A occurs. Which one of the following describes the impact of this power loss of the Average Power Range Monitors?

- A. APRM Channels 1 and 2 are de-energized and produces an RPS A Half Scram.
- B. APRM Channels 3 and 4 are de-energized and produces an RPS B Half Scram.
- C. APRM Channels 1 and 2 lose a power source, but remain energized. Loss of power to a 2/4 Logic Module produces an RPS A Half Scram.
- D. APRM Channels 3 and 4 lose a power source, but remain energized. Loss of power to a 2/4 Logic Module produces an RPS B Half Scram.

QUESTION 12

Following a reactor scram, the following conditions exist:

- Reactor Core Isolation Cooling was manually initiated and is injecting.
- Annunciator 601343, RCIC CNDS TK 1A WATER LEVEL LOW alarms.

Which of the following is the affect on the RCIC pump?

- A. Continues to inject.
- B. Trips due to Low Flow.
- C. Trips due to Low Suction Pressure.
- D. Cavitates due to Low Suction Pressure.

QUESTION 13

Following a MANUAL initiation of the Automatic Depressurization System (ADS), the following conditions exist:

- Reactor Pressure LOWERED to 80 psig.
- ALL Low Pressure ECCS Pumps have degraded, due to Suction Strainer clogging and have been TRIPPED.
- ONLY the High Pressure ECCS Pump is STILL injecting.
- RPV Water Level reached a MINIMUM of 15 inches and is 30 inches, RISING.

What is the status of the ADS Safety Relief Valves (SRVs)?

- A. ADS SRVs remain OPEN, due to a logic seal-in.
- B. ADS SRVs will SHUT, due to recovering RPV Water Level.
- C. ADS SRVs will SHUT, due to loss of ECCS Pump permissives.
- D. ADS SRVs will remain OPEN, because an ECCS Pump is providing a permissive.

QUESTION 14

The plant is operating at 100%, when the following occurs:

- Annunciator 602228, MN STEAM LINE PIPE TUNNEL TEMP HI-HI/DIFF TEMP HI, alarms.
- Trip Units **E31-N604A and B**, MSL TUNNEL EL 263 FT indicate 170°F.

Which one of the following describes the PCIS response to these annunciators, and what action is required?

- A. **ONLY** the MSIVs will isolate. It is required to enter N2-SOP-101C, REACTOR SCRAM.
- B. The MSIVs AND the **INBOARD** MSL Drains will isolate. It is required to enter N2-SOP-101C, REACTOR SCRAM.
- C. The MSIVs AND the **OUTBOARD** MSL Drains will isolate. It is required to enter N2-SOP-101C, REACTOR SCRAM.
- D. **NO** automatic actions will occur. It is required to Dispatch an operator to 2CES-IPNL202, TURBINE BLDG HVAC panel, to confirm proper HVAC operation.

QUESTION 15

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

- Reactor Pressure LOWERED from 1020 psig to 1015 psig and stabilized.
- Main Steam Line A Flow is 3.7 Mlbm/hr.
- Main Steam Line B Flow is 2.9 Mlbm/hr.
- Main Steam Line C Flow is 3.7 Mlbm/hr.
- Main Steam Line D Flow is 3.7 Mlbm/hr.

Which one of the following failures is indicated?

- A. OPEN Safety Relief Valve.
- B. SHUT Turbine Control Valve.
- C. OPEN Turbine Bypass Valve.
- D. SHUT Main Steam Isolation Valve.

QUESTION 16

The LEVEL Leg of N2-EOP-C5, Failure to Scram, contains the following override statement condition:

“An SRV is open OR Drywell Pressure is above 1.68 psig”

Per the EOP Basis, which one of the following does this condition indicate?

- A. Loss of Coolant Accident has occurred or an RPV Blowdown has been performed.
- B. Heat is being added to the Suppression Pool by either the Downcomers or the SRV Tailpipes.
- C. Reactor Coolant System is breached and injected Boron will NOT remain in the core.
- D. Conditions exist which jeopardize the continued availability of Reactor Water Level Instruments.

QUESTION 17

The plant is operating at 100% with the following with FWS-P1A and FWS-P1B in service.

At 12:00:00, FWS-LV10A has a loss of control power.

At 12:00:30 the following results:

- Reactor scrams
- Power LOWERS to 40%
- SRVs are cycling to control Reactor Pressure

Which one of the following describes the condition of FWS-LV10B and FWS-LV10A at 12:01:00, with NO operator actions?

	<u>FWS-LV10A</u>	<u>FWS-LV10B</u>
A.	Auto and Open	Auto and Shut
B.	Auto and Open	Auto and Open
C.	Manual and Open	Manual and Shut
D.	Manual and Shut	Manual and Shut

QUESTION 18

The plant is in COLD SHUTDOWN with one train of Standby Gas Treatment (GTS) inoperable.

Which one of the following plant changes results in the requirement for BOTH trains of GTS to be operable?

- A. Reactor Water Temperature unexpectedly rises above 200°F.
- B. Loss of Secondary Containment Differential Pressure.
- C. New Fuel is being placed in the Spent Fuel Pool.
- D. Operational Mode is changed to MODE 5.

QUESTION 19

The plant is at 100% power with the following:

Division I Diesel Generator has been started and is being set up to perform a load test in parallel with 2ENS*SWG101 in accordance with N2-OP-100A. The operator is ready to parallel the engine with 2ENS*SWG101.

Which one of the following conditions will ensure the Division I Diesel Generator does NOT trip due to excessive Reactive Load?

- A. SYNCHROSCOPE (EMERGENCY POWER-DIV I) is rotating slowly in the clockwise direction.
- B. 4.16KV 2ENS*SWG101 INCOMING VOLTS indicates 5.20 kV AND 4KV RTX-XSR1A/ABSX1/ EGS*EG1 RUNNING VOLTS indicates 4.20 kV.
- C. 4.16KV 2ENS*SWG101 INCOMING VOLTS indicates 4.20 kV AND 4KV RTX-XSR1A/ABSX1/ EGS*EG1 RUNNING VOLTS indicates 4.20 kV.
- D. BREAKER 2ENS*SWG101-1 is closed when SYNCHROSCOPE (EMERGENCY POWER-DIV I) is at 5 minutes before the 12 o'clock position.

QUESTION 20

With a loss of power from UPS 1A, which one of the following describes the affect of this failure, if any, on the ability to move Control Rods?

- A. The ability to move Control Rods is unaffected by this failure.
- B. Control Rod motion is prevented due to power loss to Intermediate Range Monitors.
- C. Control Rod motion is prevented due to power loss to the Reactor Manual Control System
- D. Control Rod motion is prevented due to power loss to the Scram Discharge Volume Level Instrumentation.

QUESTION 21

2VBB-UPS1B has been placed on battery power with 2VBB-TRS1 out of service for repair. DC Bus 2BYS-SWG001C is LOST.

Which one of the following describes the condition of Uninterruptible Power Supply (UPS) 2VBB-UPS1B loads following the DC Power Loss?

- A. DE-ENERGIZED, due to loss of ALL redundant power sources.
- B. ENERGIZED, because 2VBB-UPS1B Inverter Output is UNAFFECTED by this DC Power failure.
- C. ENERGIZED, due to MAINTENANCE power AUTOMATICALLY aligned through the Static Switch.
- D. DE-ENERGIZED until MAINTENANCE power is MANUALLY aligned through the 2VBB-UPS1B Maintenance Switch.

QUESTION 22

The plant is operating at full power, when DC Power from 2BYS*SWG002B is LOST.

Which one of the following describes the affect, if any, of this failure on Reactor Recirculation Pump Breakers?

- A. ONLY B Reactor Recirculation Pump FAST Speed Breakers TRIP.
- B. BOTH Reactor Recirculation Pumps FAST Speed Breakers TRIP.
- C. ONLY B Reactor Recirculation Pump SLOW Speed Breakers have lost control power.
- D. BOTH Reactor Recirculation Pumps FAST and SLOW Speed Breakers are unaffected.

QUESTION 23

Given the following conditions:

- A Loss of Offsite Power and LOCA have occurred.
- 2EGS*EG3 TRIPS on overspeed during start and CANNOT be started.
- 2EGS*EG1 & 2 operate as designed and power their respective buses.

Which one of the following lists includes ALL the ECCS Pumps that have power available?

- A. CSH*P1, CSL*P1, and RHS*P1A ONLY.
- B. CSH*P1, RHS*P1B, and RHS*P1C ONLY.
- C. CSH*P1, CSL*P1, RHS*P1B, and RHS*P1C ONLY.
- D. CSL*P1, RHS*P1A, RHS*P1B, and RHS*P1C ONLY.

QUESTION 24

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

- EMERGENCY DSL GEN 1 LOCA SIGNAL BYPASS switch is ON.
- RPV Water Level LOWERS to 15 inches.

Which one of the following describes the affect of these conditions on the Division 1 EDG?

Division 1 EDG will:

- A. NOT START when DIVISION 1 2EGS*EG1 START switch is placed in START.
- B. MANUALLY START when DIVISION 1 2EGS*EG1 START switch is placed in START.
- C. AUTOMATICALLY START with NO Emergency Diesel Generator TRIP signals BYPASSED.
- D. AUTOMATICALLY START with SOME Emergency Diesel Generator TRIP signals BYPASSED.

QUESTION 25

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

- Annunciator 603306, CRD SCRAM VALVE PILOT AIR HDR PRESS HIGH/LOW, alarmed.
- Instrument Air (IAS) header pressure is 120 psig.
- Auxiliary Operator reports the Scram Air Header pressure is steady at 62 psig.
- NO control rods are drifting.

Which one of the following statements describes the action that is to be attempted to restore Scram Air Header pressure, per N2-SOP-19, Loss of Instrument Air?

- A. Verify all IAS Compressors are loaded and bypass IAS Dryers.
- B. Swap Scram Air Header Supply Filters and Pressure Control Valves.
- C. Bypass Scram Air Header Supply Filters and Pressure Control Valves.
- D. Verify all IAS Compressors are loaded and isolate Service Air Header.

QUESTION 26

Piping failures resulted in a loss of Reactor Building Closed Loop Cooling (CCP) flow. Which one of the following components can still be cooled following the loss of CCP?

- A. Drywell Unit Coolers
- B. RDS Pump Seal Coolers
- C. RHS Pump Seal Coolers
- D. Drywell Equipment Drain Coolers

QUESTION 27

N2-OSP-RDS-Q001, SCRAM DISCHARGE VOLUME (SDV) VENT AND DRAIN VALVE OPERABILITY TEST is in progress. The two Scram Discharge Volume Vent and Drain Pilot Valve TEST pushbuttons are DEPRESSED.

Which one of the following describes system response?

Air is:

- A. ALIGNED to the valve actuators causing the SDV Vent and Drain Valves to SHUT.
- B. ALIGNED to the valve actuators causing the SDV Vent and Drain Valves to OPEN.
- C. ISOLATED and VENTED from the valve actuators causing the SDV Vent and Drain Valves to SHUT.
- D. ISOLATED and VENTED from the valve actuators causing the SDV Vent and Drain Valves to OPEN.

QUESTION 28

The plant is operating at 98% power, with the following:

- Control Rod 34-19 (a non-peripheral rod) is selected for movement
- APRM #2 fails DOWNSCALE.
- NO operator actions are taken.

Which one of the following identifies the ability of Rod Block Monitor (RBM) Channels A and B to generate a rod block on high local power?

	<u>RBM Channel A</u>	<u>RBM Channel B</u>
A.	Can generate blocks	Can generate blocks
B.	Can generate blocks	Cannot generate blocks
C.	Cannot generate blocks	Can generate blocks
D.	Cannot generate blocks	Cannot generate blocks

QUESTION 29

The plant is operating at full power when the following alarms occur:

- Annunciator 603318, CRD PUMPS SUCTION FLTR DIFF PRESSURE HIGH
- Annunciator 603309, CRD PUMP 1A SUCTION PRESS LOW.
- Annunciator 603308, CRD PUMP 1A/1B AUTO TRIP.
- Annunciator 602324, RWCU PUMP CLG WTR TEMP HIGH.

Which one of the following actions is required?

- A. ISOLATE the WCS System.
- B. START the standby CRD Pump.
- C. PLACE the Reactor Mode Switch in SHUTDOWN.
- D. THROTTLE WCS*MOV200 until in-service Filter Demins are in HOLD and TRIP the WCS Pump.

QUESTION 30

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

- Control rod 30-31 is withdrawn to 12
- Rod 30-31 is selected at the Rod Select Module (P603)
- RPS Trip System "B" is tripped due to a failed sensor
- Scram Pilot Valve "A" solenoid fuse at the HCU for the rod blows

Which one of the following describes the resulting 4 Rod Display rod position indication?

- A. Double X
- B. Double Blank
- C. Double Dash
- D. Double Zero

QUESTION 31

Given these conditions:

- The reactor scrammed from 100%.
- All plant systems have functioned as designed for the scram.
- Condensate pumps "A" and "B" are running.

Which one of the following describes the electrical power supply lineup to the Condensate Pumps **5 minutes** after the reactor scram?

- A. 2CNM-P1A from 2NPS-SWG001, 2CNM-P1B from 2NPS-SWG003.
These switchgears are powered by associated Reserve Transformers.
- B. 2CNM-P1A from 2NNS-SWG011, 2CNM-P1B from 2NNS-SWG013.
These switchgears are powered by associated Reserve Transformers.
- C. 2CNM-P1A from 2NPS-SWG001, 2CNM-P1B from 2NPS-SWG003.
These switchgears are powered by the Normal Station Service Transformer.
- D. 2CNM-P1A from 2NNS-SWG011, 2CNM-P1B from 2NNS-SWG013.
These switchgears are powered by the Normal Station Service Transformer.

QUESTION 32

Which one of the following indicates that the normally SELECTED Narrow Range RPV Water Level detector has experienced a diaphragm failure, and what action is required?

- A. Narrow Range A indicates 186 inches, RISING.
Narrow Range B indicates 179 inches, LOWERING.
Narrow Range C indicates 187 inches, RISING.
It is required to select Narrow Range A for Feedwater Level Control.
- B. Narrow Range A indicates 186 inches, RISING.
Narrow Range B indicates 179 inches, LOWERING.
Narrow Range C indicates 179 inches, LOWERING.
It is required to select Narrow Range B for Feedwater Level Control.
- C. Narrow Range A indicates 186 inches, RISING.
Narrow Range B indicates 186 inches, RISING.
Narrow Range C indicates 186 inches, RISING.
It is required to scram the reactor and trip the Main Turbine.
- D. Narrow Range A indicates 179 inches, LOWERING.
Narrow Range B indicates 179 inches, LOWERING.
Narrow Range C indicates 179 inches, LOWERING.
It is required to scram the reactor.

QUESTION 33

Given the following:

- LOCA signal is present.
- RHS Loop A is aligned for Suppression Pool Spray and Drywell Sprays.
- A LOSS of Reserve Transformer 1A occurs.
- Emergency Diesel Generators start and re-energize their respective busses.

Which one of the following describes the affect of these conditions on RHS*P1A and the operational hazard associated with this sequence of events per N2-OP-31, Residual Heat Removal System?

- A. DOES NOT AUTOMATICALLY RESTART. Primary Containment may be DAMAGED by the lack of Suppression Pool and Drywell Sprays.
- B. AUTOMATICALLY RESTARTS. RHS Pump may be DAMAGED by excessive starting current from receiving an automatic start signal with Suppression Pool and Drywell Spray Valves OPEN.
- C. AUTOMATICALLY RESTARTS. RHS piping may be DAMAGED by water hammer caused by RHS Pump starting after piping drained through the OPEN Suppression Pool and Drywell Spray Valves.
- D. DOES NOT AUTOMATICALLY RESTART. Primary Containment may be DAMAGED by steam bypassing of Suppression Pool Downcomers through the OPEN Suppression Pool and Drywell Spray Valves.

QUESTION 34

A CORE RELOAD is in progress with the following:

- A fuel assembly is to be removed from the Spent Fuel Pool and transferred to the Reactor Cavity.
- The fuel assembly is grappled and raised to Normal-Up (digital readout = 000.00).
- Refueling bridge is moved in the reverse direction. Proximity switch (LS1) has actuated indicating the refueling bridge is near the reactor.

The following indications are received on the INTERLOCK STATUS DISPLAY panel:

- ROD BLOCK INTERLOCK #1
- BRIDGE REVERSE STOP #1
- FUEL HOIST INTERLOCK

Which one of the following caused the INTERLOCK STATUS DISPLAY panel indications?

- A. At least one control rod is NOT fully inserted into the reactor core.
- B. Grapple ENGAGE/RELEASE switch was momentarily placed in the RELEASE position.
- C. Refueling Bridge (mast) position is outside the safe region of the Boundary Zone Controller.
- D. Grapple RAISE/LOWER control was positioned to LOWER while Bridge REVERSE motion was still commanded.

QUESTION 35

The plant is operating at 85% power, with the following:

Turbine Throttle Pressure Transmitter for the in-service EHC regulator fails HIGH.

Which one of the following describes the affect of this failure on initial reactor pressure and pressure control?

- A. RISES and the reactor continues to operate at power. Pressure will be controlled by operation of the Control Valves.
- B. RISES until an automatic Reactor Scram occurs. Pressure will then be controlled by operation of the Bypass Valves.
- C. LOWERS until an automatic Reactor Scram occurs. Pressure will then be controlled by operation of the Bypass Valves.
- D. LOWERS until an automatic Reactor Scram occurs. Pressure will then be controlled by operation of the Safety Relief Valves.

QUESTION 36

Power ascension is in progress with power at 50%. Preparations are being made to start the second Feed Pump. The following conditions exist:

- Feed Pump A is in service.
- FWLC Narrow Range "A" is selected.
- FWLC Master Level Controller is in MANUAL.
- Both Recirc Pumps (RRPs) are on High Speed.
- Both RCS Flow Control Valves (FCVs) are at 22% open.
- THEN FWLC Narrow Range "A" fails DOWNSCALE.
- Reactor Operator maintains Reactor Water Level 180 to 185 inches.

Which one of the following describes the effect on the Reactor Recirculation System Flow Control Valves and Pumps?

- A. Motion Inhibit is generated and RRP's remain on high speed.
- B. Motion Inhibit is generated and RRP's downshift to low speed.
- C. FCV Runback signal generated and RRP's remain on high speed.
- D. FCV Runback signal generated and RRP's downshift to low speed.

QUESTION 37

Reactor is in Hot Shutdown, with the following conditions:

- RHS B Loop is operating in Shutdown Cooling Mode at 6000 gpm.
- RPV Water level is 200 inches.
- Reactor Pressure is 100 psig.
- RHR Heat Exchanger Outlet Temperature is 235°F.
- THEN 2RHS*MOV142 RHR DISCH TO RADWASTE MOV is throttled open to reduce RPV Water Level by 20 inches.

Which one of the following LIMITATIONS will be exceeded by these conditions?

- A. Minimum flow through the RHR Pump.
- B. Maximum pressure for the piping to Radwaste.
- C. Maximum temperature for the Waste Collector Tanks.
- D. Minimum RPV Water Level for Shutdown Cooling operation.

QUESTION 38

The plant operating at full power with the following:

- Off Gas Radiation Monitors 2OFG-RE13A and 2OFG-RE13B go to HIGH ALARM.
- 2OFG-AOV103, OFFGAS EXHAUST TO MAIN STACK is CLOSED.
- Main Condenser Vacuum is 26 inches Hg (vacuum) and LOWERING.

Which one of the following actions will be required as a result of this condition?

- A. SCRAM the Reactor.
- B. START a Mechanical Vacuum Pump.
- C. SWAP operating Steam Jet Air Ejectors.
- D. TRIP Hydrogen Water Chemistry Injection.

QUESTION 39

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

- Rod Line is 105%
- THEN, BOTH Reactor Recirc Pumps trip.

Which one of the following identifies the actions required by N2-SOP-29, Sudden Reduction In Core Flow?

- A. RESTART one Recirc Pump to raise flow and exit the EXIT region.
- B. INSERT the first four Cram Rods to reduce Rod Line below 100%.
- C. INSERT a Manual Reactor Scram, only if operating to the left of the natural circ line.
- D. INSERT a Manual Reactor Scram, regardless of the operating point relative to the natural circ line.

QUESTION 40

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

- A complete loss of Off-site Power occurs
- ALL three divisional diesels (EDGs) are powering their respective switchgear
- N2-SOP-03, Loss of AC Power is being implemented
- An additional Division I Service Water Pump is to be started

Which one of the following actions is required to be taken prior to starting the additional Service Water Pump?

- A. START RHS Pump "A" and CSL Pump.
- B. RE-OPEN non-essential Service Water MOVs.
- C. VERIFY RHS "A" and CSL Pumps are secured.
- D. VERIFY Service Water crosstie MOVs are closed.

QUESTION 41

The plant is operating at full power, when the following occurs:

- Annunciator 852208 DIV II EMER BUS BYS 002B 125VDC SYSTEM TROUBLE alarms.
- BATTERY BUS BYS 002B D.C. VOLTS indicates 0 VDC.
- THEN a plant transient results in the initiation of load shedding signal to the AC switchgear.

Which one of the following describes the affect on the operation of 2ENS*SWG103 load feeder breakers?

- A. WILL TRIP and CAN be remotely CLOSED.
- B. WILL TRIP and CANNOT be remotely CLOSED.
- C. WILL NOT TRIP and CAN be remotely TRIPPED.
- D. WILL NOT TRIP and CANNOT be remotely TRIPPED.

QUESTION 42

The plant is operating at 24% power when the Turbine Generator TRIPS.

Which one of the following describes the affect of this transient on Reactor Power, as indicated on the APRMs and why?

- A. RISES due to Reactor Pressure increase.
- B. LOWERS due to an automatic Reactor Scram.
- C. RISES due to Feedwater Temperature reduction.
- D. LOWERS due to Recirculation Pump Speed Downshift.

QUESTION 43

A power ascension is in progress with power at 17%.

A failure causes ALL Turbine Control Valves to fail OPEN, resulting in an automatic scram and the following indications:

- RPV Water Level reached a minimum of 167 inches, and stabilized at 185 inches.
- Reactor Pressure reached a minimum of 700 psig and is rising.

With NO operator action, which one of the following lists the decay heat removal methods which are immediately available?

- A. Safety Relief Valves and Reactor Water Cleanup ONLY.
- B. Safety Relief Valves, Main Steam Line Drain Valves, and Turbine Bypass Valves ONLY.
- C. Safety Relief Valves, Reactor Water Cleanup, and Main Steam Line Drain Valves ONLY.
- D. Safety Relief Valves, Reactor Water Cleanup, Main Steam Line Drain Valves, and Turbine Bypass Valves.

QUESTION 44

Following a fire in the Control Room, the following conditions exist:

- AUTO DEPRESSURIZATION TRANSFER SWITCHES in the EMERGENCY position.
- APPENDIX R DISCONNECT SWITCHES are in ACTUATE position.

Which one of the following describes the automatic operation of the Safety Relief Valves under these conditions?

ADS SRVs can operate automatically in the:

- A. RELIEF mode only.
- B. SAFETY mode only.
- C. SAFETY and ADS modes only.
- D. SAFETY and RELIEF modes only.

QUESTION 45

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

- Loss of Reactor Building Closed Loop Cooling Water occurs
- Annunciator 602319, RWCU FILTER DEMIN INLET TEMP HI-HI alarms

Which one of the following describes the affect of this condition, if any, on the operation of the Reactor Water Cleanup Pumps?

- A. CONTINUE to operate since no trips are received.
- B. TRIP immediately due to isolation valve position.
- C. TRIP directly due to the high temperature signal.
- D. TRIP after a low flow condition exists for 15 minutes.

QUESTION 46

A plant startup is in progress. The plant is at 85% power. The following conditions exist:

- Compressors are configured with 3B in Lead, 3C in Lag, and 3A in Backup.
- Instrument Air Pressure is 120 psig.
- Oil Pressure on the B Compressor LOWERS to 10 psig.

Which one of the following describes the affect, if any, on the air system?

- A. NO affect, the B Compressor will continue to operate.
- B. B compressor will TRIP and ONLY A will START when Instrument Air Header Pressure is 95 psig.
- C. B compressor will TRIP and ONLY C will START when Instrument Air Header Pressure is 100 psig.
- D. B compressor will TRIP and BOTH A and C will START when Instrument Air Header Pressure is 100 psig.

QUESTION 47

The plant is in Hot Shutdown, with the following conditions:

- Reactor Pressure is 100 psig.
- Suppression Pool Temperature is 80°F.
- RHS Loop B is operating in the Shutdown Cooling Mode.
- Cooldown Rate is 40°F / hr.

Which one of the following describes the affect of a leak resulting in RPV Water Level LOWERING to 165 inches and RHS Area Temperature RISING to 140°F?

- A. Cooldown Rate will RISE due to ECCS actuation.
- B. Cooldown Rate will LOWER due to SDC Isolation.
- C. RPV Water Level will RISE due to ECCS actuation.
- D. RPV Water Level will LOWER due to SDC operation.

QUESTION 48

The plant is in MODE 4, COLD SHUTDOWN, with irradiated fuel movement being performed in the Spent Fuel Pool.

What is the purpose for the MINIMUM Spent Fuel Pool Water Level limitation of 352 feet 3 inches?

To provide sufficient water level above:

- A. the RPV Flange to accommodate a Loss of Decay Heat Removal.
- B. fuel seated in racks to accommodate a Loss of Spent Fuel Pool Cooling.
- C. the RPV Flange to absorb fission products released during a Fuel Handling Accident.
- D. fuel seated in racks to absorb fission products released during a Fuel Handling Accident.

QUESTION 49

The plant is operating at full power, when the following occurs:

- Alarm 603140 DRYWELL PRESS HIGH / LOW alarms.
- Drywell Pressure is 0.75 psig.
- Drywell Temperature is 140°F.
- NO Barometric Pressure changes have occurred.

Which one of the following statements reflects the status of Drywell Pressure and the action required?

- A. LOW. RAISE Drywell Temperature.
- B. LOW. INITIATE Nitrogen Addition.
- C. HIGH. VENT Nitrogen from the Drywell.
- D. HIGH. ENTER N2-EOP-RPV and N2-EOP-PC.

QUESTION 50

Following a Group 1 Isolation, Reactor Pressure is 1145 psig and STABLE.

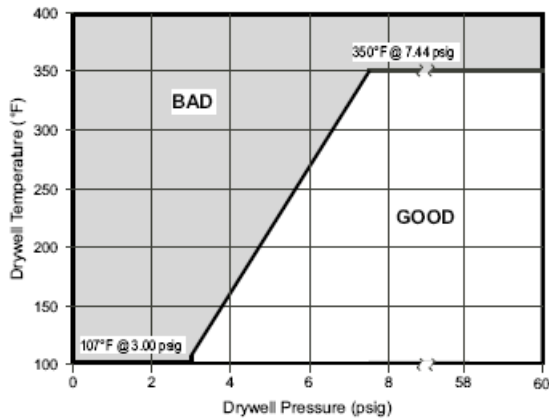
Which one of the following identifies the status of the Control Room P601 and P628/P631 RED Indicating Lights for Safety Relief Valve, 2MSS*PSV137 at this time?

	<u>P601</u>	<u>P628/P631</u>
A.	ON	ON
B.	ON	OFF
C.	OFF	ON
D.	OFF	OFF

QUESTION 51

Following a plant transient, the following conditions exist:

- Drywell Pressure is 2.8 psig
- Drywell Temperature is 200°F.
- Suppression Chamber Pressure is 2.6 psig
- Suppression Pool Temperature is 92°F.
- Suppression Pool Level is 200 feet.



Which one of the following actions is required?

It is required to INITIATE:

- A. Suppression Chamber Sprays ONLY.
- B. Drywell Sprays AND Suppression Pool Cooling.
- C. Suppression Chamber Sprays AND Drywell Sprays.
- D. Suppression Chamber Sprays AND Suppression Pool Cooling.

QUESTION 52

Following a steam leak in the Drywell, the following conditions exist:

- RPV Water Level is 190 inches.
- High Pressure Core Spray is injecting and has been THROTTLED.
- Reactor Pressure is 900 psig.
- Drywell Temperature is 340°F.
- Drywell Sprays are NOT available.
- RPV Blowdown has been initiated.

Which one of the following challenges regarding Reactor Water Level will be presented by these conditions?

- A. RPV Water Level Transmitter electronics will FAIL due to excessive temperature.
- B. ACTUAL RPV Water Level will LOWER below Top of Active Fuel due to inventory loss from the Safety Relief Valves.
- C. INDICATED RPV Water Level will trend HIGHER than ACTUAL due to reference leg boiling.
- D. INDICATED RPV Water Level will trend LOWER than ACTUAL due to dissolved gases coming out of solution.

QUESTION 53

Per N2-EOP-PC, Primary Containment Control, High Pressure Core Spray should be operated with caution during conditions of Low Suppression Pool Water Level.

Which one of the following describes the hazard to the High Pressure Core Spray Pump, if this caution is NOT complied with?

- A. TRIP on Low Suction Pressure, if aligned to its NORMAL source.
- B. TRIP on Low Suction Pressure, if aligned to its ALTERNATE source.
- C. RISK DAMAGE due to cavitation, if aligned to its NORMAL source.
- D. RISK DAMAGE due to cavitation, if aligned to its ALTERNATE source.

QUESTION 54

The plant is experiencing a LOCA and a concurrent loss of Line 6, with the following:

- Affected Emergency Diesel Generators start and load
- RPV level is 100 inches and being maintained by RCIC and CSH.
- Drywell Pressure is currently 1.3 psig and dropping.

Which one of the following describes the status of the H₂/O₂ monitors AND the action required to determine containment Hydrogen and Oxygen concentrations?

- A. IN SERVICE. MONITOR P601 Hydrogen and Oxygen indications
- B. IN STANDBY. START the sample pumps CMS*P2A/B, then MONITOR P601 Hydrogen and Oxygen indications.
- C. ISOLATED due to power loss. OPEN SOVs and START the sample pumps CMS*P2A/B, then MONITOR P601 Hydrogen and Oxygen indications.
- D. ISOLATED due to a LOCA signal. OVERRIDE the LOCA signal and PLACE the H₂/O₂ monitors in service, then MONITOR P601 Hydrogen and Oxygen indications.

QUESTION 55

Following a reactor scram, the following conditions exist:

- Control Rod 26-39 remains at position 48.
- Control Rod 06-15 remains at position 04.
- Control Rod 18-31 remains at position 02.

Which one of the following describes the status of the reactor and action required, if any, to ensure that the reactor is Shutdown WITHOUT Boron?

- A. Shutdown WITHOUT Boron. No actions are required.
- B. NOT Shutdown WITHOUT Boron.
Condition achieved by INSERTING rod 06-15 to position 02.
- C. NOT Shutdown WITHOUT Boron.
Condition achieved by INSERTING rod 26-39 to position 02.
- D. NOT Shutdown WITHOUT Boron.
Condition achieved by INSERTING rods 06-15 and 18-31 to position 00.

QUESTION 56

Which one of the following is the LOWEST Emergency Action Level for an Offsite release rate which REQUIRES entry into the **Radioactivity Release Control Leg** of N2-EOP-SC/RR, Secondary Containment Control and Radioactivity Release Control?

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

QUESTION 57

After receiving indications of a plant fire INSIDE the Protected Area the following occurs:

- Fire Protection Water (FPW) system actuates
- Control Room Operators sound the Plant Fire Alarm
- Operations Support Center is ACTIVATED

Which one of the following is the first action required of the Fire Brigade Leader per EPIP-EPP-28 Fire Fighting?

- A. Contact the Operations Support Center and request a briefing.
- B. Proceed to the vicinity of the fire and establish a command post.
- C. Proceed to the scene of the fire and provide confirmation of the fire to the CRO.
- D. Proceed to the scene of the fire and direct the Fire Brigade in extinguishment of the fire.

QUESTION 58

Following a Grid Disturbance, conditions are as follows:

- Generator Power is 1200 Mwe.
- Reactive Power is 550 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 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.
- HPCS initiation RAISED RPV Water Level from 100 inches.
- HPCS injection stopped as RPV Water Level reached 200 inches.

Plant conditions are currently:

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

Which one of the following is the RPV Water Level response over the next TEN MINUTES, and what action will be required?

- A. RISE due to SWELL. ALLOW steam off to lower RPV Water Level BELOW 202.3 inches.
- B. LOWER due to SHRINK . USE HPCS to maintain RPV Water Level ABOVE 159.3 inches.
- C. LOWER due to SHRINK. USE ONLY RCIC to maintain RPV Water Level ABOVE -14 (minus 14) inches.
- D. RISE due to SWELL. TERMINATE AND PREVENT Injection Systems to lower RPV Water Level BELOW 100 inches.

QUESTION 60

The Turbine Generator TRIPPED at full power.

- NO Control Rod motion occurred.
- NO RPS actuations occurred.
- Reactor Pressure is 1055 psig, RISING.

With these conditions:

- (1) Which one of the following lists the **FIRST EOP ENTRY** required?
AND
 - (2) With NO operator action, what automatic actuation will terminate this transient?
- A. (1) N2-EOP-RPV, RPV Control entry is required.
(2) Backup Scram Valve actuation will terminate this transient.
 - B. (1) N2-EOP-C5 Failure To Scram entry is required.
(2) Backup Scram Valve actuation will terminate this transient.
 - C. (1) N2-EOP-RPV, RPV Control entry is required.
(2) Redundant Reactivity Control System actuation will terminate this transient.
 - D. (1) N2-EOP-C5 Failure To Scram entry is required.
(2) Redundant Reactivity Control System actuation will terminate this transient.

QUESTION 61

The EOPs have been entered following a plant trip due to an inadvertent containment isolation. The following conditions exist:

- Group 1 isolation signal has occurred.
- Group 8 isolation signal has occurred.
- Drywell pressure is 1.71 psig.
- RPV pressure is 1050 psig and rising.

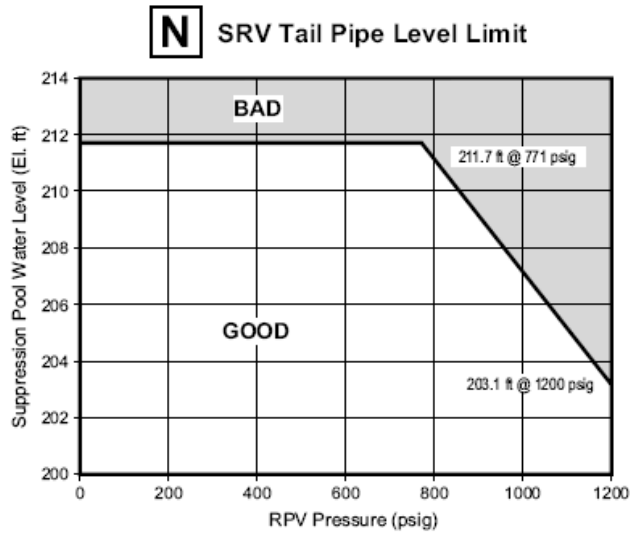
Which one of the following systems is used for Reactor Pressure control?

- A. Turbine Bypass Valves
- B. Main Steam Line Drains
- C. Reactor Core Isolation Cooling
- D. Steam Condensing Mode of RHR

QUESTION 62

The plant has experienced a transient, with the following conditions:

- Reactor Pressure is 750 psig, lowering.
- RPV Water Level is 110 inches, stable.
- Suppression Pool Water Level is 211 feet and rising.



Which one of the following injection systems is ALLOWED to be used to maintain RPV Water Level per the Emergency Operating Procedures?

- Reactor Feedwater Pump
- Control Rod Drive Hydraulic Pump
- HPCS with suction from the Suppression Pool
- RCIC with suction from the Condensate Storage Tank

QUESTION 63

Due to an EMERGENCY condition, access is required to a Locked High Radiation Area to open a valve. It is expected that this task will result in 500 mRem TEDE.

Which one of the following describes how Emergency Access will be obtained in accordance with GAP-RPP-08, Control of High, Locked High, and Very High Radiation Areas?

- A. It is required to be authorized on a specific Radiation Work Permit for the Locked High Radiation Area PRIOR to access.
- B. It is required to be authorized on a specific Radiation Work Permit and attend an ALARA brief PRIOR to accessing the Locked High Radiation Area.
- C. It is required to obtain Master Keys stored in the "break-to-enter" key box in the Control Room and be accompanied by a Radiation Protection Technician WHILE accessing the Locked High Radiation Area.
- D. It is required to be a volunteer, attend a brief on potential biological consequences of emergency exposure, and be accompanied by a Radiation Protection Technician WHILE accessing the Locked High Radiation Area.

QUESTION 64

Which one of the following identifies the Standby Gas Treatment System (SGTS) response to a HIGH Reactor Building pressure (positive RB pressure) condition WHILE SGTS Train A is operating in response to a LOCA signal start?

- A. Recirculation Throttle Valve, 2GTS*PV5A, will modulate in the OPEN direction.
- B. Recirculation Throttle Valve, 2GTS*PV5A, will modulate in the CLOSED direction.
- C. Filter Train Inlet Valve, 2GTS*AOV2A, will modulate in the OPEN direction.
- D. Filter Train Inlet Valve, 2GTS*AOV2A, will modulate in the CLOSED direction.

QUESTION 65

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

- A fire has occurred in the RCIC room.
- Fire system has actuated to suppress the fire.
- Later, RCIC room sump High-High level alarm is reached due to fire suppression system operation to control several reflash fires.

Which one of the following action(s) is (are) required by N2-EOP-SC, Secondary Containment Control. for these conditions?

- A. COMMENCE a controlled reactor shutdown.
- B. RUNBACK Reactor Recirc and initiate a manual scram.
- C. CONTINUE to control reactor building sump levels using available sump pumps.
- D. ISOLATE the fire suppression system for RCIC area and attempt to control the fire by other means.

QUESTION 66

A Licensed Operator's doctor prescribed medication to control Blood Pressure, today.

The doctor advised that the medication is required to meet licensed operator medical qualification standards. Taking of the medication is begun immediately.

Which ONE of following are the operator's responsibilities and requirements related to continued performance of licensed operator duties per station administrative procedures and federal requirements?

- A. Report the condition right away to Site Medical for required NRC notification. Operator must immediately refrain from any Licensed Operator duties until advised further by the NRC.
- B. Report the condition right away to Site Medical for required NRC notification. Operator may continue Licensed Operator duties unless advised otherwise by Site Medical.
- C. Report the condition when being administered your next annually required NRC physical. Licensed Operator duties may be continued unless advised otherwise by Site Medical.
- D. Report the condition when being administered your next biennially required NRC physical. Licensed Operator duties must be immediately refrained from until advised by the operator's doctor that the medical condition is under control.

QUESTION 67

Given the following conditions:

- Core reload is in progress.
- Refuel platform is over the core.
- Main Hoist is LOADED and in the NORMAL UP position.
- The Refueling Platform air compressor head cracks.
- The air compressor is manually isolated but not before the air receiver is completely depressurized.

Which one of the following describes the failure mode of the fuel grapple and its' impact on refueling operations?

- A. CLOSED and can ONLY be manipulated manually.
- B. OPEN and can be manually supplied from Service Air.
- C. OPEN and refueling operations must be SUSPENDED.
- D. CLOSED and can be manually supplied from Service Air.

QUESTION 68

With a reactor startup in progress, the following conditions exist:

- Reactor Pressure is 60 psig.
- The OPERATING Control Rod Drive Pump TRIPS.
- Charging Water Header Pressure is 0 psig.
- Control Rod 06-15 is at position 48 and has an Accumulator N₂ Pressure of 875 psig.

Which one of the following actions are required to comply with Technical Specifications?

- A. IMMEDIATELY SCRAM the reactor.
- B. IMMEDIATELY START the standby RDS Pump.
- C. WITHIN 20 MINUTES, INSERT Control Rod 06-15.
- D. WITHIN 20 MINUTES, DECLARE Control Rod 06-15 INOPERABLE.

QUESTION 69

While performing a step in an Operations Surveillance Procedure, it has been determined that a normally open, motor operated Primary Containment Isolation Valve will not stroke in the closed direction, as required by the procedure.

Which one of the following identifies when the Technical Specification LCO action time is started per GAP-SAT-01, Surveillance Test Program?

- A. As soon as the valve failure is recognized.
- B. When the surveillance was logged as started.
- C. When the surveillance is logged as complete.
- D. At the time the surveillance was last satisfactorily completed.

QUESTION 70

Plant startup is in progress with the following:

- Mode switch is in Start/Hot Standby.
- RSCS Group 2 rods are being withdrawn using Continuous Withdrawal
- Reactor is Subcritical.

Which one of the following describes the criteria for using SINGLE NOTCH WITHDRAWAL per N2-OP-101A, Plant Startup?

- A. Starting with RSCS Group 4 until criticality is achieved.
- B. Starting with RSCS with Group 5 after the Reactor is critical.
- C. When TWO SRMs approach 3 count rate doublings in RSCS group 4.
- D. When TWO SRMs approach 3 count rate doublings prior to RSCS group 3.

QUESTION 71

A GENERAL EMERGENCY has been declared.
Emergency actions are necessary to perform operations to isolate a radioactive release for the PROTECTION of the DOWNWIND POPULATION.

Which one of the following is the HIGHEST LISTED (TEDE dose) emergency exposure that a VOLUNTEER may receive, which does NOT exceed the limits specified in EPIP-EPP-15, Emergency Health Physics Procedure?

- A. 5 REM
- B. 10 REM
- C. 25 REM
- D. 50 REM

QUESTION 72

With core alterations in progress, a fuel assembly contacts the core top guide, resulting in the following indications:

- 851254, PROCESS AIRBORNE RADN MON ACTIVATED alarmed.
- Process Radiation Monitors 2HVR*RE14A-1 and B-1, HVR ABOVE REFUEL FLOOR are alarming.

Which one of the following lists actions which will minimize the release of radioactivity?

- A. OPERATE Turbine Building Ventilation.
- B. RESTART Reactor Building Ventilation.
- C. VERIFY that the Normal Control Room Air Intake Isolates and Special Filter Trains START.
- D. VERIFY that Reactor Building Isolation occurs and the Standby Gas Treatment Systems START.

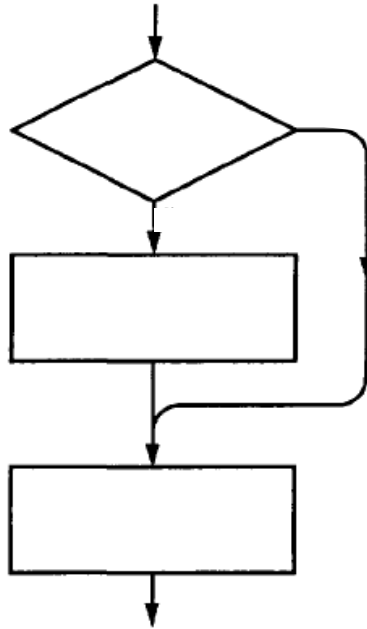
QUESTION 73

With the Reactor Building Isolated and Standby Gas Treatment in service, which one of the following radiation monitors will STILL detect airborne radiation levels in the Reactor Building?

- A. Standby Gas Treatment Monitor, GTS-RE105
- B. Emergency Recirc Mode Monitor, HVR-RE229
- C. Below Refuel Floor Monitors, HVR-RE32A and B
- D. Main Stack Gaseous Effluent Monitor, 2RMS-193

QUESTION 74

A DIAMOND shaped box in an Emergency Operating Procedure flowchart indicates which one of the following?



- A. Hold Point
- B. Before Step
- C. Override Step
- D. Decision Point

QUESTION 75

The plant is at 100% power when a SCRAM occurs, with the following:

- RPS is TRIPPED
- ALL BLUE lights are illuminated on the Full Core Display
- NO Control Rod motion occurred.
- SLS fails to initiate.
- Radiation Levels make Reactor Building Elevation 328' inaccessible

Which one of the following methods should be used to shut down the reactor?

- A. Inject Boron using WCS.
- B. Vent the Scram Air Header.
- C. Individually Scram the Control Rods.
- D. Inject Boron using the SLS Hydro Pump.

QUESTION 1

Reactor Power unexpectedly LOWERED from 85% to 80% power.
The following indications are noted:

- Loop A Jet Pump Flow LOWERED to 33 Mlbm/hr.
- Loop B Jet Pump Flow INCREASED to 42 Mlbm/hr.
- Jet Pump 3 and Jet Pump 4 Flow LOWERED from 3.5 to 0.5 Mlb/hr.

Which one of the following actions is required as a result of these conditions?

- A. Declare Jet Pumps 3 and 4 INOPERABLE. Be in MODE 3 within 12 hours because the ability to reflood the core following a Loss of Coolant Accident is NOT assured.
- B. Declare Jet Pumps 3 and 4 INOPERABLE. Be in MODE 3 within 12 hours because Loop coastdown characteristics assumed in the Loss of Coolant Accident analysis will NOT be preserved.
- C. Declare Reactor Recirculation Loop A to be "not in operation" within 2 hours because the ability to reflood the core following a Loss of Coolant Accident is NOT assured. Plant operation may continue in Single Loop.
- D. OPEN Loop A FCV to raise Loop A Jet Pump Flows to re-establish MATCHED Reactor Recirculation Loop Flows within 2 hours because Loop coastdown characteristics assumed in the Loss of Coolant Accident analysis will NOT be met. Plant operation may continue in Two Loop.

QUESTION 2

The plant is operating at 40% power indicated on Average Power Range Monitors.

- THREE Turbine Bypass Valves OPENED due to an EHC malfunction.
- Turbine First Stage Pressure LOWERED to 100 psig.

With these conditions, which one of the following describes the affect on the Turbine Stop Valve / Turbine Control Valve Fast Closure function?

The TSV/TCV Fast Closure Scram function is:

- A. OPERABLE and will generate a reactor scram if the Turbine Generator TRIPS.
- B. INOPERABLE. It is required to LOWER Reactor Power below 30% within 4 hours.
- C. INOPERABLE. It is required to LOWER Reactor Power and be in MODE 2 within 12 hours.
- D. INOPERABLE. It is required to place affected TSV/TCV Closure Channels in TRIP within 12 hours.

QUESTION 3

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

- 851218, INST AIR RCVR TK 3 PRESS LOW alarms.
- 2IAS-PI194, Instrument Air Receiver Tank 3 Pressure is 65 psig.
- 603306, CRD SCRAM VALVE PILOT AIR HDR PRESS HIGH/LOW alarms.

Which one of the following is the affect of these conditions on Technical Specifications?

- A. Safety Relief Valves are INOPERABLE per LCO 3.4.4.
- B. Control Rod Drive Scram Accumulators are INOPERABLE per LCO 3.1.5.
- C. INBOARD Main Steam Isolation Valves are INOPERABLE per LCO 3.6.1.3
- D. OUTBOARD Main Steam Isolation Valves are INOPERABLE per LCO 3.6.1.3.

QUESTION 4

The plant is in MODE 5, with the following:

- Fuel Movements are in progress.
- An equipment failure results in the inability to establish Shutdown Cooling flow.
- Shutdown Cooling Flow has been secured for 2 hours.

Which one of the following ACTIONS is required by plant Technical Specifications?

- A. SUSPEND Core Alterations immediately.
- B. RESTORE Secondary Containment Integrity immediately.
- C. START the Standby Gas Treatment system within one hour.
- D. VERIFY an alternate method of decay heat removal available within one hour.

QUESTION 5

N2-EOP-C5, Failure To Scram is being executed following a condenser boot rupture, with plant conditions as follows:

- RPV Water Level is 150 inches, LOWERING.
- Reactor Pressure is 1080 psig, STABLE.
- TWO Safety Relief Valves are OPEN.
- Suppression Pool Temperature is 108°F.

Which one of the following is the HIGHEST RPV Water Level that may be MAINTAINED?

- A. +202 inches
- B. +150 inches
- C. +100 inches
- D. -14 inches

QUESTION 6

The plant is operating at full power, with the following:

- ONE Safety Relief Valve spuriously OPENED and has been successfully CLOSED.
- BOTH Loops of RHR are operating in Suppression Pool Cooling mode.
- Average Suppression Pool Water Temperature (SPT) is 102°F.

Which one of the following describes the Technical Specifications implication of this condition?

- A. Applicable LCO requires lowering SPT to 90°F or below.
- B. Applicable LCO allows continued operation with no Required Actions.
- C. Applicable LCO requires depressurizing the RPV to 200 psig or below.
- D. Applicable LCO requires placing the Reactor Mode Switch in SHUTDOWN.

QUESTION 7

The plant operating at full power, with the following:

- System Power Control notifies the Control Room of unstable grid conditions
- Loss of Offsite Power is IMMINENT.
- Grid Voltage and Frequency are LOWERING.

Which one of the following actions is required by the SOP's?

- A. MAINTAIN ALL Emergency Diesel Generators in STANDBY.
- B. START Division 1 AND Division 2 Emergency Diesel Generators and operate them LOADED.
- C. START Division 1 AND Division 2 Emergency Diesel Generators and operate them UNLOADED.
- D. START Division 1, Division 2, AND Division 3 Emergency Diesel Generators and operate them UNLOADED.

QUESTION 8

A plant startup is in progress with the following conditions:

- Generator Load is 300 MWE.
- 851358, TURBINE CNSR A/B/C VACUUM LOW alarms.
- Main Condenser Vacuum LOWERS and STABILIZES at 24 inches Hg_{vac}

Which one of the following actions is required?

- A. TRIP the Main Turbine per N2-SOP-21, Turbine Trip.
- B. LOWER Power per N2-SOP-101D, Rapid Power Reduction.
- C. START a Mechanical Vacuum Pump per N2-OP-9, Condenser Air Removal.
- D. COMMENCE a normal Turbine Shutdown per, N2-OP-21 Main Turbine System.

QUESTION 9

The plant is operating at full power. ONE Feedwater Flow input to the Feedwater Level Control System fails LOW.

With NO operator actions, which one of the following will result FIRST, and what actions are required?

- A. BOTH Reactor Recirculation Pumps will DOWNSHIFT, and actions will be required per N2-SOP-08, Unplanned Power Change.
- B. RPV Water Level will RISE and stabilize below Level 8, and actions will be required per N2-SOP-06, Feedwater Failures.
- C. RPV Water Level will RISE until reaching Level 8, and actions will be required per N2-SOP-101C, Reactor Scram.
- D. RPV Water Level will LOWER and until reaching Level 3, and actions will be required per N2-EOP-RPV, RPV Control.

QUESTION 10

A LOCA is in progress AND Hydrogen (H₂) has been released into the Primary Containment. The following conditions exist:

- Drywell H₂ is 6.5%.
- Drywell O₂ is 5.0%.
- Suppression Chamber H₂ is 6.0%.
- Suppression Chamber O₂ is 5.0%.
- Suppression Pool Level is 205 feet.
- Drywell Spray Initiation Limit is satisfied.

Which one of the following identifies the requirement for Drywell AND Suppression Chamber Spray operation?

	<u>Drywell Spray</u>	<u>Suppression Chamber Spray</u>
A.	NOT REQUIRED	NOT REQUIRED
B.	REQUIRED	NOT REQUIRED
C.	NOT REQUIRED	REQUIRED
D.	REQUIRED	REQUIRED

QUESTION 11

A reactor startup is in progress with Intermediate Range Monitor (IRM) Channel A 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 is to be directed?

- A. PLACE IRM Channel D in a TRIPPED condition and continue the Reactor Startup.
- B. SHUTDOWN per N2-OP-101C, Plant Shutdown; because REQUIRED Intermediate Range Monitors are INOPERABLE.
- C. BYPASS IRM Channel D using the joystick per N2-OP-92, Neutron Monitoring; RESET the Half Scram, and CONTINUE the Reactor Startup.
- D. BYPASS IRM Channel D by placing the Reactor Mode Switch in RUN per N2-OP-101A, Plant Startup; RESET the Half Scram, and CONTINUE the Reactor Startup.

QUESTION 12

The plant is operating at full power, with the following:

- 601419, LPCS LINE BREAK alarms.
- LPCS Line Break Inop Status Light is LIT.
- Report received that the D/P indicating switch reading is oscillating at around +4.0 psig.
- NO other annunciators alarm.

Which one of the following describes the LOCATION of this piping break AND the Technical Specification implication of this failure?

- A. LPCS piping BETWEEN the Reactor Pressure Vessel wall and the Core Shroud.
AND
Enter a 7 day LCO and place the LPCS Pump in PULL TO LOCK.
- B. LPCS piping INSIDE the Core Shroud.
AND
Place the LPCS Pump in PULL TO LOCK and reduce Reactor Coolant Temperature to < 212° F within 24 hours.
- C. LPCS piping INSIDE the Core Shroud.
AND
Enter a 7 day LCO, place the LPCS Pump in PULL TO LOCK, and deactivate the Injection Valve.
- D. LPCS piping BETWEEN the Reactor Pressure Vessel wall and the Core Shroud.
AND
Enter a 14 day LCO, place the LPCS Pump in PULL TO LOCK, and deactivate the Injection Valve.

QUESTION 13

During operation at 100% power an operator reports the heat tracing on the suction side of the Standby Liquid Control (SLS) pumps is damaged and inoperable. The following conditions exist:

- Liquid Poison Tank Concentration is 14%.
- Liquid Poison Tank Volume 4600 gallons.
- Reactor Building Ambient Temperature at SLS Pumps is 72°F.

Which one of the following describes the condition of the SLS system and required actions per Technical Specifications?

- A. OPERABLE as long as Reactor Building Temperature is above 70°F, which is based on preventing Boron from precipitating out of solution inside system components.
- B. INOPERABLE because the Boron Solution Concentration is BELOW the minimum. A 7 day LCO is required, which is based on injecting 780 ppm of Boron solution into the reactor core.
- C. INOPERABLE because the Boron Solution Concentration is BELOW the minimum. An 8 hour LCO is required, which is based on injecting 780 ppm of Boron solution into the reactor core.
- D. INOPERABLE because the Boron Solution Temperature is BELOW the minimum. An 8 hour LCO is required, which is based on preventing Boron from precipitating out of solution inside system components.

QUESTION 14

RCIC is initially in STANDBY, when the following occurs

- 2ICS-MOV143, Pump Minimum Flow to the Suppression Pool inadvertently OPENED.
- Annunciator 601325, RCIC WTR LEG PUMP 2 DISCHARGE PRESSURE LOW alarms.
- Annunciator 601348, RCIC HIGH PT VENT LEVEL LOW alarms.
- CST Level has NOT changed.
- Suppression Pool Level has NOT changed.

Which one of the following describes the condition of the RCIC system AND the required actions?

- A. OPERABLE, because the CST Level has NOT substantially LOWERED. CLOSE the RCIC Minimum Flow Valve.
- B. INOPERABLE because the RCIC System CANNOT produce rated flow into the reactor if initiated. Enter a 14 day LCO, and CLOSE the RCIC Minimum Flow Valve.
- C. INOPERABLE, because the system may be damaged if initiated. Enter a 7 day LCO, CLOSE the RCIC Minimum Flow Valve and complete a Fill and Vent of the RCIC System.
- D. INOPERABLE, because the system may be damaged if initiated. Enter a 14 day LCO, CLOSE the RCIC Minimum Flow Valve and complete a Fill and Vent of the RCIC System.

QUESTION 15

As a result of Safety Relief Valve Testing, it is discovered that Safety Relief Valve 2MSS*PSV130 will OPEN when the "A" or "B" solenoid was energized and WILL NOT OPEN when the "C" solenoid energized.

Which one of the following actions is required, if any?

- A. Enter a 12 hour LCO, due to the ADS function of a required Safety Relief Valve being INOPERABLE.
- B. Enter a 14 day LCO, due to the ADS function of a required Safety Relief Valve being INOPERABLE.
- C. Enter a 12 hour LCO, due to the SAFETY function of a required Safety Relief Valve being INOPERABLE.
- D. NO ACTIONS are required, because the RELIEF function of Safety Relief Valve 2MSS*PSV130 is NOT REQUIRED.

QUESTION 16

The plant is operating at 75% power, with the following:

- Control Rod 14-27 has been withdrawn to position 48.
- Control Rod 14-27 is then given a continuous withdraw signal
- Annunciator 603444, CONTROL ROD OVERTRAVEL alarms.

Which one of the following is indicated by this alarm AND what action is required for Control Rod 14-27 as a result?

- A. Collet Finger failure. FULLY INSERT it using the INSERT pushbutton per N2-SOP-08, Unplanned Power Changes.
- B. Collet Finger failure. SCRAM it using BOTH SRI Toggle Switches per N2-SOP-08, Unplanned Power Changes.
- C. Spud Coupling failure. RECOUPLE it by inserting TWO notches, withdraw to position 48, and perform a coupling check per N2-OP-30, Control Rod Drive.
- D. Spud Coupling failure. FULLY INSERT it using the INSERT pushbutton per N2-OP-30, Control Rod Drive.

QUESTION 17

The plant was operating at 100% power, when the running Stator Cooling Water Pump TRIPPED. Standby Stator Water Cooling Water Pump COULD NOT be started.

The following conditions resulted:

- Recirculation Core Flow LOWERED to 55 Mlbm/hr.
- Reactor Power LOWERED to 68%.
- Turbine Bypass Valves are OPENING.

Which one of the following actions is required in this condition?

- A. TRIP the Main Turbine per N2-SOP-21, Turbine Trip.
- B. INSERT CRAM Rods per N2-SOP-101D, Rapid Power Reduction.
- C. INSERT Control Rods per N2-SOP-08, Unplanned Power Changes.
- D. SCRAM the reactor per N2-SOP-29, Sudden Reduction in Core Flow.

QUESTION 18

Because of rising flow on the B Recirc Loop, the following actions have been taken:

- Depressed the B FCV HYDRAULIC PRESSURE UNIT SHUTDOWN pushbutton at 2CEC*PNL602.
- Closed the LOOP B HYDR FLUID OUTSIDE ISOL VALVES.

With B Recirc Loop Flow increase stopped, the following indications are observed at 08:00:

- A Recirc Loop Flow is 39×10^6 lbs/hr (2CEC*PNL602)
- B Recirc Loop Flow is 45×10^6 lbs/hr (2CEC*PNL602)
- Reactor Power is STABLE at 85%.

I&C has determined the Recirc FCVs LVDT (position feedback) has failed and it will take four (4) hours to repair the fault.

Which one of the following is the correct response?

- A. A Recirc Loop is required to be IMMEDIATELY declared NOT IN OPERATION. Initiate actions for Single Loop Operation. Raise A Loop Flow to 39.6×10^6 lbs/hr to exit Single Loop Operation.
- B. B Recirc Loop is required to be IMMEDIATELY declared NOT IN OPERATION. Initiate actions for Single Loop Operation. Raise A Loop Flow to 39.6×10^6 lbs/hr to exit Single Loop Operation.
- C. Align the alternate RVDT for the B FCV and LOWER B Loop Flow to 44.4×10^6 lbs/hr. If this action is not complete by 10:00, THEN declare the A Recirc Loop NOT IN OPERATION and initiate actions for Single Loop Operation.
- D. Align the alternate RVDT to the B FCV and LOWER B Loop Flow to 44.4×10^6 lbs/hr. If this action is not complete by 10:00, THEN declare the B Recirc Loop NOT IN OPERATION and initiate actions for Single Loop Operation.

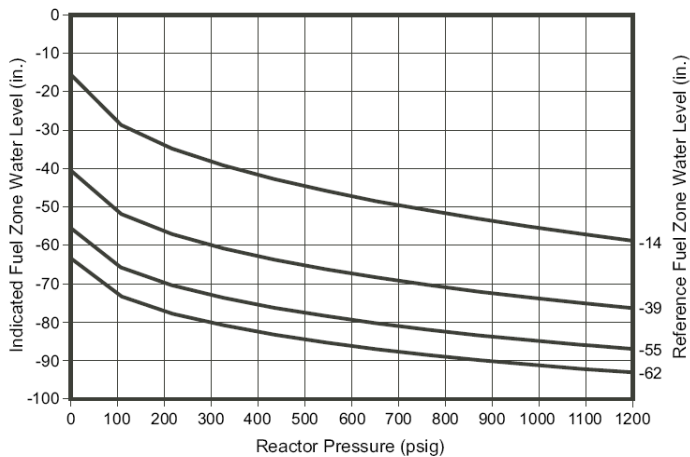


QUESTION 19

Following an RPV Blowdown under ATWS conditions, the following conditions exist:

- Injection is Terminated AND Prevented.
- FIVE Safety Relief Valves are OPEN.
- Reactor Pressure is 250 psig LOWERING.
- Indicated RPV Water Level is -65 inches.

FIG Z Fuel Zone Correction Curve



J RPV Pressures	
Number of Open SRVs	RPV Pressure (psig)
7	165
6	195
5	235
4	300
3	405
2	610

Which one of the following describes the status of Adequate Core Cooling?

- A. ASSURED because RPV Water Level is ADEQUATE.
- B. NOT ASSURED because RPV Water Level is INADEQUATE.
- C. ASSURED because Steam Flow through OPEN Safety Relief Valves is ADEQUATE.
- D. NOT ASSURED because Steam Flow through OPEN Safety Relief Valves is INADEQUATE.

QUESTION 20

The plant is in Mode 5 with the following conditions:

- A fuel bundle is inadvertently loaded into a cell with a partially withdrawn control rod.
- A Reactor scram occurs due to an inadvertent criticality.
- All Control Rods are fully inserted and the count rates on Source Range Monitors are LOWERING.

Which one of the following is an operational implication of this event and why?

- A. Standby Liquid Control System must be initiated to ensure the reactor remains shutdown.
- B. 1-hour report is required because the Refuel Bridge personnel will exceed 10CFR20.2202 limits.
- C. Core Alterations must be suspended because the Refueling Interlocks failed to perform their intended function.
- D. The bundle which caused the criticality must be removed from the core and placed in a safe location to ensure required shutdown margin.

QUESTION 21

Which one of the following methods is used when one input has been disabled to a MULTIPLE input Control Room Alarm per GAP-OPS-01, Administration of Operations?

- A. An entry is made into the Control Room Log ONLY.
- B. The status is documented in a Temporary Change ONLY.
- C. A transparent Red Sticker is attached to the Alarm Window.
- D. A transparent Yellow Sticker is attached to the Alarm Window.

QUESTION 22

Given the following:

- High Pressure Core Spray Pump has been taken out of service for performance of a scheduled surveillance.
- The system is declared INOPERABLE.
- A Clearance has been generated and a Work Request has been approved.
- Pump is to be returned to OPERABLE before the end of the current shift.

Which one of the following describes the administrative requirement for **tracking** the Limiting Condition for Operation (LCO), per GAP-OPS-01, Administration of Operations?

- A. A note is made in the Clearance.
- B. A note is made on the Turnover Checklist.
- C. An entry is made in the Control Room Log.
- D. An entry is made in the Equipment Status Log.

QUESTION 23

Following a Loss of Coolant Accident with Fuel Damage, the following conditions exist:

- Drywell Radiation is 3500 R/hr.
- Suppression Pool Water Level is 219 feet.
- It is necessary to VENT the Primary Containment to restore compliance with the Primary Containment Pressure Limit (PCPL) Curve.

Which one of the following methods will be used to lower Primary Containment Pressure in accordance with Emergency Operating Procedures?

- A. Direct lowering Primary Containment Pressure by venting the Drywell. Continue venting if a Main Stack Effluent Radiation Monitor alarms.
- B. Direct lowering Primary Containment Pressure by venting the Drywell. Direct venting secured if a Main Stack Effluent Radiation Monitor alarms.
- C. Direct lowering Primary Containment Pressure by venting the Suppression Chamber. Continue venting if a Main Stack Effluent Radiation Monitor alarms.
- D. Direct lowering Primary Containment Pressure by venting the Suppression Chamber. Direct venting secured if a Main Stack Effluent Radiation Monitor alarms.

QUESTION 24

Following a LOCA in the Drywell, the following conditions exist:

- ALL Control Rods are fully inserted.
- EOP-RPV is being implemented.
- RPV Water Level is UNKNOWN.
- Drywell Area Radiation is 50 R/hr.

Which one of the following is the highest Emergency Action Level that applies to this condition?

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

QUESTION 25

During the performance of a planned shutdown, the following occurs:

- Reactor Mode Switch is placed in STARTUP.
- An automatic actuation of the Reactor Protection System produced a scram, because Reactor Power was excessive.
- Reactor Water Level remained stable at 185 inches.

Which one of the following is the correct reporting requirement for these conditions?

- A. 4 hour report. NO LER is required.
- B. 4 hour report. LER is required within 60 days.
- C. 8 hour report. NO LER is required.
- D. 8 hour report. LER is required within 60 days.