U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION OCTOBER 2000
REACTOR OPERATOR

QUESTION 1

EOP-1, CAUTION 1, part 2 identifies RPV levels above which RPV level instruments may be used when the containment or drywell temperature near the reference legs is at the specified limits. At these elevated RUN TEMPERATURES, the instruments would:

A. Fail offscale low.

B. Continue to indicate level onscale when actual RPV level went below the variable leg tap.

C. Continue to indicate level onscale when actual RPV level went offscale high (above the indicating range.

D. Provide erratic level indication when actual RPV level went offscale low due to loss of the variable leg.

ANSWER: B

NRC KA:	RO:	SRO:
295028 EK2.03	3.6	3.8

IDNO: 3

LP # HLO-511 **OBJ #** 6

REFERENCES EOP Caution #1

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QUESTION 2

Given the following plant conditions:

Reactor power: 45%
Generator load: 480 MWe
Control Rods are being withdrawn for power ascension.
The Main Turbine First Stage Shell Pressure transmitter is failed upscale.

The Reactor Engineer directs the ATC operator to select and continously withdraw control rod 28-49 from notch 12 to notch 24.

Using the attached pull sheet determine which one of the following correctly describes the response of Control Rod 28-49 and the reason for the response?

a. Control Rod 28-49 will remain at notch position 12 due a control rod block generated from a failure of the turbine first stage pressure transmitter.

b. Control Rod 28-49 will withdraw to notch position 20 and settle due to the withdrawal limitations between the Low Power Setpoint and the High Power Setpoint.

c. Control Rod 28-49 will withdraw to notch position 16 and settle due to the withdrawal limitations imposed above the High Power Setpoint.

d. Control Rod 28-49 will withdraw to notch position 14 and settle due to the single notch withdrawal constraints of the Rod Pattern Controller.

ANSWER: C.

NRC KA:	RO:	SRO:
201005 A1.01	3.2	3.3
201005 K6.01	3.2	3.2

IDNO: 665

LP # HLO-057 **OBJ #** 12

REFERENCES STP-500-0704

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QUESTION 3

The reactor has been operating near rated power for 100 days. Which one of the following describes the change in the indicated LPRM output signal from day 1 to day 100 and the method used to calibrate the LPRMs?

INDICATED LPRM POWER	METHOD OF LPRM CALIBRATION
a. Decreases	Core Heat Balance
B. Increases	Core Heat Balance
C. Decreases	TIP System Trace
d. Increases	TIP System Trace

ANSWER: C.

NRC KA:	RO:	SRO:
215001 K1.01	2.5	2.8
215005 K1.13	2.6	3

IDNO: 89

LP # STM-503 **OBJ #** 9

REFERENCES SOP-0074 LEVEL 2

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QUESTION 4

Certain Safety Relief Valves are designated as "Low-Low Set".

Which one of the following describes the bases and operation of the "Low-Low Set SRVs"?

A. When the first SRV opens on the relief function, two (2) SRV relief setpoints are lowered. This is done to minimize the cyclic stress on the Containment due to SRV lifting and ensures the Containment design basis is met.

B. As reactor pressure increases above the scram setpoint, the relief setpoints on three (3) SRVs are lowered to start them opening well below the design pressure of the reactor vessel to prevent exceeding reactor design pressure.

C. When the first SRV opens on the relief function, four (4) SRVs are opened automatically and their reset pressures are lowered. This minimizes the number of SRV lifts by extending the length of time they are open.

D. As reactor pressure increases above the scram setpoint, the reset setpoints for five (5) SRVs are lowered. This minimizes the number of SRV lifts by extending the length of time they are open.

ANSWER: A

NRC KA:	RO:	SRO:
295025 EK3.09	3.7	3.7
295025 EA2.01	4.3	4.3

IDNO: 551

LP # **OBJ #**

REFERENCES TS 3.3.6.4 CFR 41.3
TS Bases 3.6.1.6 CFR 41.5
CFR 41.7
CFR 43.2

QUESTION 5

The unit is operating at power when a COMPLETE loss of Turbine Plant Component Cooling Water (CCS) occurs. Which one of the following lists the critical equipment which has lost cooling that requires the operator to scram the reactor per AOP-0012, Loss of Turbine Plant Component Cooling?

a. Auxiliary boiler recirc pumps and offgas refrigeration units.

b. Condenser air removal and generator stator cooling pumps.

c. Heater drain and condenser air removal pumps.

d. Reactor feedwater and condensate pumps.

ANSWER: D.

NRC KA:	RO:	SRO:
295018 AK1.01	3.5	3.8
295018 AA2.01	3.3	3.4

IDNO: 104

LP # **OBJ #**

REFERENCES AOP-0012

QUESTION 6

Which one of the following describes the sequence in which the Emergency loads will be loaded onto the Emergency Diesel Generators following a complete Loss of Offsite Power concurrent with a high drywell pressure condition?

a. RHR A and B, LPCS and RHR C, Containment Unit Cooler, SFC pumps A and B, and Standby Service Water pumps.

b. RHR A and B, LPCS and RHR C, Containment Unit Cooler, Standby Service Water cooling tower fans, and SBGTS and annulus mixing fan.

c. LPCS and RHR C, RHR A and B, SBGTS and annulus mixing fan, Standby Service Water pumps, and Containment Unit Cooler.

d. LPCS and RHR C, SLC pumps A and B, RHR A and B, Standby Service Water pumps, and Containment Unit Cooler.

ANSWER: C

NRC KA:	RO:	SRO:
295003 AK1.02	3.1	3.4
226001 A2.02	3.6	3.9
226001 A2.03	3.9	4.3
295003 AK3.03	3.5	3.6

IDNO: 106

LP # **OBJ #**

REFERENCES AOP-0004

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QUESTION 7

Following a small break LOCA, indicated wide range reactor level is 20" and slowly increasing due to RCIC injection from the CST. Other plant parameters are as follows:

- RPV pressure 550 psig
- Suppression pool temp 140 deg. F
- Containment pressure 4.0 psig

The MINIMUM suppression pool level which will assure adequate heat capacity is:

a. 15.4 ft

b. 19.6 ft

c. 17 ft

d. 21.25 ft

ANSWER: A.

NRC KA:	RO:	SRO:
295026 EK2.06	3.5	3.7
295026 EK3.01	3.8	4.1

IDNO: 136

LP # HLO-514 **OBJ #** 8

REFERENCES EOP-0002 LEVEL 3
HCTL Curve

QUESTION 8

With irradiated fuel stored in the spent fuel pool (SFP), mechanical maintenance is preparing to move a 1400 lb. motor across the pool using the fuel building overhead crane:

Why will this move not be permitted?

a. This weight is NOT permitted to travel over the fuel storage racks by procedure.

b. Mechanical maintenance is NOT authorized to use the fuel building overhead crane with fuel in the SFP.

c. This weight exceeds the load limit of the fuel building overhead crane.

d. Reactor engineering support is required for any evolution involving irradiated fuel.

ANSWER: a

NRC KA:	RO:	SRO:
G 2.2.26	2.5	3.7

IDNO: 180

LP # **OBJ #**

REFERENCES FHP-0001

QUESTION 9

Unless the backup charger is connected to the HPCS bus, the Backup charger Supply Breaker (lE22-CB10) from lE22-PNLSOO1 should be locked in the open position.

This ensures that:

a. the backup battery charger is not overloaded.

b. the backup charger continuously meets Technical Specification operability requirements.

c. separation between redundant Safety Related systems is maintained.

d. damage to the rectifier stack does not occur.

ANSWER: C.

NRC KA:	RO:	SRO:
263000 K1.02	3.2	3.2
263000 A1.01	2.5	2.8

IDNO: 194

LP # **OBJ #**

REFERENCES SOP-0049

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QUESTION 10

For which of the following sets of plant conditions are ALL of the reactor water level indicators invalid?

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a. RPV pressure 60 psig
Containment temp EL 119' 200 degrees F

b. RPV pressure 90 psig
Drywell temperature EL 145' 300 degrees F

c. RPV pressure 100 psig
Drywell temperature EL 145' 360 degrees F

d. RPV pressure 1000 psig
Containment temperature EL 119' 180 degrees F

ANSWER: C.

NRC KA:	RO:	SRO:
295027 EK1.02	3	3.2
295028 EK2.03	3.6	3.8
295027 EK2.03	3.5	3.7

IDNO: 214

LP # HLO-511 **OBJ #** 6

REFERENCES EOP-0001 LEVEL 3
Caution 1

QUESTION 11

A Safety Relief Valve (SRV) tailpipe vacuum breaker was failed in the open position when the SRV cycled. Which of the following is the result?

a. Containment pressure increased.

b. Steam bypassed the quenchers with a direct discharge path into the suppression pool.

c. Drywell to containment differential pressure increased.

d. Suppression pool water will be drawn up into the SRV discharge line.

ANSWER: C.

NRC KA:	RO:	SRO:
223001 A2.09	3.4	3.6
223001 K3.07	3.1	3.2

IDNO: 217

LP # HLO-007 **OBJ #** 3

REFERENCES P&ID 3-1B

QUESTION 12

What is the PRIMARY reason that EOP-2, Primary Containment Control, requires emergency depressurization if you cannot maintain the suppression pool level below 21ft 3in?

a. The capacity of the horizontal vents may be exceeded.

b. The SRV discharge lines may fail allowing steam into containment.

c. The suppression pool structural support limits will be exceeded.

d. The pressure suppression feature of the quenchers cannot be assured.

ANSWER: B.

NRC KA:	RO:	SRO:
295029 EK3.01	3.5	3.9

IDNO: 222

LP # **OBJ #**

REFERENCES

QUESTION 13

A plant transient is in progress. The following indications are observed:

- A reactor scram signal has been received
- EHC Pressure Regulator Setpoint is at 920 psig
- No control rods have been inserted into the core
- Reactor Power is approximately 100%
- The MSIVs are open; the main turbine is on line
- Reactor Recirculation Pumps are running in FAST speed
- RPV Water Level is + 37 inches as indicated on Narrow Range

Which ONE of the following describes the consequences of tripping the reactor recirculation pumps to OFF? Assume the operators take no actions.

A. Tripping the recirculation pumps will result in an immediate power reduction, with a subsequent decrease in reactor pressure and level.

B. Tripping the recirculation pumps will rapidly increase RPV water level, resulting in a large power transient and possible fuel damage.

C. A RPV water level transient may cause a trip of the main turbine. Bypass valves will open, and reactor pressure will increase until an SRV opens.

D. A RPV water level transient may cause a trip of the main turbine. Bypass Valves will open, and will control pressure at the pressure setpoint.

ANSWER: C.

NRC KA:	RO:	SRO:
295037 EA2.02	4.1	4.2

IDNO: 705

LP # HLO-512 **OBJ #** 5

REFERENCES EPSTG*0002

QUESTION 14

The plant is operating at 100% power. Both Recirc Flow Control Valves are in Flux Manual (Loop Auto) at 67% valve position. A leak in the Drywell has caused Drywell Pressure to increase to approximately 1.75 psid. Following the high drywell pressure signal, the "B" Reactor Feed Pump Trips and level decreases to + 14.5 inches and stabilizes. Which of the following describes the response of the Recirc Flow Control Valve?

Flow Control Valves will:

a. runback to 22 % valve position.

b. go to "min" position.

c. move to a position to provide 60 % core flow.

d. remain at 67 % valve position.

ANSWER: D.

NRC KA:	RO:	SRO:
202002 A2.08	3.3	3.3
295009 AK3.01	3.2	3.3

IDNO: 244

LP # HLO-005 **OBJ #** 4

REFERENCES ARP-P680-4-B03 LEVEL 3
ARP-P680-4-B09
ARP-P680-4-C04
ARP-P680-4-C10

QUESTION 15

A Reactor Recirc FCV runback has occurred.
Recirc control valve percent limiter error is at zero.
Valve demand indication is approximately 18%.

Which one of the following describes the response of the recirc system when the operator pushes the cavitation interlock reset pushbutton?

a. The FCV runback annunciator will not reset because the motion inhibit has not been reset.

b. The FCV runback annunciator will clear and the FCV position will remain at 18%.

c. The FCV runback annunciator will clear, the FCV will begin moving but will be stopped by a FCV motion inhibit signal.

d. The FCV runback annunciator will not reset until valve position and demand indications are matched.

ANSWER: B

NRC KA:	RO:	SRO:
202002 K4.06	3.1	3.1
202002 A3.01	3.6	3.4

IDNO: 276

LP # **OBJ #**

REFERENCES

QUESTION 16

The following plant conditions exist:

- The reactor is in cold shutdown.
- RHR "A" is in shutdown cooling.
- ENS*SWG1B is deenergized for maintenance.

A RPV water level transient occurs resulting in RPV water level lowering to -120". Which of the following actions will result in LPCI "A" injecting into the RPV?

a. Close the SDC suction valve F006A, open suction valve F004A from the suppression pool and restart the RHR A pump.

b. Close the SDC suction valve F008, open suction valve F004A from the suppression pool, manually open F027A and F042A, and restart the RHR A pump.

c. Close the SDC suction valve F006A, then arm and depress Div I LPCI initiation pushbutton.

d. Close the SDC suction valve F006A, open the suction valve F004A from the suppression pool, then arm and depress Div I LPCI initiation pushbutton.

ANSWER: D.

NRC KA:	RO:	SRO:
203000 A4.05	4.3	4.1
203000 K2.03	2.7	2.9

IDNO: 278

LP # HLO-021 **OBJ #** 9

REFERENCES SOP-0031 LEVEL 3

QUESTION 17

Which one of the following describes the response of the scram discharge volume valves following a half scram signal?

a. Pilot air valves do not change position. Vent and drain valves remain open.

b. One pilot air valve repositions, vent and drain valves remain open.

c. Pilot air valves do not change position. One set of vent and drain valves close.

d. One pilot air valve repositions causing vent and drain valves to close.

ANSWER: A.

NRC KA:	RO:	SRO:
212000 A2.19	3.8	3.9
212000 A1.08	3.4	3.4

IDNO: 290

LP # **OBJ #**

REFERENCES

QUESTION 18

Given the following information about the Turbine Electro-Hydraulic Control (EHC) System:

Averaging Manifold Pressure	950 psig
EHC Pressure Setpoint	920 psig
Load Limit	1040 MWE
Load Reference Setpoint	1060 MWE
Pressure Regulator A	Controlling

The "A" Main Steam Pressure transmitter (input to pressure regulator A) failed downscale to 0 psig.

Which ONE of the following describes the EHC system response?

a. "A" Pressure Regulator remains in control; reactor pressure increases rapidly to the high pressure scram setpoint.

b. "A" Pressure Regulator remains in control; reactor pressure decreases rapidly to the low pressure MSIV isolation setpoint.

c. "B" Pressure Regulator takes control; reactor pressure remains constant.

d. "B" Pressure Regulator takes control; reactor pressure increases 50 psig.

ANSWER: C.

NRC KA:	RO:	SRO:
241000 A2.01	3.5	3.7
241000 A4.02	4.1	4.1

IDNO: 321

LP # **OBJ #**

REFERENCES LOTM 27 EHC

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QUESTION 19

The following plant conditions exist:

- A loss of offsite power has occurred with a failure of the Div I and Div II EDG to start and tie to their respective buses.
- SRVs are being used to control reactor pressure at 900 psig.
- RCIC is manually initiated (suction from the CST) and is maintaining reactor water level at approximately +20".

Suppression Pool rises and stabilizes at 20’ 1"

WHICH ONE (1) of the following describes effect of the above conditions on the RCIC system and the reason for the alignment?

a. RCIC suction remains on the CST since level in the Suppression Pool is below the suction transfer setpoint.

b. RCIC suction remains on the CST. Although Suppression Pool level is above the suction transfer setpoint, the valves have failed to swap due to a loss of AC power.

c. RCIC suction is from the Suppression Pool. Suppression Pool level is above the suction transfer setopint and the DC powered valves swapped as designed.

d. RCIC will trip on low suction pressure when the DC powered CST suction valve closed on Suppression Pool level and the AC powered Suppression Pool suction valve fails to open.

ANSWER: A.

NRC KA:	RO:	SRO:
217000 K6.01	3.4	3.5
217000 K1.01	3.5	3.5

IDNO: 340

LP # **OBJ #**

REFERENCES

QUESTION 20

A startup of the Main Turbine is being performed. The Main Turbine is at 60 percent of rated speed, when a loss of 125 VDC Trip Circuit Power is experienced. WHICH ONE (1) of the following describes the required operator action(s)?

a. Enter AOP-0002, Main Turbine and Generator Trips, due to automatic trip of the Turbine.

b. Verify that 24 VDC ETS power is available and continue the startup of the Main Turbine IAW SOP-0080, otherwise manually trip the Main Turbine.

c. Allow the Main Turbine to accelerate to greater than 90 percent of rated speed, at which time the 125 VDC Trip Circuit is no longer required because the PMG is supplying the trip circuitry.

d. The start-up of the Main Turbine may continue, but at least one 125 VDC bus must be restored prior to synchornizing the generator to the grid.

ANSWER: A.

NRC KA:	RO:	SRO:
245000 K6.06	3	3.2
245000 A2.01	3.7	3.9

IDNO: 356

LP # STM-110 **OBJ #** 26

REFERENCES AOP-0002 LEVEL 3

QUESTION 21

Following a complete loss of shutdown cooling, temperature readings indicate a 1 degree F increase in bulk water temperature every 10 minutes. Assume the reactor vessel head is on, no other parameters change, and current temperature is 124 deg. F.

Which of the following is the maximum amount of time before primary containment MUST be established?

a. 160 minutes

b. 560 minutes

c. 580 minutes

d. 760 minutes

ANSWER: D.

NRC KA:	RO:	SRO:
295021 AA2.01	3.5	3.6
295021 AA2.04	3.6	3.6

IDNO: 369

LP # HLO-013 **OBJ #** 9

REFERENCES TS 3.6.1.2 LEVEL 2

QUESTION 22

A MSIV isolation has occurred. The reactor has failed to scram. The CRS has directed that Standby Liquid Control (SLC) be initiated. The initial SLC tank level was 2040 gallons.

WHICH ONE (1) of the following corresponds to the HIGHEST SLC tank level at which the minimum "Hot Shutdown Boron Weight" has been injected?

a. 1472 gallons.

b. 707 gallons.

c. 1372 gallons

d. 807 gallons.

ANSWER: C.

NRC KA:	RO:	SRO:
295037 EA1.04	4.5	4.5

IDNO: 372

LP # **OBJ #**

REFERENCES Encl 15 LEVEL 3

QUESTION 23

RPV water level cannot be determined, RPV pressure is 100 psig, containment pressure is 20 psig, and 7 SRVs are open. RPV Flooding has just commenced.

Which is the shortest time that meets the MINIMUM amount of time that the RPV must be flooded?

a. 19 minutes

b. 20 minutes

c. 39 minutes

d. 30 minutes

ANSWER: D.

NRC KA:	RO:	SRO:
295031 EA1.08	3.8	3.9

IDNO: 403

LP # HLO-512 **OBJ #** 7

REFERENCES EOP-4, RPV Flooding LEVEL 2

QUESTION 24

A plant transient has occurred causing a complete isolation of the RWCU system.

- RWCU inboard and outboard isolation valves are closed.
  (G33-F001/F004/F028/F034/F039/F040/F053/F054)

Which of the following conditions caused this RWCU isolation?

a. Drywell Pressure of 1.8 psid

b. High Main Steam Tunnel Differential Temperature of 53 degrees farenheit

c. RPV Level of -51 inches (Wide Range Indication)

d. Initiation of SLC "A" system

ANSWER: C.

NRC KA:	RO:	SRO:
295020 AA2.06	3.4	3.8
2.4.4	4	4.3

IDNO: 409

LP # HLO-062 **OBJ #** 4

REFERENCES AOP-0003 LEVEL 3

QUESTION 25

The plant is starting up following a scheduled refueling outage. The reactor has just acheived criticality. Which one of the following statements is true regarding the requirement for Shutdown Margin (SDM) determination?

a. SDM must be determined within four hours of criticality.

b. SDM must be determined before proceeding further with the startup.

c. SDM need not be determined if no control rods were replaced.

d. SDM need not be determined if it was determined analytically following the last fuel movement.

ANSWER: A.

NRC KA:	RO:	SRO:
2.2.12	3	4

IDNO: 412

LP # HLO-412 **OBJ #** 1

REFERENCES TS 3.1.1 LEVEL 2

QUESTION 26

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

- RPV level is 35 inches and stable
- Reactor power is 73% and stable
- Total core flow is 51.5 E6 lbm/hr. and stable

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

a. EOC-RPT logic.

b. ATWS/ARI logic.

c. recirculation pump cavitation interlock circuitry.

d. recirculation flow control valve runback logic.

ANSWER: D.

NRC KA:	RO:	SRO:
202002 A2.01	3.4	3.4
295001 AK2.02	3.2	3.3
295001 AK3.06	2.9	3

IDNO: 419

LP # STM-053 **OBJ #** 2c

REFERENCES AOP-0024 LEVEL 3

QUESTION 27

While operating at full power, an SRV sticks open, and repeated attempts to reseat it have so far been unsuccessful. Suppression Pool Temperature has stabilized at 104 deg F due to the combined effects of operating both loops of RHR in suppression pool cooling and power reduction.

What action should be taken next?

a. Reduce reactor power to less than 1% of Rated Thermal Power within 12 hours.

b. Depressurize the RPV to less than 200 psig within 36 hours.

c. Reduce Suppression Pool Temperature to less than 100 deg F within 24 hours.

d. Immediately place the reactor mode switch in the SHUTDOWN position.

ANSWER: C.

NRC KA:	RO:	SRO:
2.1.33	3.4	4

IDNO: 430

LP # HLO-538 **OBJ #** 09

REFERENCES AOP-0035 LEVEL 3
TS 3.6.2.1 A

QUESTION 28

While the plant is at power, a leak develops in an area that is accessible, but now radiologically contaminated. The OSS has directed that an investigation be performed immediately. What documentation must be generated before various personnel are allowed entry into the area for the investigation?

a. A daughter RWP to the General RWP for that area must be generated.

b. None, a General RWP already exists for this type of event.

c. A Specific RWP must be generated.

d. None, a RWP may be completed after the entry provided it is done under continous RP coverage.

ANSWER: D.

NRC KA:	RO:	SRO:
G 2.3.4	2.5	3.1

IDNO: 433

LP # GET-022 **OBJ #** 27

REFERENCES RSP-0200 LEVEL 2

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QUESTION 29

Given the following conditions:

- The plant is performing a reactor and plant startup, the reactor is critical
- Reactor power is 5.5 E4 counts per second (cps) on the Source Range Monitoring (SRM) instrumentation and is increasing
- SRM 'C' is failed upscale and bypassed on the P680 panel

The reactor operator selects and withdraws SRMs 'A', 'B', and 'D' and notices that SRM 'B' fails to withdraw and remains in the "Full In" position.

Which of the following describes Control Rod Withdrawal?

a. Continued control rod withdrawal will be possible because the control rod withdrawal block logic is one-out-of-two-taken-twice for SRM detectors.

b. Control rod withdrawal is blocked when power reaches 1.0 E5 cps and will be allowed when the two withdrawn SRM detector power levels drop below 100 cps.

c. Control rod withdrawal will be allowed until power reaches 1.0 E5 cps and then will not be allowed until associated IRM power is at or above Range 3.

d. Control rod withdrawal will be allowed until power reaches 1.0 E5 cps and then will not be allowed until associated IRM power is at or above Range 8.

ANSWER: D.

NRC KA:	RO:	SRO:
215004 K5.03	2.8	2.8

IDNO: 666

LP # STM-503 **OBJ #**

REFERENCES

QUESTION 30

The plant has experienced an ATWS and the following conditions exist:

Reactor Power is 24%
RPV water level is -110"
Suppression Pool Level is 20'6"
Suppression Pool Temperature is 112 degrees farenheit
SLC Tank Level is 2140 gallons

The CRS directed that SLC be initiated with the following results:

The "A" SLC Squib Valve fired, but the C41-F001A (Suction Valve) failed to open.
The "B" SLC Squib Valve failed to fire, the "B" SLC Pump is running with suction from the SLC Tank.

Which one of the following is true concerning the boron injection into the reactor vessel:

A. SLC Pump "B" is injecting into the RPV and Cold Shutdown Boron Weight will be injected when SLC Tank level reaches 800 gallons.

B. SLC Pump "B" is discharging back to the suction of the pump via the discharge relief valve. Boron injection into the RPV must be accomplished via an alternate path per EOP-0005, Enclosure 15. Cold Shutdown Boron Weight will be injected once 1000 lbs. of Sodium Pentaborate has been mixed and pumped via HPCS.

C. SLC Pump "A" started, tripped on low suction pressure. Boron injection into the RPV must be accomplished via an alternate path per EOP-0005, Enclosure 15 and Hot Shutdown Boron Weight will be injected once 1000 lbs. Of Sodium Pentaborate has been mixed and pumped via HPCS.

D. SLC Pump "B" is injecting into the RPV and Cold Shutdown Boron Weight will be injected when SLC Tank level reaches 1470 gallons.

ANSWER: A.

NRC KA:	RO:	SRO:
211000 A2.02	3.6	3.9

IDNO: 667

LP # HLO-016 **OBJ #** 6

REFERENCES EOP-0005, Encl. 15

QUESTION 31

Given the following conditions:

- The plant is performing a scheduled shutdown
- Intermediate Range Monitoring (IRM) channel "H" has failed "UPSCALE" and has NOT been bypassed

At what point would an automatic half scram be expected for these conditions?

a. The plant enters Mode 2.

b. APRM "H" reaches 5% power.

c. The IRM detectors are fully inserted.

d. Power has decreased to the Low Power Setpoint.

ANSWER: A.

NRC KA:	RO:	SRO:
215003 K402	4	4
215003 A1.05	3.9	3.9

IDNO: 479

LP # STM-503 **OBJ #**

REFERENCES

QUESTION 32

Which of the following is normally cooled by the Reactor Plant Component Cooling Water system on the Recirculation Pump shaft seal packages?

a. The reactor coolant leaking from the Recirculation System into the lower seal cavity via the breakdown bushing.

b. The reactor coolant flow directed to the Drywell Equipment Drain Sump from the seal package.

c. The reactor coolant flowing through the Recirculation Pump Seal Purge Cooler.

d. The Control Rod Drive Hydraulic System seal purge flow being directed to the Drywell Equipment Drain sump.

ANSWER: C.

NRC KA:	RO:	SRO:
202001 K1.07	3.1	3.2
201001 K3.01	3	3.1

IDNO: 488

LP # STM-053 **OBJ #** 01

REFERENCES

QUESTION 33

Given the following conditions:

- The plant is operating at 85% power
- The At-The-Controls Operator has just depressed the "Transfer To LFMG" pushbuttons for transferring the Recirculation Pumps to "slow" speed
- The Operator reports that the CB5A breaker opened but the CB5B breaker did NOT open

Which of the following describes the expected status of the Recirculation Pumps 20 seconds after this failure?

A. Both Recirc Pumps will be coasting to a stop

B. The "A" Recirc Pump will be running in "slow" speed, the "B" Recirc Pump will be running in "fast" speed.

C. The "A" Recirc Pump will be running in "slow" speed, the "B" Recirc Pump will be coasting to a stop.

D. The "A" Recirc Pump will be coasting to a stop, the "B" Recirc Pump will be running in "fast" speed.

ANSWER: D.

NRC KA:	RO:	SRO:
202001 A3.08	3.4	3.3
202001 A4.01	3.7	3.7

IDNO: 489

LP # STM-053 **OBJ #** 02

REFERENCES ARP-680-4A-D01 D07

QUESTION 34

Following a normal reactor scram, at what point must the At-The-Controls Operator be alert for narrow range reactor water level indication “outgassing” or “notching”? (Assume the Reference Leg Backfill system is NOT in service.)

A. When reactor coolant temperature drops below 190 degrees farenheit.

B. When reactor power is reduced below the Low Power Setpoint (LPSP).

C. When the first Feed Pump is removed from service.

D. As reactor pressure decreases below 450 psig.

ANSWER: D.

NRC KA:	RO:	SRO:
295006 AK3.01	3.8	3.9
295006 AA1.06	3.5	3.6

IDNO: 496

LP # HLO-501 **OBJ #**

REFERENCES GOP-002

QUESTION 35

Given the following conditions:

- The plant is operating at 30% power
- Suppression pool cooling is in service
- The surveillance test for manual operation of the Safety Relief Valves (SRV) is in progress
- During the surveillance, suppression pool temperature reached 103 °F

Which of the following are the requirements concerning entry into/implementation of EOP-2, "Primary Containment Control"?

A. The SRV surveillance procedures allow 4 hours to reduce suppression pool temperature below 100 °F before EOP-2 entry is required.

B. EOP-2 may be deferred for 24 hours while suppression pool temperature is reduced to less than 100°F.

C. Technical Specifications modify the Emergency Operating Procedure limit to 110 °F while surveillance testing to the suppression pool is occurring.

D. The actions of EOP-2 are required to be performed as soon as suppression pool temperature is above 100 °F.

ANSWER: D.

NRC KA:	RO:	SRO:
295013 A1.02	3.9	3.9
219000 A4.12	4.1	4.1

IDNO: 501

LP # HLO-514 **OBJ #** 03

REFERENCES EOP-2

QUESTION 36

A plant transient has occurred with a failure of the reactor to scram. Plant conditions are as follows:

- Reactor Power is 10%
- RPV Water Level is -60 inches
- EOP-1A is being executed for ATWS RPV Control
- Immediate actions of AOP-0001, Reactor Scram are complete

The following indications are available on Panel P680:

- "RPS DIV 1, 2, 3, and 4 SCRAM SOV VALVES OPEN" white lights are OFF
- Annunciator P680-5A-C08 (Scram Pilot VLV Air Header Low Pressure) is IN ALARM
- Annunciator P680-6A-A08 (CRD Scram Disch Vol High Water Level) is NOT IN ALARM
- Annunciator P680-7A-D03 (ARI Initiated) is IN ALARM

Which one of the following Alternate Control Rod Insertion methods will be most effective under these conditions?

A. Deenergizing the scram solenoids per EOP-0005, Enclosure 10

B. Venting the scram air header per EOP-0005, Enclosure 11

C. Venting the CRD overpiston volumes per EOP-0005, Enclosure 17

D. Initiating ARI (defeating logic trips per EOP-0005, Enclosure 12, if necessary)

ANSWER: C.

NRC KA:	RO:	SRO:
295015 EK3.01	3.4	3.7

IDNO: 668

LP # HLO-513 **OBJ #** 4

REFERENCES EPSTG-0001A
EOP-0005, Encl. 26

QUESTION 37

Which of the following is a consequence of allowing suppression pool water level to decrease below 13 feet?

Suppression pool water level less than 13 feet:

A. uncovers the Reactor Core Isolation Cooling turbine exhaust line.

B. reduces the available net positive suction head for the low pressure ECCS pumps below minimum required.

C. uncovers the top two horizontal vents.

D. could result in overpressurization of the Containment.

ANSWER: D.

NRC KA:	RO:	SRO:
295030 AK1.03	3.8	4.1

IDNO: 513

LP # HLO-514 **OBJ #** 05

REFERENCES EOP-0002
EPSTG-0002

QUESTION 38

While operating in EOP-3, "Radioactive Release Control", the operator is directed to restart Turbine Building Ventilation if it is shutdown.

Which of the following describes how this will affect the Turbine Building and the release that is occurring?

Restarting Turbine Building Ventilation will:

A. ensure that all building releases will be maintained less than the limits of 10CFR20.

B. ensure that all building releases will be maintained less than the limits of 10CFR100.

C. maintain a positive pressure inside the building.

D. assure overall radioactive releases will be monitored.

ANSWER: D.

NRC KA:	RO:	SRO:
295038 EA1.06	3.5	3.6
295038 EA2.04	4.1	4.5

IDNO: 520

LP # HLO-515 **OBJ #** 04

REFERENCES EOP-3
EPSTG-0002

QUESTION 39

Given the following conditions:

- The plant is operating at 75% power
- The Steam Seal Evaporator has just been lost
- There is NO time estimate for return of the evaporator

SELECT the appropriate operator actions for the above conditions.

A. Reduce turbine load as necessary to maintain the self-sealing steam supply to the turbine glands.

B. Transfer the Recirculation Pumps to “slow” speed and maintain power within bypass valve capacity.

C. Reduce power as required to prevent condenser vacuum from decreasing to less than 25 in Hg.

D. Transfer the Recirculation Pumps to “slow” speed and then trip the main turbine.

ANSWER: C.

NRC KA:	RO:	SRO:
295002 AA1.08	2.6	2.7
295002 AA2.01	2.9	3.1

IDNO: 524

LP # HLO-524 **OBJ #** 04

REFERENCES AOP-0005

QUESTION 40

The plant was operating at 75% rated power when a loss in instrument air occurred. The source of the air loss has been identified and isolated. The following conditions exist:

- Reactor power is steady at 75% power
- RPV Water Level is 32" and steady
- Feedwater level control is in automatic on the Master Controller with a tape set of 36"
- Instrument Air Header pressure is 67 psig and is steady (67 psig was the lowest pressure reached)
- No control rods have drifted
- All immediate actions of AOP-0008 have been taken

What will be the expected result when the At-The-Controls Operator depresses the Feedwater Regulating Valve reset pushbuttons?

Reactor water level will:

A. rapidly increase and a reactor scram will occur at Level 8.

B. rapidly decrease and a reactor scram will occur at Level 3.

C. remain at 32".

D. return to the 36"

ANSWER: A.

NRC KA:	RO:	SRO:
295019 AK2.03	3.2	3.3
295019 AA2.02	3.6	3.7

IDNO: 528

LP # HLO-060 **OBJ #** 06

REFERENCES AOP-0008

QUESTION 41

The plant was operating at 100% rated power when a loss of Feedwater caused an automatic scram signal on RPV Level 3 (+9.7 inches). Plant conditions are as follows:

- A failure to scram has occurred (ATWS)
- Annunciator P601-20A-B06 (AIR TEMP MON R611 RHR EQPT AREA HI DIFF VENT TEMP) was received and the Reactor Building has reported a fire in RHR "A" Pump Room.
- Reactor Power is 15%, with control rods being inserted per EOP-0005, Enclosure 14
- RPV water level is being controlled between -60 inches and -100 inches with Condensate/Feedwater

Which one of the following systems should be isolated, if found to be discharging into the Auxiliary Building?

A. Feedwater System

B. Fire Suppression Systems

C. Reactor Water Cleanup System

D. Control Rod Drive Hydraulics System

ANSWER: C.

NRC KA:	RO:	SRO:
295032 EA2.03	3.8	4

IDNO: 669

LP # HLO-515 **OBJ #** 4

REFERENCES EOP-0003
EOP-001A

QUESTION 42

The plant is operating at 100 % power when a short circuit occurs on the DC bus supplying power for ATWS ARI/RPT. This causes all of the power supply breakers to BYS-PNL02A2 to trip, resulting in a loss of power to ATWS ARI/RPT.

With an ATWS condition present which one of the following describes the response of the ARI system and the Reactor Recirculation Pumps?

A. ARI will not function, however the Reactor Recirculation pumps will trip to OFF immediately.

B. ARI will actuate causing a depressurization of the scram air header and the Reactor Recirculation pumps will trip to OFF immediately.

C. ARI will not function and the Reactor Recirculation pumps will not trip.

D. ARI will actuate causing a depressurization of the scram air header, however the Reactor Recirculation pumps will not trip.

ANSWER: C

NRC KA:	RO:	SRO:
295004 AK2.03	3.3	3.3
295004 AA2.02	3.5	3.9

IDNO: 539

LP # STM-052 **OBJ #** 2D

REFERENCES PRINTS
CFR 41.7

QUESTION 43

The plant was operating at 100% power at the beginning of the transient.

The At-The-Controls Operator observes the following indications.

- "Control Rod Drift" annunciator P680-7A-B02 in alarm
- "Rod Drift" pushbutton on P680 back-lit
- "Accumulator Trouble" annunciator P680-7A-C03 in alarm
- "Accum Fault" pushbutton on P680 back-lit
- "Ackn Accum Fault" pushbutton on P680 back-lit
- "Scram Valves" pushbutton on P680 back-lit
- APRM power 97 %

Which one of the following plant conditions was the probable cause?

A. Single control rod drifting inward.

B. Single control rod drifting outward.

C. Control Rod Drop Accident

D. Single control rod scram.

ANSWER: D

NRC KA:	RO:	SRO:
201005 AA3.01	3.5	3.5
201005 AA3.02	3.5	3.5
201005 AA3.04	3.3	3.3
295014 AK2.09	3.4	3.6

IDNO: 544

LP # HLO-057 **OBJ #** 7

REFERENCES ARP-P680-07-B02 CFR 41.6
ARP-P680-07-C03

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QUESTION 44

RBS is operating at 10% rated power with the mode switch in the STARTUP position, and total core flow at 53%. APRM E and H are bypassed due to failed power supplies.

The following is the present status of the APRMs versus LPRM inputs and indicated power:

APRM:	A	B	C	D	E	F	G	H
LPRM LVL D:	3	4	2	2	2	3	3	3
LPRM LVL C:	4	3	3	4	4	4	4	4
LPRM LVL B:	2	4	4	3	2	3	3	2
LPRM LVL A:	4	2	2	4	4	4	2	4
INDICATED PWR:	10%	13%	12%	14%	0%byp	11%	13%	0% byp

LPRM 22-39D has failed downscale and must be bypassed to allow troubleshooting.

With present conditions would this action be allowed?

Attached is the LPRM vs. APRM assignments Attachment of SOP-0074.

A. Yes, conditions are satisfactory.

B. Yes, however an Tracking (ONLY) LCO would have to be written on the associated APRM for Administrative inputs.

C. No, this action would result in a half scram and administrative LCO requirements not to be met.

D. No, this action would result in a full reactor scram.

ANSWER: C

NRC KA:	RO:	SRO:
215005 A1.04	4.1	4.1
215005 A1.02	3.9	4
215005 A1.03	3.6	3.6
215005 K3.01	4	4

IDNO: 545

LP # STM-503 **OBJ #** 22

REFERENCES SOP-0074
REP-0037
TS 3.3.1.1.2
CFR 41.6

QUESTION 45

The plant is in Mode 4 with RHR "A" in Shutdown Cooling. A misalignment of RPV drain valves has resulted in reactor vessel level lowering. The following are the present plant parameters:

Reactor Pressure: 0 psig
Reactor Water Level: +34 inches and lowering
Reactor Water Temperature: 160 degrees Farenheit
Drywell Pressure: 0 psig

Which one of the following describes the operation of the RHR "A" Shutdown Cooling System if Reactor Water Level continues to lower?

A. At +31 inches RPV water level, E12-F006A (RHR Pump A SDC Suction Valve) will isolate, which will cause E12-F004A (RHR Pump A Sup Pl Suction Valve) to open and the low flow on the RHR A pump to open the E12-F064A (RHR Pump A Min Flow to Sup Pl).

B. At +31 inches RPV water level, E12-F008 and F009 (RHR Shutdown Cooling Isol Valves) will isolate, which will cause the RHR A pump to trip; the RHR A pump trip will cause E12-F053A (RHR A SDC Injection Valve) to close.

C. At + 9.7 inches RPV water level, E12-F053A (RHR A SDC Injection Valve) will isolate, which will cause a low flow on the RHR A pump automatically opening E12-F064A (RHR Pump A Min Flow to Sup Pl).

D. At + 9.7 inches RPV water level, E12-F053A (RHR A SDC Injection Valve), E12-F008 and F009 (RHR Shutdown Cooling Isol Valves) will isolate causing the RHR A Pump to trip.

ANSWER: D

NRC KA:	RO:	SRO:
205000 A2.05	3.5	3.7
205000 A2.06	3.4	3.5
205000 K6.04	3.6	3.6

IDNO: 547

LP # **OBJ #**

REFERENCES SOP-0031
AOP-0003
CFR 41.7

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QUESTION 46

The following stable conditions exist in the plant:

- Reactor Power: 0 % (All Rods In)
- Reactor Pressure: 130 psig
- Reactor Water Level: + 4 inches
- Drywell Pressure: 1.8 psig
- Main Steam Tunnel Temperature: 138 degrees Farenheit
- Reactor Mode Switch: SHUTDOWN

Given the above plant conditions, determine which one of the following describes the systems which should have received isolation signals.

A. CCP; MSIVs; RCIC; RWCU

B. MSIVs; RCIC; RHR to Radwaste; RWCU

C. CCP; RHR; Recirc Sample lines

D. MSIVs; Reactor Sample lines; RHR to Radwaste

ANSWER: C

NRC KA:	RO:	SRO:
223002 A1.02	3.7	3.7
223002 A3.02	3.5	3.5

IDNO: 552

LP # HLO-062 **OBJ #**

REFERENCES AOP-0003
CFR 41.7
CFR 41.9

QUESTION 47

The plant is operating at 4 % power in a reactor startup. The B CRD pump is tagged out with the oil sump drained for maintenance.

The A CRD pump trips. The CRS dispatches a SNEO to investigate the pump circuit breaker. The SNEO reports that the breaker has over current trip flags and the lockout device is tripped.

Electrical Maintenance is called to investigate.

The following parameters are indicated in the Main Control Room:

- Reactor Pressure: 450 psig
- Reactor Water Level: + 34 inches
- Main Steam Bypass valves are fully closed.

With present plant conditions, which one of the following describes the actions to be taken?

A. Increase reactor pressure to > 600 psig and wait for electrical maintenance to repair the CRD Pump.

B. If two or more control rod accumulator faults exist on withdrawn control rods, fully insert the control rods within 20 minutes or place the reactor mode switch in SHUTDOWN.

C. If one or more control rod accumulator faults exist on withdrawn control rods, which cannot be inserted, immediately place the reactor mode switch in SHUTDOWN.

D. Increase reactor pressure to > 600 psig, and restore charging water header pressure to >1520 psig within 20 minutes or place the reactor mode switch in SHUTDOWN.

ANSWER: C

NRC KA:	RO:	SRO:
295022 AK3.01	3.7	3.9
295022 AK1.02	3.6	3.7

IDNO: 560

LP # **OBJ #**

REFERENCES ARP-P601-22A-A01
TS 3.1.5
CFR 41.5
CFR 41.6
CFR 43.2

QUESTION 48

The plant is operating at 90 % power.

Which one of the following descriptions of plant conditions will result in a Main Turbine Trip and describes the basis for the trip?

A. The Main Turbine will trip when the selected Reactor Narrow Range Level Instruments has level at + 51 inches. This is to prevent the erosion of the Main Steam piping and Main Control Valves' seats, from moisture carryover.

B. The Main Turbine will trip when two of the Reactor Narrow Range Level Instruments have level at + 51 inches. This is to prevent the erosion of the Main Steam piping and Main Control Valves' seats, from moisture carryover.

C. The Main Turbine will trip when two of the Reactor Narrow Range Level Instruments have level at + 51 inches. This is to prevent the erosion of the Main Turbine blades, from moisture carryover.

D. The Main Turbine will trip when the selected Reactor Narrow Range Level Instruments has level at + 51 inches. This is to prevent the erosion of the Main Turbine blades, from moisture carryover.

ANSWER: C

NRC KA:	RO:	SRO:
295008 AK1.01	3	3.2
295005 AA2.07	3.5	3.6
295008 AK2.03	3.6	3.7

IDNO: 561

LP # **OBJ #**

REFERENCES AOP-0002
TRM 3.3.7.3
CFR 41.5

QUESTION 49

The plant was operating at rated power when a steam leak in the drywell occurred. Drywell temperature rose to 165 degrees farenheit and Drywell pressure (d/p) reached 1.5 psid.

A manual scram was initiated by the operating crew and EOP-2 was entered on high Drywell Temperature. EOP-5, ENCL 20 was installed to defeat DW Cooling Isolation Interlocks and six DW Unit Coolers were started.

Current conditions in the Drywell are as follows:

- Drywell Temperature: 157 degrees farenheit, and lowering slowly
- Drywell Pressure (d/p): - 2.5 psid, and lowering rapidly

Of the following, which action should be performed?

A. Maintain maximum Drywell Cooling in service until Drywell Press. approaches -15.5 psig.
B. Secure all Drywell Cooling regardless of Drywell Temp., until Drywell Press. approaches 0 psig.
C. Secure one (1) or more Drywell Coolers to maintain a lowering trend on Drywell Temp.
D. Secure one (1) or more Drywell Coolers to maintain a rising trend on Drywell Press.

ANSWER: C.

NRC KA:	RO:	SRO:
295010 AA1.07	3.2	3.4

IDNO: 704

LP # HLO-511 **OBJ #** 6

REFERENCES EOP-0002 CFR 41.4
EPSTG-0002 CFR 41.9

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QUESTION 50

The plant is at 5 % power. Chemistry samples taken indicate that fuel damage is present in the core. Radiation levels in Offgas and the Main Steam lines have risen drastically.

Which one of the following describes the reaction of the plant if the Main Steam Line Radiation Levels reach 3 times the normal background readings?

A. The Reactor will scram, the Main Steam Lines and the Reactor Sample Lines will isolate, and the Condenser Air Removal Pumps will trip.

B. Initiation of Standby Gas Treatment and Annulus Mixing, and an isolation of the Main Steam Lines and Reactor Sample Lines.

C. The Reactor Sample Lines will isolate and the Condenser Air Removal Pumps will trip and isolate.

D. The Reactor will scram, Standby Gas Treatment and Annulus Mixing will initiate, and the Condenser Air Removal Pumps will isolate.

ANSWER: C

NRC KA:	RO:	SRO:
295033 EK3.03	3.8	3.9
295033 EA2.01	3.8	3.9

IDNO: 575

LP # **OBJ #**

REFERENCES AOP-0003
CFR 41.11
CFR 41.12
CFR 43.4

QUESTION 51

The plant is conducting a reactor startup (Mode 2) when due to an error by I&C HPCS initiated. The HPCS Injection Valve has been overridden closed.

Operators and technicians are unable to reset the initiation trip units for HPCS.

RPV Water Level is currently reading +36 inches on Narrow Range Indicaiton.

The following indications were the highest values recorded for RPV Level:

- Narrow Range Level: +55 inches
- Wide Range Level: +48 inches

Which one of the following is correct concerning the operation of the HPCS Injection Valve (E22*F004)?

A. The valve can ONLY be opened using the valve hand switch in the OPEN position on P601.

B. The valve can ONLY be opened if the HPCS High Reactor Water Level signal is manually reset and the valve hand switch is taken to the OPEN position.

C. The valve will automatically open if the HPCS Manual Initiation Pushbutton on P601 is depressed.

D. The valve will automatically open if RPV water level drops to Level 2 (-43") as indicated on wide range level indication.

ANSWER: A.

NRC KA:	RO:	SRO:
209002 K3.01	3.9	3.9

IDNO: 670

LP # **OBJ #**

REFERENCES SOP-0030 CFR 41.7
ARP-P601-16A-B04 CFR 41.8
ARP-P601-16A-F02

QUESTION 52

All Power to the Division I DC bus has been lost.

Concerning the Low Pressure Core Spray System operation, which one of the following statements is true?

A. In the event of an actual LOCA condition, LPCS will NOT operate automatically, however, the system can be manually initiated from the Main Control Room and inject into the Reactor.

B. In the event of an actual LOCA condition, LPCS will automatically start, however, the injection valve must be manually opened due to the loss of the automatic opening feature of the pressure permissive.

C. Low Pressure Core Spray is unable to be initiated manually or automatically, however, the LPCS pump can be manually started from the Main Control Room and placed on minimum flow or can be aligned for injection.

D. Low Pressure Core Spray is unable to be initiated manually or automatically, and the LPCS pump will not operate from the Main Control Room, if the pump is started locally, it will operate on minimum flow.

ANSWER: D

NRC KA:	RO:	SRO:
209001K2.03	2.9	3.1
209001 K6.02	3.8	3.9

IDNO: 588

LP # **OBJ #**

REFERENCES ARP-P601-21A-H08
828E535AA SHT 3,4,6,
ESK5CSL01
ESK6CSL01
CFR 41.7
CFR 41.8

QUESTION 53

The unit was operating at 100% rated power when a steam leak in the Drywell occurred. Plant conditions are as follows:

- Reactor is scrammed (0%) all rods are in
- Drywell pressure is 1.8 psig and steady
- Six (6) Drywell Unit Coolers are running
- RPV level is + 36"
- RPV Pressure is 600 psig (Pressure Band of 500 psig to 800 psig)
- All AOP-0003 (Automatic Isolations) automatic isolations and initiations have been verified.
- Standby Gas Treatment Train "A" is operating
- Standby Gas Treatment Train "B" is back in standby

A valid High-High Annulus Exhaust Radiation signal is received on both Division I and Division II.

Which one of the following statements is true concerning Standby Gas Treatment (SBGT) system?

A. The "A" SBGT train will remain operating and the "B" SBGT train will remain in standby.

B. The "A" SBGT train will shutdown, then both SBGT trains will re-initiate.

C. The "B" SBGT train will automatically restart from standby.

D. Both SBGT trains will shutdown and isolate awaiting further operator action.

ANSWER: A.

NRC KA:	RO:	SRO:
261000 K1.01	3.4	3.6

IDNO: 671

LP # **OBJ #**

REFERENCES ESK06GTS01 CFR41.13
ESK06GTS02
SOP-0043
SOP-0059
ARP-P863-71A-C07
ARP-P863-71A-G07
ARP-P863-73A-C04
ARP-P863-73A-D05
ARP-P863-73A-E05
ARP-P863-73A-F04

QUESTION 54

The plant is operating at 100 % power. Condensate Pump CNM –P1B has tripped on over-current.

The pressure at the suction of the Reactor Feed Pumps has dropped to 200 psig for 18 seconds.

Which one of the following would be the response of the Reactor Feed Water System?

A. The Feed Reg Valves will throttle back to increase suction pressure resulting in a low Reactor Level.

B. The "C" Reactor Feed Pump will trip and cause Reactor Feed Pump suction pressure rise.

C. The "A and B" Reactor Feed Pumps will trip and cause a Reactor scram on low Reactor Level.

D. All three Reactor Feed Pumps will trip causing Reactor Level to lower and result in a Reactor scram.

ANSWER: C

NRC KA:	RO:	SRO:
259001A3.10	3.4	3.4
259001 A3.07	3.2	3.2

IDNO: 595

LP # **OBJ #**

REFERENCES ARP-P680-03A-A01 CFR 41.4

QUESTION 55

The plant is operating at 100 % power when B21-AOVF028B, an outboard MSIV fails closed due to a rupture of the valve actuator air supply.

Which one of the following describes the response of the reactor?

ASSUME NO OPERATOR ACTION.

A. RPV pressure will increase and stabilize at a higher pressure.
Reactor power will increase and stabilize at a higher power.
RPV water level will decrease and then return to normal level.

B. RPV pressure will increase and then decrease following the scram.
Reactor power will increase and cause a reactor scram on power.
RPV water level will decrease and then stabilize at a lower level.

C. RPV pressure will decrease and stabilize at a lower pressure.
Reactor power will decrease and stabilize at a lower power.
RPV water level will increase and then return to normal level.

D. RPV pressure will decrease and stabilize at a lower pressure.
Reactor power will initially increase and then decrease after the scram.
RPV water level will increase and cause a reactor scram on high water level.

ANSWER: B

NRC KA:	RO:	SRO:
295007 AK1.03	3.8	3.9

IDNO: 599

LP # **OBJ #**

REFERENCES USAR 15.2.4.1.2.2 CFR 41.5
CFR 41.14

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QUESTION 56

The Unit Operator notices the AUX BLDG FL DRAIN SUMP LEVEL EXTREME HIGH/LOW ANNUNCIATOR (P870-51A-G3) is in alarm.

The Auxiliary Building SNEO has reported the sump level in the HPCS Pump Room is overflowing onto the floor.

Which one of the following describes the expected equipment operation and procedural requirements?

A. Both sump pumps should be operating and the Control Room Supervisor should be entering EOP-0003 for Secondary Containment Control.

B. Only one of the sump pumps should be operating and the Auxiliary Building Operator should be locating the source of the leakage.

C. Both sump pumps should be operating and the Control Room Supervisor should evacuate the Auxiliary Building.

D. Only one of the sump pumps should be operating and the Control Room Supervisor should be entering EOP-0003 for Secondary Containment Control.

ANSWER: A

NRC KA:	RO:	SRO:
295036 EK3.04	3.4	3.8
295036 EK2.01	3.1	3.2

IDNO: 606

LP # **OBJ #**

REFERENCES EOP-0003
ARP-P870-51A-G03
CFR 41.4

QUESTION 57

The plant has scrammed due to a loss of offsite power.

HPCS and RCIC WILL NOT start.

Approximately 5 minutes after RPV water level decreases below – 143 inches, the "DIV 2 ADS LOGIC TIMER INITIATED" annunciator illuminates.

The Unit Operator is directed to "INHIBIT ADS" per EOP-0001 and places the ADS INHIBIT keylock switches to INHIBIT.

Later the Unit Operator Arms and Depresses the ADS B MANUAL INITIATION pushbuttons.

What is the response of the ADS System in this situation?

ADS will initiate:

A. immediately, if any DIV II low pressure ECCS subsystem pressure permissive is satisfied.

B. in 105 seconds, if any DIV II low pressure ECCS subsystem pressure permissive is satisfied.

C. immediately, regardless of low pressure ECCS subsystem status.

D. in 105 seconds, regardless of low pressure ECCS subsystem status.

ANSWER: A

NRC KA:	RO:	SRO:
218000 A4.02	4.2	4.2
218000 K4.01	3.7	3.9

IDNO: 617

LP # **OBJ #**

REFERENCES ARP-P601-19A-A10 CFR 41.7

QUESTION 58

The plant has scrammed.

Reactor level has dropped to – 50 inches and is recovering.
Reactor pressure is being controlled with Turbine Bypass Valves.

Which one of the following describes the response of the Control Room Ventilation System?

A. Normal outside air intakes close, the air inside the Control Room is just recirculated until the ventilation system is reset.

B. Normal outside air intakes close, remote outside air intakes open and supply air via the charcoal filter train to the control room.

C. Normal outside air intakes close, remote outside air intakes open, air is supplied to the control room via the normal supply air path.

D. Normal outside air intakes remain open, air is filtered through the charcoal filtration trains before it is supplied to the control room.

ANSWER: D

NRC KA:	RO:	SRO:
290003 A3.01	3.3	3.5
290003 K1.03	2.8	2.9

IDNO: 619

LP # HLO-049 **OBJ #** 11

REFERENCES TS 3.3.7.1 CFR 41.4

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QUESTION 59

One result of the RPV Level 1 LOCA signal is the shedding of loads, and the subsequent sequencing back on of required loads. The purpose for this automatic action can be summarized by:

A. Sequencing safety related loads minimizes the time the diesel generator runs in an unloaded condition.

B. Shedding loads allows time for the diesel generator to warm up prior to placing loads on the bus.

C. Sequencing safety related loads ensures that starting current loads do not overload the diesel generator.

D. Shedding loads ensures that non essential loads do not operate in an unmonitored condition for long periods of time.

ANSWER: C

NRC KA:	RO:	SRO:
2.1.28	3.2	3.3
264000 K5.06	3.4	3.5

IDNO: 635

LP # **OBJ #**

REFERENCES TS 3.8.1 CFR 41.7

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QUESTION 60

A Loss of Coolant Accident has occurred. The core has been uncovered and reactor water level cannot be determined.

The following plant parameters exist:

Reactor Pressure: 150 psig
Containment Pressure: + 8.5 psig
Drywell Pressure: + 16.5 psig
Drywell Hydrogen Concentration: 4.5%
Containment Hydrogen Concentration: 5.5%

Which one of the following describes the methods to be used to control Hydrogen Concentrations in the Containment and Drywell?

A. Hydrogen Recombiners, Igniters, and Mixing Systems

B. Hydrogen Igniters, and Normal CTMT Vent and Purge

C. Normal CTMT Vent and Purge

D. Hydrogen Recombiners, and Igniters

ANSWER: D.

NRC KA:	RO:	SRO:
500000 EA1.03		3.2
2.4.14	3	3.9
500000 EK2.05	3.2	3.3

IDNO: 652

LP # **OBJ #**

REFERENCES EOP-2, H2 Control CFR 41.10
CFR 43.5

QUESTION 61

The plant is operating at 100% power.

Standby Gas Treatment Filter Train "A" is being operated for surveillance testing.

The Auxiliary Building Operator reports smoke coming from the "A" Standby Gas Treatment Filter Train and the filter train case is glowing red.

Which one of the following describes the method to combat a fire in the Standby Gas Treatment Filter Train?

A. The Fire Protection System will initiate the automatic deluge system and fill the filter train with water.

B. The Fire Protection System will automatically open, however, the isolation valves must be opened manually to admit water to the filter train.

C. The Fire Protection system Deluge Valve will have to be manually initiated via the pull station to admit water to the filter train.

D. The Fire Protection System at the filter train must be manually valved into the deluge system to admit water to the filter train.

ANSWER: D.

NRC KA:	RO:	SRO:
600000 AK1.02	2.9	3.1
600000 AA1.05	3	3.1

IDNO: 654

LP # **OBJ #**

REFERENCES SOP-0037 CFR 41.10
CFR 43.5

QUESTION 62

The plant is operating at 100% power with a severe thunderstorm in progress.

The National Weather Service has issued a Tornado Watch for West Feliciana Parish.

The Operating Shift has Minimum shift Staffing per Technical Specifications.

A fire breaks out in the Standby Cooling Tower Switchgear Room "A", and all operators are dispatched to support extinguishing the fire. An operator is stationed at the Division I and II Diesel Generators per Standing Order #154.

Which one of the following describes actions to be taken by the Operations Shift Superintendent with regard to using the Diesel Operator to fight the fire?

A. The OSS may revise the Standing Order and dispatch the operator to assist with the fire.

B. There is NO deviation allowed from the Standing Order.

C. The OSS may deviate from the Standing Order, provided he notify the General Manager, Plant Operations as soon as possible.

D. After notification of the NRC Operations Center, the OSS may deviate from the Standing Order.

ANSWER: A.

NRC KA:	RO:	SRO:
2.1.15	2.3	3

IDNO: 661

LP # **OBJ #**

REFERENCES ADM-0022 CFR 41.10
AOP-0029 CFR 43.5
Stand. Order 154
OSP-0003

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QUESTION 63

The plant has experienced a Loss of Coolant Accident due to a complete break of the Recirculation System piping.

Which one of the following describes the initial response of Drywell and Containment Pressure?

A. Drywell pressure will rise to a maximum value clearing all Drywell to Containment Vents releasing steam directly into the Containment pressurizing Containment to a maximum value.

B. Drywell pressure will rise to a maximum value clearing all Drywell to Containment Vents causing a rise in Containment Pressure followed by a lowering of Drywell pressure and recovering of the Drywell vents.

C. Drywell pressure will rise to greater that the ECCS and ADS initiation setpoints causing ECCS and ADS depressurization of the reactor to the Suppression Pool, resulting in a slight rise of Containment Pressure.

D. Drywell pressure will rise to greater than the ECCS initiation setpoints causing ECCS injection and collapse of the steam bubble, removing the driving head of Reactor pressure, resulting in a turn of Drywell pressure and a slight rise in Containment Pressure.

ANSWER: B.

NRC KA:	RO:	SRO:
295024 EA2.09		4.1
295024 EA2.01		4.4
295024 EA2.03		3.8
295024 EK3.06	4	4.1

IDNO: 663

LP # HLO-013 **OBJ #** 3d

REFERENCES USAR 6.2.1.1.3.1.5.2 CFR 41.9
USAR Table 6.2-7
USAR Table 6.2-11

QUESTION 64

The plant is shutdown, mode 5, with refueling operations in progress. While transferring an irradiated spent fuel bundle from the IFTS transfer canal to its storage location in the Spent Fuel Pool the bundle is inadvertantly dropped. Prior to dropping the fuel bundle, Fuel Building Exhaust Filter Train A (HVF-FLT2A) was in service to support refueling operations.

Shortly after the bundle is dropped, the refueling team in the Fuel Building reports that there are gas bubbles rising from the Spent Fuel Pool in the vicinity of the dropped bundle and the following annunciators are received in the Main Control Room on panel P863:

- DIV 1 FUEL BLDG EXH PAM GASEOUS RADN ALARM (H13-P863/75A/H01)
- DIV 2 FUEL BLDG EXHAUST RADN ALARM (H13-P863/75A/H03)

Which one (1) of the following correctly describes the lineup of Fuel Building Ventilation after receipt of the annunciators listed above?

A. Supply air is drawn into the Fuel Building via normal supply fans HVF-FN1A/1B and is exhausted from the Fuel Building via charlcoal filter trains HVF-FLT2A AND HVF-FLT2B.

B. Supply air is drawn into the Fuel Building via the Fuel Receiving Area and is exhausted from the Fuel Building via charcoal filter trains HVF-FLT2A AND HVF-FLT2B.

C. Supply air is drawn into the Fuel Building via the normal supply fans HVF-FN1A/1B and is exhausted from the Fuel Building via charcoal filter train HVF-FLT2A ONLY.

D. Fuel Building is completely isolated

ANSWER: B

NRC KA:	RO:	SRO:
295023 EA1.01	3.3	3.5

IDNO: 677

LP # HLO-048 **OBJ #** 5

REFERENCES AOP-0027 LOTM 60
SOP-0062
FHO-0001

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QUESTION 65

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

- A half scram is in on the "B" RPS trip system due to MSIV closure testing

The power supply for ES N683C (Level 8 RPS) fails.

Which one of the following correctly describes the response of the Reactor Protection System and the reason for the response.

A. The plant will scram due to deenergization of the Level 8 trip unit (N683C), since the deeergization of the trip unit generates a half scram signal on RPS "A"

B. The plant will remain operating with a half scram on "B" RPS since failure of the power supply for N683C forced it downscale precluding the possibility of receiving a Level 8 signal.

C. The plant will scram when the trip unit N683C deenergizes and fails upscale generating a level 8 signal on RPS "A"

D. The plant will remain operating with a half scram on RPS "B" since the trip unit N683C provides an input to RPS "B".

ANSWER: A

NRC KA:	RO:	SRO:
216000 K2.01		2.8

IDNO: 678

LP # **OBJ #**

REFERENCES LOTM 3

QUESTION 66

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

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

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

A. Due to a loss of ENB-PNL02B, the SRVs are unable to actuate on high pressure RELIEF mode or MANUAL mode and will only control pressure in the SAFETY mode.

B. Due a loss of ENB-PNL02B, the SRVs will actuate on high pressure RELIEF mode or MANUAL mode utilizing the "A" SRV solenoid ONLY.

C. Due to a loss of ENB-PNL02B, the SRVs are unable to actuate on high pressure RELIEF mode but may be manually operated using the "A" SRV solenoid.

D. Due to a loss of ENB-PNL02B, the SRVs will not operate in the Low-Low Set mode of operation however, the high pressure RELIEF mode and MANUAL mode is available using either the "A" or "B" SRV solenoids.

ANSWER: B

NRC KA:	RO:	SRO:
239002 K6.01	3.2	3.4

IDNO: 679

LP # **OBJ #**

REFERENCES AOP-0014 Att. 2

QUESTION 67

The plant is operating at 95% of rated power with a power ascension to 100% in progress. The following annunciator was received on P808:

- 1BYS-INV02 COMPUTER INVERTER SYSTEM TROUBLE (1H13-P808-88A-D02)

The SNEO was dispatched to the inverter and reported that the UPS front panel displays an "Inverter AC Under Voltage" condition.

Which one of the following describes the correct action to be taken next:

A. Have the SNEO attempt to transfer the inverter back to the normal power supply and then reset the alarm condition.

B. Leave the UPS on static Bypass and contact Electrical Maintenance to take voltage readings on the inverter output.

C. Enter AOP-0042 (Loss of Instrument Bus) and contact Electrical Maintenance

D. Transfer the inverter loads to Manual Bypass and contact Electrical Maintenance to take voltage readings at the output of the inverter.

ANSWER: D

NRC KA:	RO:	SRO:
262002 A3.01	2.8	3.1

IDNO: 680

LP # **OBJ #**

REFERENCES ARP-H13-P808-88A-D02
SOP-0048

QUESTION 68

The plant is in the process of starting up per GOP-0001 with the following plant conditions.

- Reactor Power is 7%
- Main Turbine is Off line
- Reactor pressure is 920 psig being controlled by the Bypass Valves
- CCP P1B is tagged out for pump maintenance
- CCS P1A is tagged out for motor bearing replacement

A loss of NPS-SWG1A occurs.

Which one of the following correctly describes the actions to be taken?

A. Attempt to start at least one CCS Pump, if flow cannot be re-established manually scram the reactor.

B. Halt the plant startup until power can be restored to NPS-SWG-1A.

C. Manually scram the reactor and trip/isolate both Recirc Pumps

D. Manually scram the reactor and initiate Standby Service Water.

ANSWER: C

NRC KA:	RO:	SRO:
400000 K2.01	2.9	3

IDNO: 681

LP # **OBJ #**

REFERENCES SOP-0011

QUESTION 69

The plant is operating at 100% rated power. HPCS is being run from CST to CST for quarterly surveillance testing.

An I&C technician in the field inadvertantly isolates instrument air to instrument rack JTB-RAK17 which provides instrument air to the following valves:

- 1CNS-LV103 (Hotwell Level Makeup Valve)
- 1CNS-LV104 (Hotwell Emergency Makeup Valve)
- 1CNS-LV105 (Hotwell Drawoff Valve)

Assuming NO operator action, which one of the following correctly describes the system and plant response to this action?

A. 1CNS-LV104 and 1CNS-LV103 fail closed, 1CNS-LV105 fails open. Hotwell Level will fall causing the HPCS suction to swap to the Suppression Pool on low Hotwell Level and the Condensate Pumps to eventually trip due a loss of suction.

B. 1CNS-LV104 and 1CNS-LV105 fail closed, 1CNS-LV103 fails open. CST Level will fall causing the HPCS suction to swap to the Suppression Pool on low CST level. Main Condenser vacuum will fall due to rising level in the Hotwell.

C. 1CNS-LV103, 1CNS-LV104 and 1CNS-LV105 will fail closed. CST Level will remain constant and HPCS will remain in operation CST to CST.

D. 1CNS-LV103, 1CNS-LV104 and 1CNS-LV105 fail open. CST Level will rise causing the HPCS suction to swap to the Suppression Pool on High CST level.

ANSWER: B.

NRC KA:	RO:	SRO:
256000 A4.03	3.2	3.1

IDNO: 682

LP # **OBJ #**

REFERENCES SOP-0008 LOTM 32
AOP-0008

QUESTION 70

The plant is operating in mode 1 at 100% of rated power. STP-053-3001 (Jet Pump Operability) has just been completed. Upon review of the STP the CRS has discovered that Jet Pump # 7 is inoperable.

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

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

A. A failed jet pump increases the probability of instability events at lower power levels during low flow conditions.

B. With a failed jet pump, neutron flux distribution across the core changes due to the change in core flow, thereby making the APRM indications unreliable.

C. A failed jet pump increases the blowdown area and reduces the capability of reflooding to two thirds (2/3) core height following a LOCA.

D. A failed jet pump causes the APRM Flow Biased scram and rod block setpoints to drift due to the increase or decrease in flow in the affected loop.

ANSWER: C.

NRC KA:	RO:	SRO:
290002 A2.01	3.7	4

IDNO: 683

LP # **OBJ #**

REFERENCES T.S. 3.4.3 Bases

QUESTION 71

The plant is operating in Mode 1 with the following conditions existing:

- Reactor Power is 100% of rated
- Core Flow is 90.3% of rated

The ATC prints out a copy of the "Daily Core Performance Log" for the previous days shift (attached).

Based upon the information contained in the periodic performance log, which one of the following correctly describes the action(s) to be taken?

A. Restore MCPR to within the limits within two (2) hours.

B. No action is required, all thermal limits are within the limits specified within Technical Specifications.

C. Restore MCPR to within the limits within two (2) hours and insert all insertable control rods.

D. Reduce power to less than 25% of rated within four (4) hours.

ANSWER: A

NRC KA:	RO:	SRO:
2.1.19	3	3

IDNO: 684

LP # **OBJ #**

REFERENCES T.S. 2.1
T.S. 2.2
T.S. 3.2.2
COLR Figures 16/17

QUESTION 72

The National Oceanic and Atmospheric Administration (NOAA)/National Weather Service (NWS) has contacted the Main Control Room at River Bend Station.

The NOAA has issued a Hurricane Warning affecting West Feliciana Parish in approximately 20 hours.

Which one of the following identifies a duty that a SNEO assigned to the shift would be expected to perform within the next six (6) hours?

A. Review AOP-0004 (Loss of Offsite Power) and AOP-0050 (Station Blackout)

B. Assist in relocating the Main Generator Hydrogen trailer to an offsite location.

C. Tag out the elevators in all buildings within the protected area.

D. No special actions are required until the threat of a hurricane is imminent (less than 4 hours)

ANSWER: B.

NRC KA:	RO:	SRO:
2.4.35	3.3	3.5

IDNO: 685

LP # **OBJ #**

REFERENCES AOP-0029

QUESTION 73

Given the following plant conditions:

- The Refuel Platform is over the core.
- The Mode Switch is in REFUEL.

Which of the following will cause a control rod block?

A. Withdraw a control rod.

B. Loading the Auxiliary Platform hoist.

C. Loading the Refuel Platform main hoist.

D. Loading the Refuel Platform monorail hoist.

ANSWER: C

NRC KA:	RO:	SRO:
234000 K4.01	3.3	4.1

IDNO: 4

LP # HLO-022 **OBJ #** 2

REFERENCES FHP-0003 LEVEL 3

QUESTION 74

Following a Loss of Coolant Accident the following plant parameters exist:

- Reactor pressure is 450 psig
- Vessel level is -95 inches
- Drywell pressure is 1.8 psid
- Containment pressure is normal and steady.

Which one of the following describes the Low Pressure Coolant Injection mode of the Residual Heat Removal system?

A. Pumps have started, but are not injecting because the injection valves, F042A, B, and C have not opened.

B. Pumps have started, injection valves F042A, B, and C have opened, but reactor pressure is too high for injection.

C. Pumps have not started, but injection valves F042A, B and C have opened.

D. Pumps have started, injection valves F042A, B, and C have opened, and injection has started.

ANSWER: B.

NRC KA:	RO:	SRO:
203000 A1.01	4.2	4.3
203000 K1.17	4	4
203000 A1.02	3.9	4
203000 K4.01	4.2	4.2

IDNO: 145

LP # HLO-021 **OBJ #** 9

REFERENCES SOP-0031 LEVEL 2

QUESTION 75

The plant has experienced a transient requiring a scram with a failure of the scram functions to work (ATWS). Plant conditions are as follows:

- Reactor Power is 4%
- Suppression Pool temperature is 110 degrees farenheit
- A loss of ENS-SWG 1A has occurred with a failure of the Division I EDG to start
- A loss of instrument bus SCM-PNL01B has occurred
- Pressure control is being maintained with the Turbine Bypass Valves between 920 - 1060 psig
- All SRVs are closed

Considering the above conditions, which one of the following statements is correct.

A. Boron injection is required and can be accomplished by starting and injecting with SLC Pump B.

B. Boron injection is not required because reactor power is less than 5%

C. Boron injection is required but must be accomplished via alternate methods due a loss of SLC Pump "A" and SLC "B" Squib Valve.

D. Boron injection is not required because Suppression Pool temperature is not above 110 degrees farenheit.

ANSWER: A

NRC KA:	RO:	SRO:
211000 A4.02	4.2	4.2

IDNO: 672

LP # HLO-016 **OBJ #** 6

REFERENCES EOP-0001A

QUESTION 76

The Instrument Air System to the primary containment has been isolated by closing IAS-MOV106.

The plant is 2 days into a 7 day LCO (3.6.1.8 B) due to both divisions of PVLCS being inoperable.

Assuming all other air systems are in service. How does this affect the ADS valves?

A. No effect since the ADS valves are supplied with operating air from the Service Air System

B. The valves can only be cycled 2½ times.

C. No effect since the ADS valves are supplied with operating air from the SVV air compressors.

D. The valves will not operate due a loss of operating air from PVLCS and IAS.

ANSWER: C.

NRC KA:	RO:	SRO:
218000 A2.03	3.4	3.6
218000 K1.06	3.9	3.9

IDNO: 250

LP # HLO-064 **OBJ #** 5

REFERENCES

QUESTION 77

An MSIV closure resulted in a reactor scram. The pressure transient caused a small steam leak in the drywell. The following conditions exist:

- Reactor pressure is at 900 psig.
- Reactor Level is at -150 inches wide range
- Drywell pressure is 2.1 psid
- Containment pressure is 0.3 psig
- Lowest recorded ENS*SWG1A/1B Bus voltage was 3952 volts.

Which one of the following would be in service as indicated?
(NO OPERATOR ACTION TAKEN)

A. DIV I D/G running supplying their respective buses.

B. DIV II Stby. Service Water with flow through the "B" Containment Unit Cooler.

C. Drywell units coolers running with no cooling flow.

D. RHR "A" injecting to the RPV.

ANSWER: B

NRC KA:	RO:	SRO:
262001 K1.01	3.8	4.3
262001 A2.02	3.6	3.9

IDNO: 261

LP # HLO-037 **OBJ #** 4

REFERENCES SOP-0053 LEVEL 4
ARP-877-32-H03

QUESTION 78

A plant startup is in progress. Reactor power is being held at 1% power for the 900 psig Drywell walkdown. The following conditions exist:

- RPV water level is +36 inches on the narrow range
- Master Feedwater Level Controller Tape Set is +36 inches
- Startup Feedwater Level Controller Tape Set is +36 inches

The Startup Feedwater Reg. Valve drifts fully open.

Which of the following actions/signals will occur as a result of this failure?
(NOTE: Assume no operator action.)

A. Reactor scrams on Level 8.

B. Reactor feedwater pumps trip on high reactor level.

C. Reactor water level remains unchanged due to compensation by the Long Cycle Cleanup Level Controller (CNM-104).

D. Reactor water level stabilizes +42 inches on the narrow range

ANSWER: B

NRC KA:	RO:	SRO:
259002 K3.02	3.7	3.7
259002 K3.01	3.8	3.8
259002 A4.11	3.5	3.8

IDNO: 348

LP # STM-107 **OBJ #** 10

REFERENCES AOP-0006 LEVEL 3
SOP-0009

QUESTION 79

A loss of power has just occurred to one of the solenoids for an Main Steam Isolation Valve (MSIV).

Which of the following describes the response of the MSIV and the reason for that response?

The MSIV will:

A. close because the solenoids energize to align the air supply to open the MSIV.

B. remain open because the other solenoid continues to supply air to the MSIV.

C. close because the solenoids are in series and either one deenergizing will vent the air supply to the MSIV.

D. remain open because the instrument air accumulator for that MSIV continues to supply air to the actuator.

ANSWER: B

NRC KA:	RO:	SRO:
239001 K2.01	3.2	3.3
239001 K5.06	2.8	2.9

IDNO: 494

LP # HLO-007 **OBJ #** 03

REFERENCES

QUESTION 80

Given the following conditions:

- Drywell temperature and pressure are increasing due to a leak
- Drywell pressure is 1.82 psig
- Suppression Pool temperature is 101 degrees farenheit
- All expected automatic actions have occurred
- EOP-2, “Primary Containment Control”, was entered for high drywell temperature and high Suppression Pool temperature.
- Enclosure 20 for restoration of drywell cooling is in progress
- RHR "A" and RHR "B" are in suppression pool cooling

Once the interlocks have been defeated, which of the following will be providing cooling to the drywell?

A. Drywell cooler fans and normal service water.

B. Drywell cooler fans and chilled water.

C. Drywell cooler fans and standby service water.

D. Drywell cooler fans ONLY.

ANSWER: C.

NRC KA:	RO:	SRO:
295012 K2.02	3.6	3.7
295012 K1.01	3.3	3.5

IDNO: 531

LP # HLO-038 **OBJ #** 05

REFERENCES EOP-0002, Encl. 20
SOP-0031

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QUESTION 81

The plant was operating at 100 % power, when a Main Turbine trip caused a reactor scram and lift of two (2) Safety Relief Valve. Reactor level increased to +56 inches on narrow range. Plant conditions are as follows:

- Reactor is shutdown with all rods in
- RPV water level is +5 inches on the narrow range indication
- RFP "C" is running controlling RPV water level

Which one of the following describes the final status of the Reactor Recirculation System?

A. Both Recirculation Pumps are in slow speed operation with the Recirc Flow Control Valves for both loops at minimum position.

B. Both Recirculation Pumps are in slow speed operation with the Recirc Flow Control Valves remaining at the pre-transient positions.

C. Both Recirculation Pumps are OFF with the Recirc Flow Control Valves for both loops in the minimum position.

D. Both Recirculation Pumps are OFF with the Recirc Flow Control Valves remaining at the pre-transient positions.

ANSWER: A

NRC KA:	RO:	SRO:
202001 K4.16	3.3	3.6
259002 K1.15	3.2	3.2

IDNO: 541

LP # STM-053 **OBJ #** 2B

REFERENCES AOP-0024
ARP-P601-19A-H8
ARP-P601-19A-H11
CFR 41.5
CFR 41.6
CFR 43.6

QUESTION 82

The plant is operating at 100 % power. The CCP line inside Containment going to the RWCU Non-Regenerative Heat Exchangers has ruptured. An operator in the area has manually isolated CCP to the Non-Regenerative Heat Exchangers.

Which one of the following describes the plant response with NO further operator actions?

A. The RWCU Filter Demins will isolate and go into hold due to Low CCP Flow through the Non-Regenerative Heat Exchangers.

B. The RWCU Filter Demins bypass valve will open and the Filter Demins will go into Hold due to High Filter Demin Inlet temperature.

C. The RWCU pumps will immediately trip on High Filter Demin Inlet Temperature and G33*MOVF004, RWCU PUMPS OUTBD SUCTION VALVE will isolate to protect the Filter Demins.

D. G33*MOVF004, RWCU PUMPS OUTBD SUCTION VALVE will isolate on High Filter Demin Inlet temperature causing the RWCU pumps to trip on low flow.

ANSWER: D

NRC KA:	RO:	SRO:
204000 K4.04	3.5	3.6
204000 A3.03	3.6	3.6

IDNO: 579

LP # HLO-006 **OBJ #**

REFERENCES ARP-P608-01A-B01
ARP-P608-01A-A01
CFR 41.4
SOP-0009
AOP-0011

QUESTION 83

The plant is operating at 100 % power.

A leak in the RWCU pump room caused an isolation of the RWCU System.

G33*MOVF040, RWCU RETURN TO FW failed to close.

Which one of the following actions is REQUIRED to be taken?

A. The penetration is allowed to remain unisolated if the remainder of isolation valves in the rest of the RWCU system have isolated.

B. Verify another valve in the associated penetration is closed and is also de-activated.

C. The penetration is allowed to be unisolated during present conditions as long as the RWCU pumps have tripped.

D. The plant must shutdown to cold shutdown and shutdown the RWCU system.

ANSWER: B

NRC KA:	RO:	SRO:
290001 A2.06	3.7	4
290001 A4.10	3.4	3.3

IDNO: 598

LP # **OBJ #**

REFERENCES TS 3.6.1.3
TR 3.6.1.3-1
CFR 41.9

QUESTION 84

The plant is operating at 6% rated power, with a plant startup in progress in accordance with GOP-0001. Both Off-gas Post Treatment radiation monitors have alarmed on a High-High-High Radiation signal.

Which one of the following describes the response of the Offgas system and the required operator actions?

A. The Offgas system will shift to the "Treat" mode of operation and operators will be required to monitor Offgas Pre-treat and Post-Treat radiation levels.

B. The Offgas system will shift to the "Bypass" mode of operation and operators will be required to monitor Offgas system Post-treat radiation levels.

C. The Offgas system will isolate and operators will enter AOP-0005 for a loss of condenser vacuum.

D. The Offgas system will maintain its current alignment and no operator action will be required since this condition is normal when power reaches 5% of rated.

ANSWER: C.

NRC KA:	RO:	SRO:
271000 K3.01	3.5	3.5

IDNO: 673

LP # **OBJ #**

REFERENCES AOP-0005 CFR 41.13
ARP-P601-22A-A03

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QUESTION 85

The plant is operating at 100 % power.

A fire erupts in the Division I Diesel Generator room causing the sprinkler system to initiate.

Fire Water header pressure has dropped to 115 psig.

Which one of the following actions would be expected to occur?

A. The Motor Driven Fire Pump will auto start and the Diesel Driven Fire Pump "A" and "B" will start immediately if the Motor Driven Fire Pump fails to start.

B. The Motor Driven Fire Pump will auto start, if header pressure is still at 115 psig after15 seconds AND the Motor Driven Fire Pump failed to start, then the Diesel Driven Fire Pump "A" will start.

C. The Diesel Driven Fire Pump "A" will auto start, if fire water header pressure remains at 115 psig for 10 seconds, whether the Motor Driven Fire Pump starts or NOT.

D. The Diesel Driven Fire Pump "A" will auto start, if fire water header pressure remains below 140 psig for 10 seconds and the Motor Driven Fire Pump is running.

ANSWER: D

NRC KA:	RO:	SRO:
286000 K4.03	3.3	3.4
286000 A4.05	3.3	3.3

IDNO: 610

LP # **OBJ #**

REFERENCES SOP-0037
CFR 41.4

QUESTION 86

Which one of the following statements describes the basis for automatic reactor scrams associated with a Main Turbine Trip?

A. In the event of a Main Turbine trip, the Main Steam Bypass valves are too small to handle the capacity of reactor steam flow.

B. Scramming the reactor prevents excessive steam pressures from causing a Main Turbine overspeed condition due to leakage of the Main Turbine Stop and Control Valves.

C. The scram anticipates the decrease in Reactor Recirculation Flow that at high power would result in thermal hydraulic instability

D. The scram inserts a large amount of negative reactivity to prevent exceeding thermal limits at the end of core life because of the distance control rods must insert to be effective.

ANSWER: D

NRC KA:	RO:	SRO:
295005AA2.03	3.1	
212000K1.10	3.2	
295005 AA2.05	3.8	

IDNO: 613

LP # **OBJ #**

REFERENCES TS 3.3.1.1
TS 3.3.4.1
CFR 41.4
CFR 41.5

QUESTION 87

An accident has occurred and radioactive fission products have been detected in the Auxiliary Building, Fueling Building, Containment, Drywell, and the Annulus.

Chemistry has performed and verified an Offsite Dose Calculation using Plant Ventilation Radiation Monitor Data and reported the following site boundary calculations:

25 mRem/hr DDE
1.1 E-9 microcurie/cc I-131

Offsite Monitoring Teams, downwind of the plant have reported and verified the following readings at the site boundary:

60 mRem/hr DDE
1.95 E-7 microcurie/cc I-131

Which one of the following best explains the higher readings reported by the Offsite Monitoring Teams?

A. The Offsite Monitoring Teams are near the center of the plume.

B. The wind speed has increased causing higher reading at the site boundary.

C. The Stability Class has changed, it has become more unstable.

D. An unmonitored release is in progress.

ANSWER: D.

NRC KA:	RO:	SRO:
295038 EA2.04	4.1	4.5

IDNO: 662

LP # **OBJ #**

REFERENCES EIP-2-001 CFR 41.11
CFR 43.4

QUESTION 88

EOP-2 requires containment to be vented before containment pressure reaches 30 psig. Which one of the following describes the flow path for emergency venting of the containment?

A. Hydrogen purge discharges through the Drywell/Containment purge system filter train #6 to the main stack.

B. Drywell/Containment purge system takes a suction on containment and discharges through filter train #6 to the main stack.

C. Drywell/Containment purge fan takes a suction on containment and discharges through the purge exhaust fans to the main stack.

D. Hydrogen purge discharges to the annulus and the annulus mixing system is in operation discharging to SGTS.

ANSWER: D

NRC KA:	RO:	SRO:
295024 EA1.19	3.3	3.4
261000 A4.04	3.3	

IDNO: 118

LP # HLO-516 **OBJ #** 21

REFERENCES EOP-0002 CP-8 LEVEL 3
EOP-0005 ENCL 21

QUESTION 89

During power ascension the following plant conditions are noted to occur over a 3 minute period.

Reactor pressure decreased to 820 psig, now stable.
Reactor Water Level +32" and rising.
Reactor power decreased 5%, now stable at 55%
Generator output decreased to 550 Mwe from 600 Mwe.

Which of the following is required?

A. Scram and shut the MSIVs.

B. Shut the MSIVs only.

C. Increase power with recirculation flow.

D. Insert a manual scram only.

ANSWER: A.

NRC KA:	RO:	SRO:
223002 A2.09	3.6	3.7
216000 K4.04		3.7

IDNO: 232

LP # HLO-007 **OBJ #** 9

REFERENCES AOP-0003
AOP-0001
ADM-0022

QUESTION 90

Which one of the following components of a Control Rod Drive Mechanism acts to limit the speed of the control rod in the event of a control rod drop accident?

A. Velocity Limiter

B. Stop Piston

C. Drive Piston

D. Collet Assembly

ANSWER: A.

NRC KA:	RO:	SRO:
201003 K4.01	2.9	

IDNO: 700

LP # STM-052 **OBJ #** 8

REFERENCES STM 052

QUESTION 91

The plant is operating at 1% rated power, the reactor mode switch has just been taken to RUN. Both Mechanical Vacuum Pumps (A&B) are running to maintain condenser vacuum while troubleshooting of the Offgas is being performed.

A loss of RPS bus "B" occurs.

Which one of the following describes the expected plant response?

A. All MSIVs will close, Reactor Sample Valves B33-F019 and B33-F020 close, both Mechanical Vacuum Pumps Trip.

B. MSIVs will receive a half isolation signal and ONLY the "B" Mechanical Pump will trip.

C. MSIVs will receive a half isolation signal, both Mechanical Vacuum Pumps Trip

D. MSIVs will close and the both Mechanical Vacuum Pumps trip

ANSWER: C

NRC KA:	RO:	SRO:
272000 K2.01	2.5	

IDNO: 701

LP # **OBJ #**

REFERENCES ARP H13-P601/19A/C01
ARP H13-P601/19A/C03

QUESTION 92

Which one of the following fire extinguishing agents utilizes a "free radical process" in which the chemical reaction of fuel and oxygen is inhibited thus rapidly stopping the combustion process.

A. Chemical Firefighting Foam

B. Halon

C. Carbon Dioxide

D. Water

ANSWER: B.

NRC KA:	RO:	SRO:
286000 K5.02	2.6	

IDNO: 702

LP # **OBJ #**

REFERENCES LOTM 73

QUESTION 93

Concerning the plant air systems, which one of the following statements correctly describes the relationship between the Instrument Air System and the Service Air System?

A. The Instrument Air System and the Service Air System are not capable of being cross-connected due to the safety related nature of the Instrument Air System.

B. The Instrument Air System will automatically cross-connect to the Service Air System if pressure at the discharge of the Instrument Air Compressors drops below a specified value. The systems will automatically realign when pressure rises above the pre-determined setpoint.

C. The Instrument Air System and the Service Air System can be cross-connected ONLY by a manual isolation valve.

D. The Instrument Air System will automatically cross-connect to the Service Air System if pressure at the discharge of the Instrument Air Compressors drops below a specified value. Once pressure is restored in the system, the cross connect valve must be manually reset.

ANSWER: D.

NRC KA:	RO:	SRO:
300000 K4.01	2.8	2.9

IDNO: 703

LP # **OBJ #**

REFERENCES SOP-0021
SOP-0022

QUESTION 94

The plant is operating at 100% power. The Control Room Operator inappropriately places the Outboard MSIV Positive Leakage Control System switch to OPERATE.

Which of the following signals will prevent the Outboard MSIV Positive Leakage Control System from initiating?

A. The post LOCA 20 minute timer has not timed out.

B. The required main steam line pressure and reactor pressure requirements have not been met.

C. A LOCA signal on either high drywell pressure or low reactor water level is not present.

D. All Main Steam Isolation Valves have not been fully closed.

ANSWER: B

NRC KA:	RO:	SRO:
239001 K1.13	2.6	2.8
239003 K1.01	3.3	3.4
239003 K4.03	2.9	3.2

IDNO: 190

LP # LOTM-8 **OBJ #** 4

REFERENCES ARP-601-17-G05
ARP-601-17-G06
SOP-0034

QUESTION 95

WHICH ONE (1) of the following is the consequence of operating the Division I EDG with a loss of control air pressure?

A. All non emergency shutdown functions on the Diesel are inhibited. Emergency shutdown functions remain operable.

B. All shutdown functions on the Diesel are inhibited.

C. The Diesel engine will shutdown.

D. The jacket cooling water temperature control valve will fail open.

ANSWER: C

NRC KA:	RO:	SRO:
2.1.28	3.2	3.6

IDNO: 360

LP # **OBJ #**

REFERENCES SOP-0053

QUESTION 96

The plant is in a refueling outage with the reactor vessel disassembled. The Reactor cavity is filled to 23 feet above the flange. Fuel movement is in progress. The refueling cavity bellows ruptures.

In accordance with AOP-0027 FUEL HANDLING MISHAPS which one of the following is NOT an allowed safe position for an irradiated fuel bundle?

A. The Upper Containment Fuel Pool Fuel Rack.

B. The Cattle Chute hanging on the fuel grapple.

C. The Fuel Transfer Mechanism carriage rack.

D. The Reactor Vessel in an area of the core which has no fuel.

ANSWER: B

NRC KA:	RO:	SRO:
295023AK3.01	3.6	4.3
2.2.30	3.5	

IDNO: 557

LP # **OBJ #**

REFERENCES AOP-0027
FHP-0003
CFR 41.2
CFR 41.10
CFR 41.12
CFR 43.4
CFR 43.5
CFR 43.6
CFR 43.7

QUESTION 97

An ALERT has been declared due to an Offsite radioactive release is in progress. The CRS has entered EOP-0003, "Radioactive Release Control".

Which one of the following describes the reason for restoring Turbine Building ventilation?

A. Preserves Turbine Building accessibility and allows monitoring the release.

B. Maintains proper environmental conditions for operation of equipment required to adequately cool the core.

C. Restores proper differential pressure resulting in leak rate reduction.

D. Minimizes contamination due to noble gases.

ANSWER: A

NRC KA:	RO:	SRO:
2.3.11	2.7	

IDNO: 385

LP # **OBJ #**

REFERENCES EOP-0003

QUESTION 98

10 CFR 50.54(x) states that reasonable action that departs from a license condition or technical specification may be taken in an emergency to protect the health and safety of the public.

Which one of the following correctly identifies whose approval at a MINIMUM must be obtained in order to depart from a license condition?

A. Emergency Director

B. A licensed Senior Reactor Operator

C. Recovery Manager

D. Vice President, Plant Operations

ANSWER: B

NRC KA:	RO:	SRO:
294001 A1.11	3.3	4.3
2.4.12	3.4	

IDNO: 399

LP # **OBJ #**

REFERENCES 10CFR50.54

QUESTION 99

Following Classification of an Emergency Event, what are the MAXIMUM time interval guidelines for making NOTIFICATIONS to State and Local Authorities of the emergency classification?

Notification must be made:

A. immediately.

B. within 15 minutes.

C. within 4 hours

D. within 1 hour

ANSWER: B.

NRC KA:	RO:	SRO:
294001A116	2.9	4.7
2.4.39	3.3	

IDNO: 441

LP # ETT-023 **OBJ #** 1

REFERENCES EIP-2-002

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QUESTION 100

A manual scram from full power was initiated as a result of high drywell pressure due to a leak. All automatic functions and isolations occurred per design, except that not all the control rods inserted fully. Plant conditions are as follows:

- Reactor Power is 10%
- Suppression Pool temperature is 105 degrees and rising
- MSIVs are closed
- SLC Pump "B" is running and injecting (approximately 5 minutes)

As the operator monitors SLC parameters, SLC tank level indicates zero (0) inches.

Which one (1) of the following actions should be taken next?

A. Start SLC Pump "A".

B. Re-energize NHS-MCC102A to restore power to the SLC tank level indication.

C. Initiate actions to inject alternate SLC per Encl. 15.

D. Install Encl. 16 Bypassing CNTMT Instrument Air Isolation Interlocks

ANSWER: D

NRC KA:	RO:	SRO:
295037 EA1.04	4.5	4.5
295037EA2.03	4.3	4.4
211000 K5.06	3	3.2
2.4.48	3.5	

IDNO: 416

LP # HLO-513 **OBJ #** 4

REFERENCES EOP-0005, Encl. 16