

Question 1.

The plant was operating at 100% when a loss of offsite power occurred. The following conditions exist:

- Drywell Pressure is 1.89#
- EDG 12 has failed to start.

What ECCS equipment will be unavailable?

\_\_\_\_\_ A. Core Spray Pump A and RHR Pump A

\_\_\_\_\_ B. Core Spray Pump B and RHR Pump B

\_\_\_\_\_ C. Core Spray Pump C and RHR Pump C

\_\_\_\_\_ D. Core Spray Pump D and RHR Pump D

Point Value: 1

Question 2.

The plant is in a refueling outage. The crew is planning to withdraw a control rod on a fueled cell. All prerequisites have been met.

- Core reload.....complete
- Core Independent Verification.....complete
- Strongest rod out subcritical check...not complete
- RPV level.....21 feet above RPV flange
- Shutdown Cooling (SDC)..... in service

RPS Bus 'A' is deenergized due to personnel error. Which of the following describes the effect on the plant?

- A. No effect
- B. Half-scam on RPS Division 1
- C. A half-scam on RPS Division 1 and SDC isolation
- D. A full scram and SDC isolation

Point Value: 1

Question 3.

Which of the following would indicate that all control rods are fully inserted?

- A. Accumulator low pressure alarm received on all control rods.
- B. Full In lights illuminated on all control rods.
- C. One-rod-out permissive light out when Mode Switch in shutdown.
- D. OD-7 option 2 print out shows all control rods at position 02 or lower.

Point Value: 1

Question 4.

The plant was operating at 100 % power when a spurious MSIV closure occurred. The following conditions exist:

- All rods are in
- RPV pressure is 1000 psig, being controlled with Low Low Set (LLS) SRVs
- RPV level is being maintained between 173 to 214 inches.

Which of the following describes the reason for controlling RPV pressure with LLS?

- A. Prevent exceeding RCS Safety Limits.
- B. Prevent excessive SRV cycling.
- C. Allow rapid depressurization of the RCS in case of a LOCA.
- D. Prevent exceeding RCS design limits.

Point Value: 1

Question 5.

The plant was operating at 100% when a scram signal was received and the reactor failed to scram. The following conditions exist:

- Reactor Power - 20%
- RPV pressure - 945 psig
- SLC pump 'A' running

After successful completion of 'Terminate and Prevent' for level, what is the best indication that RPV level will stabilize?

\_\_\_\_\_ A. Reactor power and pressure

\_\_\_\_\_ B. Steam flow and feed flow

\_\_\_\_\_ C. Reactor feed pump speed

\_\_\_\_\_ D. SULCV position

Point Value: 1

Question 6.

A small break LOCA has occurred, resulting in a reactor scram and numerous system isolations and actuations. Drywell temperature is 148 °F and drywell pressure is 1.87 psig. The EECW System has automatically initiated. Prior to restoring drywell cooling, what must be done?

- A. Depress the Reset Pushbuttons for the EECW System IAW 20.127.01.
- B. Restart the RBCCW Pumps to reset the logic IAW 20.127.01.
- C. Turn the EECW override switch to OVERRIDE IAW 29.ESP.23.
- D. Leads must be lifted to defeat the closure signal IAW 29.ESP.23.

Point Value: 1

Question 7.

The plant was operating at 100% when, due to an operator error, the Drywell (DW) Fan Master CMC switch for Division 1 DW Cooling fans was placed in All Stop.

The following conditions exist:

- Alarm 8D41 "Div 1 High Drywell Temperature".....lit
- Alarm 17D41 "Div 2 High Drywell Temperature".....lit
- Confirmed Average Drywell Temperature.....138 F
- Drywell Pressure.....0.41 psig

What actions should the CRS direct?

- A. Enter 29.100.01 Sheet 2, Primary Containment Control, and operate all available DW cooling
- B. Enter 29.100.01 Sheet 2, Primary Containment Control, and shutdown Reactor Recirc pumps
- C. Start all available DW fans and monitor DW temperature and pressure
- D. Lower DW pressure per 23.415, Primary Containment Nitrogen Inerting and Purge, and monitor DW temperature and pressure

Point Value: 1

Question 8.

The Control Room crew is performing 24.202.01, HPCI Pump Time Response and Operability Test At 1025 PSI when Torus Temperature reaches 106 °F.

What action is required and why?

- A. Suspend 24.202.01 to preserve heat absorption capability of the torus.
- B. Scram the reactor to prevent exceeding the design basis of the torus.
- C. Start RHR torus spray to preserve heat absorption capability of the torus
- D. Enter 29.100.01 Sheet 2 to prevent exceeding the design basis of the torus

Point Value: 1



Question 9.

A reactor startup is in progress after a forced outage.

The P603 Operator is pulling rods to raise RPV pressure.

An extra operator is in the process of starting the North Reactor Feed Pump (RFP) in accordance with 22.000.02, PLANT STARTUP TO 25% POWER

The following conditions exist:

- RPV Pressure.....450 psig
- Bypass Valves.....closed
- RPV Level.....197 inches
- Reactor Pressure Regulator setpoint.....475 psig
- . . . . .

During the warmup, the operator inadvertently opens N2100-F607, N RFP DISCH LINE ISO VALVE.

Based on these conditions, how will the reactor respond, and what action should the CRS direct?

- \_\_\_\_\_ A. The fuel temperature coefficient will react first to stop the power increase. Stop all rod movement.
  
- \_\_\_\_\_ B. The fuel temperature coefficient will react first to cause the power increase. Trip the RFP.
  
- \_\_\_\_\_ C. The moderator temperature coefficient will react first to stop the power increase. Place Mode Switch in Shutdown.
  
- \_\_\_\_\_ D. The void coefficient will react first to stop the power increase. Isolate the Startup Level Control Valve.

Point Value: 1

## Question 10.

The plant is performing a reactor startup from cold shutdown with the reactor at the point of adding heat.

The Control Room Supervisor instructed the operators to stop the startup for a short duration to perform a surveillance. During this time power dropped on the IRMs.

The P603 operator, noting that reactor power had dropped, selected the next control rod and withdrew the control rod from 20 to 48 with continuous motion as allowed by the Rod Pull sheets. This resulted in a 20 second period.

The following are the plant parameters at present:

- Reactor Pressure 80 psig
- Reactor Level 197 inches

Which one of the following describes the immediate action the P603 operator must take?

- \_\_\_\_\_ A. Range all IRMs to range 10 and monitor overlap data between IRMs and APRMs.
- \_\_\_\_\_ B. Perform the coupling check for the control rod, and inform the Station Nuclear Engineer of the power rise.
- \_\_\_\_\_ C. Insert the control rod to a position which causes reactor period to be greater than 50 seconds.
- \_\_\_\_\_ D. Withdraw the next in sequence control rod to maintain the power rise to reach the point of adding heat.

Point Value: 1

Question 11.

Heavy thunderstorms just caused a load-reject from 100% power. The reactor conditions are:

- APRM Power stable at 20%
- No indications of control rod position
- Recirc pumps tripped
- All MSIVs are open
- Reactor Level being maintained by feedwater
- Reactor Pressure being maintained through Turbine Bypass Valves
- Mode switch in SHUTDOWN

The CRS should direct what action and why?

- \_\_\_\_\_ A. Inhibit ADS to prevent a reactivity addition and possible core damaging power excursion.
- \_\_\_\_\_ B. Bypass and restore drywell pneumatics to maintain the condenser as a heat sink.
- \_\_\_\_\_ C. Terminate and prevent to prevent high core inlet subcooling.
- \_\_\_\_\_ D. Order 29.ESP.11 for MSIVs to prevent possible discharge of radionuclides to the suppression pool.

Point Value: 1

## Question 12.

A SCRAM signal has been received, but not all rods have inserted. Reactor power is 15%. The CRS has ordered the P603 operator to insert control rods per 29.ESP.03, Alternate Control Rod Insertion Methods.

Which of the methods in 29.ESP.03 require the operator to bypass the Rod Worth Minimizer (RWM) and why must it be bypassed?

- A. Deenergize Scram Solenoids, **because** the Rod positions may not match the RWM sequence.
- B. Manual Control Rod Insertion, **because** Rod positions may not match the RWM sequence.
- C. Manual Control Rod Insertion, **because** Rod position indication from the Rod Position Information System is lost during a scram.
- D. Deenergize Scram Solenoids, **because** Rod position indication from the Rod Position Information System is lost during a scram.

Point Value: 1

Question 13.

Following a Control Room Evacuation the plant is being controlled from the Remote Shutdown System at Panel H21-P100, per Abnormal Operating Procedure (AOP) 20.000.19, SHUTDOWN FROM OUTSIDE THE CONTROL ROOM. How are RPV water level and pressure maintained from the Remote Shutdown Panel?

- A. RPV level is maintained using SBFW pumps and Low Low SRV's A & G automatically maintain pressure.
- B. RPV level is maintained using RCIC and CRD and pressure is maintained using SRV's A & B.
- C. RPV Level is maintained using HPCI and the Turbine Bypass Valves are used to maintain pressure.
- D. RPV level is maintained using SBFW and RCIC and pressure is maintained using the Main Turbine Bypass Valves.

Point Value: 1

Question 14.

The plant was operating at full power when a fire in the Relay Room occurred. This resulted in the spurious operation of numerous components and smoke in the control room. A loss of offsite power also occurred resulting in an EOP entry condition on low RPV water level.

Given these conditions, what procedure will provide the control room staff with the best guidance for coping with this event?

- A. 29.100.01 SH 1 RPV CONTROL
- B. 29.100.01 SH 2 PRIMARY CONTAINMENT CONTROL
- C. 20.000.18 SHUTDOWN FROM THE DEDICATED SHUTDOWN PANEL
- D. 20.000.19 SHUTDOWN FROM OUTSIDE THE CONTROL ROOM

Point Value: 1

Question 15.

Which one (1) of the following is the reason that the preferred Emergency Primary Containment Vent path is through the torus?

- A. To cool the vented gases.
- B. To reduce the hydrogen released.
- C. To minimize release of Nitrogen
- D. To reduce the radiation released.

Point Value: 1

Question 16.

Refueling is in progress. As a once burned fuel bundle is being placed in the core SRM counts on one of the 2 operable SRM detectors begin increasing with a steady positive period. In accordance with procedure MOP13, Refueling Operations, you IMMEDIATELY:

- A. place the mode switch in shutdown.
- B. direct the refuel floor to stop fuel movement.
- C. inform the refuel floor to remove the fuel bundle and try again.
- D. declare the improperly responding SRM INOP and insert all insertable control rods within 1 hour

Point Value: 1



Question 17.

The plant has experienced a LOCA. The following conditions exist:

- RPV level.....100 inches
- Reactor Building Pressure.....-0.58 inches wc
- Control Room HVAC.....Recirc
- Reactor Building HVAC Supply fan.....Off
- Reactor Building HVAC Exhaust fan.....Off
- 8D46 DIV I REACTOR BLDG PRESSURE HIGH/LOW.....Alarm
- 17D46 DIV 2 REACTOR BLDG PRESSURE HIGH/LOW...Alarm

What is the cause of Alarms 8D46 and 17D46 and what action should be taken?

- A. Standby Gas Treatment is running, shut down one train of Standby Gas Treatment
- B. Standby Gas Treatment failed to start, initiate Standby Gas Treatment
- C. Reactor Building HVAC is isolated, start Reactor Building HVAC supply and return fans
- D. Reactor Building HVAC is not isolated, isolate Reactor Building HVAC

Point Value: 1

## Question 18.

Venting the Drywell is in progress in accordance with 23.406. The following alarms/indications are received:

- 3D81, PRIMARY CONTAINMENT PRESSURE HIGH/LOW
- T50-R802A, Div 1 PC Pressure Recorder indicates 0.10 psig.
- T50-R802B, Div 2 PC Pressure Recorder, indicates 0.10 psig.

Which of the following is a correct statement with regard to the Fermi 2 Primary Containment Pressure Technical Specification (TS) Limiting Condition for Operation (LCO), Required Action, and Completion Time?

- \_\_\_\_\_ A. Pressure is outside the TS LCO, restore to within limit within 1 hour.
- \_\_\_\_\_ B. Pressure is outside the TS LCO, restore to within limit within 8 hours.
- \_\_\_\_\_ C. Pressure is within the TS LCO, no TS Required Action, raise pressure to restore to normal band.
- \_\_\_\_\_ D. Pressure is within the TS LCO, no TS Required Action, lower pressure to restore to normal band.

Point Value: 1

Question 19.

Which of the following statements accurately describes a relationship between HPCI and RCIC?

- A. Both use the CST as a suction source and both share a common minimum flow line.
- B. With the RCIC system inoperable HPCI is allowed a 14 day out of service time.
- C. RCIC and HPCI may not be inoperable at the same time with RPV pressure >150 psig.
- D. Both use Demin water in their Keep Fill lines.

Point Value: 1

Question 20.

The Reactor was manually scrammed following a loss of 65 G bus. Following the Pressure leg of the RPV Control EOP directs manually opening SRVs until RPV pressure drops to 960 psig. Why is pressure maintained above 960 psig?

- A. To prevent exceeding the 90 °F/hr cooldown limit.
- B. To maintain the Bypass Valves fully open.
- C. To prevent Level 8 trips caused by swell.
- D. To maintain sufficient pressure to operate HPCI and RCIC.

Point Value: 1

## Question 21.

The plant is operating at 100% power, when an SRV opened and remained stuck open.

Which of the following identifies the correct bases for the required action?

- A. At 110 °F in the suppression pool, place mode switch in shutdown. A plant shutdown prevents challenging the containment design limits from steam released to the suppression pool with the plant at power.
- B. At 105 °F in the suppression pool, additional monitoring of pool temperature is required. Heat addition to the pool is allowed to continue, provided suppression pool temperature does not exceed 110 °F.
- C. At 100 °F in the suppression pool, either Division 1 or Division 2 RHR is recommended for heat removal. It is desired to use only one loop to preclude inadequate core cooling in the event of an accident.
- D. At 95 °F in the Suppression Pool all testing that adds heat to the suppression pool is terminated and PC Control is entered. Guidance and direction is provided to ensure suppression pool temperature does not exceed 185 °F, if an accident occurs.

Point Value: 1

Question 22.

Technical Specification 3.6.2.2 states: Suppression pool water level shall be maintained between -2 inches and +2 inches in Modes 1, 2, and 3. Select from below the Bases for the -2 inch limit in this specification.

- A. Ensure a sufficient quantity of water is available to condense steam from SRV T-Quenchers
- B. Ensure a sufficient quantity of water to prevent excessive pool swell and flooding of the downcomers during a DBA LOCA.
- C. Ensure a sufficient quantity of water to prevent violation of the Vortex Limit for the HPCI and/or RCIC Pumps.
- D. Ensure a sufficient quantity of water to prevent excessive clearing loads from SRV discharges.

Point Value: 1

## Question 23.

With the plant operating at full power, RPV level is being maintained at 197 inches by the Master Feedwater Controller in AUTO. The following events occur:

- The Backup Scram Valve Relay, is momentarily activated by an I&C error and Post Scram Feedwater logic is actuated.
- Annunciator 3D157, POST SCRAM FW LOGIC ACTUATED is received.

What is the effect of placing the SULCV Mode Switch placed in START?

- \_\_\_\_\_ A. The Master Feedwater Controller will respond to decrease level and the reactor will scram on RPV low level.
- \_\_\_\_\_ B. Post Scram Feedwater logic is bypassed and the FW Master Controller will stabilize and maintain RPV level at 197 inches.
- \_\_\_\_\_ C. Only the annunciator and the "Post Scram" white light on P603 will be activated because the RPS trip signal was not maintained for 6 seconds.
- \_\_\_\_\_ D. Only the annunciator and the "Post Scram" white light on P603 will be activated because only the Div. II relay actuated to initiate the Post Scram Feedwater logic.

Point Value: 1

Question 24.

On direction from the CRS, an operator has placed the SLC Initiation Keylock Switch (C4100-M004) in the PMP A Run position. The following indications are noted 30 seconds later:

- C41 LIR601 (SLC Tank Level) steady
- Primer circuit continuity indicators OFF
- SLC pump A red light ON, green light OFF
- C41 PI R600 (SLC Pump Discharge Pressure) pulsating at 1400 psig
- Annunciator (3D11 SLC IGNITION CONTINUITY LOSS) activates

The above conditions indicate:

- \_\_\_\_\_ A. Normal operation for the SLC System.
- \_\_\_\_\_ B. C41-F004A (Pump A Squib Valve) failed to fire.
- \_\_\_\_\_ C. C41-F008 (SLC Manual Injection Valve) closed.
- \_\_\_\_\_ D. C41-F029A (SLC Pump A Discharge Relief Valve) failed open.

Point Value: 1



## Question 25.

The plant is operating at 100% power when the following alarms occur:

- 3D32, Div I/II RB Vent Radn Monitor Upscale
- 3D36, Div I/II RB Vent Exh Radn Monitor Upscale Trip
- . . . . .

What actions should the CRNSO perform and why?

- \_\_\_\_\_ A. Verify Secondary Containment isolated, to stop unfiltered release of radioactive particles to the environment.
- \_\_\_\_\_ B. Direct a channel function test performed on all RB Vent Exhaust radiation monitors to verify readings. No isolations should have occurred.
- \_\_\_\_\_ C. Declare the radiation monitors inoperable, notify Chemistry to take samples, and initiate a plant shutdown. These rad monitors are required by Tech Specs.
- \_\_\_\_\_ D. Perform an immediate plant shutdown because Secondary Containment integrity can no longer be verified.

Point Value: 1

Question 26.

The reactor was operating in Mode 1 when a LOCA occurred. The following conditions exist:

- RPV pressure .....60 psig
- RPV level .....20" (wide range)
- Drywell pressure .....7 psig
- Division 1 and 2 Primary Containment H2/O2 Monitors are inoperable
- The Reactor Building is inaccessible and the PASS system is unavailable

In accordance with the EOP override statements, what action should be taken?

- A. Emergency RPV depressurization is required.
- B. Vent the drywell irrespective of offsite radiation release rate
- C. Initiate torus and drywell sprays
- D. Shutdown drywell fans and H2 recombiners

Point Value: 1

Question 27.

The plant is operating at 100 % power when the "A" recirculation pump trips. The crew enters 20.138.01, Recirculation Pump Trip.

Which of the following describes the reason for placing the Recirc A & B Flow Limiter 2/3 Defeat Switch in DEFEAT?

- A. Ensures positive control of the Recirculation System.
- B. Prevents developing excessively high component vibrations in the reactor vessel internals.
- C. Maintains the plant within the capability of one feed pump while preventing an entry into a thermal hydraulic instability region.
- D. Limits Recirculation Pump speed by limiting the demand signal.

Point Value: 1

Question 28.

While operating at 4% power the following conditions exist :

- Offgas flow indication.....pegged offscale high
- Condenser vacuum.....2.1 psia (losing vacuum)
- MSIVs.....open
- All SJAEs.....in service

Given the above conditions, which of the following actions should be taken by the operating crew?

- A. Start the Mechanical Vacuum Pumps.
- B. Raise the pressure setpoint to close the Main Turbine Bypass Valves.
- C. Place the Reactor Mode Switch to SHUTDOWN and close the MSIVs.
- D. Place the Div 1 and 2 Low Condenser Vacuum Bypass Switches on Panel H11-P609 and P611 to BYPASS.

Point Value: 1

Question 29.

Due to an act of sabotage a total loss of Division I 130V/260V ESS Battery Busses has occurred. The plant then experienced a complete loss of offsite power.

What is the impact on the emergency diesel generators?

- A. Division 1 EDGs will auto-start, load shed and load sequence Division 1 ESS loads. Division 2 EDGs will auto-start, but not load shed and load sequence.
- B. Division 1 EDGs will not auto-start, load shed and load sequence Division 1 ESS loads. Division 2 EDGs will auto start, load shed and load sequence.
- C. Both divisions of EDGs will remain fully operational, auto starting, load shedding and load sequencing.
- D. Neither Division 1 nor Division 2 EDGs will auto start, load shed, nor load sequence automatically.

Point Value: 1

Question 30.

The plant is at 100% power when the following conditions occur:

- Main Turbine trips.
- Bypass Valves open
- ARI air supply valves are open
- ARI vent valves are closed

The reactor will scram in anticipation of the rapid:

- \_\_\_\_\_ A. INCREASE in thermal power
- \_\_\_\_\_ B. INCREASE in reactor water level
- \_\_\_\_\_ C. DECREASE in reactor water level
- \_\_\_\_\_ D. DECREASE in main steam line pressure

Point Value: 1

Question 31.

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

Which of the following describes the plant conditions that will cause a Main Turbine Trip and describes the basis for that trip?

The Main Turbine has tripped due to:

- A. The selected narrow range level instrument at a level of 214". This will prevent the erosion of the Main Steam piping and Main Control Valves' seats from moisture carryover.
- B. Two of the narrow range level instruments at a level of 214". This will prevent the erosion of the Main Steam piping and Main Control Valves' seats from moisture carryover.
- C. The selected narrow range level instrument at a level of 214". This will prevent the erosion of the Main Turbine Blades from moisture carryover.
- D. Two of the narrow range level instruments have a level of 214". This will prevent the erosion of the Main Turbine Blades from moisture carryover.

Point Value: 1

Question 32.

The plant was operating at 100% power when an spurious reactor scram occurred.

- The control rods are not completely inserted.
- Reactor Power is 50%.
- Drywell Pressure is .45 psig
- The EOPs have been entered and the CRS has ordered terminate and prevent based on exceeding the BIIT.

Assuming that the terminate and prevent is ended at TAF, how will the containment parameters respond during this evolution?

- \_\_\_\_\_ A. Drywell temperature will rise when drywell cooling fans trip.
- \_\_\_\_\_ B. Drywell temperature will rise due to a cooling water isolation.
- \_\_\_\_\_ C. Drywell temperature will lower due to RPV pressure and temperature lowering.
- \_\_\_\_\_ D. Drywell temperature will lower due to dual speed fans shifting to fast speed.

Point Value: 1



## Question 33.

While the plant is operating at full power, annunciator 7D50, Div I/II Control Air Compressor Auto Start, is received. Immediately following receipt of this annunciator, plant conditions were:

- RPV Pressure.....1024 psig and stable
- RPV Level.....197 in and stable
- Reactor Power.....100% and stable
- Both RR MG Sets.....77% speed with no limiter in effect
- Station Air Header Pressure.....79 psig

Which one of the following identifies the cause of the annunciator 7D50 and the initial response to take?

- \_\_\_\_\_ A. The Control Air Compressor started on Station Air pressure less than 80 psig. Dispatch an operator to cross-connect IAS to Div 2 NIAS..
- \_\_\_\_\_ B. The Control Air Compressor started on Control Air header pressure less than 80 psig. Dispatch an operator to cross-connect IAS to Div 2 NIAS.
- \_\_\_\_\_ C. The Control Air Compressor has started on Control Air pressure less than 85 psig. Enter 20.129.01, Loss of Station and/or Control Air.
- \_\_\_\_\_ D. The Control Air Compressor started on Station Air header pressure less than 90 psig. Enter 20.129.01, Loss of Station and/or Control Air.

Point Value: 1

Question 34.

The plant was operating at 100% when both Reactor Recirculation Pumps tripped. The crew has scrammed the reactor. A spurious level 2 signal has resulted in various containment isolations and actuations.

Due to the loss of RPV bottom head temperature indication, what condition must be satisfied prior to restart of the RR pumps?

- A. The bottom head temperature must be estimated.
- B. Coolant temperature in the operating loop is used to determine restart.
- C. The reactor must be restarted.
- D. The reactor must be brought to cold shutdown.

Point Value: 1

Question 35.

The plant is in Mode 3 with Division 1 Residual Heat Removal (RHR) in Shutdown Cooling (SDC) and RHR A pump running. A small break LOCA occurs which isolates SDC. The leak is isolated with RPV level at 150 inches.

What actions are required to restore SDC?

1. Restore RPV level to 220 inches
2. Restore RPV level to 170 inches
3. Reset Group 3 Isolations
4. Reset Group 4 Isolations
5. Reset E1150-F015A and F015B seal-in
6. Reset E1100-F006A and F006B seal-in

\_\_\_\_\_ A. 2, 3, 5

\_\_\_\_\_ B. 1, 4, 6

\_\_\_\_\_ C. 1, 4, 5

\_\_\_\_\_ D. 2, 3, 6

Point Value: 1

## Question 36.

The reactor is in Mode 2, with reactor pressure at 800 psig when the operating CRD pump trips. Before any action can be taken annunciator 3D10, CRD ACCUMULATOR TROUBLE, alarms for a withdrawn Control Rod.

What action is required in accordance with procedure 20.106.01, CRD Hydraulic System Failure? Why is this action required?

- A. Immediately start the standby CRD pump. Starting the standby pump should restore the system pressure to normal.
- B. Place the mode switch in SHUTDOWN. This is a conservative action to ensure reactor pressure is adequate to fully insert control rods.
- C. Within 20 minutes, close C1100-F034, CRD Charging Water Header Isolation Valve. Closing the C11-F034 with no pump running minimizes depressurization of CRD accumulators that have check valve leakage.
- D. Within 20 minutes restart at least one CRD pump or place the mode switch in SHUTDOWN. This time is reasonable to place a CRD pump into service to restore pressure.

Point Value: 1

Question 37.

The Plant has experienced a LOCA and the following plant conditions exist :

- RPV pressure.....25 psig
- RPV level.....+ 40 inches (slowly rising)
- Torus level.....+1.5 inches
- Torus temperature.....102 °F
- Drywell pressure.....21 psig
- Drywell temperature.....296 °F (saturated)
- Division 1 RHR..... in the torus cooling/spray mode
- Division 2 RHR.....injecting into RPV
- Core Spray.....injecting into RPV
- RPV Saturation Temperature in Drywell .....exceeded

Given the above conditions, identify which of the following actions is required by the operating crew.

- \_\_\_\_\_ A. Initiate drywell sprays.
- \_\_\_\_\_ B. Shutdown drywell cooling fans.
- \_\_\_\_\_ C. Emergency depressurize the RPV.
- \_\_\_\_\_ D. Enter the RPV Flooding Procedure.

Point Value: 1

## Question 38.

In an emergency event, in which a reactor scram signal has been initiated, the following conditions exist :

- Reactor power.....0 %
- Drywell pressure .....20 psig
- Drywell temperature.....275 °F
- Torus pressure.....19 psig
- Main condenser.....available
- RPV pressure.....900 psig (stable)
- Torus level .....exceeds SRVTPLL
- MSIVs.....isolated due to low vacuum
- RPV Level.....150 " and slowly lowering

Given these conditions, the operating crew should perform which of the following, and why?

- \_\_\_\_\_ A. Initiate torus and drywell sprays, to rapidly lower torus pressure within limits to prevent containment failure.
- \_\_\_\_\_ B. Vent the torus irrespective of offsite radioactivity release rates, to preclude imminent torus failure.
- \_\_\_\_\_ C. Prevent injection to the RPV from Core Spray and RHR, to limit torus level rise.
- \_\_\_\_\_ D. Commence Emergency Depressurization irrespective of cooldown rates, to preclude SRV system damage and containment failure.

Point Value: 1

## Question 39.

The plant is operating at 100% power when a high radiation level in the Secondary Containment caused the crew to enter 29.100.01 Sheet 5, Secondary Containment and Rad Release. Radiation levels approach the Max Safe Operating Rad Level and cause the crew to transition to 29.100.01 Sheet 1, RPV Control.

What is the basis for this action?

- A. When the RPV is the source of radioactivity, Sheet 1 actions should be adequate to terminate any further increase in radiation levels.
- B. When containment radiation levels exceed Max Safe Operating Level in one area, the RPV must be depressurized to terminate any further increase in radiation levels.
- C. When the RPV is not the source of radioactivity, a normal reactor shutdown is prudent.
- D. When offsite release rates exceed the General Emergency level the RPV must be depressurized to reduce the driving force of systems discharging outside containment.

Point Value: 1

## Question 40.

The plant is in an accident condition in which fuel failure has occurred. The following plant conditions exist:

- Reactor.....All rods in
- RPV pressure.....920 psig
- RPV water level.....+ 45 inches (dropping slowly)
- ARM Channel 11 & 13.....Pegged high
- Local surveys for these areas.(11 & 13)...6 & 5.5 R/hr (slowly rising)
- Low pressure ECCS.....operating normally

The Reactor Building Ventilation System has isolated. What conditions must be met to restart the RB HVAC System, defeating interlocks if necessary?

- \_\_\_\_\_ A. RB HVAC exhaust rad levels are <16,000 cpm and Fuel Pool Vent Exhaust radiation levels are > 5 mr/hr.
- \_\_\_\_\_ B. RB HVAC exhaust rad levels are <16,000 cpm and Fuel Pool Vent Exhaust radiation levels are < 5 mr/hr.
- \_\_\_\_\_ C. RB HVAC exhaust rad levels are <16,000 cpm and Turbine Building access is necessary to mitigate the event.
- \_\_\_\_\_ D. RB HVAC exhaust rad levels are >16,000 cpm and Fuel Pool Vent Exhaust radiation levels are < 5 mr/hr.

Point Value: 1



Question 41.

The Plant is in Mode 5 with movement of recently irradiated fuel in progress on the Refueling Floor.

Secondary Containment is declared inoperable due to Reactor Building (RB) vacuum out of spec.

What action must be taken?

- A. Verify at least one door in each RB access is closed within 1 hour.
- B. Restore Secondary Containment pressure within 1 hour.
- C. Start both divisions of Standby Gas Treatment System immediately.
- D. Suspend the fuel movement immediately.

Point Value: 1

Question 42.

Which of the following signals which will cause a Group 12 TWMS isolation?

- A. Drywell pressure high  
RPV level 1  
Drywell floor drain sump level high-high  
Reactor Building Torus sump level low
  
- B. Reactor pressure high  
RPV level 2  
Drywell floor drain sump level high-high  
Reactor Building Torus sump level high-high
  
- C. Drywell pressure high  
RPV level 2  
Drywell floor drain sump level high-high  
Reactor Building Torus sump level high-high
  
- D. Drywell pressure high  
RPV level 3  
Drywell equipment drain sump level high-high  
Reactor Building Torus sump level high-high

Point Value: 1

Question 43.

A fire has occurred in 3L Zone 8. The following conditions exist:

- Control Room is evacuated
- The reactor is shutdown
- The fire is out
- RPV pressure 800 psig

Which one of the following is the correct method for cooldown of the plant at this point?

- \_\_\_\_\_ A. Reactor Core Isolation Cooling in the Test mode.
- \_\_\_\_\_ B. Feedwater via the Startup Level Control Valve and the turbine bypass valves.
- \_\_\_\_\_ C. Div II Residual Heat Removal in Shutdown Cooling.
- \_\_\_\_\_ D. Standby Feedwater from the Condensate Storage Tank and Safety Relief Valve 'G'.

Point Value: 1

## Question 44.

The plant was increasing power from 73% at the '100% Rod Line', when the B RRMG set speed began rising without a demand signal from the operator. The power rise was stopped, when the B RRMG set scoop tube was locked by the P603 operator. The B RRMG set speed increase was 8%. Given these conditions, which of the following parameters would be observed at the P603 panel.

- A. Jet Pumps 1-10 flow increased, A and B loop flows and total core flow are higher than before the transient.
- B. Jet Pumps 11-20 flow is increased, A and B loop flows and total core flow are lower than before the transient.
- C. Jet Pumps 11-20 flow is increased, B loop flow and total core flow are higher than before the transient. A loop flow is slightly lower.
- D. Jet Pumps 1-10 flow is increased, B loop flow and total core flow are higher than before the transient. A loop flow is slightly lower.

Point Value: 1

Question 45.

A fault on MCC 72CF has caused 72C position 3C to open, thus blocking the automatic throwover capability for MCC 72CF.

What action is required?

- A. Restore MCC 72CF to operable within 7 days or be in Mode 3 within 12 hours.
- B. Restore MCC 72CF to operable within 24 hours or be in Mode 3 within 12 hours.
- C. Start shutdown within 1 hour and be in Mode 2 within 7 hours.
- D. Start shutdown within 1 hour and be in Mode 2 within 24 hours.

Point Value: 1

Question 46.

During an AUTOMATIC initiation of HPCI, the HPCI Pump flow is 5200 GPM. Five minutes later the E4150-F012 Pump Min Flow Valve fails open.

The HPCI system will respond by:

- A. Raising HPCI Turbine Speed
- B. Lowering HPCI Turbine Speed
- C. Indicated HPCI Flow Increasing above 5200 GPM
- D. Tripping HPCI at a Flow in excess of 5200 GPM

Point Value: 1

Question 47.

All power to the Division 1 DC bus has been lost.

Concerning the operation of Division 1 Core Spray System, if a LOCA occurred under these conditions which one of the statements is true?

- A. It will NOT operate automatically, however, the system can be manually initiated from the Main Control Room and inject into the Reactor.
- B. It 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. It is unable to be initiated manually or automatically from the Main Control Room or from any location within the plant.
- D. It is unable to be initiated manually or automatically, and the Core Spray pump will not operate from the Main Control Room, if the pump is started locally it will operate without minimum flow valve response.

Point Value: 1

Question 48.

The plant has experienced an ATWS event, and the CRS has ordered the P603 Operator to inject Standby Liquid Control (SLC).

Plant conditions are as follows:

- Reactor pressure.....950 psig
- Reactor power.....18%
- Torus temperature.....122 °F
- SLC pump A discharge pressure.....560 psig
- SLC pump B.....tagged, disassembled
- SLC Tank level .....70 in, slowly lowering

What is the cause of these conditions, and what action should the CRS direct?

- A. SLC is not injecting due to a system leak, perform Alternate Boron Injection.
- B. SLC is not injecting due SLC Pump A relief valve lifting, gag the relief valve to inject.
- C. SLC is injecting, inject Cold Shutdown Boron Weight into RPV.
- D. SLC is injecting, verify RWCU isolated.

Point Value: 1



Question 49.

Contacts off the SDV Bypass Switch allow the Scram Discharge Volume scram signal to be bypassed when the SDV Bypass Switch is in Bypass and the Reactor Mode Switch is in:

- A. Startup or Refuel
- B. Refuel or Shutdown
- C. Startup or Shutdown
- D. Shutdown only.

Point Value: 1

Question 50.

Which of the following plant electrical systems supplies power to the detector and electronic circuitry of the Source Range Monitoring (SRM) System?

- A. 24 VDC station batteries
- B. 130 VDC station batteries
- C. 120 VAC Instrument and Control Power
- D. 120 VAC UPS

Point Value: 1

## Question 51.

During a plant startup with control rod withdrawal in progress the following occurs:

- 3D115 "APRM Flow Upscale" alarm is received in conjunction with other alarms.
- Reactor Recirculation Pump speeds remained constant.
- Recirc Loop A flow **indicator** (B31-R613) indicates full scale.
- Recirc Loops A and B Flow Recorder (B31-R614) remains steady at 27,000 gpm for both A and B loops.

The crew determines APRM Upscale flow is **not** confirmed. What has occurred and what actions are required to continue the plant startup?

- \_\_\_\_\_ A. Only alarms have occurred, therefore no additional action is required. The plant startup can continue.
- \_\_\_\_\_ B. A rod block has occurred. A flow transmitter is inoperable requiring the bypass of APRM Channel 4 to continue the startup.
- \_\_\_\_\_ C. A half scram on Div 1 RPS has occurred. APRM Channel 1 shall be bypassed, the 1/2 scram reset and the startup can continue.
- \_\_\_\_\_ D. A rod block has occurred. A flow transmitter is inoperable requiring the bypass of APRM Channel 3 to continue the startup.

Point Value: 1

## Question 52.

The plant was operating at 95% power when the following indications were observed:

- Generator megawatt output - 1095MWe, rising slowly
- Reactor power - 97%, rising slowly
- RPV level - 197 inches, steady
- RPV pressure - 1015 psig, rising slowly
- Total core flow 95 Mlbm/hr and rising slowly

<b>A Recirc System:</b>		<b>B Recirc System:</b>	
recirc loop flow -	48000 gpm	recirc loop flow -	51000 gpm
jet pump loop flow -	45 Mlbm/hr	jet pump loop flow -	50 Mlbm/hr

Based on the given conditions, what has occurred and what action should be taken?

- \_\_\_\_\_ A. A pressure regulator failure has occurred. Enter 20.109.02, Reactor Pressure Controller Failure.
- \_\_\_\_\_ B. 'A' Recirc pump speed has lowered. Lower 'B' MG set speed to match recirc flows.
- \_\_\_\_\_ C. A jet pump failure has occurred. Enter 20.138.02, Jet Pump Failure.
- \_\_\_\_\_ D. 'B' Recirc pump speed has increased. Enter 20.138.03, Uncontrolled Recirc Flow Change.

Point Value: 1

Question 53.

The Reactor Core Isolation Cooling (RCIC) system has been started in accordance with 24.206.04, RCIC SYSTEM AUTOMATIC ACTUATION AND FLOW TEST.

The following conditions exist:

- RCIC Flow Controller, E51-K615, is in Auto, set at 650 gpm
- RCIC flow - 650 gpm
- RPV pressure - 185 psig

What happens to RCIC final speed and pressure if E41-F011 is opened an additional 5%?

- A. RCIC speed lower  
RCIC discharge pressure lower
- B. RCIC speed higher  
RCIC discharge pressure higher
- C. RCIC speed lower  
RCIC discharge pressure higher
- D. RCIC speed higher  
RCIC discharge pressure lower

Point Value: 1

Question 54.

The Reactor Core Isolation Cooling (RCIC) system is operating and supplying the RPV with the following conditions:

- RCIC Turbine supply pressure 900 psig
- RCIC Turbine exhaust pressure 12 psig
- RCIC ambient area temperature 160 °F
- Discharge flow 620 gpm

Describe the required operator actions to be taken for these conditions.

- \_\_\_\_\_ A. Monitor proper operation of RCIC.
- \_\_\_\_\_ B. Lower RCIC discharge flow to 600 gpm.
- \_\_\_\_\_ C. Ensure RCIC lube oil cooler in service.
- \_\_\_\_\_ D. Ensure RCIC isolation occurs.

Point Value: 1

Question 55.

While the plant was operating in the RUN mode, a LOCA and Loss of Offsite Power occurred and the following conditions exist :

- RPV water level.....+ 76 inches (lowering 4 inches/min)
- DW pressure.....17.5 psig (slowly rising)
- EDGs.....No. 14 ONLY running supplying associated ESF Bus

Given the above parameters and assuming no operator action involving ADS, identify which of the following describe the expected response of the ADS System.

If the low pressure ECCS Systems function as designed:

- \_\_\_\_\_ A. ADS will begin depressurizing the plant in approximately 13 minutes.
- \_\_\_\_\_ B. ADS will begin depressurizing the plant in approximately 20 minutes.
- \_\_\_\_\_ C. ADS will begin depressurizing the plant 105 seconds following EDG 11 restart.
- \_\_\_\_\_ D. ADS will begin depressurizing the plant 525 seconds following EDG 12 restart.

Point Value: 1

## Question 56.

Select from the following, those signals which will cause an RBHVAC trip and Secondary Containment Isolation?

All choices in the statements must be true for the selection to be correct.

- \_\_\_\_\_ A.   •    High Drywell Pressure 1.68 psig  
             •    Low RPV Water Level - Level 3  
             •    Fuel Pool Vent Exhaust Radiation  
             •    High Main Steam Line Radiation
- \_\_\_\_\_ B.   •    High Drywell Pressure 1.68 psig  
             •    Low RPV Water Level- Level 2  
             •    Fuel Pool Vent Exhaust Radiation  
             •    Reactor Building Exhaust Radiation
- \_\_\_\_\_ C.   •    High Drywell Pressure 1.68 psig  
             •    Low RPV Water Level - Level 1  
             •    Fuel Pool Vent Exhaust Radiation  
             •    Reactor Building Exhaust Radiation
- \_\_\_\_\_ D.   •    Low RPV Water Level- Level 2  
             •    Fuel Pool Vent Exhaust Radiation  
             •    Reactor Building Exhaust Radiation  
             •    High Main Steam Line Radiation

Point Value: 1



## Question 57.

The plant is operating at 85% power when the following occurs:

- RPS MG set 'A' trips deenergizing RPS/NSSSS power supplies.
- Alarm 1D39 NSSSS Isolation CH A/C trip is illuminated.
- Alarm 2D36 NSSSS Isolation CH B/D trip is clear.
- Various other alarms related to the loss of power are in on the P603 panel.

Select the response that describes (1) the immediate effect of this loss of power and (2) the action required to be taken.

- \_\_\_\_\_ A. (1) Inboard MSIVs, F022A-D close  
(2) Place the mode switch in shutdown
- \_\_\_\_\_ B. (1) All MSIVs close  
(2) Place the mode switch in shutdown
- \_\_\_\_\_ C. (1) Outboard MSIVs, F028A-D close  
(2) Transfer RPS to alternate and reset the half scram
- \_\_\_\_\_ D. (1) All MSIVs remain open  
(2) Transfer RPS to alternate and reset the half scram.

Point Value: 1

## Question 58.

The plant is in Mode 4 with Loop A in Shutdown Cooling. An RHR Shutdown Cooling Isolation has occurred. Select the condition(s)/action(s) that are required to reset the isolation.

- A. Depress Main Steam Line Isolation RESET P/B on H11-P601.  
Depress Main Steam Line Isolation RESET P/B on H11-P602.
- B. The initiating condition has been corrected and restored to normal.  
Depress Main Steam Line Isolation RESET P/B on H11-P601.  
Depress Main Steam Line Isolation RESET P/B on H11-P602.
- C. The initiating condition has been corrected and restored to normal.  
Depress the close push button on the affected isolation valves. Depress Main Steam Line Isolation RESET P/B on H11-P601.
- D. The initiating condition has been corrected and restored to normal.

Point Value: 1

## Question 59.

A LOCA has occurred. The following conditions exist:

- RPV pressure 200 psig and stable
- RPV level is 30 inches and stable
- ADS is inhibited.
- Drywell pressure 20 psig and slowly lowering.
- Division 1 and 2 Core Spray in service and supplying the RPV.
- Division 2 RHR is aligned to the vessel through B Loop.
- Division 1 RHR is being used for Containment Cooling and Containment Spray.
- The E1150-F010 RHR Crosstie valve is open.
- The Containment Spray Mode Select switch is in MANUAL.
- Containment Spray 2/3 Core Height Override keylock switch is in Normal.

A subsequent loss of 345 Kv Offsite Power and failure of EDG's 13 and 14 result in RPV water level falling to -50 inches on the Core Level Instruments. What is the expected RHR system response?

- \_\_\_\_\_ A. Division 1 Containment Spray and Cooling valves will close. Division 1 RHR discharge pressure will increase and Division 1 RHR will inject to the vessel through Division 2
- \_\_\_\_\_ B. Division 1 Containment Spray and Cooling valves will close. Division 1 RHR discharge pressure will increase and Division 1 RHR will inject to the vessel through Division 1
- \_\_\_\_\_ C. Division 1 Containment Spray and Cooling valves will remain open. Division 1 RHR discharge pressure will decrease and Division 1 RHR will inject to the vessel through Division 2
- \_\_\_\_\_ D. Division 1 Containment Spray and Cooling valves will remain open. Division 1 RHR discharge pressure will decrease and Division 1 RHR will inject to the vessel through Division 1

Point Value: 1

Question 60.

The plant has experienced a complete loss of Division 1 DC busses. Which SRVs are available to the Operating Crew for manual pressure control?

\_\_\_\_\_ A. B21-F013H and F013F.

\_\_\_\_\_ B. B21-F013A and F013 J.

\_\_\_\_\_ C. B21-F013M and F013F.

\_\_\_\_\_ D. B21-F013E and F013J.

Point Value: 1

Question 61.

Plant conditions are as follows:

- The plant is operating at 20% power.
- The turbine generator is paralleled to the grid.
- The Generator is providing an output of 200MW.
- The TURBINE FLOW LIMIT is set at 25%.
- The REACTOR FLOW LIMIT is set at 115%.
- The PRESSURE REGULATOR is set at 944 psig.
- The Turbine Bypass Valves are CLOSED.
- The TURBINE SPEED/LOAD DEMAND is set at 300MW.

How will the plant respond to an INCREASE to 45% power without any further operator action?

- A. Generator output will remain constant, Bypass Valves will OPEN.
- B. Generator output will remain constant, Bypass Valves will remain CLOSED.
- C. Generator output will increase to approximately 250MW, Bypass Valves will OPEN.
- D. Generator output will increase to approximately 250MW, Bypass Valves will remain CLOSED.

Point Value: 1

Question 62.

Alarm 2D50 "HPCI LOGIC BUS POWER FAILURE" was received. Investigation has determined this was due to a loss of Logic Power Bus B. Which of the following statements describes the HPCI system response if RPV drops 100 inches?

- A. Steamline Inboard Isolation Valve (E41-F002) will not auto isolate.
- B. HPCI will not auto start.
- C. HPCI will auto start.
- D. HPCI will auto trip and isolate.

Point Value: 1

Question 63.

Both HPCI and SGTS receive an auto start signal on low RPV Level. How would the HPCI system respond to a loss of SGTS?

- A. HPCI cannot operate properly without a discharge path for the Barometric Condenser Vacuum Pump and must be tripped immediately .
- B. HPCI cannot operate properly without a discharge path for the Barometric Condenser Vacuum Pump and will automatically trip.
- C. HPCI continues to operate properly since the Gear Driven Vacuum Pump discharges to the HPCI room when turbine speed reaches 2300 RPM.
- D. HPCI continues to operate properly, since Barometric Condenser Vacuum Pump is not required for operation.

Point Value: 1

Question 64.

The plant is operating at full power with the following:

- EDG-11.....operating paralleled to bus 11EA
- EDG-12.....Emergency Signal Bypass Keylock switch in BYPASS
- CTG 11 units 3 and 4.....loaded to about 15 MWE each

A loss of off-site power occurs while operating in this condition. Which ONE of the following is a correct statement concerning the Division 1 4160V ESF buses?

- A. CTGs 3 & 4 will automatically pick up all Division 1 loads.
- B. Load shedding will not initiate on bus 11EA while EDG-11 is carrying the bus.
- C. EDG-12 will not start until the Emergency Signal Bypass switch is returned to NORM.
- D. EDG-11 will trip on underfrequency requiring a manual restart before loads on 11EA can be supplied.

Point Value: 1



Question 65.

The plant is in a refueling outage. EDG 11 is running in parallel with Offsite power. Breaker B6 opens spuriously with no faults indicated. How will this affect EDG operation?

- A. The EDG will trip on underfrequency and restart  
Bus 64B will load shed  
Vital loads will sequence back on.
  
- B. The EDG will continue to run  
Bus 64B will load shed  
Vital loads will sequence back on
  
- C. The EDG will continue to run  
All EDG trips will remain active
  
- D. The EDG will continue to run  
Only Essential trips will remain active

Point Value: 1

## Question 66.

The plant is in an accident condition in which fuel failure has occurred. The following plant conditions exist:

- Reactor.....All rods in
- RPV pressure.....920 psig
- RPV water level.....+130 inches (dropping slowly)
- Low pressure ECCS.....operating normally
- HPCI System.....Injecting and needed for adequate core cooling

The crew is executing the RPV Control EOP Flowchart when a steam leak occurs on the HPCI steam supply piping. Reactor Building HVAC exhaust radiation level reaches 17,000cpm.

Based on these conditions describe (a) the impact on secondary containment, and (b) the action required.

- \_\_\_\_\_ A. a) Secondary containment isolates and SGTS initiates.  
b) Shut the MSIVs.
- \_\_\_\_\_ B. a) Secondary containment isolates and SGTS initiates.  
b) Enter Secondary Containment Control EOP.
- \_\_\_\_\_ C. a) Secondary containment does not isolate and SGTS does not initiate.  
b) Enter Secondary Containment Control EOP.
- \_\_\_\_\_ D. a) Secondary containment is not isolated.  
b) Wait until the RPV water level drops to -28 inches, then emergency depressurize.

Point Value: 1

Question 67.

A plant startup has just started.

During withdrawal of the fifth control rod on Sheet 1 of the Rod Pull Sheets, the RWM became inoperable.

The RWM was inoperable during a startup 2 months ago, and the startup continued with control rod movement compliance verified by a second licensed operator.

What action is required by Technical Specifications for this condition?

- A. Immediately insert all insertable control rods
- B. Suspend control rod movement except by scram
- C. Continue reactor startup with rod movement verified by a qualified member of the technical staff
- D. Continue reactor startup with permission of Reactor Engineer and Shift Manager

Point Value: 1

## Question 68.

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

- All RBCCW pumps are tripped and cannot be restarted.
- Div 2 EECW pump is running.
- Div 1 EECW pump is tripped and cannot be restarted.

What actions are required?

- \_\_\_\_\_ A. The Reactor must be scrammed and both Reactor Recirculation Pumps A & B must be stopped within 2 minutes before the bearings are damaged.
- \_\_\_\_\_ B. The Reactor must be scrammed and Reactor Recirculation Pump A must be stopped within 2 minutes.
- \_\_\_\_\_ C. The Reactor must be scrammed and Reactor Recirculation Pump B must be taken to its minimum speed immediately until RBCCW can be restored.
- \_\_\_\_\_ D. The Reactor Recirculation Pump A must be taken to its minimum speed immediately and cooling restored to the CRD pumps to ensure adequate SCRAM capability.

Point Value: 1

## Question 69.

Prior to transferring Reactor Protection System (RPS) Motor Generator Set 'A' to its alternate power supply, the Control Room directs you to deenergize G3352-F001, Reactor Water Cleanup Supply (RWCU) Inbd Iso Vlv. What condition must exist prior to deenergizing G3352-F001 and why do you check this?

- A. Both RWCU Pumps must be shutdown so that they will not trip if the G3352-F001 inadvertently goes closed.
- B. G3352-F004, RWCU Outbd Iso Vlv, must be energized to prevent having both valves in a single Primary Containment penetration deenergized at the same time.
- C. Any RWCU Filter/Demineralizers must be placed into HOLD to prevent them from isolating during the RPS 'A' transfer.
- D. G3352-F220, RWCU To Fw Otbd Cntm Iso Vlv, must be deenergized to prevent a RWCU System isolation while RPS 'A' is being transferred.

Point Value: 1

Question 70.

A reactor startup is in progress. The Rod Worth Minimizer (RWM) is in operate. Which of the following statements correctly describes the plant response to a loss of rod position information for a control rod?

- A. A rod block is applied by the RWM. The WHITE "Selected Rod" light on the 4-Rod Display is NOT illuminated.
- B. A rod block is applied by the RWM. The WHITE "Selected Rod" light on the 4-Rod Display is illuminated.
- C. A rod block is NOT applied by the RWM. The Full Core Display Selected Rod Identification Light is NOT illuminated.
- D. A rod block is NOT applied by the RWM. The Full Core Display Selected Rod Identification Light is illuminated.

Point Value: 1

## Question 71.

The plant is operating at 50 % power with an interior rod selected for withdrawal when B Recirc Pump controller failed, raising the speed of the Recirc Pump. Operators respond by locking the B Recirc MG set scoop tube, but not before reactor power rises to 75%. No other operator actions are taken.

Which of the following describes the impact of this transient on the amplification that was applied to the average LPRM inputs in the Rod Block Monitor (RBM) system during the nulling sequence?

The amount of amplification to BOTH RBM A and B average LPRM input signals...

- A. is automatically adjusted to correspond to the reference APRM readings.
- B. remains fixed at the value at the time of rod selection.
- C. is automatically adjusted to correspond to the new core flow.
- D. is bypassed based on the rod selection.

Point Value: 1

Question 72.

A reactor startup is in progress. The reactor has been declared critical and the operator has established a 150 sec period. All IRMs are on range 4. The following indications are observed:

- IRM UPSCALE alarm
- IRM CH A/E/C/G UPSCALE TRIP/INOP alarm
- TRIP ACTUATORS A1/A2 TRIPPED alarm
- CONTROL ROD WITHDRAWAL BLOCK alarm

These indications were caused by:

- \_\_\_\_\_ A. IRM E being ranged to range 5.
- \_\_\_\_\_ B. IRM E being ranged to range 3.
- \_\_\_\_\_ C. IRM E being withdrawn from the core
- \_\_\_\_\_ D. IRM E power supply failure

Point Value: 1



## Question 73.

Division 1 of RHR was operating in torus cooling mode with "A" RHR pump in service to support an upcoming HPCI surveillance. A steam leak occurred in the drywell causing drywell pressure to increase to above 5 psig.

How would RHR respond, and what minimum operator action is necessary to realign RHR Pump "A" back to torus cooling?

- A. Division 1 RHR will continue to operate in Torus Cooling. No action required.
- B. E11-F024A, Div 1 RHR Torus Clg Iso. and E11-F028A, Div 1 RHR Torus Iso Vlv. will automatically close. Place Containment Spray Mode Select switch in MANUAL, and reopen the E11-F024A and E11-F028A valves.
- C. E11-F024A, Div 1 RHR Torus Clg Iso. and E11-F028A, Div 1 RHR Torus Iso Vlv. will automatically close. Place Containment Spray Mode Select switch in MANUAL and Containment Spray 2/3 Core Height Override keylock switch in MANUAL OVERRIDE and reopen the E11-F024A and E11-F028A valves.
- D. E11-F024A, Div 1 RHR Torus Clg Iso. and E11-F028A, Div 1 RHR Torus Iso Vlv. will automatically close and RHR pump "A" will trip. Place Containment Spray Mode Select switch in MANUAL, restart RHR Pump "A" and reopen the E11-F024A and E11-F028A valves.

Point Value: 1

Question 74.

Select the response that correctly completes the following statement.

The refueling interlocks ensure that \_\_\_\_\_ does not occur during fuel handling operations by preventing \_\_\_\_\_.

- \_\_\_\_\_ A. inadvertent criticality, control rod withdrawal whenever fuel loading equipment is over the core
- \_\_\_\_\_ B. inadvertent criticality, control rod withdrawal whenever fuel loading equipment is energized
- \_\_\_\_\_ C. excessive iodine gas release, refueling hoist movement when fuel pool level is below 22' 8"
- \_\_\_\_\_ D. excessive iodine gas release, withdrawal of any control rods with the Mode Switch in the REFUEL position

Point Value: 1

Question 75.

The Turbine Oil System is in operation with the North AC Main Oil Pump operating. What condition would result from an operator closing N30-F037 Turbine Oil Pressure Control Valve?

- A. South AC Main Oil Pump STARTS, DC Emergency Oil Pump STARTS
- B. DC Emergency Oil Pump STARTS, North AC Main Oil Pump TRIPS
- C. DC Emergency Oil Pump STARTS, Jacking Oil Supply Pump STARTS
- D. South AC Main Oil Pump STARTS, Jacking Oil Supply Pump STARTS

Point Value: 1

Question 76.

The plant is operating at 80% power when multiple alarms are received and the following conditions are noted:

- RPV level 190 inches decreasing
- N RFPT speed is decreasing
- S RFPT speed is increasing
- Steam flow greater than feed flow on the Steam Flow/Feed Flow Recorder

Given these conditions, which of the following actions will be taken in accordance with plant procedures?

- A. Manually initiate and inject with HPCI.
- B. Manually initiate and inject with RCIC.
- C. Place the Recirculation System A & B Flow Limiter 2/3 Defeat Switch in NORMAL
- D. Start and inject with SBFW.

Point Value: 1

Question 77.

Which of the following conditions will cause the Diesel Fire Pump to automatically start?

- A. Loss of power to the electric fire pump
- B.  $< 110$  psig in the fire header
- C. Loss of general service water pumps
- D. Initiation of a dry-pipe sprinkler system

Point Value: 1

Question 78.

The plant is operating at 100% power. The Center Station Air Compressor is running, and the East Station Air Compressor is in AUTO. How would the Station Air System respond if all TBCCW flow is lost to the Station Air Compressors?

- A. The Center compressor will continue to run until it trips on high temperature, then the East compressor will auto start and run until it trips on high temperature.
- B. The Center compressor will continue to run until it trips on high temperature, and the East compressor will not start due to low TBCCW flow.
- C. The Center compressor will trip on low TBCCW flow, then the East compressor will auto start and run until it trips on high temperature.
- D. The Center compressor will trip on low TBCCW flow, and the East compressor will not start due to low TBCCW flow.

Point Value: 1

Question 79.

Concerning the RBCCW/EECW System, which ONE of the following describes the sequence of events that will occur when there is a Loss of Off-Site Power (LOP)?

- A. White Emergency Mode Light comes on, EDG Output Breakers close, Supply and Return Header Isolation Valves close, EECW Pumps start.
- B. RBCCW Pumps trip, EDG Output Breakers close, EECW Make-Up Tank Isolation Valves close, EECW Pumps start.
- C. White Emergency Mode Light comes on, EECW Make-Up Tank Isolation Valves open, EDG Output Breakers close, EECW Pumps start.
- D. RBCCW Pumps trip, Supply and Return Header Isolation Valves close, EDG Output Breakers close, EECW Pumps start.

Point Value: 1

Question 80.

The plant is operating at 100% power. The following alarm is observed:

16D6 REAC/AUX BLDG FIRST FLOOR HIGH RADN

H11-P816 panel indicates an alarm on:

Channel 12 - First floor RB neutron monitoring equipment room

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

- A. Transversing incore probes are being operated
- B. A steam leak has developed in the RCIC steam piping
- C. Spent fuel handling operations are in progress
- D. SRMs are being withdrawn for post maintenance testing

Point Value: 1



Question 81.

During a severe pressure and level transient the control room NSO observes the following:

- The Division I SRV OPEN sealed-in light is on.
- The Division I scram pressure sealed-in light is on.
- Neither light is lit for Division II.

How will the plant respond?

- \_\_\_\_\_ A. Neither SRV A nor G will open at their Low-Low Set setpoints.
- \_\_\_\_\_ B. With increasing pressure, both SRV A and G will open at 1017 psig.
- \_\_\_\_\_ C. With increasing pressure SRV A will open at 1017 psig, SRV G will open at 1047 psig.
- \_\_\_\_\_ D. With increasing pressure SRV A will open at 1017 psig, SRV G will not open at its Low-Low set setpoint.

Point Value: 1

## Question 82.

The plant has just completed a refueling outage and system lineups to support plant startup are being performed.

The CRNSO is placing the Condensate system in short cycle cleanup in accordance with 23.107 Section 4.2. After the N20-F400, Cond F/D Bypass Valve has been manually opened, which of the following is the **preferred** method of beginning a fill and vent of the condensate system?

- \_\_\_\_\_ A.   • Fully open N2000-F604, (F605, F606), N(C, S) Cndr Pump Discharge Iso Valve, from the Control Room.
- Start associated Condenser Pump Room Fan Cooling Unit.
- Start the associated N(C,S) Condenser Pump.
- \_\_\_\_\_ B.   • Manually open N2000-F604, (F605, F606), N(C, S) Cndr Pump Discharge Iso Valve, to approximately 10% open
- Start associated Condenser Pump Room Fan Cooling Unit.
- Start the associated N(C,S) Condenser Pump.
- \_\_\_\_\_ C.   • Locally open N2000-F266, Center Condenser Pump Discharge Isolation 6" Bypass Valve, three turns.
- Start associated Condenser Pump Room Fan Cooling Unit.
- Place Keylock Bypass Switch in BYPASS.
- Start the Center Condenser Pump.
- \_\_\_\_\_ D.   • Start associated Condenser Pump Room Fan Cooling Unit.
- Start the N(C,S) Condenser Pump.
- Immediately open N2000-F604, (F605, F606), N(C, S) Cndr Pump Discharge Iso Valve fully from the Main Control Room.

Point Value: 1

Question 83.

A Reactor Building HVAC Freeze Stat fails low. Which of the following statements best describes plant response?

- A. The Standby Gas Treatment System automatically starts.
- B. The operating Reactor Building Supply and Exhaust fans trip.
- C. Control Center HVAC automatically shifts to the Recirc Mode.
- D. The operating Reactor Building HVAC Booster Exhaust fan trips

Point Value: 1

Question 84.

In accordance with MOP07, Shift Turnover, who does Short Term Relief apply to?

\_\_\_\_\_ A. STA/SM

\_\_\_\_\_ B. SM/CRS

\_\_\_\_\_ C. CRS/CRNSO

\_\_\_\_\_ D. P603/CRNSO

Point Value: 1

Question 85.

Two minutes after a small steam leak develops inside the drywell, the following conditions exist:

- Drywell pressure.....3.0 psig.
- Reactor pressure.....750 psig and lowering.
- RPV level.....170 inches and rising.
- HX A Bypass Cont E11-F048A.....white Sealed In light
- E11-F015A, E11-F017A.....white Close light
- HX B Bypass Cont E11-F048B.....white Sealed In light

Based on these conditions, which loop is selected for injection, and which Division of RHR should be used for Primary Containment (PC) control?

- A. A loop selected for injection, Division 1 RHR for PC control.
- B. B loop selected for injection, Division 1 RHR for PC control.
- C. A loop selected for injection, Division 2 RHR for PC control.
- D. B loop selected for injection, Division 2 RHR for PC control.

Point Value: 1

Question 86.

Which one of the following is a correct Safety Limit statement per the Technical Specifications?

- A. The Reactor Vessel Water Level shall be greater than the top of the active irradiated fuel in all modes.
- B. The Minimum Critical Power Ratio shall not be less than the Safety Limit MCPR of 1.08 for two recirculation loop operation.
- C. The reactor coolant system pressure shall not exceed 1375 psig as measured in the the reactor vessel steam dome.
- D. Thermal Power shall not exceed 25% of the Rated Thermal Power with the reactor vessel steam dome pressure less the 785 psig or core flow less than 15% of the rated flow.

Point Value: 1

Question 87.

Is it possible for the plant to be in Cold Shutdown without meeting all of the Cold Shutdown conditions?

- A. No, Technical Specifications clearly state conditions required for the Cold Shutdown mode of operation.
- B. Yes, although Technical Specifications state conditions required for the Cold Shutdown mode of operation, the SM is permitted to take reasonable exception to the requirements.
- C. Yes, with only one head bolt less than fully tensioned, Cold Shutdown is still maintained.
- D. Yes, average coolant may be  $> 200$  °F during the performance of Inservice Leak and Hydrostatic Testing.

Point Value: 1

## Question 88.

Performance of a pre-startup valve lineup will involve aligning a valve that is to be locked CLOSED. The valve in question is located in a contaminated work area. In this situation, independent verification of valve position \_\_\_\_\_.

- \_\_\_\_\_ A. may be waived by the CRS to conserve man-rem rather than require two individuals to enter the contaminated area
- \_\_\_\_\_ B. should be performed by hands on checking of the valve position without removing or breaking the locking device
- \_\_\_\_\_ C. is performed by removing the locking device, checking the valve position, and re-installing the locking device
- \_\_\_\_\_ D. is accomplished by visual verification that the locking device is properly installed

Point Value: 1



## Question 89.

The plant is operating at 95% power raising to 100% rated power. A failure on the air supply to the 'A' Heater Drain Recirc line results in a loss of feedwater heating and entry into AOP 20.107.02.

The Reactor Engineer is contacted and runs a Thermal Limits Calculation and determines that the MCPR safety limit is exceeded.

Which of the following describes the correct actions to be taken for this condition?

- A. No action is required.
- B. Restore MCPR to within the limits within one (1) hour and notify the plant manager within 24 hours.
- C. Restore MCPR to within the limits and insert all insertable control rods within two (2) hours.
- D. Restore MCPR to within the limits within two (2) hours and continue the plant startup, otherwise be in Hot Shutdown within six (6) hours.

Point Value: 1

Question 90.

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

- A. Independent verification of the danger tag.
- B. An approved grounding device installed on the load side.
- C. An approved blocking device and a method for determining that power is removed.
- D. A safety observer is stationed for all work performed on the equipment.

Point Value: 1

Question 91.

During refueling operations a Refuel Floor Log is maintained. Who is responsible for maintaining this log in accordance with procedure MOP13, Refueling Operations?

- A. CRS
- B. Station Nuclear Engineer
- C. Refuel Bridge Operator
- D. Refuel Floor Supervisor

Point Value: 1

Question 92.

Which of the following statements is a Technical Specification/Technical Requirement Manual requirement when moving fuel during Core Alterations?

- A. Direct communications shall be maintained between the Refueling Platform and the Control Room.
- B. The Refueling Platform is the only lifting device permitted to transport fuel.
- C. The Fuel Preparation Machines may not be used for storing fuel.
- D. Blade Guides shall not be used in the Reactor Core.

Point Value: 1

Question 93.

A Nuclear Operator has received 975 mrem TEDE for the current year. The NO is needed to perform work in a 20 mrem/hr field. The work is expected to last 1.5 hours.

In accordance with MRP12 of the Radiation Protection Manual, the worker requires which ONE (1) of the following?

- A. No special authorization since the annual administrative limit should not be exceeded.
- B. Authorization from the Shift Manager, the Section Head and the Radiation Protection Manager since the annual administrative dose limit will be exceeded.
- C. Authorization from the Section Head, the Radiation Protection Manager and Plant Manager since the annual administrative dose limit will be exceeded.
- D. Authorization from the Radiation Protection Manager, the Plant Manager and the Vice President Nuclear Generation since the annual administrative dose limit will be exceeded.

Point Value: 1

Question 94.

A safety related component in the Reactor Building has been manipulated to return a system to operable status after maintenance. The component is in an area where there is an airborne radioactivity hazard. The person who would independently verify the lineup would receive exposure of .1 DAC. The SM may:

- A. NOT waive the independent verification, as it is always required.
- B. waive the independent verification due to the excessive airborne exposure hazard.
- C. NOT waive the independent verification since the exposure is not considered excessive.
- D. waive the independent verification provided concurrence is obtained from a another SRO.

Point Value: 1

Question 95.

During a declared emergency, a leak develops in an area that is accessible, but now radiologically contaminated. The SM has directed that an investigation be performed immediately. What are the RWP requirements for entry into the area for investigation?

- A. A revision to the General RWP for that area must be issued.
- B. A written Specific RWP must be issued.
- C. A verbally issued RWP may be used for timely plant response.
- D. A General RWP already exists for this type of event.

Point Value: 1

Question 96.

In accordance with MRP05 ALARA/RWPS, if an RWP request is for a task that is Preventative Maintenance, surveillance, work request, or a scaffold request, the package should be sent to Radiation Protection for review at least: \_\_\_\_\_, before starting work.

\_\_\_\_\_ A. 12 hours

\_\_\_\_\_ B. 24 hours

\_\_\_\_\_ C. 48 hours

\_\_\_\_\_ D. 72 hours

Point Value: 1



Question 97.

The plant was operating at full power when it experienced a steam leak in the 'A' Main Steam line, causing an increase in Primary Containment pressure.

Assuming the plant experiences a Scram on High Drywell Pressure, what will be the response of the Low Pressure Coolant Injection (LPCI) system?

- A. When RPV pressure decreases to 461 psig, LPCI lines up for injection to Loop A.
- B. When RPV pressure decreases to 461 psig, LPCI lines up for injection to Loop B
- C. When RPV pressure decreases to 905 psig, Recirc Pump A is tripped.
- D. When RPV pressure decreases to 905 psig, LPCI Loop B injection valves close.

Point Value: 1

## Question 98.

The plant is operating at 100% power. The following conditions exist:

- Main Steamline Radiation Monitors A, B, C, and D all indicate 19,000 mr/hr
- Off Gas Radiation Monitor indicates 800 mr/hr increasing
- RBHVAC Radiation Monitor indicates 10,000 cpm

(1)What caused these conditions, (2)what is the expected plant response and (3)what actions should the CRS take?

- \_\_\_\_\_ A. (1) A fuel clad failure has occurred  
(2) 1/2 Scram and 1/2 Group 1 Isolation.  
(3) Enter 20.000.07, Fuel Clad Failure
- \_\_\_\_\_ B. (1) A fuel clad failure has occurred  
(2) Reactor Scram and a Group 1 Isolation.  
(3) Enter 20.000.07 Fuel Clad Failure, 20.000.21 Reactor Scram , and RPV Control EOP.
- \_\_\_\_\_ C. (1) A Steam line break in the TB Tunnel  
(2) RBHVAC System Isolation and SGTS Initiation.  
(3) Enter 20.000.02, Abnormal Release of Radioactive Material and Secondary Containment Control EOP
- \_\_\_\_\_ D. (1) Both a fuel clad failure and a Steam line break in the TB steam leak have occurred.  
(2) MSIV Isolation, Reactor Scram, Off Gas Isolation, RBHVAC System Isolation and SGTS Initiation.  
(3) Enter 20.000.07, Fuel Clad Failure, 20.000.02, Abnormal Release of Radioactive Material, RPV Control & Secondary Containment Control EOPs.

Point Value: 1

Question 99.

During full power operation, a Station Blackout has occurred. The following conditions exist :

- Drywell temperature.....300 ° F
- RPV pressure.....273 psig
- Reactor power.....all rods fully inserted
- RCIC.....tagged out and disassembled
- HPCI.....tripped on overspeed and will not restart

Given these plant conditions, the EOPs direct entry into the SAG when :

- A. Only 3 SRVs can be opened.
- B. RPV water level cannot be restored and kept above TAF.
- C. Injection flow cannot increase RPV pressure above 215 psig.
- D. RPV water level cannot be restored and kept above -28 inches.

Point Value: 1

## Question 100

The plant is operating at 100% power steady state conditions. There is no equipment out of service, when several alarms, including the following are received:

- 3D73 TRIP ACTUATORS A1/A2 TRIPPED
- 3D75 REACTOR VESSEL HIGH PRESS CHANNEL TRIP
- 3D79 REAC VESSEL WATER LEVEL L3 CHANNEL TRIP
- 3D85 PRIMARY CONTAINMENT HIGH PRESS CHANNEL TRIP
- 3D86 MN STM LINE ISO VALVE CLOSURE CHANNEL TRIP

Power, pressure and level remain stable.

(1) What caused these alarms, and (2) what action should the CRS direct for this condition?

- \_\_\_\_\_ A. (1) A small break LOCA has occurred.  
(2) Inform the control room staff, "Entering the RPV Control and Primary Containment Control EOP's based on High Primary Containment Pressure".
- \_\_\_\_\_ B. (1) An MSIV isolation has occurred.  
(2) Inform the control room staff, "Entering the RPV Control EOP based on High Reactor Pressure."
- \_\_\_\_\_ C. (1) The "A" RPS MG set has tripped.  
(2) Direct placing Division 1 of RPS on its alternate transformer.
- \_\_\_\_\_ D. (1) The "B" RPS MG set has tripped.  
(2) Direct placing Division 2 of RPS on its alternate transformer.

Point Value: 1