

FINAL FERMI WRITTEN EXAMINATION

AS ADMINISTERED ON JUNE 14, 2001

**U.S. Nuclear Regulatory Commission
Site-Specific
Written Examination**

Applicant Information

Name: MASTER EXAMINATION	Region: III
Date: JUNE 14, 2001	Facility/Unit: FERMI / U2
License Level: RO	Reactor Type: GE
Start Time:	Finish Time:

Instructions

Use the answer sheets provided to document your answers. Staple this cover sheet on top of the answer sheets. The passing grade requires a final grade of at least 80.00 percent. Examination papers will be collected five hours after the examination starts.

Applicant Certification

All work done on this examination is my own. I have neither given nor received aid.

Applicant's Signature

Results

Examination Value	___100.0___	Points
Applicant's Score	_____	Points
Applicant's Grade	_____	Percent

PART A - GENERAL GUIDELINES

1. **[Read Verbatim]** Cheating on any part of the examination will result in a denial of your application and/or action against your license.
2. If you have any questions concerning the administration of any part of the examination, do not hesitate asking them before starting that part of the test.
3. SRO applicants will be tested at the level of responsibility of the senior licensed shift position (i.e., shift supervisor, senior shift supervisor, or whatever the title of the position may be).
4. You must pass every part of the examination to receive a license or to continue performing license duties. Applicants for an SRO-upgrade license may require remedial training in order to continue their RO duties if the examination reveals deficiencies in the required knowledge and abilities.
5. The NRC examiner is not allowed to reveal the results of any part of the examination until they have been reviewed and approved by NRC management. Grades provided by the facility licensee are preliminary until approved by the NRC. You will be informed of the official examination results about 30 days after all the examinations are complete.

PART B - WRITTEN EXAMINATION GUIDELINES

1. **[Read Verbatim]** After you complete the examination, sign the statement on the cover sheet indicating that the work is your own and you have not received or given assistance in completing the examination.
2. To pass the examination, you must achieve a grade of 80.00 percent or greater; grades will not be rounded up to achieve a passing score. Every question is worth one point.
3. For an initial examination, the nominal time limit for completing the examination is six hours; extensions will be considered under extenuating circumstances.
4. You may bring pencils, and calculators into the examination room. Use pencils to facilitate machine grading.
5. Print your name in the blank provided on the examination cover sheet and the answer sheet. You may be asked to provide the examiner with some form of positive identification.
6. Mark your answers on the answer sheet provided. Use only the paper provided. If you decide to change your original answer, erase completely and enter the desired answer. If the NRC chief examiner is unable to determine which answer is your final answer, the answer will be marked as incorrect.

7. If you have any questions concerning the intent or the initial conditions of a question, do *not* hesitate asking them before answering the question. Ask questions of the NRC examiner or the designated facility instructor *only*. When answering a question, do *not* make assumptions regarding conditions that are not specified in the question unless they occur as a consequence of other conditions that are stated in the question. For example, you should not assume that any alarm has activated unless the question so states or the alarm is expected to activate as a result of the conditions that are stated in the question. Finally, answer all questions based on actual plant operation, procedures, and references. If you believe that the answer would be different based on simulator operation or training references, you should answer the question based on the *actual plant*.
8. Restroom trips are permitted, but only one applicant at a time will be allowed to leave. Avoid all contact with anyone outside the examination room to eliminate even the appearance or possibility of cheating.
9. When you complete the examination, take the answer sheets and the examination cover sheet to the NRC examiner or proctor. Remember to sign the statement on the examination cover sheet indicating that the work is your own and that you have neither given nor received assistance in completing the examination. Leave all other scrap paper and references on your desk, it will be disposed of after the examination.
10. After you have turned in your examination, leave the examination area as defined by the proctor or NRC examiner. If you are found in this area while the examination is still in progress, your license may be denied or revoked.
11. Do you have any questions?

QUESTION: 001 (1.00)

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.

QUESTION: 002 (1.00)

A startup is in progress with the following conditions:

- Reactor power is 35%
- Both Reactor Recirc Pumps are in service
- Total core flow is 58%
- Control rods are being withdrawn to raise power

Control Rod 22-07 is selected. Due to a failure in the Reactor Manual Control System, Control Rod 22-15 is also selected.

Based on these conditions, a control rod block is imposed by the:

- a. Rod Block Monitor to prevent outward rod movement.
- b. Rod Block Monitor only when reactor power exceeds 92%.
- c. Rod Worth Minimizer as soon as a control rod is withdrawn two steps.
- d. Rod Worth Minimizer as soon as a control rod withdrawal signal is generated.

QUESTION: 003 (1.00)

The plant was operating at 100% power. A short circuit in panel COP H11-P603 activates the Recirc Manual Runback circuit.

Given these conditions, which of the following describes the plant parameter changes observed during the initial phase of the runback?

- a. Reactor pressure begins to decrease
Reactor water level initially increases
- b. Reactor pressure begins to increase
Reactor water level remains the same
- c. Reactor pressure begins to increase
Reactor water level initially decreases
- d. Reactor pressure initially remains the same
Reactor water level remains the same

QUESTION: 004 (1.00)

E4150 - F007 HPCI Pump Discharge Outboard Isolation Valve, is closed due to leakage past E4150 - F006, HPCI Pump Discharge Inboard Isolation Valve. Why is the HIGH PRESSURE COOLANT INJECTION (HPCI) System considered inoperable?

- a. The E4150 - F007 does not receive an OPEN signal if the HPCI System is automatically initiated.
- b. The E4150 - F007 is susceptible to pressure locking and may not open if the HPCI System is automatically initiated.
- c. The valve stem for E4150 - F007 would be thermally bound due to the heat from the leaking inboard valve (E4150 - F006).
- d. The E4150 - F007 is normally open, with power turned off, because the motor operator is not sized properly to open the valve when the system initiates.

QUESTION: 005 (1.00)

Given the following:

- A reactor startup is in progress.
- SRM channel A is bypassed due to a failed upscale detector
- After IRMs are on range 2 the Reactor Operator begins withdrawing SRMs
- Reactor period is 85 seconds
- SRM channel B detector will NOT withdraw from its fully inserted position

Which of the following describes the expected SRM response and will the startup continue?

- a. De-energize the SRM B detector and continue the startup.
- b. Bypass SRM B and continue the startup.
- c. Hold the startup until all IRMs reach Range 8 because SRM trips are bypassed.
- d. Hold the startup, or shutdown, until either SRM A or B can be repaired.

QUESTION: 006 (1.00)

The purpose of the Reference Leg Back-Fill system is to:

- a. allow removal of the steam condensing chambers.
- b. compensate for the effects of reference leg leakage into the Drywell.
- c. eliminate the effects of Drywell temperature on the indicated vessel water level.
- d. prevent water saturated with non-condensable gases from accumulating in the reference leg.

QUESTION: 007 (1.00)

Reactor water level has decreased to a level between Level-2 and Level-3. Which of the following have isolated?

- a. MSL Drains (Group 1).
- b. RHR System (Group 3).
- c. RHR SDC (Group 4).
- d. TWMS (Group 12).

QUESTION: 008 (1.00)

Select the statement below that describes the expected Feed Flow/Steam Flow mismatch (1); and correct IMMEDIATE ACTIONS (2) for a stuck open safety relief valve:

- a.
 - 1) Steam Flow greater than Feed Flow;
 - 2) Depress both OPEN and CLOSE pushbuttons for the SRV.
- b.
 - 1) Steam Flow greater than Feed Flow;
 - 2) Depress only the CLOSE pushbutton for the SRV.
- c.
 - 1) Feed Flow greater than Steam Flow;
 - 2) Depress only the CLOSE pushbutton for the SRV.
- d.
 - 1) Feed Flow greater than Steam Flow;
 - 2) Depress both OPEN and CLOSE pushbuttons for the SRV.

QUESTION: 009 (1.00)

The plant is in Mode 1 at 100% power. You are directed to reduce the pressure in both the Drywell and Torus to 10 inches w.c. by venting through the Standby Gas Treatment System. Both the Drywell and Torus are currently at 19 inches w.c.

Which of the following describes the process that would be used to complete this task?

- a. With both trains of SGTS running the Drywell and Torus would be lined up to vent simultaneously.
- b. With both trains of SGTS running the Drywell and Torus would be lined up to vent one at a time.
- c. With one train of SGTS running the Drywell and Torus would be lined up to vent simultaneously.
- d. With one train of SGTS running the Drywell and Torus would be lined up to vent one at a time.

QUESTION: 010 (1.00)

Operators are performing Surveillance Procedure 24.307.14 "EMERGENCY DIESEL GENERATOR 11 - START AND LOAD TEST." The status of the test is:

- EDG 11 Engine Control Mode switch is in LOCAL.
- The Exciter Bypass switch has been placed in BYPASS
- The EXCITER TRIPPED light is on
- Exciter RESET backlit pushbutton is ON.

For the given conditions, EDG 11 (1) automatically start. Independent of the given conditions, in order to "load" EDG 11 the Mechanical Governor Speed Adjust Knob must be at the (2) position and the Exciter Bypass switch must be in the (3) position and be RESET.

- | | (1) | (2) | (3) |
|----|----------|---------|----------|
| a. | will NOT | MINIMUM | NORMAL |
| b. | will NOT | MAXIMUM | SHUTDOWN |
| c. | will | MAXIMUM | NORMAL |
| d. | will | MINIMUM | SHUTDOWN |

QUESTION: 011 (1.00)

Which system enforces adherence to a preplanned control rod sequence?

- a. ROD WORTH MINIMIZER
- b. PLANT PROCESS COMPUTER
- c. REACTOR PROTECTION SYSTEM
- d. ROD POSITION INFORMATION SYSTEM

QUESTION: 012 (1.00)

The plant is in Mode 2 with reactor heatup in progress. The Reactor Water Cleanup System (RWCU) is lined up to blowdown from RWCU to the Main Condenser.

- Annunciator 2D119, RBCCW PUMPS DIFF PRESS HIGH/LOW alarms.
- Annunciator 2D46, Motor Tripped alarms
- The center RBCCW pump indicates tripped.

No operator actions have been taken. Assume all other systems operate as expected, which statement correctly describes the response of the RWCU System?

- a. G3352-F119, RWCU Inlet Isolation Valve, closes and RWCU pumps, C001A & B, trip.
- b. G3352-F220, G3352-F004, and G3352-F001, RWCU Containment Isolation Valves, close and RWCU pumps, C001A & B, trip.
- c. G3352-F044, Filter/Demineralizer Bypass Valve, automatically opens to protect the Filter/Demineralizers.
- d. G3300-F033, Blowdown Flow Control Valve, automatically adjusts to control the RWCU Non-Regenerative Heat Exchanger outlet temperature.

QUESTION: 013 (1.00)

The Unit is at 65% power, control rods are being withdrawn to establish the full power rod line. Which of the following statements correctly describes the effect on the Reactor Manual Control System (RMCS) to the selection of a control rod with a complete loss of rod position information for that control rod?

- a. A rod select block is applied to the RMCS. The WHITE "Selected Rod" light on the 4-Rod Display is NOT illuminated.
- b. A rod select block is applied to the RMCS. The WHITE "Selected Rod" light on the 4-Rod Display is illuminated.
- c. A rod select block is NOT applied to the RMCS. The Full Core Display Selected Rod Identification Light is NOT illuminated.
- d. A rod select block is NOT applied to the RMCS. The Full Core Display Selected Rod Identification Light is illuminated.

QUESTION: 014 (1.00)

Which of the following correctly describes the purpose of the Rod Block Monitor?

The Rod Block Monitor prevents control rod withdrawal:

- a. that would result in exceeding the maximum licensed power level during power operations.
- b. if localized neutron flux exceeds a predetermined setpoint to preclude a MCPR Safety Limit violation during control rod withdrawal.
- c. that would result in exceeding one of the monitored APRM rod block setpoints to prevent fuel damage during abnormal operating transients.
- d. if localized neutron flux exceeds a predetermined setpoint to protect fuel clad temperature during design basis loss of coolant accidents.

QUESTION: 015 (1.00)

Following a LPCI initiation signal, the EARLIEST that the (E1150 F048A/B) LPCI motor operated Heat Exchanger Bypass valves can be manually closed from the control room is... (Select ONE of the following)

- a. 30 seconds
- b. 1 minute
- c. 3 minutes
- d. 10 minutes

QUESTION: 016 (1.00)

The unit was operating with Division 1 Residual Heat Removal (RHR) System running in Torus Cooling Mode, when at 0900, Division 1 experienced a complete loss of offsite power. The plant is currently stable with power restored to the Div 1 ESF busses by the emergency diesel generators. Restoration of offsite power is expected by 1100. Choose the statement that correctly 1) predicts the impact of the loss of power on Div 1 RHR pumps and 2) describes the subsequent system alignment required for the given conditions.

- a. Div 1 RHR pump(s) automatically restarted when power was restored.
Re-align Div 1 RHR to the Torus Cooling Mode to provide loading for the diesel generator.
- b. Div 1 RHR pump(s) automatically restarted when power was restored.
Re-align Div 1 RHR pump(s) for RHR Shutdown Cooling Mode to begin piping warm-up.
- c. Div 1 RHR pump(s) are available for automatic initiation.
Prevent Div 1 RHR from automatically restarting until realigned to Standby Mode.
- d. Div 1 RHR pump(s) are available for automatic initiation.
Automatic re-alignment of Div 1 RHR to Standby Mode occurred when power was restored.

QUESTION: 017 (1.00)

The following plant conditions exist:

- ARP 5D131, SOUTH HOTWELL LEVEL HIGH/LOW, in alarm.
- Hotwell level was verified at 49 inches and trending down on N61-R805, S HW Primary/Backup.

Which statement describes the plant status for the given conditions.

- a. Condenser Pumps, tripped
Heater Feed Pumps, tripped
Reactor Feed Pumps, tripped
- b. Normal Hotwell Supply Pump auto started
N2000-F620, Cndr HW Rlf Station Byp Valve, closed
N20-F401, Cndr Hotwell Norm Relief LCV, closed (0% indicated)
N20-F402, Cndr Hotwell Emerg Relief LCV, closed (0% indicated)
N20-F407, Cndr Hw Norm Makeup LCV, open (> 90% indicated)
- c. N20-F401, Cndr Hotwell Norm Relief LCV, open (> 90% indicated)
N20-F402, Cndr Hotwell Emerg Relief LCV, closed (0% indicated)
N20-F406, Cndr Hw Emerg Makeup LCV, closed (0% indicated)
N20-F407, Cndr Hw Norm Makeup LCV, closed (0% indicated)
- N2000-F636, Cndr HW Emerg Makeup Byp Valve, closed
- d. Normal and Emergency Hotwell Supply Pumps are running
N2000-F620, Cndr HW Rlf Station Byp Valve, closed
Hotwell Emerg Relief LCV, closed (0% indicated)
N20-F406, Cndr HW Emerg Makeup LCV, open (> 20% indicated)
N20-F407, Cndr HW Norm Makeup LCV, open (> 90% indicated)

QUESTION: 018 (1.00)

RPS Distribution Panel C71-P001A has lost power. Which of the following Radiation Monitors is affected?

- a. Div 1 RB Vent Exhaust Radiation Monitor
- b. Div 1 Containment Area Hi Range Monitor
- c. Div 1 Fuel Pool Vent Exh Duct Rad Monitor
- d. Div 1 CCHVAC Makeup Air Radiation Monitor

QUESTION: 019 (1.00)

During movement of spent fuel in the spent fuel pool, the Fuel Grapple was damaged. Which one of the following grapples may be used to move a spent fuel assembly that weights 950 pounds?

- a. J B Hook Grapple
- b. Manipulator Grapple
- c. General Purpose Grapple
- d. Control Rod Grapple

QUESTION: 020 (1.00)

A locked open valve can be identified because it has a _____ padlock.

- a. red
- b. green
- c. no color identification
- d. red with a black dot

QUESTION: 021 (1.00)

Given the following conditions:

- A large break LOCA has occurred.
- The reactor has been scrammed and all rods inserted.
- All systems responded to the LOCA as designed.
- Reactor vessel level is 75 inches wide range and slowly lowering.
- Indicated Torus Water Level: -15 inches
- Indicated Torus Pressure: 4.0 psig
- Average Torus Water Temperature (point 9): 220°F
- Primary Containment Air Temperature:
 - (TR50-R800A, Recorder H11-P601, point 11: 215°F)
 - (TR50-R800B, Recorder H11-P602, point 12: 215°F)

Based on the plant conditions described above, select the maximum RHR LPCI injection flow for RHR Loop A with two pumps operating.

- a. 11,000 gpm
- b. 17,000 gpm
- c. 25,000 gpm
- d. 28,000 gpm

QUESTION: 022 (1.00)

The plant is in mode 5 with refueling activities in progress. You have been notified that a new fuel bundle is being placed in the core. Shortly thereafter you observe the SRM counts increasing with a steady positive period. As the CRNSO:

- a. place the mode switch in shutdown.
- b. check to see if the SRMs are fully inserted.
- c. notify the refuel floor SRO, that fuel movement must be stopped.
- d. inform the refuel floor SRO, that the fuel bundle rate of insertion into the cell should be slowed down.

QUESTION: 023 (1.00)

Given the following conditions:

- The plant had been operating for 150 days at 100% power when a reactor scram occurred. The plant was cooled down to 185°F and stabilized.
- A reactor startup was initiated, but has just been placed on hold.
- It has been 36 hours since the reactor scram occurred.
- When the startup was placed on hold, Source Range Channels were 1000 cps.
- The four count rate doubling value for the startup was 2200 cps.
- Fifteen minutes after the startup was placed on hold, source range counts began slowly decreasing cps and continued to slowly decrease.

Based on the conditions described above, SELECT a possible cause for the ^{decrease} ~~increase~~ in source range counts.

- a. All four inboard MSIVs drifted full shut.
- b. A startup level control valve drifted open.
- c. Decay heat is causing reactor water temperature to increase.
- d. Negative reactivity is being inserted by Xenon decay, which is greater than iodine decay at this time.

QUESTION: 024 (1.00)

A fuel pool cleanup is underway which involves routine removal of cut-up, used LPRMs from the fuel pool, packaging them, and transferring them to a truck for shipment offsite. In addition to being signed on the General RWP for RRA access, which of the following type(s) of RWP(s) would be used for this work?

- a. only Job Specific RWPs.
- b. Job Specific RWP and verbal RWP provided by a Radiation Protection Supervisor who is present at the work site.
- c. Job Specific RWP or a Routine Specific RWP written for LPRM disposal.
- d. Job Specific RWP or a General RWP written specifically for LPRM disposal.

QUESTION: 025 (1.00)

What is the basis for concurrent entry into each of the parameter control sections of an EOP?

The concurrent execution of the sections are required because the . . .

- a. actions taken allow the operator to diagnose and correct the cause of the event regardless of the degraded condition.
- b. parameters controlled interrelate with each other, action to stabilize one parameter may cause one or more of the other parameters to change.
- c. steps interrelate the task performed. Concurrent performance of the directed task ensures violation of additional Technical Specifications will be prevented.
- d. parameters controlled interrelate with the Entry Conditions. This prevents branching which would direct the operator to exit one procedure, path or part of a flowpath, and enter another.

QUESTION: 026 (1.00)

The plant was operating at 100% power when annunciator 4D46, MAIN TURBINE TRIPPED alarmed. Which of the following sets of indications CONFIRM the turbine tripped?

- a. Reactor is scrammed
RPV Pressure is < 1050 psig
A Turbine Bypass Valve is open
- b. Generator Field Breaker indicates OPEN
Generator Output Breaker CF indicates OPEN
Generator Output Breaker CM indicates OPEN
- c. Turbine Stop Valves indicate CLOSED
Turbine Control Valves indicate CLOSED
Low Pressure Stop, and Intercept Valves indicate CLOSED
- d. Reactor is scrammed
3D90, "Turbine Stop Valve Closure Channel Trip" in alarm
3D89, "Turbine Cont Valve Fast Closure Channel Trip" in alarm

QUESTION: 027 (1.00)

The reactor has scrammed due to MSIV closure. All systems operated as designed. SRV 'A' has stuck open and cannot be closed. RPV pressure is 650 psig and trending down. Select the response that describes how RPV level is maintained in the band of 173-214 inches with NO operator action.

- a. Reactor Core Isolation Cooling at 650 gpm.
- b. The Master Level Controller at level setdown operating in automatic.
- c. Standby Feedwater system with one pump through the 4" throttle valve.
- d. The SULCV in automatic with heater feed and condensate pumps operating.

QUESTION: 028 (1.00)

The plant is operating in single loop at 65% rated flow. Choose the maximum power allowed by RPS before exceeding the flow biased scram setpoint.

- a. 97%
- b. 98%
- c. 102%
- d. 107%

QUESTION: 029 (1.00)

The reactor was at 50% power when the outboard "A" main steam line isolation valve closed. Which of the following describes the resulting effect and the response of the governor/pressure control system after a new steady state is achieved?

- a. Reactor pressure increased. Turbine bypass valves will open as a result of the reactor scram on high power.
- b. The core void fraction decreased. Turbine control valves will open to compensate for the increased reactor pressure.
- c. Reactor power decreased due to the addition of negative reactivity. Turbine control valves will close in order to maintain a constant reactor pressure.
- d. The core void fraction increased. Turbine bypass valves will open to compensate for the increased steam flow in the other main steam lines.

QUESTION: 030 (1.00)

The plant is currently at 27% power. Plans for the shift are to continue the startup and power ascension. A malfunction in the Feedwater Control System has resulted in the following:

- RPV level is 197 inches and trending down
- Total Feedwater flow is 2.5 mlb/hr and steady

Assume no operator actions have been taken. Which of the following statements is correct regarding the Reactor Recirculation system response based on these CURRENT plant conditions?

- a. RR Limiter 1 is actuated to ensure Recirculation Pump net positive suction head protection based on RPV level.
- b. RR Limiter 2 is actuated to allow the plant time to recover without the reactor scrambling on low level.
- c. RR Limiter 3 is actuated in anticipation of a low suction pressure feed pump trip, to prevent an entry into a thermal hydraulic instability region.
- d. RR Limiter 4 is actuated to limit the maximum demand signal to exclude the possibility of excessive core internals vibration.

QUESTION: 031 (1.00)

The drywell to torus vacuum breakers are set to maintain the drywell to torus differential pressure within set limits to . . .

- a. prevent expansive failure of the downcomer between the drywell and torus.
- b. prevent exceeding the design differential pressure between primary and secondary containment.
- c. minimize impact loading on the torus in the event of a rapid drywell pressure increase due to an accident.
- d. minimize the pump head differential for the RHR pumps taking a suction from the torus and discharging through the torus and drywell spray headers.

QUESTION: 032 (1.00)

The following transient has occurred:

- A slow increase in Reactor power and Generator MWe.
- No annunciation.
- A slow increase in Reactor Pressure.

SELECT the response that identifies the cause of this power transient.

- a. A slow increase Reactor Feed pump speed.
- b. A slow increase in Recirculation Pump speed.
- c. A control rod slowly drifts out of the core.
- d. A spurious initiation of Reactor Core Isolation Cooling.

QUESTION: 033 (1.00)

The plant is in an ATWS condition in which the following conditions exist:

- RPV pressure 200 psig
- 24 control rods failed to insert
- The eight blue scram lights are extinguished
- The HCU accumulators for the stuck rods are depressurized and inaccessible

The operating crew would use which of the following methods to insert control rods?

- a. Vent scram air header.
- b. Reset, then reinitiate the scram.
- c. Open individual scram test switches.
- d. Vent the control rod drive over piston volumes.

QUESTION: 034 (1.00)

The plant was operating at 100% power when a loss of coolant accident occurred. All systems are operating as designed. The following conditions exist:

- RPV level is 2.5 inches and rising.
- RPV pressure is 115 psig and lowering.
- Drywell pressure is 19.5 psig and lowering
- (Maximum Drywell pressure reached during the transient was 22 psig)
- Division 1 RHR is injecting to the RPV at 18,000 gpm
- Division 2 RHR is spraying the torus and the drywell at a flowrate of 19,000 gpm.

Based on these conditions, select the response which describes what TORUS PRESSURE would be indicating if all containment systems are operating as designed.

- a. 20 psig and rising.
- b. 21 psig and rising.
- c. 20 psig and lowering.
- d. 21 psig and lowering.

QUESTION: 035 (1.00)

During a severe pressure and level transient the control room NSO observed a partial failure of the low-low set logic. The Division I SRV open sealed-in light was ON as well as the Division I scram pressure sealed-in light. Neither light was lit for Division II. Believing the Division II logic has failed, which of the following performances does the NSO expect from the low-low set SRVs?

With increasing pressure . . .

- a. NEITHER SRV A nor G will open at their low-low set setpoints.
- b. SRV A will open at 1017 psig, SRV G will open at 1047 psig.
- c. both SRVs A and G will open at 1017 psig.
- d. SRV A will open at 1017 psig, SRV G will not open at its low-low set setpoint.

QUESTION: 036 (1.00)

The mechanisms to ensure adequate core cooling are only core submergence, and . . .

- a. Spray Cooling.
- b. Steam Cooling only with injection.
- c. Steam Cooling only without injection.
- d. Steam Cooling both with and without injection.

QUESTION: 037 (1.00)

Given the following conditions:

- A reactor scram has occurred.
- 33 control rods did not fully insert
- Power is 10%
- Alternate boron injection using the standby feedwater system has been directed by the CRS.

When alternate boron injection is INITIATED, reactor power will INITIALLY:

- a. decrease due to the negative reactivity added from the CST water temperature.
- b. increase due to the positive reactivity added from the CST water temperature.
- c. decrease due to the boron initially forcing the flux peak to the top of the core.
- d. increase due to the boron initially forcing the flux peak to the center of the core.

QUESTION: 038 (1.00)

If hydrogen concentration can not be determined to be less than 6% AND oxygen concentration can not be determined to be less than 5%, the drywell fans must be shutdown.

Which ONE of the following describes the reason for this requirement?

- a. Allow drywell sprays to be initiated.
- b. Eliminate a potential ignition source.
- c. Prevent the hydrogen and oxygen from combining into a flammable mixture.
- d. Allow the hydrogen to accumulate in the top of the drywell where the oxygen concentration is the least.

QUESTION: 039 (1.00)

The plant was operating at 75% power when the B recirculation pump tripped. The following plant conditions exist:

- Recirc Loop 'A' flow 20,500 gpm
- Reactor power 48%
- Total core flow 40%
- APRM periodicity (regional) 1.15 seconds

Which of the following is the MINIMUM required IMMEDIATE operator action?

- a. Raise the speed of "A" RRMG to get out of the current Power-Flow Map region.
- b. Close the "B" Reactor Recirc Pump discharge valve.
- c. Insert CRAM array control rods.
- d. Place Reactor Mode Switch in SHUTDOWN.

QUESTION: 040 (1.00)

During performance of a plant startup, the following conditions existed:

- Reactor power 4%
- MSIVs open
- SJAEs all in service

Annunciator 6D16, OFF GAS MN CONDENSER PRESSURE HIGH, alarmed. A minute later 4D108, CONDENSER PRESSURE HIGH, alarmed. The following indications were observed:

- Offgas flow off scale high
- Condenser vacuum 2.2 psia (very slowly rising)

Which of the following would be appropriate for the given current conditions?

- a. Start the Mechanical Vacuum Pumps.
- b. Insert CRAM array control rods.
- c. Place the Reactor Mode Switch to SHUTDOWN and close the MSIVs.
- d. Place the Div 1 and 2 Low Condenser Vacuum Bypass Switches in BYPASS.

QUESTION: 041 (1.00)

A Station Blackout occurred, but Offsite Power was subsequently restored. The CRS now directs an operator to return the logic A and B keylock switches on Panel H11-614 to NORMAL.

These switches were in TEST to prevent . . .

- a. Automatic Depressurization System initiation when power was restored.
- b. automatic initiation of LPCI when power was restored.
- c. RCIC isolation on high temperature.
- d. automatic load sequencing when 4160V ESF bus power was restored.

QUESTION: 042 (1.00)

Multiple DC battery alarms prompted the CRNSO to dispatch operators to report on the status of 130/260V ESS Battery Chargers 2A-1 and 2A-2. The operators reported the following:

- AC breaker on the 2A-1 charger tripped
- DC breaker on the 2A-1 charger tripped
- AC feeder breaker (MCC 72B-2A, Pos 3D) to 2A-1 charger tripped
- 2A-2 charger breakers were in their normal lineup (no breakers tripped)

How can the 4160V Breaker 64B Position B5 be operated?

- a. Operate local manual, but not remotely from the Control Room.
- b. Close remotely from the Control Room, but require local manual operation to open.
- c. Operate remotely from the Control Room or local manual.
- d. Open remotely from the Control Room, but require local manual operation to close.

QUESTION: 043 (1.00)

During a transient, the CRNSO started the RCIC system for reactor water level control using the appropriate operating procedure. The CRNSO became distracted and allowed level to rise above Level 8 after which it lowered below Level 2.

Which of the following describes the reason for, and expected response of RCIC during the reactor water level transient?

- a. The RCIC Turbine Steam Inlet Valve (E51-F045) will close at Level 8 to prevent damage to the Main Turbine, and RCIC will automatically restart at Level 2.
- b. The RCIC Turbine Steam Inlet Valve (E51-F045) will close at Level 8 to prevent damage to the RCIC turbine, and will trip and isolate RCIC.
- c. The RCIC Trip Throttle Valve (E51-F059) will close at Level 8 to prevent damage to the RCIC turbine, and will trip and isolate RCIC.
- d. The RCIC Trip Throttle Valve (E51-F059) will close at Level 8 to prevent damage to the Main Turbine, and RCIC will automatically restart at Level 2.

QUESTION: 044 (1.00)

The plant is operating at full power with all DW Cooling Fans in operation. Panel H11-P808 annunciator 8D41, DIV 1 DRYWELL TEMPERATURE HIGH, alarms. The operator observes that T47-R803A, Drywell Cooling System Area Temperatures Div 1, point 16 indicates 158°F (trip setpoint is 155°F).

If the AVERAGE drywell temperature has risen from 132°F to 135°F during the last 8 hours, which one of the following actions is appropriate?

- a. Manually initiate EECW and EESW Systems.
- b. Shift DW Cooling Fans 1,2,3 and 4 to low speed.
- c. Operate all available Drywell Cooling.
- d. Increase GSW cooling to RBCCW.

QUESTION: 045 (1.00)

The following plant conditions exist:

- The reactor is at full power.
- Torus Cooling is in operation and average temperature is increasing.
- HPCI testing is in progress.

The required action is to immediately stop HPCI testing if torus temperature exceeds (1) °F, or immediately place the mode switch in shutdown if torus temperature exceeds (2) °F.

- a. (1) 95; (2) 110
- b. (1) 105; (2) 120
- c. (1) 110; (2) 120
- d. (1) 105; (2) 110

QUESTION: 046 (1.00)

The plant was operating at full power and experienced the following conditions:

- Main Steam Line Radiation Monitors A, B, C, and D indicated 4X Normal
- Off Gas Log Scale PRM recorder indicated 800 mr/hr with a constant increase

After the plant shutdown, the 3rd Main Steam Line Isolation Valves (MSIVs) and Division 2 MSIVLCS Steam Line Drain Valve (B21-F600) were closed. The Division's 1 and 2 MSIV Leakage Control System (LCS) Initiate keylock switches were placed in INITIATE with the following plant conditions:

- Reactor Pressure 40 psig
- Main Steam Line Pressure between inboard and outboard MSIVs 40 psig
- Main Steam Line Pressure between outboard and 3rd MSIVs 44 psig
- Division 1 Nuclear Instrument Air System (NIAS) Pressure 100 psig
- Division 2 NIAS Pressure 80 psig

Subsequently, the CRNSO reported that Division 1 MSIVLCS was injecting, but the Division 2 MSIVLCS Isolation Valves (B21-F437 and F438) had not opened.

(1) Based on the operating plant conditions, was manual operator action required to scram the reactor? (2) Is the MSIVLCS operating as expected? Why or why not?

- | | | | |
|----|----------|----------|---|
| a. | (1) Yes. | (2) Yes. | Division 2 Isolation Valves will not open because Main Steam Line pressure is too high. |
| b. | (1) Yes. | (2) No. | Division 2 Isolation Valves should have opened. |
| c. | (1) No. | (2) Yes. | Division 2 Isolation Valves will not open because Main Steam Line pressure is too high. |
| d. | (1) No. | (2) No. | Division 2 Isolation Valves should have opened. |

QUESTION: 047 (1.00)

The plant is operating at 100% power. All RBCCW pumps are tripped and cannot be restarted. Div 1 EECW pump tripped and cannot be restarted, but Div 2 EECW pump is running. What action(s) is (are) REQUIRED?

- a. Both Reactor Recirculation Pumps A & B must be STOPPED within 2 minutes.
- b. The Reactor Recirculation Pump A must be STOPPED within 2 minutes.
- c. The Reactor Recirculation Pump B must be taken to its MINIMUM SPEED immediately.
- d. The Reactor Recirculation Pump A must be taken to its MINIMUM SPEED immediately.

QUESTION: 048 (1.00)

The plant is operating at 100% power. An I&C surveillance for Reactor Water Level 1 instruments is in progress. Due to an error, an inadvertent Reactor Water Level 1 signal is initiated. The following responses are observed:

- LPCI pumps running
- CS pumps running
- EDGs running

Annunciators:

- 1D29 RHR INIT REAC VESSEL H2O LEVEL L1 alarmed
- 1D31 ADS DRYWELL PRESS BYPASS TIMER INITIATE A/B LOGIC alarmed

How will primary containment pressure be effected from this inadvertent Reactor Water Level 1 signal?

- a. INCREASE due to EECW actuation
- b. INCREASE due to single speed cooling fans tripping
- c. DECREASE due to 2 speed cooling fans shifting to fast speed
- d. DECREASE due to RBCCW isolation

QUESTION: 049 (1.00)

The plant is in MODE 2 at approximately 500 psig. CRD Pump A trips and CRD Pump B cannot be immediately started. Five accumulator trouble lights are lit, all on withdrawn control rods and annunciator 3D10, CRD ACCUMULATOR TROUBLE has alarmed.

What IMMEDIATE ACTION is required?

- a. Place the Reactor Mode Switch in SHUTDOWN.
- b. Attempt to restart at least one CRD Pump within 20 minutes.
- c. Commence a normal reactor shutdown.
- d. Verify the cause of the accumulator trouble, and drain or recharge as necessary.

QUESTION: 050 (1.00)

Which ONE of the following statements correctly describes the relationship between the Boron Injection Initiation Temperature (BIIT) curve and the Heat Capacity Limit (HCL) curve?

- a. The HCL curve is based on reactor pressure and is used to determine how long an operator has until the limits of the BIIT curve are reached.
- b. Operating within the constraints of the BIIT curve ensures sufficient boron will be injected into the core to shut down the reactor before the suppression pool reaches the limits of the HCL curve.
- c. Operating in accordance with the more restrictive of either the BIIT curve or the HCL curve ensures the limits of the Primary Containment Pressure Limit curve will not be reached.
- d. The BIIT curve and the HCL curve collectively monitor the energy additions into the suppression pool to prevent exceeding the limits of the Pressure Suppression Pressure curve.

QUESTION: 051 (1.00)

The following plant conditions exist following a break in the 'A' recirculation system piping:

- | | | |
|---|------------------------------|----------|
| - | Reactor mode switch position | Shutdown |
| - | Reactor coolant temperature | 220°F |
| - | Drywell temperature | 200°F |
| - | Drywell pressure | 1.4 psig |

Which of the following correctly describes the Technical Specification (TS) applicability in regards to the condition of the drywell?

- TS do not apply under emergency conditions.
- TS applies due to high drywell temperature.
- TS do not apply since applicable entry conditions do not exist.
- TS applies due to high drywell pressure.

QUESTION: 052 (1.00)

EOP 29.100.01, Sheet 2, "Primary Containment Control" requires drywell sprays to be terminated if torus water level exceeds +54 inches. The impact of continued operation of drywell sprays with torus level in excess of +54 inches would be:

- Drywell spray would be rendered ineffective due to the lower ring of drywell spray nozzles being submerged.
- Drywell sprays would be operated outside the drywell spray initiation limit curve.
- The static head resulting from the level of water in the torus would cause the drywell spray nozzle flow to exceed design capacity.
- Post-spray drywell vacuum relief cannot be assured due to the submergence of the torus-to-drywell vacuum breakers.

QUESTION: 053 (1.00)

The following plant conditions exist following a LOCA event:

- Torus Water Temperature 180°F and stable
- Torus Water level -70 inches and stable
- Torus Pressure 0 psig and stable
- Reactor Pressure 0 psig and stable

Which one of the following describes the effect that these conditions has on the operation of ECCS pump for RPV level control?

- a. Continued operation of HPCI is allowed if the suction is aligned to the CST to provide adequate suction pressure.
- b. Total core spray loop flow must be limited to 7000 to ensure adequate NPSH.
- c. Single pump LPCI flow is limited to 10,000 gpm to ensure vortex limits are not exceeded.
- d. RCIC operation is allowed up to 650 gpm as long as torus level remains above -105 inches.

QUESTION: 054 (1.00)

During plant operation at 99% power, an unisolable HPCI steam supply line event causes the HPCI room and RBSB SE corner room to exceed their respective Max Safe level of 5 R/hr as listed in Table 14, Secondary Containment Rad Levels. Based on this information, which of the following actions will be directed:

- a. Perform an orderly reactor shutdown and Emergency Depressurization.
- b. Scram and Emergency Depressurization.
- c. Perform an orderly reactor shutdown only.
- d. Scram only.

QUESTION: 055 (1.00)

The following actions automatically occurred as the result of high radiation:

- Reactor Building HVAC tripped
- SGTS started
- Control Center HVAC aligned to recirculation mode

Based on the information provided above, CHOOSE the radiation monitor and indicated radiation level that caused the automatic actions.

- a. Reactor Building Vent Exhaust = 14,500 cpm.
- b. Fuel Pool Vent Exhaust = 7.3 mRem.
- c. Turbine Building Vent Exhaust = 11,500 cpm.
- d. Radwaste Building Vent Exhaust = 14.5 mRem.

QUESTION: 056 (1.00)

As a result of an accident, the control center HVAC system automatically realigned to the RECIRCULATION mode. A subsequent off-site release resulted in the initiation of a Hi-Hi radiation signal on both the normal and emergency makeup air intake radiation monitors. The CCHVAC system emergency air intake selector switch is in AUTO. What impact does the offsite release have on the continued operation of CCHVAC?

- a. The emergency air intakes will isolate and await the results of the 5-minute intake radiation monitor sample period.
- b. The CCHVAC system will automatically realign to the PURGE mode in order to reduce the radiation levels at the air intakes.
- c. The emergency air intakes will remain open unless either the north or south emergency air intake radiation levels decrease to below the Hi-Hi trip setpoint.
- d. The CCHVAC system will automatically TRIP stopping the supply fan, supply fan heaters, roll filter motor, return air fan, and electrostatic filter.

QUESTION: 057 (1.00)

The reactor plant is operating at 100% power. A nuclear operator contacts the control room and reports an observed fire in the relay room. The operator also reports that it appears that a number of electrical panels have been significantly damaged.

Which of the following describes the impact that the above conditions have on continued operation of the reactor plant:

- a. Plant at-power operation can continue.
- b. The plant will be immediately shutdown in accordance with GOPs 22.000.03 and 22.000.04.
- c. Plant at-power operation can continue provided the fire is extinguished within one hour from the time the fire was initially reported and the fire brigade leader has initiated a fire alarm incident report.
- d. The reactor will be scrammed using the manual scram pushbuttons.

QUESTION: 058 (1.00)

The plant is operating at full power when annunciator 1D66, Steam Leak Detection Ambient Temp High, is received, and RWCU receives an isolation signal. An operator sent to RR H11-P614 reports the following:

- G33-TSE-N600A, RWCU Pump Rm A, indicates 181°F
- G33-TSE-N600B, RWCU Pump Rm B, indicates 138°F
- G33-TSE-N600C, RWCU Hx Rm, indicates 122°F

Which one of the following actions is required?

- a. Restore RWCU System operation using only RWCU Pump A.
- b. Verify RWCU System is isolated.
- c. Depress the Manual Scram Pushbuttons.
- d. Place the Mode Switch in SHUTDOWN, and initiate Emergency depressurization.

QUESTION: 059 (1.00)

Which one of the following indicates a loss of Secondary Containment Integrity?

- a. Both trains of Standby Gas Treatment System are inoperable.
- b. T4100-F011, RBHVAC Sply Inbd Iso Damper INOPERABLE and CLOSED.
- c. Annunciator 8D24, RAIL AIRLOCK DOOR SEAL PRESS LOW activated.
- d. T41-R800B, Div 2 CR And RB Diff Press Rec (COP H11-P817) indicating -0.130 inches water gauge.

QUESTION: 060 (1.00)

29.100.01, SH 5, Secondary Containment and Rad Release, directs operating available sump pumps whenever Secondary Containment area or sump levels exceed their Max Normal Operating levels. This action is based on:

- a. Minimizing the spread of contamination within the Secondary Containment.
- b. Containing leakage from a primary system within systems design for storage of radioactive liquids.
- c. Preventing the uncontrolled release of liquid radioactive effluents from the Secondary Containment.
- d. Maintaining water levels below the point at which equipment required for safe shutdown will fail.

QUESTION: 061 (1.00)

Select the set of statements that match the information requested.

The backup scram valves are ___(1)___ powered solenoid valves; and these solenoid valves ___(2)___ to isolate and vent off the scram air header.

- a. (1) 130 VDC; and (2) energize.
- b. (1) 130 VDC; and (2) de-energize.
- c. (1) 120 VAC; and (2) energize.
- d. (1) 120 VAC; and (2) de-energize.

QUESTION: 062 (1.00)

Given the following conditions:

- The plant was operating at 100% power when a LOCA occurred.
- Drywell pressure increased to 1.90 psig.
- All equipment responded to the LOCA as designed.
- Fifteen (15) minutes after the LOCA occurred, a Loss Of Offsite Power (LOP) to Division I 4160v ESF buses occurred.
- All equipment responded as designed to the Div I LOP.

Based on the conditions described above, select the statement which correctly describes the response of Division I LPCI to the LOCA then to the Loss Of Offsite Power.

- | | LOCA Response | LOP Response |
|----|-------------------------|---|
| a. | Auto start signal | Auto shed from bus, then auto restarted |
| b. | Start permissive signal | Load sequence is auto reset, then auto restarted |
| c. | Auto start signal | Auto shed from bus, then must be manually started |
| d. | Start permissive signal | Load sequence must be manually reset, then manually restarted |

QUESTION: 063 (1.00)

The plant is in COLD SHUTDOWN. The Drywell is inerted. A "Fill and Vent" is in progress on RHR loop "B" per SOP 23.205 "Residual Heat Removal System" with E1100-F088, RHR Keep Fill Station Bypass Valves CLOSED, and E1150-F017B, E1100-F208, RHR Div 2 Keep Fill Isolation Valves OPEN. An operator inadvertently opens the E1150-F015B valve.

Which of the following statements is true with respect to expected reactor pressure vessel (RPV) water level indications in the control room?

- a. RPV level will increase because "keep fill" flow path will be lined up to the RPV.
- b. RPV level will increase because water will be siphoned into the RPV from the TORUS.
- c. RPV level will decrease because a siphon path is set up through the injection line vent valves.
- d. RPV level will remain the same, because the amount of water injected is balanced by the amount drained through the vent valves.

F088 - closed
F017B open
F208 open
F015B open

QUESTION: 064 (1.00)

A SCRAM was initiated by high drywell pressure. Initial conditions after the scram are as follows:

- All control rods are inserted to 00.
- RPV pressure is 900 psig and trending down very slowly.
- Drywell pressure is >2.02 psig and trending up
- RPV level is 50 inches and trending down.

Subsequently, emergency depressurization is initiated with reactor pressure >750 psig. A complete loss of Division I ESS 130V D. C. occurs when the ADS SRVs are opened.

Given these conditions, which one of the following statements describes the impact on operation of the Div I Core Spray System (CSS)?

- a. DIV I CSS pumps will automatically shutdown due to a loss of control power.
- b. DIV I CSS Inboard/Outboard Isolation Valves, F005A/F004A will automatically close.
- c. Div I CSS Inboard Isolation Valve, F005A, must be locally opened by an operator.
- d. DIV I CSS Outboard Isolation Valve, F004A will remain open and Inboard Isolation Valve, F005A automatically open when RPV pressure is < 461.

QUESTION: 065 (1.00)

The reactor was operating at 80% power and the Division II Core Spray system was in full flow test when a LOCA occurred. The following conditions exist after the LOCA:

- Control rods all rods in
- RPV pressure 250 psig (lowering)
- RPV water level +40" (lowering)
- Drywell pressure 19 psig (rising)
- ECCS Systems operating as designed

Based on these conditions, the Div II Core Spray Pumps are (1), the Div II Core Spray System Minimum Flow Bypass Valve F031B is (2), the Div II Core Spray System full flow test valve F015B is (3), and the Div II Core Spray System injection line check valve F006B is (4)?

- a. (1) not running (2) closed (3) closed (4) closed
- b. (1) not running (2) open (3) closed (4) closed
- c. (1) running (2) closed (3) closed (4) open
- d. (1) running (2) open (3) open (4) open

QUESTION: 066 (1.00)

The P603 operator has rotated the SLC injection control switch to the Pump A position. No other isolation signals have been present for the RWCU system. How does the RWCU system respond?

- a. G3352-F001, RWCU SUPPLY INBD ISO VLV, Closes
G3352-F004, RWCU SUPPLY OTBD ISO VLV, Closes
- b. G3352-F004, RWCU SUPPLY OTBD ISO VLV, Closes
G3352-F220, RWCU TO FW OTBD CTMT ISO VLV, Closes
- c. G3352-F001, RWCU SUPPLY INBD ISO VLV, Closes
G3352-F119, RWCU SUPPLY SUCT ISO VLV, Closes
- d. G3352-F220, RWCU TO FW OTBD CTMT ISO VLV, Closes
G3352-F119, RWCU SUPPLY SUCT ISO VLV, Closes

QUESTION: 067 (1.00)

Which of the following Reactor Protection System (RPS) components provide interlocks for the specific purpose of preventing multiple power sources from supplying the same RPS bus simultaneously?

- a. NORMAL-ALTERNATE Selector Switch.
- b. RPS MG motor ON and OFF pushbuttons.
- c. Electrical Protection Assembly (EPA) circuit breakers.
- d. RPS Alternate Feed Transformer supply breakers and RPS MG supply breaker Auto-Bus Transfer device.

QUESTION: 068 (1.00)

The loss of Division 2 24/48 VDC will result in:

- a. INOP trips generated for APRM Channels B/D.
- b. INOP trips generated for IRM Channels B/F/D/H.
- c. Loss of power to the Radwaste Effluent Radiation Monitor (D11-K604) and a close signal to G1100-F733 (Blowdown Discharge Trip valve).
- d. Closure of the following Primary Containment Isolation valves: T4803-F601, DW INLET ISO VLV; T4803-F602, DW EXH ISO VLV; T4800-F404, TORUS INLET ISO VLV; and T4600-F400, TORUS EXH ISO VALVE.

QUESTION: 069 (1.00)

The plant is stable at 90% RTP, control rods are being withdrawn to raise the rod line. Control rod 26-27 is selected for withdrawal. If APRM #2's RECIRCULATION FLOW PROCESSING UNIT fails downscale, what protective functions, if any, automatically occur?

- a. No protective functions occur.
- b. Control Rod Block due to APRM Simulated Thermal Power Upscale.
- c. Half SCRAM and Control Rod Block due to APRM (#2) Simulated Thermal Power Upscale and Trip.
- d. Control Rod Block due to APRM (#2) Simulated Thermal Power Upscale Trip and RBM (B) INOP.

QUESTION: 070 (1.00)

Given the following conditions:

- Reactor Core Isolation Cooling (RCIC) is operating in the Test Mode
- E51-R614, RCIC Pump Flow Controller is in "Automatic"
- RCIC turbine speed is 2950 rpm
- P1100-F606, CST Common Rtrn Iso Valve is OPEN
- E41-K820, Test Iso/PCV E41-F011 Ctrlr, is in MANUAL at 20% OPEN

Which of the following describes the expected response of RCIC turbine speed and system flow if the operator throttles PCV E41-F011 an additional 5% in the "CLOSED" direction?

(Compare the conditions after they stabilize to before the valve was throttled.)

- a. RCIC turbine speed lowers
System indicated flow goes down
- b. RCIC turbine speed lowers
System indicated flow remains unchanged
- c. RCIC turbine speed raises
System indicated flow remains unchanged
- d. RCIC turbine speed raises
System indicated flow goes up

QUESTION: 071 (1.00)

A small break LOCA has occurred in the drywell. RCIC and CRD are the only high pressure injection sources available. All low pressure ECCS pumps are operating on minimum flow.

At time = 0, the following conditions exist:

- RPV Pressure is 875 psig and slowly lowering.
- RPV water level is 42 inches and lowering at 5 inches per minute.
- Drywell Pressure is 1.3 psig and raising at 0.1 psig per minute.

Assuming NO operator action, ADS will initiate in:

- a. 3 minutes 49 seconds.
- b. 5 minutes 33 seconds.
- c. 8 minutes 33 seconds.
- d. 10 minutes 49 seconds.

QUESTION: 072 (1.00)

The plant was operating at 100% power when a transient caused a reactor scram. All systems responded as designed. The following are current plant conditions:

- Reactor power is 0% with all rods fully inserted.
- RPV pressure is 735 psig and trending up.
- RPV level is 164 inches wide range level and trending up.
- Drywell pressure is 0.7 psig and steady.

Assuming NO operator action has been taken, which of the following correctly identifies the plant response to these conditions?

- a. Drywell and Suppression Pool Ventilation System isolation has occurred.
- b. Torus Water Management System isolation has occurred.
- c. Nitrogen Inerting System isolation has occurred.
- d. Main Steam Line isolation has occurred.

QUESTION: 073 (1.00)

The plant is in Mode 3, RHR 'A' has recently been placed in service in the Shutdown Cooling Mode. Due to distractions during shift turnover the cooldown rate has not been maintained and the following conditions exists:

- B31-N111A Reactor Vessel (Shutdown Cooling Cut-in Permissive Interlock)
Pressure - High indicates 86 psig
- B31-N111B Reactor Vessel (Shutdown Cooling Cut-in Permissive Interlock)
Pressure - High indicates 100 psig

Which of the following correctly identifies the Residual Heat Removal System response to these plant conditions?

- a. All PCIS Group 4 valves will isolate.
- b. Valves E1150- F009, Inboard Shutdown Cooling Suction Valve, and E1150- F022, RPV Inboard Head Spray Isolation Valve, will isolate.
- c. Valves E1150- F008, Outboard Shutdown Cooling Suction Valve, and E1150- F023, RPV Outboard Head Spray Isolation Valve will isolate.
- d. RHR "A" will continue to operate in the Shutdown Cooling Mode.

QUESTION: 074 (1.00)

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

- a. B21-F013H and F013F.
- b. B21-F013M and F013F.
- c. B21-F013A and F013J.
- d. B21-F013E and F013J.

QUESTION: 075 (1.00)

- The plant is operating at 20% power.
- 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 SPEED/LOAD is set at 300MW.

If reactor power were INCREASED to 45% power, without any further operator action, which of the following would occur?

	<u>Turbine Control Valves</u>	<u>Turbine Bypass Valves</u>
a.	Would OPEN further	Would OPEN
b.	Would OPEN further	Remain CLOSED
c.	Remain at their PRESENT position	Would OPEN
d.	Remain at their PRESENT position	Remain CLOSED

QUESTION: 076 (1.00)

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

- Master Feedwater Level Control Station, C32-R618 is in Auto
- North Reactor Feed Pump Controller, C32-R616A is in Auto
- South Reactor Feed Pump Controller, C32-R616B is in Manual
- Level Control Mode Select switch in three element

The N RFP Minimum Flow Control Valve, F400B, fails open due to a loss of air to the valve. Assuming no operator action, which of the following describes the Feedwater system response to these plant conditions?

- a. The S RFPT speed increases and the N RFPT speed remains the same.
- b. The N RFPT speed increases and the S RFPT speed remains the same.
- c. This failure will cause DCS logic to automatically force the South Reactor Feed Pump Controller, C32-R616B, to automatic and both RFPT speeds increase.
- d. This failure will cause DCS logic to automatically force the South RFP Minimum Flow Isolation Valve, N2100-F615, to close allowing the FWCS to maintain RPV level.

QUESTION: 077 (1.00)

The Reactor Feed Pumps were being controlled with the Feedwater Reactor Level Control Station in AUTOMATIC and the Startup Level Control Valve (SULCV) Mode Switch in RUN, when a Reactor Scram occurred. Given the following post scram feedwater actions:

1. High/Low RFP speed limited.
2. RFP motor operated discharge valve receives full closed signal.
3. SULC transfer to AUTO.
4. Level setdown initiated.

Assuming no operator action is taken, which action(s) would occur within 15 seconds following the Scram?

- a. 1 and 2.
- b. 1 and 3.
- c. 1.
- d. 4.

QUESTION: 078 (1.00)

Following a Loss of Coolant Accident, the Standby Gas Treatment System has been in service for several hours venting the drywell and torus in accordance with 29.ESP.07, Primary Containment Venting. Chemistry reports that stack release rates are elevated. Which of the following situations could explain the elevated release?

- a. Pre-filter differential pressure increase of 5.0 inches water.
- b. Moisture Separator differential pressure increase of 1.0 inches water
- c. Charcoal Adsorber temperature exceeding the temperature switch setting.
- d. Charcoal Adsorber Blanket Heater Temperature Controller failure below the control setpoint.

QUESTION: 079 (1.00)

A loss of offsite power occurred and the following conditions exist:

- 345kV System de-energized
- 120kV System de-energized
- 13.8kV Peaker Bus 1-2B de-energized
- Div 1 EDGs running and tied to the ESF Buses
- Div 2 EDGs failed to start

Operator actions have yet to be taken. Assuming all other systems operate as expected, which of the following Low Pressure ECCS pump configurations would be available during this event?

- a. RHR Pump A & Core Spray Pump A
RHR Pump C & Core Spray Pump C
- b. RHR Pump C & Core Spray Pump C
RHR Pump B & Core Spray Pump B
- c. RHR Pump B & Core Spray Pump B
RHR Pump D & Core Spray Pump D
- d. RHR Pump A & Core Spray Pump A
RHR Pump D & Core Spray Pump D

QUESTION: 080 (1.00)

The North RR MG Set is being returned to service in accordance with SOP 23.138.01, "REACTOR RECIRCULATION SYSTEM," Section 8.0, "RR MG SET STARTUP WITH REACTOR NOT SHUT DOWN UNDER ALL CONDITIONS."

Approximately 13 seconds after starting the North RR MG Set you observe the following:

- The North RR MG Set Field Breaker is closed
- The North RR MG Set ammeter has decreased to approximately 320 amps.
- B3105-F031A, N RR Pump Discharge Valve red and green indicating lights extinguish.

Which of the following describes the response of the recirculation pump?

The North Recirculation Pump will:

- a. continue to run until manually tripped.
- b. trip on over current due to runout flow.
- c. trip when the 105 second discharge valve timer times out.
- d. trip after a total of 15 seconds due to incomplete startup sequence.

QUESTION: 081 (1.00)

Unit is in Mode 4 with both recirc pumps secured. Shutdown cooling is being provided by RHR loop A. Moderator temperature is 180°F, with a cooldown in progress. Then E11-F007A the RHR Pump A/C Recirc Valve fails open. When the E11-F007A valve is reclosed, vessel level has dropped to 186 inches on the Narrow Range level indicators.

Which of the following is a concern?

- a. RPV level is too low to prevent RPV thermal stratification.
- b. RPV level is too low for continuous operation with only one operating recirc pump.
- c. RPV level is low enough to generate a low level scram signal.
- d. RPV level is low enough to generate a RHR Shutdown Cooling Isolation signal.

QUESTION: 082 (1.00)

Which statement correctly describes the Residual Heat Removal (RHR) system flow rate response for the given Mode of operation?

- a. Each RHR pump is mechanically restricted to prevent exceeding 10,000 gpm during LPCI injection.
- b. Either division of RHR can inject at the loop full flow rate of 14,000 gpm during RHR Shutdown Cooling Mode.
- c. Because of the size of the spray nozzles, Torus Spray Mode injection flow rate is not limited and can support full RHR division flow.
- d. Because of the size of the spray nozzles, Drywell Spray Mode injection flow rate is not limited and can support full RHR pump flow.

QUESTION: 083 (1.00)

Which of the following statements correctly identifies the electrical power to the Main Steam Isolation Valve (MSIVs) isolation solenoids?

- a. ESS Bus 72
- b. Modular Power Unit
- c. Uninterruptible Power Supply
- d. RPS Distribution Cabinet

QUESTION: 084 (1.00)

Which of the following states the consequences of improperly setting the generator output voltage with respect to system voltage during manual synchronization?

- a. If generator output voltage is less than system voltage, a VAR flow will occur from the system to the generator.
- b. If generator output voltage is greater than system voltage, a VAR flow will occur from the system to the generator.
- c. If generator output voltage is less than system voltage, the generator will accelerate to increase voltage to match the system voltage.
- d. If generator output voltage is greater than system voltage, the generator will reduce speed to reduce voltage to match the system voltage.

QUESTION: 085 (1.00)

The plant is MODE 3. UPS "B" is being manually transferred from the alternate power supply to the normal power supply in accordance with SOP 23.308.01 "UNINTERRUPTIBLE POWER SUPPLY SYSTEM."

Select the statement which correctly identifies the main control room plant parameter indications impacted if improper operation results in the loss of UPS "B".

- a. B31-N028D, Recirc Pump B Discharge Pressure
B31-N601B, Recirc Pump B Suction Temperature
B31-N006B, Recirc Pump B Seal Cavity #1 Pressure
- b. B21-R610, RPV Core Level Recorder
B21-R623A, Post Accident Monitoring Recorder
B21-R604A, Wide Range Reactor Water Level Ind
- c. C32-R605A, Div I RPV Pressure
C32-R607, Reactor Flow Recorder
RPIS indications on Full Core Display
- d. C32-R603B & D MSL Flow
C11-J601, Rod Worth Minimizer
C32-R605B, Div II RPV Pressure

QUESTION: 086 (1.00)

The plant is operating at 98% power. The Off-Gas Radiation Monitor reading is 400mr/hr, and has risen steadily over the last 4 hours from an initial level of 120 mr/hr. Which one of the following conditions would have caused these indications?

- a. the hydrogen water chemistry injection flow rate has been lowered.
- b. additional steam jet air ejectors have been placed in service.
- c. a fuel cladding leak has developed.
- d. off gas system dilution flow rate has lowered.

QUESTION: 087 (1.00)

The Electric Fire Pump, C002, is powered from?

- a. 4160VAC Bus 11EB
- b. 4160VAC Bus 68K
- c. 4160VAC Bus 69K
- d. 4160VAC Bus 69J

QUESTION: 088 (1.00)

The Reactor Building to Suppression Pool vacuum relief system is composed of a self-actuated vacuum breaker and an air operated butterfly valve in series. Which of the following describes how this system operates?

A Reactor Building to Suppression Pool differential pressure of . . .

- a. 0.25 psid actuates the vacuum breaker and butterfly valve to open.
- b. 0.5 psid actuates the vacuum breaker to open and the butterfly valve to open.
- c. 0.25 psid actuates the vacuum breaker to open, and a Reactor Building to Suppression Pool differential pressure of 0.5 psid actuates the butterfly valve to open.
- d. 0.25 psid actuates the butterfly valve to open, and a Reactor Building to Suppression Pool differential pressure of 0.5 psid actuates the vacuum breaker valve to open.

QUESTION: 089 (1.00)

From the following select the statement that correctly identifies the Control Center HVAC System reconfiguration logic.

- a. The Chlorine Mode will automatically initiate from 2 out of 2 Chlorine Detectors.
- b. The Recirculation Mode will automatically initiate from 2 out of the 4 Emergency Intake Radiation Monitors.
- c. The Recirculation Mode will automatically initiate from either Div I or Div II High Reactor Building Ventilation Exhaust Radiation Monitor.
- d. The Purge Mode will automatically initiate from any other mode upon detection of Fire in either the Relay Room or Cable Spreading Room.

QUESTION: 090 (1.00)

Operation of the Primary Containment Pneumatic Supply (PCPS) using the Non-Interruptible Air Supply (NIAS) is avoided because:

- a. the lower operating pressure effects gas operated valve stroke times.
- b. prolonged operation could increase Primary Containment oxygen levels.
- c. the lower operating pressure results in Primary Containment leakage into the Non-Interruptible Air Supply.
- d. the moisture and oxygen content effects in-line pressure regulator operation resulting in component over pressurization.

QUESTION: 091 (1.00)

A full core off-load of fuel at the end of a cycle plus the remaining decay heat of the spent fuel from a previous cycle are in the Spent Fuel Pool at the same time. Fuel Pool Temperature has slowly risen over the last few hours. What supplemental heat removal capability is available to prevent the Spent Fuel Pool from exceeding its design temperature during this maximum heat load?

- a. Standby Feedwater System may be cross connected to supply cooling water to the Fuel Pool Cooling and Cleanup (FPCCU) System to increase the heat removal capability of the FPCCU System.
- b. The Reactor Water Cleanup System may be connected to the FPCCU System to increase the heat removal capability of the FPCCU System.
- c. The Residual Heat Removal System may be connected to the FPCCU System to increase the heat removal capability of the FPCCU System.
- d. Emergency Equipment Cooling Water may be started to increase the heat removal capability of the FPCCU Heat Exchangers.

QUESTION: 092 (1.00)

Reactor Building HVAC components (including major valves F008, Reactor Bldg Outboard/Div II Exhaust Isol. Damper, and F010, Reactor Bldg Outboard/Div II Supply Isol. Damper) shifted to their fail-positions. Which one of the following caused the RB HVAC system to isolate?

- a. Loss of Non-Interruptible Air System
- b. Loss of Interruptible Air System
- c. Actuation of Eberline SPING-4A
- d. Loss of Uninterruptable Power Supply

QUESTION: 093 (1.00)

Nil-Ductility Transition Temperature (NDTT) shift is accounted for during design life of the plant to minimize the possibility of brittle fracture of the reactor pressure vessel and internals. Which one of the following will result in NDTT to shift to the right of the temperature curve?

- a. temperature embrittlement
- b. core shroud cracking
- c. chloride stress corrosion
- d. neutron flux

QUESTION: 094 (1.00)

WHICH of the following is the reason that, during startup, the reactor vessel level control remains on the Startup Level Control Valve (SULCV) until the operating reactor feed pump SUCTION FLOW is greater than 35%?

- a. To prevent fluctuations in reactor power.
- b. To prevent erratic changes in feed pump speed.
- c. To prevent oscillations of the feed pump minimum flow valve.
- d. To prevent low suction pressure trip of the operating feed pump.

QUESTION: 095 (1.00)

From the given statements select the one that correctly describes the operational leakage allowed from the reactor coolant system.

Reactor Coolant System operational LEAKAGE shall be limited to:

- a. pressure boundary leakage
- b. ≤ 5 gpm TOTAL LEAKAGE.
- c. ≤ 25 gpm TOTAL LEAKAGE averaged over the previous 24 hours and ≤ 5 gpm increase in unidentified LEAKAGE in the previous 12 hour period.
- d. ≤ 25 gpm TOTAL LEAKAGE averaged over the previous 24 hours and ≤ 2 gpm increase in unidentified LEAKAGE in the previous 24 hour period.

QUESTION: 096 (1.00)

During a tour of the reactor building, you noticed an area that was posted as "No Loitering." From a radiological perspective, since the area was posted as "No Loitering," the radiation dose rate is at least:

- a. 1.0 mRem/hr
- b. 2.5 mRem/hr
- c. 5.0 mRem/hr
- d. 10.0 mRem/hr

QUESTION: 097 (1.00)

Independent Verification of a valve lineup in the A RWCU pump room may be waived if:

- a. the CRNSO made an explanatory log entry.
- b. a licensed NSO performed the initial lineup.
- c. two qualified operators performed the lineup simultaneously.
- d. the expected dose rate would exceed 100 mRem.

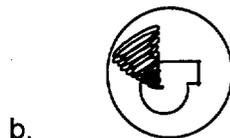
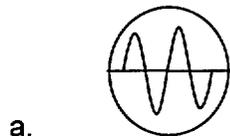
QUESTION: 098 (1.00)

An annunciator in the Control Room has alarmed. The operator notes the alarm window is colored and has a 6-digit indication in the lower right hand corner. Which one of the following annunciator characteristics indicates an alarm with multiple input, reflash capability, and is a critical alarm noted on the sequence recorder?

	Annunciator 6-digit Indication	Window Color	Sequence of Events Recorder Indication
a.	068S31	Red	3 asterisk
b.	*068S31	White	0 asterisk
c.	068S31/068S32	Blue	1 asterisk
d.	*068S31	Amber	2 asterisk

QUESTION: 099 (1.00)

Emergency Operating Procedure Flowcharts use icons in place of words in order to assist the operator in easily understanding the step. Which one of the following icons refers to the statement, "Regardless of NPSH or Vortex Limits?"



QUESTION: 100 (1.00)

A fire occurs that requires the control room to be abandoned, procedure 20.000.18 "CONTROL OF THE PLANT FROM THE DEDICATED SHUTDOWN PANEL" is entered. How much time does the operating staff have to establish Shutdown Cooling, and what is a factor limiting this time.

- a. 24 hours, beyond this time the 125 volt battery needed for RCIC control power could be depleted.
- b. 10 hours, beyond this time the nitrogen for operation of SRVs could be depleted.
- c. 24 hours, beyond this time the supply of makeup water for continued plant cooldown could be depleted.
- d. 10 hours, beyond this time emergency lighting for local equipment operation could be depleted.

(***** END OF EXAMINATION *****)

*QNUM 001
 *KA 295023 K3.02
 *ANSWER
 a.
 *REFERENCE
 ST-OP-315-011-001R11
 EQ-OP-315-0190-000-0005-005
 Direct
 Tier/Group: 1/3
 Level of Difficulty (1 - 5): 2
 Comprehension-Analysis

*QNUM 002
 *KA 201002 K3.02
 *ANSWER
 A
 *REFERENCE
 23.607
 Direct
 Tier/Group: 2/1
 Level of Difficulty (1 - 5): 2
 Comprehension

*QNUM 003
 *KA 202002 A4.05
 *ANSWER
 A
 *REFERENCE
 20.138.03 Uncontrolled Recirc
 Flow Change; UFSAR 15.3
 Direct/New/Modified: New
 Tier/Group:2/1
 Level of Difficulty (1 - 5): 2
 Analysis

*QNUM 004
 *KA 206000 G2.2.25
 *ANSWER
 B
 *REFERENCE
 23.202 Rev 67
 ST-OP-315-0039-001, Obj. 01-07;-08;-09 ROs not responsible for ITS LCOs however they are responsible for knowing HPCI precautions and limitations that apply to operation, and be able to determine entry into ITS action statements (per objectives)
 Direct/New/Modified: Direct
 Tier/Group:2/1
 Level of Difficulty (1 - 5): 3
 Memory

*QNUM 005
 *KA 215004.A2.03
 *ANSWER
 d.
 *REFERENCE
 ST-OP-315-0022-001, SOP 23.602, and GOP 22.000.02
 NOTE: Met Part B of K/A but no facility reference available, AOP for stuck SRM detector was deleted.
 Direct
 Tier/Group: 2/1
 Level of Difficulty (1 - 5): 2
 Comprehension-Analysis

*QNUM 006
 *KA 216000 G2.1.28
 *ANSWER
 D
 *REFERENCE
 ST-OP-315-0021-001
 New
 Tier/Group: 2/1
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 007
 *KA 223002 A3.02
 *ANSWER
 C
 *REFERENCE
 ST-OP-315-0048-001
 NOTE: a=L1 - G1; b=L1-G3; c=L3 - G4; d=L2-G12
 New
 Tier/Group: 2/1
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 008
 *KA 239002 A2.03
 *ANSWER
 D
 *REFERENCE
 ST-OP-802-2002-001;
 20.000.25, Rev. 16
 New
 Tier/Group: 2/1
 Level of Difficulty (1 - 5): 3
 Comprehension-Analysis

*QNUM 009
 *KA 261000 A4.04
 *ANSWER
 D
 *REFERENCE
 SOP 23.406
 New
 Tier/Group: 2/1
 Level of Difficulty (1 - 5): 3
 Memory

*QNUM 010
 *KA 264000 A2.09
 *ANSWER
 C
 *REFERENCE
 ST-OP-315-0065-001
 New
 Tier/Group: 2/1
 Level of Difficulty (1 - 5): 4
 Analysis

*QNUM 011
 *KA 201006 G2.2.33
 *ANSWER
 A
 *REFERENCE
 ST-OP-315-0013-001
 New
 Tier/Group: 2/2
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 012
 *KA 204000 A3.04
 *ANSWER
 A
 *REFERENCE
 ARP 2D110 RWCU Non
 Regen Hx Outlet Temp High
 EQ-OP-202-0401-000-0203-
 001
 Modified
 Tier/Group: 2/2
 Level of Difficulty (1 - 5): 2
 Analysis

*QNUM 013
 *KA 214000 K3.03
 *ANSWER
 A
 *REFERENCE
 ST-OP-315-0011-001
 Modified
 Tier/Group: 2/2
 Level of Difficulty (1 - 5): 3
 Comprehension-Analysis

*QNUM 014
 *KA 215002 G2.1.27
 *ANSWER
 B
 *REFERENCE
 ST-OP-315-0024-001; ITS
 Basis
 New
 Tier/Group: 2/2
 Level of Difficulty (1 - 5): 3
 Memory

*QNUM 015
 *KA 219000 K5.04
 *ANSWER
 C
 *REFERENCE
 INPO Bank Question 6820
 Dresden 2
 ST-OP-315-0041-001
 Direct
 Tier/Group: 2/2
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 016
 *KA 230000 A2.05
 *ANSWER
 C
 *REFERENCE
 ST-OP-315-0041-001 and
 SOP 23.205
 New
 Tier/Group: 2/2
 Level of Difficulty (1 - 5): 4
 Analysis

*QNUM 017
 *KA 256000 K5.07
 *ANSWER
 B
 *REFERENCE
 ST-OP-315-0006-001
 New
 Tier/Group: 2/2
 Level of Difficulty (1 - 5): 3
 Comprehension

*QNUM 018
 *KA 272000 K6.01
 *ANSWER
 C
 *REFERENCE
 EQ-OP-315-0150-000-0007-00
 1 & ST-OP-315-0050-001
 Direct
 Tier/Group: 2/2
 Level of Difficulty (1 - 5): 3
 Memory

*QNUM 019
 *KA 234000 K3.03
 *ANSWER
 C
 *REFERENCE
 ST-OP-315-0090-001
 New
 Tier/Group: 2/3
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 020
 *KA 2.1.1
 *ANSWER
 A
 *REFERENCE
 EQ-OP-213-0041-000-B001-
 001; MOP09
 Direct
 Tier/Group: 3/
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 021
 *KA Generic 2.1.25
 *ANSWER
 B
 *REFERENCE
 ST-OP-820-3002-001,
 Revision 1, "Cautions, Curves,
 and Calculations." RHR (LPCI)
 NPSH Limit Curve.
 New
 Tier/Group: 3, Conduct of
 Operations
 Level of Difficulty (1 - 5): 3
 Comprehension-Analysis

*QNUM 022
 *KA 2.2.30
 *ANSWER
 C
 *REFERENCE
 EQ-OP-802-2006-000-0016-002; MOP13, Conduct of Refueling and Core Alterations Direct
 Tier/Group: 3/
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 023
 *KA 2.2.34
 *ANSWER
 c
 *REFERENCE
 General Operating Procedure, 22.000.02, Revision 47, Plant Startup to 25% Power, Precaution and Limitation 3.2.10.
 New
 Tier/Group: Tier 3, Equipment Control.
 Level of Difficulty (1 - 5): 3
 Comprehension-Analysis

*QNUM 024
 *KA 2.3.2
 *ANSWER
 A
 *REFERENCE
 Procedures MRP05r3
 New
 Tier/Group: 3/
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 025
 *KA 2.4.6
 *ANSWER
 B
 *REFERENCE
 ST-OP-802-3001-001
 Direct
 Tier/Group: 3/
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 026
 *KA 295005 G2.1.2
 *ANSWER
 C.
 *REFERENCE
 AOP 20.109.01,
 Turbine/Generator Trip; ARP 4D46 MAIN TURBINE TRIPPED; ARP 3D89 TURBINE CONT VALVE FAST CLOSURE CHANNEL TRIP; ARP 3D90 TURBINE STOP VALVE CLOSURE CHANNEL TRIP
 New
 Tier/Group: 1/1
 Level of Difficulty (1 - 5): 2
 Comprehension

*QNUM 027
 *KA 295006 A1.02
 *ANSWER
B D J. H. H. 6-4-01
 *REFERENCE
 BANK - ST-OP-802-2002-001 EQ-OP-802-2002-000-0003-004
 Direct
 Tier/Group: 1/1
 Level of Difficulty (1 - 5): 2
 Comprehension

*QNUM 028
 *KA 295006 A2.01
 *ANSWER
 A
 *REFERENCE
 ITS Table 3.3.1.1-1
 New
 Tier/Group: T1G1
 Level of Difficulty (1 - 5): 3
 Comprehension

*QNUM 029
 *KA 295007 K3.06
 *ANSWER
 B
 *REFERENCE
 ST-OP-315-0045-001
 New
 Tier/Group: 1/1
 Level of Difficulty (1 - 5): 3
 Comprehension

*QNUM 030
 *KA 295009 K1.02
 *ANSWER
 A
 *REFERENCE
 UFSAR pg 5-5.3; ST-OP-315-0004-001; SOP 23.138.01
 New
 Tier/Group: 1/1
 Level of Difficulty (1 - 5): 2
 Comprehension

*QNUM 031
 *KA 295010.AK2.02
 *ANSWER
 C
 *REFERENCE
 Previous NRC Exam Question; EQ-OP-802-3002-000-0007-002
 ST-OP-315-0016-001
 Direct
 Tier/Group: 1/1
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 032
 *KA 295014.G2.1.7
 *ANSWER
 B
 *REFERENCE
 FERMI: AOP-20.138.03
 "Uncontrolled Recirc Flow
 Increase"
 Direct
 Tier/Group: 1/1
 Level of Difficulty (1 - 5): 3
 Comprehension

*QNUM 035
 *KA 295025 EA1.03
 *ANSWER
 D.
 *REFERENCE
 23.201, Rev.19; ARP 1D38,
 Rev.10
 Direct
 Tier/Group: 1/1
 Level of Difficulty (1 - 5): 3
 Comprehension-Analysis

*QNUM 038
 *KA 500000 A2.03
 *ANSWER
 B
 *REFERENCE
 EQ-OP-802-3004-000-0011-00
 4, 29.100.01,
 ST-OP-802-3004-001
 Direct
 Tier/Group: 2
 Level of Difficulty (1 - 5): 3
 Memory

*QNUM 033
 *KA 295015.A1.06
 *ANSWER
 B
 *REFERENCE
 29.ESP.03, Rev. 5 (Purpose,
 Page 3); EOP 29.100.01 SH
 1A, Rev.6 (Step FSQ-11);
 Exam Bank Question Ref: EQ-
 OP-202-0101-000-0203-004
 Direct
 Tier/Group: 1/1
 Level of Difficulty (1 - 5): 2
 CA

*QNUM 036
 *KA 295031 K1.01
 *ANSWER
 D
 *REFERENCE
 INPO Bank Question 2067
 Quad Cities 1;
 ST-OP-802-3001-001
 Introduction to Emergency
 Operating Procedures
 Direct
 Tier/Group: 1/1
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 039
 *KA 295001 AA1.06
 *ANSWER
 d.
 *REFERENCE
 22.000.02, 22.000.03
 24.000.01, Attachment 34B
 Modified
 Tier/Group: 1/2
 Level of Difficulty (1 - 5): 3
 Comprehension-Analysis

*QNUM 034
 *KA 295024 A2.04
 *ANSWER
 C
 *REFERENCE
 EQ-OP-315-0116-000-0004-00
 3
 ST-OP-315-0116
 Direct
 Tier/Group: 1/2
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 037
 *KA 295037.K1.06
 *ANSWER
 B
 *REFERENCE
 ST-OP-3003-001
 Modified
 Tier/Group: 1/1
 Level of Difficulty (1 - 5): 3
 Comprehension

*QNUM 040
 *KA 295002 AA2.04
 *ANSWER
 A.
 *REFERENCE
 EQ-OP-315-0132-000-0008-
 007; 20.125.01 Rev. 21
 Modified
 Tier/Group: 1/2
 Level of Difficulty (1 - 5): 2
 Comprehension-Analysis

*QNUM 041

*KA 295003 2.1.23

*ANSWER

C.
 *REFERENCE
 EQ-OP-802-2012-000-0005-004; 20.300.SBO, Rev. 1/31/01; 20.300.SBO Bases, Rev.0
 Direct
 Tier/Group: 1/2
 Level of Difficulty (1 - 5): 2
 Comprehension-Analysis

*QNUM 044
 *KA 295012 AK2.02
 *ANSWER
 D.
 *REFERENCE
 ST-OP-315-0043-001, Rev.10; ARP 8D41, Rev.14
 Modified
 Tier/Group: 1/2
 Level of Difficulty (1 - 5): 3
 Comprehension-Analysis

*QNUM 047
 *KA 295018 2.2.24
 *ANSWER
 B.
 *REFERENCE
 ST-OP-315-0067-001, Rev.13; 20.127.01, Rev. 24
 Modified
 Tier/Group: 1/2
 Level of Difficulty (1 - 5): 2
 Comprehension-Analysis

*QNUM 042
 *KA 295004 AK1.05
 *ANSWER
A. C. J. Hopkins 6-4-01
 *REFERENCE
 20.300.260VESF; ARP 9D17, Rev.14; ST-OP-315-0064-001
 Modified
 Tier/Group: 1/2
 Level of Difficulty (1 - 5): 3
 Comprehension-Analysis

*QNUM 045
 *KA 295013 AK2.01
 *ANSWER
 D.
 *REFERENCE
 ST-OP-802-3004-001, Rev.2; 29.100.01, Sheet 2, Rev.8; TS 3.6.2.1
 New
 Tier/Group: 1/2
 Level of Difficulty (1 - 5): 3
 Memory

*QNUM 048
 *KA 295020 AA2.01
 *ANSWER
 B.
 *REFERENCE
 23.601, Rev.25 (fan trip, 2 speed shift to slow); ST-OP-315-0067-001, Rev.13 (RBCCW/EECW, actuation signals that are not L1);NOTE: a. EECW would not actuate/isolate until DW press is 1.68#; c. these fans shift to slow speed; d. RBCCW would not isolate on L1
 New
 Tier/Group: 1/2
 Level of Difficulty (1 - 5): 3
 Comprehension-Analysis

*QNUM 043
 *KA 295008 AK3.08
 *ANSWER
 A.
 *REFERENCE
 ST-OP-315-0043-001, Rev.9
 Modified
 Tier/Group: 1/2
 Level of Difficulty (1 - 5): 3
 Comprehension-Analysis

*QNUM 046
 *KA 295017 AA1.08
 *ANSWER
 C.
 *REFERENCE
 ST-OP-315-0005-001, Rev.12; ARP 3D83, Rev.11; 20.00.07, Rev. 2/5/01; 23.137.01, Rev.21
 Modified
 Tier/Group: 1/2
 Level of Difficulty (1 - 5): 3
 Comprehension-Analysis

*QNUM 049
 *KA 295022 AK1.01
 *ANSWER
 A.
 *REFERENCE
 20.106, Rev. 2/2/01; ARP 3D10, Rev.11
 Modified
 Tier/Group: 1/2
 Level of Difficulty (1 - 5): 3
 Comprehension-Analysis

*QNUM 050
 *KA 295026 EK3.04
 *ANSWER
 b.
 *REFERENCE
 ST-OP-802-3002-001,
 Revision 1.
 Direct
 Tier/Group: 1/2
 Level of Difficulty (1 - 5): 3
 Memory

*QNUM 051
 *KA 295028 G2.1.33
 *ANSWER
 b.
 *REFERENCE
 Technical Specification 3.6.1.5,
 ST-OP-802-3001-001,
 Revision 2.
 New
 Tier/Group: 1/2
 Level of Difficulty (1 - 5): 2
 Comp-Analysis

*QNUM 052
 *KA 295029 EK1.01
 *ANSWER
 d.
 *REFERENCE
 ST-OP-802-3004-001,
 Revision 2; EOP 29.100.01,
 Sheet 2, Revision 8; EOP
 29.100.01, Sheet 6, Revision
 8.
 New
 Tier/Group: 1/2
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 053
 *KA 295030 EA1.01
 *ANSWER
B C J Hopkins 6-4-01
 *REFERENCE
 EQ-OP-3004-000-0012-001;
 EOP 29.100.01 S6 Rev 8; ST-
 OP-802-3002-001, Rev 1 Sect
 III.D.
 Modified
 Tier/Group: 1/2
 Level of Difficulty (1 - 5): 2
 Comp-Analysis

*QNUM 054
 *KA 295033 EK2.01
 *ANSWER
B J Hopkins 6-4-01
 *REFERENCE
 Concept from ST-OP-802-
 3005-001, Rev. 1, Sect.II.D.9.
 New
 Tier/Group: 1/2
 Level of Difficulty (1 - 5): 3
 Memory

*QNUM 055
 *KA 295034 EA2.01
 *ANSWER
 B
 *REFERENCE
 AOP 20.710.01, Refueling
 Floor High Radiation
 New
 Tier/Group: 1/2
 Level of Difficulty (1 - 5): 2
 Comp-Analysis

*QNUM 056
 *KA 295038 EK2.03
 *ANSWER
 c.
 *REFERENCE
 ST-OP-315-0073-001,
 Revision 15; Station drawing
 6M721-5736-3, Revision F.
 New
 Tier/Group: 1/2
 Level of Difficulty (1 - 5): 3
 Comp-Analysis

*QNUM 057
 *KA 600000 AA2.13
 *ANSWER
 d.
 *REFERENCE
 AOP 20.000.22, L/R; AOP
 20.000.18, L/R.
 Modified
 Tier/Group: 1/2
 Level of Difficulty (1 - 5): 2
 Comp-Analysis

*QNUM 058
 *KA 295032 K1.03
 *ANSWER
 B
 *REFERENCE
 29.100.01 Sheet 5 ; Bank
 Quest. Ref,
 EQ-OP-802-3005-000-0001-00
 7
 Direct
 Tier/Group: 1/3
 Level of Difficulty (1 - 5): 2
 Comprehension

*QNUM 059
 *KA 295035 EA 1.02
 *ANSWER
 A
 *REFERENCE
 20.000.11 ; 23.404; ARP
 17D46; ST-OP-802-2007-001;
 Bank Ques ref.
 EQ-OP-802-2007-000-0001-00
 5
 Modified
 Tier/Group: 1/3
 Level of Difficulty (1 - 5): 2
 CA

*QNUM 060
 *KA 295036 K2.03
 *ANSWER
 D
 *REFERENCE
 ARP 2D82, 29.100.01 SH 5 ;
 EQ-OP-802-3005-000-0001-00
 4
 Direct
 Tier/Group: 1/3
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 061
 *KA 201001 K2.03
 *ANSWER
 A
 *REFERENCE
 ST-OP-315-0010-001 & 0027-
 001; Quad Cities exam
 question #13913
 Direct
 Tier/Group: 2/1
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 062
 *KA 203000 A1.08
 *ANSWER
 A
 *REFERENCE
 Emergency Diesel Generators
 - ST-OP-315-0065-001
 Tier/Group: 2/1
 Level of Difficulty (1 - 5): 2
 Analysis

*QNUM 063
 *KA 203000 A4.07
 *ANSWER
 A
 *REFERENCE
 SOP 23.205; EQ-OP-315-
 0241-000-004-001
 Modified
 Tier/Group: 2/1
 Level of Difficulty (1 - 5): 3
 Analysis

*QNUM 064
 *KA 209001 K2.03
 *ANSWER
 C
 *REFERENCE
 STP-OP-315-0040-001, figure
 4
 New
 Tier/Group: 2/1
 Level of Difficulty (1 - 5): 3
 Analysis

*QNUM 065
 *KA 209001 A1.08
 *ANSWER
 C
 *REFERENCE
 ST-OP-315-0040-001; EQ-OP-
 202-0501-000-A003-021, 22, &
 25; EQ-OP-315-0140-000-
 0005-006
 Modified
 Tier/Group: 2/1
 Level of Difficulty (1 - 5): 3
 Analysis

*QNUM 066
 *KA 211000 K1.05
 *ANSWER
 B
 *REFERENCE
 EQ-OP-315-0108-000-0005-
 004; ST-OP-315-0008; ST-OP-
 315-0014
 Direct
 Tier/Group: 2/1
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 067
 *KA 212000 K4.03
 *ANSWER
 A
 *REFERENCE
 SOP 23.316, Rev. 40 and ST-
 OP-315-0027-001, Rev. 10
 New
 Tier/Group: 2/1
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 068
 *KA 215003 K6.02
 *ANSWER
 B
 *REFERENCE
 ST-OP-315-0064-002, DC
 Electrical Distribution, ST-OP-
 315-0023-001, Intermediate
 Range Monitoring, and AOP,
 20.300.2448VDC
 New
 Tier/Group: 2/1
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 069
 *KA 215005 A3.05
 *ANSWER
 B
 *REFERENCE
 ST-OP-315-0024-001; EQ-OP-315-0124-000-0001-002
 Modified
 Tier/Group: 2/1
 Level of Difficulty (1 - 5): 2
 Analysis

*QNUM 072
 *KA 223001 K4.03
 *ANSWER
 D
 *REFERENCE
 ST-OP-315-0048-001; SOP 23.601
 New
 Tier/Group: 2/1
 Level of Difficulty (1 - 5): 2
 CA

*QNUM 076
 *KA 259001 A1.04
 *ANSWER
 B
 *REFERENCE
 ST-OP-315-0046 and ST-OP-315-0007
 New
 Tier/Group: 2/1
 Level of Difficulty (1 - 5): 2
 Comprehension

*QNUM 070
 *KA 217000K502
 *ANSWER
 C
 *REFERENCE
 ST-OP-315-0043-001, ST-OP-315-0039-001, SOP 23.206
 INPO Question #8525, Hope Creek Unit 1
 Direct
 Tier/Group: 2/1
 Level of Difficulty (1 - 5): 2
 Comprehension

*QNUM 073
 *KA 223001 K5.08
 *ANSWER
 C
 *REFERENCE
 23.601
 New
 Tier/Group: 2/1
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 077
 *KA 259002 A3.06
 *ANSWER
 D
 *REFERENCE
 ST-OP-315-0046-001; EQ-OP-315-0146-000-0004-004
 Direct
 Tier/Group: 2/1
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 071
 *KA 218000 K5.01
 *ANSWER
 B
 *REFERENCE
 ST-OP-315-0042-001; EQ-OP-315-0142-000-0004-010
 Modified
 Tier/Group: 2/1
 Level of Difficulty (1 - 5): 2
 Analysis

*QNUM 074
 *KA 239002 K6.04
 *ANSWER
 B
 *REFERENCE
 EQ-OP-202-0201-000-0208-001
 Direct
 Tier/Group: 2/1
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 078
 *KA 261000 K1.07
 *ANSWER
 C
 *REFERENCE
 ST-OP-315-0020-001, EQ-OP-315-0120-000-0007-003, and EQ-OP-315-0120-000-0008-001
 Modified
 Tier/Group: 2/1
 Level of Difficulty (1 - 5): 3
 Comprehension

*QNUM 075
 *KA 241000 K1.08
 *ANSWER
 A
 *REFERENCE
 Fermi 2 Bank, EQ-OP-315-0145-000-0010-005; LaSalle 2000 NRC exam Question #58
 Direct
 Tier/Group: 2/1
 Level of Difficulty (1 - 5): 2
 Comprehension

*QNUM 079
 *KA 264000 K3.01
 *ANSWER
 A
 *REFERENCE
 EQ-OP-202-0201-000-0202-006, ST-OP-0065-001 & 0058-001
 6SD721-2500-01, One Line Dia Plant 4160V & 480V System Service Unit 2
 Modified
 Tier/Group: 2/1
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 080
 *KA 202001 A3.07
 *ANSWER
 C
 *REFERENCE
 SOP 32.138.01 Reactor Recirculation System; ST-OP-315-0004-001
 Modified
 Tier/Group: 2/2
 Level of Difficulty (1 - 5): 2
 Comprehension

*QNUM 081
 *KA 205000 K3.02
 *ANSWER
 A
 *REFERENCE
 TR 3.4.4
 Modified
 Tier/Group: 2/2
 Level of Difficulty (1 - 5): 4
 CA

*QNUM 082
 *KA 226001 K1.02
 *ANSWER
 D
 *REFERENCE
 ST-OP-315-0041-001 and SOP 23.205
 New
 Tier/Group: 2/2
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 083
 *KA 239001 K2.01
 *ANSWER
 D
 *REFERENCE
 ST-OP-315-0005-001
 New
 Tier/Group: 2/2
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 084
 *KA 262001 A4.02
 *ANSWER
 A
 *REFERENCE
 BWR Fundamentals General Physics Corp - Ferm1 2
 New
 Tier/Group: 2/2
 Level of Difficulty (1 - 5): 3
 Comprehension

*QNUM 085
 *KA 262002 A4.01
 *ANSWER
 D
 *REFERENCE
 20.300.SBO, 20.308, and 20.308.01
 New
 Tier/Group: 2/2
 Level of Difficulty (1 - 5): 3
 Memory

*QNUM 086
 *KA 271000 A1.12
 *ANSWER
 C
 *REFERENCE
 ST-OP-315-1101; ST-OP-315-0035; 23.625; EQ-OP-1101-000-0005-005
 Direct
 Tier/Group: 2/2
 Level of Difficulty (1 - 5): 3
 Comprehension

*QNUM 087
 *KA 286000 K2.02
 *ANSWER
 B
 *REFERENCE
 ST-OP-315-0072-001
 New
 Tier/Group: 2/2
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 088
 *KA 290001 K1.02
 *ANSWER
 D
 *REFERENCE
 23.425.02, ST-OP-315-0016-001, & EQ-OP-315-0116-000-0001-007
 Direct
 Tier/Group: 2/2
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 089
 *KA 290003 K4.01
 *ANSWER
 C
 *REFERENCE
 ST-OP-315-0073-001
 New
 Tier/Group: 2/2
 Level of Difficulty (1 - 5): 3
 Memory

*QNUM 090
 *KA 300000 K1.03
 *ANSWER
 B
 *REFERENCE
 ST-OP-315-0019-001; SOP
 23.406
 Modified
 Tier/Group: 2/3
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 091
 *KA 233000 A4.05
 *ANSWER
 C
 *REFERENCE
 ST-OP-315-0015-001; Bank
 Ques
 Ref.EQ-OP-315-0215-000-000
 4-001
 Modified
 Tier/Group: 2/3
 Level of Difficulty (1 - 5): 2
 Comprehension

*QNUM 092
 *KA 288000 K6.03
 *ANSWER
 B
 *REFERENCE
 None
 New
 Tier/Group: 2/3
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 093
 *KA 290002 K5.05
 *ANSWER
 D
 *REFERENCE
 ST-OP-315-0002-001;
 22.000.05
 New
 Tier/Group: 2/3
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 094
 *KA Generic 2.1.32, {3.4/3.8}
 *ANSWER
 C
 *REFERENCE
 General Operating Procedure,
 22.000.02, Revision 47, Plant
 Startup to 25% Power.
 Student Text ST-OP-802-
 1001-001, General Operating
 Procedures, Revision 3.
 Learning Objective 01-08,
 "State the basis for each of the
 precautions and/or limitations
 applicable to Plant Startup to
 25% Power."
 NOTE: Ask facility if any of the
 other distractors are correct
 during prep week.
 Modified (Old Fermi EQB,
 QNUM 19355, 05/04/1992)
 Tier/Group: 3, Conduct of
 Operations
 Memory

*QNUM 095
 *KA 2.2.22
 *ANSWER
 D
 *REFERENCE
 EQ-OP-315-0102-000-0007-
 003 and 007; ITS 3.4.4
 Direct
 Tier/Group: 3/
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 096
 *KA 2.3.1
 *ANSWER
 B
 *REFERENCE
 MRP04, Rev 8, Radiation
 Protection Conduct Manual,
 Enclosure A.
 New
 Tier/Group: 3
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 097
 *KA 2.3.10
 *ANSWER
 D
 *REFERENCE
 EQ-OP-213-0041-000-A004-0
 01; MOP02
 Direct
 Tier/Group: 3/
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 098
 *KA 2.4.10
 *ANSWER
 D
 *REFERENCE
 ST-OP-315-0089-001
 New
 Tier/Group: 3/
 Level of Difficulty (1 - 5): 2
 CA

*QNUM 099
 *KA 2.4.17
 *ANSWER
 B
 *REFERENCE
 ST-OP-802-3001-001
 New
 Tier/Group: 3/
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 100

*KA 2.4.34

*ANSWER

B

*REFERENCE

20.000.18

New

Tier/Group: 3/

Level of Difficulty (1 - 5): 2

Memory

(***** END OF EXAMINATION *****)

ANSWER KEY

001 a	021 b	041 c	061 a	081 a
002 a	022 c	042 c	062 a	082 d
003 a	023 c	043 a	063 a	083 d
004 b	024 a	044 d	064 c	084 a
005 d	025 b	045 d	065 c	085 d
006 d	026 c	046 ⁶⁻⁴⁻⁰¹ AC <i>Key</i>	066 b	086 c
007 c	027 d	047 b	067 a	087 b
008 d	028 a	048 b	068 b	088 d
009 d	029 b	049 a	069 b	089 c
010 c	030 a	050 b	070 c	090 b
011 a	031 c	051 b	071 b	091 c
012 a	032 b	052 d	072 d	092 b
013 a	033 b	053 c	073 c	093 d
014 b	034 c	054 b	074 b	094 c
015 c	035 d	055 b	075 a	095 d
016 c	036 d	056 c	076 b	096 b
017 b	037 b	057 d	077 d	097 d
018 c	038 b	058 b	078 c	098 d
019 c	039 d	059 a	079 a	099 b
020 a	040 a	060 d	080 c	100 b

(***** END OF EXAMINATION *****)

**U.S. Nuclear Regulatory Commission
Site-Specific
Written Examination**

Applicant Information

Name: MASTER EXAMINATION	Region: III
Date: JUNE 14, 2001	Facility/Unit: FERMI / U2
License Level: SRO	Reactor Type: GE
Start Time:	Finish Time:

Instructions

Use the answer sheets provided to document your answers. Staple this cover sheet on top of the answer sheets. The passing grade requires a final grade of at least 80.00 percent. Examination papers will be collected five hours after the examination starts.

Applicant Certification

All work done on this examination is my own. I have neither given nor received aid.

Applicant's Signature

Results

Examination Value	_____ 100.0 _____	Points
Applicant's Score	_____	Points
Applicant's Grade	_____	Percent

PART A - GENERAL GUIDELINES

1. **[Read Verbatim]** Cheating on any part of the examination will result in a denial of your application and/or action against your license.
2. If you have any questions concerning the administration of any part of the examination, do not hesitate asking them before starting that part of the test.
3. SRO applicants will be tested at the level of responsibility of the senior licensed shift position (i.e., shift supervisor, senior shift supervisor, or whatever the title of the position may be).
4. You must pass every part of the examination to receive a license or to continue performing license duties. Applicants for an SRO-upgrade license may require remedial training in order to continue their RO duties if the examination reveals deficiencies in the required knowledge and abilities.
5. The NRC examiner is not allowed to reveal the results of any part of the examination until they have been reviewed and approved by NRC management. Grades provided by the facility licensee are preliminary until approved by the NRC. You will be informed of the official examination results about 30 days after all the examinations are complete.

PART B - WRITTEN EXAMINATION GUIDELINES

1. **[Read Verbatim]** After you complete the examination, sign the statement on the cover sheet indicating that the work is your own and you have not received or given assistance in completing the examination.
2. To pass the examination, you must achieve a grade of 80.00 percent or greater; grades will not be rounded up to achieve a passing score. Every question is worth one point.
3. For an initial examination, the nominal time limit for completing the examination is six hours; extensions will be considered under extenuating circumstances.
4. You may bring pencils, and calculators into the examination room. Use pencils to facilitate machine grading.
5. Print your name in the blank provided on the examination cover sheet and the answer sheet. You may be asked to provide the examiner with some form of positive identification.
6. Mark your answers on the answer sheet provided. Use only the paper provided. If you decide to change your original answer, erase completely and enter the desired answer. If the NRC chief examiner is unable to determine which answer is your final answer, the answer will be marked as incorrect.

7. If you have any questions concerning the intent or the initial conditions of a question, do *not* hesitate asking them before answering the question. Ask questions of the NRC examiner or the designated facility instructor *only*. When answering a question, do *not* make assumptions regarding conditions that are not specified in the question unless they occur as a consequence of other conditions that are stated in the question. For example, you should not assume that any alarm has activated unless the question so states or the alarm is expected to activate as a result of the conditions that are stated in the question. Finally, answer all questions based on actual plant operation, procedures, and references. If you believe that the answer would be different based on simulator operation or training references, you should answer the question based on the *actual plant*.
8. Restroom trips are permitted, but only one applicant at a time will be allowed to leave. Avoid all contact with anyone outside the examination room to eliminate even the appearance or possibility of cheating.
9. When you complete the examination, take the answer sheets and the examination cover sheet to the NRC examiner or proctor. Remember to sign the statement on the examination cover sheet indicating that the work is your own and that you have neither given nor received assistance in completing the examination. Leave all other scrap paper and references on your desk, it will be disposed of after the examination.
10. After you have turned in your examination, leave the examination area as defined by the proctor or NRC examiner. If you are found in this area while the examination is still in progress, your license may be denied or revoked.
11. Do you have any questions?

QUESTION: 001 (1.00)

The plant was operating at 100% power when annunciator 4D46, MAIN TURBINE TRIPPED alarmed. Which of the following sets of indications CONFIRM the turbine tripped?

- a. Reactor is scrammed
RPV Pressure is < 1050 psig
A Turbine Bypass Valve is open
- b. Generator Field Breaker indicates OPEN
Generator Output Breaker CF indicates OPEN
Generator Output Breaker CM indicates OPEN
- c. Turbine Stop Valves indicate CLOSED
Turbine Control Valves indicate CLOSED
Low Pressure Stop, and Intercept Valves indicate CLOSED
- d. Reactor is scrammed
3D90, "Turbine Stop Valve Closure Channel Trip" in alarm
3D89, "Turbine Cont Valve Fast Closure Channel Trip" in alarm

QUESTION: 002 (1.00)

The reactor has scrammed due to MSIV closure. All systems operated as designed. SRV 'A' has stuck open and cannot be closed. RPV pressure is 650 psig and trending down. Select the response that describes how RPV level is maintained in the band of 173-214 inches with NO operator action.

- a. Reactor Core Isolation Cooling at 650 gpm.
- b. The Master Level Controller at level setdown operating in automatic.
- c. Standby Feedwater system with one pump through the 4" throttle valve.
- d. The SULCV in automatic with heater feed and condensate pumps operating.

QUESTION: 003 (1.00)

The plant is operating in single loop at 65% rated flow. Choose the maximum power allowed by RPS before exceeding the flow biased scram setpoint.

- a. 97%
- b. 98%
- c. 102%
- d. 107%

QUESTION: 004 (1.00)

The reactor was at 50% power when the outboard "A" main steam line isolation valve closed. Which of the following describes the resulting effect and the response of the governor/pressure control system after a new steady state is achieved?

- a. Reactor pressure increased. Turbine bypass valves will open as a result of the reactor scram on high power.
- b. The core void fraction decreased. Turbine control valves will open to compensate for the increased reactor pressure.
- c. Reactor power decreased due to the addition of negative reactivity. Turbine control valves will close in order to maintain a constant reactor pressure.
- d. The core void fraction increased. Turbine bypass valves will open to compensate for the increased steam flow in the other main steam lines.

QUESTION: 005 (1.00)

The plant is currently at 27% power. Plans for the shift are to continue the startup and power ascension. A malfunction in the Feedwater Control System has resulted in the following:

- RPV level is 197 inches and trending down
- Total Feedwater flow is 2.5 mlb/hr and steady

Assume no operator actions have been taken. Which of the following statements is correct regarding the Reactor Recirculation system response based on these CURRENT plant conditions?

- a. RR Limiter 1 is actuated to ensure Recirculation Pump net positive suction head protection based on RPV level.
- b. RR Limiter 2 is actuated to allow the plant time to recover without the reactor scrambling on low level.
- c. RR Limiter 3 is actuated in anticipation of a low suction pressure feed pump trip, to prevent an entry into a thermal hydraulic instability region.
- d. RR Limiter 4 is actuated to limit the maximum demand signal to exclude the possibility of excessive core internals vibration.

QUESTION: 006 (1.00)

The drywell to torus vacuum breakers are set to maintain the drywell to torus differential pressure within set limits to . . .

- a. prevent expansive failure of the downcomer between the drywell and torus.
- b. prevent exceeding the design differential pressure between primary and secondary containment.
- c. minimize impact loading on the torus in the event of a rapid drywell pressure increase due to an accident.
- d. minimize the pump head differential for the RHR pumps taking a suction from the torus and discharging through the torus and drywell spray headers.

QUESTION: 007 (1.00)

The following transient has occurred:

- A slow increase in Reactor power and Generator MWe.
- No annunciation.
- A slow increase in Reactor Pressure.

SELECT the response that identifies the cause of this power transient.

- a. A slow increase Reactor Feed pump speed.
- b. A slow increase in Recirculation Pump speed.
- c. A control rod slowly drifts out of the core.
- d. A spurious initiation of Reactor Core Isolation Cooling.

QUESTION: 008 (1.00)

The plant is in an ATWS condition in which the following conditions exist:

- RPV pressure 200 psig
- 24 control rods failed to insert
- The eight blue scram lights are extinguished
- The HCU accumulators for the stuck rods are depressurized and inaccessible

The operating crew would use which of the following methods to insert control rods?

- a. Vent scram air header.
- b. Reset, then reinitiate the scram.
- c. Open individual scram test switches.
- d. Vent the control rod drive over piston volumes.

QUESTION: 009 (1.00)

The plant was operating at 100% power when a loss of coolant accident occurred. All systems are operating as designed. The following conditions exist:

- RPV level is 2.5 inches and rising.
- RPV pressure is 115 psig and lowering.
- Drywell pressure is 19.5 psig and lowering
- (Maximum Drywell pressure reached during the transient was 22 psig)
- Division 1 RHR is injecting to the RPV at 18,000 gpm
- Division 2 RHR is spraying the torus and the drywell at a flowrate of 19,000 gpm.

Based on these conditions, select the response which describes what TORUS PRESSURE would be indicating if all containment systems are operating as designed.

- a. 20 psig and rising.
- b. 21 psig and rising.
- c. 20 psig and lowering.
- d. 21 psig and lowering.

QUESTION: 010 (1.00)

During a severe pressure and level transient the control room NSO observed a partial failure of the low-low set logic. The Division I SRV open sealed-in light was ON as well as the Division I scram pressure sealed-in light. Neither light was lit for Division II. Believing the Division II logic has failed, which of the following performances does the NSO expect from the low-low set SRVs?

With increasing pressure . . .

- a. NEITHER SRV A nor G will open at their low-low set setpoints.
- b. SRV A will open at 1017 psig, SRV G will open at 1047 psig.
- c. both SRVs A and G will open at 1017 psig.
- d. SRV A will open at 1017 psig, SRV G will not open at its low-low set setpoint.

QUESTION: 011 (1.00)

The mechanisms to ensure adequate core cooling are only core submergence, and . . .

- a. Spray Cooling.
- b. Steam Cooling only with injection.
- c. Steam Cooling only without injection.
- d. Steam Cooling both with and without injection.

QUESTION: 012 (1.00)

Given the following conditions:

- A reactor scram has occurred.
- 33 control rods did not fully insert
- Power is 10%
- Alternate boron injection using the standby feedwater system has been directed by the CRS.

When alternate boron injection is INITIATED, reactor power will INITIALLY:

- a. decrease due to the negative reactivity added from the CST water temperature.
- b. increase due to the positive reactivity added from the CST water temperature.
- c. decrease due to the boron initially forcing the flux peak to the top of the core.
- d. increase due to the boron initially forcing the flux peak to the center of the core.

QUESTION: 013 (1.00)

If hydrogen concentration can not be determined to be less than 6% AND oxygen concentration can not be determined to be less than 5%, the drywell fans must be shutdown.

Which ONE of the following describes the reason for this requirement?

- a. Allow drywell sprays to be initiated.
- b. Eliminate a potential ignition source.
- c. Prevent the hydrogen and oxygen from combining into a flammable mixture.
- d. Allow the hydrogen to accumulate in the top of the drywell where the oxygen concentration is the least.

QUESTION: 014 (1.00)

The plant was operating at 75% power when the B recirculation pump tripped. The following plant conditions exist:

- Recirc Loop 'A' flow 20,500 gpm
- Reactor power 48%
- Total core flow 40%
- APRM periodicity (regional) 1.15 seconds

Which of the following is the MINIMUM required IMMEDIATE operator action?

- a. Raise the speed of "A" RRMG to get out of the current Power-Flow Map region.
- b. Close the "B" Reactor Recirc Pump discharge valve.
- c. Insert CRAM array control rods.
- d. Place Reactor Mode Switch in SHUTDOWN.

QUESTION: 015 (1.00)

During performance of a plant startup, the following conditions existed:

- Reactor power 4%
- MSIVs open
- SJAEs all in service

Annunciator 6D16, OFF GAS MN CONDENSER PRESSURE HIGH, alarmed. A minute later 4D108, CONDENSER PRESSURE HIGH, alarmed. The following indications were observed:

- Offgas flow offscale high
- Condenser vacuum 2.2 psia (very slowly rising)

Which of the following would be appropriate for the given current conditions?

- a. Start the Mechanical Vacuum Pumps.
- b. Insert CRAM array control rods.
- c. Place the Reactor Mode Switch to SHUTDOWN and close the MSIVs.
- d. Place the Div 1 and 2 Low Condenser Vacuum Bypass Switches in BYPASS.

QUESTION: 016 (1.00)

A Station Blackout occurred, but Offsite Power was subsequently restored. The CRS now directs an operator to return the logic A and B keylock switches on Panel H11-614 to NORMAL.

These switches were in TEST to prevent . . .

- a. Automatic Depressurization System initiation when power was restored.
- b. automatic initiation of LPCI when power was restored.
- c. RCIC isolation on high temperature.
- d. automatic load sequencing when 4160V ESF bus power was restored.

QUESTION: 017 (1.00)

Multiple DC battery alarms prompted the CRNSO to dispatch operators to report on the status of 130/260V ESS Battery Chargers 2A-1 and 2A-2. The operators reported the following:

- AC breaker on the 2A-1 charger tripped
- DC breaker on the 2A-1 charger tripped
- AC feeder breaker (MCC 72B-2A, Pos 3D) to 2A-1 charger tripped
- 2A-2 charger breakers were in their normal lineup (no breakers tripped)

How can the 4160V Breaker 64B Position B5 be operated?

- a. Operate local manual, but not remotely from the Control Room.
- b. Close remotely from the Control Room, but require local manual operation to open.
- c. Operate remotely from the Control Room or local manual.
- d. Open remotely from the Control Room, but require local manual operation to close.

QUESTION: 018 (1.00)

During a transient, the CRNSO started the RCIC system for reactor water level control using the appropriate operating procedure. The CRNSO became distracted and allowed level to rise above Level 8 after which it lowered below Level 2.

Which of the following describes the reason for, and expected response of RCIC during the reactor water level transient?

- a. The RCIC Turbine Steam Inlet Valve (E51-F045) will close at Level 8 to prevent damage to the Main Turbine, and RCIC will automatically restart at Level 2.
- b. The RCIC Turbine Steam Inlet Valve (E51-F045) will close at Level 8 to prevent damage to the RCIC turbine, and will trip and isolate RCIC.
- c. The RCIC Trip Throttle Valve (E51-F059) will close at Level 8 to prevent damage to the RCIC turbine, and will trip and isolate RCIC.
- d. The RCIC Trip Throttle Valve (E51-F059) will close at Level 8 to prevent damage to the Main Turbine, and RCIC will automatically restart at Level 2.

QUESTION: 019 (1.00)

The plant is operating at full power with all DW Cooling Fans in operation. Panel H11-P808 annunciator 8D41, DIV 1 DRYWELL TEMPERATURE HIGH, alarms. The operator observes that T47-R803A, Drywell Cooling System Area Temperatures Div 1, point 16 indicates 158°F (trip setpoint is 155°F).

If the AVERAGE drywell temperature has risen from 132°F to 135°F during the last 8 hours, which one of the following actions is appropriate?

- a. Manually initiate EECW and EESW Systems.
- b. Shift DW Cooling Fans 1,2,3 and 4 to low speed.
- c. Operate all available Drywell Cooling.
- d. Increase GSW cooling to RBCCW.

QUESTION: 020 (1.00)

The following plant conditions exist:

- The reactor is at full power.
- Torus Cooling is in operation and average temperature is increasing.
- HPCI testing is in progress.

The required action is to immediately stop HPCI testing if torus temperature exceeds (1) °F, or immediately place the mode switch in shutdown if torus temperature exceeds (2) °F.

- a. (1) 95; (2) 110
- b. (1) 105; (2) 120
- c. (1) 110; (2) 120
- d. (1) 105; (2) 110

QUESTION: 021 (1.00)

The plant was operating at full power and experienced the following conditions:

- Main Steam Line Radiation Monitors A,B,C, and D indicated 4X Normal
- Off Gas Log Scale PRM recorder indicated 800 mr/hr with a constant increase

After the plant shutdown, the 3rd Main Steam Line Isolation Valves (MSIVs) and Division 2 MSIVLCS Steam Line Drain Valve (B21-F600) were closed. The Division's 1 and 2 MSIV Leakage Control System (LCS) Initiate keylock switches were placed in INITIATE with the following plant conditions:

- Reactor Pressure 40 psig
- Main Steam Line Pressure between inboard and outboard MSIVs 40 psig
- Main Steam Line Pressure between outboard and 3rd MSIVs 44 psig
- Division 1 Nuclear Instrument Air System (NIAS) Pressure 100 psig
- Division 2 NIAS Pressure 80 psig

Subsequently, the CRNSO reported that Division 1 MSIVLCS was injecting, but the Division 2 MSIVLCS Isolation Valves (B21-F437 and F438) had not opened.

(1) Based on the operating plant conditions, was manual operator action required to scram the reactor? (2) Is the MSIVLCS operating as expected? Why or why not?

- | | | | |
|----|----------|----------|---|
| a. | (1) Yes. | (2) Yes. | Division 2 Isolation Valves will not open because Main Steam Line pressure is too high. |
| b. | (1) Yes. | (2) No. | Division 2 Isolation Valves should have opened. |
| c. | (1) No. | (2) Yes. | Division 2 Isolation Valves will not open because Main Steam Line pressure is too high. |
| d. | (1) No. | (2) No. | Division 2 Isolation Valves should have opened. |

QUESTION: 022 (1.00)

The plant is operating at 100% power. All RBCCW pumps are tripped and cannot be restarted. Div 1 EECW pump tripped and cannot be restarted, but Div 2 EECW pump is running. What action(s) is (are) REQUIRED?

- a. Both Reactor Recirculation Pumps A & B must be STOPPED within 2 minutes.
- b. The Reactor Recirculation Pump A must be STOPPED within 2 minutes.
- c. The Reactor Recirculation Pump B must be taken to its MINIMUM SPEED immediately.
- d. The Reactor Recirculation Pump A must be taken to its MINIMUM SPEED immediately.

QUESTION: 023 (1.00)

The plant is operating at 100% power. An I&C surveillance for Reactor Water Level 1 instruments is in progress. Due to an error, an inadvertent Reactor Water Level 1 signal is initiated. The following responses are observed:

- LPCI pumps running
- CS pumps running
- EDGs running

Annunciators:

- 1D29 RHR INIT REAC VESSEL H2O LEVEL L1 alarmed
- 1D31 ADS DRYWELL PRESS BYPASS TIMER INITIATE A/B LOGIC alarmed

How will primary containment pressure be effected from this inadvertent Reactor Water Level 1 signal?

- a. INCREASE due to EECW actuation
- b. INCREASE due to single speed cooling fans tripping
- c. DECREASE due to 2 speed cooling fans shifting to fast speed
- d. DECREASE due to RBCCW isolation

QUESTION: 024 (1.00)

The plant is in MODE 2 at approximately 500 psig. CRD Pump A trips and CRD Pump B cannot be immediately started. Five accumulator trouble lights are lit, all on withdrawn control rods and annunciator 3D10, CRD ACCUMULATOR TROUBLE has alarmed.

What IMMEDIATE ACTION is required?

- a. Place the Reactor Mode Switch in SHUTDOWN.
- b. Attempt to restart at least one CRD Pump within 20 minutes.
- c. Commence a normal reactor shutdown.
- d. Verify the cause of the accumulator trouble, and drain or recharge as necessary.

QUESTION: 025 (1.00)

Which ONE of the following statements correctly describes the relationship between the Boron Injection Initiation Temperature (BIIT) curve and the Heat Capacity Limit (HCL) curve?

- a. The HCL curve is based on reactor pressure and is used to determine how long an operator has until the limits of the BIIT curve are reached.
- b. Operating within the constraints of the BIIT curve ensures sufficient boron will be injected into the core to shut down the reactor before the suppression pool reaches the limits of the HCL curve.
- c. Operating in accordance with the more restrictive of either the BIIT curve or the HCL curve ensures the limits of the Primary Containment Pressure Limit curve will not be reached.
- d. The BIIT curve and the HCL curve collectively monitor the energy additions into the suppression pool to prevent exceeding the limits of the Pressure Suppression Pressure curve.

QUESTION: 026 (1.00)

The following plant conditions exist following a break in the 'A' recirculation system piping:

- | | | |
|---|------------------------------|----------|
| - | Reactor mode switch position | Shutdown |
| - | Reactor coolant temperature | 220°F |
| - | Drywell temperature | 200°F |
| - | Drywell pressure | 1.4 psig |

Which of the following correctly describes the Technical Specification (TS) applicability in regards to the condition of the drywell?

- TS do not apply under emergency conditions.
- TS applies due to high drywell temperature.
- TS do not apply since applicable entry conditions do not exist.
- TS applies due to high drywell pressure.

QUESTION: 027 (1.00)

EOP 29.100.01, Sheet 2, "Primary Containment Control" requires drywell sprays to be terminated if torus water level exceeds +54 inches. The impact of continued operation of drywell sprays with torus level in excess of +54 inches would be:

- Drywell spray would be rendered ineffective due to the lower ring of drywell spray nozzles being submerged.
- Drywell sprays would be operated outside the drywell spray initiation limit curve.
- The static head resulting from the level of water in the torus would cause the drywell spray nozzle flow to exceed design capacity.
- Post-spray drywell vacuum relief cannot be assured due to the submergence of the torus-to-drywell vacuum breakers.

QUESTION: 028 (1.00)

The following plant conditions exist following a LOCA event:

- Torus Water Temperature 180°F and stable
- Torus Water level -70 inches and stable
- Torus Pressure 0 psig and stable
- Reactor Pressure 0 psig and stable

Which one of the following describes the effect that these conditions has on the operation of ECCS pump for RPV level control?

- a. Continued operation of HPCI is allowed if the suction is aligned to the CST to provide adequate suction pressure.
- b. Total core spray loop flow must be limited to 7000 to ensure adequate NPSH.
- c. Single pump LPCI flow is limited to 10,000 gpm to ensure vortex limits are not exceeded.
- d. RCIC operation is allowed up to 650 gpm as long as torus level remains above -105 inches.

QUESTION: 029 (1.00)

During plant operation at 99% power, an unisolable HPCI steam supply line event causes the HPCI room and RBSB SE corner room to exceed their respective Max Safe level of 5 R/hr as listed in Table 14, Secondary Containment Rad Levels. Based on this information, which of the following actions will be directed:

- a. Perform an orderly reactor shutdown and Emergency Depressurization.
- b. Scram and Emergency Depressurization.
- c. Perform an orderly reactor shutdown only.
- d. Scram only.

QUESTION: 030 (1.00)

The following actions automatically occurred as the result of high radiation:

- Reactor Building HVAC tripped
- SGTS started
- Control Center HVAC aligned to recirculation mode

Based on the information provided above, CHOOSE the radiation monitor and indicated radiation level that caused the automatic actions.

- a. Reactor Building Vent Exhaust = 14,500 cpm.
- b. Fuel Pool Vent Exhaust = 7.3 mRem.
- c. Turbine Building Vent Exhaust = 11,500 cpm.
- d. Radwaste Building Vent Exhaust = 14.5 mRem.

QUESTION: 031 (1.00)

As a result of an accident, the control center HVAC system automatically realigned to the RECIRCULATION mode. A subsequent off-site release resulted in the initiation of a Hi-Hi radiation signal on both the normal and emergency makeup air intake radiation monitors. The CCHVAC system emergency air intake selector switch is in AUTO. What impact does the offsite release have on the continued operation of CCHVAC?

- a. The emergency air intakes will isolate and await the results of the 5-minute intake radiation monitor sample period.
- b. The CCHVAC system will automatically realign to the PURGE mode in order to reduce the radiation levels at the air intakes.
- c. The emergency air intakes will remain open unless either the north or south emergency air intake radiation levels decrease to below the Hi-Hi trip setpoint.
- d. The CCHVAC system will automatically TRIP stopping the supply fan, supply fan heaters, roll filter motor, return air fan, and electrostatic filter.

QUESTION: 032 (1.00)

The reactor plant is operating at 100% power. A nuclear operator contacts the control room and reports an observed fire in the relay room. The operator also reports that it appears that a number of electrical panels have been significantly damaged.

Which of the following describes the impact that the above conditions have on continued operation of the reactor plant:

- a. Plant at-power operation can continue.
- b. The plant will be immediately shutdown in accordance with GOPs 22.000.03 and 22.000.04.
- c. Plant at-power operation can continue provided the fire is extinguished within one hour from the time the fire was initially reported and the fire brigade leader has initiated a fire alarm incident report.
- d. The reactor will be scrammed using the manual scram pushbuttons.

QUESTION: 033 (1.00)

The plant is operating at full power when annunciator 1D66, Steam Leak Detection Ambient Temp High, is received, and RWCU receives an isolation signal. An operator sent to RR H11-P614 reports the following:

- G33-TSE-N600A, RWCU Pump Rm A, indicates 181°F
- G33-TSE-N600B, RWCU Pump Rm B, indicates 138°F
- G33-TSE-N600C, RWCU Hx Rm, indicates 122°F

Which one of the following actions is required?

- a. Restore RWCU System operation using only RWCU Pump A.
- b. Verify RWCU System is isolated.
- c. Depress the Manual Scram Pushbuttons.
- d. Place the Mode Switch in SHUTDOWN, and initiate Emergency depressurization.

QUESTION: 034 (1.00)

Which one of the following indicates a loss of Secondary Containment Integrity?

- a. Both trains of Standby Gas Treatment System are inoperable.
- b. T4100-F011, RBHVAC Sply Inbd Iso Damper INOPERABLE and CLOSED.
- c. Annunciator 8D24, RAIL AIRLOCK DOOR SEAL PRESS LOW activated.
- d. T41-R800B, Div 2 CR And RB Diff Press Rec (COP H11-P817) indicating -0.130 inches water gauge.

QUESTION: 035 (1.00)

29.100.01, SH 5, Secondary Containment and Rad Release, directs operating available sump pumps whenever Secondary Containment area or sump levels exceed their Max Normal Operating levels. This action is based on:

- a. Minimizing the spread of contamination within the Secondary Containment.
- b. Containing leakage from a primary system within systems design for storage of radioactive liquids.
- c. Preventing the uncontrolled release of liquid radioactive effluents from the Secondary Containment.
- d. Maintaining water levels below the point at which equipment required for safe shutdown will fail.

QUESTION: 036 (1.00)

Select the set of statements that match the information requested.

The backup scram valves are (1) powered solenoid valves; and these solenoid valves (2) to isolate and vent off the scram air header.

- a. (1) 130 VDC; and (2) energize.
- b. (1) 130 VDC; and (2) deenergize.
- c. (1) 120 VAC; and (2) energize.
- d. (1) 120 VAC; and (2) deenergize.

QUESTION: 037 (1.00)

Given the following conditions:

- The plant was operating at 100% power when a LOCA occurred.
- Drywell pressure increased to 1.90 psig.
- All equipment responded to the LOCA as designed.
- Fifteen (15) minutes after the LOCA occurred, a Loss Of Offsite Power (LOP) to Division I 4160v ESF buses occurred.
- All equipment responded as designed to the Div I LOP.

Based on the conditions described above, select the statement which correctly describes the response of Division I LPCI to the LOCA then to the Loss Of Offsite Power.

- | | LOCA Response | LOP Response |
|----|-------------------------|---|
| a. | Auto start signal | Auto shed from bus, then auto restarted |
| b. | Start permissive signal | Load sequence is auto reset, then auto restarted |
| c. | Auto start signal | Auto shed from bus, then must be manually started |
| d. | Start permissive signal | Load sequence must be manually reset, then manually restarted |

QUESTION: 038 (1.00)

The plant is in COLD SHUTDOWN. The Drywell is inerted. A "Fill and Vent" is in progress on RHR loop "B" per SOP 23.205 "Residual Heat Removal System" with E1100-F088, RHR Keep Fill Station Bypass Valves CLOSED and E1150-F017B, E1100-F208, RHR Div 2 Keep Fill Isolation Valves OPEN. An operator inadvertently opens the E1150-F015B valve.

Which of the following statements is true with respect to expected reactor pressure vessel (RPV) water level indications in the control room?

- a. RPV level will increase because "keep fill" flow path will be lined up to the RPV.
- b. RPV level will increase because water will be siphoned into the RPV from the TORUS.
- c. RPV level will decrease because a siphon path is set up through the injection line vent valves.
- d. RPV level will remain the same, because the amount of water injected is balanced by the amount drained through the vent valves.

Valves Open

F017B

F208

F015B

Valves closed

F088

QUESTION: 039 (1.00)

A SCRAM was initiated by high drywell pressure. Initial conditions after the scram are as follows:

- All control rods are inserted to 00.
- RPV pressure is 900 psig and trending down very slowly.
- Drywell pressure is >2.02 psig and trending up
- RPV level is 50 inches and trending down.

Subsequently, emergency depressurization is initiated with reactor pressure >750 psig. A complete loss of Division I ESS 130V D. C. occurs when the ADS SRVs are opened.

Given these conditions, which one of the following statements describes the impact on operation of the Div I Core Spray System (CSS)?

- a. DIV I CSS pumps will automatically shutdown due to a loss of control power.
- b. DIV I CSS Inboard/Outboard Isolation Valves, F005A/F004A will automatically close.
- c. Div I CSS Inboard Isolation Valve, F005A, must be locally opened by an operator.
- d. DIV I CSS Outboard Isolation Valve, F004A will remain open and Inboard Isolation Valve, F005A automatically open when RPV pressure is < 461.

QUESTION: 040 (1.00)

The reactor was operating at 80% power and the Division II Core Spray system was in full flow test when a LOCA occurred. The following conditions exist after the LOCA:

- Control rods all rods in
- RPV pressure 250 psig (lowering)
- RPV water level +40" (lowering)
- Drywell pressure 19 psig (rising)
- ECCS Systems operating as designed

Based on these conditions, the Div II Core Spray Pumps are (1), the Div II Core Spray System Minimum Flow Bypass Valve F031B is (2), the Div II Core Spray System full flow test valve F015B is (3), and the Div II Core Spray System injection line check valve F006B is (4)?

- a. (1) not running (2) closed (3) closed (4) closed
- b. (1) not running (2) open (3) closed (4) closed
- c. (1) running (2) closed (3) closed (4) open
- d. (1) running (2) open (3) open (4) open

QUESTION: 041 (1.00)

The P603 operator has rotated the SLC injection control switch to the Pump A position. No other isolation signals have been present for the RWCU system. How does the RWCU system respond?

- a. G3352-F001, RWCU SUPPLY INBD ISO VLV, Closes
G3352-F004, RWCU SUPPLY OTBD ISO VLV, Closes
- b. G3352-F004, RWCU SUPPLY OTBD ISO VLV, Closes
G3352-F220, RWCU TO FW OTBD CTMT ISO VLV, Closes
- c. G3352-F001, RWCU SUPPLY INBD ISO VLV, Closes
G3352-F119, RWCU SUPPLY SUCT ISO VLV, Closes
- d. G3352-F220, RWCU TO FW OTBD CTMT ISO VLV, Closes
G3352-F119, RWCU SUPPLY SUCT ISO VLV, Closes

QUESTION: 042 (1.00)

Which of the following Reactor Protection System (RPS) components provide interlocks for the specific purpose of preventing multiple power sources from supplying the same RPS bus simultaneously?

- a. NORMAL-ALTERNATE Selector Switch.
- b. RPS MG motor ON and OFF pushbuttons.
- c. Electrical Protection Assembly (EPA) circuit breakers.
- d. RPS Alternate Feed Transformer supply breakers and RPS MG supply breaker Auto-Bus Transfer device.

QUESTION: 043 (1.00)

The loss of Division 2 24/48 VDC will result in:

- a. INOP trips generated for APRM Channels B/D.
- b. INOP trips generated for IRM Channels B/F/D/H.
- c. Loss of power to the Radwaste Effluent Radiation Monitor (D11-K604) and a close signal to G1100-F733 (Blowdown Discharge Trip valve).
- d. Closure of the following Primary Containment Isolation valves: T4803-F601, DW INLET ISO VLV; T4803-F602, DW EXH ISO VLV; T4800-F404, TORUS INLET ISO VLV; and T4600-F400, TORUS EXH ISO VALVE.

QUESTION: 044 (1.00)

The plant is stable at 90% RTP, control rods are being withdrawn to raise the rod line. Control rod 26-27 is selected for withdrawal. If APRM #2's RECIRCULATION FLOW PROCESSING UNIT fails downscale, what protective functions, if any, automatically occur?

- a. No protective functions occur.
- b. Control Rod Block due to APRM Simulated Thermal Power Upscale.
- c. Half SCRAM and Control Rod Block due to APRM (#2) Simulated Thermal Power Upscale and Trip.
- d. Control Rod Block due to APRM (#2) Simulated Thermal Power Upscale Trip and RBM (B) INOP.

QUESTION: 045 (1.00)

Given the following conditions:

- Reactor Core Isolation Cooling (RCIC) is operating in the Test Mode
- E51-R614, RCIC Pump Flow Controller is in "Automatic"
- RCIC turbine speed is 2950 rpm
- P1100-F606, CST Common Rtrn Iso Valve is OPEN
- E41-K820, Test Iso/PCV E41-F011 Ctrlr, is in MANUAL at 20% OPEN

Which of the following describes the expected response of RCIC turbine speed and system flow if the operator throttles PCV E41-F011 an additional 5% in the "CLOSED" direction?

(Compare the conditions after they stabilize to before the valve was throttled.)

- a. RCIC turbine speed lowers
System indicated flow goes down
- b. RCIC turbine speed lowers
System indicated flow remains unchanged
- c. RCIC turbine speed raises
System indicated flow remains unchanged
- d. RCIC turbine speed raises
System indicated flow goes up

QUESTION: 046 (1.00)

A small break LOCA has occurred in the drywell. RCIC and CRD are the only high pressure injection sources available. All low pressure ECCS pumps are operating on minimum flow.

At time = 0, the following conditions exist:

- RPV Pressure is 875 psig and slowly lowering.
- RPV water level is 42 inches and lowering at 5 inches per minute.
- Drywell Pressure is 1.3 psig and raising at 0.1 psig per minute.

Assuming NO operator action, ADS will initiate in:

- a. 3 minutes 49 seconds.
- b. 5 minutes 33 seconds.
- c. 8 minutes 33 seconds.
- d. 10 minutes 49 seconds.

QUESTION: 047 (1.00)

The plant was operating at 100% power when a transient caused a reactor scram. All systems responded as designed. The following are current plant conditions:

- Reactor power is 0% with all rods fully inserted.
- RPV pressure is 735 psig and trending up.
- RPV level is 164 inches wide range level and trending up.
- Drywell pressure is 0.7 psig and steady.

Assuming NO operator action has been taken, which of the following correctly identifies the plant response to these conditions?

- a. Drywell and Suppression Pool Ventilation System isolation has occurred.
- b. Torus Water Management System isolation has occurred.
- c. Nitrogen Inerting System isolation has occurred.
- d. Main Steam Line isolation has occurred.

QUESTION: 048 (1.00)

The plant is in Mode 3, RHR 'A' has recently been placed in service in the Shutdown Cooling Mode. Due to distractions during shift turnover the cooldown rate has not been maintained and the following conditions exists:

- B31-N111A Reactor Vessel (Shutdown Cooling Cut-in Permissive Interlock)
Pressure - High indicates 86 psig
- B31-N111B Reactor Vessel (Shutdown Cooling Cut-in Permissive Interlock)
Pressure - High indicates 100 psig

Which of the following correctly identifies the Residual Heat Removal System response to these plant conditions?

- a. All PCIS Group 4 valves will isolate.
- b. Valves E1150- F009, Inboard Shutdown Cooling Suction Valve, and E1150- F022, RPV Inboard Head Spray Isolation Valve, will isolate.
- c. Valves E1150- F008, Outboard Shutdown Cooling Suction Valve, and E1150- F023, RPV Outboard Head Spray Isolation Valve will isolate.
- d. RHR "A" will continue to operate in the Shutdown Cooling Mode.

QUESTION: 049 (1.00)

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

- a. B21-F013H and F013F.
- b. B21-F013M and F013F.
- c. B21-F013A and F013J.
- d. B21-F013E and F013J.

QUESTION: 050 (1.00)

- The plant is operating at 20% power.
- 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 SPEED/LOAD is set at 300MW.

If reactor power were INCREASED to 45% power, without any further operator action, which of the following would occur?

	<u>Turbine Control Valves</u>	<u>Turbine Bypass Valves</u>
a.	Would OPEN further	Would OPEN
b.	Would OPEN further	Remain CLOSED
c.	Remain at their PRESENT position	Would OPEN
d.	Remain at their PRESENT position	Remain CLOSED

QUESTION: 051 (1.00)

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

- Master Feedwater Level Control Station, C32-R618 is in Auto
- North Reactor Feed Pump Controller, C32-R616A is in Auto
- South Reactor Feed Pump Controller, C32-R616B is in Manual
- Level Control Mode Select switch in three element

The N RFP Minimum Flow Control Valve, F400B, fails open due to a loss of air to the valve. Assuming no operator action, which of the following describes the Feedwater system response to these plant conditions?

- a. The S RFPT speed increases and the N RFPT speed remains the same.
- b. The N RFPT speed increases and the S RFPT speed remains the same.
- c. This failure will cause DCS logic to automatically force the South Reactor Feed Pump Controller, C32-R616B, to automatic and both RFPT speeds increase.
- d. This failure will cause DCS logic to automatically force the South RFP Minimum Flow Isolation Valve, N2100-F615, to close allowing the FWCS to maintain RPV level.

QUESTION: 052 (1.00)

The Reactor Feed Pumps were being controlled with the Feedwater Reactor Level Control Station in AUTOMATIC and the Startup Level Control Valve (SULCV) Mode Switch in RUN, when a Reactor Scram occurred. Given the following post scram feedwater actions:

1. High/Low RFP speed limited.
2. RFP motor operated discharge valve receives full closed signal.
3. SULC transfer to AUTO.
4. Level setdown initiated.

Assuming no operator action is taken, which action(s) would occur within 15 seconds following the Scram?

- a. 1 and 2.
- b. 1 and 3.
- c. 1.
- d. 4.

QUESTION: 053 (1.00)

Following a Loss of Coolant Accident, the Standby Gas Treatment System has been in service for several hours venting the drywell and torus in accordance with 29.ESP.07, Primary Containment Venting. Chemistry reports that stack release rates are elevated. Which of the following situations could explain the elevated release?

- a. Prefilter differential pressure increase of 5.0 inches water.
- b. Moisture Separator differential pressure increase of 1.0 inches water
- c. Charcoal Adsorber temperature exceeding the temperature switch setting.
- d. Charcoal Adsorber Blanket Heater Temperature Controller failure below the control setpoint.

QUESTION: 054 (1.00)

A loss of offsite power occurred and the following conditions exist:

- 345kV System deenergized
- 120kV System deenergized
- 13.8kV Peaker Bus 1-2B deenergized
- Div 1 EDGs running and tied to the ESF Buses
- Div 2 EDGs failed to start

Operator actions have yet to be taken. Assuming all other systems operate as expected, which of the following Low Pressure ECCS pump configurations would be available during this event?

- a. RHR Pump A & Core Spray Pump A
 RHR Pump C & Core Spray Pump C
- b. RHR Pump C & Core Spray Pump C
 RHR Pump B & Core Spray Pump B
- c. RHR Pump B & Core Spray Pump B
 RHR Pump D & Core Spray Pump D
- d. RHR Pump A & Core Spray Pump A
 RHR Pump D & Core Spray Pump D

QUESTION: 055 (1.00)

The North RR MG Set is being returned to service in accordance with SOP 23.138.01, "REACTOR RECIRCULATION SYSTEM," Section 8.0, "RR MG SET STARTUP WITH REACTOR NOT SHUT DOWN UNDER ALL CONDITIONS."

Approximately 13 seconds after starting the North RR MG Set you observe the following:

- The North RR MG Set Field Breaker is closed
- The North RR MG Set ammeter has decreased to approximately 320 amps.
- B3105-F031A, N RR Pump Discharge Valve red and green indicating lights extinguish.

Which of the following describes the response of the recirculation pump?

The North Recirculation Pump will:

- a. continue to run until manually tripped.
- b. trip on overcurrent due to runout flow.
- c. trip when the 105 second discharge valve timer times out.
- d. trip after a total of 15 seconds due to incomplete startup sequence.

QUESTION: 056 (1.00)

The Unit is in Mode 4 with both recirc pumps secured. Shutdown cooling is being provided by RHR loop A. Moderator temperature is 180°F, with a cooldown in progress. Then E11-F007A the RHR Pump A/C Recirc Valve fails open. When the E11-F007A valve is reclosed, vessel level has dropped to 186 inches on the Narrow Range level indicators.

Which of the following is a concern?

- a. RPV level is too low to prevent RPV thermal stratification.
- b. RPV level is too low for continuous operation with only one operating recirc pump.
- c. RPV level is low enough to generate a low level scram signal.
- d. RPV level is low enough to generate a RHR Shutdown Cooling Isolation signal.

QUESTION: 057 (1.00)

Which statement correctly describes the Residual Heat Removal (RHR) system flow rate response for the given Mode of operation?

- a. Each RHR pump is mechanically restricted to prevent exceeding 10,000 gpm during LPCI injection.
- b. Either division of RHR can inject at the loop full flow rate of 14,000 gpm during RHR Shutdown Cooling Mode.
- c. Because of the size of the spray nozzles, Torus Spray Mode injection flow rate is not limited and can support full RHR division flow.
- d. Because of the size of the spray nozzles, Drywell Spray Mode injection flow rate is not limited and can support full RHR pump flow.

QUESTION: 058 (1.00)

Which of the following statements correctly identifies the electrical power to the Main Steam Isolation Valve (MSIVs) isolation solenoids?

- a. ESS Bus 72
- b. Modular Power Unit
- c. Uninterruptible Power Supply
- d. RPS Distribution Cabinet

QUESTION: 059 (1.00)

Which of the following states the consequences of improperly setting the generator output voltage with respect to system voltage during manual synchronization?

- a. If generator output voltage is less than system voltage, a VAR flow will occur from the system to the generator.
- b. If generator output voltage is greater than system voltage, a VAR flow will occur from the system to the generator.
- c. If generator output voltage is less than system voltage, the generator will accelerate to increase voltage to match the system voltage.
- d. If generator output voltage is greater than system voltage, the generator will reduce speed to reduce voltage to match the system voltage.

QUESTION: 060 (1.00)

The plant is MODE 3. UPS "B" is being manually transferred from the alternate power supply to the normal power supply in accordance with SOP 23.308.01 "UNINTERRUPTIBLE POWER SUPPLY SYSTEM."

Select the statement which correctly identifies the main control room plant parameter indications impacted if improper operation results in the loss of UPS "B".

- a. B31-N028D, Recirc Pump B Discharge Pressure
B31-N601B, Recirc Pump B Suction Temperature
B31-N006B, Recirc Pump B Seal Cavity #1 Pressure
- b. B21-R610, RPV Core Level Recorder
B21-R623A, Post Accident Monitoring Recorder
B21-R604A, Wide Range Reactor Water Level Ind
- c. C32-R605A, Div I RPV Pressure
C32-R607, Reactor Flow Recorder
RPIS indications on Full Core Display
- d. C32-R603B & D MSL Flow
C11-J601, Rod Worth Minimizer
C32-R605B, Div II RPV Pressure

QUESTION: 061 (1.00)

The plant is operating at 98% power. The Off-Gas Radiation Monitor reading is 400mr/hr, and has risen steadily over the last 4 hours from an initial level of 120 mr/hr. Which one of the following conditions would have caused these indications?

- a. the hydrogen water chemistry injection flow rate has been lowered.
- b. additional steam jet air ejectors have been placed in service.
- c. a fuel cladding leak has developed.
- d. off gas system dilution flow rate has lowered.

QUESTION: 062 (1.00)

The Electric Fire Pump, C002, is powered from?

- a. 4160VAC Bus 11EB
- b. 4160VAC Bus 68K
- c. 4160VAC Bus 69K
- d. 4160VAC Bus 69J

QUESTION: 063 (1.00)

The Reactor Building to Suppression Pool vacuum relief system is composed of a self-actuated vacuum breaker and an air operated butterfly valve in series. Which of the following describes how this system operates?

A Reactor Building to Suppression Pool differential pressure of . . .

- a. 0.25 psid actuates the vacuum breaker and butterfly valve to open.
- b. 0.5 psid actuates the vacuum breaker to open and the butterfly valve to open.
- c. 0.25 psid actuates the vacuum breaker to open, and a Reactor Building to Suppression Pool differential pressure of 0.5 psid actuates the butterfly valve to open.
- d. 0.25 psid actuates the butterfly valve to open, and a Reactor Building to Suppression Pool differential pressure of 0.5 psid actuates the vacuum breaker valve to open.

QUESTION: 064 (1.00)

From the following select the statement that correctly identifies the Control Center HVAC System reconfiguration logic.

- a. The Chlorine Mode will automatically initiate from 2 out of 2 Chlorine Detectors.
- b. The Recirculation Mode will automatically initiate from 2 out of the 4 Emergency Intake Radiation Monitors.
- c. The Recirculation Mode will automatically initiate from either Div I or Div II High Reactor Building Ventilation Exhaust Radiation Monitor.
- d. The Purge Mode will automatically initiate from any other mode upon detection of Fire in either the Relay Room or Cable Spreading Room.

QUESTION: 065 (1.00)

Operation of the Primary Containment Pneumatic Supply (PCPS) using the Non-Interruptible Air Supply (NIAS) is avoided because:

- a. the lower operating pressure effects gas operated valve stroke times.
- b. prolonged operation could increase Primary Containment oxygen levels.
- c. the lower operating pressure results in Primary Containment leakage into the Non-Interruptible Air Supply.
- d. the moisture and oxygen content effects in-line pressure regulator operation resulting in component overpressurization.

QUESTION: 066 (1.00)

A full core off-load of fuel at the end of a cycle plus the remaining decay heat of the spent fuel from a previous cycle are in the Spent Fuel Pool at the same time. Fuel Pool Temperature has slowly risen over the last few hours. What supplemental heat removal capability is available to prevent the Spent Fuel Pool from exceeding its design temperature during this maximum heat load?

- a. Standby Feedwater System may be cross connected to supply cooling water to the Fuel Pool Cooling and Cleanup (FPCCU) System to increase the heat removal capability of the FPCCU System.
- b. The Reactor Water Cleanup System may be connected to the FPCCU System to increase the heat removal capability of the FPCCU System.
- c. The Residual Heat Removal System may be connected to the FPCCU System to increase the heat removal capability of the FPCCU System.
- d. Emergency Equipment Cooling Water may be started to increase the heat removal capability of the FPCCU Heat Exchangers.

QUESTION: 067 (1.00)

Reactor Building HVAC components (including major valves F008, Reactor Bldg Outboard/Div II Exhaust Isol. Damper, and F010, Reactor Bldg Outboard/Div II Supply Isol. Damper) shifted to their fail-positions. Which one of the following caused the RB HVAC system to isolate?

- a. Loss of Non-Interruptible Air System
- b. Loss of Interruptible Air System
- c. Actuation of Eberline SPING-4A
- d. Loss of Uninterruptable Power Supply

QUESTION: 068 (1.00)

Nil-Ductility Transition Temperature (NDTT) shift is accounted for during design life of the plant to minimize the possibility of brittle fracture of the reactor pressure vessel and internals. Which one of the following will result in NDTT to shift to the right of the temperature curve?

- a. temperature embrittlement
- b. core shroud cracking
- c. chloride stress corrosion
- d. neutron flux

QUESTION: 069 (1.00)

WHICH of the following is the reason that, during startup, the reactor vessel level control remains on the Startup Level Control Valve (SULCV) until the operating reactor feed pump SUCTION FLOW is greater than 35%?

- a. To prevent fluctuations in reactor power.
- b. To prevent erratic changes in feed pump speed.
- c. To prevent oscillations of the feed pump minimum flow valve.
- d. To prevent low suction pressure trip of the operating feed pump.

QUESTION: 070 (1.00)

From the given statements select the one that correctly describes the operational leakage allowed from the reactor coolant system.

Reactor Coolant System operational LEAKAGE shall be limited to:

- a. pressure boundary leakage
- b. ≤ 5 gpm TOTAL LEAKAGE.
- c. ≤ 25 gpm TOTAL LEAKAGE averaged over the previous 24 hours and ≤ 5 gpm increase in unidentified LEAKAGE in the previous 12 hour period.
- d. ≤ 25 gpm TOTAL LEAKAGE averaged over the previous 24 hours and ≤ 2 gpm increase in unidentified LEAKAGE in the previous 24 hour period.

QUESTION: 071 (1.00)

During a tour of the reactor building, you noticed an area that was posted as "No Loitering." From a radiological perspective, since the area was posted as "No Loitering," the radiation dose rate is at least:

- a. 1.0 mRem/hr
- b. 2.5 mRem/hr
- c. 5.0 mRem/hr
- d. 10.0 mRem/hr

QUESTION: 072 (1.00)

Independent Verification of a valve lineup in the A RWCU pump room may be waived if:

- a. the CRNSO made an explanatory log entry.
- b. a licensed NSO performed the initial lineup.
- c. two qualified operators performed the lineup simultaneously.
- d. the expected dose rate would exceed 100 mRem.

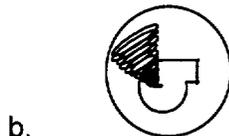
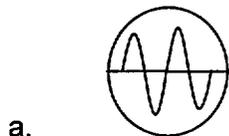
QUESTION: 073 (1.00)

An annunciator in the Control Room has alarmed. The operator notes the alarm window is colored and has a 6-digit indication in the lower right hand corner. Which one of the following annunciator characteristics indicates an alarm with multiple input, reflash capability, and is a critical alarm noted on the sequence recorder?

	Annunciator 6-digit Indication	Window Color	Sequence of Events Recorder Indication
a.	068S31	Red	3 asterisk
b.	*068S31	White	0 asterisk
c.	068S31/068S32	Blue	1 asterisk
d.	*068S31	Amber	2 asterisk

QUESTION: 074 (1.00)

Emergency Operating Procedure Flowcharts use icons in place of words in order to assist the operator in easily understanding the step. Which one of the following icons refers to the statement, "Regardless of NPSH or Vortex Limits?"



QUESTION: 075 (1.00)

A fire occurs that requires the control room to be abandoned, procedure 20.000.18 "CONTROL OF THE PLANT FROM THE DEDICATED SHUTDOWN PANEL" is entered. How much time does the operating staff have to establish Shutdown Cooling, and what is a factor limiting this time.

- a. 24 hours, beyond this time the 125 volt battery needed for RCIC control power could be depleted.
- b. 10 hours, beyond this time the nitrogen for operation of SRVs could be depleted.
- c. 24 hours, beyond this time the supply of makeup water for continued plant cooldown could be depleted.
- d. 10 hours, beyond this time emergency lighting for local equipment operation could be depleted.

QUESTION: 076 (1.00)

A LOCA has occurred outside of the primary containment. Plant conditions are as follows:

- Reactor Building Temperature (near all instrument runs) = 220°F and stable.
- Reactor Pressure = 250 psig and stable.
- Drywell Temperature = 155°F and stable.

Assuming the indicated level on each of the below instruments is 163 inches, which level instrument may be used for trending indication?

- a. B21-N027
- b. B21-N080A
- c. B21-N091B
- d. B21-N095C

QUESTION: 077 (1.00)

The plant was operating at 100% power with normal DW cooling in service. During testing, the reactor scrammed due to an erroneous High DW Pressure signal. All systems responded as expected.

Technicians have cleared the erroneous High DW Pressure signal and the plant is ready for startup. Which of the following actions are required to restore normal DW temperature control?

- a. Restore RBCCW to the DW coolers, shift the two-speed DW fans to FAST.
- b. Restore EECW to the DW coolers, RESTART the two-speed DW fans and shift them to FAST.
- c. Secure the second RBCCW pump, down-shift the two-speed DW fans to SLOW.
- d. Shift the DW cooler supply from EECW to RBCCW, down-shift the two-speed DW fans to SLOW.

QUESTION: 078 (1.00)

The plant is operating at 70% rated power when a small increase in main generator megawatts and reactor power is observed. The positions of the control rods and recirculation flow rate have not changed.

Which of the following is the cause of the INCREASE in Main Generator megawatts and the action to be directed?

- a. An SRV has inadvertently lifted; enter 20.000.25, failed safety relief valve.
- b. A turbine bypass valve is partially open; enter TS 3.7.6 for inoperable main steam bypass system.
- c. Xenon is building toward a peak in the core; contact the SNE for direction for inserting rods.
- d. There has been a loss of feedwater heating; enter 20.107.02, loss of feedwater heating.

QUESTION: 079 (1.00)

EOP "RPV Control-ATWS," Sheet 1A, green override statement references the term Hot Shutdown Boron Weight (HSBW). Which of the following conditions is assumed in determining the HSBW?

- a. RPV water at the most reactive temperature.
- b. Reactor core at the most reactive exposure.
- c. All rods fully withdrawn.
- d. RWCU system operating in recirculation mode.

QUESTION: 080 (1.00)

A torus pressure or temperature rising above which one of the following limits would require the torus to be vented IRRESPECTIVE of the Offsite Radioactivity Release Rate?

- a. pressure suppression pressure (PSP)
- b. primary containment pressure (PCPL)
- c. SRV tail pipe level limit (SRVTPLL)
- d. heat capacity limit (HCL)

QUESTION: 081 (1.00)

The Emergency Operating Procedures require emergency depressurization if torus water level cannot be maintained above -38 inches.

What is the basis for requiring emergency depressurization at this point?

- a. Prevent exceeding LPCI NPSH requirements.
- b. Prevent exceeding SRV tailpipe back pressure limits.
- c. Steam discharged from HPCI will not be suppressed.
- d. Suppression of steam discharged from the downcomers cannot be assured.

QUESTION: 082 (1.00)

The reactor has failed to scram and the following conditions exist:

- Reactor power 8 %
- SRVs 5 open
- RPV pressure 214 psig (slowly lowering)
- RPV water level unknown
- Drywell pressure 8 psig
- Drywell temperature 225°F (rising)
- RPV injection RHR, CRD, SBFW, and Heater Feedpumps injecting

Given these conditions, the EOP directs which of the following?

- a. Initiate torus and drywell sprays.
- b. Vent the primary containment to avoid automatic ECCS initiations.
- c. Lineup Core Spray and inject into the RPV until RPV pressure is greater than 215 psig.
- d. Lineup Core Spray and inject into the RPV until RPV pressure is greater than or equal to 64 psig above torus pressure.

QUESTION: 083 (1.00)

While operating the reactor in the RUN mode, a restriction of cooling water flow through a fuel bundle causes fuel clad overheating and fission product release into the reactor coolant. The reactor fails to scram when the MSIVs receive an automatic isolation signal. The following plant conditions exist:

- Reactor power 18%
- Reactor pressure 940 psig
- RPV water level +100 inches
- Main Steam Line B Inboard & Outboard MSIVs failed open
- Main Turbine tripped
- Site boundary release (Adult Thyroid) 4.90 R(rising)

Given the above conditions, which of the following actions are required?

- a. Use Main Turbine BPVs to commence a reactor cool down at less than a 90°F/Hr rate.
- b. Use HPCI and RCIC in the test mode to lower RPV pressure.
- c. Use the SRVs to commence a reactor cool down at less than a 90°F/Hr rate.
- d. Perform Emergency RPV Depressurization.

QUESTION: 084 (1.00)

Select the statement that describes the Technical Specification basis for HPCI being operable in Modes 1, 2, and 3 when reactor steam dome pressure is greater than 150 psig.

- a. Ability to maintain reactor vessel water level above TAF for the design basis accident over a wide range of reactor pressures.
- b. Ability to provide core cooling for the design basis accident until the ADS/low pressure ECCS has flooded the reactor vessel.
- c. Ability to maintain reactor vessel water level above the feedwater sparger if the vessel has been isolated and feedwater has been lost.
- d. Ability to provide core cooling for a small break loss of coolant accident with the reactor near rated pressure.

QUESTION: 085 (1.00)

According to TS basis, in order for the reactor vessel Core Level indication to be operable, the uncompensated level signal must be modified using another parameter. Select the parameter that is used to compensate the level signal.

- a. Reactor pressure
- b. Drywell temperature
- c. Calibrated jet pump flow
- d. Average recirculation loop temperature.

QUESTION: 086 (1.00)

The plant had been operating at 100% power for 250 days. A toxic gas in the relay room made it uninhabitable and required the control room to be evacuated. The reactor and main turbine were tripped from the control room and the Remote Shutdown Panel (RSP) was manned.

At the RSP, the following plant parameters were observed:

- Reactor water level 200 inches (steady)
- RPV pressure cycling between 935 and 1047 psig.

Which of the following correctly describes the reason for the cycling reactor pressure AND required actions to be taken at the RSP to regain control of reactor pressure?

- a. SRV-A did not operate as designed; take manual control of SRV-G.
- b. SRV-G did not operate as designed; take manual control of SRV-A.
- c. SRV-A did not operate as designed; take manual control of SRV-A.
- d. SRV-G did not operate as designed; take manual control of SRV-G.

QUESTION: 087 (1.00)

The plant was operating at 100% power. An electrical transient in the 120 KV switchyard caused the 4160V circuit breakers 64-B6 (normal feed) and 64-B8 (X-tie to EDG bus) to open and the 4160V bus 64B to de-energize.

The plant is currently stable at 100% power, and indications from the 120 KV switchyard are stable. Which of the following describes the status of EDG 11 AND the conditions needed to re-energize Bus 64B?

- a. EDG 11 is running unloaded; re-energize bus 64B from EDG 11.
- b. EDG 11 is running unloaded; delay re-energizing bus 64B until the bus fault is corrected.
- c. EDG 11 did not start; manually start EDG 11 and re-energize bus 64B from EDG 11.
- d. EDG 11 did not start; delay re-energizing bus 64B until the bus fault is corrected.

QUESTION: 088 (1.00)

A reactor startup is in progress and reactor power is 68%. The Steam Flow input into the RWM Low Power Set Point circuitry, fails low.

What is the effect on the RWM and how is control rod movement continued in accordance with tech specs?

- a. Blocks will be displayed but not enforced; rods must be individually bypassed for movement.
- b. All RWM functions are inoperable; rods may be moved only by use of the EMER IN control switch.
- c. Transition Zone (LPAP) is in effect; a second operator must verify all rod movements until power is reduced to 10%.
- d. LPSP is in effect; RWM may be bypassed and rod movements continued.

QUESTION: 089 (1.00)

The plant was operating at full power when a DW leak event caused the plant to scram. Subsequent to the scram, plant conditions were as follows:

- Drywell pressure 8 psig (lowering slowly)
- Torus pressure 7.5 psig (lowering slowly)
- Torus temperature 98°F (increasing)
- RPV level 175 inches (steady)
- RPV pressure is 50 psig (steady)
- RHR pumps B & D running in AUTO, injecting into the RPV.
- RHR pump C running in MANUAL OVERRIDE, in torus cooling and spray with cooling maximized through the RHR heat exchanger
- RHR E1150-F010, RHR Crosstie valve, CLOSED
- All other systems operating normally

If a short on the 4160V bus 64B causes a bus lockout, what action would be taken to control RPV and containment parameters?

- a. Start RHR pump A and shift Division 1 RHR to RPV injection; shift Division 2 RHR to torus cooling and sprays.
- b. Isolate Division 1 RHR torus cooling and spray path; start RHR pump A, and restore Division 1 RHR in torus cooling and sprays.
- c. Reopen E1150-F010, RHR Crosstie valve, and E1150-F048A, RHR heat exchanger bypass valve; use RCIC to augment RPV level control.
- d. Place Division 2 RHR in torus cooling and sprays; use Core Spray to augment RPV level control.

QUESTION: 090 (1.00)

The plant was refueling (Mode 5) and the following indications/alarms were received in the main Control Room:

- 3D31, "Div I/II FP Vent Exhaust Radiation Monitor Upscale"
- 3D35, "Div I/II FP Vent Exhaust Radiation Monitor Upscale Trip"
- 16D1, "RB Refueling Area Fifth Floor High Radiation"
- 17D14, "Div I/Div II SGTS AUTO Start"
- 8D35, "Div 1 SGTS Air Flow Stopped"
- 8D46, "Div 1 Reactor Bldg Pressure High/Low"
- Secondary Containment pressure -0.7 inches water.

As the Control Room Supervisor, which of the following actions would be correct?

- a. Direct RBHVAC restarted, CCHVAC shifted to RECIRC, and enter 20.000.02, "Abnormal Release of Radioactive Material."
- b. Direct RBHVAC tripped, CCHVAC shifted to RECIRC mode to minimize release, and enter 20.000.07, "Fuel Cladding Failure."
- c. Direct verification of RBHVAC running, SGTS running, and enter 29.100.01, Sheet 5, "Secondary Containment Control due to high reactor building pressure."
- d. Direct verification of RBHVAC tripped, SGTS running, and enter 29.100.01, Sheet 5, "Secondary Containment Control due to high area radiation levels."

QUESTION: 091 (1.00)

Following a LOCA and reactor scram at 0036, the operating crew established the following conditions at 0937:

- | | | |
|---|-----------------------|-------------------------|
| - | Reactor pressure | 82 psig |
| - | Torus pressure | 17 psig |
| - | SRVs | Six open |
| - | RPV level instruments | Upscale |
| - | Reactor power | All rods fully inserted |
| - | RHR Pumps | Four injecting to RPV |
| - | Core Spray Pumps | Two injecting to RPV |

At 1038, the Core Spray Pumps tripped, and RPV pressure dropped to 62 psig. At 1049 the operating crew placed the other two Core Spray Pumps in service, and restored RPV pressure to 82 psig.

As the Control Room Supervisor directing EOP activities: 1) At what time (clock time) would you direct the operating crew to shutdown all RPV injection systems, open E11-F024A and E11-F024B for the purpose of lowering the reactor water level, AND; 2) How long should you wait (wait time) for RPV water level to come back on scale OR to reestablish RPV injection?

	Clock Time	Wait Time (minutes)
a.	1130	5.0
b.	1141	7.5
c.	1204	8.0
d.	1215	9.0

QUESTION: 092 (1.00)

You are the Shift Manager on night shift, and the shift (site) is at the minimum operating shift complement. A Nuclear Operator (NO) is supporting tagout activities on an RHR pump planned for maintenance the following day. While observing the tagout activities, you observe the NO display aberrant behavior. While you counsel the NO you believe you smell alcohol on his breath. As his supervisor what action(s) must be taken?

Note: The time is 0400 and the NO is a Fire Brigade member.

- a. Ensure that the operator is escorted out of the control room (vital area); call the Fitness for Duty Program Manager in the morning to arrange for a drug/alcohol test; ensure that the operator's portion of the tagout work is reviewed immediately. Fire Brigade staffing is maintained as long as the operator is on site.
- b. Ensure that the operator is escorted to the collection facility; call the Fitness for Duty Program Manager to arrange for a drug/alcohol test; ensure that the operator's portion of the tagout work is reviewed prior to the start of the maintenance work. Call in another operator for Fire Brigade Staffing.
- c. Ensure Security detains the operator in the security building; ensure that the operator is immediately tested for drug/alcohol; ensure that the tagout is re-performed by another operator. Assign one of the two Safe Shutdown operators, qualified as Fire Brigade, to the Fire Brigade until the next shift.
- d. Immediately call the Fitness for Duty Program Manager; ensure the operator is relieved from all duties except Fire Brigade; take no other sanctions against the operator until the operator can be tested and confirmed positive for drug/alcohol.

QUESTION: 093 (1.00)

During routine Technical Specification Surveillance testing, the NSO identified a potential operability concern and reported it to the Shift Manager. The Shift Manager was unable to determine if the piece of equipment was operable or not. Per MES27, Verification of System Operability, to whom or what department would the Shift Manager contact and refer his questions?

- a. Superintendent Operations
- b. Onsite Review Organization (OSRO)
- c. Nuclear Licensing
- d. System Engineering

QUESTION: 094 (1.00)

You are an SRO reviewing a Temporary Change Notice (TCN) for Interim Approval. Which of the following would be a reason that you must reject the TCN?

- a. The other person who provided Interim Approval did so via telephone conference never having seen the TCN.
- b. The TCN was written against a contractor procedure.
- c. The TCN was written against a procedure for a system that was out-of-service.
- d. The TCN was written against an administrative procedure.

QUESTION: 095 (1.00)

Which of the following personnel have lead responsibility for fuel movement during refueling and core alterations.

- a. The Supervisor, Reactor Engineering.
- b. The Control Room Supervisor.
- c. The Refuel Floor Coordinator
- d. The Superintendent, Operations.

QUESTION: 096 (1.00)

The Shift Manager became ill and had to leave without a turnover. You were assigned to take the Shift Manger's watch. You discovered the following plant conditions while assuming the watchstation:

- The plant is in Mode 5, both recirc pumps are inoperable, RHR "A" is in shutdown cooling, RHR "B" is in standby, but a blown fuse was found in the pump's breaker 30 minutes ago. It will be replaced in approximately 55 minutes.
- Core reload is in progress. The tagboard is current and correct; approximately 75% of the core has been re-assembled in the reactor pressure vessel, control rod 30-31, which is in a fueled cell, has been withdrawn to verify its operability.
- Reactor pressure vessel water level is 20' 6" above the vessel flange and constant.
- Channel functional tests on refuel equipment interlock inputs was performed 25 hours ago. All tests were satisfactory.
- The mode switch was verified to be locked in the refuel position at shift turnover.

Based on turnover conditions, which of the following describe your required actions after you have assumed the watch station?

- a. Continue with core reload.
- b. Suspend fuel loading due to having control rod 30-31 withdrawn.
- c. Suspend fuel loading due to exceeding channel functional test applicability time limit.
- d. Suspend fuel loading due to one train of RHR being inoperable.

QUESTION: 097 (1.00)

Step 1.9 of 29.ESP.06, "Primary Containment Venting and Purge for Hydrogen and Oxygen Control," states, "If both divisions of SGTS are operating, shutdown one division of SGTS." Why does 29.ESP.06 require shutdown of one division of SGTS during containment vent and purge?

- a. The excessive flow rate will draw a vacuum in the containment.
- b. This ensures that one charcoal bed is kept in reserve for later use.
- c. This will allow quick shutdown of the containment vent and purge to prevent drywell pressure from going below 5 inches wc.
- d. The excessive flow rate may open the refuel floor blowout panels causing a loss of secondary containment integrity with the potential for a hydrogen explosion.

QUESTION: 098 (1.00)

The EOPs direct operators to inhibit ADS during an event when RPV level is above TAF. This action will provide time to . . .

- a. begin a manual cooldown to prevent exceeding a 100°F/hr cooldown rate.
- b. control the start of ECCS pumps that have not automatically started during the event.
- c. attempt to reverse the decreasing level trend before emergency depressurization is necessary.
- d. to defeat MSIV interlocks, reopen the MSIVs, and dump steam to the main condenser to minimize heat loading on the containment.

QUESTION: 099 (1.00)

If suppression pool level cannot be maintained above -68 inches, Primary Containment Control EOP Flowchart Step TWL-6 directs the operator to "SECURE HPCI (DISREGARD ADEQUATE CORE COOLING)."

Which of the following describes the bases for RCIC and HPCI operation under the same EOP circumstances (ie, suppression pool water level cannot be maintained above -68 inches)?

- a. RCIC operation may continue because the turbine exhaust energy does not contribute excessively to increasing containment pressure.
- b. RCIC operation may continue ONLY if it is the last operable high pressure injection system available to provide adequate core cooling.
- c. RCIC must be secured at the same time as HPCI to minimize the containment pressure rise.
- d. RCIC must be secured prior to HPCI to prevent erratic turbine operation due to exhaust back pressure fluctuation.

QUESTION: 100 (1.00)

As the result of a reactor accident the Shift Manager has declared a SITE AREA EMERGENCY. It is now several hours after the declaration and the emergency response organization is fully activated for this classification level. Which of the following describes functions that would be carried out at each of the emergency response facilities?

- a. Control Room: operation of plant equipment
OSC: dispatch of onsite emergency teams
TSC: making offsite notifications
EOF: not activated until General Emergency declared
- b. Control Room: communicating current plant conditions to the TSC
OSC: advising EOF of repair activities status
TSC: meteorological and offsite dose assessments
EOF: ensuring the release of accurate information to the public
- c. Control Room: operation of plant equipment
OSC: direction of maintenance staff
TSC: direction of Severe Accident Guideline implementation
EOF: communication with off-site authorities
- d. Control Room: communicating current plant conditions to the TSC
OSC: dispatch of onsite emergency teams
TSC: development of onsite protective actions
EOF: will not be activated until General Emergency declared

(***** END OF EXAMINATION *****)

*QNUM 001
 *KA 295005 G2.1.2
 *ANSWER
 C.
 *REFERENCE
 AOP 20.109.01,
 Turbine/Generator Trip; ARP
 4D46 MAIN TURBINE
 TRIPPED; ARP 3D89
 TURBINE CONT VALVE
 FAST CLOSURE CHANNEL
 TRIP; ARP 3D90 TURBINE
 STOP VALVE CLOSURE
 CHANNEL TRIP
 New
 Tier/Group: 1/1SRO/RO/Both
 Level: Both
 Level of Difficulty (1 - 5): 2
 Comprehension

*QNUM 002
 *KA 295006 A1.02
 *ANSWER
B D. J. depth 6-4-01
 *REFERENCE
 BANK - ST-OP-802-2002-001
 EQ-OP-802-2002-000-0003-
 004
 Direct
 Tier/Group: 1/1
 SRO/RO/Both Level: Both
 Level of Difficulty (1 - 5): 2
 Comprehension

*QNUM 003
 *KA 295006 A2.01
 *ANSWER
 A
 *REFERENCE
 ITS Table 3.3.1.1-1
 Direct/New/Modified: New
 Tier/Group: T1G1
 SRO/RO/Both Level: Both
 Level of Difficulty (1 - 5): 3
 Comprehension

*QNUM 004
 *KA 295007 K3.06
 *ANSWER
 B
 *REFERENCE: ST-OP-315-
 0045-001
 Direct/New/Modified: New
 Tier/Group: 1/1
 SRO/RO/Both Level: Both
 Level of Difficulty (1 - 5): 3
 Comprehension

*QNUM 005
 *KA 295009 K1.02
 *ANSWER
 A
 *REFERENCE
 UFSAR pg 5-5.3; ST-OP-315-
 0004-001; SOP 23.138.01
 Direct/New/Modified: New
 Tier/Group: 1/1
 SRO/RO/Both Level: Both
 Level of Difficulty (1 - 5): 2
 Comprehension

*QNUM 006
 *KA 295010.AK2.02
 *ANSWER
 C
 *REFERENCE
 Previous NRC Exam Question;
 EQ-OP-802-3002-000-0007-0
 02
 ST-OP-315-0016-001
 Direct/New/Modified: Direct
 Tier/Group: 1/1
 SRO/RO/Both Level: Both
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 007
 *KA 295014.G2.1.7
 *ANSWER
 B
 *REFERENCE
 FERMI: AOP-20.138.03
 "Uncontrolled Recirc Flow
 Increase"
 Direct/New/Modified: Direct
 Bank - NRC
 Tier/Group: 1/1
 SRO/RO/Both Level: Both
 Level of Difficulty (1 - 5): 3
 Analysis-Comprehension

*QNUM 008
 *KA 295015.A1.06
 *ANSWER
 B
 *REFERENCE
 29.ESP.03, Rev. 5 (Purpose,
 Page 3); EOP 29.100.01 SH
 1A, Rev.6 (Step FSQ-11);
 Exam Bank Question Ref:
 EQ-OP-202-0101-000-0203-
 004
 Direct/New/Modified: Direct
 Tier/Group: 1/1
 SRO/RO/Both Level: Both
 Level of Difficulty (1 - 5): 2
 Comprehension-Analysis

*QNUM ~~004~~ 009 *J. H. Kim*
 *KA 295024 A2.04 *6-4-01*
 *ANSWER
 C
 *REFERENCE
 EQ-OP-315-0116-000-0004-0
 03
 ST-OP-315-0116
 Direct
 Tier/Group: 1/2
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 010
 *KA 295025 EA1.03
 *ANSWER
 D.
 *REFERENCE
 23.201, Rev.19; ARP 1D38,
 Rev.10
 Direct/New/Modified: Direct
 Tier/Group: 1/1
 SRO/RO/Both Level: B
 Level of Difficulty (1 - 5): 3
 Comprehension-Analysis

*QNUM 011
 *KA 295031 K1.01
 *ANSWER
 D
 *REFERENCE: INPO Bank
 Question 2067 Quad Cities 1;
 ST-OP-802-3001-001
 Introduction to Emergency
 Operating Procedures
 Direct/New/Modified: Direct
 Tier/Group: 1/1
 SRO/RO/Both Level: Both
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 012
 *KA 295037.K1.06
 *ANSWER
 B
 *REFERENCE
 ST-OP-3003-001
 Direct/New/Modified: Modified
 Tier/Group: 1/1
 SRO/RO/Both Level: Both
 Level of Difficulty (1 - 5): 3
 Comprehension

*QNUM 013
 *KA 500000 A2.03
 *ANSWER
 B
 *REFERENCE
 EQ-OP-802-3004-000-0011-0
 04, 29.100.01,
 ST-OP-802-3004-001
 Direct/New/Modified: Direct
 Tier/Group: 2
 SRO/RO/Both Level: B
 Level of Difficulty (1 - 5): 3
 Memory

*QNUM 014
 *KA 295001 AA1.06
 *ANSWER
G. D. J. Hopkins 6-4-01
 *REFERENCE
 22.000.02, 22.000.03
 24.000.01, Attachment 34B
 Modified
 Tier/Group: 1/2
 Level of Difficulty (1 - 5): 3
 Comprehension-Analysis

*QNUM 015
 *KA 295002 AA2.04
 *ANSWER
 A.
 *REFERENCE
 EQ-OP-315-0132-000-0008-
 007; 20.125.01 Rev. 21
 Direct/New/Modified: Modified
 Tier/Group: 1/2
 SRO/RO/Both Level: B
 Level of Difficulty (1 - 5): 2
 Comprehension-Analysis

*QNUM 016
 *KA 295003 2.1.23
 *ANSWER
 C.
 *REFERENCE
 EQ-OP-802-2012-000-0005-
 004; 20.300.SBO, Rev.
 1/31/01; 20.300.SBO Bases,
 Rev.0
 Direct/New/Modified: Direct
 Tier/Group: 1/2
 SRO/RO/Both Level: B
 Level of Difficulty (1 - 5): 2
 Comprehension-Analysis

*QNUM 017
 *KA 295004 AK1.05
 *ANSWER
A. C. J. Hopkins 6-4-01
 *REFERENCE
 20.300.260VESF; ARP 9D17,
 Rev.14; ST-OP-315-0064-001
 Direct/New/Modified: Modified
 Tier/Group: 1/2
 SRO/RO/Both Level: B
 Level of Difficulty (1 - 5): 3
 Comprehension-Analysis

*QNUM 018
 *KA 295008 AK3.08
 *ANSWER
 A.
 *REFERENCE
 ST-OP-315-0043-001, Rev.9
 Direct/New/Modified: Modified
 Tier/Group: 1/2
 SRO/RO/Both Level: B
 Level of Difficulty (1 - 5): 3
 Comprehension-Analysis

*QNUM 019
 *KA 295012 AK2.02
 *ANSWER
 D.
 *REFERENCE ST-OP-315-0043-001, Rev.10; ARP 8D41, Rev.14
 Direct/New/Modified: Modified
 Tier/Group: 1/2
 SRO/RO/Both Level: B
 Level of Difficulty (1 - 5): 3
 Comprehension-Analysis

*QNUM 020
 *KA 295013 AK2.01
 *ANSWER
 D.
 *REFERENCE ST-OP-802-3004-001, Rev.2; 29.100.01, Sheet 2, Rev.8; TS 3.6.2.1
 Direct/New/Modified: New
 Tier/Group: 1/2
 SRO/RO/Both Level: B
 Level of Difficulty (1 - 5): 3
 Memory

*QNUM 021
 *KA 295017 AA1.08
 *ANSWER
 C.
 *REFERENCE ST-OP-315-0005-001, Rev.12; ARP 3D83, Rev.11; 20.00.07, Rev. 2/5/01; 23.137.01, Rev.21
 Direct/New/Modified: Modified
 Tier/Group: 1/2
 SRO/RO/Both Level: B
 Level of Difficulty (1 - 5): 3
 Comprehension-Analysis

*QNUM 022
 *EXMNR Bielby
 *KA 295018 2.2.24
 *ANSWER
 B.
 *REFERENCE ST-OP-315-0067-001, Rev.13; 20.127.01, Rev. 24
 Direct/New/Modified: Modified
 Tier/Group: 1/2
 SRO/RO/Both Level: B
 Level of Difficulty (1 - 5): 2
 Comprehension-Analysis

*QNUM 023
 *KA 295020 AA2.01
 *ANSWER
 B.
 *REFERENCE: 23.601, Rev.25 (fan trip, 2 speed shift to slow); ST-OP- 315-0067-001, Rev.13 (RBCCW/EECW, actuation signals that are not L1);NOTE: a. EECW would not actuate/isolate until DW press is 1.68#; c. these fans shift to slow speed; d. RBCCW would not isolate on L1
 Direct/New/Modified: New
 Tier/Group: 1/2
 SRO/RO/Both Level: B
 Level of Difficulty (1 - 5): 3
 Comprehension-Analysis

*QNUM 024
 *KA 295022 AK1.01
 *ANSWER
 A.
 *REFERENCE 20.106, Rev. 2/2/01; ARP 3D10, Rev.11
 Direct/New/Modified: Modified
 Tier/Group: 1/2
 SRO/RO/Both Level: B
 Level of Difficulty (1 - 5): 3
 Comprehension-Analysis

*QNUM 025
 *KA 295026 EK3.04
 *ANSWER
 b.
 *REFERENCE ST-OP-802-3002-001, Revision 1.
 Direct/New/Modified: Direct
 Tier/Group: 1/2
 SRO/RO/Both Level: B
 Level of Difficulty (1 - 5): 3
 Memory

*QNUM 026
 *KA 295028 G2.1.33
 *ANSWER
 b.
 *REFERENCE Technical Specification 3.6.1.5, ST-OP-802-3001-001, Revision 2.
 Direct/New/Modified: New
 Tier/Group: 1/2
 SRO/RO/Both Level: B
 Level of Difficulty (1 - 5): 2
 Comp-Analysis

*QNUM 027
 *KA 295029 EK1.01
 *ANSWER
 d.
 *REFERENCE ST-OP-802-3004-001, Revision 2; EOP 29.100.01, Sheet 2, Revision 8; EOP 29.100.01, Sheet 6, Revision 8.
 Direct/New/Modified: New
 Tier/Group: 1/2
 SRO/RO/Both Level: B
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 028
 *KA 295030 EA1.01
 *ANSWER
B C. J. Doyshin 6-4-01
 *REFERENCE
 EQ-OP-3004-000-0012-001;
 EOP 29.100.01 S6 Rev 8; ST-
 OP-802-3002-001, Rev 1 Sect
 III.D.
 Direct/New/Modified: Modified
 Tier/Group: 1/2
 SRO/RO/Both Level: B
 Level of Difficulty (1 - 5): 2
 Comp-Analysis

*QNUM 029
 *KA 295033 EK2.01
 *ANSWER
B. J. Doyshin 6-4-01
 *REFERENCE
 Concept from ST-OP-802-
 3005-001, Rev. 1, Sect.II.D.9.
 Direct/New/Modified: New
 Tier/Group: 1/2
 SRO/RO/Both Level: B
 Level of Difficulty (1 - 5): 3
 Memory

*QNUM 030
 *KA 295034 EA2.01
 *ANSWER
 B
 *REFERENCE
 AOP 20.710.01, Refueling
 Floor High Radiation
 Direct/New/Modified: New
 Tier/Group: 1/2
 SRO/RO/Both Level: B
 Level of Difficulty (1 - 5): 2
 Comp-Analysis

*QNUM 031
 *KA 295038 EK2.03
 *ANSWER
 c.
 *REFERENCE
 ST-OP-315-0073-001,
 Revision 15; Station drawing
 6M721-5736-3, Revision F.
 Direct/New/Modified: New
 Tier/Group: 1/2
 SRO/RO/Both Level: B
 Level of Difficulty (1 - 5): 3
 Comp-Analysis

*QNUM 032
 *KA 600000 AA2.13
 *ANSWER
 d.
 *REFERENCE
 AOP 20.000.22, L/R; AOP
 20.000.18, L/R.
 Direct/New/Modified: Modified
 (Fermi exam bank EQ-OP-
 802-2017-000-001-003)
 Tier/Group: 1/2
 SRO/RO/Both Level: B
 Level of Difficulty (1 - 5): 2
 Comp-Analysis

*QNUM 033
 *KA 295032 K1.03
 *ANSWER
 B
 *REFERENCE
 29.100.01 Sheet 5 ; Bank
 Quest. Ref,
 EQ-OP-802-3005-000-0001-0
 07
 APPLICANT only requires
 Table 12 from EOP 29.100.01
 Sh 5
 Direct/New/Modified: Direct
 Tier/Group: 1/3
 SRO/RO/Both Level: Both
 Level of Difficulty (1 - 5): 2
 Comprehension

*QNUM 034
 *KA 295035 EA 1.02
 *ANSWER
 A
 *REFERENCE
 20.000.11 ; 23.404; ARP
 17D46; ST-OP-802-2007-001;
 Bank Ques ref.
 EQ-OP-802-2007-000-0001-0
 05
 Direct/New/Modified: Modified
 Tier/Group: 1/3
 SRO/RO/Both Level: Both
 Level of Difficulty (1 - 5): 2
 Comprehension-Analysis

*QNUM 035
 *KA 295036 K2.03
 *ANSWER
 D
 *REFERENCE
 ARP 2D82, 29.100.01 SH 5 ;
 EQ-OP-802-3005-000-0001-0
 04
 Direct/New/Modified: Direct
 Tier/Group: 1/3
 SRO/RO/Both Level: Both
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 036
 *KA 201001 K2.03
 *ANSWER
 A
 *REFERENCE
 ST-OP-315-0010-001 & 0027-
 001; Quad Cities exam
 question #13913
 Direct/New/Modified: Direct
 Tier/Group: 2/1
 SRO/RO/Both Level: Both
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 037
 *KA 203000 A1.08
 *ANSWER A
 *REFERENCE
 Emergency Diesel Generators
 - ST-OP-315-0065-001
 Tier/Group: 2/1
 SRO/RO/Both Level: Both
 Level of Difficulty (1 - 5): 2
 Analysis

*QNUM 038
 *KA 203000 A4.07
 *ANSWER
 A

*REFERENCE
 SOP 23.205; EQ-OP-315-
 0241-000-004-001
 Direct/New/Modified: Modified
 Tier/Group: 2/1
 SRO/RO/Both Level: Both
 Level of Difficulty (1 - 5): 3
 Analysis

*QNUM 039
 *KA 209001 K2.03
 *ANSWER
 C
 *REFERENCE
 STP-OP-315-0040-001, figure
 4
 Direct/New/Modified: New
 Tier/Group: 2/1
 SRO/RO/Both Level: Both
 Level of Difficulty (1 - 5): 3
 Analysis

*QNUM 040
 *KA 209001 A1.08
 *ANSWER
 C
 *REFERENCE
 ST-OP-315-0040-001; EQ-OP-
 202-0501-000-A003-021, 22,
 & 25; EQ-OP-315-0140-000-
 0005-006
 Direct/New/Modified: Modified
 Tier/Group: 2/1
 SRO/RO/Both Level: Both
 Level of Difficulty (1 - 5): 3
 Analysis

*QNUM 041
 *KA 211000 K1.05
 *ANSWER
 B
 *REFERENCE
 EQ-OP-315-0108-000-0005-
 004; ST-OP-315-0008; ST-
 OP-315-0014
 Direct/New/Modified: Direct
 Tier/Group: 2/1
 SRO/RO/Both Level: B
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 042
 *KA 212000 K4.03
 *ANSWER
 A
 *REFERENCE
 SOP 23.316, Rev. 40 and ST-
 OP-315-0027-001, Rev. 10
 Direct/New/Modified: New
 Tier/Group: 2/1
 SRO/RO/Both Level: B
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 043
 *KA 215003 K6.02
 *ANSWER
 B
 *REFERENCE
 ST-OP-315-0064-002, DC
 Electrical Distribution, ST-OP-
 315-0023-001, Intermediate
 Range Monitoring, and AOP,
 20.300.2448VDC
 Direct/New/Modified: New
 Tier/Group: 2/1
 SRO/RO/Both Level: Both
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 044
 *KA 215005 A3.05
 *ANSWER
 B
 *REFERENCE
 ST-OP-315-0024-001; EQ-OP-
 315-0124-000-0001-002
 Direct/New/Modified: Modified
 Tier/Group: 2/1
 SRO/RO/Both Level: B
 Level of Difficulty (1 - 5): 2
 Analysis

*QNUM 045
 *KA 217000.K5.02
 *ANSWER
 C
 *REFERENCE
 ST-OP-315-0043-001, ST-OP-
 315-0039-001, SOP 23.206
 INPO Question #8525, Hope
 Creek Unit 1
 Direct/New/Modified: Direct
 Tier/Group: 2/1
 SRO/RO/Both Level: Both
 Level of Difficulty (1 - 5): 2
 Comprehension

*QNUM 046
 *KA 218000 K5.01
 *ANSWER
 B
 *REFERENCE
 ST-OP-315-0042-001; EQ-OP-315-0142-000-0004-010
 Direct/New/Modified: Modified
 Tier/Group: 2/1
 SRO/RO/Both Level: Both
 Level of Difficulty (1 - 5): 2
 Analysis

*QNUM 047
 *KA 223001 K4.03
 *ANSWER
 D
 *REFERENCE
 ST-OP-315-0048-001; SOP 23.601
 Direct/New/Modified: New
 Tier/Group: 2/1
 SRO/RO/Both Level: Both
 Level of Difficulty (1 - 5): 2
 Comprehension-Analysis

*QNUM 048
 *KA 223001 K5.08
 *ANSWER
 C
 *REFERENCE
 23.601
 Direct/New/Modified: New
 Tier/Group: 2/1
 SRO/RO/Both Level: Both
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 049
 *KA 239002 K6.04
 *ANSWER
 B
 *REFERENCE
 EQ-OP-202-0201-000-0208-001
 Direct/New/Modified: Direct
 Tier/Group: 2/1
 SRO/RO/Both Level: Both
 Level of Difficulty (1 - 5): 2
 Memory/Comprehension-Analysis: Memory

*QNUM 050
 *KA 241000 K1.08
 *ANSWER
 A
 *REFERENCE
 Fermi 2 Bank, EQ-OP-315-0145-000-0010-005; LaSalle 2000 NRC exam Question #58
 Direct/New/Modified: Direct
 Tier/Group: 2/1
 SRO/RO/Both Level: Both
 Level of Difficulty (1 - 5): 2
 Comprehension

*QNUM 051
 *KA 259001 A1.04
 *ANSWER
 B
 *REFERENCE
 ST-OP-315-0046 and ST-OP-315-0007
 Direct/New/Modified: New
 Tier/Group: 2/1
 SRO/RO/Both Level: Both
 Level of Difficulty (1 - 5): 2
 Comprehension

*QNUM 052
 *KA 259002 A3.06
 *ANSWER
 D
 *REFERENCE
 ST-OP-315-0046-001; EQ-OP-315-0146-000-0004-004
 Direct/New/Modified: Direct
 Tier/Group: 2/1
 SRO/RO/Both Level: Both
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 053
 *KA 261000 K1.07
 *ANSWER
 C
 *REFERENCE
 ST-OP-315-0020-001, EQ-OP-315-0120-000-0007-003, and EQ-OP-315-0120-000-0008-001
 Direct/New/Modified: Modified
 Tier/Group: 2/1
 SRO/RO/Both Level: Both
 Level of Difficulty (1 - 5): 3
 Comprehension

*QNUM 054
 *KA 264000 K3.01
 *ANSWER
 A
 *REFERENCE
 EQ-OP-202-0201-000-0202-006, ST-OP-0065-001 & 0058-001
 6SD721-2500-01, One Line Dia Plant 4160V & 480V System Service Unit 2
 Direct/New/Modified: Modified
 Tier/Group: 2/1
 SRO/RO/Both Level: Both
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 055
 *KA 202001 A3.07
 *ANSWER
 C
 *REFERENCE: SOP
 32.138.01 Reactor
 Recirculation System; ST-OP-
 315-0004-001
 Direct/New/Modified: Modified
 Tier/Group: 2/2
 SRO/RO/Both Level: Both
 Level of Difficulty (1 - 5): 2
 Comprehension

*QNUM 056
 *KA 205000 K3.02
 *ANSWER
 A
 *REFERENCE
 TR 3.4.4, GOP 22.000.04
 Direct/New/Modified: Modified
 Tier/Group: 2/2
 SRO/RO/Both Level: Both
 Level of Difficulty (1 - 5): 4
 Comprehension-Analysis

*QNUM 057
 *KA 226001 K1.02
 *ANSWER
 D
 *REFERENCE
 ST-OP-315-0041-001 and
 SOP 23.205
 Direct/New/Modified: New
 Tier/Group: 2/2
 SRO/RO/Both Level: Both
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 058
 *KA 239001 K2.01
 *ANSWER
 D
 *REFERENCE
 ST-OP-315-0005-001
 Direct/New/Modified: New
 Tier/Group: 2/2
 SRO/RO/Both Level: Both
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 059
 *KA 262001 A4.02
 *ANSWER
 A
 *REFERENCE: BWR
 Fundamentals General
 Physics Corp - Ferm1 2
 Direct/New/Modified: New
 Tier/Group: 2/2
 SRO/RO/Both Level: Both
 Level of Difficulty (1 - 5): 3
 Comprehension

*QNUM 060
 *KA 262002 A4.01
 *ANSWER
 D
 *REFERENCE
 20.300.SBO, 20.308, and
 20.308.01
 Direct/New/Modified: New
 Tier/Group: 2/2
 SRO/RO/Both Level: Both
 Level of Difficulty (1 - 5): 3
 Memory

*QNUM 061
 *KA 271000 A1.12
 *ANSWER
 C
 *REFERENCE
 ST-OP-315-1101; ST-OP-315-
 0035; 23.625; EQ-OP-1101-
 000-0005-005
 [licensee needs to verify the
 references for this bank
 question]
 Direct/New/Modified: Direct
 Tier/Group: 2/2
 SRO/RO/Both Level: Both
 Level of Difficulty (1 - 5): 3
 Comprehension

*QNUM 062
 *KA 286000 K2.02
 *ANSWER
 B
 *REFERENCE
 ST-OP-315-0072-001
 Direct/New/Modified: New
 Tier/Group: 2/2
 SRO/RO/Both Level: Both
 K/A Importance: 2.9
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 063
 *KA 290001 K1.02
 *ANSWER
 D
 *REFERENCE
 23.425.02,
 ST-OP-315-0016-001, &
 EQ-OP-315-0116-000-0001-0
 07
 Direct/New/Modified: Direct
 Tier/Group: 2/2
 SRO/RO/Both Level: Both
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 064
 *KA 290003 K4.01
 *ANSWER
 C
 *REFERENCE: ST-OP-315-0073-001
 Direct/New/Modified: New
 Tier/Group: 2/2
 SRO/RO/Both Level: Both
 Level of Difficulty (1 - 5): 3
 Memory

*QNUM 065
 *KA 300000 K1.03
 *ANSWER
 B
 *REFERENCE
 ST-OP-315-0019-001; SOP
 23.406
 Direct/New/Modified: Modified
 Tier/Group: 2/3
 SRO/RO/Both Level: Both
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 066
 *KA 233000 A4.05
 *ANSWER
 C
 *REFERENCE
 ST-OP-315-0015-001; Bank
 Ques
 Ref.EQ-OP-315-0215-000-000
 4-001
 Direct/New/Modified: Modified
 Tier/Group: 2/3
 SRO/RO/Both Level: Both
 Level of Difficulty (1 - 5): 2
 Comprehension

*QNUM 067
 *KA 288000 K6.03
 *ANSWER
 B
 *REFERENCE
 Direct/New/Modified: New
 Tier/Group: 2/3
 SRO/RO/Both Level: Both
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 068
 *KA 290002 K5.05
 *ANSWER
 D
 *REFERENCE
 ST-OP-315-0002-001;
 22.000.05
 Direct/New/Modified: New
 Tier/Group: 2/3
 SRO/RO/Both Level: Both
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 069
 *KA Generic 2.1.32
 *ANSWER
 C
 *REFERENCE
 General Operating Procedure,
 22.000.02, Revision 47, Plant
 Startup to 25% Power.
 Student Text ST-OP-802-
 1001-001, General Operating
 Procedures, Revision 3.
 Learning Objective 01-08,
 "State the basis for each of the
 precautions and/or limitations
 applicable to Plant Startup to
 25% Power."
 Direct/New/Modified: Modified
 Tier/Group: 3, Conduct of
 Operations
 SRO/RO/Both Level: BOTH
 Level of Difficulty (1 - 5): 3
 Memory

*QNUM 070
 *KA 2.2.22
 *ANSWER
 D
 *REFERENCE
 EQ-OP-315-0102-000-0007-
 003 and 007; ITS 3.4.4
 Direct/New/Modified: Direct
 Tier/Group: 3/
 SRO/RO/Both Level: Both
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 071
 *KA 2.3.1
 *ANSWER
 B
 *REFERENCE
 MRP04, Rev 8, Radiation
 Protection Conduct Manual,
 Enclosure A.
 Direct/New/Modified: New
 Tier/Group: 3
 SRO/RO/Both Level: Both
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 072
 *KA 2.3.10
 *ANSWER
 D
 *REFERENCE
 EQ-OP-213-0041-000-A004-0
 01; MOP02
 Direct/New/Modified: Direct
 Tier/Group: 3/
 SRO/RO/Both Level: Both
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 073

*KA 2.4.10

*ANSWER

D

*REFERENCE

ST-OP-315-0089-001

Direct/New/Modified: New

Tier/Group: 3/

SRO/RO/Both Level: Both

Level of Difficulty (1 - 5): 2

Comprehension-Analysis

*QNUM 074

*KA 2.4.17

*ANSWER

B

*REFERENCE

ST-OP-802-3001-001

Direct/New/Modified: New

Tier/Group: 3/

SRO/RO/Both Level: Both

Level of Difficulty (1 - 5): 2

Memory

*QNUM 075

*KA 2.4.34

*ANSWER

B

*REFERENCE

20.000.18

Direct/New/Modified: New

Tier/Group: 3/

SRO/RO/Both Level: Both

Level of Difficulty (1 - 5): 2

Memory

*QNUM 076

*KA 295009 K1.01

*ANSWER

C

*REFERENCE

29-100-01 SH 6, Applicant
only needs tables from EOP?

Direct/New/Modified: Direct

Tier/Group: 3/

SRO/RO/Both Level: SRO

Level of Difficulty (1 - 5): 3

Comprehension-Analysis

*QNUM 077

*KA 295010 A2.06

*ANSWER

A

*REFERENCE

23.415, Rev.15, Sections 1.1
and 5.1; ST-OP-315-0067-
001, Rev.13

Direct/New/Modified: Direct

Tier/Group: 3/

SRO/RO/Both Level: SRO

Level of Difficulty (1 - 5): 3

Comprehension-Analysis

*QNUM 078

*KA 295014 A2.03

*ANSWER

D

*REFERENCE

20.107.02

Direct/New/Modified: Direct

Tier/Group: 3/

SRO/RO/Both Level: SRO

K/A Importance: 4.3

Level of Difficulty (1 - 5): 2

Comprehension-Analysis

*QNUM 079

*KA 295015 2.4.17

*ANSWER

B.

*REFERENCE

EPG Appendix B, Rev.1,
Section 17;ST-OP-802-3002-001, Rev.1,
Section V; EQ-OP-202-0111-
000-0002-003.

Direct/New/Modified: Direct

Tier/Group: 3/

SRO/RO/Both Level: SRO

Level of Difficulty (1 - 5): 2

Memory

*QNUM 080

*KA 295038 2.4.18

*ANSWER

B

*REFERENCE

ST-OP-802-3004-001

Direct/New/Modified: New

Tier/Group: 3/

SRO/RO/Both Level: SRO

Level of Difficulty (1 - 5): 2

Memory

*QNUM 081

*KA 295030 2.4.20

*ANSWER

D

*REFERENCE

EQ-OP-802-3004-000-0007-0
01; ST-OP-802-3004-001

Direct/New/Modified: Direct

Tier/Group: 3/

SRO/RO/Both Level: SRO

Level of Difficulty (1 - 5): 3

Memory

*QNUM 082
 *KA 295031 A2.04
 *ANSWER
 C.
 *REFERENCE
 EQ-OP-202-0101-000-0106-02, EOP-OP-29.100.01 SH 1A (FSL-OR1)
 EOP-OP-29.100.01 SH 3A (Step FSRF-13) SROs need EOP, or are they required to recognize CS and pressure requirements based on conditions?
 Direct/New/Modified: Direct
 Tier/Group: 3/
 SRO/RO/Both Level: SRO
 Level of Difficulty (1 - 5): 3
 Comprehension-Analysis

*QNUM 083
 *KA 295038 A2.03
 *ANSWER
 D.
 *REFERENCE
 Provide these references for SROs: 29.100.01, Sh.5, Rev.7 (Step RR-4); EP-101, Enclosure B (Tab A), Rev.25
 Direct/New/Modified: Direct
 Tier/Group: 1/1
 SRO/RO/Both Level: S
 Level of Difficulty (1 - 5): 3
 Comprehension-Analysis

*QNUM 084
 *KA206000 G.2.2.25
 *ANSWER
 D
 *REFERENCE
 Technical Specification Bases B.3.5.1; ST-OP-315-0039-001, Rev 10
 Direct/New/Modified: New
 Tier/Group: 2 /1
 SRO/RO/Both Level: SRO
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 085
 *KA 216000, G.2.4.21
 *ANSWER
 A.
 *REFERENCE
 TS Bases, B 3.3.3.1.
 Direct/New/Modified: New
 Tier/Group: 2 /1
 SRO/RO/Both Level: SRO
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 086
 *KA 239002 A206
 *ANSWER
 C
 *REFERENCE
 AOP 20.000.19, Action E-6; ST-OP-315-00055-001, Revision 12, pg. 19; EQ-OP-802-2017-000-0001-009
 Direct/New/Modified: Modified
 Tier/Group: 2 /1
 SRO/RO/Both Level: SRO
 Level of Difficulty (1 - 5): 3
 Comprehension-Analysis

*QNUM 087
 *KA 264000 A209
 *ANSWER
 D
 *REFERENCE
 AOP 20.30064B, Revision 0; AOP 20.307.01, Revision 0.
 Direct/New/Modified: New
 Tier/Group: 2 /1
 SRO/RO/Both Level: SRO
 Level of Difficulty (1 - 5): 2
 Comprehension-Analysis

*QNUM 088
 *KA 201006 A2.02
 *ANSWER
 D
 *REFERENCE
 EQ-OP-315-0113-000-0007-011; ST-OP-315-0013, TS bases 3.3.2.1
 Direct/New/Modified: Direct
 Tier/Group: 3/
 SRO/RO/Both Level: SRO
 Level of Difficulty (1 - 5): 3
 Comprehension-Analysis

*QNUM 089
 *KA 230000 A2.04
 *ANSWER
 D
 *REFERENCE
 ST-OP-315-0041, 23.205
 Direct/New/Modified: New
 Tier/Group: 3/
 SRO/RO/Both Level: SRO
 Level of Difficulty (1 - 5): 3
 Comprehension-Analysis

*QNUM 090
 *KA 272000 A2.11
 *ANSWER
 D
 *REFERENCE
 ST-OP-802-2018-001; ARPs 16D1 and 8D46; 29.100.01, Sheet 5
 Direct/New/Modified: New
 Tier/Group: 3/
 SRO/RO/Both Level: S
 Level of Difficulty (1 - 5): 3
 Comprehension-Analysis

*QNUM 091
 *KA 2.1.25
 Answer
 B
 *REFERENCE
 29.100.01, SH 3, Rev 6 (Step RF-9, NOTE; Step RF-16); 29.100.01, SH 3, Rev 6 (Table 6, Table 7); 29.100.01, SH 6, Rev 8 (Max Core Uncovery Time Limit Curve); EQ-OP-802-3002-000-0007-011; EQ-OP-802-3002-000-0007-006
 This question will require giving the applicants copies of EOPs 29.100.01, Sheets 3 and 6. Explanation: This question requires calculating the Flooding Completion Time (Table 6) and the Maximum Core Uncovery Time (Table 7). It requires understanding the Note in step RF-9, to add the min. core flooding interval time of 52 min. to time 1049, instead of 1038, to get Clock Time of 1141. The 52 min. is for six SRVs open. The Wait Time or Max Core Uncovery Time Limit, is obtained by calculating the total time after shutdown, from reactor scram to Flooding Completion Time or Clock Time (between 0036 and 1141). Using this total amount of time of 11 hours and 5 min. or 665 min, the Max Core Uncovery Time Limit Curve give you 7.5 min.
 Direct/New/Modified: Modified
 Tier/Group: 3/
 SRO/RO/Both Level: SRO
 Level of Difficulty (1 - 5): 4
 Comprehension-Analysis

*QNUM 092
 *KA 2.1.4
 *ANSWER
 B
 *REFERENCE
 MGA10, MOP03, MOP10
 Direct/New/Modified: New
 Tier/Group: 3/
 SRO/RO/Both Level: SRO
 Level of Difficulty (1 - 5): 4
 Memory/Comprehension-Analysis: CA

 *QNUM 093
 *KA 2.1.14
 *ANSWER
 D
 *REFERENCE
 MES27; EQ-OP-802-4101-000-0010-003
 Direct/New/Modified: Direct
 Tier/Group: 3/
 SRO/RO/Both Level: SRO
 Level of Difficulty (1 - 5): 2
 Memory

 *QNUM 094
 *KA 2.2.11
 *ANSWER
 D
 *REFERENCE
 MGA04, Rev. 8
 Direct/New/Modified: New
 Tier/Group: 3/
 SRO/RO/Both Level: SRO
 K/A Importance: 3.4
 Level of Difficulty (1 - 5): 3
 Memory

*QNUM 095
 *KA 2.2.26
 *ANSWER
 A
 *REFERENCE
 Procedure MOP13, Rev 6
 Direct/New/Modified: New
 Tier/Group: 3/
 SRO/RO/Both Level: SRO
 Level of Difficulty (1 - 5): 2
 Memory

*QNUM 096
 *EXMNR McNeil
 *KA 2.2.29
 *ANSWER
 B
 *REFERENCE
 T.S. 3.9.3
 Direct/New/Modified: New
 Tier/Group: 3/
 SRO/RO/Both Level: SRO
 Level of Difficulty (1 - 5): 3
 Comprehension-Analysis

*QNUM 097
 *KA 2.3.9
 *ANSWER
 B
 *REFERENCE
 29.ESP.06, Rev. 4, Step 1.9, Caution
 Direct/New/Modified: New
 Tier/Group: 3/
 SRO/RO/Both Level: SRO
 Level of Difficulty (1 - 5): 3
 Memory

*QNUM 098
*KA 2.4.6

*ANSWER

c.

*REFERENCE

ST-OP-802-3003-001; 1999

NRC exam question

Direct/New/Modified: Modified

Tier/Group: 3/

SRO/RO/Both Level: SRO

Level of Difficulty (1 - 5): 3

Memory

*QNUM 099
*KA 2.4.22

*ANSWER

A.

*REFERENCE

ST-OP-802-3004-001, Rev.2

Direct/New/Modified: New

Tier/Group: 3/

SRO/RO/Both Level: S

Level of Difficulty (1 - 5): 2

Memory

*QNUM 100
*KA 2.4.42

*ANSWER

C

*REFERENCE

EP-110, Rev.10; 301-01,

Rev.13; 303-01, Rev.9

Direct/New/Modified: New

Tier/Group: 3/

SRO/RO/Both Level: S

Level of Difficulty (1 - 5): 3

Comprehension-Analysis

(***** END OF EXAMINATION *****)

ANSWER KEY				
001 c	021 a <i>C. J. Depina 6-7-03</i>	041 b	061 c	081 d
002 d	022 b	042 a	062 b	082 c
003 a	023 b	043 b	063 d	083 d
004 b	024 a	044 b	064 c	084 d
005 a	025 b	045 c	065 b	085 a
006 c	026 b	046 b	066 c	086 c
007 b	027 d	047 d	067 b	087 d
008 b	028 c	048 c	068 d	088 d
009 c	029 b	049 b	069 c	089 d
010 d	030 b	050 a	070 d	090 d
011 d	031 c	051 b	071 b	091 b
012 b	032 d	052 d	072 d	092 b
013 b	033 b	053 c	073 d	093 d
014 d	034 a	054 a	074 b	094 d
015 a	035 d	055 c	075 b	095 a
016 c	036 a	056 a	076 c	096 b
017 c	037 a	057 d	077 a	097 b
018 a	038 a	058 d	078 d	098 c
019 d	039 c	059 a	079 b	099 a
020 d	040 c	060 d	080 b	100 c

(***** END OF EXAMINATION *****)