

U.S. Nuclear Regulatory Commission

Site-Specific RO Written Examination

Applicant Information

Name:

Date: December 9, 2004

Facility/Unit: Perry U1

Region: III

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. To pass the examination, you must achieve a final grade of at least 80.00 percent. Examination papers will be collected 6 hours after the examination begins.

Applicant Certification

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

Applicant's Signature

Results

Examination Value _____ 72 _____ Points

Applicant's Score _____ Points

Applicant's Grade _____ Percent

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 an overall grade of 80.00 percent or greater, with 70.00 percent or greater on the SRO-only items, if applicable. If you only take the SRO portion of the exam (as a retake or with an upgrade waiver of the RO exam), you must achieve an overall grade of 80.00 percent or better to pass. SRO-upgrade applicants who do take the RO portion of the exam and score below 80.00 percent on that part of the exam can still pass overall, but may require remediation. 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 6 hours for the RO exam; 3 hours for the 25-question, SRO-only exam; 8 hours for the combined RO/SRO exam; and 4 hours for the SRO exam limited to fuel handling. Notify the proctor if you need more time.
4. You may bring pens, pencils, and calculators into the examination room; however, programmable memories must be erased. Use black ink to ensure legible copies; dark pencil should be used only if necessary 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, and do not leave any question blank. Use only the paper provided. If you are using ink and decide to change your original answer, draw a single line through the error, enter the desired answer, and initial the change. If you are recording your answers on a machine-gradable form that offers more than four answer choices (e.g., "a" through "e"), be careful to mark the correct column.
7. If you have any questions concerning the intent or the initial conditions of a question, do *not* hesitate to ask them before answering the question. Note that questions asked during the examination are taken into consideration during the grading process and when reviewing applicant appeals. Ask questions of the NRC examiner or the designated facility instructor *only*. A dictionary is available if you need it. 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. Similarly, you should assume that no operator actions have been taken, unless the stem of the question or the answer choices specifically state otherwise. 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, assemble a package that includes the examination cover sheet and your answer sheets and give it 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 materials at your desk.
10. After turning 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

During the up-shift of Reactor Recirculation Pumps to fast speed, the "A" pump was successfully shifted to fast speed. However, during the up-shift of the "B" pump, Breaker "5B" did not close and Breaker 1B tripped open. You observe the following plant conditions:

- Reactor Power: 34% RTP and stable
- Core Flow: 38 Mlb/hr
- Core Plate d/p : 1.8 psid
- Reactor Recirc Pump "A" is in Fast Speed with it's FCV at 9% VALVE TRAVEL
- Reactor Recirc Pump "B" is Off with it's FCV at 9% VALVE TRAVEL

As the Operator at the Controls, which of the following actions would be correct?

- a. Downshift the "A" Recirc Pump to slow speed.
- b. Close the "A" Flow Control Valve to minimum.
- c. Close the Suction Valve for Recirc Pump B.
- d. Open the "B" Flow Control Valve to 100%.

QUESTION 002

Given the following initial plant conditions:

- Mode 3 with a plant cooldown in progress following an extended high power run.
- RHR loop "B" is in Shutdown Cooling (SDC) mode
- Coolant temperature is 335°F
- RPV pressure is 110 psig

Select the statement that describes the effect on the SDC Suction Isolation Inboard and Outboard Valves (1E12-F009 and 1E12-F008) if Bus EH12 (4.16 KV) trips.

- a. 1E12-F008 and 1E12-F009 will shut.
- b. 1E12-F008 and 1E12-F009 will NOT shut.
- c. 1E12-F008 will shut, 1E12-F009 will NOT shut.
- d. 1E12-F008 will NOT shut, 1E12-F009 will shut.

QUESTION 003

Non-Class 1E Battery 1B is supplying the System B 125V DC Bus (D1B), due to a lock-out on 480V AC MCC F1B08. Which of the following actions may be performed to extend the life of Battery 1B?

- a. Cross-tie the Unit 2 System A Battery to System B 125V DC Bus (D1B)
- b. Connect the Non-Class 1E System B Reserve Battery Charger to System B 125V DC Bus (D1B)
- c. Direct RSE to shutdown selected equipment in the TSC and computer room.
- d. Open the supply breakers to the Main Turbine, RFPT, and MFP emergency lube oil pumps.

QUESTION 004

Choose the FIRST Reactor Protection System (RPS) trip that will occur as a result of Main Turbine trip on high vibration.

- a. RPV High Pressure
- b. Turbine Stop Valve Closure
- c. APRM Neutron Flux High (directly)
- d. Turbine Control Valve Fast Closure

QUESTION 005

Which of the following Control Rod Drive Mechanism design features permit the pressure in the RPV to complete a SCRAM insertion if the associated accumulator pressure is inadequate?

- a. The repositioning of a ball check valve within the main drive flange insert port.
- b. The difference in surface area between the top and bottom of the drive piston.
- c. The collet fingers being spread apart when driven up against the guide cap.
- d. The closure of the buffer orifices by the upward movement of the buffer piston.

QUESTION 006

The Main Control Room has been evacuated. A manual scram was initiated, but there was not enough time to verify reactor power or control rod status. You have been directed to use SPDS to determine Reactor Power. Which of the following is a VALIDATED indication of Reactor Power on SPDS?

- a. A GREEN '0' displayed within a CYAN box
- b. A GREEN '0' displayed within a YELLOW box
- c. A WHITE '0' displayed within a CYAN box
- d. A WHITE '0' displayed within a YELLOW box

QUESTION 007 (Deleted from the RO Exam)

The plant was operating at 93% reactor power when Nuclear Closed Cooling (NCC) Drywell Supply Outboard Isolation Valve, 1P43-F355, was declared INOPERABLE. The valve must be closed within 8 hours (per Technical Specifications). Which of the following describes the impact on plant operation?

- a. The plant must be shutdown to Mode 3 with recirculation pumps running.
- b. The plant must be shutdown to Mode 4 with recirculation pumps running.
- c. No impact on plant operations. Full power operation may continue.
- d. Operation may continue, but at reduced power until the valve can be repaired.

QUESTION 008

Unit 1 Instrument Air (IA) compressor is operating in Manual/Modulate and Unit 2 Service Air (SA) compressor is red tagged for maintenance. The remaining SA and IA compressors are in standby (Auto - On/Off) in their normal electrical lineup. During transfer of Bus L-12 from the Auxiliary to the Start Up Transformer, the bus failed to transfer causing the L-12 and H-12 buses to become de-energized. Which one of the following is the expected response of the SA and IA Systems?

- a. The SA/IA system is unaffected by a loss of L-12.
- b. Unit 1 IA will be unaffected by the bus loss. The Unit 1 SA Compressor will trip. SA pressure will be lost.
- c. The Unit 1 IA compressor will trip. The Unit 1 Service Air compressor will maintain SA and IA Receiver pressure between 88 - 101 psig.
- d. The Unit 2 IA compressor will auto start when IA Receiver pressure is 88 psig and will maintain IA Receiver pressure between 88 - 101 psig. SA will be unaffected.

QUESTION 009

Given the following initial plant conditions:

- The plant is in Operational Condition 4, twenty-four hours after shutdown, following an extended full power run.
- Residual Heat Removal (RHR) Loop B is operating in the Shutdown Cooling Mode.
- Reactor Coolant Temperature is 135°F on a very slow downward trend.
- Reactor Recirculation Pump A is in operation.
- Reactor water level is being maintained 200 to 220 inches on Shutdown Range indicator
- MSIVs and MSL Drains are shut.

Which of the following describes the expected Reactor Coolant Temperature response if Reactor Recirculation Pump A trips? Assume no operator action is taken.

- a. Decrease until equilibrium is reached in the RHR heat exchanger.
- b. Decrease until Reactor Coolant Temperature is equal to Emergency Service Water temperature.
- c. Increase until bulk boiling occurs, with reactor pressure steady at atmospheric pressure.
- d. Increase until bulk boiling occurs, and reactor pressure increases above atmospheric pressure.

QUESTION 010

During refueling operations, a fuel bundle is being lifted from the core for movement to the spent fuel pool, the following events occur:

- Containment Ventilation exhaust radiation monitors alarm.
- Bubbles are observed coming from the bundle being moved.

Select the statement that correctly describes the IMMEDIATE ACTIONS to be performed:

- a. Immediately stop all fuel movement, evacuate all personnel from the Refuel Floor, and suspend all Core Alterations.
- b. Immediately stop all fuel movement, evacuate unnecessary personnel from the Refuel Floor, and suspend all Core Alterations.
- c. Place the bundle in a safe condition, evacuate unnecessary personnel from the Refuel Floor, and suspend all Core Alterations.
- d. Place the bundle in a safe condition, evacuate all personnel from the Refuel Floor, and suspend all Core Alterations.

QUESTION 011

The SUPR POOL MAKE-UP LOGIC switch is in AUTO. Select the condition that will result in the IMMEDIATE actuation of the Suppression Pool Makeup System.

SPMU Manual Initiation pushbutton armed and depressed AND . . .

- a. Suppression Pool Temperature 110°F.
- b. Reactor Water Level is equal to 100 inches.
- c. Drywell Pressure is 2 psig.
- d. Suppression Pool Water Level equals 16 ft.

QUESTION 012

Entry into PEI-B13, RPV CONTROL(Non-ATWS), is required under which ONE of the following conditions:

- a. Reactor vessel pressure 849 psig in Mode 1.
- b. Safety Relief Valve Lo-Lo-Set logic is activated.
- c. RX PRESSURE HI annunciator illuminated.
- d. EHC System LOAD LIMIT LIMITING lamp is illuminated.

QUESTION 013

Suppression Pool Temperature, as monitored by instrumentation of the Containment Atmosphere Monitor System (CAMS), is displayed on two meters on Main Control Panel ECCS Benchboard H13-P601. Select the ONE statement below that correctly describes the indication provided by these meters.

- a. Each meter on H13-P601 indicates the average of the associated divisional Suppression Pool temperature points that are monitored by respective CAMS recorder on Panel H13-P883.
- b. Panel H13-P883 contains the temperature recorders that automatically plot all the Suppression Pool temperature points that are monitored by CAMS, the P601 meters display the same point that is being plotted by the recorder.
- c. The operator selects the point that is monitored on P601 by selecting the desired temperature point using switches on P883. Detection of a high temperature at any point in the Suppression Pool has no effect on the point displayed.
- d. The operator selects the point that is monitored on P601 by positioning the selector switches on P883. If any of the points monitored by the recorder detects a high temperature condition, the meter will automatically display the high temperature point.

QUESTION 014

Following a DBA LOCA (assume all systems operated as designed), which one of the following modes of RHR operation has the most significant long term impact on maintaining the Containment integrity?

- a. Low Pressure Coolant Injection Mode
- b. Shutdown Cooling Mode
- c. Containment Spray Mode
- d. Suppression Pool Cooling Mode

QUESTION 015

Which one of the following is a reason why Drywell Temperature is monitored and controlled by PEI-T23, Containment Control?

- a. Maintain Drywell Temperature below the Technical Specification LCO limit.
- b. Prevent exceeding the equipment environmental qualification temperatures.
- c. Ensure NPSH limits for ECCS pumps are not exceeded.
- d. Verify proper operation of the Drywell Hydrogen Igniters.

QUESTION 016

Given the following initial conditions:

- An MSIV Isolation occurred due to a failure to place the Reactor Mode Switch in SHUTDOWN after manually scrambling the reactor.
- Reactor pressure is being maintained 800 to 1000 psig using RCIC and SRVs.
- Reactor water level is being maintained between 185 and 215 inches with RCIC.
- Both loops of RHR are in Suppression Pool Cooling
- Suppression Pool Temperature is 110°F and increasing slowly
- Suppression Pool Level is 18.0 ft and decreasing slowly due to an unisolable leak.

Which one of the following actions will be most effective in limiting the challenge to the Containment?

- a. Shutdown RCIC, use HPCS to control RPV level, and use SRVs to control reactor pressure within a band of 600 to 800 psig.
- b. Continue to use RCIC and SRVs to control reactor pressure and change the pressure control band to 600 to 1000 psig.
- c. Shutdown RCIC, use the MFP to control RPV level, reset the MSIV Isolation and use Bypass Valves to control reactor pressure in a band of 600 to 800 psig.
- d. Continue to use RCIC to control RPV level, reset the MSIV Isolation and use Main Steam Line Drains to control reactor pressure in a band of 600 to 1000 psig.

QUESTION 017

Given the following conditions:

- The plant was initially operating at 100% power.
- The High Pressure Core Spray (HPCS) System automatically initiated on a high drywell pressure signal.
- Manual closure of the HPCS injection valve, E22-F004, was initiated as soon as the valve was full open.
- A reactor scram and trip of both Turbine Driven Reactor Feed Pumps occurred when RPV Level 8 was reached due to sluggish response of the Feed Water Level Control System.

Which ONE of the following describes the response of the HPCS injection valve, E22-F004, when RPV Level 2 is reached? Assume the high drywell pressure signal is still present.

E22-F004 will . . .

- a. automatically open.
- b. remain closed until manually re-opened using it's respective control switch.
- c. remain closed until the Rx Wtr Lvl High Seal-In Reset Push Button is depressed. E22-F004 will then automatically re-open.
- d. only open after the Rx Wtr Lvl High Seal-In Reset Push Button is depressed AND the E22-F004 control switch is placed in OPEN.

QUESTION 018

An ATWS has occurred at power. The scram signal has not been reset and the scram valves are open. You are directed to attempt to drive control rods per PEI-SPI 1.3, Manual Rod Insertion. Which ONE of the following statements correctly describes a required action to establish Drive Water Differential Pressure?

- a. Open CRD Drive Pressure Control Valve C11-F003
- b. Shut CRD Flow Control Valve C11-F002A or C11-F002B
- c. Open CRD Flow Control Valve C11-F002A or C11-F002B
- d. Open CRD Pump Suction Filter Bypass Valves 1C11-F116 and 1C11-F117

QUESTION 019

Select the Radiation Monitor sub-system that will cause an automatic isolation when excess radioactivity is detected, but does NOT cause the isolation to prevent a radioactive release to the public.

- a. Drywell Atmosphere Radiation Monitor
- b. Containment Ventilation Exhaust Radiation Monitor
- c. Control Room Airborne Radiation Monitor
- d. Off Gas Post-Treatment Radiation Monitor

QUESTION 020

Which one of the following fire protection systems would automatically initiate in the event of an oil fire in the Main turbine Lube Oil Storage Room?

- a. Pre-action system
- b. Deluge System
- c. Foam System
- d. CO₂ System

QUESTION 021

Given the following plant conditions:

- RPV temperature 485°F
- RPV pressure 600 psig
- Drywell temperature 300°F
- Drywell pressure 20 psig
- Containment temp 135°F
- Containment pressure 2 psig

Which of the following may be used to determine that water level is above the Top of Active Fuel (TAF) without relying on the Minimum Indicated Level curves?

- a. Fuel Zone
- b. Wide Range
- c. Upset Range
- d. Shutdown Range

QUESTION 022

Select the statement below that describes the response of the Drywell Equipment Drain Sump Pumps to a high Drywell pressure.

The pumps trip . . .

- a. when the sump pump-out timer times out.
- b. directly from a signal from the high Drywell pressure trip logic.
- c. as soon as the associated Drywell/Containment Isolation Valves leave their open seats.
- d. on high discharge pressure (after a short time delay) when the associated Drywell/Containment Isolation Valves close.

QUESTION 023

Given the following plant conditions:

- An ATWS has occurred.
- Reactor power is steady at 23%.
- The Main Turbine has tripped.
- Several control rods are stuck out at various positions.
- The Unit Supervisor directs you to insert control rods using PEI-SPI, Section 1.

Why is it necessary to bypass the Low Power Setpoint?

- a. To bypass the two notch limit, allowing continuous insertion of control rods.
- b. To bypass the four notch limit, allowing continuous insertion of control rods.
- c. To bypass the rod pattern restraints that will be in effect when power decreases to the LPSP because of rod insertion.
- d. To bypass the rod pattern restraints that are in effect because power is being sensed below the LPSP.

QUESTION 024

SOI-C71, RPS Power Supply Distribution, has a requirement to shutdown the Containment Vessel and Drywell Purge System (M14), prior to transferring RPS Bus A between the RPS MG Set 'A' and the Alternate Supply, to prevent an inadvertent isolation of the system. Select the statement below that describes why an isolation would occur during the transfer.

Loss of power to . . .

- a. Containment Vent Exhaust Plenum Radiation Monitors A and C
- b. Containment Vent Exhaust Plenum Radiation Monitors A and D
- c. Inboard BOP Isolation Logic
- d. Outboard BOP Isolation Logic

QUESTION 025

The Maximum Safe Operating Area Temperatures listed in PEI-N11, Containment Leakage Control, are based on:

- a. ensuring that instrumentation needed for safe shutdown is not damaged due to overheating.
- b. ensuring that instrumentation needed for safe shutdown is not damaged by high humidity.
- c. maintaining personnel accessibility to equipment needed for safe operation of the plant.
- d. maintaining an oxygen sufficient environment so that emergency personnel will not need to utilize SCBAs.

QUESTION 026

The Primary Containment must be vented due to inability to maintain Primary Containment pressure below PCL. Select the Primary Containment vent path, from the list below, that has the greatest radiological consequences to the surrounding secondary containment areas.

- a. Main Steam Lines
- b. RHR A Containment Spray
- c. RHR B Containment Spray
- d. Fuel Pool Cooling and Cleanup

QUESTION 027

A LOCA has occurred resulting in significant Hydrogen generation. One division of Hydrogen Igniters is in operation and one Combustible Gas Mixing Compressor is operating. Both Hydrogen Recombiners are shutdown due to Hydrogen concentration exceeding 6% in containment. Hydrogen concentration is continuing to increase. Which one of the following statements best explains why Hydrogen concentration is continuing to increase?

- a. Hydrogen generation has exceeded the operational capability of the one division of Hydrogen Igniters that are in service.
- b. A continuing increase in hydrogen concentration is indicative of a steam inert or Oxygen starved environment.
- c. Hydrogen concentration will continue to increase until the Hydrogen Igniters reach their operating temperature which can take several hours.
- d. The indicated increase must be due to a malfunction of the Hydrogen Analyzer since actual concentration cannot exceed 6% as long as the Hydrogen Igniters are in operation.

QUESTION 028

Given the following:

- The plant is in Shutdown Cooling using RHR A and RHR B.
- Fuel offload from the vessel is being conducted.

While doing an independent verification of RHR System conditions, you discover RHR A flow to be 685 gpm and RHR B flow to be 4000 gpm because of throttling to minimize water disturbances for the fuel handlers. Neither RHR Pump's minimum flow valve is open. Under these conditions you should:

- a. continue with your verification, these flows are acceptable.
- b. IMMEDIATELY secure RHR A pump. The minimum flow valve should have opened.
- c. open the RHR Hx A outlet valve further to balance flow. Balanced flow is the most desired condition when operating both RHR loops in Shutdown Cooling.
- d. throttle down on the RHR Hx B bypass valve. This will allow the RHR A pump to pick up more flow. Balanced flow is not required.

QUESTION 029

The Reactor is in shutdown cooling with reactor vessel water level at +220 inches. RHR pump flow is 2000 gpm. Recirculation pumps are off. Recirculation water temperature is 186°F and vessel flange temperature is 181°F. Which of the following is a concern and what corrective action should be taken?

- a. A transition to HOT SHUTDOWN has occurred (Mode Change). The containment and related tech spec systems must be restored to operable condition within 1 hour.
- b. Thermal stratification will occur in the bottom head with accompanying undetected core heat up and vessel pressurization. Increase shutdown cooling flow or raise RPV water level.
- c. RPV level is too high. The steam separators will impede the formation of natural circulation in the vessel, leading to thermal stratification and a change of operating mode. Lower RPV water level.
- d. The only valid temperature indication is the vessel flange instrumentation making it difficult to assess what is actually happening in the RPV. If available, start a Reactor Recirculation pump in slow speed, otherwise, increase shutdown cooling flow to maximum.

QUESTION 030

The plant was operating at 100% power when a loss of offsite power occurred, causing a reactor scram. Emergency Diesel Generator A started and all loads successfully sequenced onto the EDG. Which of the following loads, if tripped under these conditions, would have the greatest effect on the EDG?

- a. RHR Pump A
- b. LPCS Pump
- c. NCC Pump A
- d. Emergency Service Water Pump A

QUESTION 031

The plant was operating at 100% power conducting a full-flow test surveillance on the Low Pressure Core Spray System (LPCS). Three minutes after the Low Pressure Core Spray (LPCS) pump started, the LPCS PUMP TRIP OVERCURRENT (H13-P601-21) annunciator energized. How will this affect the LPCS and what actions should be taken to respond to the trip of the LPCS pump?

- a. The full-flow test valve will shut. Attempt to restart the LPCS pump motor. If that fails, enter Technical Specification 3.5.1.
- b. The minimum flow valve will open, depressurizing the system. Enter Technical Specification 3.5.2. Send an operator to vent the system.
- c. The minimum flow valve will open, depressurizing both RHR A and LPCS. Enter Technical Specification 3.5.1. Send an operator to vent both systems.
- d. LPCS will depressurize through the full-flow test valve. Enter Technical Specification 3.5.1. Send maintenance personnel to investigate the trip of the pump.

QUESTION 032

An ATWS has occurred with the following conditions:

- PEI-SPI 5.1, HPCS Injection Prevention, has been performed as required by PEI-B13, RPV Control (ATWS).
- Step 1.1 of PEI-SPI 6.4, HPCS Runout Injection, which places the HPCS LOGIC BYPASS E22-F023 switch in BYPASS, was completed and reported to the Main Control Room.
- Step 1.2, of PEI-SPI 6.4, which defeats the seal-in logic for E22-F004, HPCS Injection Valve, has not been completed.
- The Unit Supervisor, believing that Section 1 of PEI-SPI 6.4 is complete, directs the Balance of Plant Operator to commence HPCS Runout Injection.
- The Balance of Plant Operator then throttles E22-F023, HPCS Test Valve to Suppression Pool, to obtain a flow rate of 4800-5000 gpm as required by PEI-SPI 6.4.

When the Balance of Plant Operator takes the E22-F004 valve control switch to OPEN and then releases, the E22-F004 valve will stroke . . .

- a. off its closed seat and stop; E22-F023 will stroke shut; and the HPCS pump will be running on minimum flow.
- b. off its closed seat and stop; E22-F023 will remain as is; and the HPCS pump flow will be 4800-5000 gpm to the Suppression Pool.
- c. full open; E22-F023 will stroke shut; and the HPCS pump will inject into the RPV at 4800-5000gpm.
- d. full open; E22-F023 will remain as is; and the HPCS pump will be running in a runout condition.

QUESTION 033

To ensure the boron remains in solution, the Standby Liquid Control (SLC) suction pipe is heated. The temperature is measured every 24 hours per Technical Specification 3.1.7.3. What is the minimum required temperature to ensure SLC operability in Modes 1 and 2?

- a. 65°F.
- b. 70°F.
- c. 75°F.
- d. 80°F.

QUESTION 034 (DELETED FROM THE RO AND SRO EXAM)

The plant was operating at 100% reactor power when the plant experienced an earthquake. A medium break LOCA occurred and RPV Level 2 was reached. All ECCS systems responded correctly. RPV level is currently 180 inches and slowly increasing. The reactor failed to scram and all efforts to manually insert control rods have failed. Standby liquid control has failed to correctly initiate and shut down the reactor (failed SQUIBB valves). The Unit Supervisor has decided to initiate Alternate Boron Injection (ABI) in accordance with PEI-SPI 1.8. What needs to be done in order to successfully initiate Alternate Boron Injection?

- a. Secure HPCS.
- b. Close E22-F004 (HPCS Injection Valve)
- c. Secure both SLC pumps
- d. Connect a low pressure hose from the SLC storage tank to the suction of the ABI pump; start the ABI pump, open the ABI pump discharge valve.

QUESTION 035

Reactor Power is 60% as sensed by turbine 1st stage pressure. While performing Main Turbine Stop valve testing, an operator inadvertently begins testing Turbine Stop valve "C" while Turbine Stop valve "B" is 50% open. Which ONE of the following describes the response of the Reactor Protection System to this event?

- a. Full Reactor Scram.
- b. Half scram on RPS A.
- c. Half scram on RPS B.
- d. Neither full nor half scram is generated.

QUESTION 036

While decreasing reactor power, IRM "A" is indicating 40/125 of scale on range 6. Which one of the following is the result of ranging IRM "A" to range 5?

- a. Initiates a rod select block.
- b. Initiates a half scram.
- c. Initiates a full scram.
- d. No RPS activity, IRM "A" goes to 115/125.

QUESTION 037

With the Reactor Mode Switch in "STARTUP" the "MODE/TEST" switch on IRM channel "D" drawer was inadvertently taken out of "OPERATE." This will result in a:

- a. trip of RPS "B" logic only.
- b. rod withdraw block only.
- c. trip of RPS "B" logic and a rod withdrawal block.
- d. full reactor scram if any other IRM is bypassed.

QUESTION 038

A plant start up is in progress. A control rod block has occurred. Scanning the panels results in the following observations:

- Source Range Monitor (SRM) channel B is reading about 95 counts per seconds (cps).
- All other SRM channels are reading greater than 8×10^4 cps.
- Only SRM detector A is full in.
- Intermediate range (IRM) channel B is on range 2 at 15/125.
- All other IRM channels are on range 3.
- ROD WITHDRAWAL BLOCK annunciator is illuminated.

What has to be done to clear the ROD WITHDRAWAL BLOCK annunciator?

- a. withdraw SRM A.
- b. insert SRM B.
- c. range up on IRM B to range 3.
- d. contact Instrument Maintenance, these plant conditions should not cause a ROD WITHDRAWAL BLOCK.

QUESTION 039

The reactor has been operating near rated power for 200 days. Which one of the following describes the change in the indicated LPRM output signal from day 1 to day 200, the material used to extend LPRM lifetime, and the method used to calibrate the LPRMs?

	INDICATED LPRM POWER	LIFE EXTENDER	METHOD OF LPRM CALIBRATION
a.	Decreases	U^{238}	Core Heat Balance
b.	Decreases	U^{234}	TIP System Trace
c.	Increases	Pu^{238}	Core Heat Balance
d.	Increases	Pu^{239}	TIP System Trace

QUESTION 040

A reactor startup is in progress with the Rx Mode Switch in "STARTUP/STANDBY". The following is the present status of the APRMs versus LPRM inputs, and indicated power:

		APRM									
		A	B	C	D	E	F	G	H		
Level	Inputs:		4	5	4	3	4	4	6	6	D
Level	Inputs:		4	3	3	4	6	2	4	4	C
Level	Inputs:		3	4	4	4	4	4	6	4	B
Level	Inputs:		3	3	3	4	6	4	4	2	A
Indicated Power:		11%	14%	12%	11%	12%	10%	12%	10%		

SELECT the correct RPS response to the above data:

- a. No response
- b. Rod block ONLY
- c. Half scram ONLY
- d. Full scram

QUESTION 041

Which one of the following statements, describe the bases for restricting access to the Annulus during RCIC operation?

- a. To prevent personnel overexposure from –16 gamma shine from the RCIC Turbine Exhaust Line.
- b. To prevent personnel injury and overexposure in the event that the RCIC Exhaust Diaphragm ruptures, releasing contaminated steam into the Annulus.
- c. To prevent personnel injury due to the high differential pressure created from running both AEGTS trains during RCIC operations.
- d. To prevent hearing loss since the Annulus is a high noise area during RCIC operations.

QUESTION 042

The reactor has scrammed from 100% power due to a loss of offsite power. The following conditions exist:

- All emergency diesel generators started and tied to their respective emergency bus.
- All low pressure ECCS pumps are running.
- Reactor pressure is approximately 430 psig.
- The Reactor is shutdown.
- Reactor water level is 186.5 inches, decreasing at 10 inches/min.
- RCIC has isolated.
- HPCS has tripped.
- Drywell pressure is 0.68 psig, increasing at 0.25 psig/min.

Which ONE of the following describes the response of the Automatic Depressurization System (ADS), if plant conditions remain as stated and no operator action is taken?

- a. ADS will NOT automatically initiate, reactor pressure is too low.
- b. ADS will automatically initiate in 5 minutes 35 seconds.
- c. ADS will automatically initiate in 17 minutes.
- d. ADS will automatically initiate in 18 minutes 45 seconds.

QUESTION 043

The plant was operating at 100% reactor power when a small break LOCA occurred inside containment. The Supervising Operator placed the mode switch in SHUTDOWN. Reactor pressure was at 750 psig when drywell pressure reached 1.68 psig and the Nuclear Steam Supply Shutoff System (NS⁴) initiated. You noted the following valve positions from Division II:

Valve	Position
E51-F063, RHR & RCIC Steam Supply Inboard Isolation Valve	Open
E51-F076, RHR & RCIC Steam Supply Inboard Warmup Isolation Valve	Shut
E51-F078, RCIC Exhaust Vacuum Brkr First Isolation Valve	Shut

Which of the following applies to these valves under these conditions:

- All equipment has functioned properly. No actions are required.
- NS⁴ has failed to properly initiate. E51-F063 and E51-F076 should be open.
- NS⁴ does not send any signals to these valves. No actions are required.
- NS⁴ does not send any signals to these valves under these conditions, however, E51-F078 should be open.

QUESTION 044

At the Division 1 Remote Shutdown Panel, the Control Transfer Switch (S10) has been placed in the EMERG position for the SRVs.

At the Division 2 Remote Shutdown Panel, the Transfer and Control Switches for SRVs F051C and F051D have been taken out of the CONTROL ROOM position to the CLOSE position, and the Transfer and Control Switch for F051G is in the CONTROL ROOM position.

A transient causes reactor pressure to rise to 1140 psig.

Which one of the following describes the response of SRVs F051C, D, and G?

- All three of the SRVs will open.
- Only SRVs F051C and D will open.
- Only SRV F051G will open.
- None of the SRVs will open.

QUESTION 045

With the reactor at 100% power, which ONE of the following conditions would be an indication of an open Safety Relief Valve (SRV)? (Assume no other plant problems.)

SRV tailpipe temperature is . . .

- a. dependent upon drywell pressure and would be in a range from 320°F to 547°F.
- b. stable at approximately 547°F.
- c. stable at approximately 345°F
- d. less than or equal to 240°F

QUESTION 046

Given the following conditions:

- Reactor Power 100%.
- RFPT A and B on the Master Level Controller.
- Narrow Range Channel A is selected for input into Feedwater Level Control System.

A Loss of Bus D1B occurs. If no operator action was taken, what would be the impact on RPV level control?

- a. RPV level will rapidly increase due to partial loss of RPV level and feedwater flow signals.
- b. RFPT B speed initially increases then decreases as level error overcomes the flow error signal.
- c. The signal to LOW FLOW REACTOR LEVEL CONTROL, 1C34-R614, fails causing 1N27-F175 to ramp closed if in AUTO.
- d. RPV level will decrease slightly, then increase back to setpoint as RFPT B speed decreases and RFPT A speed increases.

QUESTION 047

An RHR LOCA signal has been received. The Annulus Exhaust Gas Treatment System (AEGTS) has responded correctly. The operator then places the AEGTS Train "B" fan switch to the STOP position, then returns the switch to the STANDBY position. Which ONE of the following describes what you would observe on AEGTS Train "B"?

- a. The fan remains running because the LOCA initiation signal cannot be overridden by the STOP or STANDBY position of the control switch.
- b. The fan stops, the exhaust damper (M15-F080B) modulates shut, the recirculation control damper (M15-F070B) modulates shut, and the fan suction damper M15-F090B) shuts.
- c. The fan stops, M15-F080B opens, M15-F070B shuts and M15-F090B shuts.
- d. The fan stops, M15-F080B and M15-F070B continue to attempt to modulate differential pressure between the annulus and atmosphere. There is no suction isolation damper.

QUESTION 048

Given the following:

- The plant is operating at 47% reactor power.
- 13.8 KV Bus L10 is powered from startup transformer 200-PY-B
- HPCS diesel generator is tagged out of service for maintenance.

Select the ONE statement that describes the expected response of the AC electrical distribution system following a main turbine trip due to a main generator differential current lockout trip and the procedure that provides guidance to mitigate the plant conditions.

- a. The L11 and L12 buses will NOT automatically transfer to the L10 bus, but can be manually transferred. Refer to ONI R22-2, Loss of a Non-Essential 13.8Kv or 4.16Kv Bus.
- b. The L11 and L12 buses will automatically transfer to the L10 bus. Refer to ONI C71-1, Reactor Scram.
- c. The EH13 bus will be de-energized since the HPCS diesel generator is tagged out. Refer to ONI R22-1, Loss of an Essential and/or a Stub 4.16Kv Bus.
- d. Bus L12 will NOT transfer to the L10 bus when the L10 bus is powered from startup transformer 200-PY-B. Refer to ONI R22-2, Loss of a Non-Essential 13.8Kv or 4.16Kv Bus.

QUESTION 049

Select the condition that will cause the static transfer switch in the Plant Vital Balance of Plant uninterruptible power supply (BOP-UPS) system to automatically shift.

- a. Low voltage sensed at the output of the BOP-UPS inverter will transfer the BOP-UPS to a bypass transformer powered from bus EF-1-D.
- b. High voltage sensed at the output of the BOP-UPS inverter will transfer the BOP-UPS to regulating transformer FB-1-R.
- c. A failure of battery 1A's normal and reserve battery chargers for more than 15 minutes will transfer the BOP-UPS to regulating transformer FB-1-R.
- d. A ground fault sensed on the BOP-UPS bus V-1-A will transfer the BOP-UPS to a bypass transformer powered from bus EF-1-D.

QUESTION 050

The battery charger for Bus ED-1-C has been placed in service. The battery voltmeter on Bus ED-1-C is reading 140 VDC. What action(s) should the operator take in this situation?

- a. Do nothing, this voltage is acceptable.
- b. Adjust voltages using the FLOAT potentiometer on the in-service battery charger to set voltages within the required range.
- c. Adjust voltages using the EQUALIZE potentiometer on the in-service battery charger to set voltages within the required range.
- d. Verify that the battery volts, as read from the DIV 3 BATT VOLTS meter on 1H13-P601, read between 143 and 145.5 VDC and request an independent verification of the required components.

QUESTION 051

On a loss of power to a Class-1E bus, an emergency diesel generator (EDG) automatically starts and connects to the bus. Loads are then sequenced on the vital bus by a load sequencer. What is the purpose of load sequencing?

Loads are sequenced to ensure . . .

- a. the equipment needed most will be started first.
- b. support equipment is started before major equipment loads are started.
- c. operators have time to adjust KVARs on the EDG before circulating currents cause the EDG output breaker to trip.
- d. counter electro-motive force is established in started loads and the EDG has stabilized before succeeding loads are applied.

QUESTION 052

The following plant conditions exist:

- The Reactor is operating at 100% power
- The Unit 1 Service Air Compressor is the Lead compressor
- All other air compressors are in Standby
- All plant equipment is in a normal lineup for full power

Which one of the following describes the Service and Instrument Air system valve lineup following an inadvertent Division 1 RHR initiation signal?

- | | | |
|-------------------------------------|--------------------------------|------|
| SA SUPPLY HDR CNTMT ISOL, 1P51-F150 | INST AIR CNTMT ISOL, 1P52-F200 | INST |
| AIR DRYWELL ISOL, 1P52-F646 | | |
| a. OPEN CLOSED CLOSED | | |
| b. CLOSED OPEN OPEN | | |
| c. OPEN OPEN CLOSED | | |
| d. CLOSED CLOSED OPEN | | |

QUESTION 053

The plant was operating at 100% power when a Loss of Offsite Power (LOOP) occurred. How does this affect the Control Complex Chilled Water System?

- a. The CCCW non-safety related cooling coils isolate.
- b. The CCCW chillers will not restart until off-site power is restored.
- c. The CCCW chillers will automatically start when an EDG re-energizes their power supply.
- d. Cooling for the CCCW chillers transfers from Nuclear Closed Cooling to Emergency Closed Cooling.

QUESTION 054

Select the statement below that correctly describes the response of the CRDH Flow Control Valve and the Control Room CRD System Flow indication when a reactor scram occurs.

Water flow is diverted to the charging water header causing a sensed . . .

- a. low flow condition and the Flow Control Valve will open. Indicated system flow will be off scale high.
- b. low flow condition and the Flow Control Valve will throttle open to maintain cooling water flow. Indicated system flow will be approximately 60 gpm.
- c. high flow condition and the Flow Control Valve will close. Indicated system flow will equal the Flow Control Valve design minimum flow of approximately 5 gpm.
- d. high flow condition and the Flow Control Valve will close. Indicated system flow will be off-scale high.

QUESTION 055

While attempting to insert a control rod, the operator depresses the INSERT pushbutton and observes the following:

- No rod motion
- CRD DRIVE WATER HEADER FLOW at 0 gpm
- CRD COOLING WATER FLOW at 60 gpm

Which ONE of the following is the possible cause of these indications?

- a. CRD Flow Control Valve failed closed.
- b. Associated drive water stabilizing valves failed closed.
- c. Associated Insert Exhaust Directional Control Valve (DCV 121) failed closed.
- d. Associated Insert Drive Directional Control Valve (DCV 123) failed closed.

QUESTION 056

Which one of the following statements best describes the bases for the End of Cycle Recirculation Pump Trip (EOC-RPT) function?

To counter-balance the positive reactivity added due to the pressurization transient caused by a . . .

- a. trip of closure of the Main Steam Isolation Valves.
- b. trip of the Main Turbine.
- c. failure of the Bypass Valves to open on a turbine trip.
- d. failure of Safety Relief Valves when demanded.

QUESTION 057

The RPV Reference Leg Purge system for the 'B' RPV level instruments has been out of service for an extended period of time when a plant transient results in a reactor scram and rapid depressurization of the RPV. How will 'B' RPV level INDICATIONS be affected?

Indicated level may read . . .

- a. LOWER than actual due to a decrease in the sensed differential pressure between the reference and variable legs.
- b. HIGHER than actual due to a decrease in the sensed differential pressure between the reference and variable legs.
- c. LOWER than actual due to an increase in the sensed differential pressure between the reference and variable legs.
- d. HIGHER than actual due to an increase in the sensed differential pressure between the reference and variable legs.

QUESTION 058

A Main Steam line break (18 minutes ago) has resulted in the following plant conditions:

- Drywell pressure is 4.0 psig and decreasing slowly.
- Suppression Pool Temperature is 150°F
- RPV water level is being maintained at the Main Steam lines with LPCS due to exceeding RPV Saturation Temperature in the Drywell.
- RHR B is operating in the Suppression Pool Cooling mode.
- RHR A is operating in the Containment Spray mode.
- Containment pressure is approaching 0 psig.

You have been directed to secure Containment Spray. While shutting the Containment Spray Shutoff Valve (F028A) you observe that the Minimum Flow Valve (F064A) did NOT open. You should . . .

- a. Reopen the Containment Spray Shutoff Valve (F028A)
- b. Open the LPCI A Injection Valve (F042A)
- c. Open the RHR A Test Valve to Supp Pool (F024A)
- d. Shutdown RHR Pump A

QUESTION 059

Refueling operations are in progress and the Inclined Fuel Transfer System (IFTS) is in operation.

Which one of the following describes the expected impact on the Refueling operations, if the Fuel Transfer Tube Drain Pump fails? (Assume the standby pump is not available.)

- a. IFTS operation must be terminated to prevent overflow of the Fuel Transfer Tube Drain Tank, trip of the Fuel Pool Circulating Pump (due to low-low level in the FPCC Surge Tank), and the subsequent loss of inventory from the Upper Containment Pool.
- b. IFTS operation may continue provided that FPCC Surge Tank level is manually maintained above the low-low level setpoint with makeup water from the Condensate Transfer and Storage System.
- c. All fuel handling activities must be terminated due to the inability to provide makeup from the Fuel Transfer Tube Drain Tank to the FPCC Surge Tank and thus to the Upper Containment Pool.
- d. All fuel handling activities may continue, but at a reduced pace, by opening the Fuel Transfer Tube Pump bypass line and using gravity to drain from the Transfer Tube Drain Tank to the FPCC Surge Tank.

QUESTION 060

The plant is initially operating steady state at 75% RTP. If one(1) MSIV drifts closed, reactor power will _____ (1) _____ due to _____ (2) _____ .

- a. (1) drop to approximately 0%
(2) a reactor scram caused by a high steam flow Group 1 isolation.
- b. (1) decrease to approximately 60% RTP
(2) the loss of steam flow from the associated Main Steam line.
- c. (1) increase to approximately 90% RTP
(2) the increased differential pressure need to push the same amount of steam through three steam lines.
- d. (1) remain the same
(2) the response of the Steam Bypass/Pressure Control system to maintain a constant reactor pressure.

QUESTION 061

Given the following initial conditions in the Steam Bypass and Turbine Control system:

- Reactor Power 100% RTP
- Reactor Pressure 1030 psig
- Press Setpoint 940 psig
- Load Set 110%
- Load Limit 105%
- Max Combined Flow 130%

A loss of Feed Water Heating causes Reactor Power to increase to 110% RTP. Select the statement below that describes the response of the Steam Bypass and Turbine Control system.

- a. Turbine Load will remain constant; two Bypass valve will be open.
- b. Turbine Load will increase to 105%; two Bypass Valve will be open.
- c. Turbine Load will increase to 110%; one Bypass Valve will be open
- d. Turbine Load will increase to 110%; Bypass Valves will be Closed.

QUESTION 062

Which one of the following Main Turbine Lube Oil System pumps will be the first to automatically start as the bearing header pressure decreases from normal operating pressure? Assume all control switches are in AUTO.

- a. Shaft Lift Oil Pump
- b. Motor Suction Pump
- c. Turning Gear Oil Pump
- d. Emergency Bearing Oil Pump

QUESTION 063

Which of the following leak detection monitoring systems are required to be operable in accordance with the Technical Specification for RCS Leakage Detection Instrumentation?

- a. Drywell Floor Drain Sump and Drywell Air Cooler Condensate Flow Rate.
- b. Drywell Floor Drain Sump and Containment Floor Drain Sump.
- c. Drywell Equipment Drain Sump and Drywell Air Cooler Condensate Flow Rate.
- d. Drywell Equipment Drain Sump and Containment Equipment Drain Sump.

QUESTION 064

The plant is operating at 100% RTP. The outside ambient air temperature is 10°F. A failure of the Auxiliary Building Ventilation System supply air temperature controller has resulted in a trip of the Auxiliary Building Ventilation Supply Fan. Select the statement below that describes the impact that this malfunction will have on plant operation.

- a. To prevent freezing of the cooling coils for the Steam Tunnel Cooling System, the coils will have to be drained.
- b. Elevated temperatures in the RWCU Pump Rooms and Main Steam Tunnel may lead to system outages and/or plant shutdown to prevent automatic system isolations.
- c. The plant will have to be shutdown due to inability to maintain room air temperatures above the minimum required to ensure operability of the ECCS components.
- d. The plant will have to be shutdown due to inability to maintain room air temperatures below the maximum required to ensure operability of the ECCS components.

QUESTION 065

Given the following:

- The plant is in Mode 5 with refueling operations in progress.
- The refuel position one-rod-out interlock surveillance was last completed satisfactory at 0800.
- Then, when performed again at 2130 by operations, the one-rod-out interlock surveillance failed.

WHAT actions are required in accordance with PNPP Technical Specifications?

- a. Immediately suspend loading of irradiated fuel into the RPV; initiate action to restore Secondary Containment to operable.
- b. Immediately suspend in-vessel fuel movement with equipment associated with the inoperable interlock and insert all insertable control rods.
- c. Immediately suspend control rod withdrawal and initiate actions to fully insert all insertable control rods in cells containing one or more fuel assemblies.
- d. Immediately initiate action to insert all insertable control rods and place the mode switch in the SHUTDOWN position in 1 hour.

QUESTION 066

Assume that you receive your license on March 1, 2005, but because of vacation and required training you do not start standing watches (RO or SRO as applicable) until Monday March 28, 2005 and are scheduled to stand watch through Sunday April 3, 2005. Your shifts are scheduled for eight hours each day. Select the statement below that describes your license status on April 1, 2005.

- a. Your license is considered active and you can assume the watch on April 1, 2005. If you stand watches through Sunday, you will not need to stand any more watches until the July-September quarter to maintain proficiency.
- b. Your license is considered active and you can assume the watch on April 1, 2005. If you stand watches through Sunday, you will need to stand at least four additional watches before July 1, 2005 to maintain proficiency.
- c. Your license will be considered inactive and you cannot assume the watch on April 1, 2005. You must complete a minimum of 40 hours of shift functions, under the direction of a licensed RO or SRO as applicable, in the position to which you are assigned in order to regain active status.
- d. Your license will be considered inactive and you cannot assume the watch on April 1, 2005. You may regain active status by completing your Friday through Sunday shifts, under the direction of a licensed RO or SRO as applicable, in the position to which you are assigned.

QUESTION 067

The plant is in Mode 1. The Division 1 ESW (Emergency Service Water) subsystem has been declared inoperable due to failure of the Division 1 ESW pump to produce the flow needed to satisfy In-service Testing requirements (5550 gpm). All other ESW equipment is operable. Select the Division 1 system/subsystem/ component that must be declared INOPERABLE and placed in a secure status.

- a. Emergency Diesel Generator
- b. Emergency Closed Cooling Water
- c. RHR – Suppression Pool Cooling Mode
- d. Fuel Pool Cooling & Cleanup Level Control

QUESTION 068

Select the statement below that describes an event that results in the violation of a safety limit.

- a. The reactor is at 25% power when the main turbine trips and bypass valves fail to open. The reactor scrams on high reactor pressure. Reactor pressure drops to 700 psig due to subsequent cold water addition from feedwater and the lack of decay heat.
- b. The reactor is at 55% power when a pressure regulator failure causes the bypass valves to fully open. Reactor pressure drops to 700 psig before the MSIVs automatically close and the reactor scrams. Reactor power is 42% when the MSIVs close. Level is restored to normal band with RCIC.
- c. The reactor is at 25% power when the only operating RFPT trips. The reactor scrams on low level. HPCS and RCIC receive an initiation signal, but HPCS fails to start. Reactor water level drops to 20 inches before RCIC is able to turn and restore level. Reactor pressure drops to 700 psig with the subsequent injection.
- d. The reactor is at 55% power when both reactor recirculation pumps trip. Reactor vessel level increases to 219.5 inches. The reactor fails to automatically scram, but all control rods insert when a manual scram is inserted. Level is restored to normal band using the Feedwater System.

QUESTION 069

Under certain conditions, rated thermal power (RTP) is required to be less than 23.8%.

1) What are the conditions when this limit is applicable and, 2) what is the basis for the limit?

- a. 1) Reactor pressure < 785 psig OR < 10% core flow;
2) Full scale ATLAS test data indicates that damage would not occur unless thermal power was >47.6% RTP for these conditions.
- b. 1) Reactor pressure < 785 psig AND < 10% core flow
2) Full scale ATLAS test data indicates that damage would not occur unless thermal power was >47.6% RTP for these conditions.
- c. 1) MCPR < 1.10 OR < 10% core flow;
2) GE critical power correlations indicate that onset of transition boiling would not occur unless thermal power was >28.3% RTP for these conditions.
- d. 1) MCPR < 1.10 AND < 10% core flow
2) GE critical power correlations indicate that onset of transition boiling would not occur unless thermal power was >28.3% RTP for these conditions.

QUESTION 070

Which one of the following types of survey instruments is typically used to monitor radiation dose rates?

- a. Geiger-Mueller Detector
- b. Ion-Chamber Detector
- c. Scintillation Detector
- d. Proportional Detector

QUESTION 071

According to SOI-M14, operation of the Containment Vessel and Drywell Purge System, in Modes 1, 2, and 3, should be restricted to between the hours of 1100 and 1600. Select the statement below that states the reason for this restriction.

- a. Ensures a lower off-site Noble gas dose due to more favorable weather conditions.
- b. Ensures that the necessary on-site personnel are available to support system operation.
- c. Ensures that the necessary off-site state/local personnel are available to support system operation.
- d. Ensures the most stable outside air temperatures are available for return air back into the containment/drywell.

QUESTION 072

The plant is operating at 100% power. You are on the 620' elevation of Containment when you notice that a red rotating beacon has energized in the area of Drywell Purge Supply Duct A. What is the purpose of this red rotating beacon?

- a. To alert personnel that the reactor is critical and radiation dose rates may change rapidly.
- b. To alert personnel that the Drywell Purge Supply subsystem is in operation and elevated radiation levels exist in the area..
- c. To alert personnel that a fuel bundle has been dropped within the Upper Containment Pools and you are to evacuate the area.
- d. To alert personnel of a low water level in the DW Purge Supply Duct Surge Tank and the potential for radiation streaming from inside the Drywell to Containment.

QUESTION 073

Select the statement below that reflects an Operations Section expectation for TRANSIENT ALARM RESPONSE during implementation of Plant Emergency Instructions (PEI).

- a. Entry into the TRANSIENT ALARM RESPONSE mode shall be announced by the Unit Supervisor.
- b. Locked in alarms that are abnormal for the present plant status should be communicated to the Unit Supervisor.
- c. Recurring alarms that annunciate ONI or PEI entry conditions do NOT need to be re-announced.
- d. The TRANSIENT ALARM RESPONSE mode will remain in effect until the PEIs are exited.

QUESTION 074

Select the statement below that correctly describes a requirement related to Fire Brigade composition.

- a. The Fire Brigade Leader must have a Reactor Operator or Senior Reactor Operator's license.
- b. If the Fire Brigade composition drops below the minimum number of five (5), it must be restored to at least the minimum number within one (1) hour.
- c. Any member of the Operations shift crew may be assigned to the Fire Brigade.
- d. Any site employee who is knowledgeable, trained, and skilled in fire fighting operations may be a member of the Fire Brigade.

QUESTION 075

Select the statement below that describes the PAP-0528 sequence adherence requirement when utilizing Alarm Response Instructions.

- a. Immediate Actions shall be performed in sequence.
- b. Subsequent Actions shall be performed in sequence.
- c. Initiation of a "Condition Report" is required if Subsequent Actions are not performed as written.
- d. Initiation of a "Condition Report" is required if Immediate Actions are performed out of sequence.

END OF REACTOR OPERATOR EXAMINATION

QUESTION 076

The reactor is operating at 100% power when an event occurs which results in the following indications:

	BEFORE	AFTER
Reactor Power:	100%	95%
Core Flow:	90.0 Mlbm/hr	85.5 Mlbm/hr
Loop A Driving Flow:	39,055 gpm	43,430 Mlbm/hr
Loop A Jetpump Flow:	45.1 Mlbm/hr	38.3 Mlbm/hr
Loop B Driving Flow:	38,945 gpm	39,335 Mlbm/hr
Loop B Jetpump Flow:	44.9 Mlbm/hr	47.2 Mlbm/hr

Which ONE of the following courses of action – from ONI-C51, Unplanned Change In Reactor Power Or Reactivity – would be appropriate based on these indications?

The Unit Supervisor should direct the

- Shift Technical Advisor to confirm the presence of Reactor Recirculation System vortexing.
- Supervising Operator to arm and depress the HPU SHUTDOWN switch for the FCV on Loop A.
- Supervising Operator to balance Recirc Loop A and B flows, and refer to Technical Specifications to determine Jet Pump operability.
- Supervising Operator to manually scram the reactor due to an individual control rod scram.

QUESTION 077

Given the following conditions:

- The Main Control Room has been evacuated
- ONI-C61, Evacuation Of The Main Control Room, required actions are complete
- All Control Rods are fully inserted
- RPV Water Level is off-scale high on all Remote Shutdown Panel indications
- Reactor Pressure is 600 psig
- Drywell Temperature is 130°F
- Drywell Pressure is 1.0 psig
- IOI-11, Shutdown From Outside The Main Control Room, has been entered
- Both RFPTs were tripped and the breakers for the MFP and all the RFBPs have been opened due to level increasing above 220 inches.

Which one of the following statements best describes the expected plan of action, once control has been transferred to the Division 1 Remote Shutdown Panel?

- a. Enter PEI-B13 since RPV level is unknown, Emergency Depressurize, and Flood the RPV to the Main Steam lines.
- b. Enter PEI-B13 since RPV level is unknown, Emergency Depressurize and inject slowly to establish RPV pressure above the Minimum Steam Cooling Pressure.
- c. Cooldown the Reactor, irrespective of cooldown rate, using SRVs, and use Condensate/Feedwater for level control when indicators are back on scale.
- d. Cooldown the Reactor, at less than 100°F/hr, using SRVs, and use RCIC for level control when indicators are back on scale.

QUESTION 078

The plant was in Mode 1, 100% reactor power when a leak in the Instrument Air system occurred.

- Instrument Air header pressure indicates 85 psig.
- Parallel air header pressure reads 100 psig

Which one of the following actions is required under these conditions?

- a. Declare the outboard MSIVs INOPERABLE. MSIV closure times may be outside tech spec allowable limits.
- b. Declare the inboard MSIVs INOPERABLE. MSIV leakage may be outside tech spec allowable limits.
- c. Declare the outboard MSIVs INOPERABLE. MSIV leakage may be outside tech spec allowable limits.
- d. Declare the inboard MSIVs INOPERABLE. MSIV closure times may be outside tech spec allowable limits.

QUESTION 079

The plant was operating at 100% power when a LOCA occurred. All control rods are fully inserted. LPCS and LPCI 'A' are both injecting into the RPV. NO other ECCS pumps are available. As long as both pumps are injecting, RPV water level can be maintained above TAF. Suppression Pool temperature is 130°F and rising. Select the statement below that correctly describes the use of LPCI 'A' for Suppression Pool cooling.

- a. LPCI 'A' must be diverted to Suppression Pool Cooling to ensure that Suppression Pool temperature is maintained below the Heat Capacity Limit, since LPCS can maintain adequate core cooling through spray cooling alone.
- b. LPCI 'A' may be diverted to Suppression Pool Cooling as long as LPCS is able to maintain RPV water level above -25 inches (the Minimum Steam Cooling RPV water level).
- c. LPCI 'A' must be diverted to Suppression Pool Cooling, irrespective of adequate core cooling, when neither Suppression Pool temperature nor Reactor pressure can be maintained below the Heat Capacity Limit (HCL)
- d. LPCI 'A' may be diverted to Suppression Pool Cooling only if additional injection sources become available to be used with LPCS to maintain RPV water level above 0 inches

QUESTION 080

Given the following plant conditions:

- Suppression Pool Level is 7 ft. and dropping at a rate of 6 in./hr due to an unisolable leak in the HPCS pump room.
- Suppression Pool Temperature is 90°F and nearly steady
- RHR 'A' and 'B' are providing Suppression Pool cooling
- LPCS and RHR 'C' are injecting to the RPV to maintain RPV water level above TAF

Your Shift Engineer recommends shutting down one or more of the operating RHR pumps to prevent damage due to the lowering Suppression Pool level. Based on the above conditions, which one of the following would be appropriate?

- a. Only shutdown RHR 'A' AND 'B'
- b. Shutdown RHR 'A' OR 'B', AND Shutdown RHR 'C'
- c. Only shutdown ONE of the RHR pumps
- d. Shutdown ALL of the RHR pumps

QUESTION 081

The RPV water level low (Level 3) trip function, of Reactor Protection System, ensures that...

- a. enough time is available for the ECCS to start and reflood the reactor core before the Peak Cladding Temperature exceeds 2200°F.
- b. the heat energy – generated in the fuel – is substantially reduced, before the fuel is uncovered during a LOCA, so that the Peak Cladding Temperature does not exceed 2200°F when the core is reflooded.
- c. there is enough moderator available to slow down the fission neutrons needed to ensure operability of the fission detectors used by the APRM Flow Biased Thermal Power trip function.
- d. the Minimum Critical Power Ratio (MCPR) does not exceed the MCPR Safety Limit when the fuel is uncovered.

QUESTION 082

Given the following conditions:

- The plant is in Mode 1 with fuel shuffling occurring in the Fuel Handling Building in preparation for new fuel receipt.
- While moving fuel, the operator attempted to move the bridge before the bundle was clear of the fuel storage rack, causing the bundle being moved to strike the storage rack. Many bubbles floated to the top of the spent fuel pool.
- FHB VENT EXH GAS (D17-K716) is alarming, and a high offsite release is occurring.

ONI-D17, High Radiation Levels within Plant, directs you to SUSPEND movement of fuel in the Fuel Handling Building.

What actions should be taken to meet the requirement to "SUSPEND movement of fuel?"

- a. Leave the fuel bundle suspended in its current position.
- b. Properly seat the fuel bundle in a designated storage location.
- c. Properly seat the fuel bundle in a designated location in the reactor vessel.
- d. Properly seat the fuel bundle in the IFTS carriage with the Upender in the vertical position.

QUESTION 083

While operating at 100% power, the following conditions occur:

1. Annunciators:
ANNULUS A DIFF PRESS LOW
ANNULUS B DIFF PRESS LOW
2. Annulus differential pressure: Zero inches of water gage

Select the ONE statement that identifies the reason why this situation should be corrected.

- a. Restoring AEGTS to operation will ensure that the availability requirements of the Maintenance Rule are satisfied.
- b. Operation of AEGTS reduces the post accident leakage rate from the containment vessel.
- c. Operation of AEGTS reduces the off-site release rate following a Design Bases Accident.
- d. Restoring AEGTS to operation will ensure that accessibility of the Secondary Containment is maintained.

QUESTION 084

During a plant startup, the following conditions exist:

- REACTOR MODE SWITCH in STARTUP/STANDBY
- Reactor pressure is 855 psig.
- Control rod 22-11 is at position 00, its nitrogen accumulator has a cracked weld and is isolated for repair.

The operating Control Rod Drive (CRD) pump trips, CRD Charging Header Pressure indicates 50 psig, and the CRD HCU LEVEL HI/PRESS LO annunciator is received for the following rods:

Rod	Position	Accumulator Pressure
18-27	00	1500 psig
38-23	48	1500 psig

Which ONE of the following should you direct the control room operators to do?

- a. Declare both CRD accumulators INOPERABLE and have the Supervising Operator place the REACTOR MODE SWITCH to SHUTDOWN.
- b. Declare control rod 38-23 accumulator INOPERABLE; insert and isolate control rod 38-23 within 1 hour, or place the REACTOR MODE SWITCH to SHUTDOWN.
- c. If charging header pressure CANNOT be restored to at least 1600 psig within 20 minutes, place the REACTOR MODE SWITCH to SHUTDOWN. Both control rods are still OPERABLE.
- d. Declare control rod 18-27 and 38-23 INOPERABLE. Monitor accumulator status. If any other accumulator becomes INOPERABLE, immediately place the REACTOR MODE SWITCH to SHUTDOWN.

QUESTION 085

A RHR LOCA signal has been generated and both AEGTS trains are operating. The following conditions are observed:

- AEGTS train 'A' Exhaust Control Damper (F080A) is FULL OPEN and Recirculation Control Damper (F070A) is FULL SHUT.
- AEGTS train 'B' Exhaust Control Damper (F080B) is FULL SHUT and Recirculation Control Damper (F070B) is FULL OPEN.
- Annulus Differential Pressure is -0.2 in. water gage.

Given the above information, what direction would you give the Supervising Operator?

- a. Take manual control of the 'A' Differential Pressure Controller and attempt to restore Annulus Differential Pressure to 0.25 in. H₂O Vac.
- b. Take manual control of the 'A' Differential Pressure Controller and attempt to restore Annulus Differential Pressure to 0.75 in. H₂O Vac.
- c. Take manual control of the 'B' Differential Pressure Controller and attempt to restore Annulus Differential Pressure to 0.25 in. H₂O Vac.
- d. Take manual control of the 'B' Differential Pressure Controller and attempt to restore Annulus Differential Pressure to 0.75 in. H₂O Vac.

QUESTION 086

HPCS, LPCS, and all three RHR pumps started on High Drywell Pressure. The following conditions are observed:

- All control rods are fully inserted
- RPV Level is 150 in. WR and decreasing slowly
- RPV Press is 800 psig and decreasing slowly

The BOP Operator reports that RHR Pump 'A' Minimum Flow Valve (F064A) is shut and will not open. Given the current plant condition which of the following actions would be most appropriate to assign the balance of plant operator?

- a. Declare RHR Pump 'A' INOPERABLE. Shutdown RHR Pump 'A' and pull it's control power fuses.
- b. Declare RHR Pump 'A' OPERABLE; open the Test Return Valve to Suppression Pool (F024A) to establish > 1650 gpm.
- c. Declare RHR Pump 'A' INOPERABLE but available. Dispatch a plant operator to attempt to manually open the Minimum Flow Valve (F064A).
- d. Declare RHR Pump 'A' INOPERABLE, but available. Shutdown RHR Pump 'A' until reactor pressure is low enough for the injection valve (F042A) to open, then restart the pump.

QUESTION 087

Given the following plant conditions:

- The plant is at 100% RTP.
- Suppression Pool temperature is 83°F.
- Suppression Pool level indication is 18 feet 3 inches.
- It has been determined that because of a faulty calibration procedure, all Suppression Pool level instruments are reading 6 inches above actual corrected Suppression Pool level and have been declared INOPERABLE by the Shift Manager.
- No technical specification evaluations have been made.

Which of the following requires NO immediate operator attention?

- a. PEI-T23
- b. Heat Capacity Limit
- c. Suppression Pool Water Level
- d. Suppression Pool Makeup System

QUESTION 088

Given the following:

- The plant is in Mode 1.
- The RRCS DIV 1 OUT OF SERVICE (H13-P680-0004-A7) annunciator on P680 alarmed.
- The SLC PUMP TRIP STORAGE TANK LEVEL LOW (H13-P601-0019-E1) annunciator on P601 alarmed.
- After acknowledging the alarms, the BOP Control Room Operator reported to you that the 'low range' level indicator for the SLC Storage Tank is reading down scale but that the 'high-range' level indicator is indicating normal.
- I&C then reported that the RRCS DIV 1 OUT OF SERVICE annunciator was caused by a logic power supply failure.

Select the required action:

- a. Only declare Division 1 ATWS-RPT inoperable.
- b. Only declare Division 1 of SLC inoperable.
- c. Declare both Division 1 ATWS-RPT and Division 1 of SLC inoperable.
- d. Declare both Divisions of ATWS-RPT inoperable.

QUESTION 089

The Division 1 ATWS-UPS Inverter is supplying 120VAC Bus EV-1-A when the Division 1 Battery Charger (EFD1A) trips off. Reserve Charger EFD12A is not available. The 120VAC Bus EV-1-A will be automatically transferred to the alternate AC source when the Division 1 ATWS-UPS Inverter _____ (1) _____. Procedural guidance for recovery of the Division 1 ATWS-UPS Inverter is found in _____ (2) _____.

- a. (1) input voltage drops below 105 VDC
(2) SOI R-14, 120 VAC Vital Inverters
- b. (1) input voltage conditions are low and sensed for 15 minutes
(2) SOI R-15, Technical Support Center Uninterruptable Power Supply System
- c. (1) output frequency drops below 58.8 Hz
(2) ARI-H13-P877-0001-H4, BUS EF-1-B BREAKER TRIP
- d. (1) output voltage drops below 105 VDC for 15 minutes
(2) ARI-H13-P877-0002-H1, DC BUS ED-1-B UNDERVOLTAGE

QUESTION 090

The Unit 1 Service Air (SA) compressor is operating in Manual/Modulate. The compressor has developed an oil leak and needs to be shutdown to secured status for repair. The Unit 1 and Unit 2 IA Compressors are in Standby Readiness (Auto - On/Off).

Which one of the following are required actions of the Control Room Unit Supervisor concerning the Work Order Process?

- a. Performance of the work and documentation of the work.
- b. Approval of the work order package and approval of the post-maintenance test results.
- c. Overall responsibility of the work order process including final documentation of post-maintenance test results.
- d. Positive verification of clearance acceptance and release including tracking the status of any personal locks used during the work order performance.

QUESTION 091

The plant is in MODE 5 and an in-vessel fuel shuffle is in progress. Rod Block 1 and 2 alarms are energized. No other alarms are present. No other refueling activities are taking place. A fuel bundle being inserted into the core just penetrated the top guide when the REFUEL INTERLOCK indicator on the Refueling Platform illuminated and power to the main hoist was interrupted. Select the statement below that: 1) describes the most probable cause for actuation of the REFUEL INTERLOCK; and 2) specifies the actions required by Technical Specifications.

- a. A control rod was withdrawn; Immediately suspend loading fuel assemblies into the core (removal of fuel assemblies from the core may continue).
- b. A control rod position indication probe failed; after verifying that all control rods are fully inserted use the Hoist-Override to complete loading the fuel assembly into the core.
- c. A control rod was withdrawn; Immediately suspend in-vessel fuel movement and/or control rod withdrawal, and initiate action to insert all insertable control rods.
- d. A control rod position indication probe failed; immediately verify that all control rods are fully inserted and initiate action to disarm the control rod drive associated with the faulty position indication probe.

QUESTION 092 (DELETED FROM THE SRO EXAM)

Given the following conditions:

- Reactor Plant at 100% RTP
- The following annunciators are in alarm:
 - HOT SURGE TANK LEVEL HI
 - HTR 4 ISOL HOT SRG TK LEVEL HI
- The Extraction Steam supply and Steam Seal Evaporator drains to Heater 4 have automatically isolated
- N21-F220, Hot Surge Tank Level Control Bypass Valve indicates closed
- N21-F230, Hot Surge Tank Level Control Valve is partially open and is unresponsive to the Hot Surge Tank Level Controller signals (in either AUTO or MANUAL)
- Local manual control of N21-F230, Hot Surge Tank Level Control Valve was unsuccessful
- Hot Surge Tank level is 150" and increasing slowly

Which one of the following actions should you direct the ATC Operator to perform while maintaining current power level?

- a. Shutdown one of the Condensate Booster Pumps
- b. Perform the "Securing Flow to the Hot Surge Tank" section of SOI-N21
- c. Throttle open Condensate Minimum Flow Recirculation Valve (N21-F245, Short Cycle Clean-Up Valve)
- d. Manually trip all Hotwell and Condensate Booster Pumps

QUESTION 093

An exposed fuel bundle is dropped and is damaged during transfer from the Reactor Vessel to the Inclined Fuel Transfer System. Select the statement below that describes the automatic action that should occur in the Containment Vessel and Drywell Purge Supply (M14) System, and the action(s) to be taken, if the Containment Vessel and Drywell Purge Supply (M14) System continues to operate in the Refuel mode.

- a. The M14 system Containment isolation valves close automatically when the Area Radiation Monitor for the Containment Upper Pool Area reaches its alarm setpoint. Direct operators to close the M14 system containment isolation valves and verify that the M14 supply and exhaust fans continue to operate in the recirculation mode.
- b. The M14 exhaust fans automatically trip when the M14 Exhaust Duct Radiation Monitor reaches its alarm setpoint. Direct operators to trip the M14 exhaust fans and verify that the M14 supply fans continue to operate.
- c. The M14 system Containment isolation valves close automatically when the M14 Exhaust Duct Radiation Monitor reaches its alarm setpoint. Direct operators to close the M14 system containment isolation valves and verify that the M14 supply and exhaust fans trip.
- d. The M14 supply fans trip when the Area Radiation Monitor for the Containment Upper Pool Area reaches its alarm setpoint. Direct operators to trip the M14 supply fans and verify that the M14 exhaust fans continue to operate.

QUESTION 094

Select the combination, of Control Room staff positions and plant locations, that describes a situation that does NOT meet the required shift manning in the control room when the plant is operating at 75% power under steady-state conditions.

	POSITION	PLANT LOCATION
a.	Shift Manager: Unit Supervisor: Supervising Operator: Second Licensed Operator:	Unit Supervisor desk Kitchen Service Building Horseshoe area
b.	Shift Manager: Unit Supervisor: Supervising Operator: Second Licensed Operator:	Containment Restroom Back panels Horseshoe area
c.	Shift Manager: Unit Supervisor: Supervising Operator: Second Licensed Operator:	Service Building Back panels Horseshoe area Containment
d.	Shift Manager: Unit Supervisor: Supervising Operator: Second Licensed Operator:	Tech Support Center Unit Supervisor desk Horseshoe area Back panels

QUESTION 095

An event requiring a reactor scram from 100% reactor power occurred. Over half of the control rods failed to fully insert. Subsequent scram attempts resulted in very little control rod motion, the scram discharge volume doesn't appear to be draining fully, several control rods remain withdrawn, and the only available CRD pump has been damaged in the process. The reactor is sub-critical with APRM channels reading between 0% and 4%. Given the above information and that you only have one operator available to send into the field, which one of the following alternate rod insertion methods would you chose?

- Manual Rod Insertion
- Venting The Over-piston Volumes
- Venting The Scram Air Header
- Increased Cooling Water DP

QUESTION 096

Select the maintenance activity below that would require Post Maintenance Testing.

- a. Painting of the floor and walls in the RCIC Pump room.
- b. Replacement of the lagging on the steam lines in the RCIC Pump room.
- c. Calibration of the RCIC steam supply pressure instrument.
- d. Re-packing of the RCIC Turbine Trip-Throttle Valve.

QUESTION 097

In addition to the Refueling Supervisor and the Platform Operator, which of the following personnel is required to be on the refueling bridge during refueling?

- a. Qualified Nuclear Engineer
- b. Health Physics Technician
- c. Spotter
- d. Quality Insurance Inspector

QUESTION 098

Venting of the Containment – using PEI-SPI 7.3, FPCC Containment Venting – has been initiated due to exceeding Primary Containment Limit (PCL). Which one of the following correctly describes the condition that must be met before venting of the Containment can be terminated?

Containment pressure . . .

- a. below 2.25 psig
- b. equal to atmospheric pressure
- c. within the Primary Containment Limit (PCL)
- d. below the Pressure Suppression Pressure (PSP) limit

QUESTION 099

An accident involving a tanker truck delivering Sodium Hypochlorite has resulted in a spill of approximately 2500 gallons of Sodium Hypochlorite within the Protected Area. In accordance with PAP-0806, Oil/Chemical Release Contingency Plan, which one of the following agencies must be notified within 15 minutes?

- a. U.S. Environmental Protection Agency, National Response Center
- b. U.S. Nuclear Regulatory Commission, Headquarter Operations Officer
- c. Ohio Environmental Protection Agency, State Emergency Response Commission
- d. Lake County Emergency Planning Commission

QUESTION 100

The reactor scrammed due to a small-break LOCA. The only available injection source is from the Condensate Transfer system. To maximize injection, Emergency Depressurization was initiated approximately 20 minutes ago and all ADS valves were verified open. The SRV OPEN annunciator just reset. You have directed the Reactor Operator to verify the status of the ADS valves. Select the status report that you would expect based on the above information.

- a. The ADS valves appear to be closed based on stable SRV tailpipe temperatures. Direct the panel operators to open SRVs using their control switches.
- b. The ADS valves appear to be closed based on SRV tailpipe temperatures slowly increasing. Direct the panel operators to use alternate methods of depressurizing the reactor vessel.
- c. The ADS valves appear to be open, based on SRV tailpipe temperatures of approximately 330°F and slowly increasing due to the lack of injection. Direct operators to open additional SRVs and continue to monitor for injection.
- d. The ADS valves appear to be open, based on SRV tailpipe temperatures of approximately 250°F and stable. Injection is occurring, direct operators to monitor reactor vessel level.

REFERENCES/ANSWER KEYS

Question # 001
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 295001 2.1.9
 Answer c.
 References:
 SDM: B33
 LP: OT Combined B33, Obj. I
 ONI-C51
 NEW
 HIGHER

Question # 004
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 295005K201
 Answer b.
 References:
 SDM C71
 Tech Spec Bases 3.3.1.1
 HIGHER
 NEW

Question # 002
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 295003K204
 Answer c.
 References:
 ONI-R22-1, attachment 1.
 MODIFIED
 HIGHER

Question # 005
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 295006K205
 Answer a.
 References:
 SDM C11 (CRDM)
 MEMORY
 NEW

Question # 003
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 295004K202
 *Answer d.
 References:
 ONI-R10, Attachment D-2
 SDMs R23/24/25, R42
 MEMORY
 NEW

Question # 006
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 295016A201
 Answer a.
 References:
 SDM C95
 ONI-C61
 MEMORY
 NEW

REFERENCES/ANSWER KEYS

Question # 007
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level S
 K/A 295018K201
 Answer b.
 References:
 SDM P43
 ARI-H13-P680-0004
 ONI-P43
 Deleted from RO Exam
 HIGHER
 NEW

Question # 008
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 295019A103
 Answer d.
 References:
 SOI-P51/52, Sect 4.2
 SDM P51/52
 ONI-R22-2
 HIGHER
 MODIFIED

Question # 009
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 295021K101
 Answer d.
 References:
 OT-3036-004-E12
 IOI-12
 HIGHER
 NEW

Question # 010
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 295023K101
 Answer d.
 References:
 ONI-J11-2
 MEMORY
 MODIFIED

Question # 011
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 295024K209
 Answer c.
 References:
 SDM G43
 MEMORY
 MODIFIED

Question # 012
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 295025 2.4.1
 Answer b.
 References:
 PEI-B13
 SDM B21/N11
 SDM N32/C85
 MEMORY
 BANK

REFERENCES/ANSWER KEYS

Question # 013
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 295026A103
 Answer c.
 References:
 SDM D23
 MEMORY
 BANK

Question # 016
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 295030K103
 Answer c.
 References:
 PEI Bases Document
 HIGHER
 NEW

Question # 014
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 295027K103
 Answer d.
 References:
 PEI Bases Document
 SDM T23/P53
 USAR Chapter 6
 HIGHER
 NEW

Question # 017
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 295031A104
 Answer b.
 References:
 SDM-E22A
 HIGHER
 BANK

Question # 015
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 295028K102
 Answer b.
 References:
 PEI Bases Document
 MEMORY
 NEW

Question # 018
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 295037K205
 Answer c.
 References:
 PEI-SPI 1.3
 SDM C11 (CRDH)
 HIGHER
 MODIFIED

REFERENCES/ANSWER KEYS

Question # 019
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 295038K303
 Answer c.
 References:
 SDM-M25/M26
 SDM-D17
 SDM-17A
 MEMORY
 BANK

Question # 022
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 295010A102
 Answer d.
 References:
 SDM G61
 MEMORY
 NEW

Question # 020
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 600000A203
 Answer d
 References:
 SDM-P54 (CO2)
 ONI-P54
 MEMORY
 NEW

Question # 023
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 295015K301
 Answer d.
 References:
 SDM: C11(RCIS)
 LP: OT-3036-C11(RCIS), Obj. E, G
 HIGHER
 BANK

Question # 021
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 295009A201
 Answer a.
 References:
 EOP Bases
 HIGHER
 MODIFIED

Question # 024
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 295020A103
 Answer d.
 References:
 OT-Combined LP M14
 LER 87-015
 SOI-C71
 MEMORY
 NEW

REFERENCES/ANSWER KEYS

Question # 025
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 295032K205
 Answer a.
 References:
 EOP Bases
 MEMORY
 NEW

Question # 028
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 203000 2.1.32
 Answer b.
 References:
 SOI-E12, Precautions & Limitations Section
 2.9 Rev 18
 NEW
 HIGHER

Question # 026
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 295034A202
 Answer d.
 References:
 EOP Bases
 MEMORY
 MODIFIED

Question # 029
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 205000A212
 Answer b.
 References:
 System Description Manual, E-12, Residual
 Heat Removal System, Ill.1, R. 9, p 48.
 NEW
 HIGHER

Question # 027
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 500000K202
 Answer a. & b.
 References:
 EOP Bases
 MEMORY
 NEW

Question # 030
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 209001K303
 Answer b.
 References:
 System Description Manual, E-21, Low
 Pressure Core Spray System, Table E21-2, p
 38.
 NEW
 MEMORY

Question # 031

Question # 034

REFERENCES/ANSWER KEYS

Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 209001A201
 Answer d.
 References:
 H13-P601-21, LPCS PUMP TRIP
 OVERCURRENT; P83, R5
 NEW
 HIGHER

Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 211000K604
 Answer Deleted
 References:
 Question deleted from RO/SRO Exam
 PEI-SPI, Alternate Boron Injection, 1.8, R2,
 P4
 NEW
 HIGHER

Question # 032
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 209002A301
 Answer d.
 References:
 EOP Bases
 HIGHER
 MODIFIED

Question # 035
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 212000K502
 Answer d.
 References:
 Perry SDM C71, R9 pg 37
 BANK
 HIGHER

Question # 033
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 211000K403
 Answer b.
 References:
 Perry Tech Spec SR 3.1.7.3
 BANK
 MEMORY

Question # 036
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 215003K101
 Answer b.
 References:
 SDM C51 IRM, pg 27
 BANK
 HIGHER

REFERENCES/ANSWER KEYS

Question # 037
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 215003K303
 Answer c.
 References:
 SDM C71, "Reactor Protection System," P31,
 R9
 NEW
 HIGHER

Question # 040
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 215005K603
 Answer a.
 References:
 C51(PRM & OPRM) Section VII, Detailed
 Description of Average Power Range
 Monitoring System, R8, P18
 BANK
 HIGHER

Question # 038
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 215004K405
 Answer b.
 References:
 C-11 (RCIS), Table C-11-5, R7, P58
 MODIFIED
 HIGHER

Question # 041
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 217000K506
 Answer b.
 References:
 SOI-E51
 MEMORY
 NEW

Question # 039
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 215005K406
 Answer b.
 References:
 C51(PRM & OPRM) R8, P7
 NEW
 MEMORY

Question # 042
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 218000A308
 Answer d.
 References:
 Perry SDM B21C, figure B21C-5
 MODIFIED
 HIGHER

REFERENCES/ANSWER KEYS

Question # 043
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 223002K315
 Answer d.
 References:
 SDM B21-NS4, Section II.C.6, R6, P23
 NEW
 HIGHER

Question # 046
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 259002K201
 Answer a.
 References:
 Perry Exam Bank
 BANK
 HIGHER

Question # 044
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 239002K201
 Answer c.
 References:
 Perry Initial Exam Bank
 BANK
 HIGHER

Question # 047
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 261000A402
 Answer d.
 References:
 Perry, AEGTS, M15, pg 9, 10, and 22, and
 Fig. M15-2
 Lesson Plan OT-3036-002-M15-00, Learning
 Objectives C, E, F
 NEW
 MEMORY

Question # 045
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 239002A101
 Answer c.
 References:
 Steam Tables
 NEW
 HIGHER

Question # 048
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 262001A210
 Answer b.
 References:
 PERRY ILT BANK
 MODIFIED
 HIGHER

REFERENCES/ANSWER KEYS

Question # 049
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 262002K401
 Answer c.
 References:
 SDM R14/R15, R6, P2
 BANK
 MEMORY

Question # 052
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 300000K612
 Answer a.
 References:
 Perry ILT Bank
 BANK
 MEMORY

Question # 050
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 263000A402
 Answer b.
 References:
 SOI-R42 (Div 3), Rev 0, pg 1
 BANK
 HIGHER

Question # 053
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 400000A401
 Answer c
 References:
 SMD-P42
 MODIFIED
 MEMORY

Question # 051
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 264000K506
 Answer d.
 References:
 SD R43, R11, P5
 NEW
 MEMORY

Question # 054
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 201001A304
 Answer d.
 References:
 SDM C11(CRDH)
 OT-Combined LP C11(CRDH)
 MEMORY
 MODIFIED

REFERENCES/ANSWER KEYS

Question # 055
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 201003A103
 Answer c & d.
 References:
 SDM C11(CRDH)
 HIGHER
 MODIFIED

Question # 058
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 226001 2.1.23
 Answer c. & d.
 References:
 PEI-3.1
 SOI-E12
 PEI-T23
 HIGHER
 NEW

Question # 056
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level S
 K/A 202001K413
 Answer b.
 References:
 Tech Spec Bases B 3.3.4.1
 NEW
 MEMORY

Question # 059
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 234000A101
 Answer a.
 References:
 SDM G41
 SDM F42
 HIGHER
 NEW

Question # 057
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 216000K506
 Answer b.
 References:
 SDM B21(NBPI)
 HIGHER
 BANK(INPO)

Question # 060
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 239001A110
 Answer c.
 References:
 USAR Chapter 15
 SDM N32/C85
 HIGHER
 NEW

REFERENCES/ANSWER KEYS

Question # 061
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 241000K503
 Answer b.
 References:
 SDM N32/C85
 HIGHER
 NEW

Question # 064
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 288000K303
 Answer b.
 References:
 SDMs M38 and M47
 HIGHER
 NEW

Question # 062
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 245000K405
 Answer c.
 References:
 SDM N34
 MEMORY
 BANK

Question # 065
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 290002 2.2.24
 Answer c. (SRO ONLY)
 References:
 PNPP Technical Specification 3.9.2
 MEMORY
 NEW

Question # 063
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 268000A401
 Answer a.
 References:
 SDM E31
 Tech Spec LCO 3.4.7 and associated bases
 MEMORY
 BANK

Question # 066
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 2.1.1
 Answer b.
 References:
 10CFR55
 HIGHER
 NEW

REFERENCES/ANSWER KEYS

Question # 067
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 2.1.33
 Answer a.
 References:
 Tech Specs and associated bases for LCOs
 3.0.6 and 3.7.1
 MEMORY
 NEW

Question # 070
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 2.3.5
 Answer a.
 References:
 Generic Fundamentals
 MEMORY
 NEW

Question # 068
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 2.2.22
 Answer b.
 References:
 Tech Spec Section 2.0 and associated bases.
 HIGHER
 MODIFIED

Question # 071
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 2.3.9
 Answer a.
 References:
 SOI-M14
 MEMORY
 NEW

Question # 069
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 2.2.22
 Answer a.
 References:
 Tech Spec Section 2.0 and associated bases.
 HIGHER
 MODIFIED

Question # 072
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level R
 K/A 2.3.10
 Answer d.
 References:
 SDM-M14
 MEMORY
 NEW

REFERENCES/ANSWER KEYS

Question # 073
Exam Date 2004/11/29
Station 440
Reactor Type GE-BWR6
Exam Level R
K/A 2.4.15
Answer a. & b.
References:
Perry Operations Section Expectations
Handbook
MEMORY
NEW

Question # 075
Exam Date 2004/11/29
Station 440
Reactor Type GE-BWR6
Exam Level S
K/A 2.4.31
Answer c.
References:
PAP-0528
MEMORY
NEW

Question # 074
Exam Date 2004/11/29
Station 440
Reactor Type GE-BWR6
Exam Level R
K/A 2.4.26
Answer d.
References:
PAP-0126
PAP-1910
MEMORY
NEW

END RO EXAM

BEGIN SRO EXAMINATION

Question # 076
Exam Date 2004/11/29
Station 440
Reactor Type GE-BWR6
Exam Level S
K/A 295001A204
Answer c.

Question # 079
Exam Date 2004/11/29
Station 440
Reactor Type GE-BWR6
Exam Level S
K/A 295026A201
Answer b.

REFERENCES/ANSWER KEYS

References:
 Lesson Plan OT-Combined B33
 PDBs A0004, A0006, A0012
 ONI-C51
 MODIFIED
 HIGHER

References:
 PEI Bases
 PEI-B13 and PEI-T23
 NEW
 HIGHER

Question # 077
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level S
 K/A 295016A202
 Answer d.
 References:
 ONI-C61
 IOI-11
 PEI-B13
 NEW
 HIGHER

Question # 080
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level S
 K/A 295030 2.1.32
 Answer a.
 References:
 PEI Bases
 NEW
 HIGHER

Question # 078
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level S
 K/A 295019 2.4.21
 Answer a.
 References:
 ONI-P52, Loss of Service and/or Instrument
 Air
 NEW
 HIGHER

Question # 081
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level S
 K/A 295031 2.2.25
 Answer b.
 References:
 Technical Specification Bases
 NEW
 MEMORY

Question # 082
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level S

Question # 085
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level S

REFERENCES/ANSWER KEYS

K/A 295038 2.3.10
 Answer b.
 References:
 ONI-J11-2
 HIGHER
 NEW

K/A 295035 2.1.7
 Answer d.
 References:
 SDM M15
 ARI-H13-P800-0001-A2(D2)
 HIGHER
 NEW

Question # 083
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level S
 K/A 295017 2.2.25
 Answer c.
 References:
 Tech Spec Bases
 SDM M15
 MEMORY
 MODIFIED

Question # 086
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level S
 K/A 203000A203
 Answer a.
 References:
 SOI-E12
 HIGHER
 NEW

Question # 084
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level S
 K/A 295022A201
 Answer c.
 References:
 Tech Specs
 ONI-C11-1
 HIGHER
 MODIFIED

Question # 087
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level S
 K/A 223002A206
 Answer b.
 References:
 Tech Specs and Bases

 HIGHER
 NEW

Question # 088
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level S
 K/A 211000 2.1.12

Question # 091
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level S
 K/A 214000A201

REFERENCES/ANSWER KEYS

Answer c.
 References:
 Tech Specs and Bases
 SOI-C41
 ARI-H13-P680-0004-A7
 ARI-H13-P601-0019-E1
 HIGHER
 NEW

Answer d.
 References:
 Technical Specifications 3.9.1 – 3.9.4 (and associated bases)
 SDM C11(RC&IS)
 OT Combined LP F11/F15 (Refueling Systems)
 HIGHER
 NEW

Question # 089
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level S
 K/A 262002A201
 Answer a.
 References:
 SDM R14/15
 HIGHER
 NEW

Question # 092
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level S
 K/A 256000A208
 Answer DELETE
 References:
 Deleted from SRO Exam
 SDM N32/85
 HIGHER
 MODIFIED

Question # 090
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level S
 K/A 300000 2.2.17
 Answer b.
 References:
 PAP 0905, Work Order Process
 HIGHER
 NEW

Question # 093
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level S
 K/A 288000A204
 Answer c.
 References:
 SDM M14
 ONI-J11-2
 HIGHER
 MODIFIED

Question # 094
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6

Question # 097
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6

REFERENCES/ANSWER KEYS

Exam Level S
 K/A 2.1.2
 Answer b.
 References:
 PAP-0126
 MEMORY
 MODIFIED

Exam Level S
 K/A 2.2.26
 Answer c.
 References:
 SOI-F11
 MEMORY
 NEW

Question # 095
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level S
 K/A 2.1.6
 Answer b.
 References:
 PEI-SPI 1.1 – 1.7
 HIGHER
 NEW

Question # 098
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level S
 K/A 2.3.8
 Answer c.
 References:
 PEI Bases
 OT-3408-008-16
 HIGHER
 NEW

Question # 096
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level S
 K/A 2.2.21
 Answer d.
 References:
 PAP-0905
 MEMORY
 NEW

Question # 099
 Exam Date 2004/11/29
 Station 440
 Reactor Type GE-BWR6
 Exam Level S
 K/A 2.4.30
 Answer a.
 References:
 PAP-0806
 MEMORY
 NEW

Question # 100
 Exam Date 2004/11/29
 Station 440

REFERENCES/ANSWER KEYS

Reactor Type	GE-BWR6
Exam Level	S
K/A	2.4.46
Answer	d.
References:	
Steam Tables	
HIGHER	
NEW	

END OF SRO EXAM

REFERENCES/ANSWER KEYS

RO ANSWER KEY
MULTIPLE CHOICE

001	c	016	c	031	d	046	a	061	b
002	c	017	b	032	d	047	d	062	c
003	d	018	c	033	b	048	b	063	a
004	b	019	c	034	delete	049	c	064	b
005	a	020	d	035	d	050	b	065	c
006	a	021	a	036	b	051	d	066	b
007	delete	022	d	037	c	052	a	067	a
008	d	023	d	038	b	053	c	068	b
009	d	024	d	039	b	054	d	069	a
010	d	025	a	040	a	055	c & d	070	a
011	c	026	d	041	b	056	b	071	a
012	b	027	a & b	042	d	057	b	072	d
013	c	028	b	043	d	058	c & d	073	a & b
014	d	029	b	044	c	059	a	074	d
015	b	030	b	045	c	60	c	075	c

References Provided to RO applicants: Steam Tables;
References Provided to SRO applicants: Steam Tables, Technical Specifications with the 3.9 section removed (Refuel), and PAP 806 Oil/Chemical Release Contingency Plan.

REFERENCES/ANSWER KEYS

SRO ANSWER KEY
MULTIPLE CHOICE

001	c	021	a	041	b	061	b	081	b
002	c	022	d	042	d	062	c	082	b
003	d	023	d	043	d	063	a	083	c
004	b	024	d	044	c	064	b	084	c
005	a	025	a	045	c	065	c	085	d
006	a	026	d	046	a	066	b	086	a
007	b	027	a & b	047	d	067	a	087	b
008	d	028	b	048	b	068	b	088	c
009	d	029	b	049	c	069	a	089	a
010	d	030	b	050	b	070	a	090	b
011	c	031	d	051	d	071	a	091	d
012	b	032	d	052	a	072	d	092	delete
013	c	033	b	053	c	073	a & b	093	c
014	d	034	delete	054	d	074	d	094	b
015	b	035	d	055	c & d	075	c	095	b
016	c	036	b	056	b	076	c	096	d
017	b	037	c	057	b	077	d	097	c
018	c	038	b	058	c & d	078	a	098	c
019	c	039	b	059	a	079	b	099	a
020	d	040	a	60	c	080	a	100	d

References Provided to RO applicants: Steam Tables;
References Provided to SRO applicants: Steam Tables, Technical Specifications with the 3.9 section removed (Refuel), and PAP 806 Oil/Chemical Release Contingency Plan.