UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W.
ATLANTA, GEORGIA 30323

ENCLOSURE 1

EXAMINATION REPORT - 50-259/OL-90-03

Facility Licensee: Tennessee Valley Authority
6N 38N Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

Facility Name: Browns Ferry Nuclear Plant

Facility Docket No.: 50-259, 50-260, and 50-296

Facility License No.: DPR-33, DPR-52, and DPR-68

Initial examinations were administered at Browns Ferry Nuclear Plant near Decatur Alabama.

Chief Examiner: Bobby L. Holbrook — 1-23-91 Date Signed
Bobby L. Holbrook

Approved By: Charles A. Casto — 1-23-91 Date Signed
Charles A. Casto Chief
Operator Licensing Section 2
Division of Reactor Safety

Summary:

Examinations were administered December 10 - 13, 1990.

Written examinations and operating tests were administered to four (4) RO applicants and seven (7) SRO applicants. Two (2) RO candidates and six (6) SRO candidates passed these examinations. All others failed.

Your attention is directed to the concerns noted in the Report Details, Pre-Examination activities.

REPORT DETAILS

1. Examiners:

   *B. Holbrook, NRC - Region II
   J. Canady, NRC Observer - NRR
   T. Hunt, EG&G
   T. Morgan, EG&G
   M. Parrish, EG&G

   *Chief Examiner

2. Facility Personnel at Exit Meeting:

   R. Jones, Operations Superintendent
   T. Dexter, Browns Ferry Training Manager
   M. Deroche, Operations Training Manager
   J. Carlin, Unit Operations Manager
   P. Salas, Facility Licensing

3. Pre-Examination Activities

   The facility reference materials should be delivered to the NRC Region II office in accordance with Examiner Standard (ES) 201. The following discrepancies were noted in the receipt of the reference materials. The bulk of the material was delivered six (6) days past the requested date. Other deliveries were made at various times up to November 29, 1990. The materials were not properly indexed, many binders did not contain the material as was indicated by the index. Materials were not complete in that parts of Unit 2 Technical Specifications were missing, the appendixes for the Emergency Operating Instructions, the main control room Alarm Response Procedures, and most of the surveillances that are routinely performed were not received. The following items of ES 201 Enclosure 1 were not submitted, 17.e, 17.f, and 17.g. The Unit 2 restart modifications supplement lesson plan was received November 29, 1990.

   This delay and the condition of the reference material could have an impact on the examination development process and implementation.

   The facility was very responsive to the request for additional reference material.

   The written examination was reviewed at the NRC-Region II Office by facility representatives prior to examination administration. This review aided the examiners in altering questions to reflect plant modifications and training material updates. A total of 14 comments were incorporated into the examination. These included specifying Unit 2 in the stem of the question and minor changes for clarification and one question deletion. Several questions were changed to reflect plant modifications that were not updated in the submitted reference material. For example, the Automatic Depressurization System timer setpoint change and the Reactor Water Level Reference modification. The number of post examination comments, six (6), would indicate the facility should strive to ensure a comprehensive and through review of the examination prior to its administration.

4. Exit Meeting

At the conclusion of the site visit, examiners met with representatives of the plant staff to discuss administration of the examination and problems noted.

The examiners made the following observations concerning your training program:

a. Some candidates experienced difficulty in reading or utilizing prints (P&ID) to answer questions dealing with Emergency Core Cooling and Primary Containment Isolation response and initiation logic. Weaknesses included determination of input signals necessary for system actuation, valve interlocks, and the correct sequence of system response.

   The utilization if prints was also identified of as a concern during the initial examination conducted during the week of July 24, 1990.

b. The three (3) crews that were examined using scenario "A", Reactor Shutdown to Hot Standby, demonstrated difficulties maintaining the plant in a hot standby condition in accordance with GOI-100-12B. Rods were inserted in such a manner that reactor power was rapidly decreased which resulted in procedural steps being missed or not executed completely. The crews failed to manipulate the plant in a manner that would allow reactor power level to be indicated for continuous monitoring. One explanation for the demonstrated difficulties could be deficiencies in the simulator core modeling.

c. Several candidates demonstrated a weakness in knowing what "normal at power" parameters would indicate.

d. Two simulator crews seemed confused as to what actions to take when using procedure 2-AOI-6-1, Feedwater Heater String Isolation, when used in conjunction with 2-OI-6, Feedwater Heating and Misc Drains, especially at low power levels.

e. Some candidates demonstrated difficulty interpreting Technical Specification, section 1.C.2, when coupled with a Diesel Generator or Emergency Equipment Cooling Water Pump failure.

The professional demeanor and cooperation given to the examiners and the effort to ensure an atmosphere in the control room conducive to oral examinations was also noted and appreciated.

The licensee did not identify as proprietary any of the material provided to or reviewed by the examiners.

NRC Official Use Only

NRC

Nuclear Regulatory Commission
Operator Licensing
Examination

RO Master

File

This document is removed from
Official Use Only category on
date of examination.

NRC Official Use Only

U. S. NUCLEAR REGULATORY COMMISSION
REACTOR OPERATOR LICENSE EXAMINATION
REGION 2

FACILITY: Browns Ferry 1, 2, & 3

REACTOR TYPE: BWR-GE4

DATE ADMINISTERED: 90/12/10

CANDIDATE:

INSTRUCTIONS TO CANDIDATE:

Points for each question are indicated in parentheses after the question. To pass this examination, you must achieve an overall grade of at least 80%. Examination papers will be picked up four and one half (4 1/2) hours after the examination starts.

NUMBER QUESTIONS	TOTAL POINTS	CANDIDATE'S POINTS	CANDIDATE'S OVERALL GRADE (%)
~~98~~ 96	~~100.00~~ 98.00		

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

Candidate's Signature

NRC RULES AND GUIDELINES FOR LICENSE EXAMINATIONS

During the administration of this examination the following rules apply:

1. Cheating on the examination means an automatic denial of your application and could result in more severe penalties.

2. After the examination has been completed, you must 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. This must be done after you complete the examination.

3. Restroom trips are to be limited and only one candidate at a time may leave. You must avoid all contacts with anyone outside the examination room to avoid even the appearance or possibility of cheating.

4. Use black ink or dark pencil only to facilitate legible reproductions.

5. Print your name in the blank provided in the upper right-hand corner of the examination cover sheet.

6. Fill in the date on the cover sheet of the examination (if necessary).

7. You may write your answers on the examination question page or on a separate sheet of paper. USE ONLY THE PAPER PROVIDED AND DO NOT WRITE ON THE BACK SIDE OF THE PAGE.

8. If you write your answers on the examination question page and you need more space to answer a specific question, use a separate sheet of the paper provided and insert it directly after the specific question. DO NOT WRITE ON THE BACK SIDE OF THE EXAMINATION QUESTION PAGE.

9. Print your name in the upper right-hand corner of the first page of answer sheets whether you use the examination question pages or separate sheets of paper. Initial each of the following answer pages.

10. Before you turn in your examination, consecutively number each answer sheet, including any additional pages inserted when writing your answers on the examination question page.

11. If you are using separate sheets, number each answer and skip at least 3 lines between answers to allow space for grading.

12. Write "Last Page" on the last answer sheet.

13. Use abbreviations only if they are commonly used in facility literature. Avoid using symbols such as < or > signs to avoid a simple transposition error resulting in an incorrect answer. Write it out.

14. The point value for each question is indicated in parentheses after the question. The amount of blank space on an examination question page is NOT an indication of the depth of answer required.

15. Show all calculations, methods, or assumptions used to obtain an answer.

16. Partial credit may be given. Therefore, ANSWER ALL PARTS OF THE QUESTION AND DO NOT LEAVE ANY ANSWER BLANK. NOTE: partial credit will NOT be given on multiple choice questions.

17. Proportional grading will be applied. Any additional wrong information that is provided may count against you. For example, if a question is worth one point and asks for four responses, each of which is worth 0.25 points, and you give five responses, each of your responses will be worth 0.20 points. If one of your five responses is incorrect, 0.20 will be deducted and your total credit for that question will be 0.80 instead of 1.00 even though you got the four correct answers.

18. If the intent of a question is unclear, ask questions of the examiner only.

19. When turning in your examination, assemble the completed examination with examination questions, examination aids and answer sheets. In addition, turn in all scrap paper.

20. To pass the examination, you must achieve an overall grade of 80% or greater.

21. There is a time limit of (4 1/2) hours for completion of the examination. (or some other time if less than the full examination is taken.)

22. When you are done and have turned in your examination, leave the examination area as defined by the examiner. If you are found in this area while the examination is still in progress, your license may be denied or revoked.

QUESTION: 001 (1.00)

SELECT the ONE statement that describes a condition that will trip a diesel generator while it is operating in parallel with the system.

a. Generator field breaker trips.

b. Speed increases to 1015 rpm.

c. EECW pressure is zero psig.

d. Lube oil pressure is 3 psig.

QUESTION: 002 (1.00)

Given the following exposure history data for an individual:

Lifetime exposure:	19500 mrem (Form 4 on file).
Annual exposure:	4300 mrem.
Quarterly exposure:	600 mrem.
Age:	22.
Sex:	Male.

SELECT the ONE statement below that describes the MAXIMUM ADDITIONAL whole body exposure the individual is allowed in the current calendar quarter under FEDERAL (10 CFR 20) exposure limits.

a. 400 mrem.

b. 500 mrem.

c. 650 mrem.

d. 700 mrem.

QUESTION: 003 (1.00)

SELECT the ONE statement that describes conditions that requires the issuance of a Radiation Work Permit (RWP).

a. Entry into an area with general field radiation levels of 155 mrem per hour.

b. Expected exposure during the course of the normal work week will result in 50 mrem exposure.

c. Entry into an area with fixed contamination and general field radiation levels of 25 mrem per hour.

d. Entry into the reactor building with Iodine-131 airborne concentrations at 0.1 MPC.

QUESTION: 004 (1.00)

SELECT the ONE statement that describes the condition that would cause the ROD WITHDRAWAL BLOCK annunciator to alarm during a reactor startup.

a. SRM D indicates upscale, SRM and IRM detectors are fully retracted from the core, the Reactor Mode Switch is in RUN.

b. SRM C indicates 3 E 4 cps, IRMs are on range 4, SRM C detector is fully retracted from the core.

c. SRM A fails downscale, IRMs are on range 2, SRM A detector is partially retracted from the core.

d. SRM B indicates 1500 cps, SRM D indicates 50 cps, IRMs are on range 4, SRM B detectors is partially retracted from the core.

QUESTION: 005 (2.00)

MATCH the TYPE OF TAG/AID in COLUMN B to the CONDITION/CIRCUMSTANCE where it is used in COLUMN A. NOTE: Each response in Column B may be used once, more than once, or not at all and only ONE answer may occupy one answer space.

COLUMN A CONDITION/CIRCUMSTANCE	COLUMN B TYPE OF TAG/AID
a. A component is making unusual noise and shouldn't be used unless absolutely necessary. until it is repaired.	1. Hold Notice Tag.
	2. Caution Order Tag.
	3. Posted Operator Aid.
b. A nitrogen valve must be closed to prevent personnel hazard in a confined space.	4. Temporary Alteration Control Tag.
c. Used to identify a jumper across contacts on a relay during maintenance on a safety system. IDENTIFIED MAINT. UNDER A WORK ORDER.	5. Plant Equipment Deficiency Tag.
d. Additional guidance is needed to assist the operator with the normal operation of a component.	

QUESTION: 006 (1.00)

TIP traces are being run on Unit 2 at 95% power. A TIP detector is being driven into the core when a loss of all feedwater causes reactor water level to decrease and automatically initiate HPCI and RCIC.

SELECT the ONE statement that describes the response of the Traversing Incore Probe (TIP) system if the Manual Switch is in FWD.

a. The TIP detector immediately retracts and the ball valve closes when the detector is in its shield chamber.

b. The TIP detector immediately retracts and the shear valve fires if the detector is not in its shield chamber within 20 seconds.

c. The TIP detector inserts until the core limit light (top) illuminates, then automatically retracts and begins scanning.

d. The TIP detector inserts until the core limit light (top) illuminates, then retracts and the ball valve closes when the detector is in its shield chamber.

QUESTION: 007 (1.00)

Given the plant data provided on Attachment 1, 2-SI-4.6.E.1, "Jet Pump Operability (Two Pump Operation):"

SELECT the ONE statement that describes the results of the surveillance.

a. The surveillance is satisfactory, however indicated core flow differs from its loop flow derived value by more than 10%.

b. The surveillance is satisfactory, however the loop flow imbalance exceeds 10%.

c. The surveillance is unsatisfactory, the loop flow imbalance exceeds 15% and a jet pump dp varies from the jet pump mean dp by more than 10%.

d. The surveillance is unsatisfactory, more than one jet pump dp varies from the jet pump mean dp by more than 10%.

QUESTION: 008 (1.00)

A valve that is under a Hold Notice is required to be verified open.

SELECT the ONE statement that describes the correct method for this verification.

a. Remove the Hold Notice (release the clearance) and move the Handwheel open or closed to verify the valve is off its seat.

b. Leave the Hold Notice attached (do not release the clearance) and move the Handwheel to the closed direction and verify stem movement.

c. Remove the Hold Notice (release the clearance) move the handwheel to the closed direction and verify stem movement.

d. Do NOT move the valve until a temporary release has been issued then move the handwheel to the closed direction and verify stem movement.

QUESTION: 009 (1.00)

While using the Safety Parameter Display System (SPDS) the operator notes a parameter value display changes from GREEN to YELLOW.

SELECT the ONE statement that describes the significance of the change in the color of the display.

a. A radiological limit has been exceeded for that parameter.

b. The parameter's normal operating range has been exceeded.

c. The computer has substituted a value for that parameter.

d. The parameter has exceeded an EOI entry condition.

QUESTION: 010 (1.00)

A P-1 printout is run on the process computer yielding the following data on the most limiting node in the core:

CMAPR:	0.96
CMFLPD:	0.92
CMFCP:	1.01

SELECT the ONE thermal limit that is being exceed.

a. Average Planar Linear Heat Generation Rate.

b. Linear Heat Generation Rate.

c. Fuel Cladding Integrity Safety Limit.

d. Minimum Critical Power Ratio.

QUESTION: 011 (1.00)

SELECT the ONE statement that describes the proper method for closing a manual gate valve while performing a valve lineup.

a. Rapidly spin the handwheel until the disc is seated, then use a valve wrench to turn the handwheel an additional 1/8 - 1/4 turn.

b. Turn the handwheel until disc contact is just made with the seat, then turn the handwheel an additional 1/2 turn.

c. Turn the handwheel until contact is just made with the seat, then turn the handwheel an additional 1/8 - 1/4 turn.

d. Rapidly spin the handwheel until the disc is seated, then use a valve wrench to turn the handwheel an additional 1/2 turn.

QUESTION: 012 (1.00)

SELECT the ONE statement that describes a proper method for performing an independent verification of a locked throttled valve following the initial positioning of the valve.

a. Remove the locking device, close the valve, reopen the valve to the desired position, then reinstall the locking device.

b. Close the valve, reopen the valve to the desired position while counting the number of turns, then install the locking device.

c. Check the locking device to ensure it is properly installed, then verify the valve is throttled by checking its mechanical position indicator.

d. Check that the valve is throttled by using system flow indication, then install the locking device.

QUESTION: 013 (1.00)

SELECT the ONE statement that describes the MAXIMUM number of visitors that may be escorted by a single individual in a Vital Area.

a. Three, unless more are authorized by the Plant Manager.

b. Five, unless more are authorized by the Plant Manager.

c. Three.

d. Five.

QUESTION: 014 (1.00)

Unit 2 is at 8% power during a startup with 2 Unit Operators assigned to the main control room.

The Fire Brigade is being assembled for a suspected fire on Unit 3.

SELECT the ONE statement that describes the Unit 2 Reactor Operators response to the Fire Brigade.

a. The extra Reactor Operator should report to the Fire Brigade assembley area.

b. The senior Reactor Operator should report to Unit 3 Main control room.

c. Neither Reactor Operator should respond to the Fire Brigade.

d. Unit 2 should be scrammed. After stabelized the unit, the Senior Reactor Operator should report to Unit 3 Main control room.

QUESTION: 015 (1.00)

SELECT the ONE statement that describes the expected effect on the Control Rod Drive (CRD) Hydraulic system to a loss of control air header pressure.

a. The stabilizing valves open making drive pressure unstable.

b. The scram inlet and outlet valves begin to close causing rods to start scramming into the core.

c. The flow control valve closes limiting the ability to manually drive control rods.

d. The drive water pressure control valve opens lowering drive water pressure.

QUESTION: 016 (1.00)

SELECT the ONE statement that describes the operation of the CRD NOTCH OVERRRIDE switch (HS-85-47).

a. The EMERGENCY IN position bypasses the RSCS group notch logic function.

b. The EMERGENCY IN position bypasses the RWM group notch logic function.

c. The NOTCH OVERRIDE position overrides RWM group notch logic function.

d. The NOTCH OVERRIDE position overrides RSCS group notch logic function.

QUESTION: 017 (1.00)

The Refuel Mode One Rod Permissive Blue Light is Illuminated.

SELECT the ONE statement that describes the present plant conditions.

a. The mode switch is in REFUEL and the light indicates rods Full In Overtravel.

b. The mode switch is in REFUEL and one rod is withdrawn.

c. The mode switch is in REFUEL, Refuel Bridge is over the core and one rod is withdrawn.

d. The mode switch is in REFUEL and a one rod bypass permissive exist for RPIS.

QUESTION: 018 (1.00)

SELECT the ONE statement that describes an indication of an uncoupled control rod when performing a control rod coupling integrity check at position 48.

a. Rod display blanks and red backlighting on the full core display extinguishes.

b. Rod display blanks and the rod select power is deenergized by RSCS.

c. Rod display does not change from position 48 and the CONTROL ROD WITHDRAWAL annunciator alarms.

d. Rod display does not change from position 48 and the CONTROL ROD DRIFT annunciator alarms.

QUESTION: 019 (1.00)

Given the following plant conditions during a reactor startup:

Reactor power: 11%.

All rods in Group 16 have just been moved to their withdraw limit (the rod movement timer just deenergized the settle bus for the last rod).

All other rods are at their assigned positions.

SELECT the ONE statement that describes proper operation of the Rod Sequence Control System (RSCS).

a. All backlights for Group 16 are dimly lit except for the selected rod which is brightly lit.

b. All backlights for Group 16 are extinguished except for the selected rod which is brightly lit.

c. All backlights for Group 17 are dimly lit, the selected rod in Group 16 is brightly backlit.

d. All backlights for Group 17 rods are dimly lit, all other rod backlights are extinguished.

QUESTION: 020 (1.00)

During a startup, power is 18% and is being raised by withdrawing Group 30 control rods. Current rod positions are in accordance with the prescribed rod sequence. Rod sequence data is given below.

Group 30 insert limit: 00.
Group 30 withdraw limit: 12.
Group 30 rod positions: All rods are at position 08.

Group 26 insert limit: 08.
Group 26 withdraw limit: 12.

SELECT the ONE statement that describes the expected window displays on the Rod Worth Minimizer if Group 26 rod 18-43 is selected and moved from position 12 to position 14.

a. Withdraw error window: Blank.
Insert error window: 18-43.
Rod Group Window: 26.

b. Withdraw error window: 18-43
Insert error window: Blank.
Rod Group Window: 26.

c. Withdraw error window: Blank
Insert error window: 18-43.
Rod Group Window: 30.

d. Withdraw error window: 18-43
Insert error window: Blank.
Rod Group Window: 30.

QUESTION: 021 (1.00)

SELECT the ONE statement that describes the reason all of the jet pumps must be operable during power operation.

a. The ability to adequately cool the core following a design basis loss of coolant accident may be jeopardized.

b. The reverse flow through the inoperable jet pump could cause vibration of the remaining jet pumps and damage them also.

c. The APRM flow biased setpoint is not valid unless all jet pumps are operable.

d. The flow imbalance makes the process computer MCPR calculations non-conservative and thermal limits could be exceeded.

QUESTION: 022 (1.00)

SELECT the ONE statement that describes an interlock, trip or operating limitation that ensures a recirculation pump has adequate net positive suction head (NPSH).

a. Pump trips if the recirculation pump suction valve is less than 90% open.

b. Bottom head to steam dome differential temperature must be less than 145 F to start a recirculation pump.

c. Pump speed is limited to 75% if one feedwater pump is idle and level is less than + 27 inches.

d. Loop to loop differential temperature must be less than 50 F to start an idle recirculation pump.

QUESTION: 023 (1.00)

SELECT the ONE statement below that describes a condition that will limit Recirculation Pump speed to 28% by enabling the 28% limiter.

a. Recirculation pump suction valve is 95% open.

b. Reactor feedwater pump "A" flow is 12%.

c. Total steam flow is 18%.

d. Total feedwater flow is 16%.

QUESTION: 024 (1.00)

During a level transient on Unit 2 the following events occurred:

Reactor water level decreased to -125 inches.
ADS actuated.
RHR pump A and B started and injected to the reactor vessel.
RPV water level is +25 inches and increasing.
No operator actions have been taken.

SELECT the ONE statement that describes the Residual Heat Removal (RHR) system response to placing the RHR pump A control switch to the STOP position.

a. RHR pump A will stop and the amber light above the control switch will light.

b. No effect, RHR pump A will continue to run until the LOCA initiation signal is reset..

c. RHR pump A will stop and the yellow initiation signal light will extinguish.

d. RHR pump will stop and then restart when the switch is released.

QUESTION: 025 (1.00)

The Reactor Water Cleanup (RWCU) system is operating with the A pump running and the B filter-demineralizer in service at 135 gpm flow.

SELECT the ONE statement that describes the expected automatic response of the RWCU system if the B filter-demineralizer is inadvertently valved out of service.

a. The B filter-demineralizer holding pump will start. The A RWCU pump trips when system flow decreases to less than 90 gpm for 7 seconds.

b. The B filter-demineralizer BYPASS valve will automatically open and the A RWCU pump will continue to operate.

c. If in automatic the A filter-demineralizer automatically returns to service when the B filter-demineralizer dp exceeds 20 psid.

d. The system automatically isolates and the A pump trips when system flow decreases to less than 40 gpm for 7 seconds.

QUESTION: 026 (1.00)

Residual Heat Removal (RHR) SYS I is in shutdown cooling mode with the A RHR pump running.

SELECT the ONE statement that describes a condition that will trip the A RHR pump.

a. Reactor water level decreases to +18 inches.

b. Drywell pressure increases to 2.8 psig.

c. Reactor pressure increases to 100 psig.

d. RHR SYS I OUTBD INJECTION VALVE (FCV-74-52) is manually closed.

QUESTION: 027 (1.00)

SELECT the ONE statement that describes a condition that will result in a Group 4 isolation while the Unit 2 High Pressure Coolant Injection (HPCI) system is operating.

a. HPCI turbine speed is 5150 rpm.

b. Reactor water level is +57 inches.

c. HPCI turbine exhaust line pressure is 85 psig.

d. Reactor pressure is 90 psig.

QUESTION: 028 (1.00)

SELECT the ONE statement that describes the response of the High Pressure Coolant Injection (HPCI) pump suction valves if the Condensate Storage Tank (CST) level decreases to 10.5 feet as read on 2-LI-2-161.

a. The Suppression Pool Suction Valves open when the CST Suction Valve is fully closed.

b. The Suppression Pool Suction Valves open when the CST Suction Valve is not fully open.

c. The CST Suction Valve closes when both the Suppression Pool Suction Valves are fully open.

d. The CST Suction Valve will close when either the of Suppression Pool Suction Valves are not fully closed.

QUESTION: 029 (1.00)

The following conditions exist for Unit 2.

Unit	In Shutdown Cooling
4kV Shutdown Board A	Under clearance (Deenergized)
RPS Bus A	Under clearance (Deenergized)

SELECT the ONE statement that describes CORE SPRAY starting sequence in response to a LOCA signal.

	PUMP	TIME
a.	A	0 Seconds
	B	7 Seconds
	C	14 Seconds
	D	21 Seconds
b.	A	7 Seconds
	B	7 Seconds
	C	7 Seconds
	D	7 Seconds
c.	A	0 NOT Start
	B	14 Seconds
	C	0 Seconds
	D	14 Seconds
d.	A	NOT Start
	B	7 Seconds
	C	NOT Start
	D	21 Seconds

QUESTION: 030 (1.00)

The reactor is operating at rated conditions when the Core Spray system II injection header breaks between the reactor vessel wall and the core shroud.

SELECT the ONE statement that describes expected indications for the CORE SPRAY SYS II HIGH DP HDR TO CORE PLATE Annunciator and the Core Spray Leak Detector indicator.

a. Annunciator: Alarming.
   Indicator: Upscale positive differential pressure.

b. Annunciator: Alarming.
   Indicator: Negative differential pressure.

c. Annunciator: Not alarming.
   Indicator: Negative differential pressure.

d. Annunciator: Not alarming.
   Indicator: Upscale positive differential pressure.

QUESTION: 031 (1.00)

Given the following plant condition:

SLC LOSS OF SQUIB VALVE CONTINUITY annunciator: Alarming.
Squib valve A firing circuit is open (0 ma current flow).

SELECT the ONE statement that describes the effect of taking the Standby Liquid Control (SLC) pump control switch to the START A position.

a. The A pump starts and recirculates the sodium pentaborate solution through the relief valve, and the RWCU system isolates.

b. The A pump starts and recirculates the sodium pentaborate solution through the relief valve, and the RWCU system does not isolate.

c. The A pump starts, the B squib valve fires, and RWCU does not isolate.

d. The A pump starts, the B squib valve fires, and the RWCU system isolates.

QUESTION: 032 (1.00)

At 45% power, the #4 main turbine stop valve closes.
SELECT the ONE statement that describes the effect on the Reactor Protection System (RPS) if the Main Turbine Stop Valve #1 drifts closed.

a. RPS channels A and B trip causing a full scram.

b. RPS channel A trips causing a half-scram.

c. RPS channel B trips causing a half-scram.

d. Neither RPS channel trips.

QUESTION: 033 (1.00)

SELECT the ONE statement that describes the indications on the full core display and digital position display if the S00 limit switch for a fully inserted control rod is inoperable.

a. Green full-in light: Lit.
   Digital position indicator: 00.

b. Green full-in light: Lit.
   Digital position indicator: Blank.

c. Green full-in light: Extinguished.
   Digital position indicator: 00.

d. Green full-in light: Extinguished.
   Digital position indicator: Blank.

QUESTION: 034 (1.00)

Unit 2 is operating at 85% power and 78% core flow. A three LPRM string control rod is selected.

SELECT the ONE statement that describes a condition that results in the Rod Block Monitor (RBM) A generating a control rod block.

a. RBM A indication: 8%.
   LPRM downscale trips: 3 (all associated with RBM A).
   Reference set light lit: High.

b. RBM A indication: 75%.
   LPRM downscale trips: 4 (all associated with RBM A).
   Reference set light lit: Low.

c. RBM A indication: 81%
   LPRM downscale trips: 1 (all associated with RBM A).
   Reference set light lit: Intermediate.

d. RBM A Indication: 90%
   LPRM downscale trips: 2 (all associated with RBM A).
   Reference set light lit: High.

QUESTION: 035 (1.00)

Given the following plant conditions on Unit 2:

Reactor power:	25/125 scale on range 3.
Reactor mode switch:	STARTUP/HOT STANDBY.
Reactor pressure:	850 psig.
Reactor status:	Subcritical.

SELECT the ONE statement that identifies a condition that will NOT result in an Intermediate Range Monitor generating a control rod block.

a. IRM B function switch is placed to STANDBY.

b. IRM C is ranged down from range 3 to range 2.

c. IRM D is ranged up from range 3 to range 5.

d. IRM E detector is withdrawn from fully inserted.

QUESTION: 036 (1.00)

Given the following plant conditions:

APRM indicated power:	80%
Total core flow: Wd	42%

SELECT the ONE statement that describes expected trip status of the APRMs.

a. Inop trip rod block only.

b. High trip rod block only.

c. High-high thermal trip (scram).

d. High-high neutron trip (scram).

QUESTION: 037 (1.00)

SELECT the ONE statement that describes the effect on reactor water level instrumentation of ambient temperature increasing in the vicinity of the reference leg run.

a. Indicated level increases due to reference leg water density decreasing.

b. Indicated level increases due to reference leg water density increasing.

c. Indicated level decreases due to reference leg water density increasing.

d. Indicated level decreases due to reference leg water density decreasing.

QUESTION: 038 (1.00)

Given the following plant conditions:

The Reactor Core Isolation Cooling (RCIC) and High Pressure Coolant Injection (HPCI) systems are operating in CST to CST recirculation mode in accordance with EOI appendix 11.
Reactor water level is being maintained by condensate booster pumps at + 30 inches.

SELECT the ONE statement that describes the effect on the RCIC system if the HPCI pump suction automatically swaps to the suppression pool source.

a. A no-flow condition will exist and the RCIC pump is in danger of overheating.

b. The RCIC Pump Minimum Flow Valve (FCV-71-34) will open when flow decreases to less than 60 gpm.

c. RCIC will trip on low pump suction pressure when the RCIC CST suction valve closes.

d. RCIC will trip on high pump discharge pressure due to a no-flow condition existing.

QUESTION: 039 (1.00)

Given the following plant conditions following a Loss of Offsite Power:

Reactor water level:	Less than - 114.5 inches for two minutes.
Drywell pressure:	1.4 psig
Low pressure injection:	All systems are operating normally.
High pressure injection:	RCIC is operating and is unable to recover level.

SELECT the ONE statement that describes the expected response of the Automatic Depressurization System (ADS). The ADS valves will actuate:

a. In 2 minutes 25 seconds unless the 95 second timer is manually reset.

b. In 2 minutes 25 seconds unless the 265 second timer is manually reset.

c. In 4 minutes unless the 95 second timer is manually reset.

d. In 4 minutes unless the 265 second timer is manually reset.

QUESTION: 040 (1.00)

Following a loss of offsite power, all of the Diesel Generators are running and carrying loads on their respective shutdown boards. The Residual Heat Removal lineup is identified below:

System I: Suppression pool cooling mode, RHR pump C running.
System II: Suppression pool cooling mode, RHR pump B running.

SELECT the ONE statement that describes the effect on the RHR system if the B diesel generator trips on a generator fault.

a. RHR pump 2B will be deenergized. RHR loop II will drain to the suppression pool via the test line.

b. RHR pump 2B will be deenergized. The RHR System II Suppression Pool Spray/Test Isolation Valve (FCV-74-71) closes when the pump deenergizes.

c. RHR pump 2C will be deenergized. RHR loop I will drain to the suppression pool via the test line.

d. RHR pump 2C will be deenergized. The RHR System II Suppression Pool Spray/Test Isolation Valve (FCV-74-57) will close when the pump deenergizes.

QUESTION: 041 (1.00)

SELECT the ONE statement that describes the operation of the Primary Containment Isolation System (PCIS) with respect to automatically isolating the Main Steamline Isolation Valves (MSIVs).

a. Two DC powered solenoid operated valves energize to close each of the outboard MSIVs.

b. Two AC powered solenoid operated valves deenergize to close each of the outboard MSIVs.

c. One AC and one DC powered solenoid operated valves deenergize to close each of the outboard MSIVs.

d. One AC and one DC powered solenoid operated valves energize to close each of the inboard MSIVs.

QUESTION: 042 (1.00)

The Drywell Leak Detection valves responded to a PCIS Group 6 Isolation signal.

SELECT the ONE statement that describes the condition necessary for valve opening.

a. The valves will automatically open when the isolation signal is no longer present.

b. After the isolation signal clears, reset the PCIS isolation signal on panel 9-5 and manually open the valves.

c. The valves may not be opened as long as a PCIS isolation signal exist.

d. After the Isolation signal is clear, reset the PCIS isolation logic on panel 9-5, and reset the valve logic on panel 9-2 and the valves will automatically open.

QUESTION: 043 (1.00)

During a loss of coolant accident, drywell sprays must be initiated.

SELECT the ONE statement that describes the plant conditions that must exist to open the RHR SYS I DW SPRAY INBD VLV (2-FCV-74-61) to align RHR to spray the drywell with the CONT SPRAY VLV SEL MAN OVERRIDE switch in MANUAL OVERRIDE.

a. RPV level must be greater than -48 inches (Emergency System Range).

b. RPV level must be greater than -210 inches (post accident range).

c. RPV level must be greater than 0 inches (wide range).

d. RPV level must be greater than 0 inches (post accident range).

QUESTION: 044 (1.00)

While offloading fuel bundles from the reactor, fuel pool level begins to decrease uncontrollably.

SELECT the ONE statement that describes a method available from the control room to add water to the fuel pool.

a. Align fuel pool cooling and cleanup heat exchanger RBCCW supply to the fuel pool to maintain level.

b. Start a condensate pump and inject to the reactor vessel to maintain fuel pool level.

c. Open the emergency makeup supply valve from EECW to the fuel pool to maintain level.

d. Gravity drain the CST to the fuel pool via the main condenser hotwell to maintain level.

QUESTION: 045 (1.00)

SELECT the ONE statement that describes a condition that will generate a ROD BLOCK with the Reactor Mode Switch in the REFUEL position.

a. The refuel platform is over the spent fuel racks and is moving a fuel bundle.

b. The refuel platform is over the core and one control rod is withdrawn.

c. The refuel platform is over the core and is raising a fuel bundle.

d. The refuel platform is over the spent fuel racks and the full-up light is lit.

QUESTION: 046 (1.00)

A SRV inadvertently opens and the SRO directs the Acoustic Monitor power switch be placed to OFF and back to On.

SELECT the ONE statement that describes why this action is taken.

a. This will clear the main control room alarm so a second SRV alarm could be detected.

b. This will activate the SRV tail pipe temperature recorder.

c. This will activate the acoustic monitor detector by applying a charging voltage.

d. This will verify the Acoustic Monitor is not showing a false open signal.

QUESTION: 047 (1.00)

A reactor plant startup is in progress with reactor power at 65%.

SELECT the ONE statement that describes the expected FINAL STEADY STATE status of the components/parameters listed below if core flow is rapidly increased resulting in reactor power increasing to 80%.

Components/Parameters: Turbine Control Valves (TCVs)
Turbine Bypass Valves (BPVs)
RPV pressure
Steam chest pressure

a.	TCVs: BPVs:	Opened more. Closed.	RPV pressure: Steam chest press:	Higher. Higher.
b.	TCVs: BPVs:	No change. Throttled open.	RPV pressure: Steam chest press:	No change. Lower.
c.	TCVs: BPVs:	No change. Throttled open.	RPV pressure: Steam chest press:	No change. Higher.
d.	TCVs: BPVs:	Opened more. Closed.	RPV pressure: Steam chest press:	Higher. Lower.

QUESTION: 048 (1.00)

SELECT the ONE statement that describes a condition that will cause the main turbine to automatically trip.

a. Generator amps are 6000 amps 2 minutes after all stator cooling water pumps have tripped.

b. Thrust bearing wear > (+ or -) 21.8 mills.

c. MSOP discharge pressure is 125 psig while tied to the grid.

d. Main turbine lube oil tank -8" below normal.

QUESTION: 049 (1.00)

Given the following plant conditions while operating at 35% power:

Pressure regulator in control:	A.
Load limiter setpoint:	100%.
Maximum combined flow setpoint:	110%.

SELECT the ONE statement that describes the expected plant response to the Steam Throttle Pressure detector A failing upscale (sensed pressure is failed high).

a. The turbine control valves and bypass valves open, the MSIVs close, the reactor scrams.

b. The turbine control valves and bypass valves close, reactor pressure and power increase, the reactor scrams.

c. The turbine control valves close until the B pressure regulator takes control, reactor power and pressure increase slightly.

d. The turbine control valves open until the B pressure regulator takes control, reactor power and pressure decrease slightly.

QUESTION: 050 (1.00)

SELECT the ONE statement that describes an expected response of the Condensate and Feedwater systems to the C3 Feedwater Heater normal drain valve failing closed.

a. The C3 heater emergency drain valve will open.

b. The C low pressure heater string (C3-C4-C5) will isolate.

c. The No. 3 heaters extraction steam bypass valve will open.

d. The No. 3 heaters extraction steam inlet valves will close.

QUESTION: 051 (1.00)

The reactor is operating at 90% power with feedwater level control in three-element control.

SELECT the ONE statement that describes the expected final plant response to one of the four main steam line flow signals to feedwater level control failing to its maximum value.

a. Reactor water level will decrease and stabilize at a lower level, reactor power remains at about 90%.

b. Reactor water level will decrease until the reactor scrams on low water level.

c. Reactor water level will increase until the main turbine trips causing a reactor scram.

d. Reactor water level will increase and stabilize at a higher level, reactor power remains at about 90%.

QUESTION: 052 (1.00)

The reactor is operating at 65% power with the A and B reactor feedwater pumps (RFPs) operating in single-element control.

SELECT the ONE statement that describes the effect on feedwater level control if the Unit Preferred bus is deenergized.

a. Both of the RFPs increase speed to the high speed stop of the motor governor unit, the main and RFP turbines trip on high level.

b. Both of the RFPs lock up at their current speed, level increases or decreases depending on changes in reactor power.

c. The A RFP decreases speed to the low speed stop on the motor governor unit, the reactor scrams on low level.

d. The A RFP locks up at its current speed, the B RFP controls level at the current level.

QUESTION: 053 (2.00)

MATCH each of the AUTOMATIC ACTIONS in COLUMN A to its RPV LEVEL INITIATION SIGNAL in COLUMN B. NOTE: Each response in Column B may be used once, more than once, or not at all and only ONE answer may occupy one answer space.

COLUMN A AUTOMATIC ACTIONS	COLUMN B RPV LEVEL INITIATION SIGNAL
a. Standby Gas Treatment initiates.	1. +54 inches.
b. High Pressure Coolant Injection initiates.	2. +18 inches.
c. Alternate Rod Insertion actuates.	3. +11 inches.
d. Reactor Feed Pump Turbines trip.	4. -45 inches.
	5. -51.5 inches
	6. -105.6 inches.
	7. -114.5 inches.

QUESTION: 054 (1.00)

Given the following plant conditions:

AC distribution is in its NORMAL lineup initially.
Shutdown Board 43S switches are in AUTO.
Shutdown Bus 1 deenergizes due to a electrical fault.

SELECT the ONE statement that describes the normal operation of the Shutdown Boards.

a. Shutdown Board A will automatically transfer to Shutdown Bus 1 when it is reenergized.

b. Shutdown Board C will automatically transfer to Shutdown Bus 1 when it is reenergized.

c. Shutdown Board B must be manually transferred to Shutdown Bus 1 when it is reenergized.

d. Shutdown Board D must be manually transferred to Shutdown Bus 1 when it is reenergized.

QUESTION: 055 (1.00)

SELECT the ONE statement that describes the function of the Emergency ON select switch for the 2B 250V DC unit battery charger.

a. Allows manual selection of Emergency load shed operations during a loss of off site power when no DG is operating.

b. Allows battery charger to be placed in service with electrical faults present, if an accident signal exist and no DG is operating.

c. If in Emergency ON will re-establish charger operations with an accident signal present and DG voltage is present.

d. If in Emergency ON will allow momentarily charger feed cross tie to allow establishing charger reference voltage, provided DG voltage is available.

QUESTION: 056 (1.00)

Given the following plant conditions:

A loss of offsite power has occurred for all of the units.
Reactor water level is -120 inches on Unit 2.
Diesel generator C and 3EC are inoperable.
All other diesel generators start and reenergize their respective buses normally.

SELECT the ONE statement that describes an expected response of the shutdown boards' loads starting.

a. RHR pump 2C starts 7 seconds after shutdown board D is reenergized by its diesel.

b. Core spray pump 2D starts 21 seconds after shutdown board D is reenergized by its diesel.

c. Core spray pump 2C starts 14 seconds after shutdown board B is reenergized by its diesel.

d. RHR pump 2C starts immediately when shutdown board B is reenergized by its diesel.

QUESTION: 057 (1.00)

Given the following plant conditions on Unit 2:

The drywell sump integrator data from Sunday 12/2/90 to Tuesday 12/4/90 is provided on Attachment 2.

SELECT the ONE statement that identifies the Technical Specification requirement that has been exceeded.

TECHNICAL SPECIFICATION 3.6.C IS PROVIDED AS ATTACHMENT 2 FOR YOUR REFERENCE.

a. Identified coolant leakage increased by more than 2 gpm averaged over a day on Tuesday.

b. Unidentified leakage exceeded 5 gpm averaged over 24 hours on Tuesday.

c. Total coolant leakage increased by more than 2 gpm averaged over 24 hours on Tuesday.

d. Total coolant leakage exceeded 25 gpm averaged over 24 hours on Tuesday.

QUESTION: 058 (1.00)

While operating at rated power, the A Post-treatment Radiation Monitor fails downscale on Unit 2.

SELECT the ONE statement that describes a condition that would result in the Offgas System Isolation Valve (FCV-66-28) automatically closing.

a. Pre-treatment radiation monitor alarming HIGH.

b. Pre-treatment flux tilt radiation monitor failing downscale.

c. Post-treatment radiation monitor B failing downscale.

d. Post-treatment radiation monitor B alarming HIGH.

QUESTION: 059 (1.00)

SELECT the ONE statement that identifies a process radiation monitor that would be inoperable if RPS bus A were deenergized.

a. Offgas flux tilt monitor (RM-90-160)

b. RBCCW discharge monitor (RM-90-131)

c. Stack gas monitor (RM-90-147).

d. Reactor building vent exhaust monitor (RM-90-142).

QUESTION: 060 (1.00)

Given the following plant conditions on Unit 1:

A station service transformer fire has actuated the water spray system for that transformer.
Fire header pressure is 115 psig five minutes after the spray system has actuated.

SELECT the ONE statement that describes the expected automatic operation of the fire pumps.

a. The diesel fire pump and all three electric fire pumps are operating.

b. The diesel fire pump and two of the three electric fire pumps are operating.

c. The diesel fire pump is in standby and all three electric fire pumps are operating.

d. The diesel fire pump and two electric fire pumps are in standby, the selected electric fire pump is operating.

QUESTION: 061 (1.00)

A reactor scram on Unit 2 results in the following plant conditions:

Reactor water level:	-10 inches.
Drywell pressure:	1.0 psig.
Ventilation radiation:	
Reactor building:	68 mr/hour.
Refueling zone:	35 mr/hour.

SELECT the ONE statement that describes the expected status of the control room ventilation.

a. The normal ventilation system is operating. The emergency system is supplying filtered air from the control bay.

b. The normal ventilation system is supplying air to the control room from the control bay.

c. The emergency ventilation system is operating supplying filtered outside air. The normal ventilation system is isolated.

d. The normal ventilation system is supplying outside air to the emergency ventilation system for filtration.

Delete Question
B Hallock 01/01/91

QUESTION: 062 (1.00)

While operating at 90% power the 2A Recirculation Pump trips. The following conditions exist following the pump trip:

Reactor power (APRMs): 63%, with 6% bandwidth oscillations.
Reactor power (LPRMs): 20% bandwidth oscillations occurring.
Core flow: 44%
LPRM UPSCALE annunciators have been received intermittently.

SELECT the ONE statement that describes a required action in accordance with 2-AOI-68-1, "Recirc Pump Trip."

ILLUSTRATION 1, FROM 2-AOI-68-1, "RECIRC PUMP TRIP," IS PROVIDED AS ATTACHMENT 3 FOR YOUR REFERENCE.

a. Reduce recirculation pump B flow to less than 42,200 gpm.

b. Reduce reactor power to less than the 80% rod line within two hours by reducing recirculation flow.

c. Reduce reactor power to less than the 80% rod line within two hours by inserting control rods.

d. Immediately initiate a reactor scram.

QUESTION: 063 (1.00)

Given the following plant conditions:

Reactor mode switch:	STARTUP/HOT STANDBY.
Main turbine:	Shell warming.
Feedwater lineup:	RFP A maintaining level in single element.

SELECT the ONE statement that describes the expected sequence of actions as condenser vacuum decreases from 24" Hg Vac to atmospheric pressure.

a. The Main turbine trips, then later the RFP turbine trips and main turbine bypass valves close at the same time.

b. The RFP turbine trips, then later the turbine bypass valves close, then later the reactor scrams on low condenser vacuum.

c. The RFP turbine trips and the main turbine bypass valves close at the same time.

d. Main turbine trips, then later the RFP turbine trips and main turbine bypass valves clcse at the same time, then later the reactor scrams on low condenser vacuum.

QUESTION: 064 (1.00)

A station blackout has occurred and the following conditions exist on Unit 2:

No diesel generators are tied to their respective shutdown boards.
The Unit Preferred Alternate MMG set is inoperable.

SELECT the ONE statement that identifies a reactor water level instrument that is available to determine reactor water level.

a. EMERGENCY SYSTEM RANGE A (2-LI-3-58A).

b. NORMAL RANGE LEVEL A (2-LI-3-53).

c. NORMAL RANGE LEVEL B (2-LI-3-60).

d. SHUTDOWN FLOOD UP RANGE (2-LI-3-55).

QUESTION: 065 (1.00)

A loss of offsite power to the site has occurred. The Diesel Generators are running and loaded as listed below:

Current D/G loading:

D/G A:	2650 Kw.	D/G C:	2450 kW.
D/G B:	2200 kW.	D/G D:	2000 kW.

The following injection pumps are not in service ~~with~~ their loading Amps ARE indicated.

RHR pump 2C	300 Amps.
RHR pump 2D	280 Amps.
Core Spray pump 2A	90 Amps.
Core Spray pump 2B	80 Amps.

SELECT the ONE statement that identifies an injection pump that could be run for approximately 2 days and satisfy the diesel generator loading criteria.

a. RHR pump 2C.

b. RHR pump 2D.

c. Core spray pump 2A.

d. Core spray pump 2B.

QUESTION: 066 (1.00)

SELECT the ONE statement that identifies the power source to IRM channel G.

a. +/- 24 vdc channel A.

b. 250 vdc Shutdown Board Battery C.

c. Unit preferred bus.

d. RPS bus B.

a = [illegible] kw - 1008 = 3208

b = 2000 kw + 0468 = 2940.8

c = 2650 kw - 352 kw = 2?524

D = 2450 kw + 0683 = 2718.8

QUESTION: 067 (1.00)

At the end of an operating cycle, the End of Cycle RPT breakers are discovered to be inoperable and will not open on a Main Turbine trip.

SELECT the ONE statement that describes a potential effect of the power rise that occurs on a Main Turbine trip prior to the reactor scram turning power.

a. Pressure could exceed the reactor coolant system integrity safety limit.

b. Excessive transition boiling could occur in the core.

c. Excessive plastic strain could cause cracking of the fuel cladding.

d. Cladding temperature could exceed 1500 F following the scram.

QUESTION: 068 (1.00)

While operating at 28% power the following conditions exist on Unit 2:

Recirculation pump speed: 28%
Generator load: 280 MWe.
TURB CV FAST CLOSURE TURB SV CLOSURE SCRAM/RPT TRIP LOGIC BYPASS annunciator is alarming.

SELECT the ONE statement that describes an action that will be required if the main turbine trips and the reactor does not scram.

a. Manually scram the reactor to correct automatic scram failure.

b. Reduce power with recirculation pumps to within the bypass valves capacity as feedwater temperature decreases.

c. Reduce power with control rods to within the bypass valves capacity as feedwater temperature decreases.

d. Manually scram the reactor since there is no forced core flow.

QUESTION: 069 (1.00)

During a reactor startup with the turbine in chest warming mode, the turbine shifted from chest warming to shell warming due to an internal electrical fault, and the reactor scrams.

SELECT the cause of the reactor scram.

a. Turbine first stage pressure exceeded 142 psig removing the turbine trip bypass from RPS.

b. Reactor water level decreased to +11 due to shrink.

c. The MSIVs closed due to low reactor pressure.

d. Reactor power exceeded 15% due to the collapse of voids.

QUESTION: 070 (1.00)

SELECT the ONE statement that describes a method NOT used to reduce Reactor Feedwater cycles during Low Power/Hot Standby operations.

a. Increase RWCU flow.

b. Flush cooler water from the Feedwater system prior to placing the Feedwater system back in service.

c. Minimize operations at Low power.

d. Decrease reactor power or Increase reactor Pressure and Temperature.

QUESTION: 071 (1.00)

Given the following plant conditions on Unit 2:

Reactor power:	95%
Core flow:	101%
Generator load:	1050 MWe.

SELECT the ONE statement that describes the plant response to a failure of the LOAD SET circuitry that runs the LOAD SET signal to its minimum value.

OPL171.014, FIGURE 1, ELECTRO-HYDRAULIC CONTROL UNIT IS PROVIDED AS ATTACHMENT 4 FOR YOUR REFERENCE.

a. The turbine control valves throttle closed and the bypass valves open, the reactor scrams when pressure increases.

b. The turbine control valves remain at their present position and the bypass valves open, the MSIVs close causing a reactor scram.

c. The turbine control valves throttle closed and the bypass valves remain closed, reactor pressure increases and the reactor scrams.

d. The turbine control valves throttle closes and bypass valves open, the MSIVs close causing a reactor scram.

QUESTION: 072 (1.00)

HPCI automatically initiated on high drywell pressure and raised reactor water level to +60 inches.

SELECT the ONE statement that describes the High Pressure Coolant Injection (HPCI) system's response to the high level trip in addition to the HPCI Turbine Stop Valve (73-18) closing.

a. The Minimum Flow Valve (73-30) closes.

b. The Pump Inboard Discharge Valve (73-44) and the Minimum Flow Valve (73-30) both close.

c. The Minimum Flow Valve (73-30) opens when flow decreases below 600 gpm.

d. The Pump Inboard Discharge Valve (73-44) closes, the Minimum Flow Valve (73-30) opens when flow decreases below 600 gpm.

QUESTION: 073 (1.00)

Given the following plant conditions for Unit 2:

Reactor water level: + 48 inches.
Reactor coolant temperature: 185 F.
RHR system I is in shutdown cooling mode.
The Recirculation system has both loops shutdown.

SELECT the ONE statement that describes the potential consequence of the Inboard Shutdown Cooling Suction Valve failing closed.

a. Transition boiling may occur at the reduced reactor pressure causing fuel cladding damage.

b. The differential expansion of the fuel pellets and cladding causes excessive plastic strain on the cladding.

c. Coolant temperature may stratify violating the temperature rise/ pressure limits of Technical Specifications.

d. Coolant temperature may increase unmonitored and change the reactor's conditions from COLD SHUTDOWN to HOT SHUTDOWN.

QUESTION: 074 (1.00)

SELECT the ONE statement that describes the reason drywell sprays are NOT allowed to be initiated if suppression pool level is greater than 18 feet.

a. The suppression pool-reactor building vacuum breakers connection is submerged preventing their operation if needed.

b. The suppression pool-reactor building vacuum breakers connection is submerged and containment integrity would be lost when they open.

c. The drywell-suppression pool vacuum breakers are submerged preventing the return of non-condensables to the drywell.

d. The drywell-suppression pool vacuum breakers are submerged allowing suppression pool water to be siphoned into the drywell.

QUESTION: 075 (1.00)

Given that drywell temperature is 168 F on Unit 2:

SELECT the ONE statement that identifies the Emergency Operating Instruction(s) that should be entered.

a. 2-EOI-1, Reactor Control using all of the sections (RC/L, RC/P, and RC/Q) and 2-EOI-2, Primary Containment Control using all of the sections (SP/L, SP/T, DW/T, and PC/P).

b. 2-EOI-1, Reactor Control using all of the sections (RC/L, RC/P, and RC/Q) and 2-EOI-2, Primary Containment Control using the Drywell Temperature Control (DW/T) section only.

c. 2-EOI-2, Primary Containment Control using the Drywell Temperature Control (DW/T) section only.

d. 2-EOI-2, Primary Containment Control using all of the sections (SP/L, SP/T, DW/T, and PC/P).

QUESTION: 076 (1.00)

While executing 2-EOI-2, Primary Containment Control, Suppression Pool Temperature and Reactor Pressure CANNOT be maintained within the Heat Capacity Temperature Limit.

SELECT the ONE statement that describes the reason the reactor is emergency depressurized.

a. To ensure the drywell spray initiation limit is not exceeded in the event of a design basis loss of coolant accident.

b. To ensure the containment design pressure limit is not exceeded in the event of a steam line break.

c. To ensure adequate energy absorption capability of the suppression pool in the event of a loss of coolant accident.

d. To ensure stable steam condensation occurs in the event of an ADS actuation.

QUESTION: 077 (1.00)

Given the following plant conditions on Unit 2:

The following annunciators are alarming:
APRM HIGH
LPRM HIGH
REACTOR WTR LEVEL A ABNORMAL
HEATER A1 LEVEL HIGH
Reactor power: Increasing.
Moisture separator drain pumps 2A1 and 2A2 tripped.

SELECT the ONE statement that identifies the abnormal operating instruction that should be entered for these conditions.

a. "Recirc Pump Trip," (2-AOI-68-1).

b. "Feedwater Heater String Isolation Abnormal Operating Instructions," (2-AOI-6-1).

c. "Loss of Control Air," (2-AOI-32-2).

d. "Loss of Reactor Feedwater or Reactor Water Level High/Low," (2-AOI-85-6).

QUESTION: 078 (1.00)

A reactor scram has occurred and all control rods did not fully insert.

SELECT the ONE statement that describes how the Rod Sequence Control System interlocks are bypassed to allow manual control rod insertion in accordance with 2-EOI-1, Reactor Control.

a. Place the Reactor Mode switch to REFUEL.

b. Place the RWM Normal-Bypass switch to BYPASS.

c. Depress the System Initialize pushbutton on Panel 9-5.

d. Place the Reset switch to RESET at panel 9-28 (RMCS cabinet).

QUESTION: 079 (1.00)

Given that an electrical fire in the control room requires evacuation of the control room while operating at rated power.

SELECT the ONE statement that describes an action that should be completed prior to abandoning the control room in this situation.

a. Start all available diesel generators.

b. Scram the reactor and close the MSIVs by deenergizing both RPS buses.

c. Place the reactor mode switch to SHUTDOWN then back to REFUEL.

d. Start two EECW pumps on each EECW header.

QUESTION: 080 (1.00)

Given that all RBCCW is lost while operating Unit 2 at rated conditions:

SELECT the ONE statement that describes an action that is required if none of the Reactor Building Closed Cooling Water (RBCCW) pumps can be restarted.

a. Immediately reduce core flow to 40% using the Master/Manual controller.

b. Commence manual insertion of control rods following the approved pattern.

c. Immediately scram the reactor and emergency depressurize the reactor.

d. Manually scram the reactor and trip both recirculation pumps.

QUESTION: 081 (1.00)

Given the following plant conditions occur on Unit 2 at rated power:

Scram pilot air header pressure: 65 psig.
Control air header pressure: 68 psig.

SELECT the ONE statement that describes an automatic action that will occur for these indications.

a. The reactor scrams.

b. The Service Air Crosstie To Control Air valve (0-FCV-33-1) isolates.

c. The Emergency Control Bay Air Compressor starts.

d. The Inboard MSIVs close.

QUESTION: 082 (1.00)

Unit 2 is in Cold Shutdown with RHR in shutdown cooling mode.

SELECT the ONE statement that describes a method of maintaining coolant temperature if shutdown cooling is lost and cannot be restored.

a. Raise water level to + 115 inches and circulate water from the suppression pool through the head vent with a core spray pump.

b. Raise water level to + 65 inches and use the HPCI steam line drains to bleed steam to the main condenser.

c. Raise water level to + 120 inches, open the MSIVs and circulate water from the condenser to the reactor with a condensate pump.

d. Raise water level to + 60 inches and reject water with RWCU maintaining level with CRD and/or condensate.

QUESTION: 083 (1.00)

Given the following plant conditions:

Reactor power:	25/125 scale on Range 6 of the IRMs.
Reactor pressure:	455 psig.
Reactor water level:	+30 inches.

SELECT the action required for these conditions if the CRD charging header pressure cannot be maintained greater than 1400 psig.

a. Manually scram the reactor.

b. Discontinue the reactor plant startup until the charging water pressure control valve is repaired.

c. If any rod's accumulator pressure decreases to less than 970 psig, manually scram the reactor.

d. If two or more control rod drive mechanism temperatures in a 5 x 5 rod array exceed 250 F, manually scram the reactor.

QUESTION: 084 (1.00)

Given the following conditions on Unit 2 during a refueling outage:

52 fuel bundles have been loaded in the core.
Fuel movement has been interrupted to allow testing of a control rod.

SELECT the ONE statement that describes an action that must be taken if the source range count level begins increasing and the SRM period light illuminates after control rod movement is stopped.

a. Evacuate the refueling floor if the reactor cannot be made subcritical.

b. Manually scram the reactor if the count rate does not level off within about 30 seconds.

c. Record plant parameters so reactor engineering can determine if an inadvertent criticality has occurred.

d. Insert the control rod until an SRM period longer than 90 seconds is obtained.

QUESTION: 085 (1.00)

Given the following plant conditions on Unit 2:

Reactor pressure: 1000 psig.
Drywell pressure: 50 psig.

SELECT the statement that describes an approved method for emergency depressurization in accordance with 2-EOI-1.

a. Open any two of the Safety Relief Valves (SRVs).

b. Open any one Automatic Depressurization System (ADS) valves.

c. Override the shutdown cooling suction isolation valves and blowdown to the suppression pool via RHR if less than four SRVs can be opened.

d. Blowdown with the RWCU system to the condenser if less than three SRVs can be opened.

Delete Question
B Holbrook
01/01/91

QUESTION: 086 (1.00)

Given the main turbine trips at 45% power on Unit 2:

RPS B scram relays (K14s) fail to reposition when deenergized causing a failure to scram.

ASSUMING NO OPERATOR ACTIONS

SELECT the statement that describes the expected response to this situation.

a. The alternate rod insertion valves deenergize when the high reactor pressure setpoint is exceeded on one trip unit in each trip channel.

b. The alternate rod insertion valves energize when the high reactor pressure setpoint is exceeded on both trip units in one trip channel.

c. The backup scram valve associated with RPS A will energize when the RPS A scram relays trip.

d. The backup scram valve associated with RPS A will deenergize when the RPS A scram relays trip.

QUESTION: 087 (1.00)

A reactor scram has occurred and the High Pressure Coolant Injection (HPCI) system is needed to maintain reactor water level. Suppression Pool Temperature is 145 F.

SELECT the ONE statement that describes the reason the HPCI suppression pool water level suction transfer logic interlock is defeated and HPCI is operated with a suction from the CST.

a. The suppression pool provides insufficient NPSH to the HPCI pump and cavitation may occur at rated flow.

b. The HPCI lube oil will exceed allowable temperatures and HPCI function could be lost due to damaged bearings.

c. The HPCI pump shaft seals are not designed to operate at temperatures in excess of 140 F and may fail.

d. The HPCI turbine exhaust pressure is likely to exceed the trip setpoint at the elevated suppression pool temperatures.

QUESTION: 088 (1.00)

While executing 2-EOI-1, Reactor Control, drywell temperature exceeded the RPV Saturation Temperature.

SELECT the statement that describes the reason that LI-3-55, Shutdown Flooding Range cannot be used for level indication.

a. The differential pressure transmitter is not environmentally qualified to operate at saturated temperature conditions.

b. Drywell pressure is the same as reactor pressure providing a zero differential pressure (upscale level indication).

c. The reference leg may be boiling causing indicated water level to be higher than actual level.

d. The density of the water in the variable leg is too low to provide a usable differential pressure to measure level.

QUESTION: 089 (1.00)

SELECT the ONE statement that describes a set of plant conditions that will allow drywell sprays to be initiated before drywell temperature reaches 280 F.

FIGURE C, DRYWELL SPRAY INITIATION IS PROVIDED AS ATTACHMENT 8 FOR YOUR REFERENCE.

a. Suppression chamber temperature: 250 F.
   Drywell pressure: 50 PSIG.

b. Suppression chamber temperature: 200 F.
   Drywell pressure: 25 PSIG.

c. Suppression chamber temperature: 185 F.
   Drywell pressure: 20 PSIG.

d. Suppression chamber temperature: 155 F.
   Drywell pressure: 12 PSIG.

QUESTION: 090 (1.00)

Given the following plant conditions:

Reactor pressure:	1000 psig.
Suppression pool level:	20 feet.
Suppression pool temperature:	155 F.

SELECT the ONE statement that describes a required action and its corresponding basis.

FIGURES F AND G, "HEAT CAPACITY TEMPERATURE LIMIT" AND "SUPPRESSION POOL LOAD LIMIT" ARE PROVIDED AS ATTACHMENT 9 FOR YOUR REFERENCE.

a. Emergency depressurize the reactor to prevent excessive suppression pool dynamic loading due to subsequent SRV actuations.

b. Emergency depressurize the reactor to ensure the suppression pool can absorb the energy released by a LOCA.

c. Reduce suppression pool level to 18 ft. to prevent containment design temperature from being exceeded if an ADS actuation were to occur.

d. Reduce reactor pressure to 800 psig to prevent exceeding the containment design temperature in the event of a Design Basis Loss of Coolant Accident.

QUESTION: 091 (1.00)

SELECT the statement that describes the reason for requiring suppression pool level to be greater than 5.5 feet prior to commencing emergency depressurization.

a. The Safety Relief Valves (SRVs) tailpipe is uncovered and discharges directly to containment, the containment design pressure could be exceeded.

b. The Safety Relief Valves (SRVs) discharge is not adequately submerged to completely condense the exhaust steam and the suppression pool to reactor building vacuum breakers could fail.

c. The reduced mass of water that is cleared from the tailpipe when the Safety Relief Valves (SRVs) is opened places excessive velocity loading on the tailpipe.

d. To provide sufficient back pressure on the Safety Relief Valves (SRVs) to ensure the SRVs will reclose when SRVs are manually closed from the control room.

QUESTION: 092 (1.00)

2-EOI-2, Primary Containment Control requires drywell spray be initiated provided that adequate core cooling is assured.

SELECT the ONE statement that describes a situation where an RHR pump can be diverted from core cooling to spray the drywell.

a.
RPV water level: - 212 inches, Post Accident Flooding Range.
RHR SYS I: One pump operable, 7000 gpm.
RHR SYS II: INOPERABLE.
CS SYS I: Two pumps, 6200 gpm.
CS SYS II: INOPERABLE.

b.
RPV water level: -164 inches, Post Accident Flooding Range.
RHR SYS I: Both pumps, 14,000 gpm.
RHR SYS II: INOPERABLE.
CS SYS I: One pump operable, 2400 gpm.
CS SYS II: One pump operable, 2000 gpm

c.
RPV water level: -201 inches, Post Accident Flooding Range.
RHR SYS I: Both Pumps, 14,000 gpm.
RHR SYS II: INOPERABLE.
CS SYS I: INOPERABLE.
CS SYS II: One pump operable, 3125 gpm

d.
RPV water level: -154 inches, Post Accident Flooding Range.
RHR SYS I: INOPERABLE.
RHR SYS II: One pump operable, 8500 gpm.
CS SYS I: INOPERABLE.
CS SYS II: INOPERABLE.

QUESTION: 093 (1.00)

The HPCI steam line is ruptured and cannot be isolated. Reactor building temperatures exceed the maximum safe value in three areas.

SELECT the ONE statement that describes the reason the reactor is emergency depressurized.

a. Technical Specifications require the unit to be in a cold shutdown condition since multiple safety systems are inoperable.

b. Personnel no longer can access the leak area to isolate the leak so it is necessary to place the reactor in a low energy state.

c. Transfers reactor energy to the suppression pool while suppression pool cooling capability is still available.

d. Reduces the energy input and leak rates into the secondary containment.

QUESTION: 094 (1.00)

SELECT the ONE statement that describes an operator action that does NOT mitigate offsite doses for an accident releasing radioactivity from a primary system leak into the secondary containment.

a. Operating secondary containment normal ventilation.

b. Isolating systems discharging to secondary containment.

c. Emergency depressurizing the reactor.

d. Manually scramming the reactor.

QUESTION: 095 (1.00)

Unit 2 is operating at rated conditions when the EECW supply line to the RHR room cooler ruptures.

SELECT the ONE statement that describes the action required if the water level on the RHR room floor is determined to be 38 inches.

APPLICABLE SECTIONS OF 2-EOI-3 ARE PROVIDED AS ATTACHMENT 10 FOR YOUR REFERENCE.

a. Shutdown the reactor in accordance with 2-GOI-100-12A.

b. Manually scram the reactor and enter 2-EOI-1.

c. Manually scram the reactor and emergency depressurize per C2.

d. Isolate the leak and use sump pumps to restore level to normal.

QUESTION: 096 (1.00)

Given the following plant conditions on Unit 2:

A reactor scram condition exists.
120 control rods are not inserted past position 02.
SBLC injection has been started.

SELECT the ONE statement that describes a condition of SBLC tank level, control rod insertion and reactor power that will allow injection of sodium pentaborate solution to be terminated.

APPLICABLE SECTIONS OF THE EOIS ARE PROVIDED AS ATTACHMENT 11 FOR YOUR REFERENCE.

a. Tank level is 42%, 1 rod in each 5x5 array has been inserted fully, power is 2% on the APRMs.

b. Tank level is 30%, only 1 rod in each 5x5 array has not been inserted fully, power is 25/125 scale on R1 of the IRMs.

c. Tank level is 15%, all rods have been fully inserted, power is 50,000 cps on SRMs.

d. Tank level is 8%, no additional rods have been inserted, power is 4% on the APRMs.

QUESTION: 097 (1.00)

SELECT the ONE statement that describes a condition in which the READY TO RESET light for Alternate Rod Insertion (ARI) will be illuminated and ARI can be reset following a failure to scram.

a.	Reactor pressure: Reactor water level: Elapsed time since initiation:	1150 psig - 60 inches. 35 seconds.
b.	Reactor pressure: Reactor water level: Elapsed time since initiation:	1050 psig - 30 inches. 5 minutes.
c.	Reactor pressure: Reactor water level: Elapsed time since initiation:	1100 psig. - 10 inches. 25 seconds.
d.	Reactor pressure: Reactor water level: Elapsed time since initiation:	850 psig. - 100 inches. 31 minutes.

QUESTION: 098 (1.00)

SELECT the ONE statement that is NOT a function of the Standby Gas Treatment System.

a. Ensure any unmonitored release to the atmosphere is elevated for dispersal.

b. Minimize the release of radioactive material from containment to the atmosphere.

c. Vent during deinerting containment.

d. Leak testing of the reactor building.

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

ANSWER: 001 (1.00)

a.

REFERENCE:

OPL171.038, rev. 4, OBJ B.9.a, B.9.b., pp. 38-42.
[3.5/3.7]

264000K401 ..(KA's)

ANSWER: 002 (1.00)

c.

REFERENCE:

10 CFR 20.10(b)(2)
[3.3/3.8]
294001K103 ..(KA's)

ANSWER: 003 (1.00)

a.

REFERENCE:

RCI-2, Section 6.1.2, pg. 4
RCI-1, Section 6.10.2.3, pg. 25.
[3.3,3.8]
294001K103 ..(KA's)

ANSWER: 004 (1.00)

c.

REFERENCE:

OPL171.019, rev. 2, OBJ B.5, pp. 23-24, Figs. 1, 10
[3.6/3.6]

215004A304 ..(KA's)

ANSWER: 005 (2.00)

each response is 0.5 point.
a. 2
b. 1
c. 4
d. 3

REFERENCE:

PMI-8.1, Section 3.3, pg. 2; SDSP-14.9, Section 6.1, pg. 12;
PMI-12.10.
[3.9,4.2]
294001K102 ..(KA's)

ANSWER: 006 (1.00)

a.

REFERENCE:

OPL171.023, rev. 1, OBJ B.2, B.4, pp. 10, 14-16
[3.4/3.4]
215001K604 ..(KA's)

ANSWER: 007 (1.00)

b.

REFERENCE:

2-SI-4.6.E.1, rev. 4.
[3.1/3.6]

294001A108 ..(KA's)

ANSWER: 008 (1.00)

b.

REFERENCE:

SDSP-14.9 rev. 11, section 4.0 page 4
[3.9/4.5

294001K102 ..(KA's)

ANSWER: 009 (1.00)

b.

REFERENCE:

OPL171.076, rev. 0, OBJ B.10, pp. 7-8.
[3.2/3.4]

294001A115 ..(KA's)

ANSWER: 010 (1.00)

d.

REFERENCE:

OPL171.099, rev. 0, OBJ B.2.c, pg. 15.
[3.2/3.4]

294001A115 ..(KA's)

ANSWER: 011 (1.00)

c.

REFERENCE:

0-GOI-300-3, rev. 2, section 5.1, pp. 3-4.
[3.7/3.7]

294001K101 ..(KA's)

ANSWER: 012 (1.00)

c.

REFERENCE:

SDSP-3.7, rev. 5, section 6.4, pp. 8-10.
[3.7/3.7]

294001K101 ..(KA's)

ANSWER: 013 (1.00)

d

REFERENCE:

SDSP-11.11, Section 6.8.
[3.2/3.7]
294001K105 ..(KA's)

ANSWER: 014 (1.00)

c

REFERENCE:

Technical specification 6.2.2.d., amendment 145, pg. 6.0-3.
FPP-3, rev. 1, section 3.1, pg. 3.
[3.5/3.8]

294001K116 ..(KA's)

ANSWER: 015 (1.00)

c.

REFERENCE:

OPL171.005, rev. 3, OBJ B.11, B.24
2-AOI-32-2, rev. 6, section 4.2.9, pg. 6
[3.0/2.9]

201001K603 ..(KA's)

ANSWER: 016 (1.00)

a.

REFERENCE:

2-OI-85, rev. 17, section 3.2, pp. 8-9
OPL171.029, rev. 2, OBJ. B.2.b, pp. 11-12; Fig. 9, pg. 39.
[3.5/3.5]

201002A402 ..(KA's)

ANSWER 017 (1.00)

a.

REFERENCE:

OPL171.029, rev. 2, OBJ B.6 PAGE 17
[3.4/3.3]

201002A102 ..(KA's)

ANSWER: 018 (1.00)

a.

REFERENCE:

2-SI-4.3.B.1.a, rev. 3, section 6.1, pg. 5.
[3.8/3.9]

201003K402 ..(KA's)

ANSWER: 019 (1.00)

b.

REFERENCE:

OPL171.025, rev. 3, B.4, pp. 14, 22.
[3.5/3.7]

201004A305 ..(KA's)

ANSWER: 020 (1.00)

d.

REFERENCE:

OPL171.024, rev. 3, OBJ B.6.a, B.6.c.
[3.2/3.3]

201006K510 ..(KA's)

ANSWER: 021 (1.00)

a.

REFERENCE:

OPL171.002, rev. 1, OBJ B.7
Technical specification basis 3.6.E, pg. 3.6/4.6-31.
[3.9/3.9]

202001K401 ..(KA's)

ANSWER: 022 (1.00)

a.

REFERENCE:

OPL171.007, rev. 4, OBJ B.3, B.7, B.12, pp.
[3.1/3.2]

202001K402 ..(KA's)

ANSWER: 023 (1.00)

d.

REFERENCE:

OPL171.007, rev. 4, Obj. B.10.
[3.5/3.5]
202002K604 ..(KA's)

ANSWER: 024 (1.00)

a.

REFERENCE:

2-OI-74, Section 7.1, pg. 26; OPL171.44, rev. 3, OBJ B.10, B.11, B.19.
[3.9/3.9]

203000A406 ..(KA's)

ANSWER: 025 (1.00)

a.

REFERENCE:

OPL171.013, rev. 2, OBJ B.10, pg.
[3.4/3.6]

204000A304 ..(KA's)

ANSWER: 026 (1.00)

b.

REFERENCE:

OPL171.044, rev. 3, OBJ B.12, pg. 21.
[3.6/3.6]

205000K102 ..(KA's)

ANSWER: 027 (1.00)

d.

REFERENCE:

2-OI-73, Sections 3.1, 3.2, pp. 4-5
Unit 2 Technical Specification Table 3.2.B, pg. 3.2./4.2-19
OPL171.042, rev 3, OBJ B.4.a
[4.0/4.1]

206000A210 ..(KA's)

ANSWER: 028 (1.00)

c.

REFERENCE:

OPL171.42, OBJ. B.1a, B.1b, B.1g; 2-OI-73, Sections 3.4, 3.5
[3.7/3.6]

206000A308 ..(KA's)

ANSWER: 029 (1.00)

d.

REFERENCE:

2-OI-75, rev 17, section 3.13, pg. 5, section 5.1, pg. 16,17.
OPL171.045, rev 2, OBJ B.5.
[3.8/3.7]

209001A302 ..(KA's)

ANSWER: 030 (1.00)

b.

REFERENCE:

OPL171.045, rev. 2, OBJ B.11., pp. 20-22.
[3.4/3.4]
209001A413 ..(KA's)

ANSWER: 031 (1.00)

d.

REFERENCE:

OPL171.039, rev 3, OBJ B.8, pg. 19.
[4.2/4.2]

211000A402 ..(KA's)

ANSWER: 032 (1.00)

d.

REFERENCE:

OPL-171.028, rev. 4, OBJ V.b.13, pg 20
[4.2/4.2]

212000A306 ..(KA's)

ANSWER: 033 (1.00)

b.

REFERENCE:

OPL171.029, rev. 2, OBJ B.8, pp. 19-20.
[3.3/3.3]

214000K105 ..(KA's)

ANSWER: 034 (1.00)

b.

REFERENCE:

OPL171.035, rev. 2, OBJ B.1, B.2, B.3, B.4, B.6, B.8.
[3.3/3.5]

215002K301 ..(KA's)

ANSWER: 035 (1.00)

b.

REFERENCE:

OPL171.020, rev. 2, OBJ B.4, B.7, pp. 11-20.
[3.4/3.4]
215003A104 ..(KA's)

ANSWER: 036 (1.00)

b.

REFERENCE:

OPL171.022, rev. 1, OBJ B.6
[3.7/3.7]

215005K505 ..(KA's)

ANSWER: 037 (1.00)

a.

REFERENCE:

OPL171.003, rev. 5, OBJ B.11
[3.6/3.8]

216000K507 ..(KA's)

ANSWER: 038 (1.00)

a.

REFERENCE:

OPL171.040, rev. 5, OBJ B.7, pg. 22.
2-OI-71, rev. 12, section 3.4, pg. 5
[2.9/3.0]

217000K403 ..(KA's)

ANSWER: 039 (1.00)

c.

REFERENCE:

OPL171.043, rev. 1, OBJ B.4.a., pg.
[3.8/3.8]

218000K501 ..(KA's)

ANSWER: 040 (1.00)

c.

REFERENCE:

2-OI-74, rev. 15, section 8.6 CAUTION, pg. 44.
OPL171.044, rev. 3, OBJ B.7, pg. 42.
[3.1/3.3]

219000K202 ..(KA's)

ANSWER: 041 (1.00)

c.

REFERENCE:

OPL171.009, rev. 1, OBJ B.5.b, B.5.c, pp. 13-18
OPL171.017, rev. 2, OBJ B.4, pp. 8-9.
[3.8/3.9]

223002K101 ..(KA's)

ANSWER: 042 (1.00)

d.

REFERENCE:

171.017 Page 20

[3.4/3.5]

223002K406 ..(KA's)

ANSWER: 043 (1.00)

b.

REFERENCE:

OPL171.044, rev. 3, OBJ B.4, B.11, pp. 25-26.
2-OI-74, rev. 15, sections 8.15-8.16, pp. 75-80.
3.5/3.4]

226001A403 ..(KA's)

ANSWER: 044 (1.00)

b.

REFERENCE:

2-OI-78-1, rev. 4, section 4.2, pp. 3-5
[3.1/3.3]

233000A202 ..(KA's)

ANSWER: 045 (1.00)

c.

REFERENCE:

2-GOI-100-3, rev. 18, sections 3.61, 3.62, attachment 19, pp. 16-17, 193.
FHR103.003, rev. 1, OBJ B.2, B.3, B.4
[3.1/3.7]

234000A302 ..(KA's)

ANSWER: 046 (1.00)

d.

REFERENCE:

2-AOI-1-1, rev. 5
[3.7/3.8]
239002K503 ..(KA's)

ANSWER: 047 (1.00)

a.

REFERENCE:

OPL171.014, rev. 1, OBJ B.1, B.5
[3.8/3.9]
241000K101 ..(KA's)

ANSWER: 048 (1.00)

d.

REFERENCE:

OPL171.010, rev. 3, OBJ B.7, pp. 22-24.
[2.9/3.0]
245000K405 ..(KA's)

ANSWER: 049 (1.00)

a.

REFERENCE:

OPL171.014, rev. 1, OBJ B.5.f., pp. 7-8.
[3.5/3.7]

245000K602 ..(KA's)

ANSWER: 050 (1.00)

b.

REFERENCE:

OPL171.011, rev. 3, OBJ B.12, B.15, pp. 25-26.
[2.8/2.9]

259001K604 ..(KA's)

ANSWER: 051 (1.00)

d.

REFERENCE:

OPL171.012, rev. 2, OBJ B., pp. 27-28
[3.4/3.4]

259002K410 ..(KA's)

ANSWER: 052 (1.00)

b.

REFERENCE:

OPL171.012, rev. 2, OBJ B.8.
2-AOI-57-4, rev. 8, section 3.2,
[3.3/3.4]

259002K602 ..(KA's)

ANSWER: 053 (2.00)

a. 3
b. 4
c. 4
d. 1

REFERENCE:

OPL171.003, rev. 5, OBJ B.18
OPL171.005, rev. 3, OBJ B.23, pg. 30.
OPL171.007, rev. 4, OBJ B.12, Table 1 pg. 44
OPL171.018, rev. 2, OBJ B.9, pg. 14.
OPL171.042, rev. 3, OBJ. B.2, pg. 30.
[3.1/3.1]
261000K608 ..(KA's)

ANSWER: 054 (1.00)

a.

REFERENCE:

OPL171.036, rev. 1, OBJ B.8, pp. 14-20
[3.6/3.9]

262001K406 ..(KA's)

ANSWER: 055 (1.00)

c.

REFERENCE:

OI 57 D Page 7 Precaution/Limitation
[3.3/3.5]

263000G007 ..(KA's)

ANSWER: 056 (1.00)

d.

REFERENCE:

OPL171.038, rev. 4, OBJ B.12, pp. 59-60
OPL171.045, rev. 2, OBJ B.7, pg. 17
[3.4/3.5]
264000K506 ..(KA's)

ANSWER: 057 (1.00)

d.

REFERENCE:

Technical Specification 3.6.C.
2-SI-2, Attachment 8, pp. 14-15
[3.4/3.6]

268000A401 ..(KA's)

ANSWER: 058 (1.00)

c.

REFERENCE:

2-OI-66, rev. 9, section 3.19, pg. 6.
OPL171.030, rev. 1, OBJ B.5, B.6, pp.
[3.3/3.3]

271000A301 ..(KA's)

ANSWER: 059 (1.00)

d.

REFERENCE:

OPL171.033, Table 1, pp. 32-35
[3.0/3.2]

272000K601 ..(KA's)

ANSWER: 060 (1.00)

a.

REFERENCE:

OPL171.049, rev. 3, OBJ B.5, pp.
[3.4/3.6]

286000K401 ..(KA's)

~~ANSWER: 061 (1.00)~~

~~c.~~

Delete Question
B Holbrook
01/01/91

~~REFERENCE:~~

~~OPL171.067, rev. 2, OBJ B.5.b, B.13, TP-3, pp. 32-38, 64.
[3.2/3.2]~~

~~290003A401 ..(KA's)~~

ANSWER: 062 (1.00)

c.

REFERENCE:

2-AOI-68-1, rev. 7, Section 4.2.1.4.1, pg. 2.
[3.5/3.8]

295001A201 ..(KA's)

ANSWER: 063 (1.00)

a.

REFERENCE:

2-AOI-47-3, rev. 3, section 3.0, pg. 2.
[3.2/3.2]

295002A105 ..(KA's)

ANSWER: 064 (1.00)

a.

REFERENCE:

OPL171.003, rev. 3, Table 1a, pp. 61-64.
2-EOI-1, Section RC/L, step RC/L-2, pg. 3.
0-AOI-57-1A, rev. 5,
[4.2/4.3]

295003A202 ..(KA's)

ANSWER: 065 (1.00)

d.

REFERENCE:

OPL171.044, rev. 3, OBJ. B.7, pg. 13.
OPL171.045, rev. 2, pg. 8.
0-AOI-57-1A, rev. 5, Section 4.2.9, pg. 6.
0-OI-82, rev. 24.
[4.2/4.3]

295003A102 ..(KA's)

ANSWER: 066 (1.00)

a.

REFERENCE:

OPL171.037, rev. 2, OBJ B.10.
[3.3/3.3]

295004K203 ..(KA's)

ANSWER: 067 (1.00)

b.

REFERENCE:

OPL171.007, rev. 4, OBJ B.13., pp. 31-32.
[3.2/3.6]

295005K102 ..(KA's)

ANSWER: 068 (1.00)

c.

REFERENCE:

[2.9/3.0]

295005K202 ..(KA's)

ANSWER: 069 (1.00)

a.

REFERENCE:

OT-3036-C71-02, Obj. E.
[3.5/3.8]

295006A206 ..(KA's)

ANSWER: 070 (1.00)

d.

REFERENCE:

OI-3 Page 5 Rev.11
Caution/Limitation
[3.4/3.5]

259001A406 ..(KA's)

ANSWER: 071 (1.00)

a.

REFERENCE:

OPL171.014, rev. 1, OBJ B.2, B.5.b.
[3.5/3.7]

295007K201 ..(KA's)

ANSWER: 072 (1.00)

a.

REFERENCE:

OPL171.042, rev. 3, OBJ B.1.
[3.8/3.5]

295008K205 ..(KA's)

ANSWER: 073 (1.00)

d.

REFERENCE:

Dresden Unit 3 LER 87-003.
2-AOI-75-1, rev. 3, Section 4.2 caution, pg. 2.
[3.3/3.4]

295009K105 ..(KA's)

ANSWER: 074 (1.00)

c.

REFERENCE:

2-EOI-1, section PC/P, step PC/P-3, pg. 2.
OPL171.057, Appendix B, 8/24/90, pg. 92, 7/11/86, pg. 81.
[3.8/4.4]

295010G012 ..(KA's)

ANSWER: 075 (1.00)

d.

REFERENCE:

2-EOI-2, 4/3/90, Section 2.0, pg. 1.
[4.1/4.4]

295012G012 ..(KA's)

ANSWER: 076 (1.00)

d.

REFERENCE:

OPL171.057, Appendix B, 7/11/86, pg. 88.
[2.9/3.2]

295013K104 ..(KA's)

ANSWER: 077 (1.00)

b.

REFERENCE:

2-AOI-6-1, Section 2.0, Attachment 1, pp. 1, 5.
[4.2/4.4]

295014G011 ..(KA's)

ANSWER: 078 (1.00)

a.

REFERENCE:

2-EOI-1, section RC/Q, step RC/Q-6.5.c. pg. 4
OPL171.057, Appendix B, 7/11/86, pp. 52-53.
[3.4/3.7]

295015K301 ..(KA's)

ANSWER: 079 (1.00)

a.

REFERENCE:

2-AOI-100-2, rev. 3, section 4.1, pg. 3.
OPL171.
[3.4/4.5]

295016K201 ..(KA's)

ANSWER: 080 (1.00)

d.

REFERENCE:

2-AOI-70-1, rev. 7, section 4.1.2., 4.2.4, pg. 2.
[3.3/3.4]

295018G010 ..(KA's)

ANSWER: 081 (1.00)

c.

REFERENCE:

2-AOI-32-1, rev. 6, sections 2.0, 3.0, pg. 2.
[3.3/3.2]

295019A104 ..(KA's)

ANSWER: 082 (1.00)

d.

REFERENCE:

2-AOI-74-1, rev. 3, section 4.2, pp. 2-9.
[3.6/3.8]

295021K305 ..(KA's)

ANSWER: 083 (1.00)

a.

REFERENCE:

[3.7/3.5]

295022K301 ..(KA's)

ANSWER: 084 (1.00)

a.

REFERENCE:

2-AOI-79-2, rev. 3, section 4.1., pg. 2.
[3.7/4.0]

295023K103 ..(KA's)

ANSWER: 085 (1.00)

d.

REFERENCE:

2-EOI-1, Section C2, step C2-2.3, pg. 1, Appendix 11, step e, pg. 7.
[3.8/3.8]

295024A203 ..(KA's)

Delete Question
B Holmes
01/11/91

ANSWER: 086 (1.00)

b.

REFERENCE:

OPL171.028, rev.
OPL171.005, rev.
[4.2/4.5]

295025K306 ..(KA's)

ANSWER: 087 (1.00)

b.

REFERENCE:

OPL171.057, 7/11/86, Appendix B, pp. 32-33.
[3.4/3.8]

295026G007 ..(KA's)

ANSWER: 088 (1.00)

c.

REFERENCE:

OPL171.003, rev.
[3.5/3.7]

295028K101 ..(KA's)

ANSWER: 089 (1.00)

a.

REFERENCE:

OPL171.057, 7/11/86, Appendix A, pg. 18.
[3.7/4.1]

295028K201 ..(KA's)

ANSWER: 090 (1.00)

a.

REFERENCE:

2-EOI-2, Section SP/L, step SP/L-3.
[3.5/3.9]
295029K301 ..(KA's)

ANSWER: 091 (1.00)

a.

REFERENCE:

2-EOI-1, Section C2, Step C2-2.2, pg. 1.
OPL171.057, Appendix B, 7/11/86, pg. 119.
[3.6/3.9]
295030K301 ..(KA's)

ANSWER: 092 (1.00)

~~a.~~ b.

REFERENCE:

2-EOI-2, Section DW/T, step DW/T-
[4.6/4.7]

295031K101 ..(KA's)

ANSWER: 093 (1.00)

d.

REFERENCE:

2-EOI-3, Section SC/T.
OPL171.057, rev.
[3.5/3.8]

295032K301 ..(KA's)

ANSWER: 094 (1.00)

a.

REFERENCE:

[illegible]
[3.8/3.9]

295033K303 ..(KA's)

ANSWER: 095 (1.00)

d.

REFERENCE:

2-EOI-3, section SC/L, step SC/L-1, pg. 2.
[3.5/3.9]

295036G012 ..(KA's)

ANSWER: 096 (1.00)

c.

REFERENCE:

2-EOI-1, Section RC/Q, Step RC/Q-1 note, pg. 1.
[4.5/4.5]

295037A104 ..(KA's)

ANSWER: 097 (1.00)

b.

REFERENCE:

OPL171.
2-AOI-100-2, rev. 10, section 4.2.11.2, pg. 4.
[4.1/4.2]

295037K203 ..(KA's)

ANSWER: 098 (1.00)

a.

REFERENCE:

OPL171.018,VB.8.
[3.5/3.7]

261000G004 ..(KA's)

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

A N S W E R   S H E E T

Multiple Choice (Circle or X your choice)

If you change your answer, write your selection in the blank.

001 a b c d ______

002 a b c d ______

003 a b c d ______

004 a b c d ______

005 match with selected number in the blank

a ______

b ______

c ______

d ______

e ______

006 a b c d ______

007 a b c d ______

008 a b c d ______

009 a b c d ______

010 a b c d ______

011 a b c d ______

012 a b c d ______

013 a b c d ______

014 a b c d ______

015 a b c d ______

016 a b c d ______

017 a b c d ______

018 a b c d ______

019 a b c d ______

020 a b c d ______

A N S W E R S H E E T

Multiple Choice (Circle or X your choice)

If you change your answer, write your selection in the blank.

021	a	b	c	d	______
022	a	b	c	d	______
023	a	b	c	d	______
024	a	b	c	d	______
025	a	b	c	d	______
026	a	b	c	d	______
027	a	b	c	d	______
028	a	b	c	d	______
029	a	b	c	d	______
030	a	b	c	d	______
031	a	b	c	d	______
032	a	b	c	d	______
033	a	b	c	d	______
034	a	b	c	d	______
035	a	b	c	d	______
036	a	b	c	d	______
037	a	b	c	d	______
038	a	b	c	d	______
039	a	b	c	d	______
040	a	b	c	d	______
041	a	b	c	d	______
042	a	b	c	d	______
043	a	b	c	d	______
044	a	b	c	d	______
045	a	b	c	d	______

ANSWER SHEET

Multiple Choice (Circle or X your choice)

If you change your answer, write your selection in the blank.

046	a	b	c	d	____
047	a	b	c	d	____
048	a	b	c	d	____
049	a	b	c	d	____
050	a	b	c	d	____
051	a	b	c	d	____
052	a	b	c	d	____

053 match with selected number in the blank

a ____

b ____

c ____

d ____

054	a	b	c	d	____
055	a	b	c	d	____
056	a	b	c	d	____
057	a	b	c	d	____
058	a	b	c	d	____
059	a	b	c	d	____
060	a	b	c	d	____
061	a	b	c	d	____
062	a	b	c	d	____
063	a	b	c	d	____
064	a	b	c	d	____
065	a	b	c	d	____
066	a	b	c	d	____

A N S W E R S H E E T

Multiple Choice (Circle or X your choice)

If you change your answer, write your selection in the blank.

067	a	b	c	d	______
068	a	b	c	d	______
069	a	b	c	d	______
070	a	b	c	d	______
071	a	b	c	d	______
072	a	b	c	d	______
073	a	b	c	d	______
074	a	b	c	d	______
075	a	b	c	d	______
076	a	b	c	d	______
077	a	b	c	d	______
078	a	b	c	d	______
079	a	b	c	d	______
080	a	b	c	d	______
081	a	b	c	d	______
082	a	b	c	d	______
083	a	b	c	d	______
084	a	b	c	d	______
085	a	b	c	d	______
086	a	b	c	d	______
087	a	b	c	d	______
088	a	b	c	d	______
089	a	b	c	d	______
090	a	b	c	d	______
091	a	b	c	d	______

ANSWER SHEET

Multiple Choice (Circle or X your choice)

If you change your answer, write your selection in the blank.

092	a	b	c	d	______
093	a	b	c	d	______
094	a	b	c	d	______
095	a	b	c	d	______
096	a	b	c	d	______
097	a	b	c	d	______
098	a	b	c	d	______

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

A N S W E R   K E Y

001	a
002	c
003	a
004	c
005	match with selected number in the blank
	~~e 5~~ ALY
	a 2
	b 1
	c 4
	d 3
006	a
007	b
008	b
009	b
010	d
011	c
012	c
013	d
014	c
015	c
016	a
017	a.
018	a
019	b
020	d

ANSWER KEY

021	a
022	a
023	d
024	a
025	a
026	b
027	d
028	c
029	d
030	b
031	d
032	d
033	b
034	b
035	b
036	b
037	a
038	a
039	c
040	c
041	c
042	d
043	b
044	b
045	c

ANSWER KEY

046 d

047 a

048 d

049 a

050 b

051 d

052 b

053 match with selected number in the blank

a 3

b 4

c 4

d 1

054 a

055 c

056 d

057 d

058 c

059 d

060 a

~~061 c~~ deleted BHolmes 01/01/91

062 c

063 a

064 a

065 d

066 a

ANSWER KEY

067	b
068	c
069	a
070	d
071	a
072	a
073	d
074	c
075	d
076	d
077	b
078	a
079	a
080	d
081	c
082	d
083	a
084	a
~~085~~	~~d~~ deleted BHolsl 01/01/91
086	b
087	b
088	c
089	a
090	a
091	a

A N S W E R   K E Y

092 ~~a~~ b

093 d.

094 a.

095 d.

096 c.

097 b

098 a

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

Brown's Ferry
Reactor Operator
Grade Analysis

Question Number	1	2	3	4	5a	5b	5c	5d	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Point Value	1	1	1	1	0.5	0.5	0.5	0.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Correct Response	a	c	a	c	2	1	4	3	a	b	b	b	d	c	c	d	c	c	a	a	a	b	d	a	a	d	a	a	b	d
Name																														
Campbell, M D	a 1	b 0	b 0	c 1	2 0.5	1 0.5	4 0.5	3 0.5	a 1	a 0	b 1	b 1	d 1	c 1	c 1	b 0	c 1	b 0	a 1	a 1	a 1	b 1	b 0	a 1	a 1	d 1	a 1	a 1	b 1	d 1
Germain, J S	a 1	b 0	a 1	c 1	2 0.5	1 0.5	4 0.5	3 0.5	a 1	b 1	c 0	b 1	d 1	c 1	c 1	d 1	c 1	c 1	a 1	a 1	a 1	b 1	d 1	a 1	a 1	d 1	a 1	a 1	b 1	d 1
Higham, D B	a 1	b 0	a 1	c 1	2 0.5	1 0.5	4 0.5	3 0.5	a 1	b 1	d 0	b 1	b 0	c 1	c 1	d 1	c 1	c 1	a 1	a 1	a 1	b 1	d 1	a 1	a 1	d 1	a 1	a 1	b 1	d 1
MacDonald, D G	a 1	c 1	a 1	d 0	2 0.5	2 0	4 0.5	3 0.5	a 1	c 0	d 0	b 1	d 1	c 1	c 1	b 0	c 1	c 1	c 0	a 1	a 1	b 1	d 1	a 1	a 1	d 1	a 1	a 1	b 1	d 1
% Missed	0	0.75	0.25	0.25	0	0.12	0	0	0	0.5	0.75	0	0.25	0	0	0.5	0	0.25	0.25	0	0	0	0.25	0	0	0	0	0	0	0
> 70% ?		Y									Y																			

Brown's Ferry
Reactor Operator
Grade Analysis

Question Number	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
Point Value	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Correct Response	c	d	b	d	d	b	b	b	b	a	a	c	c	c	d
Name															
Campbell, M D	c 1	d 1	b 1	d 1	b 0	b 1	b 1	b 1	b 1	a 1	b 0	c 1	c 1	c 1	b 0
Germain, J S	c 1	d 1	b 1	d 1	d 1	b 1	b 1	b 1	b 1	a 1	b 0	c 1	c 1	c 1	d 1
Higham, D B	c 1	d 1	b 1	d 1	d 1	b 1	b 1	b 1	b 1	a 1	b 0	c 1	c 1	c 1	d 1
MacDonald, D G	c 1	d 1	a 0	d 1	d 1	b 1	d 0	b 1	b 1	d 0	b 0	d 0	c 1	c 1	d 1
% Missed	0	0	0.25	0	0.25	0	0.25	0	0	0.25	1	0.25	0	0	0.25
> 70% ?											Y				

Question Number	43	44	45	46	47	48	49	50	51	52	53a	53b	53c	53d	54
Point Value	1	1	1	1	1	1	1	1	1	1	0.5	0.5	0.5	0.5	1
Correct Response	b	b	c	d	a	d	a	b	d	b	3	4	4	1	a
Name															
Campbell, M D	b 1	b 1	c 1	d 1	a 1	d 1	a 1	a 0	d 1	b 1	3 0.5	4 0.5	4 0.5	1 0.5	a 1
Germain, J S	b 1	b 1	c 1	d 1	a 1	d 1	a 1	b 1	d 1	b 1	3 0.5	4 0.5	4 0.5	1 0.5	a 1
Higham, D B	b 1	b 1	b 0	d 1	a 1	c 0	a 1	a 0	d 1	b 1	3 0.5	4 0.5	4 0.5	1 0.5	a 1
MacDonald, D G	b 1	b 1	c 1	d 1	d 0	d 1	c 0	a 0	d 1	b 1	3 0.5	4 0.5	4 0.5	1 0.5	a 1
% Missed	0	0	0.25	0	0.25	0.25	0.25	0.75	0	0	0	0	0	0	0
> 70% ?								Y							

Brown's Ferry
Reactor Operator
Grade Analysis

Question Number	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69
Point Value	1	1	1	1	1	1	DELETED	1	1	1	1	1	1	1	1
Correct Response	c	d	d	c	d	a	DELETED	c	a	a	d	a	b	c	a
Name															
Campbell, M D	c 1	d 1	b 0	c 1	c 0	a 1		c 1	a 1	a 1	b 0	a 1	c 0	c 1	a 1
Germain, J S	c 1	d 1	d 1	c 1	d 1	a 1		c 1	d 0	b 0	c 0	a 1	a 0	b 0	a 1
Higham, D B	c 1	d 1	d 1	c 1	d 1	a 1		c 1	d 0	a 1	d 1	a 1	a 0	c 1	a 1
MacDonald, D G	d 0	d 1	c 0	d 0	d 1	c 0		c 1	d 0	a 1	c 0	a 1	d 0	c 1	a 1
% Missed	0.25	0	0.5	0.25	0.25	0.25	DELETED	0	0.75	0.25	0.75	0	1	0.25	0
> 70% ?							DELETED		Y		Y		Y		

Question Number	70	71	72	73	74	75	76	77	78	79	80	81	82	83
Point Value	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Correct Response	d	a	a	d	c	d	d	b	a	a	d	c	d	a
Name														
Campbell, M D	b 0	a 1	a 1	c 0	c 1	c 0	c 0	b 1	a 1	a 1	a 0	c 1	d 1	a 1
Germain, J S	d 1	a 1	a 1	d 1	c 1	d 1	d 1	b 1	a 1	a 1	d 1	c 1	d 1	a 1
Higham, D B	d 1	a 1	c 0	c 0	c 1	d 1	c 0	b 1	a 1	a 1	a 0	b 0	d 1	a 1
MacDonald, D G	a 0	a 1	d 0	d 1	c 1	d 1	c 0	b 1	a 1	a 1	d 1	c 1	d 1	c 0
% Missed	0.5	0	0.5	0.5	0	0.25	0.75	0	0	0	0.5	0.25	0	0.25
> 70% ?							Y							

Brown's Ferry
Reactor Operator
Grade Analysis

Question Number	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	Total	Grade
Point Value	1	DELETED	1	1	1	1	1	1	1	1	1	1	1	1	1	98	
Correct Response	a	DELETED	b	b	c	a	a	a	b	d	a	d	c	b	a		
Name																	
Campbell, M D	a 1		c 0	b 1	b 0	a 1	a 1	a 1	b 1	d 1	a 1	d 1	c 1	b 1	a 1	77	78.6%
Germain, J S	a 1		b 1	b 1	c 1	a 1	a 1	a 1	a 0	d 1	a 1	d 1	c 1	b 1	a 1	89	90.8%
Higham, D B	a 1		b 1	a 0	c 1	a 1	a 1	a 1	b 1	d 1	a 1	d 1	c 1	b 1	a 1	83	84.7%
MacDonald, D G	a 1		b 1	b 1	c 1	a 1	a 1	c 0	c 0	a 0	a 1	d 1	c 1	b 1	a 1	70.5	71.9%
% Missed	0	DELETED	0.25	0.25	0.25	0	0	0.25	0.5	0.25	0	0	0	0	0		81.5%
> 70% ?		DELETED															

Brown's Ferry
SRO Examination
Grade Analysis

Question Number	1	2	3	4	5	6	7a	7b	7c	7d	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Point Value	1	1	1	1	1	1	0.5	0.5	0.5	0.5	DEL DEL	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Correct Response	a	a	a	c	c	c	2	1	4	3	DEL DEL	a	a	a	b	b	d	a	d	b	c	c	a	a	b	d	a	d	a	a
Name											DEL																			
Branam, D L	a 1	a 1	a 1	c 1	c 1	c 1	2 0.5	1 0.5	5 0	3 0.5	DEL DEL	a 1	a 1	a 1	b 1	b 1	d 1	b 0	d 1	b 1	c 1	c 1	a 1	a 1	b 1	d 1	a 1	d 1	a 1	a 1
Cox, J C	a 1	a 1	a 1	c 1	c 1	c 1	2 0.5	1 0.5	4 0.5	3 0.5	DEL DEL DEL	a 1	a 1	a 1	b 1	b 1	d 1	a 1	d 1	b 1	c 1	c 1	a 1	a 1	b 1	d 1	a 1	d 1	a 1	a 1
Hampton, J A	a 1	a 1	a 1	c 1	c 1	c 1	5 0	1 0.5	4 0.5	2 0	DEL DEL DEL	a 1	a 1	a 1	a 0	b 1	d 1	a 1	d 1	b 1	c 1	c 1	a 1	a 1	b 1	b 0	a 1	d 1	a 1	a 1
Hyde, G A	a 1	a 1	a 1	c 1	c 1	c 1	5 0	1 0.5	4 0.5	2 0	DEL DEL DEL	a 1	a 1	a 1	b 1	b 1	d 1	a 1	d 1	b 1	c 1	c 1	a 1	a 1	b 1	d 1	a 1	d 1	a 1	a 1
Moll, R J	b 0	a 1	a 1	c 1	c 1	c 1	2 0.5	1 0.5	4 0.5	3 0.5	DEL DEL DEL	a 1	a 1	a 1	b 1	b 1	d 1	a 1	d 1	b 1	c 1	c 1	a 1	a 1	b 1	d 1	a 1	d 1	a 1	a 1
Moye, R W	a 1	a 1	c 0	c 1	c 1	c 1	2 0.5	1 0.5	4 0.5	3 0.5	DEL DEL DEL	a 1	a 1	a 1	b 1	b 1	d 1	a 1	d 1	b 1	d 0	c 1	a 1	a 1	b 1	d 1	a 1	d 1	a 1	a 1
Newton, T F	b 0	c 0	a 1	c 1	c 1	c 1	2 0.5	1 0.5	4 0.5	3 0.5	DEL DEL DEL	a 1	a 1	a 1	b 1	b 1	d 1	a 1	d 1	b 1	c 1	c 1	a 1	a 1	d 0	d 1	a 1	d 1	a 1	a 1
% Missed > 70% ?	0.28	0.14	0.14	0	0	0	0.14	0	0.07	0.14	DEL DEL	0	0	0	0.14	0	0	0.14	0	0	0.14	0	0	0	0.14	0.14	0	0	0	0

Brown's Ferry
SRO Examination
Grade Analysis

Question Number	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49a	49b	49c	49d	50	51	52	53	54
Point Value	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.5	0.5	0.5	0.5	1	1	1	1	1
Correct Response	c	a	d	b	d	d	b	a	a	c	c	d	b	c	c	d	a	a	d	b	d	3	4	4	1	a	d	d	d	a
Name																														
Branam, D L	c 1	a 1	d 1	b 1	d 1	d 1	b 1	a 1	a 1	d 0	c 1	d 1	b 1	c 1	c 1	d 1	a 1	a 1	d 1	b 1	d 1	3 0.5	4 0.5	4 0.5	1 0.5	a 1	d 1	d 1	d 1	a 1
Cox, J C	c 1	a 1	d 1	b 1	d 1	b 0	b 1	d 0	c 0	b 0	c 1	d 1	b 1	c 1	c 1	d 1	a 1	a 1	d 1	b 1	d 1	3 0.5	4 0.5	4 0.5	1 0.5	c 0	d 1	d 1	d 1	c 0
Hampton, J A	c 1	c 0	d 1	b 1	d 1	b 0	b 1	a 1	b 0	c 1	c 1	d 1	b 1	c 1	c 1	d 1	a 1	a 1	d 1	b 1	d 1	3 0.5	4 0.5	4 0.5	1 0.5	a 1	d 1	d 1	d 1	a 1
Hyde, G A	c 1	a 1	d 1	b 1	d 1	d 1	b 1	a 1	a 1	c 1	c 1	d 1	b 1	c 1	c 1	d 1	a 1	a 1	d 1	b 1	d 1	3 0.5	4 0.5	4 0.5	1 0.5	a 1	d 1	d 1	d 1	a 1
Moll, R J	c 1	a 1	d 1	b 1	d 1	d 1	b 1	a 1	b 0	c 1	c 1	d 1	b 1	c 1	b 0	d 1	a 1	a 1	d 1	a 0	d 1	3 0.5	4 0.5	4 0.5	1 0.5	a 1	d 1	d 1	d 1	a 1
Moye, R W	c 1	a 1	d 1	b 1	d 1	d 1	b 1	a 1	b 0	c 1	c 1	d 1	b 1	c 1	c 1	d 1	a 1	a 1	d 1	a 0	d 1	3 0.5	4 0.5	4 0.5	1 0.5	a 1	d 1	d 1	d 1	a 1
Newton, T F	c 1	a 1	d 1	b 1	d 1	d 1	c 0	d 0	a 1	c 1	c 1	d 1	b 1	c 1	c 1	d 1	d 0	a 1	d 1	b 1	c 0	3 0.5	4 0.5	4 0.5	1 0.5	a 1	d 1	d 1	d 1	a 1
% Missed > 70% ?	0	0.14	0	0	0	0.28	0.14	0.28	0.57	0.28	0	0	0	0	0.14	0	0.14	0	0	0.28	0.14	0	0	0	0	0.14	0	0	0	0.14

Brown's Ferry
SRO Examination
Grade Analysis

Question Number	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84
	DEL																													
Point Value	DEL	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	DEL																													
Correct Response	DEL	c	a	d	a	b	c	d	a	d	a	a	b	d	c	d	d	b	d	a	a	d	c	d	a	c	a	b	b	b
	DEL																													
Name	DEL																													
Branam, D L	DEL	c	b	b	a	b	c	d	a	b	a	a	b	d	a	d	d	b	d	a	a	d	a	d	a	b	a	b	b	b
	DEL	1	0	0	1	1	1	1	1	0	1	1	1	1	0	1	1	1	1	1	1	1	0	1	1	0	1	1	1	1
	DEL																													
Cox, J C	DEL	c	a	d	a	a	c	d	a	b	c	a	b	c	c	d	c	b	d	a	a	d	b	d	a	d	a	b	b	b
	DEL	1	1	1	1	0	1	1	1	0	0	1	1	0	1	1	0	1	1	1	1	1	0	1	1	0	1	1	1	1
	DEL																													
Hampton, J A	DEL	c	b	d	d	c	c	d	a	b	a	a	b	d	c	d	d	b	d	a	a	d	c	d	a	b	a	b	a	b
	DEL	1	0	1	0	0	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	0	1
	DEL																													
Hyde, G A	DEL	c	a	d	a	a	c	d	a	a	a	a	b	d	c	d	d	b	d	a	a	d	c	d	a	b	a	b	b	b
	DEL	1	1	1	1	0	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1
	DEL																													
Moll, R J	DEL	c	a	d	a	b	c	d	a	b	a	a	b	d	c	d	d	b	d	a	a	d	a	d	a	b	a	b	b	b
	DEL	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	0	1	1	1	1
	DEL																													
Moye, R W	DEL	c	a	d	a	b	c	d	a	b	a	a	b	c	c	d	d	b	d	a	a	d	c	d	a	c	a	b	c	b
	DEL	1	1	1	1	1	1	1	1	0	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1
	DEL																													
Newton, T F	DEL	c	b	c	a	a	b	a	a	d	a	a	b	c	c	d	d	b	d	a	a	d	c	c	a	c	d	b	b	c
	DEL	1	0	0	1	0	0	0	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	0	1	1	0	1	1	0
% Missed	DEL	0	0.42	0.28	0.14	0.57	0.14	0.14	0	0.85	0.14	0	0	0.42	0.14	0	0.14	0	0	0	0	0	0.42	0.14	0	0.71	0.14	0	0.28	0.14
> 70% ?	DEL									Y																Y				

Brown's Ferry
SRO Examination
Grade Analysis

Question Number	85	86	87	88	89	90	91	92	93	94	95	96	97	98	Total	
Point Value	1	1	1	1	1	1	1	1	1	1	1	1	1	1	98	
Correct Response	c	c	a	a	a	b	d	a	d	c	b	d	d	a		
Name																Grade
Branam, D L	c	c	a	a	a	b	d	a	d	c	b	d	d	a		
	1	1	1	1	1	1	1	1	1	1	1	1	1	1	89.5	91.3%
Cox, J C	a	c	a	a	a	b	c	a	a	c	b	d	c	a		
	0	1	1	1	1	1	0	1	0	1	1	1	0	1	81	82.7%
Hampton, J A	c	c	a	a	a	a	d	a	a	c	b	d	d	a		
	1	1	1	1	1	0	1	1	0	1	1	1	1	1	84	85.7%
Hyde, G A	c	c	a	a	a	b	d	d	d	c	b	d	d	a		
	1	1	1	1	1	1	1	0	1	1	1	1	1	1	93	94.9%
Moll, R J	c	c	a	a	a	b	d	a	d	c	b	d	d	c		
	1	1	1	1	1	1	1	1	1	1	1	1	1	0	90	91.8%
Moye, R W	c	c	a	a	a	b	c	a	d	c	b	d	c	a		
	1	1	1	1	1	1	0	1	1	1	1	1	0	1	89	90.8%
Newton, T F	b	d	a	a	a	b	d	a	d	c	b	d	c	c		
	0	0	1	1	1	1	1	1	1	1	1	1	0	0	78	79.6%
% Missed > 70% ?	0.28	0.14	0	0	0	0.14	0.28	0.14	0.28	0	0	0	0.42	0.28		87.4%

ENCLOSURE 2

NRC Official Use Only

SRO File Copy Master

Nuclear Regulatory Commission
Operator Licensing
Examination

This document is removed from
Official Use Only category on
date of examination.

NRC Official Use Only

U. S. NUCLEAR REGULATORY COMMISSION
SENIOR REACTOR OPERATOR LICENSE EXAMINATION
REGION 2

FACILITY: Browns Ferry 1, 2, & 3

REACTOR TYPE: BWR-GE4

DATE ADMINISTERED: 90/12/10

CANDIDATE:

INSTRUCTIONS TO CANDIDATE:

Points for each question are indicated in parentheses after the question. To pass this examination, you must achieve an overall grade of at least 80%. Examination papers will be picked up four and one half (4 1/2) hours after the examination starts.

NUMBER QUESTIONS	TOTAL POINTS	CANDIDATE'S POINTS	CANDIDATE'S OVERALL GRADE (%)
~~98~~ 96	~~100.00~~ 98.00		

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

Candidate's Signature

NRC RULES AND GUIDELINES FOR LICENSE EXAMINATIONS

During the administration of this examination the following rules apply:

1. Cheating on the examination means an automatic denial of your application and could result in more severe penalties.

2. After the examination has been completed, you must 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. This must be done after you complete the examination.

3. Restroom trips are to be limited and only one candidate at a time may leave. You must avoid all contacts with anyone outside the examination room to avoid even the appearance or possibility of cheating.

4. Use black ink or dark pencil only to facilitate legible reproductions.

5. Print your name in the blank provided in the upper right-hand corner of the examination cover sheet.

6. Fill in the date on the cover sheet of the examination (if necessary).

7. You may write your answers on the examination question page or on a separate sheet of paper. USE ONLY THE PAPER PROVIDED AND DO NOT WRITE ON THE BACK SIDE OF THE PAGE.

8. If you write your answers on the examination question page and you need more space to answer a specific question, use a separate sheet of the paper provided and insert it directly after the specific question. DO NOT WRITE ON THE BACK SIDE OF THE EXAMINATION QUESTION PAGE.

9. Print your name in the upper right-hand corner of the first page of answer sheets whether you use the examination question pages or separate sheets of paper. Initial each of the following answer pages.

10. Before you turn in your examination, consecutively number each answer sheet, including any additional pages inserted when writing your answers on the examination question page.

11. If you are using separate sheets, number each answer and skip at least 3 lines between answers to allow space for grading.

12. Write "Last Page" on the last answer sheet.

13. Use abbreviations only if they are commonly used in facility literature. Avoid using symbols such as < or > signs to avoid a simple transposition error resulting in an incorrect answer. Write it out.

14. The point value for each question is indicated in parentheses after the question. The amount of blank space on an examination question page is NOT an indication of the depth of answer required.

15. Show all calculations, methods, or assumptions used to obtain an answer.

16. Partial credit may be given. Therefore, ANSWER ALL PARTS OF THE QUESTION AND DO NOT LEAVE ANY ANSWER BLANK. NOTE: partial credit will NOT be given on multiple choice questions.

17. Proportional grading will be applied. Any additional wrong information that is provided may count against you. For example, if a question is worth one point and asks for four responses, each of which is worth 0.25 points, and you give five responses, each of your responses will be worth 0.20 points. If one of your five responses is incorrect, 0.20 will be deducted and your total credit for that question will be 0.80 instead of 1.00 even though you got the four correct answers.

18. If the intent of a question is unclear, ask questions of the examiner only.

19. When turning in your examination, assemble the completed examination with examination questions, examination aids and answer sheets. In addition, turn in all scrap paper.

20. To pass the examination, you must achieve an overall grade of 80% or greater.

21. There is a time limit of (4 1/2) hours for completion of the examination. (or some other time if less than the full examination is taken.)

22. When you are done and have turned in your examination, leave the examination area as defined by the examiner. If you are found in this area while the examination is still in progress, your license may be denied or revoked.

QUESTION: 001 (1.00)

SELECT the ONE statement that describes a condition that will trip a diesel generator while it is operating in parallel with the system.

a. Generator field breaker trips.

b. Speed increases to 1015 rpm.

c. EECW pressure is zero psig.

d. Lube oil pressure is 3 psig.

QUESTION: 002 (1.00)

SELECT the ONE statement that describes conditions that requires the issuance of a Radiation Work Permit (RWP).

a. Entry into an area with general field radiation levels of 155 mrem per hour.

b. Expected exposure during the course of the normal work week will result in 50 mrem exposure.

c. Entry into an area with fixed contamination and general field radiation levels of 25 mrem per hour.

d. Entry into the reactor building with Iodine-131 airborne concentrations at 0.1 MPC.

QUESTION: 003 (1.00)

SELECT the ONE operator that may enter a HIGH RADIATION area without exceeding the facility administrative whole body exposure limits if the expected dose is 100 mrem and only the Shift Operations Supervisor authorization is available.

a.	Sex:	Female.	Quarterly exposure:	1000 mrem.
	Age:	18	Annual exposure:	1500 mrem.
	Remarks:	Form 4 on file.	Lifetime exposure:	1500 mrem.
b.	Sex:	Female.	Quarterly exposure:	050 mrem.
	Age:	24	Annual exposure:	470 mrem.
	Remarks:	4 months pregnant, Form 4 on file.	Lifetime exposure:	1900 mrem.
c.	Sex:	Male.	Quarterly exposure:	600 mrem.
	Age:	20	Annual exposure:	950 mrem.
	Remarks:	Form 4 unavailable.	Lifetime exposure:	Unknown.
d.	Sex:	Male.	Quarterly exposure:	150 ~~mrem.~~
	Age:	27	Annual exposure:	4950 mrem.
	Remarks:	Form 4 on file.	Lifetime exposure:	~~28700~~ mrem.

QUESTION: 004 (1.00)

SELECT the ONE statement below that describes the situation that could be classified as a PRIORITY 1 work order.

a. The drywell air sampling system is inoperable placing the unit in a 72 hour Limiting Condition for Operation.

b. Installation of a blind flange on the main generator stator cooling water system during a refueling outage.

c. Troubleshooting the cause of the A recirculation pump MG set tripping, placing the unit in a 12 hour Limiting Condition for Operation.

d. Battery board 2 ground detector indicates +80 volts while operating at rated power.

QUESTION: 005 (1.00)

SELECT the ONE statement below that describes a component within the plant on which the Area Dispatcher may hold a clearance.

a. Main generator seal oil vacuum pump.

b. Main turbine steam seal regulator.

c. Main turbine stop valves.

d. Main Transformer Fire Protection.

QUESTION: 006 (1.00)

SELECT the ONE statement that describes the condition that would cause the ROD WITHDRAWAL BLOCK annunciator to alarm during a reactor startup.

a. SRM D indicates upscale, SRM and IRM detectors are fully retracted from the core, the Reactor Mode Switch is in RUN.

b. SRM C indicates 3 E 4 cps, IRMs are on range 4, SRM C detector is fully retracted from the core.

c. SRM A fails downscale, IRMs are on range 2, SRM A detector is partially retracted from the core.

d. SRM B indicates 1500 cps, SRM D indicates 50 cps, IRMs are on range 4, SRM B detectors is partially retracted from the core.

QUESTION: 007 (2.00)

MATCH the TYPE OF TAG/AID in COLUMN B to the CONDITION/CIRCUMSTANCE where it is used in COLUMN A. NOTE: Each response in Column B may be used once, more than once, or not at all and only ONE answer may occupy one answer space.

COLUMN A
CONDITION/CIRCUMSTANCE

a. A component is making unusual noise and shouldn't be used unless absolutely necessary. until it is repaired.

b. A nitrogen valve must be closed to prevent personnel hazard in a confined space.

c. Used to identify a jumper across contacts on a relay during maintenance on a safety system. IDENTIFIED MAINT UNDER ~~MOTR-~~WORK ORDER.

d. Additional guidance is needed to assist the operator with the normal operation of a component.

COLUMN B
TYPE OF TAG/AID

1. Hold Notice Tag.
2. Caution Order Tag.
3. Posted Operator Aid.
4. Temporary Alteration Control Tag.
5. Plant Equipment Deficiency Tag.

QUESTION: 008 (1.00)

Given the following work schedule for a control room operator on Unit 2 during a refueling outage:

Thursday	- Did not work	Sunday	- 6 am to 6 pm
Friday	- Did not work	Monday	- 6 am to 2 pm
Saturday	- 6 am to 2 pm	Tuesday	- 6 am to 8 pm

SELECT the ONE schedule below that would require the permission of the Operations Superintendent for the operator to work the remaining week.

a. Wednesday - 6 am to 2 pm.
   Thursday - 6 am to 10 pm.
   Friday - 6 am to 2 pm.

b. Wednesday - 6 am to 8 pm.
   Thursday - 6 am to 4 pm.
   Friday - Does not work.

c. Wednesday - 6 am to 2 pm.
   Thursday - 6 am to 8 pm.
   Friday - 6 am to 4 pm.

d. Wednesday - 6 am to 2 pm.
   Thursday - 6 am to 10 pm.
   Friday - Does not work.

Deleted B Halbert
01/01/91

QUESTION: 009 (1.00)

A motor-operated valve has been closed with the manual handwheel.

SELECT the ONE statement that describes why it must be cycled by the motor-operator prior to declaring it operable.

a. The torque switch may trip prior to breaking the disc free from the seat when it is opened.

b. The valve stem could have been bent using the manual handwheel.

c. The clutch may not have fully released and the thrust bearings could be damaged.

d. The clutch may not have reengaged following manual operation.

QUESTION: 010 (1.00)

TIP traces are being run on Unit 2 at 95% power. A TIP detector is being driven into the core when a loss of all feedwater causes reactor water level to decrease and automatically initiate HPCI and RCIC.

SELECT the ONE statement that describes the response of the Traversing Incore Probe (TIP) system if the Manual Switch is in FWD.

a. The TIP detector immediately retracts and the ball valve closes when the detector is in its shield chamber.

b. The TIP detector immediately retracts and the shear valve fires if the detector is not in its shield chamber within 20 seconds.

c. The TIP detector inserts until the core limit light (top) illuminates, then automatically retracts and begins scanning.

d. The TIP detector inserts until the core limit light (top) illuminates, then retracts and the ball valve closes when the detector is in its shield chamber.

QUESTION: 011 (1.00)

During a Site Area Emergency an operator is injured and is unconscious in the reactor building. Two individuals are needed to rescue the operator. They will each receive 12 rem exposure during the rescue.

SELECT the ONE person that may authorize the two rescuers to exceed the quarterly dose limit.

a. Site Emergency Director.

b. Assistant Shift Operations Supervisor.

c. NRC Regional Emergency Director.

d. RadCon Superintendent.

QUESTION: 012 (1.00)

Given the plant data provided on Attachment 1, 2-SI-4.6.E.1, "Jet Pump Operability (Two Pump Operation):"

SELECT the ONE statement that describes the results of the surveillance.

a. The surveillance is satisfactory, however indicated core flow differs from its loop flow derived value by more than 10%.

b. The surveillance is satisfactory, however the loop flow imbalance exceeds 10%.

c. The surveillance is unsatisfactory, the loop flow imbalance exceeds 15% and a jet pump dp varies from the jet pump mean dp by more than 10%.

d. The surveillance is unsatisfactory, more than one jet pump dp varies from the jet pump mean dp by more than 10%.

QUESTION: 013 (1.00)

While using the Safety Parameter Display System (SPDS) the operator notes a parameter value display changes from GREEN to YELLOW.

SELECT the ONE statement that describes the significance of the change in the color of the display.

a. A radiological limit has been exceeded for that parameter.

b. The parameter's normal operating range has been exceeded.

c. The computer has substituted a value for that parameter.

d. The parameter has exceeded an EOI entry condition.

QUESTION: 014 (1.00)

A P-1 printout is run on the process computer yielding the following data on the most limiting node in the core:

CMAPR:	0.96
CMFLPD:	0.92
CMFCP:	1.01

SELECT the ONE thermal limit that is being exceed.

a. Average Planar Linear Heat Generation Rate.

b. Linear Heat Generation Rate.

c. Fuel Cladding Integrity Safety Limit.

d. Minimum Critical Power Ratio.

QUESTION: 015 (1.00)

SELECT the statement that describes a duty that the Site Emergency Director performs during a Site Area Emergency.

a. Downgrading the emergency to an alert level.

b. Coordinate the activation of the Technical Support Center (TSC).

c. Notifying the State of Alabama emergency agencies.

d. Terminating the emergency situation.

QUESTION: 016 (1.00)

SELECT the ONE statement that describes the MAXIMUM number of visitors that may be escorted by a single individual in a Vital Area.

a. Three, unless more are authorized by the Plant Manager.

b. Five, unless more are authorized by the Plant Manager.

c. Three.

d. Five.

QUESTION: 017 (1.00)

Given that all three units are operating at rated power:

SELECT the ONE statement that describes an individual that may be a member of the fire brigade.

a. Shift Operations Supervisor.

b. Unit 1 Assistant Shift Operations Supervisor.

c. Unit 1 Unit Operator.

d. Unit 2 Unit Operator.

QUESTION: 018 (1.00)

SELECT the ONE statement that describes a responsibility of the Shift Operations Supervisor during a plant fire emergency.

a. Report to the location of the fire and evaluate the safety impact of the fire.

b. Ensure fixed fire suppression systems are secured when the fire is extinguished.

c. Ensure all fire pumps are operating when the existence of a fire is verified.

d. Determine if the fire emergency area shall be secured by Nuclear Security.

QUESTION: 019 (1.00)

SELECT the ONE statement that describes the expected effect on the Control Rod Drive (CRD) Hydraulic system to a loss of control air header pressure.

a. The stabilizing valves open making drive pressure unstable.

b. The scram inlet and outlet valves begin to close causing rods to start scramming into the core.

c. The flow control valve closes limiting the ability to manually drive control rods.

d. The drive water pressure control valve opens lowering drive water pressure.

QUESTION: 020 (1.00)

The Refuel Mode One Rod Permissive Blue Light is Illuminated.

SELECT the ONE statement that describes the present plant conditions.

a. The mode switch is in REFUEL and the light indicates rods Full In Overtravel.

b. The mode switch is in REFUEL and one rod is withdrawn.

c. The mode switch is in REFUEL, Refuel Bridge is over the core and one rod is withdrawn.

d. The mode switch is in REFUEL and a one rod bypass permissive exist for RPIS.

QUESTION: 021 (1.00)

SELECT the ONE statement that describes an indication of an uncoupled control rod when performing a control rod coupling integrity check at position 48.

a. Rod display blanks and red backlighting on the full core display extinguishes.

b. Rod display blanks and the rod select power is deenergized by RSCS.

c. Rod display does not change from position 48 and the CONTROL ROD WITHDRAWAL annunciator alarms.

d. Rod display does not change from position 48 and the CONTROL ROD DRIFT annunciator alarms.

QUESTION: 022 (1.00)

Given the following plant conditions during a reactor startup:

Reactor power: 11%.

All rods in Group 16 have just been moved to their withdraw limit (the rod movement timer just deenergized the settle bus for the last rod).

All other rods are at their assigned positions.

SELECT the ONE statement that describes proper operation of the Rod Sequence Control System (RSCS).

a. All backlights for Group 16 are dimly lit except for the selected rod which is brightly lit.

b. All backlights for Group 16 are extinguished except for the selected rod which is brightly lit.

c. All backlights for Group 17 are dimly lit, the selected rod in Group 16 is brightly backlit.

d. All backlights for Group 17 rods are dimly lit, all other rod backlights are extinguished.

QUESTION: 023 (1.00)

During a startup, power is 18% and is being raised by withdrawing Group 30 control rods. Current rod positions are in accordance with the prescribed rod sequence. Rod sequence data is given below.

Group 30 insert limit:	00.
Group 30 withdraw limit:	12.
Group 30 rod positions:	All rods are at position 08.
Group 26 insert limit:	08.
Group 26 withdraw limit:	12.

SELECT the ONE statement that describes the expected window displays on the Rod Worth Minimizer if Group 26 rod 18-43 is selected and moved from position 12 to position 14.

a. Withdraw error window: Blank.
   Insert error window: 18-43.
   Rod Group Window: 26.

b. Withdraw error window: 18-43
   Insert error window: Blank.
   Rod Group Window: 26.

c. Withdraw error window: Blank
   Insert error window: 18-43.
   Rod Group Window: 30.

d. Withdraw error window: 18-43
   Insert error window: Blank.
   Rod Group Window: 30.

QUESTION: 024 (1.00)

SELECT the ONE statement that describes the reason all of the jet pumps must be operable during power operation.

a. The ability to adequately cool the core following a design basis loss of coolant accident may be jeopardized.

b. The reverse flow through the inoperable jet pump could cause vibration of the remaining jet pumps and damage them also.

c. The APRM flow biased setpoint is not valid unless all jet pumps are operable.

d. The flow imbalance makes the process computer MCPR calculations non-conservative and thermal limits could be exceeded.

QUESTION: 025 (1.00)

SELECT the ONE statement below that describes a condition that will limit Recirculation Pump speed to 28% by enabling the 28% limiter.

a. Recirculation pump suction valve is 95% open.

b. Reactor feedwater pump "A" flow is 12%.

c. Total steam flow is 18%.

d. Total feedwater flow is 16%.

QUESTION: 026 (1.00)

During a level transient on Unit 2 the following events occurred:

Reactor water level decreased to -125 inches.
ADS actuated.
RHR pump A and B started and injected to the reactor vessel.
RPV water level is +25 inches and increasing.
No operator actions have been taken.

SELECT the ONE statement that describes the Residual Heat Removal (RHR) system response to placing the RHR pump A control switch to the STOP position.

a. RHR pump A will stop and the amber light above the control switch will light.

b. No effect, RHR pump A will continue to run until the LOCA initiation signal is reset..

c. RHR pump A will stop and the yellow initiation signal light will extinguish.

d. RHR pump will stop and then restart when the switch is released.

QUESTION: 027 (1.00)

The Reactor Water Cleanup (RWCU) system is operating with the A pump running and the B filter-demineralizer in service at 135 gpm flow.

SELECT the ONE statement that describes the expected automatic response of the RWCU system if the B filter-demineralizer is inadvertently valved out of service.

a. The B filter-demineralizer holding pump will start. The A RWCU pump trips when system flow decreases to less than 90 gpm for 7 seconds.

b. The B filter-demineralizer BYPASS valve will automatically open and the A RWCU pump will continue to operate.

c. If in automatic the A filter-demineralizer automatically returns to service when the B filter-demineralizer dp exceeds 20 psid.

d. The system automatically isolates and the A pump trips when system flow decreases to less than 40 gpm for 7 seconds.

QUESTION: 028 (1.00)

SELECT the ONE statement that describes the response of the High Pressure Coolant Injection (HPCI) pump suction valves if the Condensate Storage Tank (CST) level decreases to 10.5 feet as read on 2-LI-2-161.

a. The Suppression Pool Suction Valves open when the CST Suction Valve is fully closed.

b. The Suppression Pool Suction Valves open when the CST Suction Valve is not fully open.

c. The CST Suction Valve closes when both the Suppression Pool Suction Valves are fully open.

d. The CST Suction Valve will close when either the of Suppression Pool Suction Valves are not fully closed.

QUESTION: 029 (1.00)

Given the following plant conditions:

250VDC RMOV Board 2A: Deenergized.

SELECT the ONE statement that describes the expected response of the High Pressure Coolant Injection (HPCI) system if reactor water level decreases to -60 inches.

a. Does not initiate since the auxiliary oil pump will not start.

b. Initiates, but the turbine trips on overspeed because the flow controller is deenergized.

c. Initiates, but the turbine idles at minimum speed because the flow controller is deenergized.

d. Does not initiate since the Relay Logic Bus A is deenergized.

QUESTION: 030 (1.00)

The following conditions exist for Unit 2.

Unit	In Shutdown Cooling
4KV Shutdown Board A	Under clearance (Deenergized)
RPS Bus A	Under clearance (Deenergized)

SELECT the ONE statement that describes CORE SPRAY starting sequence in response to a LOCA signal.

	PUMP	TIME
a.	A	0 Seconds
	B	7 Seconds
	C	14 Seconds
	D	21 Seconds
b.	A	7 Seconds
	B	7 Seconds
	C	7 Seconds
	D	7 Seconds
c.	A	0 NOT Start
	B	14 Seconds
	C	0 Seconds
	D	14 Seconds
d.	A	NOT Start
	B	7 Seconds
	C	NOT Start
	D	21 Seconds

QUESTION: 031 (1.00)

The reactor is operating at rated conditions when the Core Spray system II injection header breaks between the reactor vessel wall and the core shroud.

SELECT the ONE statement that describes expected indications for the CORE SPRAY SYS II HIGH DP HDR TO CORE PLATE Annunciator and the Core Spray Leak Detector indicator.

a. Annunciator: Alarming.
   Indicator: Upscale positive differential pressure.

b. Annunciator: Alarming.
   Indicator: Negative differential pressure.

c. Annunciator: Not alarming.
   Indicator: Negative differential pressure.

d. Annunciator: Not alarming.
   Indicator: Upscale positive differential pressure.

QUESTION: 032 (1.00)

Given the following plant condition:

SLC LOSS OF SQUIB VALVE CONTINUITY annunciator: Alarming.
Squib valve A firing circuit is open (0 ma current flow).

SELECT the ONE statement that describes the effect of taking the Standby Liquid Control (SLC) pump control switch to the START A position.

a. The A pump starts and recirculates the sodium pentaborate solution through the relief valve, and the RWCU system isolates.

b. The A pump starts and recirculates the sodium pentaborate solution through the relief valve, and the RWCU system does not isolate.

c. The A pump starts, the B squib valve fires, and RWCU does not isolate.

d. The A pump starts, the B squib valve fires, and the RWCU system isolates.

QUESTION: 033 (1.00)

At 45% power, the #4 main turbine stop valve closes.
SELECT the ONE statement that describes the effect on the Reactor Protection System (RPS) if the Main Turbine Stop Valve #1 drifts closed.

a. RPS channels A and B trip causing a full scram.

b. RPS channel A trips causing a half-scram.

c. RPS channel B trips causing a half-scram.

d. Neither RPS channel trips.

QUESTION: 034 (1.00)

Given the following plant conditions:

APRM indicated power: 80%
Total core flow: (Wd) 42%

SELECT the ONE statement that describes expected trip status of the APRMs.

a. Inop trip rod block only.

b. High trip rod block only.

c. High-high thermal trip (scram).

d. High-high neutron trip (scram).

QUESTION: 035 (1.00)

SELECT the ONE statement that describes the effect on reactor water level instrumentation of ambient temperature increasing in the vicinity of the reference leg run.

a. Indicated level increases due to reference leg water density decreasing.

b. Indicated level increases due to reference leg water density increasing.

c. Indicated level decreases due to reference leg water density increasing.

d. Indicated level decreases due to reference leg water density decreasing.

QUESTION: 036 (1.00)

Given the following plant conditions:

The Reactor Core Isolation Cooling (RCIC) and High Pressure Coolant Injection (HPCI) systems are operating in CST to CST recirculation mode in accordance with EOI appendix 11.
Reactor water level is being maintained by condensate booster pumps at + 30 inches.

SELECT the ONE statement that describes the effect on the RCIC system if the HPCI pump suction automatically swaps to the suppression pool source.

a. A no-flow condition will exist and the RCIC pump is in danger of overheating.

b. The RCIC Pump Minimum Flow Valve (FCV-71-34) will open when flow decreases to less than 60 gpm.

c. RCIC will trip on low pump suction pressure when the RCIC CST suction valve closes.

d. RCIC will trip on high pump discharge pressure due to a no-flow condition existing.

QUESTION: 037 (1.00)

Given the following plant conditions following a Loss of Offsite Power:

Reactor water level: Less than - 114.5 inches for two minutes.
Drywell pressure: 1.4 psig
Low pressure injection: All systems are operating normally.
High pressure injection: RCIC is operating and is unable to recover level.

SELECT the ONE statement that describes the expected response of the Automatic Depressurization System (ADS). The ADS valves will actuate:

a. In 2 minutes 25 seconds unless the 95 second timer is manually reset.

b. In 2 minutes 25 seconds unless the 265 second timer is manually reset.

c. In 4 minutes unless the 95 second timer is manually reset.

d. In 4 minutes unless the 265 second timer is manually reset.

QUESTION: 038 (1.00)

Following a loss of offsite power, all of the Diesel Generators are running and carrying loads on their respective shutdown boards. The Residual Heat Removal lineup is identified below:

System I: Suppression pool cooling mode, RHR pump C running.
System II: Suppression pool cooling mode, RHR pump B running.

SELECT the ONE statement that describes the effect on the RHR system if the B diesel generator trips on a generator fault.

a. RHR pump 2B will be deenergized. RHR loop II will drain to the suppression pool via the test line.

b. RHR pump 2B will be deenergized. The RHR System II Suppression Pool Spray/Test Isolation Valve (FCV-74-71) closes when the pump deenergizes.

c. RHR pump 2C will be deenergized. RHR loop I will drain to the suppression pool via the test line.

d. RHR pump 2C will be deenergized. The RHR System II Suppression Pool Spray/Test Isolation Valve (FCV-74-57) will close when the pump deenergizes.

QUESTION: 039 (1.00)

The Drywell Leak Detection valves responded to a PCIS Group 6 Isolation signal.

SELECT the ONE statement that describes the condition necessary for valve opening.

a. The valves will automatically open when the isolation signal is no longer present.

b. After the isolation signal clears, reset the PCIS isolation signal on panel 9-5 and manually open the valves.

c. The valves may not be opened as long as a PCIS isolation signal exist.

d. After the Isolation signal is clear, reset the PCIS isolation logic on panel 9-5, and reset the valve logic on panel 9-2 and the valves will automatically open.

QUESTION: 040 (1.00)

During a loss of coolant accident, drywell sprays must be initiated.

SELECT the ONE statement that describes the plant conditions that must exist to open the RHR SYS I DW SPRAY INBD VLV (2-FCV-74-61) to align RHR to spray the drywell with the CONT SPRAY VLV SEL MAN OVERRIDE switch in MANUAL OVERRIDE.

a. RPV level must be greater than -48 inches (Emergency System Range).

b. RPV level must be greater than -210 inches (post accident range).

c. RPV level must be greater than 0 inches (wide range).

d. RPV level must be greater than 0 inches (post accident range).

QUESTION: 041 (1.00)

SELECT the ONE statement that describes a condition that will generate a ROD BLOCK with the Reactor Mode Switch in the REFUEL position.

a. The refuel platform is over the spent fuel racks and is moving a fuel bundle.

b. The refuel platform is over the core and one control rod is withdrawn.

c. The refuel platform is over the core and is raising a fuel bundle.

d. The refuel platform is over the spent fuel racks and the full-up light is lit.

QUESTION: 042 (1.00)

SELECT the ONE statement that describes an alternate depressurization method prescribed by the Emergency Operating Instructions in the event SRVs are unavailable.

a. Bypass the SLC isolation signal to RWCU and blowdown to the Waste Surge Tank.

b. Open the reactor head vent valves to the drywell sump.

c. Open the main steam line drains if the main condenser is available.

d. Operate RCIC circulating water from the suppression pool to the CST.

QUESTION: 043 (1.00)

A SRV inadvertently opens and the SRO directs the Acoustic Monitor power switch be placed to OFF and back to On.

SELECT the ONE statement that describes why this action is taken.

a. This will clear the main control room alarm so a second SRV alarm could be detected.

b. This will activate the SRV tail pipe temperature recorder.

c. This will activate the acoustic monitor by applying a charging voltage.

d. This will verify the Acoustic Monitor is not showing a false open signal.

QUESTION: 044 (1.00)

A reactor plant startup is in progress with reactor power at 65%.

SELECT the ONE statement that describes the expected FINAL STEADY STATE status of the components/parameters listed below if core flow is rapidly increased resulting in reactor power increasing to 80%.

Components/Parameters: Turbine Control Valves (TCVs)
Turbine Bypass Valves (BPVs)
RPV pressure
Steam chest pressure

a.	TCVs: BPVs:	Opened more. Closed.	RPV pressure: Steam chest press:	Higher. Higher.
b.	TCVs: BPVs:	No change. Throttled open.	RPV pressure: Steam chest press:	No change. Lower.
c.	TCVs: BPVs:	No change. Throttled open.	RPV pressure: Steam chest press:	No change. Higher.
d.	TCVs: BPVs:	Opened more. Closed.	RPV pressure: Steam chest press:	Higher. Lower.

QUESTION: 045 (1.00)

Given the following plant conditions while operating at 35% power:

Pressure regulator in control:	A.
Load limiter setpoint:	100%.
Maximum combined flow setpoint:	110%.

SELECT the ONE statement that describes the expected plant response to the Steam Throttle Pressure detector A failing upscale (sensed pressure is failed high).

a. The turbine control valves and bypass valves open, the MSIVs close, the reactor scrams.

b. The turbine control valves and bypass valves close, reactor pressure and power increase, the reactor scrams.

c. The turbine control valves close until the B pressure regulator takes control, reactor power and pressure increase slightly.

d. The turbine control valves open until the B pressure regulator takes control, reactor power and pressure decrease slightly.

QUESTION: 046 (1.00)

Unit 2 is operating at rated conditions.
SELECT the ONE statement that describes a condition that will trip a Condensate Booster Pump.

a. Unit 3 trips causing grid voltage to decrease to 98% of nominal voltage.

b. The A condensate booster pump auxiliary oil pump breaker is racked out for maintenance.

c. The hotwell dump valve fails open causing hotwell level to drop to 22 inches.

d. A filter-demineralizer outlet valve fails closed causing condensate booster pump suction pressure to decrease to 2 psig.

QUESTION: 047 (1.00)

SELECT the ONE statement that describes an expected response of the Condensate and Feedwater systems to the C3 Feedwater Heater normal drain valve failing closed.

a. The C3 heater emergency drain valve will open.

b. The C low pressure heater string (C3-C4-C5) will isolate.

c. The No. 3 heaters extraction steam bypass valve will open.

d. The No. 3 heaters extraction steam inlet valves will close.

QUESTION: 048 (1.00)

The reactor is operating at 90% power with feedwater level control in three-element control.

SELECT the ONE statement that describes the expected final plant response to one of the four main steam line flow signals to feedwater level control failing to its maximum value.

a. Reactor water level will decrease and stabilize at a lower level, reactor power remains at about 90%.

b. Reactor water level will decrease until the reactor scrams on low water level.

c. Reactor water level will increase until the main turbine trips causing a reactor scram.

d. Reactor water level will increase and stabilize at a higher level, reactor power remains at about 90%.

QUESTION: 049 (2.00)

MATCH each of the AUTOMATIC ACTIONS in COLUMN A to its RPV LEVEL INITIATION SIGNAL in COLUMN B. NOTE: Each response in Column B may be used once, more than once, or not at all and only ONE answer may occupy one answer space.

COLUMN A AUTOMATIC ACTIONS	COLUMN B RPV LEVEL INITIATION SIGNAL
a. Standby Gas Treatment initiates.	1. +54 inches.
b. High Pressure Coolant Injection initiates.	2. +18 inches.
c. Alternate Rod Insertion actuates.	3. +11 inches.
d. Reactor Feed Pump Turbines trip.	4. -45 inches.
	5. -51.5 inches
	6. -105.6 inches.
	7. -114.5 inches.

QUESTION: 050 (1.00)

Given the following plant conditions:

AC distribution is in its NORMAL lineup initially.
Shutdown Board 43S switches are in AUTO.
Shutdown Bus 1 deenergizes due to a electrical fault.

SELECT the ONE statement that describes the normal operation of the Shutdown Boards.

a. Shutdown Board A will automatically transfer to Shutdown Bus 1 when it is reenergized.

b. Shutdown Board C will automatically transfer to Shutdown Bus 1 when it is reenergized.

c. Shutdown Board B must be manually transferred to Shutdown Bus 1 when it is reenergized.

d. Shutdown Board D must be manually transferred to Shutdown Bus 1 when it is reenergized.

QUESTION: 051 (1.00)

Given the following plant conditions:

A loss of offsite power has occurred for all of the units.
Reactor water level is -120 inches on Unit 2.
Diesel generator C and 3EC are inoperable.
All other diesel generators start and reenergize their respective buses normally.

SELECT the ONE statement that describes an expected response of the shutdown boards' loads starting.

a. RHR pump 2C starts 7 seconds after shutdown board D is reenergized by its diesel.

b. Core spray pump 2D starts 21 seconds after shutdown board D is reenergized by its diesel.

c. Core spray pump 2C starts 14 seconds after shutdown board B is reenergized by its diesel.

d. RHR pump 2C starts immediately when shutdown board B is reenergized by its diesel.

QUESTION: 052 (1.00)

Given the following plant conditions on Unit 2:

The drywell sump integrator data from Sunday 12/2/90 to Tuesday 12/4/90 is provided on Attachment 2.

SELECT the ONE statement that identifies the Technical Specification requirement that has been exceeded.

TECHNICAL SPECIFICATION 3.6.C IS PROVIDED AS ATTACHMENT 2 FOR YOUR REFERENCE.

a. Identified coolant leakage increased by more than 2 gpm averaged over a day on Tuesday.

b. Unidentified leakage exceeded 5 gpm averaged over 24 hours on Tuesday.

c. Total coolant leakage increased by more than 2 gpm averaged over 24 hours on Tuesday.

d. Total coolant leakage exceeded 25 gpm averaged over 24 hours on Tuesday.

QUESTION: 053 (1.00)

SELECT the ONE statement that identifies a process radiation monitor that would be inoperable if RPS bus A were deenergized.

a. Offgas flux tilt monitor (RM-90-160)

b. RBCCW discharge monitor (RM-90-131)

c. Stack gas monitor (RM-90-147).

d. Reactor building vent exhaust monitor (RM-90-142).

QUESTION: 054 (1.00)

Given the following plant conditions on Unit 1:

A station service transformer fire has actuated the water spray system for that transformer.
Fire header pressure is 115 psig five minutes after the spray system has actuated.

SELECT the ONE statement that describes the expected automatic operation of the fire pumps.

a. The diesel fire pump and all three electric fire pumps are operating.

b. The diesel fire pump and two of the three electric fire pumps are operating.

c. The diesel fire pump is in standby and all three electric fire pumps are operating.

d. The diesel fire pump and two electric fire pumps are in standby, the selected electric fire pump is operating.

QUESTION: 055 (1.00)

A reactor scram on Unit 2 results in the following plant conditions:

Reactor water level:	-10 inches.
Drywell pressure:	1.0 psig.
Ventilation radiation:	
Reactor building:	68 mr/hour.
Refueling zone:	35 mr/hour.

SELECT the ONE statement that describes the expected status of the control room ventilation.

a. The normal ventilation system is operating. The emergency system is supplying filtered air from the control bay.

b. The normal ventilation system is supplying air to the control room from the control bay.

c. The emergency ventilation system is operating supplying filtered outside air. The normal ventilation system is isolated.

d. The normal ventilation system is supplying outside air to the emergency ventilation system for filtration.

Deleted 01/01/91
BHolland

QUESTION: 056 (1.00)

While operating at 90% power the 2A Recirculation Pump trips. The following conditions exist following the pump trip:

Reactor power (APRMs): 63%, with 6% bandwidth oscillations.
Reactor power (LPRMs): 20% bandwidth oscillations occurring.
Core flow: 44%
LPRM UPSCALE annunciators have been received intermittently.

SELECT the ONE statement that describes a required action in accordance with 2-AOI-68-1, "Recirc Pump Trip.".

ILLUSTRATION 1, FROM 2-AOI-68-1, "RECIRC PUMP TRIP," IS PROVIDED AS ATTACHMENT 3 FOR YOUR REFERENCE.

a. Reduce recirculation pump B flow to less than 42,200 gpm.

b. Reduce reactor power to less than the 80% rod line within two hours by reducing recirculation flow.

c. Reduce reactor power to less than the 80% rod line within two hours by inserting control rods.

d. Immediately initiate a reactor scram.

QUESTION: 057 (1.00)

A station blackout has occurred and the following conditions exist on Unit 2:

No diesel generators are tied to their respective shutdown boards.
The Unit Preferred Alternate MMG set is inoperable.

SELECT the ONE statement that identifies a reactor water level instrument that is available to determine reactor water level.

a. EMERGENCY SYSTEM RANGE A (2-LI-3-58A).

b. NORMAL RANGE LEVEL A (2-LI-3-53).

c. NORMAL RANGE LEVEL B (2-LI-3-60).

d. SHUTDOWN FLOOD UP RANGE (2-LI-3-55).

QUESTION: 058 (1.00)

A loss of offsite power to the site has occurred. The Diesel Generators are running and loaded as listed below:

Current D/G loading:

D/G A:	2650 Kw.	D/G C:	2450 kW.
D/G B:	2200 kW.	D/G D:	2000 kW.

NOT

The following injection pumps are in service ~~with~~ their loading Amps ARE indicated.

RHR pump 2C	300 Amps.
RHR pump 2D	280 Amps.
Core Spray pump 2A	90 Amps.
Core Spray pump 2B	80 Amps.

SELECT the ONE statement that identifies an injection pump that could be run for approximately 2 days and satisfy the diesel generator loading criteria.

a. RHR pump 2C.

b. RHR pump 2D.

c. Core spray pump 2A.

d. Core spray pump 2B.

QUESTION: 059 (1.00)

SELECT the ONE statement that identifies the power source to IRM channel G.

a. +/- 24 vdc channel A.

b. 250 vdc Shutdown Board Battery C.

c. Unit preferred bus.

d. RPS bus B.

QUESTION: 060 (1.00)

At the end of an operating cycle, the End of Cycle RPT breakers are discovered to be inoperable and will not open on a Main Turbine trip.

SELECT the ONE statement that describes a potential effect of the power rise that occurs on a Main Turbine trip prior to the reactor scram turning power.

a. Pressure could exceed the reactor coolant system integrity safety limit.

b. Excessive transition boiling could occur in the core.

c. Excessive plastic strain could cause cracking of the fuel cladding.

d. Cladding temperature could exceed 1500 F following the scram.

QUESTION: 061 (1.00)

While operating at 28% power the following conditions exist on Unit 2:

Recirculation pump speed: 28%
Generator load: 280 MWe.
TURB CV FAST CLOSURE TURB SV CLOSURE SCRAM/RPT TRIP LOGIC BYPASS annunciator is alarming.

SELECT the ONE statement that describes an action that will be required if the main turbine trips and the reactor does not scram.

a. Manually scram the reactor to correct automatic scram failure.

b. Reduce power with recirculation pumps to within the bypass valves capacity as feedwater temperature decreases.

c. Reduce power with control rods to within the bypass valves capacity as feedwater temperature decreases.

d. Manually scram the reactor since there is no forced core flow.

QUESTION: 062 (1.00)

Given the following plant conditions on Unit 2:

Reactor power:	40%.
Core flow:	40%.
Reactor water level:	+ 31 inches.

SELECT the ONE statement that describes the core flow response to a reactor scram caused by an inadvertent PCIS group I isolation.

a. Core flow initially increases, then coasts down to about 20% rated flow.

b. Core flow immediately coasts down to about 20% rated flow.

c. Core flow immediately coasts down to about 30% rated flow.

d. Core flow initially increases, then coasts down to about 30% rated flow.

QUESTION: 063 (1.00)

During a reactor startup with the turbine in chest warming mode, the turbine shifted from chest warming to shell warming due to an internal electrical fault, and the reactor scrams.

SELECT the cause of the reactor scram.

a. Turbine first stage pressure exceeded 142 psig removing the turbine trip bypass from RPS.

b. Reactor water level decreased to +11 due to shrink.

c. The MSIVs closed due to low reactor pressure.

d. Reactor power exceeded 15% due to the collapse of voids.

QUESTION: 064 (1.00)

SELECT the ONE statement that describes a method NOT used to reduce Reactor Feedwater cycles during Low Power/Hot Standby operations.

a. Increase RWCU flow.

b. Flush cooler water from the Feedwater system prior to placing the Feedwater system back in service.

c. Minimize operations at Low power.

d. Decrease reactor power or Increase reactor Pressure and Temperature.

QUESTION: 065 (1.00)

Given the following plant conditions on Unit 2:

Reactor power:	95%
Core flow:	101%
Generator load:	1050 MWe.

SELECT the ONE statement that describes the plant response to a failure of the LOAD SET circuitry that runs the LOAD SET signal to its minimum value.

OPL171.014, FIGURE 1, ELECTRO-HYDRAULIC CONTROL UNIT IS PROVIDED AS ATTACHMENT 4 FOR YOUR REFERENCE.

a. The turbine control valves throttle closed and the bypass valves open, the reactor scrams when pressure increases.

b. The turbine control valves remain at their present position and the bypass valves open, the MSIVs close causing a reactor scram.

c. The turbine control valves throttle closed and the bypass valves remain closed, reactor pressure increases and the reactor scrams.

d. The turbine control valves throttle closes and bypass valves open, the MSIVs close causing a reactor scram.

QUESTION: 066 (1.00)

HPCI automatically initiated on high drywell pressure and raised reactor water level to +60 inches.

SELECT the ONE statement that describes the High Pressure Coolant Injection (HPCI) system's response to the high level trip in addition to the HPCI Turbine Stop Valve (73-18) closing.

a. The Minimum Flow Valve (73-30) closes.

b. The Pump Inboard Discharge Valve (73-44) and the Minimum Flow Valve (73-30) both close.

c. The Minimum Flow Valve (73-30) opens when flow decreases below 600 gpm.

d. The Pump Inboard Discharge Valve (73-44) closes, the Minimum Flow Valve (73-30) opens when flow decreases below 600 gpm.

QUESTION: 067 (1.00)

SELECT the ONE statement that describes a condition that violates a Safety Limit on Unit 2.

a. The Reactor is operating at 30% power with the "A" Inboard and "D" Outboard MSIV closed.

b. Contingency 2 of the EOIs direct emergency depressurization of the reactor. During the blowdown, level decreases to - 169 inches (Post accident flooding) before RHR and Core spray turn level.

c. Both recirculation pumps trip at 85% power. Power stabilizes at 55% power and flow at 38%. The operator manually scrams the reactor.

d. At 85% power, the most limiting MCPR value in the core is discovered to be 1.24 (its operating limit is 1.31).

QUESTION: 068 (1.00)

Given the following plant conditions for Unit 2:

Reactor water level: + 48 inches.
Reactor coolant temperature: 185 F.
RHR system I is in shutdown cooling mode.
The Recirculation system has both loops shutdown.

SELECT the ONE statement that describes the potential consequence of the Inboard Shutdown Cooling Suction Valve failing closed.

a. Transition boiling may occur at the reduced reactor pressure causing fuel cladding damage.

b. The differential expansion of the fuel pellets and cladding causes excessive plastic strain on the cladding.

c. Coolant temperature may stratify violating the temperature rise/ pressure limits of Technical Specifications.

d. Coolant temperature may increase unmonitored and change the reactor's conditions from COLD SHUTDOWN to HOT SHUTDOWN.

QUESTION: 069 (1.00)

SELECT the ONE statement that describes the reason drywell sprays are NOT allowed to be initiated if suppression pool level is greater than 18 feet.

a. The suppression pool-reactor building vacuum breakers connection is submerged preventing their operation if needed.

b. The suppression pool-reactor building vacuum breakers connection is submerged and containment integrity would be lost when they open.

c. The drywell-suppression pool vacuum breakers are submerged preventing the return of non-condensables to the drywell.

d. The drywell-suppression pool vacuum breakers are submerged allowing suppression pool water to be siphoned into the drywell.

QUESTION: 070 (1.00)

Given that drywell temperature is 168 F on Unit 2:

SELECT the ONE statement that identifies the Emergency Operating Instruction(s) that should be entered.

a. 2-EOI-1, Reactor Control using all of the sections (RC/L, RC/P, and RC/Q) and 2-EOI-2, Primary Containment Control using all of the sections (SP/L, SP/T, DW/T, and PC/P).

b. 2-EOI-1, Reactor Control using all of the sections (RC/L, RC/P, and RC/Q) and 2-EOI-2, Primary Containment Control using the Drywell Temperature Control (DW/T) section only.

c. 2-EOI-2, Primary Containment Control using the Drywell Temperature Control (DW/T) section only.

d. 2-EOI-2, Primary Containment Control using all of the sections (SP/L, SP/T, DW/T, and PC/P).

QUESTION: 071 (1.00)

While executing 2-EOI-2, Primary Containment Control, Suppression Pool Temperature and Reactor Pressure CANNOT be maintained within the Heat Capacity Temperature Limit.

SELECT the ONE statement that describes the reason the reactor is emergency depressurized.

a. To ensure the drywell spray initiation limit is not exceeded in the event of a design basis loss of coolant accident.

b. To ensure the containment design pressure limit is not exceeded in the event of a steam line break.

c. To ensure adequate energy absorption capability of the suppression pool in the event of a loss of coolant accident.

d. To ensure stable steam condensation occurs in the event of an ADS actuation.

QUESTION: 072 (1.00)

Given the following plant conditions on Unit 2:

The following annunciators are alarming:
APRM HIGH
LPRM HIGH
REACTOR WTR LEVEL A ABNORMAL
HEATER A1 LEVEL HIGH
Reactor power: Increasing.
Moisture separator drain pumps 2A1 and 2A2 tripped.

SELECT the ONE statement that identifies the abnormal operating instruction that should be entered for these conditions.

a. "Recirc Pump Trip," (2-AOI-68-1).

b. "Feedwater Heater String Isolation Abnormal Operating Instructions," (2-AOI-6-1).

c. "Loss of Control Air," (2-AOI-32-2).

d. "Loss of Reactor Feedwater or Reactor Water Level High/Low," (2-AOI-85-6).

QUESTION: 073 (1.00)

SELECT the reason that the blue lights on the full core display are verified to be illuminated for each control rod following a failure to scram.

a. To confirm that the scram pilot valve solenoids on each HCU are deenergized.

b. To confirm that the scram pilot air header is depressurized.

c. To confirm that each HCU accumulator is pressurized.

d. To confirm that the scram inlet and outlet valves on each HCU are open.

QUESTION: 074 (1.00)

A reactor scram has occurred and all control rods did not fully insert.

SELECT the ONE statement that describes how the Rod Sequence Control System interlocks are bypassed to allow manual control rod insertion in accordance with 2-EOI-1, Reactor Control.

a. Place the Reactor Mode switch to REFUEL.

b. Place the RWM Normal-Bypass switch to BYPASS.

c. Depress the System Initialize pushbutton on Panel 9-5.

d. Place the Reset switch to RESET at panel 9-28 (RMCS cabinet).

QUESTION: 075 (1.00)

Given that an electrical fire in the control room requires evacuation of the control room while operating at rated power.

SELECT the ONE statement that describes an action that should be completed prior to abandoning the control room in this situation.

a. Start all available diesel generators.

b. Scram the reactor and close the MSIVs by deenergizing both RPS buses.

c. Place the reactor mode switch to SHUTDOWN then back to REFUEL.

d. Start two EECW pumps on each EECW header.

QUESTION: 076 (1.00)

Given that all RBCCW is lost while operating Unit 2 at rated conditions:

SELECT the ONE statement that describes an action that is required if none of the Reactor Building Closed Cooling Water (RBCCW) pumps can be restarted.

a. Immediately reduce core flow to 40% using the Master/Manual controller.

b. Commence manual insertion of control rods following the approved pattern.

c. Immediately scram the reactor and emergency depressurize the reactor.

d. Manually scram the reactor and trip both recirculation pumps.

QUESTION: 077 (1.00)

Given the following plant conditions occur on Unit 2 at rated power:

Scram pilot air header pressure: 65 psig.
Control air header pressure: 68 psig.

SELECT the ONE statement that describes an automatic action that will occur for these indications.

a. The reactor scrams.

b. The Service Air Crosstie To Control Air valve (0-FCV-33-1) isolates.

c. The Emergency Control Bay Air Compressor starts.

d. The Inboard MSIVs close.

QUESTION: 078 (1.00)

Unit 2 is in Cold Shutdown with RHR in shutdown cooling mode.

SELECT the ONE statement that describes a method of maintaining coolant temperature if shutdown cooling is lost and cannot be restored.

a. Raise water level to + 115 inches and circulate water from the suppression pool through the head vent with a core spray pump.

b. Raise water level to + 65 inches and use the HPCI steam line drains to bleed steam to the main condenser.

c. Raise water level to + 120 inches, open the MSIVs and circulate water from the condenser to the reactor with a condensate pump.

d. Raise water level to + 60 inches and reject water with RWCU maintaining level with CRD and/or condensate.

QUESTION: 079 (1.00)

Given the following plant conditions:

Reactor power:	25/125 scale on Range 6 of the IRMs.
Reactor pressure:	455 psig.
Reactor water level:	+30 inches.

SELECT the action required for these conditions if the CRD charging header pressure cannot be maintained greater than 1400 psig.

a. Manually scram the reactor.

b. Discontinue the reactor plant startup until the charging water pressure control valve is repaired.

c. If any rod's accumulator pressure decreases to less than 970 psig, manually scram the reactor.

d. If two or more control rod drive mechanism temperatures in a 5 x 5 rod array exceed 250 F, manually scram the reactor.

QUESTION: 080 (1.00)

A fuel bundle is dropped in the spent fuel pool damaging several fuel bundles. The refueling SRO reports that bubbles were observed as the crew evacuated the refuel floor. The following plant conditions exist after the bundle has been dropped:

- Radiation measurements:
  - Refuel zone exhaust ventilation: 1250 mr/hour.
  - Refuel floor ARM: Upscale.
  - Site boundary (measured): Less than 1 mr/hour.
- Refueling zone vent exhaust dampers failed to isolate.
- Standby gas treatment started as required.

SELECT the ONE statement that describes the emergency classification that is required for this circumstance.

BFN-EPIP-1, "EMERGENCY CLASSIFICATION LOGIC," ATTACHMENT 1, IS PROVIDED AS ATTACHMENT 5 FOR YOUR REFERENCE.

a. Notification of Unusual Event.

b. Alert.

c. Site Area Emergency.

d. General Emergency.

QUESTION: 081 (1.00)

Given the following conditions on Unit 2 during a refueling outage:

52 fuel bundles have been loaded in the core.
Fuel movement has been interrupted to allow testing of a control rod.

SELECT the ONE statement that describes an action that must be taken if the source range count level begins increasing and the SRM period light illuminates after control rod movement is stopped.

a. Evacuate the refueling floor if the reactor cannot be made subcritical.

b. Manually scram the reactor if the count rate does not level off within about 30 seconds.

c. Record plant parameters so reactor engineering can determine if an inadvertent criticality has occurred.

d. Insert the control rod until an SRM period longer than 90 seconds is obtained.

QUESTION: 082 (1.00)

Given the following plant conditions on Unit 2 following a reactor scram caused by steam line break inside the drywell:

Reactor water level:	+15 inches.
Drywell pressure:	8.3 psig.
Drywell temperature:	252 F.
Suppression chamber pressure:	6.4 psig.
Suppression chamber temperature:	112 F.

SELECT the ONE statement that describes an action required by 2-EOI-2.

APPLICABLE SECTIONS OF 2-EOI-2, PRIMARY CONTAINMENT CONTROL ARE PROVIDED AS ATTACHMENT 6 FOR YOUR REFERENCE.

a. Reduce reactor pressure.

b. Initiate suppression pool sprays.

c. Initiate drywell sprays.

d. Emergency depressurize the reactor.

QUESTION: 083 (1.00)

Given the main turbine trips at 45% power on Unit 2:

RPS B scram relays (K14s) fail to reposition when deenergized causing a failure to scram.

ASSUMING NO OPERATOR ACTIONS

SELECT the statement that describes the expected response to this situation.

a. The alternate rod insertion valves deenergize when the high reactor pressure setpoint is exceeded on one trip unit in each trip channel.

b. The alternate rod insertion valves energize when the high reactor pressure setpoint is exceeded on both trip units in one trip channel.

c. The backup scram valve associated with RPS A will energize when the RPS A scram relays trip.

d. The backup scram valve associated with RPS A will deenergize when the RPS A scram relays trip.

QUESTION: 084 (1.00)

A reactor scram has occurred and the High Pressure Coolant Injection (HPCI) system is needed to maintain reactor water level. Suppression Pool Temperature is 145 F.

SELECT the ONE statement that describes the reason the HPCI suppression pool water level suction transfer logic interlock is defeated and HPCI is operated with a suction from the CST.

a. The suppression pool provides insufficient NPSH to the HPCI pump and cavitation may occur at rated flow.

b. The HPCI lube oil will exceed allowable temperatures and HPCI function could be lost due to damaged bearings.

c. The HPCI pump shaft seals are not designed to operate at temperatures in excess of 140 F and may fail.

d. The HPCI turbine exhaust pressure is likely to exceed the trip setpoint at the elevated suppression pool temperatures.

QUESTION: 085 (1.00)

SELECT the ONE statement that identifies a set of plant conditions that violate the NPSH requirements for using an RHR pump for level restoration.

FIGURE B, "RHR NPSH LIMITS" IS PROVIDED AS ATTACHMENT 7 FOR YOUR REFERENCE.

a. RHR pump flow: 9200 gpm.
Suppression pool temperature: 200 F.
Suppression pool pressure: 6.5 psig.

b. RHR pump flow: 8200 gpm.
Suppression pool temperature: 210 F.
Suppression pool pressure: 12.5 psig.

c. RHR pump flow: 9200 gpm.
Suppression pool temperature: 198 F.
Suppression pool pressure: 2.5 psig.

d. RHR pump flow: 10000 gpm.
Suppression pool temperature: 202 F.
Suppression pool pressure: 9 psig.

QUESTION: 086 (1.00)

While executing 2-EOI-1, Reactor Control, drywell.temperature exceeded the RPV Saturation Temperature.

SELECT the statement that describes the reason that LI-3-55, Shutdown Flooding Range cannot be used for level indication.

a. The differential pressure transmitter is not environmentally qualified to operate at saturated temperature conditions.

b. Drywell pressure is the same as reactor pressure providing a zero differential pressure (upscale level indication).

c. The reference leg may be boiling causing indicated water level to be higher than actual level.

d. The density of the water in the variable leg is too low to provide a usable differential pressure to measure level.

QUESTION: 087 (1.00)

SELECT the ONE statement that describes a set of plant conditions that will allow drywell sprays to be initiated before drywell temperature reaches 280 F.

FIGURE C, DRYWELL SPRAY INITIATION IS PROVIDED AS ATTACHMENT 8 FOR YOUR REFERENCE.

a. Suppression chamber temperature: 250 F.
Drywell pressure: 50 PSIG.

b. Suppression chamber temperature: 200 F.
Drywell pressure: 25 PSIG.

c. Suppression chamber temperature: 185 F.
Drywell pressure: 20 PSIG.

d. Suppression chamber temperature: 155 F.
Drywell pressure: 12 PSIG.

QUESTION: 088 (1.00)

Given the following plant conditions:

Reactor pressure:	1000 psig.
Suppression pool level:	20 feet.
Suppression pool temperature:	155 F.

SELECT the ONE statement that describes a required action and its corresponding basis.

FIGURES F AND G, "HEAT CAPACITY TEMPERATURE LIMIT" AND "SUPPRESSION POOL LOAD LIMIT" ARE PROVIDED AS ATTACHMENT 9 FOR YOUR REFERENCE.

a. Emergency depressurize the reactor to prevent excessive suppression pool dynamic loading due to subsequent SRV actuations.

b. Emergency depressurize the reactor to ensure the suppression pool can absorb the energy released by a LOCA.

c. Reduce suppression pool level to 18 ft. to prevent containment design temperature from being exceeded if an ADS actuation were to occur.

d. Reduce reactor pressure to 800 psig to prevent exceeding the containment design temperature in the event of a Design Basis Loss of Coolant Accident.

QUESTION: 089 (1.00)

SELECT the statement that describes the reason for requiring suppression pool level to be greater than 5.5 feet prior to commencing emergency depressurization.

a. The Safety Relief Valves (SRVs) tailpipe is uncovered and discharges directly to containment, the containment design pressure could be exceeded.

b. The Safety Relief Valves (SRVs) discharge is not adequately submerged to completely condense the exhaust steam and the suppression pool to reactor building vacuum breakers could fail.

c. The reduced mass of water that is cleared from the tailpipe when the Safety Relief Valves (SRVs) is opened places excessive velocity loading on the tailpipe.

d. To provide sufficient back pressure on the Safety Relief Valves (SRVs) to ensure the SRVs will reclose when SRVs are manually closed from the control room.

QUESTION: 090 (1.00)

2-EOI-2, Primary Containment Control requires drywell spray be initiated provided that adequate core cooling is assured.

SELECT the ONE statement that describes a situation where an RHR pump can be diverted from core cooling to spray the drywell.

a. RPV water level: - 212 inches, Post Accident Flooding Range.
RHR SYS I: One pump operable, 7000 gpm.
RHR SYS II: INOPERABLE.
CS SYS I: Two pumps, 6200 gpm.
CS SYS II: INOPERABLE.

b. RPV water level: -164 inches, Post Accident Flooding Range.
RHR SYS I: Both pumps, 14,000 gpm.
RHR SYS II: INOPERABLE.
CS SYS I: One pump operable, 2400 gpm.
CS SYS II: One pump operable, 2000 gpm

c. RPV water level: -201 inches, Post Accident Flooding Range.
RHR SYS I: Both Pumps, 14,000 gpm.
RHR SYS II: INOPERABLE.
CS SYS I: INOPERABLE.
CS SYS II: One pump operable, 3125 gpm

d. RPV water level: -154 inches, Post Accident Flooding Range.
RHR SYS I: INOPERABLE.
RHR SYS II: One pump operable, 8500 gpm.
CS SYS I: INOPERABLE.
CS SYS II: INOPERABLE.

Changed to B
~~Deleted~~ 01/01/91
BHulbert

NOT Deleted
Changed answer TO B

QUESTION: 091 (1.00)

The HPCI steam line is ruptured and cannot be isolated. Reactor building temperatures exceed the maximum safe value in three areas.

SELECT the ONE statement that describes the reason the reactor is emergency depressurized.

a. Technical Specifications require the unit to be in a cold shutdown condition since multiple safety systems are inoperable.

b. Personnel no longer can access the leak area to isolate the leak so it is necessary to place the reactor in a low energy state.

c. Transfers reactor energy to the suppression pool while suppression pool cooling capability is still available.

d. Reduces the energy input and leak rates into the secondary containment.

QUESTION: 092 (1.00)

SELECT the ONE statement that describes an operator action that does NOT mitigate offsite doses for an accident releasing radioactivity from a primary system leak into the secondary containment.

a. Operating secondary containment normal ventilation.

b. Isolating systems discharging to secondary containment.

c. Emergency depressurizing the reactor.

d. Manually scramming the reactor.

QUESTION: 093 (1.00)

Unit 2 is operating at rated conditions when the EECW supply line to the RHR room cooler ruptures.

SELECT the ONE statement that describes the action required if the water level on the RHR room floor is determined to be 38 inches.

APPLICABLE SECTIONS OF 2-EOI-3 ARE PROVIDED AS ATTACHMENT 10 FOR YOUR REFERENCE.

a. Shutdown the reactor in accordance with 2-GOI-100-12A.

b. Manually scram the reactor and enter 2-EOI-1.

c. Manually scram the reactor and emergency depressurize per C2.

d. Isolate the leak and use sump pumps to restore level to normal.

QUESTION: 094 (1.00)

Given the following plant conditions on Unit 2:

A reactor scram condition exists.
120 control rods are not inserted past position 02.
SBLC injection has been started.

SELECT the ONE statement that describes a condition of SBLC tank level, control rod insertion and reactor power that will allow injection of sodium pentaborate solution to be terminated.

APPLICABLE SECTIONS OF THE EOIS ARE PROVIDED AS ATTACHMENT 11 FOR YOUR REFERENCE.

a. Tank level is 42%, 1 rod in each 5x5 array has been inserted fully, power is 2% on the APRMs.

b. Tank level is 30%, only 1 rod in each 5x5 array has not been inserted fully, power is 25/125 scale on R1 of the IRMs.

c. Tank level is 15%, all rods have been fully inserted, power is 50,000 cps on SRMs.

d. Tank level is 8%, no additional rods have been inserted, power is 4% on the APRMs.

QUESTION: 095 (1.00)

SELECT the ONE statement that describes a condition in which the READY TO RESET light for Alternate Rod Insertion (ARI) will be illuminated and ARI can be reset following a failure to scram.

a.	Reactor pressure: Reactor water level: Elapsed time since initiation:	1150 psig - 60 inches. 35 seconds.
b.	Reactor pressure: Reactor water level: Elapsed time since initiation:	1050 psig - 30 inches. 5 minutes.
c.	Reactor pressure: Reactor water level: Elapsed time since initiation:	1100 psig. - 10 inches. 25 seconds.
d.	Reactor pressure: Reactor water level: Elapsed time since initiation:	850 psig. - 100 inches. 31 minutes.

QUESTION: 096 (1.00)

Given the following plant conditions following a reactor scram on Unit 2:

Reactor power:	35/125 scale, range 4 of IRMs.
Reactor water level:	-52 inches, decreasing slowly.
Control rods:	Not fully inserted.
SRVs:	Manually operated maintaining pressure 930 to 1040 psig.
MSIVs:	Closed on high radiation.
Drywell pressure:	2.2 psig.
Standby liquid control:	A pump operating and injecting.
Standby liquid tank level:	15%.

SELECT the ONE statement that describes the actions that should be taken for these conditions.

APPLICABLE EOI SECTIONS ARE PROVIDED AS ATTACHMENTHMENTS 11 AND 12 FOR YOUR REFERENCE.

a. Depressurize the reactor at a 100 F/hour cooldown rate.

b. Override the MSIV isolation and open the MSIVs.

c. Secure SBLC injection.

d. Increase reactor water level to +11 to +54 inches.

QUESTION: 097 (1.00)

A General Emergency has been declared and the following plant conditions exist on Unit 2:

Drywell pressure:	25 psig.
Drywell Radiation level:	50,000 R/hour.
Measured Offsite Dose:	1500 mrem/hour at the site boundary.

SELECT the protective action recommendation required.

ATTACHMENT 4 OF BFN-EPIP-5, "GENERAL EMERGENCY," IS PROVIDED AS ATTACHMENT 13 FOR YOUR REFERENCE.

a. Shelter to two miles radius, shelter actual and projected downwind to five miles.

b. Evacuate the two mile radius and actual and projected downwind to five miles, shelter other sectors to five miles.

c. Evacuate actual and projected downwind sectors to ten miles. Evacuate other sectors to five miles. Shelter all others to ten miles.

d. Shelter all sectors to ten miles. Prepare to evacuate to a five mile radius and actual and projected downwind sectors to ten miles when conditions allow.

QUESTION: 098 (1.00)

SELECT the ONE statement that is NOT a function of the Standby Gas Treatment System.

a. Ensure any unmonitored release to the atmosphere is elevated for dispersal.

b. Minimize the release of radioactive material from containment to the atmosphere.

c. Vent during deinerting containment.

d. Leak testing of the reactor building.

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

ANSWER: 001 (1.00)

a.

REFERENCE:

OPL171.038, rev. 4, OBJ B.9.a, B.9.b., pp. 38-42.
[3.5/3.7]

264000K401 ..(KA's)

ANSWER: 002 (1.00)

a.

REFERENCE:

RCI-2, Section 6.1.2, pg. 4
RCI-1, Section 6.10.2.3, pg. 25.
[3.3,3.8]
294001K103 ..(KA's)

ANSWER: 003 (1.00)

a.

REFERENCE:

RCI-1, Section 6.2.2.1, 6.2.4
[3.3/3.8]
294001K103 ..(KA's)

ANSWER: 004 (1.00)

c.

REFERENCE:

SDSP-7.6.3, Section 3.1.3, pg. 5;
[3.9/4.2]

294001A110 ..(KA's)

ANSWER: 005 (1.00)

c.

REFERENCE:

SDSP 14.9, Section 6.1, pg. 6; OPL171.086, rev. 1, LO B.10.
[3.9/4.5]
294001K102 ..(KA's)

ANSWER: 006 (1.00)

c.

REFERENCE:

OPL171.019, rev. 2, OBJ B.5, pp. 23-24, Figs. 1, 10
[3.6/3.6]

215004A304 ..(KA's)

ANSWER: 007 (2.00)

each response is 0.5 point.
a. 2
b. 1
c. 4
d. 3

REFERENCE:

PMI-8.1, Section 3.3, pg. 2; SDSP-14.9, Section 6.1, pg. 12;
PMI-12.10.
[3.9,4.2]
294001K102 ..(KA's)

~~ANSWER: 008 (1.00)~~

~~b.~~

Deleted 01/01/91 B Halbert

~~REFERENCE:~~

~~PMI-12.12, Section 4.5, pp. 28-29.~~
~~[2.7/3.7]~~
~~294001A103 ..(KA's)~~

ANSWER: 009 (1.00)

a.

REFERENCE:

GOI-300-3, Section 3.0 Precautions and Limitations
[3.7,3.7]

294001K101 ..(KA's)

ANSWER: 010 (1.00)

a.

REFERENCE:

OPL171.023, rev. 1, OBJ B.2, B.4, pp. 10, 14-16
[3.4/3.4]
215001K604 ..(KA's)

ANSWER: 011 (1.00)

a.

REFERENCE:

EPIP-15, RCI-1
[3.3/3.8] 2.9/4.7
294001A116 ..(KA's)

ANSWER: 012 (1.00)

b.

REFERENCE:

2-SI-4.6.E.1, rev. 4.
[3.1/3.6]

294001A108 ..(KA's)

ANSWER: 013 (1.00)

b.

REFERENCE:

OPL171.076, rev. 0, OBJ B.10, pp. 7-8.
[3.2/3.4]

294001A115 ..(KA's)

ANSWER: 014 (1.00)

d.

REFERENCE:

OPL171.099, rev. 0, OBJ B.2.c, pg. 15.
[3.2/3.4]

294001A115 ..(KA's)

ANSWER: 015 (1.00)

a.

REFERENCE:

BFN-EPIP-16, rev. 1, section 3.1.1, pg. 1.
[2.9/4.7]

294001A116 ..(KA's)

ANSWER: 016 (1.00)

d.

REFERENCE:

SDSP-11.11, Section 6.8.
[3.2/3.7]
294001K105 ..(KA's)

ANSWER: 017 (1.00)

b.

REFERENCE:

Technical specification 6.2.2.g., amendment 145, pg. 6.0-3.
FPP-3, rev. 1, section 3.1, pg. 3.
[3.5/3.8]

294001K116 ..(KA's)

ANSWER: 018 (1.00)

c.

REFERENCE:

FPP-3, rev. 1, sections 5.6 - 5.8, pp. 6-8.
[3.5/3.8]

294001K116 ..(KA's)

ANSWER: 019 (1.00)

c.

REFERENCE:

OPL171.005, rev. 3, OBJ B.11, B.24
2-AOI-32-2, rev. 6, section 4.2.9, pg. 6
[3.0/2.9]

201001K603 ..(KA's)

REFERENCE: ANSWER: 020 (1.00)
a.

OPL171.029, rev. 2, OBJ B.6 PAGE 17
[3.4/3.3]

201002A102 ..(KA's)

ANSWER: 021 (1.00)

a.

REFERENCE:

2-SI-4.3.B.1.a, rev. 3, section 6.1, pg. 5.
[3.8/3.9]

201003K402 ..(KA's)

ANSWER: 022 (1.00)

b.

REFERENCE:

OPL171.025, rev. 3, B.4, pp. 14, 22.
[3.5/3.7]

201004A305 ..(KA's)

ANSWER: 023 (1.00)

d.

REFERENCE:

OPL171.024, rev. 3, OBJ B.6.a, B.6.c.
[3.2/3.3]

201006K510 ..(KA's)

ANSWER: 024 (1.00)

a.

REFERENCE:

OPL171.002, rev. 1, OBJ B.7
Technical specification basis 3.6.E, pg. 3.6/4.6-31.
[3.9/3.9]

202001K401 ..(KA's)

ANSWER: 025 (1.00)

d.

REFERENCE:

OPL171.007, rev. 4, Obj. B.10.
[3.5/3.5]
202002K604 ..(KA's)

ANSWER: 026 (1.00)

a.

REFERENCE:

2-OI-74, Section 7.1, pg. 26; OPL171.44, rev. 3, OBJ B.10, B.11, B.19.
[3.9/3.9]

203000A406 ..(KA's)

ANSWER: 027 (1.00)

a.

REFERENCE:

OPL171.013, rev. 2, OBJ B.10, pg.
[3.4/3.6]

204000A304 ..(KA's)

ANSWER: 028 (1.00)

c.

REFERENCE:

OPL171.42, OBJ. B.1a, B.1b, B.1g; 2-OI-73, Sections 3.4, 3.5
[3.7/3.6]

206000A308 ..(KA's)

ANSWER: 029 (1.00)

a.

REFERENCE:

OPL171.042, rev 3, OBJ B.6.b
[3.3/3.7]

206000K602 ..(KA's)

ANSWER: 030 (1.00)

d.

REFERENCE:

2-OI-75, rev 17, section 3.13, pg. 5, section 5.1, pg. 16,17.
OPL171.045, rev 2, OBJ B.5.
[3.8/3.7]

209001A302 ..(KA's)

ANSWER: 031 (1.00)

b.

REFERENCE:

OPL171.045, rev. 2, OBJ B.11., pp. 20-22.
[3.4/3.4]
209001A413 ..(KA's)

ANSWER: 032 (1.00)

d.

REFERENCE:

OPL171.039, rev 3, OBJ B.8, pg. 19.
[4.2/4.2]

211000A402 ..(KA's)

ANSWER: 033 (1.00)

d.

REFERENCE:

OPL-171.028, rev. 4, OBJ V.b.13, pg 20
[4.2/4.2]

212000A306 ..(KA's)

ANSWER: 034 (1.00)

b.

REFERENCE:

OPL171.022, rev. 1, OBJ B.6
[3.7/3.7]

215005K505 ..(KA's)

ANSWER: 035 (1.00)

a.

REFERENCE:

OPL171.003, rev. 5, OBJ B.11
[3.6/3.8]

216000K507 ..(KA's)

ANSWER: 036 (1.00)

a.

REFERENCE:

OPL171.040, rev. 5, OBJ B.7, pg. 22.
2-OI-71, rev. 12, section 3.4, pg. 5
[2.9/3.0]

217000K403 ..(KA's)

ANSWER: 037 (1.00)

c.

REFERENCE:

OPL171.043, rev. 1, OBJ B.4.a., pg.
[3.8/3.8]

218000K501 ..(KA's)

ANSWER: 038 (1.00)

c.

REFERENCE:

2-OI-74, rev. 15, section 8.6 CAUTION, pg. 44.
OPL171.044, rev. 3, OBJ B.7, pg. 42.
[3.1/3.3]

219000K202 ..(KA's)

ANSWER: 039 (1.00)

d.

REFERENCE:

171.017 Page 20

[3.4/3.5]

223002K406 ..(KA's)

ANSWER: 040 (1.00)

b.

REFERENCE:

OPL171.044, rev. 3, OBJ B.4, B.11, pp. 25-26.
2-OI-74, rev. 15, sections 8.15-8.16, pp. 75-80.
3.5/3.4]

226001A403 ..(KA's)

ANSWER: 041 (1.00)

c.

REFERENCE:

2-GOI-100-3, rev. 18, sections 3.61, 3.62, attachment 19, pp. 16-17, 193.
FHR103.003, rev. 1, OBJ B.2, B.3, B.4
[3.1/3.7]

234000A302 ..(KA's)

ANSWER: 042 (1.00)

c.

REFERENCE:

EOI-1 Unit 2, Appendix 11.
[3.4/3.5]

239001K509 ..(KA's)

ANSWER: 043 (1.00)

d.

REFERENCE:

2-AOI-1-1, rev. 5

[3.7/3.8]

239002K503 ..(KA's)

ANSWER: 044 (1.00)

a.

REFERENCE:

OPL171.014, rev. 1, OBJ B.1, B.5
[3.8/3.9]

241000K101 ..(KA's)

ANSWER: 045 (1.00)

a.

REFERENCE:

OPL171.014, rev. 1, OBJ B.5.f., pp. 7-8.
[3.5/3.7]

245000K602 ..(KA's)

ANSWER: 046 (1.00)

d.

REFERENCE:

OPL171.011, rev. 3, OBJ B.7., pp. 16-17.
[3.3/3.3]

256000A401 ..(KA's)

ANSWER: 047 (1.00)

b.

REFERENCE:

OPL171.011, rev. 3, OBJ B.12, B.15, pp. 25-26.
[2.8/2.9]

259001K604 ..(KA's)

ANSWER: 048 (1.00)

d.

REFERENCE:

OPL171.012, rev. 2, OBJ B., pp. 27-28
[3.4/3.4]

259002K410 ..(KA's)

ANSWER: 049 (2.00)

a. 3
b. 4
c. 4
d. 1

REFERENCE:

OPL171.003, rev. 5, OBJ B.18
OPL171.005, rev. 3, OBJ B.23, pg. 30.
OPL171.007, rev. 4, OBJ B.12, Table 1 pg. 44.
OPL171.018, rev. 2, OBJ B.9, pg. 14.
OPL171.042, rev. 3, OBJ. B.2, pg. 30.
[3.1/3.1]
261000K608 ..(KA's)

ANSWER: 050 (1.00)

a.

REFERENCE:

OPL171.036, rev. 1, OBJ B.8, pp. 14-20
[3.6/3.9]

262001K406 ..(KA's)

ANSWER: 051 (1.00)

d.

REFERENCE:

OPL171.038, rev. 4, OBJ B.12, pp. 59-60
OPL171.045, rev. 2, OBJ B.7, pg. 17
[3.4/3.5]
264000K506 ..(KA's)

ANSWER: 052 (1.00)

d.

REFERENCE:

Technical Specification 3.6.C.
2-SI-2, Attachment 8, pp. 14-15
[3.4/3.6]

268000A401 ..(KA's)

ANSWER: 053 (1.00)

d.

REFERENCE:

OPL171.033, Table 1, pp. 32-35
[3.0/3.2]

272000K601 ..(KA's)

ANSWER: 054 (1.00)

a.

REFERENCE:

OPL171.049, rev. 3, OBJ B.5, pp.
[3.4/3.6]

286000K401 ..(KA's)

~~ANSWER: 055 (1.00)~~

~~c.~~

Deleted 01/01/91
BHolmf

REFERENCE:

OPL171.067, rev. 2, OBJ B.5.b, B.13, TP-3, pp. 32-38, 64.
[3.2/3.2]

290003A401 ..(KA's)

ANSWER: 056 (1.00)

c.

REFERENCE:

2-AOI-68-1, rev. 7, Section 4.2.1.4.1, pg. 2.
[3.5/3.8]

295001A201 ..(KA's)

ANSWER: 057 (1.00)

a.

REFERENCE:

OPL171.003, rev. 3, Table 1a, pp. 61-64.
2-EOI-1, Section RC/L, step RC/L-2, pg. 3.
0-AOI-57-1A, rev. 5,
[4.2/4.3]

295003A202 ..(KA's)

ANSWER: 058 (1.00)

d.

REFERENCE:

OPL171.044, rev. 3, OBJ B.7, pg. 13.
OPL171.045, rev. 2, pg. 8.
0-AOI-57-1A, rev. 5, Section 4.2.9, pg. 6.
0-OI-82, rev. 24.
[4.2/4.3]

295003A102 ..(KA's)

ANSWER: 059 (1.00)

a.

REFERENCE:

OPL171.037, rev. 2, OBJ B.10.
[3.3/3.3]

295004K203 ..(KA's)

ANSWER: 060 (1.00)

b.

REFERENCE:

OPL171.007, rev. 4, OBJ B.13., pp. 31-32.
[3.2/3.6]

295005K102 ..(KA's)

ANSWER: 061 (1.00)

c.

REFERENCE:

[2.9/3.0]

295005K202 ..(KA's)

ANSWER: 062 (1.00)

d.

REFERENCE:

2-GOI-100-1A, rev. 11, illustration 3, pg. 64.
[3.1/3.2]

295006A104 ..(KA's)

ANSWER: 063 (1.00)

a.

REFERENCE:

OT-3036-C71-02, Obj. E.
[3.5/3.8]

295006A206 ..(KA's)

ANSWER: 064 (1.00)

d.

REFERENCE:

OI-3 Page 5 Rev.11
Caution/Limitation
[3.4/3.5]

259001A406 ..(KA's)

ANSWER: 065 (1.00)

a.

REFERENCE:

OPL171.014, rev. 1, OBJ B.2, B.5.b.
[3.5/3.7]

295007K201 ..(KA's)

ANSWER: 066 (1.00)

a.

REFERENCE:

OPL171.042, rev. 3, OBJ B.1.
[3.8/3.5]

295008K205 ..(KA's)

ANSWER: 067 (1.00)

b.

REFERENCE:

OPL171.058, rev. 2, OBJ B.1, B.2.
[3.4/4.2]

295009G003 ..(KA's)

ANSWER: 068 (1.00)

d.

REFERENCE:

Dresden Unit 3 LER 87-003.
2-AOI-75-1, rev. 3, Section 4.2 caution, pg. 2.
[3.3/3.4]

295009K105 ..(KA's)

ANSWER: 069 (1.00)

c.

REFERENCE:

2-EOI-1, section PC/P, step PC/P-3, pg. 2.
OPL171.057, Appendix B, 8/24/90, pg. 92, 7/11/86, pg. 81.
[3.8/4.4]

295010G012 ..(KA's)

ANSWER: 070 (1.00)

d.

REFERENCE:

2-EOI-2, 4/3/90, Section 2.0, pg. 1.
[4.1/4.4]

295012G012 ..(KA's)

ANSWER: 071 (1.00)

d.

REFERENCE:

OPL171.057, Appendix B, 7/11/86, pg. 88.
[2.9/3.2]

295013K104 ..(KA's)

ANSWER: 072 (1.00)

b.

REFERENCE:

2-AOI-6-1, Section 2.0, Attachment 1, pp. 1, 5.
[4.2/4.4]

295014G011 ..(KA's)

ANSWER: 073 (1.00)

d.

REFERENCE:

2-EOI-1, section RC/Q, step RC/Q-6-1, pg. 3.
[4.0/4.1]

295015A101 ..(KA's)

ANSWER: 074 (1.00)

a.

REFERENCE:

2-EOI-1, section RC/Q, step RC/Q-6.5.c. pg. 4
OPL171.057, Appendix B, 7/11/86, pp. 52-53.
[3.4/3.7]

295015K301 ..(KA's)

ANSWER: 075 (1.00)

a.

REFERENCE:

2-AOI-100-2, rev. 3, section 4.1, pg. 3.
OPL171.
[3.4/4.5]

295016K201 ..(KA's)

ANSWER: 076 (1.00)

d.

REFERENCE:

2-AOI-70-1, rev. 7, section 4.1.2., 4.2.4, pg. 2.
[3.3/3.4]

295018G010 ..(KA's)

ANSWER: 077 (1.00)

c.

REFERENCE:

2-AOI-32-1, rev. 6, sections 2.0, 3.0, pg. 2.
[3.3/3.2]

295019A104 ..(KA's)

ANSWER: 078 (1.00)

d.

REFERENCE:

2-AOI-74-1, rev. 3, section 4.2, pp. 2-9.
[3.6/3.8]

295021K305 ..(KA's)

ANSWER: 079 (1.00)

a.

REFERENCE:

[3.7/3.5]

295022K301 ..(KA's)

ANSWER: 080 (1.00)

c.

REFERENCE:

BFN-EPIP-1, rev. 8, attachment 1, pg. 1.
[3.2/4.6]
295023A205 ..(KA's)

ANSWER: 081 (1.00)

a.

REFERENCE:

2-AOI-79-2, rev. 3, section 4.1., pg. 2.
[3.7/4.0]

295023K103 ..(KA's)

ANSWER: 082 (1.00)

b.

REFERENCE:

2-EOI-2, Section PC/P, step PC/P-2, pg. 1.
[3.9/4.5]

295024G012 ..(KA's)

ANSWER: 083 (1.00)

b.

REFERENCE:

OPL171.028, rev.
OPL171.005, rev.
[4.2/4.5]

295025K306 ..(KA's)

ANSWER: 084 (1.00)

b.

REFERENCE:

OPL171.057, 7/11/86, Appendix B, pp. 32-33.
[3.4/3.8]

295026G007 ..(KA's)

ANSWER: 085 (1.00)

c.

REFERENCE:

[3.0/3.4]

295026K101 ..(KA's)

ANSWER: 086 (1.00)

c.

REFERENCE:

OPL171.003, rev.
[3.5/3.7]

295028K101 ..(KA's)

ANSWER: 087 (1.00)

a.

REFERENCE:

OPL171.057, 7/11/86, Appendix A, pg. 18.
[3.7/4.1]

295028K201 ..(KA's)

ANSWER: 088 (1.00)

a.

REFERENCE:

2-EOI-2, Section SP/L, step SP/L-3.
[3.5/3.9]
295029K301 ..(KA's)

ANSWER: 089 (1.00)

a.

REFERENCE:

2-EOI-1, Section C2, Step C2-2.2, pg. 1.
OPL171.057, Appendix B, 7/11/86, pg. 119.
[3.6/3.9]

295030K301 ..(KA's)

ANSWER: 090 (1.00)

~~a.~~ B

REFERENCE:

2-EOI-2, Section DW/T, step DW/T-
[4.6/4.7]

295031K101 ..(KA's) ~~Deleted~~ 01/01/91 Changed to B
B Holmes NOT Deleted

ANSWER: 091 (1.00)

d.

REFERENCE:

2-EOI-3, Section SC/T.
OPL171.057, rev.
[3.5/3.8]

295032K301 ..(KA's)

ANSWER: 092 (1.00)

a.

REFERENCE:

[3.8/3.9]

295033K303 ..(KA's)

ANSWER: 093 (1.00)

d.

REFERENCE:

2-EOI-3, section SC/L, step SC/L-1, pg. 2.
[3.5/3.9]

295036G012 ..(KA's)

ANSWER: 094 (1.00)

c.

REFERENCE:

2-EOI-1, Section RC/Q, Step RC/Q-1 note, pg. 1.
[4.5/4.5]

295037A104 ..(KA's)

ANSWER: 095 (1.00)

b.

REFERENCE:

OPL171.
2-AOI-100-2, rev. 10, section 4.2.11.2, pg. 4.
[4.1/4.2]

295037K203 ..(KA's)

ANSWER: 096 (1.00)

d.

REFERENCE:

OPL171.057, Appendix B, 8/24/90, pg. 162.
2-EOI-1, section RC/Q, RC/P, C5.
[3.4/3.6]

295037K104 ..(KA's)

ANSWER: 097 (1.00)

d.

REFERENCE:

BFN-EPIP-5, rev. 7, Attachment 4, pp. 1-2..
[3.3/4.3]

295038K102 ..(KA's)

ANSWER: 098 (1.00)

a.

REFERENCE:

OPL171.018,VB.8.
[3.5/3.7]

261000G004 ..(KA's)

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

ANSWER SHEET

Multiple Choice (Circle or X your choice)

If you change your answer, write your selection in the blank.

001 a b c d ______

002 a b c d ______

003 a b c d ______

004 a b c d ______

005 a b c d ______

006 a b c d ______

007 match with selected number in the blank

a ______

b ______

c ______

d ______

e ______

008 a b c d ______

009 a b c d ______

010 a b c d ______

011 a b c d ______

012 a b c d ______

013 a b c d ______

014 a b c d ______

015 a b c d ______

016 a b c d ______

017 a b c d ______

018 a b c d ______

019 a b c d ______

020 a b c d ______

A N S W E R   S H E E T

Multiple Choice (Circle or X your choice)

If you change your answer, write your selection in the blank.

021	a	b	c	d	______
022	a	b	c	d	______
023	a	b	c	d	______
024	a	b	c	d	______
025	a	b	c	d	______
026	a	b	c	d	______
027	a	b	c	d	______
028	a	b	c	d	______
029	a	b	c	d	______
030	a	b	c	d	______
031	a	b	c	d	______
032	a	b	c	d	______
033	a	b	c	d	______
034	a	b	c	d	______
035	a	b	c	d	______
036	a	b	c	d	______
037	a	b	c	d	______
038	a	b	c	d	______
039	a	b	c	d	______
040	a	b	c	d	______
041	a	b	c	d	______
042	a	b	c	d	______
043	a	b	c	d	______
044	a	b	c	d	______
045	a	b	c	d	______

A N S W E R   S H E E T

Multiple Choice (Circle or X your choice)

If you change your answer, write your selection in the blank.

046 a b c d ______

047 a b c d ______

048 a b c d ______

049 match with selected number in the blank

a ______

b ______

c ______

d ______

050 a b c d ______

051 a b c d ______

052 a b c d ______

053 a b c d ______

054 a b c d ______

055 a b c d ______

056 a b c d ______

057 a b c d ______

058 a b c d ______

059 a b c d ______

060 a b c d ______

061 a b c d ______

062 a b c d ______

063 a b c d ______

064 a b c d ______

065 a b c d ______

066 a b c d ______

ANSWER SHEET

Multiple Choice (Circle or X your choice)

If you change your answer, write your selection in the blank.

067	a	b	c	d	______
068	a	b	c	d	______
069	a	b	c	d	______
070	a	b	c	d	______
071	a	b	c	d	______
072	a	b	c	d	______
073	a	b	c	d	______
074	a	b	c	d	______
075	a	b	c	d	______
076	a	b	c	d	______
077	a	b	c	d	______
078	a	b	c	d	______
079	a	b	c	d	______
080	a	b	c	d	______
081	a	b	c	d	______
082	a	b	c	d	______
083	a	b	c	d	______
084	a	b	c	d	______
085	a	b	c	d	______
086	a	b	c	d	______
087	a	b	c	d	______
088	a	b	c	d	______
089	a	b	c	d	______
090	a	b	c	d	______
091	a	b	c	d	______

ANSWER SHEET

Multiple Choice (Circle or X your choice)

If you change your answer, write your selection in the blank.

092	a	b	c	d	______
093	a	b	c	d	______
094	a	b	c	d	______
095	a	b	c	d	______
096	a	b	c	d	______
097	a	b	c	d	______
098	a	b	c	d	______

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

QUESTION	VALUE	REFERENCE
001	1.00	2631
002	1.00	2729
003	1.00	10364
004	1.00	10368
005	1.00	10406
006	1.00	11902
007	2.00	11938
008	1.00	11941
009	1.00	11943
010	1.00	14258
011	1.00	14276
012	1.00	9000759
013	1.00	9000761
014	1.00	9000762
015	1.00	9000763
016	1.00	9000767
017	1.00	9000768
018	1.00	9000770
019	1.00	9000771
020	1.00	9000773
021	1.00	9000774
022	1.00	9000775
023	1.00	9000776
024	1.00	9000777
025	1.00	9000779
026	1.00	9000780
027	1.00	9000781
028	1.00	9000784
029	1.00	9000785
030	1.00	9000786
031	1.00	9000787
032	1.00	9000788
033	1.00	9000789
034	1.00	9000793
035	1.00	9000794
036	1.00	9000795
037	1.00	9000796
038	1.00	9000797
039	1.00	9000799
040	1.00	9000800
041	1.00	9000802
042	1.00	9000803
043	1.00	9000804
044	1.00	9000805
045	1.00	9000807
046	1.00	9000808
047	1.00	9000809
048	1.00	9000810
049	2.00	9000812
050	1.00	9000813
051	1.00	9000815
052	1.00	9000816
053	1.00	9000818
054	1.00	9000819

QUESTION	VALUE	REFERENCE
055	1.00	9000820
056	1.00	9000821
057	1.00	9000823
058	1.00	9000824
059	1.00	9000825
060	1.00	9000826
061	1.00	9000827
062	1.00	9000828
063	1.00	9000829
064	1.00	9000830
065	1.00	9000831
066	1.00	9000832
067	1.00	9000833
068	1.00	9000834
069	1.00	9000835
070	1.00	9000836
071	1.00	9000837
072	1.00	9000838
073	1.00	9000839
074	1.00	9000840
075	1.00	9000841
076	1.00	9000842
077	1.00	9000843
078	1.00	9000844
079	1.00	9000845
080	1.00	9000846
081	1.00	9000847
082	1.00	9000849
083	1.00	9000850
084	1.00	9000851
085	1.00	9000852
086	1.00	9000853
087	1.00	9000854
088	1.00	9000855
089	1.00	9000856
090	1.00	9000857
091	1.00	9000858
092	1.00	9000859
093	1.00	9000860
094	1.00	9000861
095	1.00	9000862
096	1.00	9000863
097	1.00	9000864
098	1.00	9000865

	100.00	

	100.00	

TEST CROSS REFERENCE

QUESTION	VALUE	REFERENCE
001	1.00	2631
002	1.00	2695
003	1.00	2729
004	1.00	11902
005	2.00	11938
006	1.00	14258
007	1.00	9000759
008	1.00	9000760
009	1.00	9000761
010	1.00	9000762
011	1.00	9000764
012	1.00	9000765
013	1.00	9000767
014	1.00	9000769
015	1.00	9000771
016	1.00	9000772
017	1.00	9000773
018	1.00	9000774
019	1.00	9000775
020	1.00	9000776
021	1.00	9000777
022	1.00	9000778
023	1.00	9000779
024	1.00	9000780
025	1.00	9000781
026	1.00	9000782
027	1.00	9000783
028	1.00	9000784
029	1.00	9000786
030	1.00	9000787
031	1.00	9000788
032	1.00	9000789
033	1.00	9000790
034	1.00	9000791
035	1.00	9000792
036	1.00	9000793
037	1.00	9000794
038	1.00	9000795
039	1.00	9000796
040	1.00	9000797
041	1.00	9000798
042	1.00	9000799
043	1.00	9000800
044	1.00	9000801
045	1.00	9000802
046	1.00	9000804
047	1.00	9000805
048	1.00	9000806
049	1.00	9000807
050	1.00	9000809
051	1.00	9000810
052	1.00	9000811
053	2.00	9000812
054	1.00	9000813

QUESTION	VALUE	REFERENCE
055	1.00	9000814
056	1.00	9000815
057	1.00	9000816
058	1.00	9000817
059	1.00	9000818
060	1.00	9000819
061	1.00	9000820
062	1.00	9000821
063	1.00	9000822
064	1.00	9000823
065	1.00	9000824
066	1.00	9000825
067	1.00	9000826
068	1.00	9000827
069	1.00	9000829
070	1.00	9000830
071	1.00	9000831
072	1.00	9000832
073	1.00	9000834
074	1.00	9000835
075	1.00	9000836
076	1.00	9000837
077	1.00	9000838
078	1.00	9000840
079	1.00	9000841
080	1.00	9000842
081	1.00	9000843
082	1.00	9000844
083	1.00	9000845
084	1.00	9000847
085	1.00	9000848
086	1.00	9000850
087	1.00	9000851
088	1.00	9000853
089	1.00	9000854
090	1.00	9000855
091	1.00	9000856
092	1.00	9000857
093	1.00	9000858
094	1.00	9000859
095	1.00	9000860
096	1.00	9000861
097	1.00	9000862
098	1.00	9000865

	100.00	

	100.00	

ANSWER KEY

001 a

002 a

003 a

004 c

005 c

006 c

007 match with selected number in the blank

~~e 5~~

a 2

b 1

c 4

d 3

~~008 b~~ Deleted, see exam comment. 01/01/91 BHalberg

009 a

010 a

011 a

012 b

013 b

014 d

015 a

016 d

017 b

018 c

019 c

020 a

ANSWER KEY

021	a
022	b
023	d
024	a
025	d
026	a
027	a
028	c
029	a
030	d
031	b
032	d
033	d
034	b
035	a
036	a
037	c
038	c
039	d
040	b
041	c
042	c
043	d
044	a
045	a

ANSWER KEY

046	d	
047	b	
048	d	
049	match with selected number in the blank	
	a	3
	b	4
	c	4
	d	1
050	a	
051	d	
052	d	
053	d	
054	a	
~~055~~	~~c~~ e	deleted, see exam comments BHolbrook 01/01/91
056	c	
057	a	
058	d	
059	a	
060	b	
061	c	
062	d	
063	a	
064	d	
065	a	
066	a	

ANSWER KEY

067	b
068	d
069	c
070	d
071	d
072	b
073	d
074	a
075	a
076	d
077	c
078	d
079	a
080	c
081	a
082	b
083	b
084	b
085	c
086	c
087	a
088	a
089	a
090	~~d~~ b [illegible] 01/01/91
091	d

A N S W E R   K E Y

092	a
093	d
094	c
095	b
096	d
097	d
098	a

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

ENCLOSURE 3

Facility Comment

Question: RO Number 002

Browns Ferry Radiological Control Instruction RCI-1 page 9 (attached) step 6.2.2.2.2. Limit BRN employee's to 5 (N-18) and is based upon the Limits in the Code of FEDERAL REGULATIONS 10 CFR 20.101(b)(2). Therefore under RCI-1 plant specific and the 10 CFR 20.101(b)(2) 5(N-18) will not be exceeded.

RESOLUTION:

Change the answer key to reflect B (500 mrem) as the correct response to the question.

NRC Resolution of Facility Comment

Comment not accepted: 10 CFR 20.101 will allow a maximum whole boby exposure of 1.250 MREM per quarter. 10 CFR 20.101.b gives guidance as to conditions that must be met to exceed the quarterly limits. The question solicits the response of selection "c" which is 650 MREM which is the Maximum Additional whole boby exposure to fulfill the quarterly exposure guidelines. No change to the examination or answer key will be made.

Facility Comment

Question: SRO Number 008

There are three correct responses to the question as asked. PMI 12.12 section 4.5 (attached) limit the number of hours worked in a 48 hour period to less than 24, selection B. The number of hours worked in any seven day period is also limited to 72 hours which selection A and C exceed. Therefore as asked the Question has three correct choices A, B or C.

RESOLUTION:

For future exams, change the question to ellicit the schedule that would NOT require the permission of the Operations Superintendent for the Operator to work the remaining week.

For the exam administered at BFN on 12/10/90 we request this question be removed from the examination.

6.2 Exposure Control (Continued)

6.2.2 Occupational Radiation Exposure Limits

6.2.2.1 Limits

With Written Signed Dose Estimate for Current Calendar Quarter (QTR)

Age	Quarterly Limits Whole Body [a] (rem)	Skin [a] (rem)	Extremities [a] (rem)	Annual Limits[c] Whole Body (rem)	Lifetime[g] Whole Body (rem)
18	1.000[f]	7.500	18.750	1.000[e]	1N
≥19	1.000[d]	7.500	18.750	1.000[e]	1N

[a] The whole body extends from the top of the head down the arms to just above the elbows, and down the legs to the ankle. Skin refers to the skin of the whole body which excludes the skin of the extremities. Extremities extend from just above the elbow to the finger tips, and just above the ankle to the tip of the toes.

[b] N = Age in years at last birthday.

[c] Dose extensions in excess of this guideline must be authorized in writing by the Senior Vice President of Nuclear Power or his designee. Each instance in which a worker exceeds the 5 rem administrative limit (and the reasons) will be promptly reported to the NCO RADCON manager and the Senior Vice President of Nuclear Power.

[d] 3.000 rem with a complete Form 4 or equivalent (e.g., form TVA 17086)

[e] 5.000 rem with a complete Form 4 or equivalent (e.g., form TVA 17086)

[f] 1.250 rem with a complete Form 4 or equivalent (e.g., form TVA 17086)

[g] Individuals whose lifetime accumulated dose is equal to or exceeds 1N rem shall be limited to 1000 mrem per year.

6.2.2.2 General Requirements

6.2.2.2.1 Individuals under the age of 18 are not permitted to enter any radiologically controlled area.

6.2.2.2.2 Any worker who exceeds a regulatory dose limit for any monitoring period shall not be permitted to enter any radiologically controlled area for the remainder of that period. In addition, that same worker shall not exceed 1.25 rem in any subsequent quarter unless permitted in accordance with the 1N dose average. In no case will an individual be allowed to exceed the 5(N-18) dose averaging requirement described in 10 CFR 20.10(b)(2).

NOTE: In exceptional circumstances, the site director may request an individual be authorized to exceed 1N REM IN A LIFETIME. Written approval from the Senior Vice President or his site designees must be obtained.

4.5 <u>Staffing and Station Operating Complement</u> (Continued)

4.5.10 One operator shall man the Radwaste Building at all times. This is required because the "Radwaste Abnormal" alarm in Unit 1 control room no longer exists.

4.5.11 The Shift Operations Supervisor shall determine the alertness and attentiveness of all operators assigned to safety-related duties. If, in the opinion of the Shift Operations Supervisor, an operator does not possess these capabilities, he shall be relieved or reassigned to non-safety-related functions. It is the responsibility of the person being relieved to ensure that the person assuming his/her position is mentally and physically alert. In order to reduce the potential for operator error due to fatigue, it is the plant's policy not to assign operators to shift duties while in a fatigued condition that could significantly reduce their mental alertness or affect their decision-making capabilities.

[NRC/C] Every effort shall be employed to ensure that a sufficient number of operating personnel remain available to maintain adequate shift coverage without routine reliance on excessive overtime. The objective, therefore, is to have personnel work an eight-hour day, forty-hour week under routine operating conditions. However, in the event that overtime becomes necessary, the following guidelines will be followed:

4.5.11.1 An individual should not be permitted to work more than 16 hours straight (excluding shift turnover time).

4.5.11.2 An individual should not be permitted to work more than 16 hours in any 24-hour period, nor more than 24 hours in any 48-hour period, nor more than 72 hours in any seven-day period (all excluding shift turnover time).

4.5.11.3 A break of at least (8) hours should be allowed between work periods (including shift turnover time).

4.5 Staffing and Station Operating Complement (Continued)

4.5.11.4 Except during extended shutdown periods, the use of overtime should be considered on an individual basis, and not for the entire staff on shift.

4.5.11.5 If unusual circumstances arise that require deviation from the above guidelines, such changes shall be authorized by the Plant Manager, Plant Operations Manager, Operations Superintendent, or higher levels of management. The SOS shall indicate in his log when any Operations shift personnel exceed the above guidelines and the circumstances that prevailed. [NRC Generic Letter No. 82-12]

4.5.12 A weekly schedule for Operations personnel will be issued from the Operations Superintendent's Office. This weekly schedule will normally assign the same SRO/ASOS and lead operator each week from each group to Unit 2. The BOP Operator for Unit 2 will be rotated by this schedule every group rotation for purposes of license maintenance and keeping individuals "fresh" on a near-term operating unit. Assistant Unit Operators will be rotated on this schedule to maintain qualifications and ensure personnel become experienced on the near-term operating unit. The Shift Operations Supervisor will make control room operator assignments at the beginning of each shift to implement this weekly schedule, to be in effect for the scheduled period, i.e., 2230-0630, 0630-1930, 1430-2230 shift period. The control room assignments will be as follows:

4.5.12.1 One unit operator will be designated as the lead operator for the shift for each unit.

4.5.12.2 Other unit operators will be assigned as necessary when specified by the Operations Superintendent. Normally one extra unit operator, as a minimum, will be assigned to Unit 2.

NOTE:

Section 5.0 delineates responsibilities. Section 5.7 differentiates between LEAD and BOP Unit Operators.

NRC Resolution of Facility Comment

Comment Accepted: The question will be deleted from the examination.

Facility Comment

Question: RO Number 38, SRO Number 36

Emergency Operating Instruction Appendix-11 provides guidance for placing HPCI and RCIC in CST to CST recirculation for RPV pressure control. Guidance is provided with an automatic initiation signal present or a manual initiation. The stem of the question does not provide evidence of manual or automatic initiation. The minimum flow valve will open when a low discharge flow condition is sensed, if an automatic initiation signal is present. Therefore item A is correct if a manual initiation is assumed or item B is correct if an automatic initiation is assumed. The unit condidtions established in the stem of the question indicate an EOI-1 entry condition was met i.e. execution of Appendix-11 and the Reactor pressure has decreased to a value low enough for the Low pressure system to maintain inventory.

RESOLUTION:

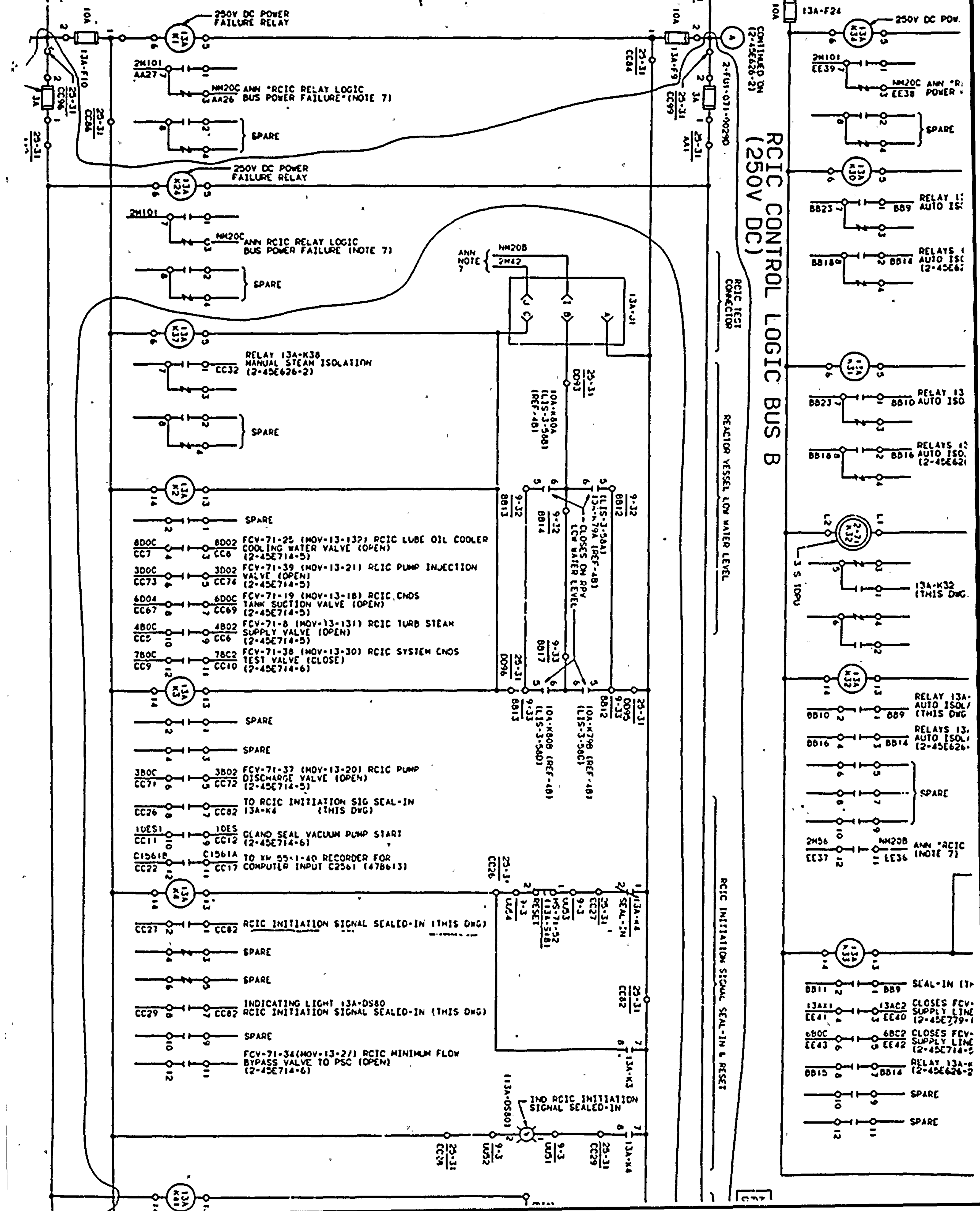
Change the answer key to accept A or B as correct responses.

NRC Resolution of Facility Comment

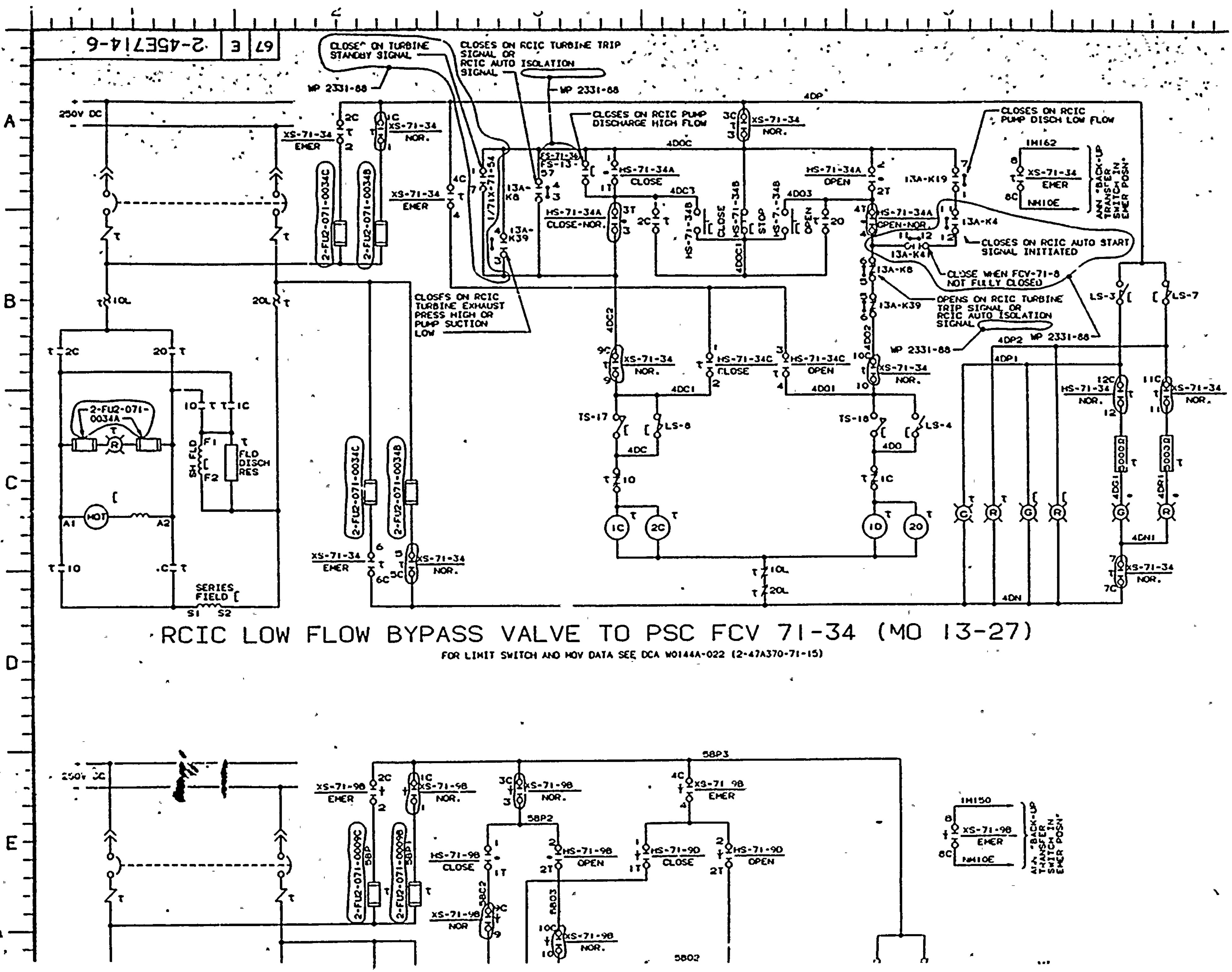
Comment not accepted: The stem of the question states HPCI and RCIC are operating in CST to CST recirculation mode in accordance with Appendix 11. Appendix 11 of the Emergency Operating Instructions is entered from RC/P-2.1 to augment pressure control. Overriding an initiation signal to place RCIC and HPCI in CST to CST recirculation mode is not performed in Appendix 11. If an initiation signal is present, Appendix 10 is used to override it. The stem of the question does not imply an initiation signal has been present, nor does it state Appendix 10 has been used.

Level is also stated as being +30 inches, and is being controlled by the condensate booster pumps. The initiation signal setpoint is approximately -47 inches. This is not consistent with assuming an initiation signal is present. If the assumption is made that an initiation signal had been present, it is unreasonable to assume when level returned to greater than the initiation setpoint that the operators would install insulating boots on relay contacts rather than manually resetting the initiation at the control boards.

RO-38- S RO 36



RCIC CONTROL LOGIC BUS B
(250V DC)
250V DC POWER FAILURE RELAY
2M101 AA27
NM20C AA26 ANN "RCIC RELAY LOGIC BUS POWER FAILURE" (NOTE 7)
SPARE
250V DC POWER FAILURE RELAY
2M101
NM20C ANN RCIC RELAY LOGIC BUS POWER FAILURE (NOTE 7)
SPARE
ANN NOTE 7
NM20B
2M42
13A-J1
RCIC TEST CONNECTOR
RELAY 13A-K38 MANUAL STEAM ISOLATION (2-45E626-2)
CC32
SPARE
25-31 DD93
10A-K80A (LIS-3-58B) (REF-4B)
REACTOR VESSEL LOW WATER LEVEL
13A-K79A (REF-4B) (LIS-3-58A)
CLOSES ON RPV LOW WATER LEVEL
SPARE
8D0C CC7 8D02 CC8 FCV-71-25 (MOV-13-132) RCIC LUBE OIL COOLER COOLING WATER VALVE (OPEN) (2-45E714-5)
3D0C CC73 3D02 CC74 FCV-71-39 (MOV-13-21) RCIC PUMP INJECTION VALVE (OPEN) (2-45E714-5)
6D04 CC67 6D0C CC69 FCV-71-19 (MOV-13-18) RCIC CNDS TANK SUCTION VALVE (OPEN) (2-45E714-5)
4B0C CC5 4B02 CC6 FCV-71-8 (MOV-13-131) RCIC TURB STEAM SUPPLY VALVE (OPEN) (2-45E714-5)
7B0C CC9 7BC2 CC10 FCV-71-38 (MOV-13-30) RCIC SYSTEM CNDS TEST VALVE (CLOSE) (2-45E714-6)
10A-K80B (REF-4B) (LIS-3-58D)
10A-K79B (REF-4B) (LIS-3-58C)
SPARE
SPARE
3B0C CC71 3B02 CC72 FCV-71-37 (MOV-13-20) RCIC PUMP DISCHARGE VALVE (OPEN) (2-45E714-5)
CC26 CC82 TO RCIC INITIATION SIG SEAL-IN 13A-K4 (THIS DWG)
10ES1 CC11 10ES CC12 GLAND SEAL VACUUM PUMP START (2-45E714-6)
C1561B CC22 C1561A CC17 TO XR 55-1-40 RECORDER FOR COMPUTER INPUT C2561 (47B613)
13A-K4 SEAL-IN
HS-71-52 (13A-S18) RESET
RCIC INITIATION SIGNAL SEAL-IN & RESET
CC27 CC82 RCIC INITIATION SIGNAL SEALED-IN (THIS DWG)
SPARE
SPARE
CC29 CC82 INDICATING LIGHT 13A-DS80 RCIC INITIATION SIGNAL SEALED-IN (THIS DWG)
SPARE
FCV-71-34 (MOV-13-27) RCIC MINIMUM FLOW BYPASS VALVE TO PSC (OPEN) (2-45E714-6)
13A-K3
IND RCIC INITIATION SIGNAL SEALED-IN
13A-DS80
CONTINUED ON (2-45E626-2)
2-FU1-071-0029D
13A-F24
250V DC POW.
2M101 EE39
NM20C EE38 ANN "R... POWER ...
SPARE
BB23 BB9 RELAY 13... AUTO IS...
BB18 BB14 RELAYS ... AUTO ISO... (2-45E6...
BB23 BB10 RELAY 13 AUTO ISO
BB18 BB16 RELAYS 13... AUTO ISO... (2-45E62...
3 S TDPU
13A-K32 (THIS DWG.
BB10 BB9 RELAY 13A-... AUTO ISOL... (THIS DWG
BB16 BB14 RELAYS 13... AUTO ISOL... (2-45E626-...
SPARE
2M56 EE37 NM20B EE36 ANN "RCIC ... (NOTE 7)
BB11 BB9 SEAL-IN (TH...
13AX1 EE41 13AC2 EE40 CLOSES FCV-... SUPPLY LINE (2-45E779-...
6B0C EE43 6BC2 EE42 CLOSES FCV-... SUPPLY LINE (2-45E714-5...
BB15 BB14 RELAY 13A-K... (2-45E626-2...
SPARE
SPARE



RCIC LOW FLOW BYPASS VALVE TO PSC FCV 71-34 (MO 13-27)

FOR LIMIT SWITCH AND MOV DATA SEE DCA W0144A-022 (2-47A370-71-15)

Facility Comment

Question: RO Number 061, SRO Number 055

OPL171.067, Revision 3 (attached) more clearly describes the effect on Control Bay HVAC if reactor water level falls below +11 inches. 0-AOI-31-1 (attched), although written for Control Bay High Radiation, also describes this situation.

Control Bay normal ventilation consists of Board Room (Normal) Supply Fans supplying fresh air to the Control Room Air Handling Units (AHUs), and in turn, the AHUs cooling a combination of this fresh air and recirculated air, and delivering this air to the control rooms. The question therefore describes a situation where (1) Board Room Supply Fans (normal) are still running, supplying air to other control bay areas, (2) fresh air to the AHUs from the Board Room Supply Fans has been isolated, (3) Control Room Emergency Ventilation (CREV) is operating with suction from the Board Room Supply Fans.

Therefore:

b. could be considered correct if, the candidate assumes that "Normal Ventilation System" means the AHUs, and "from the control bay" means recirculated air.

c. could be considered incorrect if the candidate assumes that "Normal Ventilation System is isolated" means either (1) the entire board room supply fan is isolated, or (2) the AHU is isolated. The only path that is isolated is normal fresh air to the AHU.

d. could be considered correct in that the "Normal Ventilation System" can be considered to be the Board Room Supply Fan, which indeed is "supplying outside air" to CREV for filtration.

T' '61 — R0/55

INSTRUCTOR NOTES

(2) Local start at local control station

NOTE: Dampers do not operate automatically if started from local panel (FCV 31-150 B, D, E, F, and G close on Auto start or start from 9-25)

(3) Automatic start signals — Obj.V.B.17.

(a) High radiation of 270 cpm above background in air inlet ducts to control room

i. Radiation monitor RE 90-259A Units 1 & 2

ii. Radiation monitor RE 90-259B Unit 3

NOTE: Either monitor starts both CREV units.

(b) Reactor zone ventilation systems radiation high ≥72 MR/hr

(c) Refuel zone ventilation systems radiation high ≥ 67 MR/hr

(d) Low reactor water level at 11 inches above instrument 0

(e) High primary containment pressure ≥2.45 psig

(4) On receipt of a start signal, outside airpaths to elevation 3C are isolated. Both CREV units start and their suction dampers open to supply pressurizing air to the Unit 1, 2 and 3 control rooms. One CREV unit can supply all three control rooms, so the — Obj.V.B.18.

INSTRUCTOR NOTES

extra CREV unit can be manually secured if desired. Once started, the CREV units will continue to run until manually secured.

(5) Control bay (EL 617) isolation is accomplished by six pneumatic motor-operated, low leakage dampers which isolate all air intakes and exhausts for EL 617.

(a) FCV-31-150B, mounted in fresh air make up duct to Units 1 and 2 control room air conditioning system located in EL 617 mechanical equipment room.

(b) FCO 31-150G, 3C elevation relief vent isolation

(c) FCV-31-150E, mounted in exhaust duct from Unit 1 toilet, locker, and other miscellaneous rooms at elevation 617; damper is located above control room ceiling near R11 and P lines.

(d) FCV-31-150D, mounted in fresh air makeup duct to Unit 3 control room air conditioning system and located in EL 617 Mechanical Equipment Room

(e) FCV-31-150C, mounted in duct behind exhaust air grille for EL 617 Unit 3 Mechanical Equipment Room

Note: Print shows this duct as blanked off.

(f) FCV-31-150F, mounted in exhaust duct from unit 3 toilet, locker, and other miscellaneous rooms at elevation 617; damper is located above control room ceiling near R18 and N lines.

4.0 OPERATOR ACTION

4.1 Immediate Action

None

4.2 Subsequent Action

4.2.1 VERIFY the increased radiation level on FRESH AIR MAKEUP DUCT U1 & 2 (3) CONT RM RADIATION-GAS Radiation Recorder, 0-RR-90-259A(B), at the Unit 1(3) Mechanical Equipment Rooms on Panel 25-230(166), El 617'.

4.2.2 At the fans, VERIFY emergency pressurization fans are running.

4.2.3 If a fan failed to start and it should have started, START the fan at Unit 1 Control Room Panel 9-25.

NOTE:

The following step transfers to fans with HEPA suction filters to provide more efficient particulate filtering of the outside air supply to the control bay.

4.2.4 PLACE the NORMAL-EMERGENCY OPERATION SWITCH, 0-HS-31-77, on Panel 25-165 to the 2 (emergency) position at Unit 1 Mechanical Equipment Room, El 617'.

4.2.5 At Panel 25-165, Unit 1 Mechanical Equipment Room, VERIFY the following:

Panel Left Section

Board Room Supply Fans 1A and 3A are not running

Panel Mid-Section

Spreading Room Exhaust Fan A is not running
Spreading Room Supply Fans 1 and 2 are not running

Panel Right Section

Board Room Emergency Supply Fans 1B and 3B are running
Spreading Room Exhaust Fan B is not running

1.0 PURPOSE

This abnormal operating instruction provides symptoms, automatic action, and operator action for outside air contamination.

2.0 SYMPTOMS

2.1 The following annunciators in alarm:

2.1.1 Annunciator CONTROL ROOM HIGH RADIATION ISOLATION (1-XA-55-6B, Window 3), 0-RA-90-259A or B on Unit 1 Panel 9-6, at 260 cpm greater than background.

2.1.2 Annunciator XA-31-151 CONT BAY EMERG PRESSURIZATION FANS A & B ON (1-XA-55-6B, Window 4), on Unit 1 Panel 9-6, (if both fans are running).

2.2 Various area radiation monitors (ARMs), air particulate monitors (APMs) and continuous air monitors (CAMs) may be in alarm.

2.3 A Group Six Isolation may have occurred.

3.0 AUTOMATIC ACTION

3.1 Control Bay Emergency Pressurization Fans will start and the following damper actions take place (no remote damper position indication provided):

System A

UNIT 1 EMERGENCY PRESSURIZATION SYS A, 0-FCO-31-151, opens (located at Emergency Pressurization Fan A, Unit 1 Mechanical Equipment Room, El 617)
AIR TO RELAY-CONTROL ROOM AHU, 0-FCO-31-150B, closes (located above Relay Room AHU air inlet duct, Unit 1 Mechanical Equipment Room, El 617')
UNIT 1 RET EXHAUST, 0-FCO-31-150E, closes (located 4 ft west of janitor Door 612 in ceiling, SE corner, Unit 2 Control Room).

CONTROL ROOM RELIEF VENT ISOLATION DMP., 0-DMP-31-150G, closes (located in ceiling above Unit 2 Operator's desk).

System B

UNIT 3 EMERGENCY PRESSURIZATION SYS B, 0-FCO-31-152, opens (located at Emergency Pressurization Fan B, Unit 3 Mechanical Equipment Room, El 617)
AIR TO UNIT 3 CONTROL ROOM AHU, 0-FCO-31-150D, closes (located above Control Room AHU air inlet duct, Unit 3 Mechanical Equipment Rm, El 617)
UNIT 3 RET EXHAUST, 0-FCO-31-150F, closes (located in ceiling above NW end of Panel 9-6, Unit 3 Control Room.

RESOLUTION:

Delete question.

NRC Resolution of Facility Comment

Comment Accepted: The question will be deleted from the examination.

Facility Comment

Question: RO Number 085

Given that emergency reactor depressurization is required, override C2 in section RC/P of EOI (rev 4) requires that C2 be entered from RC/P

Step C2-2.3 requires that if less than three SRVs are opened, depressurization be augmented by one or more of the systems on the facing page. RWCU in the blowdown mode is not listed as an additional system on the facing page of step C2-2.3 nor is it in the EPGs and it's use is not appropriate as an additional system to rapidly depressurize the reactor.

This system is listed in RC/P and the method to operate the system is presented in Appendix 11, However, once C2 is entered from RC/P this system is not presented as an available system to rapidly depressurize the reactor and item D should not be considered an appropriate answer to question 85.

RESOLUTION:

- For this question there is no correct answer, delete this question from the exam.

NRC Resolution of Facility Comment

Comment Accepted: The question will be deleted from the examination.

Facility Comment

Question: RO Number 092, SRO Number 090

Step C7-2 of EOI 1 requires that one core spray subsystem be operating and injecting to the reactor with one core spray subsystem taking suction from the pool with reactor pressure less than 130 psig <u>and</u> water level being maintained at or above -210 inches on the reactor fuel zone instruments. These conditions must be met for successful establishment of adequate core cooling utilizing spray cooling.

Choice "a" is not correct because water level is below -210 inches.

Choices "b" and "d" are the only other choices which have level above TAF, -168 inches. Choice "d" is not correct since only the RHR pump is available to maintain water level. Choice "b" is the best answer since level is above TAF and there is more than one RHR pump available. Choice "c" is incorrect since level is below TAF.

RESOLUTION:

Change the answer key to reflect B as the correct response to the question.

NRC Resolution of Facility Comment

Comment Accepted: The answer key will be changed to accept selection "b" as the correct response.

RO/92 - SRO/90.

C7- CORE COOLING WITHOUT LEVEL RESTORATION

C7-1 Open or check Open all six ADS valves.

C7-1.1 IF all ADS valves CANNOT be opened, THEN open other SRV's until six valves are open.

C7-2 Operate as many CS pumps as possible, taking suction from the suppression pool and injecting into the Rx.

C7-2.1 WHEN:

- At least one CS subsystem is operating with suction from the suppression pool
  AND
- Rx pressure is below 130 psig
  AND
- Rx water level is maintained at or above -210 in. on LI-3-52 and 62A,

THEN STOP injection into the Rx from sources external to primary containment.

C7-3 WHEN Rx water level is restored to greater than -150 in., THEN enter LEVEL CONTROL at step RC/L.

END OF C7

ENCLOSURE 4

SIMULATOR FACILITY FIDELITY REPORT

Facility Licensee: Tennessee Valley Authority

Facility Docket No.: 50-259, 50-260 and 50-296

Operating test Administered on: December 10 - 13, 1990

This form is to be used only to report observations. These observations do not constitute audit or inspection findings and are not, without further verification and review, indicative of non-compliance with 10 CFR 55.45(b). These observations do not affect NRC certification or approval of the simulation facility other than to provide information which may be used in future evaluations. No licensee action is required in response to these observations.

During the conduct of the simulator portion of the operating test, the following items were observed:

ITEM	DESCRIPTION
ICs	The facility descriptions of the ICs were not consistent. The reference material for one IC indicated three (3) different power levels. To minimize changes to simulator scenarios, the materials should reflect the actual IC power level.
Malfunctions	Malfunction number 119 C was inserted for a high pressure heater tube leak and the simulator showed no response, an alternate malfunction was selected.
	The ARI system was not reflected in the malfunction reference material. The simulator scenarios were altered to account for the ARI system response.
Simulator	During one scenario, with no malfunction inserted, a CRD accumalator trouble light was illuminated with no alarm.

During two (2) scenarios, with no malfunction inserted, a train of the Standby Gas Treatment system failed to initiate.

During an ATWS, Reactor power indicated less than 3 percent on the Average Power Range Monitors (APRM), Reactor level was being lowered to control power and the Safety Relief Valves were opened, Reactor power immediately increased to approximately 80 percent and remained. This is not consistent with the expected plant response.

During one scenario, the suppression chamber pressure was indicating 7 psig, spray flow was indicating 5000 gpm, and after approximately 10 minutes, there was no pressure reduction indicated. This is not consistent with expected plant response.

The facility is aware of the modeling deficiencies and the training that may be necessary to mitigate the negative effect of these deficiencies. The facility has acknowledged the need for upgrading the simulator.