



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II  
101 MARIETTA STREET, N.W., SUITE 2900  
ATLANTA, GEORGIA 30323-0199

Report Nos.: 50-348/95-300 and 50-364/95-300

Licensee: Southern Nuclear Operating Company, Inc.  
600 North 18th Street  
Birmingham, AL 35291-0400

Docket Nos.: 50-348 and 50-364

License Nos.: NPF-2 and NPF-8

Facility Name: Joseph M. Farley Nuclear Plant Units 1 and 2

Examination Conducted: October 23-26, 1995

Chief Examiner:

Michael E. Ernstes  
Michael E. Ernstes

11-16-95

Accompanying Personnel: T. Guilfoil, Sonalysts  
D. Lane, Sonalysts

Approved by:

Thomas A. Peebles  
Thomas A. Peebles, Chief  
Operator: Licensing and Human  
Performance Branch  
Division of Reactor Safety

11/17/95  
Date Signed

SUMMARY

Scope:

NRC examiners conducted regular, announced operator licensing initial examinations on October 23-26, 1995. Examiners administered examinations under the guidelines of the Examiner Standards, NUREG-1021, Revision 7. Four Senior Reactor Operator (SRO) Instant applicants received written and operating examinations. Examiners administered a retake simulator examination to one SRO Upgrade applicant.

Results:

Examiners identified the practice of discouraging candidates from using procedure sign-offs while in training as a weakness. (Paragraph 2.b)

Applicant Pass/Fail:

	SRO	RO	Total	Percent
Pass	5	n/a	5	100%
Fail	0	n/a	0	0%

No violations or deviations were identified.

## REPORT DETAILS

### 1. Persons Contacted

#### Licensee Employees

- \*T. G. Blindauer, Senior Plant Instructor
- \*G. P. Crone, Operations Training Supervisor
- \*G. E. Grissette, Operations Manager
- R. D. Hill, General Manager Nuclear Plant
- \*L. M. Stinson, Assistant General Manager - Operations
- L. S. Williams, Training and Emergency Planning Support
- \*B. W. VanLandingham, Safety Audit Engineering
- \*G. S. Waymire, Supervisor - Safety Audit Engineering Review

Other licensee employees contacted included instructors, engineers, technicians, operators, and office personnel.

#### NRC Personnel

- \*T. M. Ross, Senior Resident Inspector

\*Attended exit interview

### 2. Discussion

#### a. Written Examination

The average score on the written examination was 86. The candidates performed poorly on questions covering Plant Wide Generic (PWG) knowledge and abilities. As a class, they scored 78 percent in this section. The PWG topics for questions which were missed by more than one candidate included time limits for making notifications to the state during a declared emergency and valve position verification guidelines. Questions outside of the PWG area of high safety importance missed by multiple candidates included recognizing Technical Specification entry conditions and procedure use during an Anticipated Transient Without a Trip. The examination team reviewed these questions in detail with the training staff after the examination.

#### b. Operator Performance

The operators performance on the simulator was enhanced by their use of the Annunciator Response Procedures for all alarms which were not expected. Additionally, all crews demonstrated good communication skills.

One crew misdiagnosed a failure of PT-464 Main Steam Pressure, to be a steam rupture. The Balance of Plant Operator (BOP) failed to completely isolate the steam dumps. The crew did not notice that PT-464 had failed high. The crew unnecessarily inserted a manual reactor trip.

During the simulator examinations, one candidate and one stand in operator, both of whom were licensed operators, struck the meter faces with their knuckle if the meter did not read as expected. Interviews with operation's management indicated that this was inconsistent with their expectations.

Candidates did not sign the procedure step sign offs for Emergency Operating Procedures (EOPs) during the simulator nor SQPs during the Job Performance Measures (JPMs). Procedure sign offs serve as place keeping aids and the official documentation of completion of a task. FNP-0-AP-16, "Conduct of Operation," Revision 24, section 5.2, states that sign-offs are executed when specified by the associated procedure or when included as an integral part of the procedure (such as a blank beside the step). After the completion of each item, the operator completing the step initials the item prior to performing the next step. Interviews with candidates indicated that the training department staff discouraged them from writing on the procedures in the simulator in order to preclude making new copies. Although operators were aware that the sign offs are required for actual plant operations, the inspectors identified the practice of not using the sign offs during training as a weakness.

c. Plant Equipment Marking

Applicants conducted a JPM to minimize DC loads using ECP-0.0. Step 8 of ECP-0.0 required various DC load breakers to be opened. The breakers in panels 1E, 1G, and 1H had arrows in pencil pointing to those breakers which the procedure required to be operated. Procedure FNP-0-AP-26, "Plant Piping and Equipment Marking," states that the Manager-Operations is responsible for establishing measures for marking installed plant equipment. The markings in the DC panels were not authorized or controlled for accuracy.

3. Action on Previous Items (92901)

- a. (Closed) IFI 50-348, 364/95-12-02, "Insufficient procedural guidance governing documentation of remedial training for annual simulator examination failures." The inspector reviewed the latest revision of Procedure FNP-0-TCP-17.3, "License Retraining program administration," Revision 13. The Senior Instructor of Operations Continuing Training prepares and sends a memorandum to any operator failing the annual examination. The memorandum details the remedial training and serves as documentation of its completion. The inspector determined that the procedural guidance will allow the licensee to adequately document the successful completion of remedial training for annual examination failures.
- b. (Closed) IFI 50-348,364/95-12-03, "Lack of operations management participation in annual requalification examinations." There is no requirement for operations management to participate in the annual



requalification examinations. However, the facility has elected to have the operations' observer fill out a form to document comments and suggestions. This form is routed to the training staff for resolution. Based on the above corrective actions, this item is closed.

#### 4. Exit Interview

At the site visit conclusion, the examiners met with the plant staff representatives listed in paragraph 1 to discuss the examination results. The licensee did not identify as proprietary any material provided to, or reviewed by the examiners. No violations or deviations were identified. Dissenting comments were not received from the licensee.

<u>Item Number</u>	<u>Status</u>	<u>Description and Reference</u>
50-348,50-364/95-12-02	Closed	Insufficient documentation of remedial training for annual simulator examination failures.
50-348,50-364/95-12-03	Closed	Lack of operations management participation in annual requalification examinations.

## SIMULATOR FACILITY REPORT

Facility Licensee: Farley 1 and 2

Facility Docket Nos.: 50-348 and 50-364

Operating Tests Administered On: November 7-11, 1994

This form is to be used only to report observations. These observations do not constitute, in and of themselves, audit or inspection findings and are not, without further verification and review, indicative of noncompliance with 10 CFR 55.45(b). These observations do not affect NRC certification or approval of the simulation facility other than to provide information that may be used in future evaluations. No licensee action is required solely in response to these observations.

While conducting the simulator portion of the operating tests, the following items were observed (if none, so state):

<u>ITEM</u>	<u>DESCRIPTION</u>
NI cabinets	The fuse holders worked off a micro switch and had no actual control power fuses. This confused one candidate when he went to remove the control power fuses for an NI failure and there was nothing there.
Rod In-Hold-Out switch	The switch stuck in the IN position during two scenarios. This was fixed before the third scenario.
Condensate pump	Could not simulate failure of automatic start requiring a manual start. Software technician later developed the ability to simulate this.

Master Exam  
Farley 95-300

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

CANDIDATE'S NAME: \_\_\_\_\_  
FACILITY: Farley 1 & 2  
REACTOR TYPE: PWR-WEC3  
DATE ADMINISTERED: 95/10/23

INSTRUCTIONS TO CANDIDATE:

Use the answer sheets provided to document your answers. Staple this cover sheet on top of the answer sheets. Points for each question are indicated in parentheses after the question. The passing grade requires a final grade of at least 80%. Examination papers will be picked up four (4) hours after the examination starts.

TEST VALUE	CANDIDATE'S SCORE	%
<u>100.00</u>	_____	____ %
	FINAL GRADE	

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

\_\_\_\_\_  
Candidate's Signature

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.

- | MULTIPLE CHOICE |   |   |   |   |     |
|-----------------|---|---|---|---|-----|
| 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             | 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 | ___ |
| 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 | ___ | 069 | a | b | c | d | ___ |
| 047 | a | b | c | d | ___ | 070 | a | b | c | d | ___ |
| 048 | a | b | c | d | ___ | 071 | a | b | c | d | ___ |
| 049 | a | b | c | d | ___ | 072 | a | b | c | d | ___ |
| 050 | a | b | c | d | ___ | 073 | a | b | c | d | ___ |
| 051 | a | b | c | d | ___ | 074 | a | b | c | d | ___ |
| 052 | a | b | c | d | ___ | 075 | a | b | c | d | ___ |
| 053 | a | b | c | d | ___ | 076 | a | b | c | d | ___ |
| 054 | a | b | c | d | ___ | 077 | a | b | c | d | ___ |
| 055 | a | b | c | d | ___ | 078 | a | b | c | d | ___ |
| 056 | a | b | c | d | ___ | 079 | a | b | c | d | ___ |
| 057 | a | b | c | d | ___ | 080 | a | b | c | d | ___ |
| 058 | a | b | c | d | ___ | 081 | a | b | c | d | ___ |
| 059 | a | b | c | d | ___ | 082 | a | b | c | d | ___ |
| 060 | a | b | c | d | ___ | 083 | a | b | c | d | ___ |
| 061 | a | b | c | d | ___ | 084 | a | b | c | d | ___ |
| 062 | a | b | c | d | ___ | 085 | a | b | c | d | ___ |
| 063 | a | b | c | d | ___ | 086 | a | b | c | d | ___ |
| 064 | a | b | c | d | ___ | 087 | a | b | c | d | ___ |
| 065 | a | b | c | d | ___ | 088 | a | b | c | d | ___ |
| 066 | a | b | c | d | ___ | 089 | a | b | c | d | ___ |
| 067 | a | b | c | d | ___ | 090 | a | b | c | d | ___ |
| 068 | a | b | c | d | ___ | 091 | 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.

- 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 \_\_\_\_
- 099 a b c d \_\_\_\_
- 100 a b c d \_\_\_\_

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

## 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 applicant 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 and each answer sheet.
6. Mark your answers on the answer sheet provided. USE ONLY THE PAPER PROVIDED AND DO NOT WRITE ON THE BACK SIDE OF THE PAGE.
7. The point value for each question is indicated in parentheses after the question.
8. If the intent of a question is unclear, ask questions of the examiner only.
9. When turning in your examination, assemble the completed examination with examination questions, examination aids and answer sheets. In addition, turn in all scrap paper.
10. To pass the examination, you must achieve a grade of 80% or greater.
11. There is a time limit of four (4) hours for completion of the examination.
12. When you are done and have turned in your examination, leave the examination area (EXAMINER WILL DEFINE THE AREA). 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)

EEP-0, "Reactor Trip or Safety Injection" states specific Reactor Coolant Pump trip Criteria on the foldout page.

Which ONE of the following is the reason for tripping the Reactor Coolant Pumps when these conditions occur?

- a. Prevent Loss of Suction to a Reactor Coolant Pump during a Large Break Loss of Coolant Accident.
- b. Prevent pump runout in the event of a Small Break Loss of Coolant Accident.
- c. Ensure Core Reflood during a Large Break Loss of Coolant Accident.
- d. Ensure adequate core cooling during a Small Break Loss of Coolant Accident.

QUESTION: 002 (1.00)

The Unit 1 "B" train battery breaker is open for battery maintenance when a loss of electrical power is experienced on the 1G 4160V bus.

Which ONE of the following describes the plant/operator response to this event?

- a. The battery bus could be aligned to receive DC power from the "A" train via the swing battery charger.
- b. Diesel Generator(s) would start and re-energize the 600V load center which supplies electrical power to the "B" train charger.
- c. The battery bus would be re-energized by the diesel generator sequencer via the on service battery charger.
- d. A reactor trip would occur. The battery bus would not be re-energized in time to prevent the trip.

QUESTION: 003 (1.00)

Which ONE of the following describes the basis for shifting the SI mode from cold leg recirculation to hot leg recirculation approximately 11 hours following a LOCA?

- a. Equalize thermal stress on the reactor vessel, the head, core barrel, and steam generator tube sheet.
- b. Flush out the boron that may have plated out on the fuel rods at the top of the core so that heat transfer is improved.
- c. Equalize flow through the reactor vessel to ensure adequate cooling of the core for any resultant core geometry.
- d. Cool the upper portions of the core and reactor vessel and equalize thermal stress on the steam generator.

QUESTION: 004 (1.00)

Given the following plant conditions:

- Unit 1 reactor power is 1E-6 amps.
- N-36 Intermediate Range channel has failed LOW.
- A reactor startup is in progress.

Which ONE of the following actions is required per Technical Specification 3.3.1, "Reactor Trip System Instrumentation"?

- a. Restore inoperable channel prior to exceeding P-6.
- b. Restore inoperable channel prior to exceeding 5% power.
- c. Restore inoperable channel prior to exceeding 10% power.
- d. Bypass the inoperable channel and continue with reactor startup.

QUESTION: 005 (1.00)

Which ONE of the following is the basis for isolating feedwater flow to a faulted steam generator with a feedline break?

- a. To maximize the steam generator blowdown capability of the non-faulted steam generators.
- b. To maximize the cooldown capability of the non-faulted steam generators.
- c. To minimize the potential of rupturing a steam generator tube and subsequently having an offsite release.
- d. To minimize the temperature differential across the tubes in the non-faulted steam generators.

QUESTION: 006 (1.00)

Given the following:

- Unit 1 is at 100% power.
- "A" train CCW surge tank High-Low alarm condition is present.
- CCW surge tank level is LOWERING.
- The makeup valves are OPEN.
- Leak location has yet to be determined.

Which ONE of the following is the location of the leak?

- a. Letdown heat exchanger.
- b. Excess letdown heat exchanger.
- c. Thermal barrier heat exchanger.
- d. Seal water heat exchanger.



QUESTION: 007 (1.00)

Which ONE of the following is an IMMEDIATE ACTION that must be performed in the event of an evacuation of the Main Control Room as directed by AOP-28.0, "Control Room Inaccessibility"?

- a. Establish auxiliary feedwater flow to the steam generators.
- b. Verify at least one train of 4160V ESF buses energized.
- c. Verify no Safety Injection actuation signal present.
- d. Direct appropriate personnel to be stationed at the Hot Shutdown Panels.

QUESTION: 008 (1.00)

Which ONE of the following actions must be performed if a manual turbine trip CANNOT be verified following a reactor trip?

- a. Open generator output breakers.
- b. Runback the turbine.
- c. Stop EH pumps.
- d. Shut the MSIVs.

QUESTION: 009 (1.00)

Which ONE of the following is the reason why AFW flowrate is procedurally restricted to 100 gpm when recovering a steam generator level if the level has fallen below 8% wide range indication?

- a. Minimize the thermal stress to the S/G.
- b. Prevent exceeding RCS cooldown rate limit.
- c. Prevent reaching runout conditions on the AFW pump.
- d. Minimize the possibility of water hammer in the feedwater system.

QUESTION: 010 (1.00)

Given the following plant conditions:

- Unit 1 is at 100% power.
- AOP-2.0, "Steam Generator Tube Leakage" has been entered due to a suspected tube leak.
- Actions are being taken to determine the exact leak rate on the N-16 primary to secondary leak detection system.

Which ONE of the following instruments if it were to fail LOW, would affect the output of the N-16 leak detection system?

- a. Impulse pressure
- b. Tavg
- c. Steam flow
- d. N43

QUESTION: 011 (1.00)

Given the following plant conditions:

- Unit 2 is in MODE 1.
- A PORV block valve was closed, and would not reopen.

Which ONE of the following must be performed within 1 hour per Technical Specifications?

- a. Restore the block valve to OPERABLE status.
- b. Deactivate the block valve.
- c. Initiate action to place the unit in a MODE in which the specification does not apply.
- d. Verify the other PORV block valve is OPERABLE.

QUESTION: 012 (1.00)

Which ONE of the following Residual Heat Removal flow rates is the FIRST to require implementation of the Technical Specification 3.9.8.1, Residual Heat Removal and Coolant Circulation - All Water Levels, actions with the Unit in Mode 6?

- a. 3800 gpm.
- b. 3200 gpm.
- c. 2800 gpm.
- d. 2200 gpm.

QUESTION: 013 (1.00)

Which ONE of the following describes the reason the rate of RCS pressure decrease changes as RCS pressure decreases from 1000 psig due to a stuck open Pressurizer PORV? (Assume SI DOES NOT initiate and NO operator action is taken.)

- a. RCS pressure decrease rate increases due to reduced restrictions through the PRT rupture disk.
- b. Steam voiding in the RCS acts like a pressurizer and slows down the rate of RCS pressure decrease.
- c. As RCS pressure decreases, pressurizer heaters are energized, slowing the rate of RCS pressure decrease.
- d. At low RCS pressures, heat retained in the Steam Generators is released which increases the rate of RCS pressure decrease.

## QUESTION: 014 (1.00)

Given the following plant conditions:

- A Low SG Water Level reactor trip signal has been generated.
- The reactor failed to trip both automatically and manually.
- FRP-S.1, "Response to Nuclear Power Generation/ATWT?" was implemented.
- While performing step 6 to Monitor CST level, an SI signal occurs and the reactor trips.

Which ONE of the following describes the expected response?

- a. Complete FRP-S.1 then transition to EEP-0, "Reactor Trip or Safety Injection."
- b. Immediately transition to EEP-0, "Reactor Trip or Safety Injection."
- c. Perform steps 1 through 15 of EEP-0, "Reactor Trip or Safety Injection," in conjunction with FRP-S.1.
- d. Complete FRP-S.1 then transition to ESP-0.1, "Reactor Trip Response."

## QUESTION: 015 (1.00)

Given the following plant conditions:

- Unit 1 is at 100% power.
- The Pressurizer Level Selector switch is in the normal position (I/II).
- Pressurizer level control channel LT-459 develops a leak in the reference leg.

Which ONE of the following AUTOMATIC actions will occur?

- a. Letdown isolation valve, LCV-459, CLOSES.
- b. Pressurizer High Level alarm actuates.
- c. Pressurizer backup heaters turn OFF.
- d. Charging flow DECREASES.

QUESTION: 016 (1.00)

Given the following plant conditions:

- Reactor is at 70% power.
- Pressurizer level is increasing.
- PRZR PRESS HI-LO alarm has actuated.
- TAVG is greater than TREF and increasing.
- TAVG/TREF DEV alarm has actuated.
- Reactor power is higher than turbine power.

Which ONE of the following could be responsible for the conditions shown above?

- a. Uncontrolled rod withdrawal.
- b. Excessive boration.
- c. Inadvertent steam dump actuation.
- d. Inadvertent AFW actuation.

QUESTION: 017 (1.00)

Given the following plant conditions on Unit 2:

- Reactor is at 50% power.
- No alarms have sounded.
- RCS pressure is 2236 psig.
- Rod control is in automatic.
- Control bank D rods begin moving outward.

Rod Control is shifted to MANUAL but the control rods continue to move outward.

Which ONE of the following describes the required operator action?

- a. Select Bank D and manually insert rods.
- b. Increase turbine load to keep Tavg equal to Tref.
- c. Manually trip the reactor and enter EEP-0, REACTOR TRIP OR SAFETY INJECTION.
- d. Commence immediate boration to maintain power.



QUESTION: 018 (1.00)

Given the following plant conditions:

- Due to a misaligned rod, one control rod in control bank (CB) D was withdrawn 15 steps to realign it with CB D in accordance with AOP-19.0, "Malfunction of Rod Control System."
- The P/A converter for CB D was NOT adjusted as required.

Which ONE of the following conditions will occur because CB D P/A converter was NOT adjusted?

- a. ROD CONT SYS NON-URGENT FAILURE alarm will actuate when Control Bank D rods are initially moved.
- b. CONTROL ROD BANK POSITION LO alarm will NOT actuate when Control Bank D rods are initially moved below the setpoint.
- c. ROD CONT SYS URGENT FAILURE alarm will actuate when Control Bank D rods are initially moved.
- d. COMP ALARM ROD SEQ/DEV OR PR FLUX TILT alarm will actuate when Control Bank D rods are initially moved.

QUESTION: 019 (1.00)

Given the following plant conditions:

- Reactor is at 50% power.
- TAVG is decreasing.
- Rod control is in auto.
- Control rods are stepping out.
- ROD AT BOTTOM alarm is actuated.

Which ONE of the following is the FIRST action required?

- a. Place rod control in Manual.
- b. Perform a rapid load reduction.
- c. Emergency borate.
- d. Trip the reactor.

QUESTION: 020 (1.00)

DURING RE-ALIGNMENT of a control rod per AOP-19.0, "Malfunction of Rod Control System," which ONE of the following describes the method used to maintain RCS TAVG?

- a. Manual movement of adjacent control rods.
- b. Controlling the rate at which the rod is re-aligned.
- c. Controlling main turbine load.
- d. Boration and dilution.

QUESTION: 021 (1.00)

EEP-1, "Loss of Reactor or Secondary Coolant," Step 18.1 states, "Check RWST level - LESS THAN 12.5 ft." and does not allow transfer to cold leg recirculation until RWST level is less than 12.5 ft.

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

- a. To maximize the amount of boric acid available in the RWST to be flushed through the core.
- b. To ensure level in the containment sump is high enough to provide adequate suction for the ECCS pumps.
- c. To ensure level in the containment sump is low enough to prevent damage to safety related equipment.
- d. To maximize the amount of water available in the RWST to be used for core cooling.

QUESTION: 022 (1.00)

Given the following plant conditions:

- The reactor has tripped from 100% power.
- NO reactor coolant pumps are running.

Which ONE of the following indicates that natural circulation has been established?

- a. S/G pressure is 900 psig and increasing.
- b. Core Exit T/C's are 600 degrees F and increasing.
- c. RCS Cold Leg temperature is 570 degrees F and stable.
- d. RCS delta-T is 64 degrees F and stable.

QUESTION: 023 (1.00)

Which ONE of the following describes the operation of the CCW from RCP Thermal Barrier Heat Exchanger High Pressure Isolation Valve (HV-3184)?

- a. Fails CLOSED on loss of instrument air and will auto close on a Containment Phase B isolation.
- b. Fails OPEN on loss of instrument air and will auto close on a Containment Phase B isolation.
- c. Fails OPEN on loss of instrument air and will auto close on an SI activation.
- d. Fails CLOSED on loss of instrument air and will auto close on an SI activation.

QUESTION: 024 (1.00)

Given the following plant conditions:

- Emergency Boration has been initiated to restore adequate SDM.
- MOV-8104 (EMERG BORATE TO CHG PUMP SUCT) fails to open electrically and CANNOT be opened locally.

Which ONE of the following operator actions is required to complete initiation of emergency boration in accordance with AOP-27.0, "Emergency Boration?"

- a. Locally open valve V-185 (MAN EMERG BORATION) and monitor boric acid flow on FI-110 (BORIC ACID EMERG BORATE).
- b. Manually open LCV-115B or 115D (RWST TO CHG Pump), close LCV-115C or 115E and monitor boric acid flow on FR-113 (MKUP FLOW TO BORIC ACID BLENDER).
- c. Manually open FCV-113A (BORIC ACID TO BLENDER), locally open valve V-185 (MAN EMERG BORATION) and monitor boric acid flow on FR-113 (MKUP FLOW TO BORIC ACID BLENDER).
- d. Manually open FCV-113A (BORIC ACID TO BLENDER) and monitor boric acid flow on FI-110 (BORIC ACID EMERG BORATE).

QUESTION: 025 (1.00)

Which ONE of the following describes the IMMEDIATE ACTION steps in AOP-27.0, "Emergency Boration"?

- a. Verify at least one charging pump is started, establish adequate letdown, start a boric acid transfer pump.
- b. Start a boric acid transfer pump, align normal emergency boration flow path, verify at least one charging pump is started.
- c. Align normal emergency boration flow path, verify at least one charging pump is started, establish adequate letdown.
- d. Start a boric acid transfer pump, align normal emergency boration flow path, establish adequate letdown.

QUESTION: 026 (1.00)

Given the following plant conditions:

- Unit 1 is at 100% power.
- The operating Component Cooling Water (CCW) pump trips.
- No CCW pump in the on service train can be started.

Which ONE of the following actions is FIRST required by AOP-9.0, "Loss of Component Cooling Water"?

- a. Start a CCW pump in unaffected train.
- b. Start a Charging Pump in unaffected train.
- c. Align Charging Pump suction to RWST.
- d. Trip the reactor.

QUESTION: 027 (1.00)

The plant has experienced an ATWT and boration is in progress per FRP-S.1, "Response to Nuclear Power Generation/ATWT."

Which ONE of the following criteria MUST be satisfied to verify the reactor is subcritical?

- a. Power range indication less than 5% OR Intermediate Range startup rate negative.
- b. Power range indication less than 5% AND Intermediate Range startup rate negative.
- c. Power range indication less than 5% OR Source Range startup rate negative.
- d. Power range indication less than 5% AND Source Range startup rate negative.



QUESTION: 028 (1.00)

Given the following plant conditions:

- Unit 1 is operating at 100% power.
- Condenser vacuum is decreasing.

Which ONE of the following condenser vacuum conditions will first result in the loss of condenser steam dumps?

- a. 25" Hg vacuum
- b. 19" Hg vacuum
- c. 13" Hg vacuum
- d. 7" Hg vacuum

QUESTION: 029 (1.00)

Given the following plant conditions:

- A loss of all AC power has occurred.
- ECP-0.0, "Loss of All AC Power" is being implemented.
- Per ECP-0.0, the supply breakers for the CHG pumps, RHR pumps and motor driven AFW pumps are verified open.

The defeat of the automatic start of this equipment is designed to PREVENT which ONE of the following events?

- a. An uncontrolled cooldown of the RCS and possible reactor restart.
- b. An uncontrolled injection of cold charging water which may damage the RCP seals.
- c. The uncontrolled use of water that may be needed for long term cooldown.
- d. An uncontrolled start of large safeguard equipment loads on the emergency AC buses.

QUESTION: 030 (1.00)

Given the following plant conditions:

- ECP-0.0, "Loss of All AC Power" is in effect.
- Depressurization of the steam generators is in progress.

ECP-0.0, step 16.5 requires the depressurization to be stopped if S/G narrow range levels cannot be maintained greater than specified levels.

Which ONE of the following is the concern behind this step?

- a. PTS due to excessive cooldown.
- b. Loss of adequate heat sink due to reduced heat transfer area.
- c. RCS voiding due to rapid depressurization.
- d. Loss of natural circulation due to accumulator nitrogen injection.

QUESTION: 031 (1.00)

Given the following plant conditions:

- Unit 1 is operating at 100% power.
- Control Bank D rods are at 218 steps.
- "B" inverter fails, de-energizing "B" 120 VAC distribution panel.
- Control rods CANNOT be withdrawn in auto or manual.

Which ONE of the following is preventing rod motion?

- a. C-2, Power Range High Flux Rod Stop.
- b. C-3, Overtemperature Delta-T Rod Stop.
- c. C-4, Overpower Delta-T Rod Stop.
- d. C-11, Control Bank D Rod Stop.

QUESTION: 032 (1.00)

Which ONE of the following quantities of radioactive material contained in any outside temporary tank will FIRST require immediate suspension of addition to the tank?

- a. 10 microcuries
- b. 100 microcuries
- c. 10 curies
- d. 100 curies

QUESTION: 033 (1.00)

Which ONE of the following actions should be performed FIRST by the individual discovering a significant fire on site?

- a. Attempt to extinguish or isolate the fire using portable extinguishers.
- b. Actuate the local fire suppression systems.
- c. Sound the Plant Emergency alarm.
- d. Contact the Control Room and report the fire.

QUESTION: 034 (1.00)

Given the following Unit 1 plant conditions:

- Conditions exist which warrant a Control Room evacuation.
- The immediate actions of AOP-28.0, "Control Room Inaccessibility" have been taken.

Which ONE of the following procedures would be used following evacuation of the Control Room?

- a. AOP-28.0, "Control Room Inaccessibility."
- b. EEP-0, "Reactor Trip or Safety Injection."
- c. ESP-0.1, "Reactor Trip Response."
- d. ESP-0.2, "Natural Circulation Cooldown."

QUESTION: 035 (1.00)

Given the following plant conditions:

- Unit 1 has tripped from 100% power due to a Loss of Coolant Accident (LOCA).
- RCS pressure is 450 psig.
- $T_{hot}$  is 430 degrees F.
- $T_{cold}$  is 400 degrees F.
- $T_{avg}$  is 415 degrees F.
- Core Exit Thermocouples indicate 435 degrees F.

Which ONE of the following is the approximate RCS Subcooling Margin?

- a. 20 degrees F.
- b. 25 degrees F.
- c. 30 degrees F.
- d. 35 degrees F.

QUESTION: 036 (1.00)

Given the following containment history with a small LOCA in progress:

Time	Cnmt Temp.	Cnmt Press	Cnmt. Humidity	Cnmt Radiation
0815	178 Deg F	2 psig	90%	$9.0 \times 10^2$ R/Hr
0830	180 Deg F	4 psig	100%	$7.3 \times 10^3$ R/Hr
0845	183 Deg F	6 psig	100%	$9.5 \times 10^4$ R/Hr
0900	185 Deg F	10 psig	100%	$2.0 \times 10^5$ R/Hr

Which ONE of the following describes the EARLIEST time at which adverse containment should have been declared?

- a. 0815
- b. 0830
- c. 0845
- d. 0900

QUESTION: 037 (1.00)

Given the following plant conditions:

- Unit 1 has experienced a reactor trip.
- 1B Charging Pump is out of service for maintenance.
- 1A Charging Pump has tripped.
- FRP-I.2, Response to low Pressurizer Level, has been implemented.

Prior to starting a charging pump, FRP-I-2, "Response to Low Pressurizer Level," directs the operator to locally isolate RCP seal injection.

Which ONE of the following statements is the reason for isolating RCP seal injection?

- a. Prevents thermal shock of the RCP seals.
- b. Protects the RCP seals from excessive differential pressure.
- c. Prevents possible crud injection into the RCP seal cavity.
- d. Protect the Charging Pump from a runout condition.

QUESTION: 038 (1.00)

Given the following plant conditions:

- Unit 2 is in Mode 6.
- Core alterations are in progress.
- N-31 indicates 30 cps and is providing the audible count rate.
- N-32 indicates 32 cps.

Which ONE of the following actions is immediately required if power is lost to Source Range instrument N-31?

- a. Evacuate containment.
- b. Switch the audible count rate selector switch to N-32.
- c. Suspend all core alterations.
- d. Bypass N-31 Level Trip.

QUESTION: 039 (1.00)

Given the following plant conditions:

- SGTR in S/G 1A.
- Reactor trip and safety injection have occurred.
- Operators have transitioned to EEP-3, "Steam Generator Tube Rupture."
- MSIVs for S/G 1A can not be closed.

When cooling down and depressurizing the RCS in accordance with EEP-3, "Steam Generator Tube Rupture", which ONE of the following will occur with S/G 1A NOT isolated from the intact S/Gs while depressurizing the RCS?

- a. Ruptured S/G pressure would reach the safety valve lift setpoint.
- b. Ruptured S/G pressure would stabilize at RCS pressure and allow SI to be terminated earlier.
- c. RCS subcooling would decrease and could not be maintained.
- d. RCS subcooling would increase and allow SI to be terminated earlier.

QUESTION: 040 (1.00)

Which ONE of the following indicating lights would be lit on the Westinghouse Area Monitor Control Console in the Control Room as a direct result of a failure of the input signal to Control Room radiation monitor (R-1A)?

- a. Power on.
- b. Channel test.
- c. High alarm.
- d. Low alarm.



QUESTION: 041 (1.00)

Given the following plant conditions:

- Unit 1 is at 50% power.
- The crew is experiencing problems controlling feedwater flow.
- Instrument Air pressure is 50 psig and slowly decreasing.
- Letdown Line Isolation valves indicate intermediate.

Which ONE of the following actions should be taken?

- a. Secure service air to non-vital loads.
- b. Commence a power reduction to hot shutdown.
- c. Align nitrogen supply to PRZR PORVs.
- d. Trip the reactor and go to EEP-0.

QUESTION: 042 (1.00)

Which ONE of the following explains why loads in excess of 3,000 pounds are prevented from being moved over the spent fuel pool?

- a. Ensures that any possible distortion of fuel in the storage racks from a dropped load accident will not result in a critical fuel arrangement.
- b. Prevents the SFP Bridge Crane from operating with loads in excess of the monorail hoist ratings.
- c. Ensures that the radioactivity released from the worst case dropped load accident would not exceed that of two fuel assemblies.
- d. Prevent the radiation release from dropping a heavy load into the spent fuel pool to less than 10% of the total gaseous activity from any single irradiated fuel assembly.



QUESTION: 043 (1.00)

Which ONE of the following describes the start feature for the Emergency Diesel Generator with the Mode Selector Switch in the Mode 2 position?

- a. Will ONLY start on an auto start signal.
- b. Can be manually started from the EPB and will auto start upon an auto start signal.
- c. Can be manually started from the EPB but will NOT auto start upon an auto start signal.
- d. Can ONLY be started manually from the Diesel Local Control Panel.

QUESTION: 044 (1.00)

Given the following plant conditions:

- Unit 1 at 93% power.
- Rod control in automatic.
- Nuclear power channel N-44 fails to 93% power.
- Reactor power is being ramped down to 85% power.

Which ONE of the following responses will occur?

- a. Control rods will step in until the reactor control unit P-ERROR signal exceeds the T-ERROR signal.
- b. Control rods will step in until the reactor control unit T-ERROR signal exceeds the P-ERROR signal.
- c. Control rods will step out until the reactor control unit P-ERROR signal exceeds the T-ERROR signal.
- d. Control rods will step out until the reactor control unit T-ERROR signal exceeds the P-ERROR signal.

QUESTION: 045 (1.00)

Given the following plant conditions:

- Plant startup is in progress following a refueling outage.
- Reactor power is 73 percent, steady.
- Normal reactor temperature and pressure.
- Rod Control Selector Switch is in MANUAL.

Which ONE of the following conditions will prevent rod motion when the IN-HOLD-OUT switch is positioned to the out position?

- a. The Reactor Control Unit error signal is zero.
- b. The Bank Overlap Unit bank D thumb wheel setting has been exceeded.
- c. A simultaneous current order to the movable grippers occurs to more than one rod.
- d. A simultaneous zero current order to stationary and movable grippers occurs.

QUESTION: 046 (1.00)

Prior to starting the initial RCP during solid plant conditions, RCP seal injection water temperature must be ensured to be greater than the RCS temperature.

Which ONE of the following is the reason for this precaution?

- a. Prevent RCS pressure transient and possible lifting of RHR suction relief valves.
- b. Prevent a large RCS pressure transient due to the heat being transferred from the S/G secondary side of the RCS.
- c. Ensure proper RCP seal operation and prevent excessive thermal stresses in the #1 seal.
- d. Ensure that a pressurized thermal shock incident will NOT occur.

QUESTION: 047 (1.00)

Which ONE of the following combinations of power supplies provides power for the charging pumps?

	Charging Pump A	Charging Pump B	Charging Pump C
a.	4160V F	4160V G	4160V F or G
b.	4160V F	4160V F or G	4160V G
c.	4160V F or G	4160V F	4160V G
d.	4160V G	4160V F or G	4160V F

QUESTION: 048 (1.00)

Given the following plant conditions:

- Plant is operating in solid plant pressure control with Letdown Pressure Control Valve [PCV-145] in automatic.
- Instrument Air [IA] is lost to PCV-145.

Which ONE of the following describes how parameters will respond to the loss of IA to PCV-145?

	VCT Level	RCS Pressure
a.	Increases	Increases
b.	Decreases	Increases
c.	Increases	Decreases
d.	Decreases	Decreases

QUESTION: 049 (1.00)

Which ONE of the following describes WHY the charging flow controller has a minimum demand flow rate when in the automatic mode of operation?

- a. To maintain the proper flow rate for the required pressurizer level.
- b. To maintain a minimum flow rate through the RCP seals.
- c. To ensure adequate cooling in the regenerative heat exchanger to prevent flashing downstream of the orifices.
- d. To ensure adequate flow through the seal filter to prevent loss of seal injection due to boron clogging the filter.

QUESTION: 050 (1.00)

Which ONE of the following conditions will generate an "S" signal?

- a. Low pressurizer pressure, 1/3 detectors equal to 1850 psig.
- b. High containment pressure, 2/3 detectors equal to 3.5 psig.
- c. High steam line differential pressure, 1 S/G 100 psid lower than the other 2 S/Gs on 1/3 protection sets.
- d. Low steam line pressure, 2/3 S/Gs equal to 585 psig as seen by 1 detector per S/G.

## QUESTION: 051 (1.00)

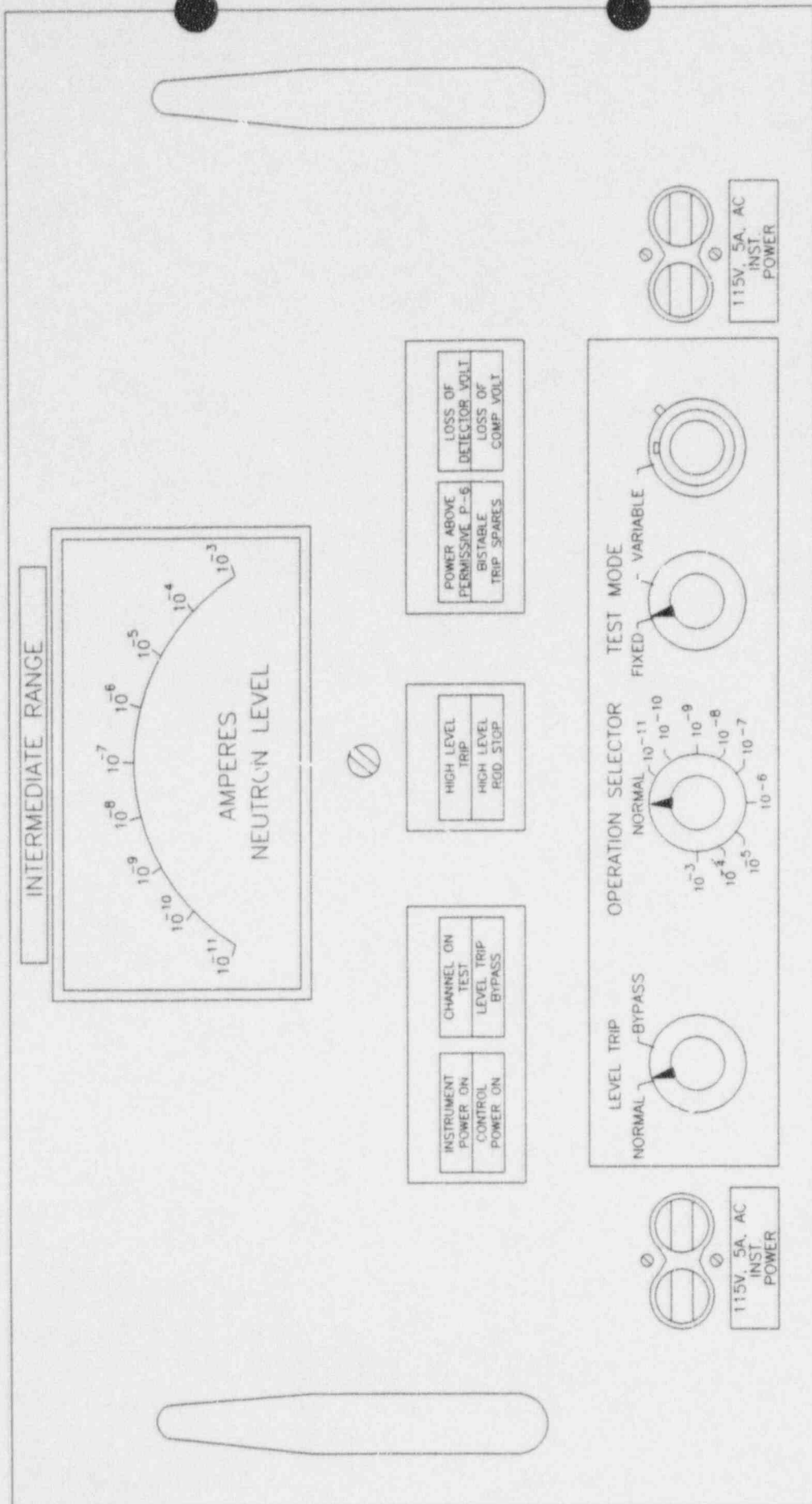
Which ONE of the following statements describes the reason why the digital rod position indication [DRPI] and step counter indication may indicate different values?

- a. The step counter provides rod height information to the exact step where the control rod(s) should be, but the DRPI accuracy is limited to plus or minus 4 steps by the location of the detector coils.
- b. The step counter provides rod height information to the exact step where the control rod(s) are, but the DRPI accuracy is limited to plus or minus 6 steps by the location of the detector coil.
- c. The step counter provides an indication of actual rod position based on steps rod has moved but DRPI provides an indication of digital step signals to the rod.
- d. The step counter provides an indication of actual rod position based on analog measurements of rod position but DRPI provides an indication of digital step signals to the rod.

## QUESTION: 052 (1.00)

If the Level Trip Bypass switch on the intermediate range drawer shown on the following page is placed in the BYPASS position, which ONE of the following sets of actions will occur?

- a. CHANNEL ON TEST and LEVEL TRIP BYPASS lights illuminate.
- b. Sounds alarm on the Main Control Board (MCB) and enables the Operation Selector switch.
- c. CONTROL POWER ON light goes out; CHANNEL ON TEST and LEVEL TRIP BYPASS LIGHTS illuminate.
- d. Control power is removed from the solid-state protection system (SSPS) to prevent a reactor trip and enables the Test Mode potentiometers.



**INTERMEDIATE RANGE DRAWER**  
**FIGURE 16**

52

QUESTION: 053 (1.00)

Which ONE of the following conditions will cause the core exit thermocouple (CETC) monitor to generate an alarm?

- a. One or more disconnected CETC input(s).
- b. Four [4] or more CETC temperatures greater than 650 degrees F.
- c. Less than three [3] valid CETCs.
- d. "T-MAX/CET" pushbutton is depressed.

QUESTION: 054 (1.00)

Which ONE of the following actions will occur if containment temperature increases to 135 degrees F?

- a. All fan coolers NOT running will start in fast speed.
- b. Service water flow to all fan coolers is automatically increased to 2800 gpm.
- c. Two fan cooler units (one per train) will shift to slow speed and the other units will be tripped.
- d. Containment fan cooler drop out plates will drop out.

QUESTION: 055 (1.00)

Which ONE of the following combinations of power supplies provides power to the identified containment [CTMT] spray system components?

- |    | CTMT SPRAY<br>"A" TRAIN MOVs<br>----- | CTMT SPRAY<br>"B" TRAIN MOVs<br>----- |
|----|---------------------------------------|---------------------------------------|
| a. | 4160V A                               | 4160V B                               |
| b. | 4160V C                               | 4160V D                               |
| c. | 600V LC D                             | 600V LC E                             |
| d. | 600V MCC U                            | 600V MCC V                            |



QUESTION: 056 (1.00)

Which ONE of the following conditions will automatically trip shut the main feedwater regulating valves (FCV-478,488,498) and their bypasses (FCV-479, 489, 499)?

- a. Low Tavg as sensed by either train A or train B of reactor protection.
- b. One of 2 reactor trip breakers open with its bypass breaker open.
- c. Any plant condition that actuates a safety injection.
- d. One of 3 narrow range S/G level detectors greater than 75 percent on 2 of 3 S/Gs.

QUESTION: 057 (1.00)

Which ONE of the following describes the effect of placing a MDAFW pump AUTO/DEFEAT switch to the DEFEAT position?

- a. Defeats the loss-of-feed pump signal to the MDAFW pump during accident conditions.
- b. Defeats the loss-of-feed pump signal to the MDAFW pump ONLY during shutdown conditions.
- c. Defeats the common alarm on the BOP panel when the MDAFW pump control is placed in LOCAL.
- d. Defeats the AMSAC signal to the MDAFW pump when the MDAFW pump control switch is placed in LOCAL.

QUESTION: 058 (1.00)

Which ONE of the following DC electrical systems are shared between Units 1 and 2?

- a. Auxiliary building 125V DC distribution system.
- b. Turbine building 125V DC distribution system.
- c. Service water intake structure 125V DC distribution system.
- d. Switch house 125V DC distribution.

QUESTION: 059 (1.00)

Which ONE of the following statements explains the REASON for continuously recirculating the contents of the reactor coolant drain tank [RCDT] through the RCDT heat exchanger?

- a. Prevent release of tritium by natural evaporation.
- b. Prevent concentrating tritium in the RCDT.
- c. Prevent losing RCDT pump net positive suction head.
- d. Prevent concentration of radioactive solids inside the RCDT.

QUESTION: 060 (1.00)

Given the following plant conditions:

- VCT pressure is 15 psig.
- VCT purge line isolation valve [PCV-1092] hand switch is placed in the OPEN position.
- PCV-1092 remains shut.

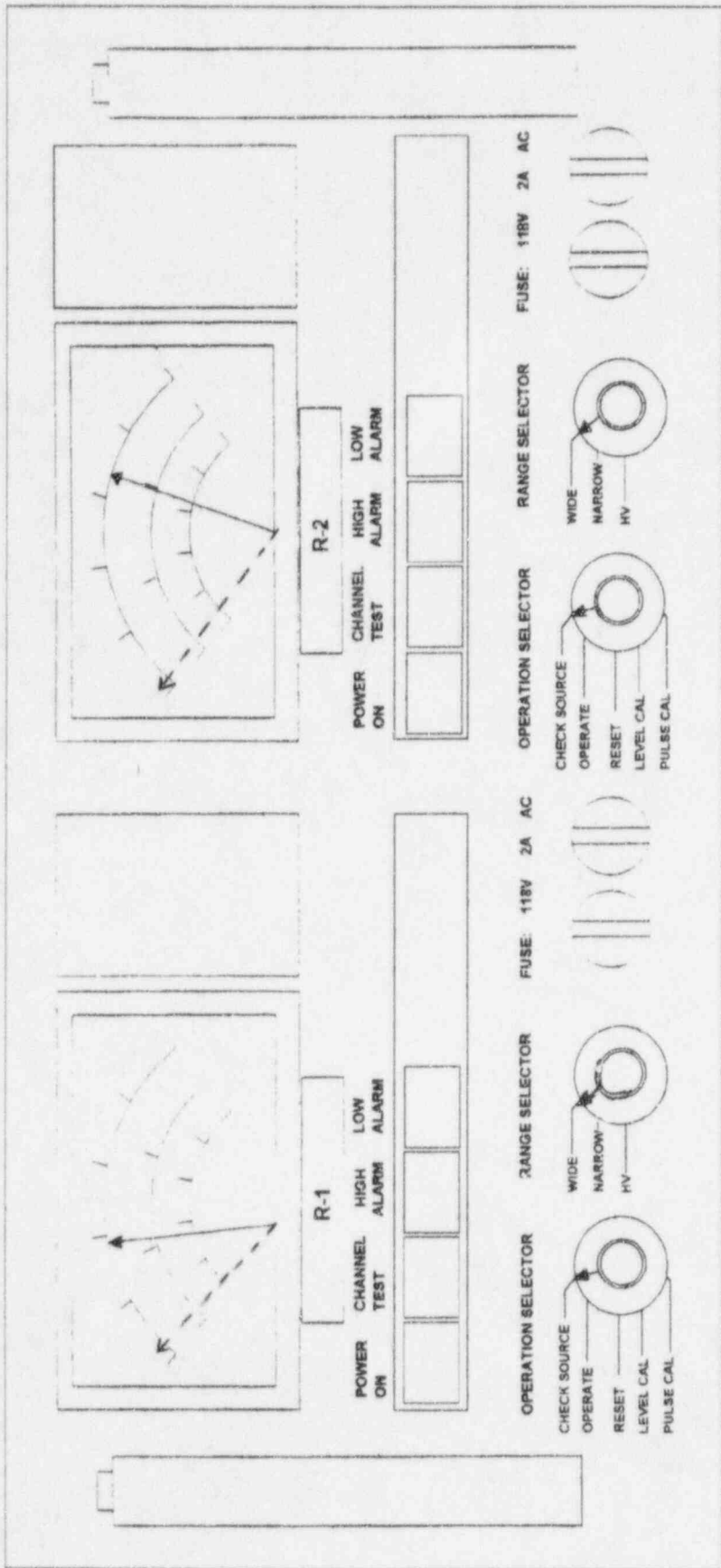
Which ONE of the following actions will allow PCV-1092 to open?

- a. Start at least one waste gas compressor.
- b. Reduce VCT pressure to less than 12 psig.
- c. Shut oxygen supply valve [HACV-1118].
- d. Reposition PCV-1092 hand switch to CLOSE and then return the hand switch to OPEN.

QUESTION: 061 (1.00)

Two identical Area Radiation Monitors, R-1 and R-2, have the same background radiation levels (the dotted line on the attached drawing). The drawer operation and range selectors are positioned as indicated. Which ONE of the following describes the result of the source check on R-1 and R-2 based on the observed meter deflections?

- |    | R-1            | R-2            |
|----|----------------|----------------|
| a. | satisfactory   | satisfactory   |
| b. | satisfactory   | unsatisfactory |
| c. | unsatisfactory | satisfactory   |
| d. | unsatisfactory | unsatisfactory |



QUESTION: 062 (1.00)

Which ONE of the following statements describes how protection is assured in the event that the high pressure tap on RCS Loop A flow transmitter fails?

- a. One Loop A D/P cell will fail low and the remaining two D/P cells will provide the necessary 2/3 protection against low flow.
- b. One Loop A D/P cell will fail high and the remaining two D/P cells will provide the necessary 2/3 protection against low flow.
- c. All Loop A D/P cells will fail high and the remaining two loops will provide the necessary protection against low flow.
- d. All Loop A D/P cells will fail low and three low flow signals would be actuated to trip the reactor.

QUESTION: 063 (1.00)

Given the following plant conditions:

- Reactor power 43%
- RWST LI-4075A 38.5 feet
- RWST LI-4075B 38.6 feet
- Accumulator A discharge valve (CVC-MOV-8808A) CLOSED
- Accumulator B discharge valve (CVC-MOV-8808B) OPEN
- Accumulator C discharge valve (CVC-MOV-8808C) OPEN
- A accumulator
  - LI-920 30.2%
  - LI-922 30.4%
  - PI-921 625 psig
  - PI-923 630 psig
- B accumulator
  - LI-924 34.1%
  - LI-926 34.0%
  - PI-925 638 psig
  - PI-927 640 psig
- C accumulator
  - LI-928 33.2%
  - LI-930 33.4%
  - PI-929 628 psig
  - PI-931 630 psig

Which ONE of the following actions should be performed immediately?

- a. Close CVC-MOV-8808B and C.
- b. Open CVC-MOV-8808A.
- c. Increase A accumulator level to 33.0% or greater.
- d. Decrease B accumulator pressure to less than 630 psig.

QUESTION: 064 (1.00)

Which ONE of the following combinations of locations and outputs completes the pressurizer level protection and control drawing shown on the following page?

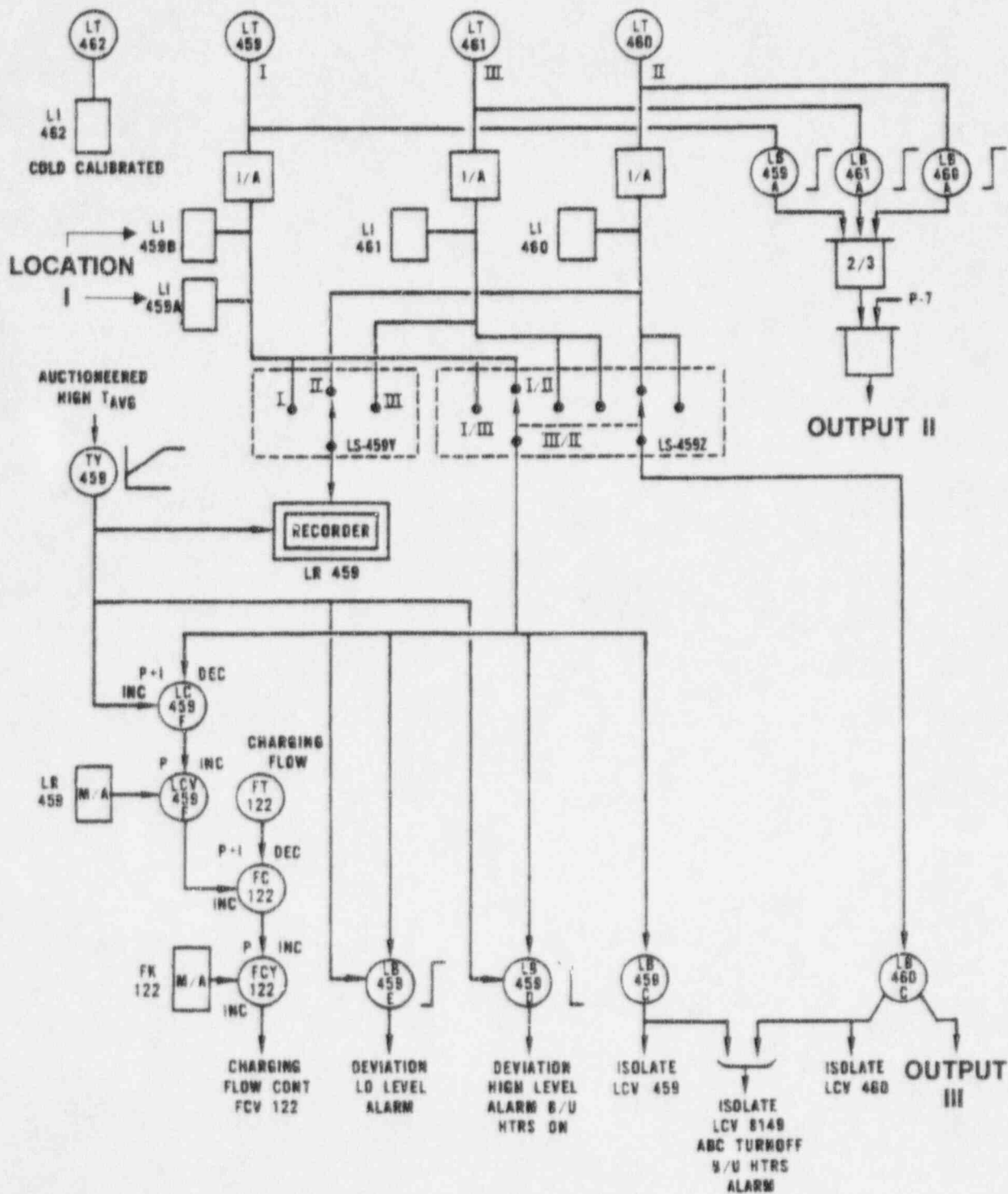
	LOCATION I	OUTPUT II	OUTPUT III
a.	Charging pump room	PZR high level alarm	High PZR level reactor trip
b.	Charging pump room	High PZR level reactor trip	PZR high level alarm
c.	TDAFW pump room	High PZR level reactor trip	PZR high level alarm
d.	TDAFW pump room	PZR high level Alarm	High PZR level reactor trip

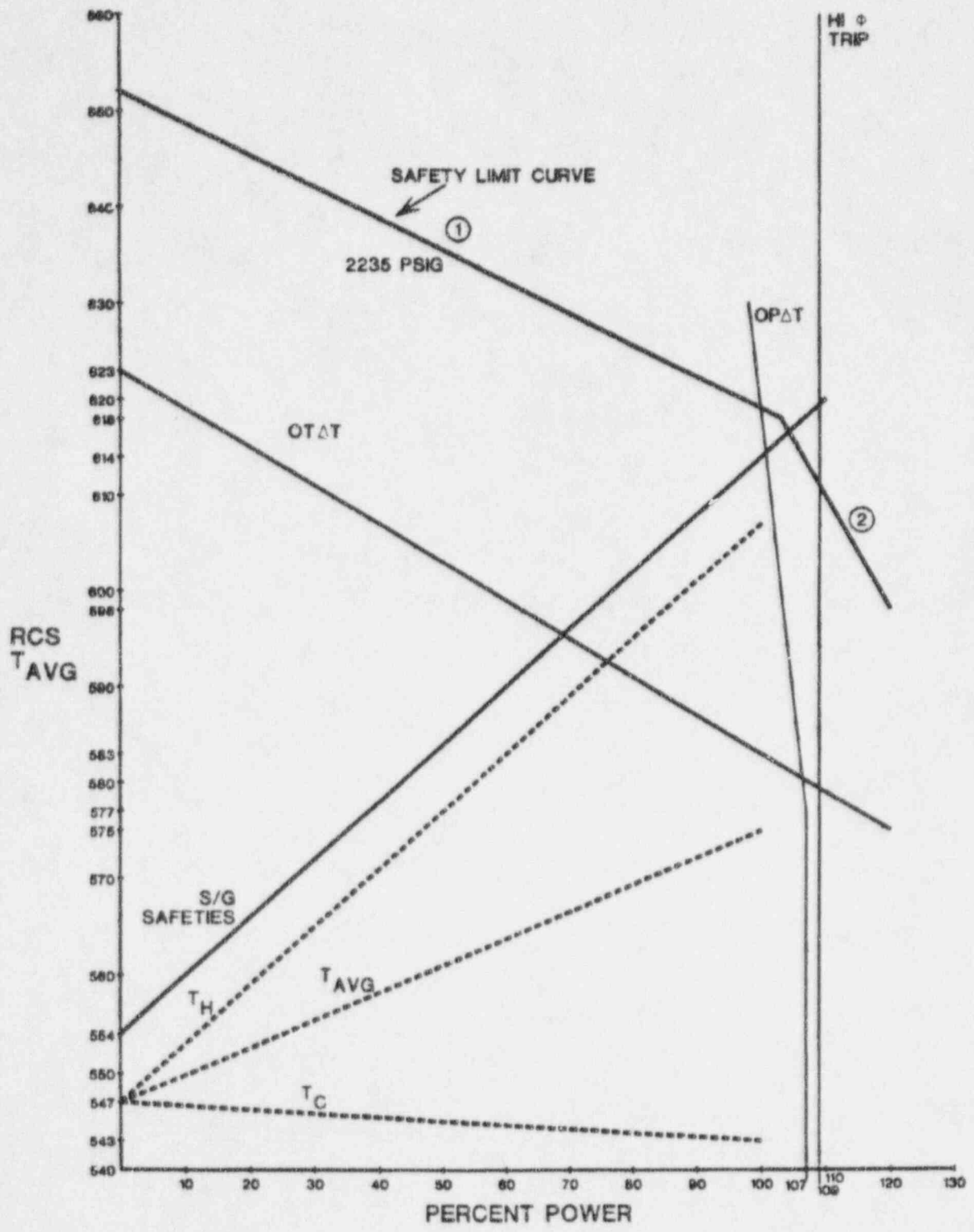
QUESTION: 065 (1.00)

Which ONE of the following statements describes the sections of the safety limit curve shown on the following page?

- Segment 1 of the curve is based on limiting core delta T to less than thirty five [35] percent greater than full power value.
- Segment 1 of the curve is based on not exceeding 2235 psig during accident conditions.
- Segment 2 of the curve is based on preventing exceeding DNB limitations during accidents.
- Segment 2 of the curve is based on preventing the hot leg coolant from reaching saturation temperature.







QUESTION: 066 (1.00)

Which ONE of the following statements describes a FUNCTION performed by the Pimp instrumentation?

- a. Enables automatic rod control withdrawal below 25 percent power.
- b. Provides an input to the non-linear gain unit in the power mismatch channel for the determination of rod speed.
- c. Provides an input to steam generator level program as an indication of turbine power to enable S/G level trips.
- d. Varies high steam line flow set point as power varies from 20 percent to 100 percent.

QUESTION: 067 (1.00)

Which ONE of the following statements describes a control function performed by the Unit 1 median Tav<sub>g</sub> signal?

- a. Compared to a reference temperature signal (T<sub>ref</sub>) and used to produce automatic rod speed and direction signals.
- b. Compared to temperature set by Pimp for the turbine trip controller and used to generate a demand signal for the steam dump valves.
- c. Tav<sub>g</sub> deviation alarm actuates on the MCB if any loop Tav<sub>g</sub> is greater than plus or minus 2 degrees F from the median Tav<sub>g</sub>.
- d. Tav<sub>g</sub>/T<sub>ref</sub> deviation alarm actuates on the MCB if the median Tav<sub>g</sub> signal is greater than plus or minus 3 degrees F from the T<sub>ref</sub> signal.

QUESTION: 068 (1.00)

Which ONE of the following statements describes how, following a containment spray actuation, the contents of the containment spray additive tank are adequately mixed with the RWST contents?

- a. The spray additive eductors draw the spray additive tank contents from the additive tank and mixing occurs in the eductor outlet.
- b. The eductor suction valves (8836A and B) arrangement assures that the spray additive will reach the eductors in the event that one of the valves fails to open.
- c. The containment spray piping is designed to establish turbulent flow after the spray additive tank and RWST contents are mixed.
- d. The containment spray nozzles are sized and configured to ensure that adequate mixing occurs when the spray is discharged from the nozzles.

QUESTION: 069 (1.00)

Given the following plant conditions:

- A large break LOCA occurred 43 minutes ago.
- Hydrogen concentration inside containment is 6 percent.

Which ONE of the following actions should be performed?

- a. Place hydrogen recombiners in operation within the next 16 minutes because recombiner operation should commence within one hour of the event.
- b. Determine and establish the hydrogen recombiner power setting using the pre-LOCA containment temperature and post-LOCA hydrogen concentration.
- c. Determine and establish the hydrogen recombiner power setting using the post-LOCA containment pressure and temperature.
- d. Reduce the containment hydrogen concentration using the post accident venting system.

QUESTION: 070 (1.00)

Which ONE of the following identifies the method of control for the New Fuel Bridge Crane?

- a. Trolley console.
- b. Bridge console.
- c. Local operating pendant.
- d. Pendant and hoist controls accessible from bridge.

QUESTION: 071 (1.00)

After performing maintenance on fuel transfer equipment, which ONE of the following methods is used to refill the transfer canal?

- a. Refueling water purification pump.
- b. Recycle evaporator feed pump.
- c. Spent fuel pool pump.
- d. Reactor coolant drain tank pump.

QUESTION: 072 (1.00)

If the steam generator atmospheric relief valve set points are increased to maximum, which ONE of the following consequences may occur?

- a. Main steam pressure will be maintained at a lower value during transients because the main steam safety valves have a greater capacity.
- b. Main steam safety valve operation will occur less frequently during transients.
- c. Main steam safety valves may not reseal after operation.
- d. Plant control during a loss of all AC event will be simplified because less secondary makeup will be required.

QUESTION: 073 (1.00)

Which ONE of the following actions should break free a stuck open MSIV?

- a. Place the MSIV test switch to the TEST position.
- b. Open the MSIV bypass valve to reduce the pressure differential across the MSIV.
- c. Increase the air pressure in the air reservoir connected to the MSIV.
- d. Vent the MSIV actuator to release steam pressure holding the valve open.

QUESTION: 074 (1.00)

Which ONE of the following sets of actions will occur if Bus 1F voltage falls to 3600V and Bus 2L voltage falls to 3200V (Consider each failure separately.)?

	Bus 1F Action -----	Bus 2L Action -----
a.	Diesel generator starts	Diesel generator starts
b.	S/U transformer feeder breaker trips open	Under voltage indication only
c.	Associated DG output breaker trips when DG operating in parallel with a S/U XFMR	Diesel generator starts
d.	Under voltage indication only	S/U transformer feeder breaker trips open

QUESTION: 075 (1.00)

Which ONE of the following loads are NOT controlled by the Engineered Safeguards System (ESS) Sequencer?

- a. Battery Chargers.
- b. Rx cavity cooling fans.
- c. Containment coolers.
- d. Rx cavity H2 dilution fans.

QUESTION: 076 (1.00)

Which ONE of the following radiation monitor failures will result in isolating a liquid waste release?

- a. R-14
- b. R-15
- c. R-17A
- d. R-18

QUESTION: 077 (1.00)

Which ONE of the following DOES NOT receive an actuation signal directly from containment pressure?

- a. Phase A isolation.
- b. Phase B isolation.
- c. Containment spray.
- d. Steam line isolation.



QUESTION: 078 (1.00)

Given the following plant conditions:

- RWS suction valves(8809A and B) are closed
- Charging pump suction valves (8706A and B) are shut
- RCS temperature is 315 degrees F
- RCS loop C pressure PT-402 is 350 psig
- RCS loop A pressure PT-403 is in test, reading 650 psig
- PZR vapor space temperature is 435 degrees F
- RWST level is 40 feet

Which ONE of the following valves can be opened from the main control board (MCB)?

- a. RCS loop C to RHR inlet - 8701A and 8701B.
- b. RCS loop A to RHR inlet - 8702A and 8702B.
- c. RCS loop C and A to RHR inlet - 8701A and 8702A.
- d. RHR loop C and A to RHR inlet - 8701B and 8702B.

QUESTION: 079 (1.00)

Which ONE of the following set points are used for controlling the Unit 2 RHR pump miniflow valves FCV-602A & B?

- |    | UNIT 2   |          |
|----|----------|----------|
|    | OPEN     | CLOSE    |
|    | -----    | -----    |
| a. | 709 rpm  | 1327 gpm |
| b. | 709 gpm  | 2200 gpm |
| c. | 1337 gpm | 2200 gpm |
| d. | 2200 gpm | 3000 gpm |

QUESTION: 080 (1.00)

Which ONE of the following describes the steam dump bank Turbine Trip delta-T response if the delta T is 7 degrees F?

	FULLY CLOSED -----	FULLY OPEN -----
a.	2, 3 & 4	1
b.	3 & 4	1
c.	4	1 & 2
d.	None	1, 2 & 3

QUESTION: 081 (1.00)

Given the following plant conditions:

- Service water pumps "A", "B", and "D" are Running.
- Service water pump "C" pump spare selector switch is in the "D" position-Service water pump E is off.
- A safety injection with a loss-of-off-site power occurs.
- The ESF sequencers operate properly.

Which ONE of the following responses describe the operating status of the service water pumps following the ESF sequencer operation?

	Pump C -----	Pump D -----	Pump E -----
a.	ON	ON	ON
b.	ON	OFF	OFF
c.	OFF	ON	OFF
d.	ON	OFF	ON

QUESTION: 082 (1.00)

Which ONE of the following procedure markings identifies a controlled procedure copy?

- a. Operating Procedure.
- b. Programmed Test Copy.
- c. Interim Controlled Document Copy.
- d. Restricted Use Copy.

QUESTION: 083 (1.00)

Which ONE of the following lists of supervisors identifies the Nuclear Plant-General Manager supervisory succession order?

- a. Plant Operations Assistant General Manager, Plant Operations Superintendent, Operations Manager.
- b. Plant Operations Assistant General Manager, Plant Support Assistant General Manager, Operations Manager.
- c. Plant Operations Superintendent, Plant Support Assistant General Manager, Operations Manager.
- d. Plant Operations Superintendent, Shift Supervisor Nuclear, Plant Support Assistant General Manager.

QUESTION: 084 (1.00)

Given the following plant conditions:

- The procedure you are using is revision 5.
- TCN 5D is entered in the lower right hand corner of pages 2 and 7.
- 9/3/95 - 11/30/95 is also entered in the lower right hand corner of pages 2 and 7.
- One time only change is entered in the lower right hand corner of pages 2 and 7.

Which ONE of the following describes the status of this procedure [Use today's date in your determination]?

- a. The procedure CANNOT be used because the temporary change limit of 45 days is exceeded.
- b. The procedure CANNOT not be used because the temporary change limit of 60 days is exceeded.
- c. If the procedure is an Operations Department procedure, the Shift Supervisor must approve its use because it is a one time only change.
- d. The procedure is effective and may be used.

QUESTION: 085 (1.00)

Which ONE of the following actions should be taken if a GREEN CLOUD is detected in the service water structure?

- a. Leave the area immediately and contact the control room.
- b. Leave the area immediately and actuate the fire alarm; then contact the control room.
- c. Immediately contact the control room and notify the Chemistry Department.
- d. Immediately isolate the service water structure ventilation and notify the fire brigade; then notify the control room.

QUESTION: 086 (1.00)

Which ONE of the following time limits describe the maximum time requirements for notifying the state?

	NOUE	GENERAL EMERGENCY
a.	15 minutes	15 minutes
b.	15 minutes	30 minutes
c.	1 hour	15 minutes
d.	1 hour	30 minutes

QUESTION: 087 (1.00)

Given the following plant conditions:

- A Site Area Emergency (SAE) has been declared
- The technical support center (TSC) has been staffed
- The emergency operations facility has NOT been staffed
- An incoming phone call has been received in the control room from Early County Emergency Management Agency

Which ONE of the following describes how the phone call should be routed?

- To the Unit 1 Shift Supervisor.
- To the Unit 2 Shift Supervisor.
- To the Technical Manager.
- To the Recovery Manager Assistant.

QUESTION: 088 (1.00)

Which ONE of the following ANNUAL radiation exposures is a maximum permissible radiation exposure limit for an occupational worker at Farley Nuclear Plant?

- a. Total Effective Dose Equivalent (TEDE) - 5,000 mrem
- b. Total Organ Dose Equivalent (TODE) - 15,000 mrem
- c. Shallow Dose Equivalent (SDE) - 15,000 mrem
- d. Lens of the Eye Dose Equivalent (LDE) - 5,000 mrem

QUESTION: 089 (1.00)

If the radiation level is 2 mrem/hr at the entrance to a room in the RCA, which ONE of the following classifications should be assigned to the area (assume the 2 mrem/hr reading is coming from a point source located 10 feet from the entrance to the room)?

- a. Radiation Area.
- b. High Radiation Area.
- c. Very High Radiation Area.
- d. Radiological Exclusion Area.

QUESTION: 090 (1.00)

Which ONE of the following conditions permits establishing an alternative boundary in lieu of the MSIVs being closed?

- a. Main steam pressure verified to be less than 100 psig.
- b. Main steam temperature verified to be less than 200 degrees F.
- c. RCS pressure verified to be less than 1000 psig.
- d. Personalized hold tags have been installed on the MSIVs.

QUESTION: 091 (1.00)

Which ONE of the following personnel is responsible for DIRECTING off-site fire fighting support at Farley Nuclear Plant?

- a. Shift Supervisor.
- b. Recovery Director.
- c. Plant Fire Brigade Chief.
- d. Fire Marshall.

QUESTION: 092 (1.00)

Which ONE of the following positions is responsible for issuing keys for key lock limiting and interlock devices?

- a. Shift Foreman Inspecting.
- b. Shift Supervisor.
- c. Shift Clerk.
- d. Security Foreman.

QUESTION: 093 (1.00)

Which ONE of the following actions is NOT ALLOWED during verification of a valve lineup?

- a. Operator verifying valve shut directly observes individual shutting the valve during the initial lineup.
- b. Operator verifying valve shut uses the control room valve position indication (status light change) to confirm the valve is shut in lieu of locally checking the valve shut.
- c. Operator verifying valve shut uses a control room flow indication to confirm the valve is shut in lieu of locally checking the valve shut.
- d. The verification is documented on a Work Order, Work Authorization or controlling procedure.



QUESTION: 094 (1.00)

Following a reactor trip, which ONE of the following is the highest level of authority which must give final permission prior to returning the reactor to criticality?

- a. On call Emergency Director.
- b. Operations Support Superintendent.
- c. Shift Supervisor In Charge.
- d. Shift Supervisor.

QUESTION: 095 (1.00)

Which ONE of the following identifies the shift position required to perform technical review of Outside Control Room Logs and the required frequency of review?

- a. Shift Foreman Operating - Once per shift
- b. Shift Supervisor - Once per shift
- c. Shift Foreman Operating - Once per day
- d. Shift Supervisor - Once per day

QUESTION: 096 (1.00)

Which ONE of the following positions must approve the following power plant equipment or Operations Group activities?

	Releasing Authority for Work Orders -----	Approval Official for Tag Orders -----
a.	Shift Supervisor	Shift Supervisor
b.	Shift Supervisor	Shift Foreman Operating
c.	Shift Foreman Operating	Shift Foreman Operating
d.	Shift Foreman Operating	Shift Foreman Operating

QUESTION: 097 (1.00)

Given the following initial conditions:

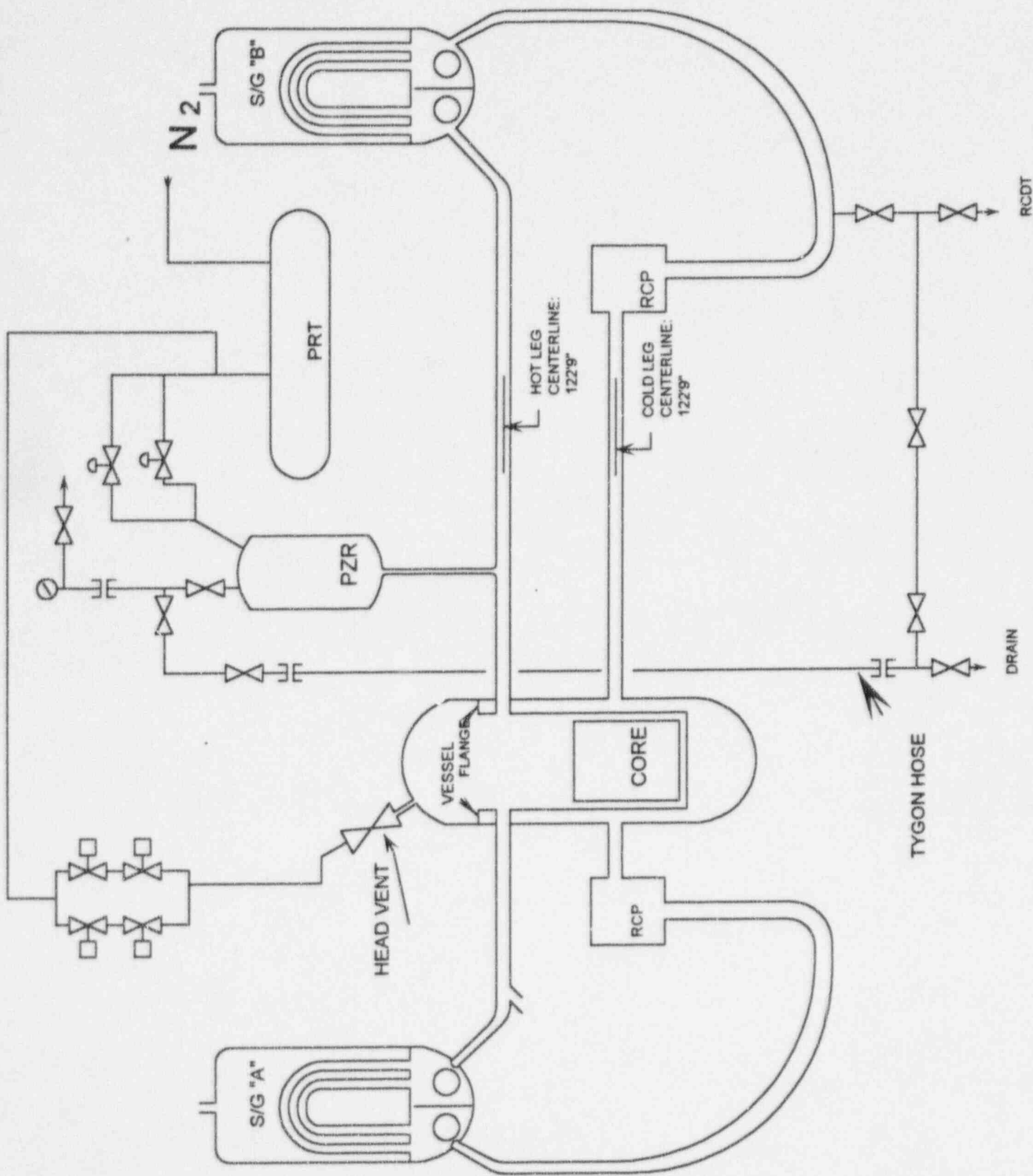
- Unit 2 is shutdown for refueling.
- The RCS has been drained to flange level.
- The pressurizer PORVs are opened to the PRT.
- PRT is at 10 psig.
- The reactor vessel head is still tensioned.
- Tygon tube has been installed from loop B to the top of the pressurizer.

Subsequently, the following sequence of events occurred:

- Reactor head vent 8070B was inadvertently shut by maintenance personnel.
- The PRT was depressurized to atmospheric pressure.
- 300 gallons are drained from the reactor vessel.

Which ONE of the following describes relationship between the tygon tube level indication and actual reactor vessel indication as water is drained from the reactor vessel?

- a. Tygon Level will consistently indicate higher than actual level.
- b. Tygon Level will consistently indicate lower than actual level.
- c. Tygon Level will not change.
- d. Tygon Level will change at a slower rate than actual vessel level but eventually equal actual level.



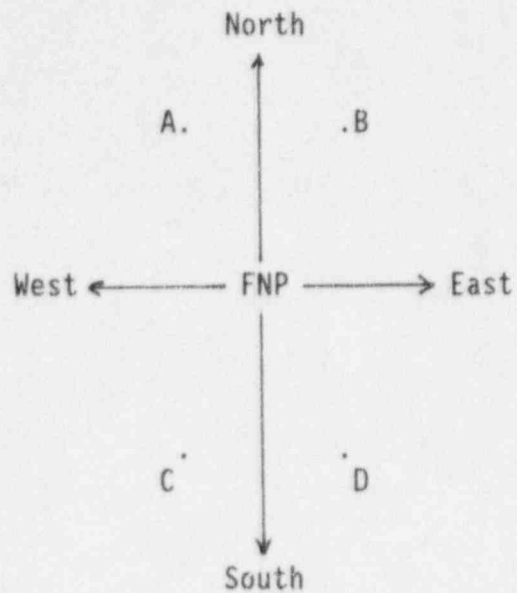
FNP RCS LEVEL INDICATION AND ELEVATIONS

QUESTION: 098 (1.00)

Given the following conditions:

- A radiological release is in progress from Farley Nuclear Plant (FNP).
- The Control Room Met Recorder indicates 330 degrees.

Which ONE of the following points is in the DIRECT path of the release?



QUESTION: 099 (1.00)

Given the following conditions.

- 2B SG feedpump tripped.
- Operators reduced power from 100% to 60% in 12 minutes.

Which ONE of the following Reactor Coolant samples is required?

- a. Gross Activity determination within 2 hours.
- b. Gross Activity Determination between 2 and 6 hours.
- c. Isotopic Analysis for Iodine within 2 hours.
- d. Isotopic Analysis for Iodine between 2 and 6 hours.

QUESTION: 100 (1.00)

Which ONE of the following is the basis for the Condensate Storage Tank (CST) Lo-Lo level alarm? Assume all three AFW pumps running at full flow?

- a. Allows 20 minutes to MANUALLY transfer the AFW suction to service water. Transfer time assumes AC power is available to operate the service water MOVs from the BOP panel.
- b. Allows 20 minutes to LOCALLY transfer the AFW suction source to service water. Transfer time assumes AC power is NOT available to operate the service water MOVs from the BOP panel.
- c. Allows 30 minutes to MANUALLY transfer the AFW suction to service water. Transfer time assumes AC power is available to operate the service water MOVs from the BOP panel.
- d. Allows 30 minutes to LOCALLY transfer the AFW suction source to service water. Transfer time assumes AC power is NOT available to operate the service water MOVs from the BOP panel.

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

ANSWER: 001 (1.00)  
d.

REFERENCE:  
OPS-52530A, Rev. 9/94, pg. 30 and TO 11.  
KA 000007K301 [4.0/4.6]

ANSWER: 002 (1.00)  
d.

REFERENCE:  
OPS-52103C, Rev. 1/93, pg. A-1. FNP question bank no. 052103c08011.  
KA 000058A203 [3.5/3.9]

ANSWER: 003 (1.00)  
b.

REFERENCE:  
OPS-52530B, Rev. 1/95, pg. 13 and T01.  
KA 000009K321 [4.2/4.5]

ANSWER: 004 (1.00)  
b.

REFERENCE:  
Tech. Spec. 3.3.1 and OPS-52201D, TO 39.  
KA 000033G004 [2.6/3.3]

ANSWER: 005 (1.00)  
b.

REFERENCE:  
OPS-52530C p. 18  
1992 Exam  
KA 000040K304 (4.5/4.7)

ANSWER: 006 (1.00)  
d.

REFERENCE:  
OPS-52102G, TO 22 and P&IDs D-175002  
1992 exam  
KA 000026A201 (2.9/3.5)

ANSWER: 007 (1.00)  
b.

REFERENCE:  
AOP-28.0, "Control Room Inaccessibility", Rev. 6, pg. 2.  
KA 000068A110 [3.7/3.9]



ANSWER: 008 (1.00)

c.

REFERENCE:

FNP-1-EEP-0, Rev. 17, pg. 6 and OPS-52530A, TO-6.  
KA 000007A107 [4.3/4.3]

ANSWER: 009 (1.00)

a.

REFERENCE:

1-FRP-H.5, Rev. 8, pg. 3.  
KA 000054K102 [3.6/4.2]

ANSWER: 010 (1.00)

d.

REFERENCE:

OPS-52106D, Rev. 6/92, pg. 18.  
KA 000037A202 [3.4/3.9]

ANSWER: 011 (1.00)

a.

REFERENCE:

Tech. Spec. 3.4.5.  
KA 000027G003 [3.1/3.6]

ANSWER: 012 (1.00)

c.

REFERENCE:

1-AOP-12.0, Rev. 9, pg. 3.  
KA 000025A205 [3.1/3.5]

ANSWER: 013 (1.00)

b.

REFERENCE:

OPS-52530B, Rev. 1/95, pg. 4.  
KA 000008K102 [3.1/3.7]

ANSWER: 014 (1.00)

c.

REFERENCE:

1-FRP-S.1, Rev. 14, pg. 2 and OPS-52533A, TO 1U.  
KA 000029A114 [4.2/3.9]

ANSWER: 015 (1.00)

d.

REFERENCE:

OPS-52201H, Rev. 2/93, pg. A2-1 and T013.  
KA 000028A210 [3.4/3.6]

ANSWER: 016 (1.00)

a.

REFERENCE:

FNP-1-ARP-1.8, HF3.  
KA 000001A205 [4.4/4.6]

ANSWER: 017 (1.00)

c.

REFERENCE:

1-AOP-19.0, Rev. 12, pg. 2.  
KA 000001G010 [3.9/4.0]

ANSWER: 018 (1.00)

b.

REFERENCE:

OPS-52201E, Rev. 8/92, pg. 22 and TO 28.  
KA 000003K304 [3.8/4.1]

ANSWER: 019 (1.00)

d.

REFERENCE:

AOP-19.0, Rev. 12, pg. 2.  
KA 000003G010 [3.9/3.8]

ANSWER: 020 (1.00)

c.

REFERENCE:

AOP-19.0, Attachment 1, Rev. 13, pg. 1.  
KA 000005A104 [3.9/3.9]

ANSWER: 021 (1.00)

b.

REFERENCE:

OPS-52530B, Rev. 19/95, pgs. 31 & 32 and TO 1.  
KA 000011K315 [4.3/4.4]

ANSWER: 022 (1.00)  
d.

REFERENCE:  
AOP-4.0, Rev. 4, pg. 4.  
KA 000015A121 [4.4/4.5]

ANSWER: 023 (1.00)  
a.

REFERENCE:  
OPS-52101D, Rev. 6/94, pg. 25 and TO 5.6.  
KA 000015K208 [2.6/2.6]

ANSWER: 024 (1.00)  
c.

REFERENCE:  
1-AOP-27.0, Rev. 4, pg. 3.  
KA 000024A202 [3.9/4.4]

ANSWER: 025 (1.00)  
b.

REFERENCE:  
1-AOP-27.0, Rev. 4, pgs. 2 & 3.  
KA 000024G010 [4.0/4.0]

ANSWER: 026 (1.00)  
d.

REFERENCE:  
1-AOP-9.0, Rev. 8, pg. 3.  
KA 000026G010 [3.6/3.5]

ANSWER: 027 (1.00)  
b.

REFERENCE:  
1-FRP-S.1, Rev. 14, pg. 15 and OPS-57533A, TO 15.  
KA 000029K301 [4.2/4.5]

ANSWER: 028 (1.00)  
d.

REFERENCE:  
OPS-52201G, Rev. 10/93, pg. 17 and TO 25.  
KA 000051K301 [2.8/3.1]

ANSWER: 029 (1.00)  
d.

REFERENCE:  
1-ECP-0.0, Rev. 12, pg. 6 and OPS-52532A TO 13.  
KA 000055K302 [4.3/4.6]

ANSWER: 030 (1.00)  
b.

REFERENCE:  
1-ECP-0.0, Rev. 12, pg. 26 and OPS-52532A TO 16.  
KA 000055K302 [4.3/4.6]

ANSWER: 031 (1.00)  
a.

REFERENCE:  
OPS-52520R, Rev. 8/92, pg. 7.  
KA 000057A220 [3.6/3.9]

ANSWER: 032 (1.00)  
c.

REFERENCE:  
Tech. Spec. 3.11.1.4.  
KA 000059G008 [2.9/3.9]

ANSWER: 033 (1.00)  
d.

REFERENCE:  
EIP-13, Rev. 14, pg. 3.  
KA 000067G001 [3.6/4.0]

ANSWER: 034 (1.00)  
a.

REFERENCE:  
1-AOP-28.0, Rev. 6, pg. 2.  
KA 000068G012 [3.8/4.0]

ANSWER: 035 (1.00)  
b.

REFERENCE:  
Steam Tables  
KA 000074A201 [4.6/4.9]

ANSWER: 036 (1.00)  
b.

REFERENCE:  
EEP-0, Foldout Page, and OPS-52530A, Rev. 9/94, TO-10.  
KA 00009A211 [3.8/4.1]

ANSWER: 037 (1.00)  
a.

REFERENCE:  
1-FRP-1.2, Rev. 10, pg. 5.  
KA 000022K302 [3.5/3.8]

ANSWER: 038 (1.00)  
c.

REFERENCE:  
Tech. Spec. 3.9.2.  
KA 000032G003 [2.6/3.3]

ANSWER: 039 (1.00)  
c.

REFERENCE:  
OPS-52530D, Rev. 1/95, pg. 35 and TO 6.  
KA 000038K306 [4.2/4.5]

ANSWER: 040 (1.00)  
d.

REFERENCE:  
OPS-52106D, Rev. 6/92, pg. 20.  
KA 000061A201 [3.5/3.7]

ANSWER: 041 (1.00)  
d.

REFERENCE:  
FNP-1-AOP-6.0, Rev. 17, pg. 2.  
KA 000065A206 [3.6/4.2]

ANSWER: 042 (1.00)  
a.

REFERENCE:  
Technical Specifications Bases 3/4.9.7, page B 3/4 9-2.  
KA 000036G004 [2.6/3.8]

ANSWER: 043 (1.00)  
b.

REFERENCE:  
OPS-52103F, Rev. 10/94, pg. 9 and TO 5.A  
KA 000056A214 [4.4/4.6]

ANSWER: 044 (1.00)  
b.

REFERENCE:  
OPS-52201E, pgs 9-11, and TO 13.  
KA 001000A302 [3.7/3.6]

ANSWER: 045 (1.00)  
d.

REFERENCE:  
OPS-52201E, Para. 3., pg 18 and TO 18.  
KA 001050K401 [3.4/3.8]

ANSWER: 046 (1.00)  
a.

REFERENCE:  
OPS-52101D, TO 13b.  
KA 003000G010 [3.3/3.6]

ANSWER: 047 (1.00)  
b.

REFERENCE:  
OPS-52101F, pg 37 and TO 14.  
KA 004000K202 [3.3/3.5]

ANSWER: 048 (1.00)  
c.

REFERENCE:  
OPS-52101, pg 21 and TOs 23. and 24.  
KA 004010A204 [3.6/4.2]

ANSWER: 049 (1.00)  
c.

REFERENCE:  
OPS-52101F, pg 39 and TO 17.  
KA 004010K614 [2.6/2.9]

ANSWER: 050 (1.00)  
d.

REFERENCE:  
OPS-52101B, pg 12 and TO 3.  
KA 013000K101 [4.2/4.4]

ANSWER: 051 (1.00)  
a.

REFERENCE:  
OPS-55201F, pgs 7 and 11, and TO 10.  
KA 014000K501 [2.7/3.0]

ANSWER: 052 (1.00)  
b.

REFERENCE:  
OPS-52201D, pg 23 and TO 27.  
KA 015000A403 [3.8/3.9]

ANSWER: 053 (1.00)  
a.

REFERENCE:  
OPS-52202E, pg 10 and TO 20.  
KA 017020A201 [3.1/3.5]

ANSWER: 054 (1.00)  
d.

REFERENCE:  
OPS-40304A/52107A, pg 4 and TO 2.  
OPS-40302D/52102C, pg 11 and TO 11.b.  
KA 022000G007 [3.3/3.5]

ANSWER: 055 (1.00)  
d.

REFERENCE:  
OPS-40302D/542102C, pg T-3 and LO 3.a  
KA 026000K201 [3.4/3.6]

ANSWER: 056 (1.00)  
c.

REFERENCE:  
OPS-52201B, pgs 6 & 7 and LO 10.  
KA 059000A306 [3.2/3.3]



ANSWER: 057 (1.00)

a.

REFERENCE:

OPS-52102H, pg 13 and TO 16.  
KA 061000G007 [3.6/3.7]

ANSWER: 058 (1.00)

c.

REFERENCE:

OPS-40204E/52103C, pg 2 and TO 5.b.  
KA 063000G004 [3.1/3.2]

ANSWER: 059 (1.00)

c.

REFERENCE:

OPS-52106A, pg 7 and TO 8.  
KA 068000K401 [3.4/4.1]

ANSWER: 060 (1.00)

a.

REFERENCE:

OPS-40303B/52106B, pg 23 and TO 14.  
KA 071000G007 [2.5/2.8]

ANSWER: 061 (1.00)

b.

REFERENCE:

OPS52106D, pg 4 and TO 5.  
KA 072000A403 [3.1/3.1]

ANSWER: 062 (1.00)

d.

REFERENCE:

OPS-40301A./52101A, pg 12.  
KA 002000K606 [2.5/2.8]

ANSWER: 063 (1.00)

b.

REFERENCE:

OPS-40302C/52102B TO 14.  
Technical Specification 3.5.1  
KA 006050A401 [4.2/4.3]

ANSWER: 064 (1.00)

c.

REFERENCE:

OPS-52201H/52520P/52520Q, Figure 7 and TO 20.  
KA 011000K104 [3.8/3.9]

ANSWER: 065 (1.00)

c.

REFERENCE:

OPS-52201I, pg 4 and TO 7.c.  
KA 012000K501 [3.3/3.8]

ANSWER: 066 (1.00)

d.

REFERENCE:

OPS-52201J, pgs 17 & 18, Figure 23 and TO 8.  
KA 016000K109 [3.7/3.7]

ANSWER: 067 (1.00)

a.

REFERENCE:

OPS-52201J, pgs 14 and T-2 and TO 4.  
KA 016000K403 [2.8/2.9]

ANSWER: 068 (1.00)

a.

REFERENCE:

OPS-40302D/52102C, pg 8 and TO 4.e.  
KA 027000G007 [3.2/3.4]

ANSWER: 069 (1.00)

d.

REFERENCE:

OPS-52102D, pgs 7 & 9 and TO 6.  
KA 028000A203 [3.4/4.0]

ANSWER: 070 (1.00)

c.

REFERENCE:

OPS-52108D, pg. 5 and TO 7.  
KA 034000G009 [3.0/3.0]

ANSWER: 071 (1.00)  
b.

REFERENCE:  
OPS-52108D, pg 15 and TO 14.  
KA 034000A102 [2.9/3.7]

ANSWER: 072 (1.00)  
c.

REFERENCE:  
OPS-40301/c/52101C, pg 8 and TO 4.  
KA 035010A102 [3.5/3.8]

ANSWER: 073 (1.00)  
a.

REFERENCE:  
OPS-40201A/52104A, pgs 11 & 12 and TO 16.  
KA 039000A401 [2.9/2.8]

ANSWER: 074 (1.00)  
b.

REFERENCE:  
OPS-40102B/52103B, TO 11.  
KA 062000A305 [3.5/3.6]

ANSWER: 075 (1.00)  
b.

REFERENCE:  
OPS-52103F, pg 3 and TO 2.  
KA 064000A307 [3.6/3.7]

ANSWER: 076 (1.00)  
d.

REFERENCE:  
OPS-52106D, Table 1 and TO 8.  
KA 073000K301 [3.6/4.2]

ANSWER: 077 (1.00)  
a.

REFERENCE:  
OPS-52201I, Table 2 and TO 24.  
KA 103000K102 [3.9/4.1]

ANSWER: 078 (1.00)

c.

REFERENCE:

OPS-40301K/52101K, pg 5 and TO 5.  
KA 005000K407 [3.2/3.5]

ANSWER: 079 (1.00)

c.

REFERENCE:

OPS40301K/52101K, pg 10 and TO 14.  
KA 005000A102 [3.3/3.4]

ANSWER: 080 (1.00)

b.

REFERENCE:

OPS-52201G, pgs 10 & 11 and TO 16.i. and TO 17.e.  
KA 041020A408 [3.0/3.1]

ANSWER: 081 (1.00)

d.

REFERENCE:

OPS-52102F, pg 12 and TO 6.  
KA 076000K116 [3.6/3.8]

ANSWER: 082 (1.00)

d.

REFERENCE:

FNP-0-AP-4, pg 2, para 3.7  
KA 194001A101 [3.3/3.4]

ANSWER: 083 (1.00)

b.

REFERENCE:

FNP-0-AP-3, pg 18, para 6.0.  
KA 194001A103 [2.5/3.4]

ANSWER: 084 (1.00)

d.

REFERENCE:

FNP-0-AP-1, pgs 13 & 14, para 7.1.  
KA 194001A101 [3.3/3.4]

ANSWER: 085 (1.00)

a.

REFERENCE:

OPS-52102F, pg 10 and TO 22.  
KA 194001K111 [3.4/3.5]

ANSWER: 086 (1.00)

c.

REFERENCE:

FNP-0-EIP-9, Guideline 1, pgs 5 & 6, Guideline 4, pgs 5 & 6.  
KA 194001A116 [3.1/4.4]

ANSWER: 087 (1.00)

c.

REFERENCE:

FNP-0-EIP-2.0, pg 1, para 3.1.2.  
KA 194001A116 [3.1/4.4]

ANSWER: 088 (1.00)

a.

REFERENCE:

FNP-0-M-001, pgs 3 & 4, para 4.1.3.  
KA 194001K103 [2.8/3.4]

ANSWER: 089 (1.00)

b.

REFERENCE:

FNP-0-M-001, pg 10, para 6.3.2.  
KA 194001K104 [3.3/3.5]

ANSWER: 090 (1.00)

b.

REFERENCE:

FNP-0-AP-14, pg 25, para 12.0.  
KA 194001K108 [3.5/3.4]

ANSWER: 091 (1.00)

c.

REFERENCE:

FNP-0-A<sup>2</sup>-37, pg 2, para 4.2.  
KA 194001K116 [3.5/4.2]

ANSWER: 092 (1.00)

a.

REFERENCE:

FNP-0-AP-16, pg 28, para 4.18.  
KA 194001A103 [2.5/3.4]

ANSWER: 093 (1.00)

a.

REFERENCE:

FNP-0-AP-16, pg 29, para 4.21.2.3.  
KA 194001K101 [3.6/3.7]

ANSWER: 094 (1.00)

a.

REFERENCE:

FNP-0-AP-16, pg 24, para 4.5.5.  
KA 194001A103 [2.5/3.4]

ANSWER: 095 (1.00)

c.

REFERENCE:

FNP-0-AP-16, pg 33, para 6.  
KA 194001A1C6 [3.4/3.4]

ANSWER: 096 (1.00)

a.

REFERENCE:

FNP-0-AP-16, pg 39, para 9.0.  
KA 194001A109 [2.7/3.9]

ANSWER: 097 (1.00)

a.

REFERENCE:

KA 002000K104 [2.8/3.2]

ANSWER: 098 (1.00)

d.

REFERENCE:

EIP-9.2, page 1  
KA 194001A116 (3.1/4.4)

ANSWER: 099 (1.00)  
d.

REFERENCE:  
LER 95-05, VIO 95-13-01  
TS Table 4.4-4  
KA 194001A114 (2.5/4.9)  
194001A114 ..(KA's)

ANSWER: 100 (1.00)  
a.

REFERENCE:  
52102H, page 6, TO 5

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



## ANSWER KEY

MULTIPLE CHOICE			
001	d	023	a
002	d	024	c
003	b	025	b
004	b	026	d
005	b	027	b
006	d	028	d
007	b	029	d
008	c	030	b
009	a	031	a
010	d	032	c
011	a	033	d
012	c	034	a
013	b	035	b
014	c	036	b
015	d	037	a
016	a	038	c
017	c	039	c
018	b	040	d
019	d	041	d
020	c	042	a
021	b	043	b
022	d	044	b
		045	d

## ANSWER KEY

046	a	069	d
047	b	070	c
048	c	071	b
049	c	072	c
050	d	073	a
051	a	074	b
052	b	075	b
053	a	076	d
054	d	077	a
055	d	078	c
056	c	079	c
057	a	080	b
058	c	081	d
059	c	082	d
060	a	083	b
061	b	084	d
062	d	085	a
063	b	086	c
064	c	087	c
065	c	088	a
066	d	089	b
067	a	090	b
068	a	091	c

A N S W E R   K E Y

092   a  
093   a  
094   a  
095   c  
096   a  
097   a  
098   d  
099   d  
100   a

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

S R O Exam P W R Reactor  
Organized by Question Number

QUESTION	VALUE	REFERENCE
001	1.00	18864
002	1.00	23231
003	1.00	31441
004	1.00	34292
005	1.00	34298
006	1.00	34302
007	1.00	34303
008	1.00	34312
009	1.00	34313
010	1.00	34326
011	1.00	35872
012	1.00	37665
013	1.00	37685
014	1.00	38682
015	1.00	41145
016	1.00	9001854
017	1.00	9001855
018	1.00	9001856
019	1.00	9001857
020	1.00	9001858
021	1.00	9001859
022	1.00	9001860
023	1.00	9001861
024	1.00	9001862
025	1.00	9001863
026	1.00	9001864
027	1.00	9001866
028	1.00	9001869
029	1.00	9001870
030	1.00	9001871
031	1.00	9001872
032	1.00	9001873
033	1.00	9001874
034	1.00	9001875
035	1.00	9001878
036	1.00	9001882
037	1.00	9001884
038	1.00	9001887
039	1.00	9001890
040	1.00	9001894
041	1.00	9001895
042	1.00	9001898
043	1.00	9001899
044	1.00	9001900
045	1.00	9001901
046	1.00	9001902
047	1.00	9001903
048	1.00	9001904
049	1.00	9001905
050	1.00	9001906

S R O Exam P W R Reactor  
Organized by Question Number

QUESTION	VALUE	REFERENCE
051	1.00	9001907
052	1.00	9001908
053	1.00	9001910
054	1.00	9001911
055	1.00	9001912
056	1.00	9001913
057	1.00	9001914
058	1.00	9001916
059	1.00	9001917
060	1.00	9001918
061	1.00	9001919
062	1.00	9001920
063	1.00	9001921
064	1.00	9001923
065	1.00	9001924
066	1.00	9001925
067	1.00	9001926
068	1.00	9001927
069	1.00	9001928
070	1.00	9001929
071	1.00	9001930
072	1.00	9001931
073	1.00	9001932
074	1.00	9001934
075	1.00	9001935
076	1.00	9001936
077	1.00	9001937
078	1.00	9001938
079	1.00	9001939
080	1.00	9001940
081	1.00	9001941
082	1.00	9001943
083	1.00	9001945
084	1.00	9001946
085	1.00	9001947
086	1.00	9001948
087	1.00	9001949
088	1.00	9001950
089	1.00	9001951
090	1.00	9001953
091	1.00	9001954
092	1.00	9001956
093	1.00	9001957
094	1.00	9001958
095	1.00	9001959
096	1.00	9001960
097	1.00	9001961
098	1.00	9001964
099	1.00	9001965
100	1.00	9001966

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100.00

S R O Exam P W R Reactor  
Organized by K A Group

## PLANT WIDE GENERICS

QUESTION	VALUE	KA
084	1.00	194001A101
082	1.00	194001A101
083	1.00	194001A103
094	1.00	194001A103
092	1.00	194001A103
095	1.00	194001A106
096	1.00	194001A109
099	1.00	194001A114
086	1.00	194001A116
098	1.00	194001A116
087	1.00	194001A116
093	1.00	194001K101
088	1.00	194001K103
089	1.00	194001K104
090	1.00	194001K108
085	1.00	194001K111
091	1.00	194001K116
-----		
PWG Total	17.00	

## PLANT SYSTEMS

## Group I

QUESTION	VALUE	KA
044	1.00	001000A302
045	1.00	001050K401
046	1.00	003000G010
047	1.00	004000K202
048	1.00	004010A204
049	1.00	004010K614
050	1.00	013000K101
051	1.00	014000K501
052	1.00	015000A403
053	1.00	017020A201
054	1.00	022000G007
055	1.00	026000K201
056	1.00	059000A306
100	1.00	061000A104
057	1.00	061000G007
058	1.00	063000G004
059	1.00	068000K401
060	1.00	071000G007
061	1.00	072000A403
-----		
PS-I Total	19.00	

S R O Exam P W R Reactor  
O r g a n i z e d by K A Group

## PLANT SYSTEMS

## Group II

QUESTION	VALUE	KA
097	1.00	002000K104
062	1.00	002000K606
063	1.00	006050A401
064	1.00	011000K104
065	1.00	012000K501
066	1.00	016000K109
067	1.00	016000K403
068	1.00	027000G007
069	1.00	028000A203
071	1.00	034000A102
070	1.00	034000G009
072	1.00	035010A102
073	1.00	039000A401
074	1.00	062000A305
075	1.00	064000A307
076	1.00	073000K301
077	1.00	103000K102

-----  
PS-II Total 17.00

## Group III

QUESTION	VALUE	KA
079	1.00	005000A102
078	1.00	005000K407
080	1.00	041020A408
081	1.00	076000K116

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PS-III Total 4.00

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PS Total 40.00



S R O Exam P W R Reactor  
Organized by K A Group

## EMERGENCY PLANT EVOLUTIONS

## Group I

QUESTION	VALUE	KA
016	1.00	000001A205
017	1.00	000001G010
019	1.00	000003G010
018	1.00	000003K304
020	1.00	000005A104
021	1.00	000011K315
022	1.00	000015A121
023	1.00	000015K208
024	1.00	000024A202
025	1.00	000024G010
006	1.00	000026A201
026	1.00	000026G010
014	1.00	000029A114
027	1.00	000029K301
005	1.00	000040K304
028	1.00	000051K301
029	1.00	000055K302
030	1.00	000055K302
031	1.00	000057A220
032	1.00	000059G008
033	1.00	000067G001
007	1.00	000068A110
034	1.00	000068G012
035	1.00	000074A201

-----  
EPE-I Total 24.00

## Group II

QUESTION	VALUE	KA
008	1.00	000007A107
001	1.00	000007K301
013	1.00	000008K102
036	1.00	000009A211
003	1.00	000009K321
037	1.00	000022K302
012	1.00	000025A205
011	1.00	000027G003
038	1.00	000032G003
004	1.00	000033G004
010	1.00	000037A202
039	1.00	000038K306
009	1.00	000054K102
002	1.00	000058A203
040	1.00	000061A201
041	1.00	000065A206

-----  
EPE-II Total 16.00

S R O Exam P W R Reactor  
O r g a n i z e d b y K A G r o u p

## EMERGENCY PLANT EVOLUTIONS

## Group III

QUESTION	VALUE	KA
015	1.00	000028A210
042	1.00	000036G004
043	1.00	000056A214
	-----	
EPE-III Total	3.00	
	-----	
EPE Total	43.00	
	-----	
	-----	
Test Total	100.00	