U.S. NUCLEAR REGULATORY COMMISSION
REGION I

DOCKET/REPORT NO:	50-410/94-10 (OL)
LICENSEE:	Niagara Mohawk Power Corporation Syracuse, New York 13212
FACILITY:	Nine Mile Point Nuclear Station, Unit 2
DATES:	May 5 - 13, 1994
EXAMINERS:	D. Florek, Senior Operations Engineer R. Temps, Project Engineer J. Caruso, Operations Engineer (Examiner in Certification) M. Mitchell, Examiner (PNL)

CHIEF EXAMINER: Donald J. Florek — 6/6/94
Donald Florek, Senior Operations Engineer — Date
PWR & BWR Sections
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EXECUTIVE SUMMARY
EXAMINATION REPORT 50-410/94-10

Three examiners administered initial examinations to four senior reactor operator (SRO) applicants, five reactor operator (RO) applicants, and one senior reactor operator limited to fuel handling (LSRO) applicant during the period of May 5-13, 1994, at Nine Mile Point Unit 2.

<u>Operations</u>

Three of the SRO applicants, four of the RO applicants, and the LSRO applicant passed all portions of the examinations. One of the SRO applicants and one of the RO applicants did not pass the written examination. A substantial number of generic weaknesses were noted on the written examination. Electrical power restoration and recirculation seal failure diagnosis were weaknesses during the operating test. Generic strengths were noted on the operating tests in the areas of command and control, communication, and completion of the job performance measure tasks.

Two procedures were identified that caused some of the applicants some difficulty during implementation because of human factor considerations.

The new system lesson plans were generally of a higher quality and useful in the development of the examinations.

The ability to recognize entry conditions into the secondary containment emergency operating procedure (SC EOP) if annunciators become unavailable, definition of areas in secondary containment, and ability of the simulator to adequately verify implementation of the SC EOP warrant NMP-2 staff assessment. An unresolved item is being established to review the NMP-2 staff actions regarding the resolution in the definition of area and specific secondary containment entry condition values, the simulator fidelity issue, and the improvement of secondary containment Division 2 area-monitoring simulation in the simulator. (Unresolved Item 410/94-10-01).

DETAILS

1.0 INTRODUCTION

The NRC administered initial examinations to four senior reactor operator (SRO) applicants, five reactor operator (RO) applicants, and one senior reactor operator limited to fuel handling (LSRO) applicant. The examinations were administered in accordance with NUREG-1021, "Examiner Standards," Revision 7.

2.0 PREEXAMINATION ACTIVITIES

The facility performed a high quality written examination review in the Region I office from April 20-21, 1994. The facility comments enhanced the quality of the written examination and were incorporated into the examination. The simulator scenarios and job performance measures (JPMs) were validated during the period of May 5-7, 1994, on the facility's simulator and in the plant. The facility staff who were involved with these reviews signed security agreements to ensure that the initial examinations were not compromised.

3.0 EXAMINATION RESULTS AND CONCLUSIONS

3.1 Examination Results

The results of the examinations are summarized below:

	SRO Pass/Fail	RO Pass/Fail	LSRO Pass/Fail
Written	3/1	4/1	1/0
Operating	4/0	5/0	1/0
Overall	3/1	4/1	1/0

3.2 Facility Generic Strengths and Weaknesses

The following is a summary of the strengths and weaknesses noted during initial examination administration. This information is being provided to aid the NMP-2 staff in upgrading their training program.

<u>Written Examination</u>

The following items were missed by at least two of the SRO applicants, three of the RO applicants or three applicants for the common questions on both the SRO and RO written examination.

1. Suspension of activities during refueling conditions following loss of secondary containment. S-12

2. Reactor manual control system (RMSC) and reactor protection system (RPS) response during startup with failed LPRM inputs. S-13, R-13

3. Standby liquid control system response with a single failed storage tank level transmitter. S-20, R-20

4. RPS and scram air header response during a scram reset with the A-1 channel not clear. S-34, R-32

5. Rod worth minimizer (RWM) and rod sequence control system response to a withdraw error. S-35, R-40

6. Reactor water cleanup response during a plant startup with no operator actions taken. S-37, R42

7. Transversing incore probe response to a LOCA. S-46, R-58

8. Determination of the lowest ALARA exposure work activity. S-50

9. Post-maintenance testing requirements following maintenance. S-56

10. Technical specification requirements for failed suppression pool temperature monitoring instrumentation. S-71

11. Conditions that permit condenser vacuum bypass switch operation. S-88

12. Effect of loss of electrical panel 2BWS-PNL300A on nuclear instrumentation and RPS. S-89, R-84

13. Effect of loss of drywell cooling isolation valve on the drywell unit coolers. S-92, R-87

14. Using N2-EOP-6, determine containment water level and the status of fuel zone level instrumentation. S-97, R-93

15. Level at which injection is initiated during an ATWS while emergency depressurization is being performed. R-10

16. Automatic operation of the ADS valves. R-23, S-24

17. Response of the recirculation flow control system to a high drywell pressure condition. R-36

18. Residual heat removal system flowpath during shutdown cooling. R-43, S-38

19. Radiation monitor types and usage. R-50

20. Determination of committed effective dose equivalent following exposure at a derived airborne concentration level. R-60, S-49

21. Pressure control to be used when an injection source becomes available during steam cooling. R-81

22. Initiation of drywell spray irrespective of whether adequate core cooling is assured. R-92

23. Indication of a high radiation condition on the digital radiation monitoring system. R-94

24. Evacuation areas following a dropped irradiated fuel assembly. R-99

Operating Tests: Simulator Portion

Strengths:

The following items were noted as strengths in the performance of all or most of the applicants during the dynamic simulator scenarios:

- SRO applicant crew briefs were complete and concise, and command control was strong.

- All applicants effectively used acknowledgement and repeat-back during crew communications.

Weaknesses:

The following weaknesses were observed on at least two occasions during the scenarios administered:

- Applicants were not able to restore Division 2 following loss of the normal Division 2 supply with a failure of the Division 2 diesel generator load sequencer.

- Applicants did not identify that a recirculation pump seal failure was a cause for a high drywell pressure condition following a reactor scram.

Operating Tests: Walkthrough Portion

Strengths:

The following items were noted as strengths in the performance of all or most of the applicants on the walkthrough portion of the operating test:

- No job performances measures were failed by any applicant. All applicants were knowledgeable of the location of plant equipment and the performance of plant procedures.

Weaknesses:

No generic weaknesses were noted during the walkthrough portion of the operating test.

3.3 Procedures

During the examination, two procedures were identified that caused the applicants some difficulty during implementation. These are provided as feedback to the NMP-2 procedure development and training program.

- EOP-6, Attachment 15, Steps 3.1.2, 3.1.4, and 3.3.4, contained two actions in the step. Two applicants misread the steps and initially only performed one action of the step. The applicants self-identified later in the procedure that the second action needed to be taken.

- OP-31, Step 6.20.8, was performed differently by three applicants. One applicant opened the valve for six seconds; one applicant opened the valve in two, three-second increments; and one operator opened the valve in six 1-second increments.

During the examination process, one applicant identified that OP-36A contained a reference to an electrical interface, between the redundant reactivity control system and standby liquid control, that had been eliminated in a recent modification. The applicant correctly followed up this discrepancy with the examiner, and subsequently, with the SSS. An immediate procedure change was initiated.

3.4 Reference Material

The NMP-2 staff has prepared new system lesson plans since the last examination. The examiner noted that the new system lesson plans were generally of a higher quality and useful in the development of the examinations. The nonsystem lesson plans were not yet revised and were not as useful in the development of the examination.

The radiation monitor system lesson plan was the only system lesson plan from which the examiner had difficulty in developing examination material. The examiner also noted that the system description in the radiation monitor procedure also was not very useful in the development of the examination. The NMP-2 training representatives acknowledged the examiner findings and generally concurred in the assessment of the radiation monitoring training material.

4.0 SECONDARY CONTAINMENT EMERGENCY OPERATING PROCEDURE

The examiner noted three concerns related to the secondary containment emergency operating procedure (SC EOP): ability to recognize entry conditions into the SC EOP if the annunciators become unavailable; definition of areas in secondary containment based on the location of radiation, temperature and water level indications; and ability of the simulator to adequately verify implementation of the SC EOP.

The examiner noted that the secondary containment (SC) EOP lacked specific condition values for area radiation, area temperature, and floor drain sump water level. The entry conditions were, "Area radiation level alarm unexpectedly high," or "Area temperature above isolation setpoint," or "Floor drain sump water level high-high." If the alarm feature failed, there does not appear to be a backup, documented, human-factored method to be used by the operators to determine entry levels into the SC EOP. The examiner was not able to locate, and the facility could not provide, a listing of the parameters that required entry into the SC EOP. At other boiling water reactor (BWR) facilities, area radiation, area temperature, and water level entry condition values specified by building areas are typically contained in a table in the SC EOP. The examiner judged that this assures appropriate entry, should the alarms fail, and implementation of the emergency operating procedures.

Other items were noted by the examiner that did not appear to be human factored for assisting in the execution of the SC EOP. The examiner noted that the secondary containment area radiation monitoring data in the control room was not uniquely highlighted, but found on a DRM CRT screen, along with other process radiation monitors. The reactor building radiation monitor annunciator contained radiation monitor inputs not associated with secondary containment. In addition, secondary containment entry did not appear to be a highlighted area on the SPDS CRT.

The SC EOP directed actions when more than one area exceeded specified limits; however, no area was defined on the secondary containment emergency operating procedure. The SC

EOP had no method to track which area exceeded specified limits. The examiner reviewed the NMP-2 EOP basis document and found no additional clarification on this issue. The examiner noted that NMP-2 had recently initiated a change to define an area for temperature, but has no definition for water level or radiation areas. This improvement resulted from the lessons learned by NMP-2 during recent requalification EOP training, but was not yet fully implemented into the SC EOP. The NMP-2 EOP representative acknowledged the need for additional possible improvement in this area.

The NMP-2 simulator did not reasonably model a scram discharge volume leak into secondary containment, as described in Attachment 4. The examiner also noted that NMP-2 was assessing the ability of the simulator to perform all legs of the emergency operating procedures, including simulator models for primary system leaks in secondary containment and adding hardware to model secondary containment Division 2 area temperatures. The examiner concluded that the simulator may not yet be at the level needed to provide adequate training for implementing the SC EOP.

The examiner concluded that the ability to recognize entry conditions into the SC EOP if annunciators become unavailable, definition of areas in secondary containment, and ability of the simulator to adequately verify implementation of the SC EOP warrant NMP-2 staff assessment. An unresolved item is being established to review the NMP-2 staff actions regarding the resolution in the definition of area and specific secondary containment entry condition values, the simulator fidelity issue, and the improvement of secondary containment Division 2 area-monitoring simulation in the simulator. (Unresolved Item 410/94-10-01). The creation of an unresolved item to review the NMP-2 actions was not discussed at the exit. This determination was made in the Region I office during the preparation of the report. This was verbally discussed with the General Supervisor, Operations Training - Unit 2.

5.0 EXIT MEETING

An exit meeting was conducted on May 13, 1994. The NRC chief examiner informed the NMP-2 staff representatives of the excellent cooperation and support received from the entire station during the development and administration of the examination. The chief examiner identified preliminary generic strengths and weaknesses on the operating tests, and identified the procedural and simulator fidelity area for improvement as discussed above in Section 4.0.

The chief examiner identified that during the course of the examination week, the facility training representatives informed the chief examiner of an error in the answer key for common question SRO-40 and RO-35. The chief examiner acknowledged the error in the answer key and corrected the answer key. At the exit meeting, the NMP-2 representatives informed the chief examiner that no additional comments were required to the administered written examinations. It is rare that no facility comments are provided on the written examination, with apparent potential failures. This, in part, is attributable to the thoroughness of the Nine Mile Unit 2 staff review.

The key Niagara Mohawk attendees at the exit meeting are listed below:

D. Bosnic, General Supervisor Operations Unit 2
G. Bridges, Unit 2 Operations Training
J. Conway, Manager Operations Unit 2
C. Croasmun, Unit 2 Operations Training
M. McCormick, Vice President, Safety, Assessment and Support
J. Mueller, Plant Manager Unit 2
B. Murtha, General Supervisor, Operations Training - Unit 1
R. Slade, General Supervisor, Operations Training - Unit 2
H. Strahly, Unit 2 Operations Training
R. Tessier, Manager Nuclear Training

Attachments:
1. RO Examination and Answer Key
2. SRO Examination and Answer Key
3. LSRO Examination and Answer Key
4. Simulation Facility Report

U. S. NUCLEAR REGULATORY COMMISSION
SITE SPECIFIC EXAMINATION
REACTOR OPERATOR LICENSE
REGION 1

APPLICANT'S NAME: ____________________

FACILITY: Nine Mile Point 2

REACTOR TYPE: BWR-GE5

DATE ADMINISTERED: May 6, 1994

INSTRUCTIONS TO APPLICANT:

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	APPLICANT'S SCORE	FINAL GRADE
100.00	________	________

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

____

Applicant'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	____
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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. Ensure all information you wish to have evaluated as part of your answer is on your answer sheet. Scrap paper will be disposed of immediately following the examination.

11. To pass the examination, you must achieve a grade of 80% or greater.

12. There is a time limit of four (4) hours for completion of the examination.

13. 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)

WHICH statement below describes the automatic function that is bypassed when the Appendix "R" disconnect switches are placed in the "Actuate" position.

a. Emergency diesel generator automatic start.

b. RCIC steam inlet valve, MOV-120, high level closure.

c. Emergency diesel generator cooling water high temperature trip.

d. Automatic start of high pressure core spray.

QUESTION: 002 (1.00)

WHICH system below would be isolated after entering N2-EOP-SC, Secondary Containment Control.

a. Systems required to shutdown the reactor.

b. Systems required for adequate core cooling.

c. Fire Suppression systems.

d. Auxiliary cooling water systems.

QUESTION: 003 (1.00)

WHICH of the following describes the expected equipment response resulting from a high reactor vessel dome pressure (1050 psig) initiation signal, sensed by the redundant reactivity control system (RRCS)?

a. Immediately causes a recirculation pump trip (RPT) to zero speed.

b. Immediately initiates an alternate rod insertion (ARI).

c. Initiates standby liquid at 25 seconds, if power is NOT below the APRM downscale trip point.

d. Trips all main feedwater pumps at 25 seconds, if power is NOT below the APRM downscale trip point.

QUESTION: 004 (1.00)

In accordance with N2-OP-31, Residual Heat Removal System, WHICH statement below describes the basis for raising RPV water level to 227-243 inches following a loss of shutdown cooling.

a. To aid in establishing a natural circulation flowpath.

b. To increase NPSH of the reactor recirc. pumps to allow starting one of them.

c. To increase NPSH of the reactor water cleanup pump to allow a higher system flowrate.

d. To initiate alternate shutdown cooling by starting flow through the SRVs.

QUESTION: 005 (1.00)

Select the ONE statement below that correctly describes the normal suction supply to the CRD pumps.

a. Directly from the condensate storage tank.

b. Directly from the main condenser hotwell.

c. Condensate storage and transfer pump discharge.

d. Condensate demineralizer effluent line.

QUESTION: 006 (1.00)

The Refueling Bridge has been tagged for maintenance. Testing of the bridge is required prior to completion of the work. WHICH of the following tags should be applied for testing the Refueling Bridge?

a Reference Tags

b Yellow Hold Out Tags

c Blue Mark Up Tags

d Red Mark Up Tags

QUESTION: 007 (1.00)

During refueling operations, for the SRM instrumentation to provide a reactor scram, at least one (1) SRM channel:

a. in each trip system must exceed the high level trip set point with the shorting links installed.

b. in each trip system must exceed the high level trip set point with the shorting links removed.

c. must exceed the high level trip set point with the shorting links removed.

d. must exceed the high level trip set point with the shorting links installed.

QUESTION: 008 (1.00)

The plant is in startup with RPV pressure at 500 psig. A valid LOCA signal is generated on abnormally low reactor water level. The operator places the LPCS Injection Valve control switch in the close position.

Under which of the following conditions will the LPCS injection valve reopen?

a. The LPCI/LPCS pushbutton is armed and depressed.

b. A High Drywell pressure signal is received.

c. Reactor pressure decreases to the pressure permissive setpoint.

d. The LOCA signal clears, the initiation logic is reset, and a high drywell pressure occurs.

QUESTION: 009 (1.00)

A reactor scram has occurred and all control rods are **NOT** inserted.

WHICH one of the following methods for inserting control rods REQUIRES the scram signal to be reset?

a. Inserting a manual scram

b. Venting the overpiston area

c. Venting scram air header

d. De-energizing the scram solenoids

QUESTION: 010 (1.00)

During an ATWS, an Emergency Depressurization is conducted.

WHICH of the following describes when injection shall be initiated to restore and maintain RPV level?

a. When RPV level reaches top of active fuel.

b. When RPV level reaches the Minimum Zero Injection level.

c. When reactor power is less than 4%.

d. When reactor pressure is less than the Minimum Alternate RPV Flooding Pressure.

QUESTION: 011 (1.00)

Given the following:
Refueling in progress
Mode switch in REFUEL
Main hoist loaded with a fuel bundle
Refuel bridge is over the spent fuel pool

WHICH of the following conditions will generate a Rod Block?

a. A control rod is selected on P603.

b. The refuel bridge is moved over the core.

c. The Mode switch placed in STARTUP.

d. Fuel Grapple control is placed in the Raise or Lower position.

QUESTION: 012 (1.00)

Procedure N2-EOP-RPV "RPV Control" requires that the HPCS pump flow be controlled and maintained less than the vortex limit. WHICH of the following states the basis for this limit?

a. Loss of NPSH resulting in pump cavitation and pump damage.

b. Loss of NPSH resulting in pump runout and motor overheating.

c. Air entrainment resulting in pump damage .

d. ECCS injection delayed following a LOCA due to a lower discharge pressure.

QUESTION: 013 (1.00)

NMP-2 is operating at 11% rated power with the mode switch in STARTUP. The following is a status of the number of LPRM inputs and indicated reactor power for each APRM:

	APRM A	APRM B	APRM C	APRM D	APRM E	APRM F
D LPRMs	5	5	6	5	4	6
C LPRMs	5	2	4	4	6	4
B LPRMs	4	2	6	4	5	4
A LPRMs	6	4	4	4	6	4
INDICATED POWER	12%	11%	11%	10%	16%	13%

Based on the above status, WHAT signal/signals, if any, would be going to the reactor manual control system and RPS system?

a. No scram signal, no rod withdraw block signal.

b. No scram signal, rod withdrawal block signal.

c. Half-scram signal, rod withdrawal block signal.

d. Full-scram signal, rod withdrawal block signal.

QUESTION: 014 (1.00)

The reactor was just made critical and is on a stable period, but NOT yet in the heating range. One Division of IRM readings are as follows

IRM	READING	RANGE
A	30	3
C	20	3
E	35	2
G	10	3

The operator upranged IRM E to range 4 and downranged IRM G to range 2. WHAT alarms are active?

a. IRM E Downscale in alarm
IRM G Upscale in alarm
Division 1 Upscale/Inoperable Scram in alarm

b. IRM E Downscale in alarm
IRM G Upscale - NOT IN ALARM
Division 1 Upscale/Inoperable Scram - NOT IN ALARM

c. IRM E Upscale in alarm
IRM G Downscale in alarm
Division 1 Upscale/Inoperable Scram in alarm

d. IRM E Downscale - NOT IN ALARM
IRM G Upscale in alarm
Division 1 Upscale/Inoperable Scram in alarm

QUESTION: 015 (1.00)

The CRD system is in operation with the reactor operating at 50% power. The CRD flow controller is in automatic. The operator takes the Drive Water Pressure Control Throttle Valve (MOV PV101) switch to open for two seconds.

HOW will the parameters stabilize when the transient is over?

a. Drive water pressure will increase.
   Cooling water flow will remain the same.

b. Drive water pressure will increase.
   Cooling water flow will decrease.

c. Drive water pressure will decrease.
   Cooling water flow will remain the same.

d. Drive water pressure will decrease.
   Cooling water flow will increase.

QUESTION: 016 (1.00)

The following is the current full core display data for a control rod that was at position 48.

FULL IN:	Illuminated
FULL OUT:	NOT illuminated
DRIFT:	Illuminated
SELECTED:	NOT illuminated
ACCUM:	NOT illuminated
SCRAM:	NOT illuminated

WHICH one can explain the current data?

a. Rod is manually being driven to position 00 using continuous insert.

b. Both scram inlet and outlet valves have opened.

c. Scram outlet valve opened.

d. Scram inlet valve opened.

QUESTION: 017 (1.00)

The plant is approaching criticality with reactor water level being controlled by CRD and reject. If a level transient occurs with level lowering to 175 inches, WHICH of the following describes the response of the recirculation flow control valves and recirculation pumps?

a. Recirculation flow control valves stay as is.
   Recirculation pumps trip.

b. Recirculation flow control valves stay as is.
   Recirculation pumps continue running.

c. Recirculation flow control valves runback.
   Recirculation pumps trip.

d. Recirculation flow control valves runback.
   Recirculation pumps continue running.

QUESTION: 018 (1.00)

During refueling, the "A" and "B" RHS are lined us as follows:

"A" loop of RHS is being used for suppression pool cooling.

"B" loop RHS is being used for shutdown cooling.

If a valid Level 1 reactor water level condition occurs, WHICH of the following describes the response of the "A" and "B" RHS loops?

a. "A" loop realigns from suppression pool cooling mode to LPCI mode with the heat exchanger bypass valve closed.
"B" loop realigns from shutdown cooling to LPCI mode with the heat exchanger bypass valve closed.

b. "A" loop realigns from suppression pool cooling mode to LPCI mode with the heat exchanger bypass valve closed.
"B" pump trips and does NOT automatically restart.

c. "A" loop real realigns from suppression pool cooling mode to LPCI mode with the heat exchanger bypass valve open.
"B" pump trips and does NOT automatically restart.

d. "A" loop realigns from suppression pool cooling mode to LPCI mode with the heat exchanger bypass valve open.
"B" loop realigns from shutdown cooling to LPCI mode with the heat exchanger bypass valve open.

QUESTION: 019 (1.00)

The reactor is shutdown. Reactor pressure is at 0 psig. Reactor water level is being maintained at 183 inches on the narrow range level instruments. The high pressure core spray (CSH) is lined up from the suppression pool.

The operator arms and depresses CSH manual initiation. WHICH of the following actions, if any, will occur in the CSH system?

a. - CSH will NOT initiate due to adequate water level indication.

b. - Minimum flow valve *MOV105 opens and then shuts when adequate injection flow is established.
   - Injection valve *MOV107 opens.
   - CST suction valve *MOV101 opens.
   - Suppression pool suction valve *MOV118 closes.

c. - Minimum flow valve *MOV105 opens and remains open.
   - Injection valve *MOV107 remains shut.
   - Suppression pool suction valve *MOV118 remains open.

d. - Minimum flow valve *MOV105 opens and then shuts when adequate injection flow is established.
   - Injection valve *MOV107 opens.
   - Suppression pool suction valve *MOV118 remains open.

QUESTION: 020 (1.00)

HOW will the Standby Liquid Control (SLS) system pumps (P1A/P1B) and storage tank outlet valves *MOV1A/1B respond if SLS Storage Tank Level Transmitter 2SLS*LT6A fails low concurrent with a valid redundant reactivity control system (RRCS) initiation signal?

a. P1A starts
   P1B starts
   MOV1A opens
   MOV1B opens

b. P1A does NOT start
   P1B does NOT start
   MOV1A does NOT open
   MOV1B does NOT open

c. P1A does NOT start
   P1B starts
   MOV1A opens
   MOV1B opens

d. P1A does NOT start
   P1B starts
   MOV1A does NOT open
   MOV1B opens

QUESTION: 021 (1.00)

While at rated reactor pressure, a leak on the variable leg of the Upset Range level instrument has occurred. WHICH one of the following describes the effect of the leak on Upset, Narrow, and Shutdown level indication. (P&ID is provided for reference.)

a. - The Upset Range indicates lower than actual
   - All Narrow Range channels indicates normal level.
   - Shutdown Range indicates normal level.

b. - The Upset Range indicates lower than actual.
   - One Narrow Range channel indicates lower than normal.
   - Shutdown Range indicates lower than normal.

c. - The Upset Range indicates higher than actual.
   - One Narrow Range channel indicates higher than normal.
   - Shutdown Range indicates higher than normal level.

d. - The Upset Range indicates higher than actual
   - All Narrow Range channels indicates normal level.
   - Shutdown Range indicates normal level.

QUESTION: 022 (1.00)

While at rated power, during a remote-manual startup of RCIC (NOT Arm and Depress), an operator inadvertently opened injection valve *MOV126, RCIC Pump Discharge to the Reactor. The operator immediately recognized the mistake and then depressed the RCIC Manual Isolation pushbutton. WHICH of the following describe the effects of the operator actions on the main turbine and RCIC?

a. The main turbine tripped and RCIC isolated.

b. The main turbine tripped and RCIC continued to inject into the vessel.

c. The main turbine continued to operate and RCIC isolated.

d. The main turbine continued to operate and RCIC continued to inject into the vessel.

QUESTION: 023 (1.00)

Given the following for the past 110 seconds:

- Reactor vessel water level is between Level ~~3~~ 1 and the top of active fuel.
- RHS "B" and RHS "C" are the only low pressure ECCS systems operating.
- The ADS Initiation Inhibit switches for Channel A and B are in inhibit.

WHICH of the following actions will IMMEDIATELY actuate the ADS valves?

a. Arm and depress either Channel "A" or "B" manual ADS initiation push button.

b. Arm and depress only Channel "A" manual ADS initiation push button.

c. Arm and depress only Channel "B" manual ADS initiation push button.

d. Restore Channel "A" and "B" ADS Inhibit Initiation switch to normal.

QUESTION: 024 (1.00)

The hydrogen recombiner was manually placed in service following an accident in which hydrogen was generated inside the primary containment. WHICH of the following describes the hydrogen recombiner response, without operator intervention, as the hydrogen concentration is reduced from containment?

a. As hydrogen concentration is reduced, the recombiner system will energize the electric heaters to maintain temperature in the reaction chamber.

b. As hydrogen concentration is reduced, the recombiner system will throttle system flow to maintain temperature in the reaction chamber.

c. As hydrogen concentration is reduced, the recombiner system will throttle service water flow to maintain temperature in the reaction chamber.

d. As hydrogen concentration is reduced, the recombiner system will trip on low reaction chamber temperature.

QUESTION: 025 (1.00)

Regarding the primary containment isolation system, the operator armed and depressed three of the four manual channel isolation switches, MSIV & DRAIN V MANUAL ISOLATION. The operator did **NOT** depress Channel "D". WHICH of the following is the status of the Group 2 through 9 valves and MSIV's.

a. Group 2 through 9 Inboard Valves - open
   Group 2 through 9 Outboard Valves - closed
   Inboard MSIV's - open
   Outboard MSIV's - closed

b. Group 2 through 9 Inboard Valves - open
   Group 2 through 9 Outboard Valves - closed
   Inboard MSIV's - closed
   Outboard MSIV's - closed

c. Group 2 through 9 Inboard Valves - closed
   Group 2 through 9 Outboard Valves - open
   Inboard MSIV's - closed
   Outboard MSIV's - closed

d. Group 2 through 9 Inboard Valves - closed
   Group 2 through 9 Outboard Valves - open
   Inboard MSIV's - closed
   Outboard MSIV's - open

QUESTION: 026 (1.00)

Power is lost to all of the "C" solenoids of the safety relief valves coincident with a successful scram that causes the MSIV's to close. WHICH of the following method(s) is(are) available for control of reactor pressure?

1. Automatic relief mode controlling at 1076 psig.
2. Automatic relief mode controlling at 1116 psig.
3. Operator manual control using the individual keylock SRV control switches located on panel 601.
4. Safety mode controlling at 1148 psig.

a. 1 and 2 and 3 and 4

b. Only 1 and 2 and 4

c. Only 3 and 4

d. Only 4

QUESTION: 027 (1.00)

Given the following initial conditions:

Reactor Power = 100%
Core Flow = 100%
Maximum combined flow pot = 115%
Load Limit Pot = 100%
Pressure Setpoint = 935 psig
Turbine Throttle Pressure = 965 psig

The load limit pot fails to a 0 output signal. WHICH of the following describes the control valve and bypass valve response. An EHC drawing is provided in Figure 2.

a. Control valves close.
Bypass valves open fully.

b. Control valves remain as is.
Bypass valves open fully.

c. Control valves remain as is.
Bypass valves remain as is.

d. Control valves close.
Bypass valves remain as is.

QUESTION: 028 (1.00)

The Rx operating at 7% power with Feed Water Control (FWC) in single element control.

The low flow controller is in automatic using high pressure/low flow control valve LV-55A to control at 185 inches. The low flow controller input signal and the output signal on the LV-55A controller are equal.

Narrow range level instrument *PDT14A is selected for FWC level control.

Narrow range level instrument *PDT14B indicates downscale.

WHICH the following describes the reactor water level response to *PDT14A failing downscale, ASSUMING NO OPERATOR ACTIONS?

a. RPV water level will decrease, and the reactor will scram on low water level. HPCS and RCIC will inject to restore water level.

b. RPV water level will continually increase.

c. RPV water level will increase to Level 8. LV-55A will shift to manual and reactor water level will be controlled at Level 8.

d. RPV water level will increase to Level 8. LV-55A will shift to manual and reactor water level will be controlled at 185 inches.

QUESTION: 029 (1.00)

At 55% power, feedwater pumps "B" and "C" are both in service, equally sharing the load, with a total feedwater flow of 14,500 gpm. Feedwater pump "C" is to be removed from service and "A" is to be placed into service. Three condensate and three booster pumps are operating.

Following closure of flow control valve LV10C, WHICH of the following describes the condensate/feedwater transient? Assume LV10B is controlled by the feedwater level master controller in automatic.

a. Feedwater pump B is pumping 14,500 gpm to the reactor vessel.
   Feedwater pump C is pumping 0 gpm to the condenser.

b. Feedwater pump B is pumping 7,250 gpm to the reactor vessel and 1000 gpm to the condenser.
   Feedwater pump C is pumping 8,250 gpm to the condenser.

c. Feedwater pump B is pumping 7,250 gpm to the reactor vessel and 1000 gpm to the condenser.
   Feedwater pump C is pumping 0 gpm to the condenser.

d. Feedwater pump B is pumping 14,500 gpm to the reactor vessel
   Feedwater pump C is pumping 8,250 gpm to the condenser.

QUESTION: 030 (1.00)

The "A" train of Standby Gas Treatment System (GTS) is in operation with the reactor building ventilation isolated. The GTS is maintaining a -1/4 inch WG differential pressure in the reactor building when the fan recirculation pressure control valve (PV5A) closes. WHICH of the following describes the effect on total GTS exhaust flow and reactor building differential pressure.

a. Total GTS exhaust flow will decrease, reactor building differential pressure will be less negative.

b. Total GTS exhaust flow will decrease, reactor building differential pressure will be more negative.

c. Total GTS exhaust flow will increase, reactor building differential pressure will be less negative.

d. Total GTS exhaust flow will increase, reactor building differential pressure will be more negative.

QUESTION: 031 (1.00)

The Division 1 standby diesel generator is operating in the test mode, synchronized and paralleled to the offsite power grid. A LOCA signal is received. WHICH of the following describes the Division 1 status?

a. Offsite feeder breaker remains closed.
   Diesel generator output breaker opens.
   Diesel remains running.
   Only emergency diesel trips are in effect.

b. Offsite feeder breaker opens.
   Diesel generator output breaker remains closed.
   Diesel remains running.
   Only emergency diesel trips are in effect.

c. Offsite feeder breaker opens.
   Diesel generator output breaker remains closed.
   Diesel remains running.
   Non emergency diesel trips are still in effect.

d. Offsite feeder breaker remains closed.
   Diesel generator output breaker opens.
   Diesel remains running.
   Non emergency diesel trips are still in effect.

QUESTION: 032 (1.00)

A reactor scram has occurred due to low reactor water level. All scram signals are cleared or bypassed except the channel A1 low reactor water level. The operator attempts to reset the scram by turning the four reactor scram reset logic switches (S55A though D). WHICH of the following describes the RPS response?

a. RPS Channel A does NOT reset.
RPS Channel B resets.
The scram air header repressurizes.

b. RPS Channel A does NOT reset.
RPS Channel B resets.
The scram air header does NOT repressurize.

c. RPS Channel A does NOT reset.
RPS Channel B does NOT reset.
The scram air header does NOT repressurize.

d. RPS Channel A resets.
RPS Channel B resets.
The scram air header repressurizes.

QUESTION: 033 (1.00)

The reactor mode switch is in STARTUP. WHICH of the following will DIRECTLY generate a reactor scram?

a. Turbine stop valves 1, 2, and 3 go closed.

b. All MSIVs go closed.

c. IRM "E" and "G" NOT in Operate.

d. APRM "A" and "B" NOT in Operate.

QUESTION: 034 (1.00)

The scram accumulator for control rod 19-18 indicates 0 psig. Reactor pressure is 800 psig. If a scram signal is generated, WHICH of the following describes the scram capability for control rod 19-18?

a. Rod will scram with slower than normal scram times.

b. Rod will scram with normal scram times.

c. Rod will partially insert.

d. Rod will NOT scram.

QUESTION: 035 (1.00)

The CRD flow control valve is controlling flow at 63 gpm. During an insert control rod motion, WHICH of the following describe the system flows established to insert the control rod?

a. Flow through insert direction control valves 4 gpm
Flow through stabilizing valve station 2 gpm
Flow through pressure control valve station 57 gpm

b. Flow through insert direction control valves 6 gpm
Flow through stabilizing valve station 0 gpm
Flow through pressure control valve station 57 gpm

c. Flow through insert direction control valves 2 gpm
Flow through stabilizing valve station 4 gpm
Flow through pressure control valve station 57 gpm

d. Flow through insert direction control valves 4 gpm
Flow through stabilizing valve station 6 gpm
Flow through pressure control valve station 53 gpm

QUESTION: 036 (1.00)

While at 100% power, recirculation flow control system hydraulic power units (HPU) "A" and "B" are both OPERATIONAL on subloop 1 with subloop 2 in a READY status. A high drywell pressure scram signal is generated. WHICH of the following describes the hydraulic power unit response and actuator motion?

a. HPU "A" and "B" remain OPERATIONAL on subloop 1.
   Actuator motion is NOT inhibited.

b. HPU "A" and "B" transfer OPERATIONAL to subloop 2.
   Actuator motion is NOT inhibited.

c. HPU "A" and "B" remain OPERATIONAL on subloop 1.
   Actuator motion is inhibited.

d. All subloops transfer to a MAINTENANCE status.
   Actuator motion is inhibited.

QUESTION: 037 (1.00)

Given the following control room data:

Recirculation pump "A" is off
Recirculation pump "B" is on
Loop A jet pump flow indicates 10 Mlb/hr
Loop B jet pump flow indicates 50 Mlb/hr

WHICH of the following is the total core flow display on the Core Pressure Drop/Total Core Flow recorder in panel 603 in the control room?

a. 10 Mlb/hr

b. 40 Mlb/hr

c. 50 Mlb/hr

d. 60 Mlb/hr

QUESTION: 038 (1.00)

The plant is connected to the grid at 20% power when the operating EHC pump trips and the backup pump will NOT start. WHICH of the following is the response of the turbine control and bypass valves?

a. Control valves will close.
   Turbine bypass valves will operate until ETS fluid pressure is lost.

b. Control valves will close.
   Turbine bypass valves will operate until FAS fluid pressure at the bypass valves is lost.

c. Control valves will close.
   Turbine bypass valves will NOT operate.

d. Control valves will fail as is.
   Turbine bypass valves will NOT operate.

QUESTION: 039 (1.00)

Feedwater pumps "A" and "B" are operating in three element control with the reactor at 100% power. The feedwater control system feed flow signal (2FWS-FT1A) fails downscale. WHICH of the following describe the response of the high pressure-high flow control valves (LV10A and LV10B) and the "A" feedwater pump automatic recirculation valve (FV2A).

a. LV10A opens
   LV10B remains as is
   FV2A remains as is

b. LV10A opens
   LV10B opens
   FV2A opens

c. LV10A remains as is
   LV10B opens
   FV2A opens

d. LV10A opens
   LV10B opens
   FV2A remains as is

QUESTION: 040 (1.00)

During a reactor startup, the reactor power is below the Low Power Setpoint of the Rod Worth Minimizer. The insert/withdraw limits for a group of four control rods is 00-12. The operator is withdrawing the last rod of the group and the rod position for the selected rod settles on notch position 14. Assuming no operator action is taken, WHICH, if any, of the following rod blocks will be active?

a. No rod block.

b. RWM withdraw block only.

c. RSCS withdraw rod block only.

d. RSCS and RWM withdraw rod block.

QUESTION: 041 (1.00)

The recirculation pump seals are operating initially with the following conditions.

- No. 1 seal cavity pressure 1032 psig
- No. 2 seal cavity pressure 516 psig

Using the attached Figure 3 "Recirculation Pump Seals," WHICH one of the following describes the cause if:

- No. 1 seal cavity pressure 1032 psig
- No. 2 seal cavity pressure 0 psig
- FS "A" alarms low

a. Failure of No. 1 seal.

b. Failure of No. 2 seal.

c. Plugging of restricting orifice 1.

d. Plugging of restricting orifice 2.

QUESTION: 042 (1.00)

During a reactor startup with reactor pressure at 10 psig, reactor water cleanup (WCS) reject flow valve (FV-135) has been set up for 170 gpm to the main condenser. As reactor pressure and power are increased, WHICH of the following describe how reject flow and NRHX outlet temperature will change? ASSUME no operator actions and reactor building closed loop cooling (CCP) inlet temperature and flow remain constant.

a. Reject flow increases.
NRHX outlet temperature increases.

c. Reject flow increases.
NRHX outlet temperature remains the same.

c. Reject flow remain the same.
NRHX outlet temperature increases.

d. Reject flow remain the same.
NRHX outlet temperature remains the same.

QUESTION: 043 (1.00)

WHICH of the following describes an acceptable flow path for the shutdown cooling mode of RHS? Assume all recirculation pump suction valves are open.

a. Suction from recirc loop "A" pump suction piping.
RHS pump "B" through "B" RHS heat exchanger.
Injection into recirc loop "B" pump discharge piping.
"A" recirc pump discharge valve closed.
"B" recirc pump discharge valve open.

b. Suction from recirc loop "A" pump suction piping.
RHS pump "B" through "B" RHS heat exchanger.
Injection into recirc loop "B" pump discharge piping.
"A" recirc pump discharge valve open.
"B" recirc pump discharge valve closed.

c. Suction from recirc loop "B" pump suction piping.
RHS pump "B" through "B" RHS heat exchanger.
Injection into recirc loop "B" pump discharge piping.
"A" recirc pump discharge valve open.
"B" recirc pump discharge valve closed.

d. Suction from recirc loop "A" pump suction piping.
RHS pump "A" through "A" RHS heat exchanger.
Injection into recirc loop "A" pump discharge piping.
"A" recirc pump discharge valve open.
"B" recirc pump discharge valve closed.

QUESTION: 044 (1.00)

Given the following plant conditions:

Reactor Power 38%
Center rod selected
Two LPRM's associated with the "A" RBM failed downscale

Which one of the following describes the minimum LPRM failure combinations that will result in a Channel "A" RBM rod block?

a. 2 "A" level and 1 "C" level LPRMs fail downscale.

b. 1 "A" level and 1 "C" level LPRMs fail downscale.

c. 2 "B" level and 1 "D" level LPRMs fail downscale.

d. 1 "B" level and 1 "D" level LPRMs fail downscale.

QUESTION: 045 (1.00)

WHICH one of the following describes the control building special filter train response to a Division 1 LOCA signal?

a. The control building special filters will NOT respond until high radiation is detected in the control building air supply duct.

b. Only special filter train 2HVC*FN2A starts and special filter bypass valve 2HCV*MOV1A isolates.

c. Special filter trains 2HVC*FN2A and 2HVC*FN2B start and special filter bypass valves 2HCV*MOV1A and 2HCV*MOV1B isolate.

d. Only special filter train 2HVC*FN2B starts and special filter bypass valve 2HCV*MOV1B isolates.

QUESTION: 046 (1.00)

The halon system inadvertently discharged into the main control room. WHICH of the following describes the effect of this inadvertent discharge?

a. The halon was discharged into the main control room subfloor area. No immediate personnel safety concern, however unnecessary personnel should be asked to leave the control room.

b. The halon was discharged into the main control room subfloor area. All personnel should immediately evacuate the control room when wintergreen scent is detected.

c. The halon was discharged into the main control room habitable space. No immediate personnel safety concern, however unnecessary personnel should be asked to leave the control room.

d. The halon was discharged into the main control room habitable space. All personnel should immediately evacuate the control room when wintergreen scent is detected.

QUESTION: 047 (1.00)

Offgas vacuum pump P1A is in service and P1B is tagged out of service for maintenance. Vacuum pump P1A trips on motor overload. WHICH of the following describes the effect of the trip of the vacuum pump?

a. Service air system (SAS) system supply to the offgas vacuum pumps will increase flow to maintain total offgas system flow.

b. Offgas system outlet valve AOV-103 will auto close 30 seconds after the pump trip with no flow indication from vacuum pump P1B. Main condenser vacuum will start to degrade.

c. Offgas system flow to the main stack will cease. Main condenser vacuum will start to degrade.

d. Freeze out dryer d/p will increase which will initiate a defrost cycle on the operating freezer out dryer.

QUESTION: 048 (1.00)

During operation at 100% power, the over voltage protection circuit actuates on the Division I safety related battery charger, 2BYS*CHGR2A1.

WHICH of the following describes the effect this would have on the Division I safety related 125 VDC bus.

a. The safety related battery charger, 2BYS*CHGR2A1, output breaker will trip and alternate battery charger, 2BYS*CHGR2A2, will automatically assume the load and maintain Division 1 battery loads.

b. The 600 VAC power supply to safety related battery charger, 2BYS*CHGR2A1, will trip and the battery output breaker will trip. Division 1 battery loads will be deenergized.

c. The 600 VAC power supply to safety related battery charger, 2BYS*CHGR2A1 will automatically transfer to the alternate battery charger, 2BYS*CHGR2A2, and maintain Division 1 battery loads.

d. The 600 VAC power supply to safety related battery charger, 2BYS*CHGR2A1 will trip and the battery will supply Division 1 loads.

QUESTION: 049 (1.00)

Uninterruptible Power Supply, UPS 1A, is in service with the transfer switch selected to AUTO RESTART. A step change in current flow on the load center feeder line is sensed. WHICH one of the following describes the response of UPS 1A?

a. UPS will transfer to maintenance power. When the transient is over and output is stable, the load will transfer back to the inverter.

b. UPS will transfer to battery power. When the transient is over and output is stable, the load will transfer back to the inverter.

c. UPS will transfer to maintenance power. When the transient is over and output is stable, or 40 seconds have elapsed, "UPS ON MAINTENANCE SUPPLY" annunciator will alarm. Manual transfer to the inverter will be required.

d. UPS will transfer to battery power. When the transient is over and output is stable, or 40 seconds have elapsed, "UPS ON BATTERY" annunciator will alarm. Manual transfer to the inverter will be required.

QUESTION: 050 (1.00)

WHICH one of the following correctly matches the radiation monitor type with the monitored area or process?

a. The standby gas treatment system (GTS) discharge is monitored by an offline gaseous and particulate monitor.

b. The service water to the RHS heat exchanger is monitored by an online liquid monitor.

c. The main stack exhaust is monitored by an online isotopic effluent monitor.

d. During normal operation, drywell atmosphere is monitored by a continuous airborne monitor.

QUESTION: 051 (1.00)

Following a LOCA signal WHICH of the following is an acceptable electrical line up for 4.16Kv bus 2ENS*SWG101? Refer to Attachment 4 "Emergency AC Distribution".

a. Breaker 16-2 Closed
   Breaker 18-2 Closed
   Breaker 101-13 Open
   Breaker 101-10 Open
   Breaker 101-11 Closed
   Breaker 101-1 Open

b. Breaker 16-2 Open
   Breaker 18-2 Open
   Breaker 101-13 Open
   Breaker 101-10 Open
   Breaker 101-11 Closed
   Breaker 101-1 Closed

c. Breaker 16-2 Open
   Breaker 18-2 Closed
   Breaker 101-13 Open
   Breaker 101-10 Closed
   Breaker 101-11 Closed
   Breaker 101-1 Open

d. Breaker 16-2 Closed
   Breaker 18-2 Closed
   Breaker 101-13 Closed
   Breaker 101-10 Open
   Breaker 101-11 Open
   Breaker 101-1 Open

QUESTION: 052 (1.00)

The reactor building ventilation system is in service. WHICH statement correctly describes how differential pressure will be maintained in the Reactor Building, WITHOUT operator action, during an event in which a TIP probe becomes partially exposed from its shield container? No airborne radiation exists. TIP room radiation levels are indicating 200 R/hr.

a - 0.25 inches water gauge by the Standby Gas Treatment System.

b + 0.25 inches water gauge by the Standby Gas Treatment System.

c + 0.3 inches water gauge by the Reactor Building Ventilation System.

d - 0.3 inches water gauge by the Reactor Building Ventilation System.

QUESTION: 053 (1.00)

The plant has scrammed due to high drywell pressure. The "A" RHS pump is aligned for suppression pool spray and drywell spray. LPCI injection valve, MOV24A, has NOT been overridden.

WHICH of the following describes the automatic response of the "A" RHS system when reactor pressure drops to 300 psig and drywell and suppression pools sprays have reduced drywell pressure to less than the scram setpoint.

a. - Suppression pool spray valve MOV33A CLOSES.
- Drywell spray valves MOV15A and MOV25A CLOSE.
- LPCI injection valve MOV24A OPENS.

b. - Suppression pool spray valve MOV33A CLOSES.
- Drywell spray valves MOV15A and MOV25A remain OPEN
- LPCI injection valve MOV24A OPENS.

c. - Suppression pool spray valve MOV33A remains OPEN.
- Drywell spray valves MOV15A and MOV25A remain OPEN
- LPCI injection valve MOV24A remains CLOSED.

d. - Suppression pool spray valve MOV33A CLOSES.
- Drywell spray valves MOV15A and MOV25A remains OPEN.
- LPCI injection valve MOV24A remains CLOSED.

QUESTION: 054 (1.00)

The reactor is operating at 95% power with a 1/2 scram on the "A" RPS due to inoperable APRMs. The operator depresses the TRIP TEST pushbutton for Inboard MSIV 6B, observes dual position indication for MSIV 6B and then releases the pushbutton. WHICH of the following describes the plant response?

a. MSIV 6B goes full close in about 50 seconds and then reopens. Reactor scrams.

b. MSIV 6B stops going closed and then goes full open. Reactor scrams.

c. MSIV 6B goes full close in about 50 seconds and then reopens. Reactor does NOT scram.

d. MSIV 6B stops going closed and then goes full open. Reactor does NOT scram.

QUESTION: 055 (1.00)

The plant is operating with the following initial conditions:

- Reactor Power = 45%
- Generator Output = 45%
- Pressure Setpoint = 935 psig
- Load Limit = 100%
- Maximum Combined Flow = 115%

A complete loss of generator load occurs. WHICH of the following describes the effect on the power load unbalanced circuit of EHC and reactor scram? ASSUME no switchyard malfunctions.

a. Power load unbalanced circuit of EHC initiates a turbine trip.
Reactor scrams.

b. Power load unbalanced circuit of EHC initiates a turbine trip.
Reactor does NOT scram.

c. Power load unbalanced circuit of EHC does NOT initiate a turbine trip.
Reactor does NOT scram.

d. Power load unbalanced circuit of EHC does NOT initiate a turbine trip.
Reactor scrams.

QUESTION: 056 (1.00)

WHICH of the following describes the 4 rod display indication for a control rod that has its fully withdrawn reed switch in the stuck open position?

a. Dashes (--)

b. Double X (XX)

c. Solid red

d. Flashing Red

QUESTION: 057 (1.00)

The spent fuel pool cooling system is in service with the fuel pool gates installed. WHICH of the following describes the fuel pool level and cooling system response to a leak in the skimmer surge tank? ASSUME no operator actions and that the condensate transfer system is NOT available.

a. Fuel pool level will continue to decrease.
   Cooling capability will be lost.

b. Fuel pool level will continue to decrease.
   Cooling capability will be maintained.

c. Fuel pool level will be maintained.
   Cooling capability will be lost.

d. Fuel pool level will be maintained.
   Cooling capability will be maintained.

QUESTION: 058 (1.00)

A Transversing Incore Probe (TIP) was inserted in the core in the "Automatic Mode" when a DBA LOCA occurs coincident with loss of offsite power. WHICH of the following describes the isolation capability of the TIP?

a. Independent of diesel generator operation, the TIP will automatically withdraw to its shield chamber. Once inside the shield chamber the TIP ball valve closes.

b. When diesel generator power is available, the TIP will automatically withdraw to its shield chamber. Once inside the shield chamber the TIP ball valve closes.

c. When diesel generator power is available, the TIP must be manually withdrawn to its shield chamber. Once inside the shield chamber the TIP ball valve must be manually closed.

d. The TIP cannot be withdrawn. The TIP must be isolated by manually actuating the shear valve.

QUESTION: 059 (1.00)

During a reactor startup, main steam tunnel transfer fan (2HVT-FN11) switch was maintained in the Off position. WHAT effect will this have on plant operation as reactor power is increased? ASSUME no operator actions are taken.

a. Turbine building supply fans FN1A,B,C will trip on high turbine building positive differential pressure.

b. Damper MOD4A/B closes to reduce ventilation recirculation flow to maintain building differential pressure.

c. Additional turbine building unit coolers will autostart and all exhaust fans (2HVT-FN2A,B,C) will operate to maintain steam tunnel temperature.

d. Steam tunnel temperature will increase which may exceed the main steamline isolation temperature setpoint.

QUESTION: 060 (1.00)

An operator worked 10 hours in an area with an airborne contamination level for cesium-137 at the derived airborne concentration of 10 CFR 20. Upon exit of the area, it was determined that the respirator was defective and provided no protection. WHICH of the following is the maximum committed effective dose equivalent (CEDE) he should have received?

a. 5000 mrem

b. 250 mrem

c. 25 mrem

d. 5 mrem

QUESTION: 061 (1.00)

Given the following radiological data for a room:

Smear data is 300/dpm/100 cm squared of beta
General radiation level in the room is 125 mrem/hr

WHICH of the following describes the complete posting for the area?

a. - CAUTION HIGH RADIATION AREA

b. - CAUTION LOCKED HIGH RADIATION AREA
- CAUTION Contaminated Area

c. - CAUTION LOCKED HIGH RADIATION AREA

d. - CAUTION HIGH RADIATION AREA
- CAUTION Contaminated Area

QUESTION: 062 (1.00)

A non licensed operator has worked the following schedule which excludes shift turnover and non working lunches:

Mon	0700 - 1900
Tues	0700 - 1900
Wed	0700 - 1900
Thur	0700 - 1500
Fri	0700 - 2300

WHICH of the following describes the maximum hours, if any, permitted to work on Saturday and NOT violate the overtime guidelines of GAP-FFD-02, "Control of Working Hours"?

a. NOT permitted to work

b. 0700 - 1100

c. 0700 - 1500

d. 0700 - 1900

QUESTION: 063 (1.00)

WHICH of the following is NOT required when work is performed under a Hot Work Permit?

a. Fire watch established for the duration of the work and 30 minutes after completion of the work.

b. Immoveable combustibles are protected with flameproof blanket materials or shielded with fire resistant guards.

c. Fire extinguishers are available in the hot work area.

d. Automatic suppression systems (such as the wet pipe sprinkler) are in service.

QUESTION: 064 (1.00)

WHICH of the following would be considered a temporary modification?

a. Temporary installation of a fan to provide additional cooling to a motor that is running hot.

b. Temporary alteration to an out-of-service valve that will be restored before the equipment is returned to service.

c. Temporary hose connection to a system drain during maintenance.

d. Temporary catch containment installed under a valve during plant operations.

QUESTION: 065 (1.00)

During mode 2 operation, while the Assistant Station Shift Supervisor (ASSS) was touring the plant, the Station Shift Supervisor (SSS) left the control room for one minute to provide additional instructions to an I&C supervisor who was performing a high priority troubleshooting activity. WHICH of the following describes the SSS actions?

a. Actions did NOT violate technical specifications.
   Actions did NOT violate station administrative procedures.

b. Actions did NOT violate technical specifications.
   Actions violated station administrative procedures.

c. Actions violated technical specifications.
   Actions did NOT violate station administrative procedures.

d. Actions violated technical specifications.
   Actions violated station administrative procedures.

QUESTION: 066 (1.00)

WHICH of the following schedules do NOT assure maintenance of an active NRC operator license?

a. CSO position for 7 eight hour shifts in March.
   Reactor Building Upper position for 1 shift in March.

b. CSO position for 6 eight hour shifts in March
   CSO position for 6 eight hour shifts in April

c. ASSS position for 6 eight hour shifts in February
   SSS position for 6 eight hour shifts in March

d. NAOE position for 4 eight hour shifts in March
   CSO position for 4 eight hour shifts in March

QUESTION: 067 (1.00)

WHICH of the following describes the permitted actions for a circuit breaker trip and a thermal overload trip in a non-emergency situation?

a. Circuit breaker trip can be reset once.
Thermal Overload trip can be reset once.

b. Circuit breaker trip can be reset once.
Thermal Overload trip should NOT be reset.

c. Circuit breaker trip should NOT be reset.
Thermal Overload trip can be reset once.

d. Circuit breaker trip should NOT be reset.
Thermal Overload trip should NOT be reset.

QUESTION: 068 (1.00)

The cooling tower is operating at 40% load in the ice prevention mode. Outside ambient air temperature is 20 degrees. WHICH of the following describes the purpose of operating in the ice prevention mode?

a. Prevent ice formation on cooling tower legs.

b. Prevent the formation of icicle missle hazards on the top of the cooling tower.

c. Prevent ice accumulation that impedes cooling tower thermal performance.

d. Prevent frost heave of the cooling tower basin.

QUESTION: 069 (1.00)

WHICH statement below describes the requirement for removal and independent verification of a Blue Markup on a pump suction valve of the core spray system?

a. Only a licensed operator SHALL remove the markup and only a second licensed operator SHALL perform the independent verification.

b. Only a licensed operator SHALL remove the markup and either a qualified non-licensed operator or a second licensed operator CAN perform the independent verification.

c. Either a qualified non-licensed operator or a licensed operator CAN remove the markup and either a qualified non-licensed operator or a second licensed operator CAN perform the independent verification.

d. If a qualified non-licensed operator removed the markup, only a licensed operator SHALL perform the independent verification. If licensed operator removed the markup, either a qualified non-licensed operator or a second licensed operator CAN perform the independent verification.

QUESTION: 070 (1.00)

WHICH of the following describe the Emergency Classification(s) that require offsite emergency protective action recommendations?

a. Unusual Event, Alert, Site Area Emergency, and General Emergency

b. Alert, Site Area Emergency and General Emergency

c. Site Area Emergency and General Emergency

d. General Emergency

QUESTION: 071 (1.00)

WHICH of the following is the responsibility of the CSO upon indication of a fire in the turbine building of Unit 2?

a. Responds to the fire scene and establishes a command post.

b. Provides fire status reports from the fire scene to security.

c. Requests off-site fire fighting assistance upon request from the Nuclear Fire Chief.

d. Assesses local damage and recommends actions to the SSS regarding initiating reactor shutdown.

QUESTION: 072 (1.00)

The plant is operating at 100% power at 100% core flow when both recirculation pumps trip. ASSUMING no operator actions are taken and the plant does NOT automatically scram, WHICH of the following points on the attached operating map will the plant automatically stabilize?

a. F

b. H

c. L

d. W

QUESTION: 073 (1.00)

Following a reactor scram a plant cooldown has been commenced. Currently reactor pressure is 250 psig. WHICH of the following describes the actions to be taken if notching of level instruments associated with Channel A occurs? ASSUME notching is NOT observed on the other channels.

a. Reduce reactor cooldown rate to as low as practical until notching subsides.
   Use level instruments from the other channels as the most valid reactor water level indication.

b. Reduce reactor cooldown rate to as low as practical until notching subsides.
   Use the lowest indicated level from Channel A as the most valid reactor water level indication.

c. Maximize cooldown rate to the point when shutdown cooling is in service.
   Use level instruments from the other channels as the most valid reactor water level indication.

d. Maximize cooldown rate to the point when shutdown cooling is in service.
   Use the lowest indicated level from Channel A as the most valid reactor water level indication.

QUESTION: 074 (1.00)

While at 65% power, a reactor scram occurred when reactor water level reached 205 inches. If reactor pressure decreases while reactor water level is stabilized at 150 inches, WHICH of the following will automatically inject into the vessel?

a. Reactor feedpumps.

b. Condensate booster pumps.

c. Low pressure core spray.

d. Reactor core isolation cooling.

QUESTION: 075 (1.00)

The reactor mode switch is in RUN. Reactor power is 25%. All the MSIVs inadvertently shut and did NOT generate a reactor scram signal. WHICH of the following scram signals will generate a scram signal following this transient? Assume no operator action and the mode switch remains in RUN.

a. Intermediate Range Monitors Neutron Flux - High

b. Reactor Vessel Steam Dome Pressure - High

c. Average Power Range Monitor Neutron Flux - Upscale Setdown

d. Turbine Control Valve Fast Closure

QUESTION: 076 (1.00)

WHICH of the following conditions will allow use of a particular level instrument?

a. Drywell temperature is higher than the saturation temperature at the current reactor pressure AND the level instrument indicates below a specified band.

b. Drywell temperature is higher than the saturation temperature at the current reactor pressure AND the level instrument indicates above a minimum indicated level.

c. Drywell temperature is lower than the saturation temperature at the current reactor pressure AND the level instrument indicates above a minimum indicated level.

d. Drywell temperature is lower than the saturation temperature at the current reactor pressure AND the level instrument indicates below a specified band.

QUESTION: 077 (1.00)

WHICH of the following is projected to occur FIRST as primary containment pressure increases above the primary containment pressure limit?

a. Pressure capability of the primary containment fails.

b. Vent valves sized to reject all decay heat from the primary containment cannot be opened or closed.

c. SRVs cannot be opened and remain open.

d. RPV vent valves cannot be opened and closed.

QUESTION: 078 (1.00)

WHICH of the following control rod movements, during an approach to criticality, will result in the highest positive reactivity addition into the core?

a. Control rod moved from 04 to 08.

b. Control rod moved from 08 to 12.

c. Control rod moved from 12 to 16.

d. Control rod moved from 16 to 24.

QUESTION: 079 (1.00)

Refer to Figure 1 "Top View of the Core." In accordance with N2-EOP-6 Attachment 14, WHICH of the following are the first control rods to be manually inserted for a full core ATWS, in which all control rods are withdrawn?

a. 30-31, 26-35, 30-39, 34-35

b. 30-55, 10-35, 30-15, 46-31

c. 18-59, 22-59, 26-59, 30-59

d. 30-31, 30-35, 30-39, 30-43

QUESTION: 080 (1.00)

During a high drywell pressure condition, an operator sprays both the drywell and suppression chamber at the same time when drywell pressure and temperature are in the bad portion of the Drywell Spray Initiation Limit Curve. WHICH of the following describe the effect of the operator actions?

a. Because convective cooling in the drywell and convective cooling in the suppression chamber are occurring at the same time, no adverse effects will occur.

b. Because of the evaporative cooling in the drywell, the design differential pressure limit between the drywell and suppression chamber can be quickly exceeded.

c. Because of the convective cooling in the suppression chamber, the design differential pressure limit between the drywell and suppression chamber can be quickly exceeded.

d. Because of the evaporative cooling in the drywell and the convective cooling in the suppression chamber, the negative design pressure of containment can be exceeded.

QUESTION: 081 (1.00)

While implementing steam cooling (C3), RPV level is at -20 inches and slowly decreasing. WHICH method should used for pressure control after the high pressure core spray system (CSH) becomes available?

a. Maintain one SRV open at all times.

b. Manually open SRVs as necessary to maintain pressure control.

c. Allow SRVs to automatically operate in the relief mode.

d. Manually open 7 ADS valves.

QUESTION: 082 (1.00)

The plant is operating at 100% power when Stator Cooling water Pump 1A trips and Stator Cooling water Pump 1B failed to start. Generator cooling water conductivity is 0.2 umho/cm. WHICH of the following actions will be required or occur?

a. The operator must manually trip the turbine within 3.5 minutes.

b. The operator must manually runback generator load to less than 7,006 amperes in 3.5 minutes.

c. An automatic turbine runback will occur to reduce generator load to less than 7006 amperes in 3.5 minutes.

d. An automatic turbine runback will occur to reduce generator load to less than 7006 amperes in 3.5 minutes and then an automatic turbine trip will occur.

QUESTION: 083 (1.00)

The MSIV's and the inboard and outboard steam line drain valves have automatically isolated on a steam tunnel high temperature, which has cleared. Condenser vacuum is 8.0" Hg.

If the condenser vacuum remains at 8.0" Hg, WHICH of the following conditions will allow the inboard and outboard steam line drain valves to be opened?

a. Reactor Mode Switch in STARTUP.
   Turbine stop valves are closed.
   Reset Group 1 isolation signal

b. Condenser Vacuum Bypass Switches in the BYPASS position.
   Reactor Mode Switch in REFUEL.
   Turbine bypass valves are closed.
   Turbine control valves closed.
   Turbine stop valves open.
   Reset Group 1 isolation signal

c. Condenser Vacuum Bypass Switches in the BYPASS position.
   Reactor Mode Switch in SHUTDOWN.
   Turbine stop valves and bypass valves are closed.
   Reset Group 1 isolation signal

d. Condenser Vacuum Bypass Switches in the BYPASS position.
   Reactor Mode Switch in RUN.
   Turbine stop valves are closed.
   Reset Group 1 isolation signal

QUESTION: 084 (1.00)

The reactor mode switch is in STARTUP and the plant is critical to the point of adding heat. Annunciator "24/48VDC DISTRIBUTION PANEL 300A UNDERVOLTAGE" alarms in the control room. It is determined that panel 2BWS-PNL300A is lost. WHICH of the following describe the plant effects?

a. Loss of A and C SRMs
   Loss of A, C, E, and G IRMs
   No trip of RPS A

b. Loss of A and C SRMs
   Loss of A, C, E, and G IRMs
   Trip of RPS A

c. Loss of A and C SRMs
   Loss of A, C, E, and G IRMs
   Loss of A, C, E APRMs
   Trip of RPS A

d. Loss of A, C, E APRMs
   Trip of RPS A

QUESTION: 085 (1.00)

A complete loss of offsite power has occurred.
2ENS*SWG101 and 2ENS*SWG103 are **NOT** available.
Division III Diesel is running.

WHICH of the following describe immediate operator actions to be taken in accordance with SOP-3 "Loss of AC Power?"

a. Throttle service water flow to obtain at least 650 gpm to the diesel.
   Monitor diesel frequency, voltage and loading.

b. Depress Division III EMERGENCY STOP pushbutton.
   Enter N2-SOP-01 Station Blackout procedure.

c. Verify isolation of non essential service water.
   Throttle service water discharge valves to maintain service water flow less than 10,000 gpm.
   Monitor diesel frequency, voltage and loading.

d. Verify proper automatic response of service water system.
   Monitor diesel frequency, voltage and loading.

QUESTION: 086 (1.00)

The high pressure core spray (CSH) system was manually initiated when RPV water level was 120 inches following a reactor scram due to loss of all feedwater pumps. Assuming no other operator action and reactor pressure is maintained at 920 psig by the turbine bypass valves, WHAT long term water level band will be automatically maintained by the CSH system?

a. 108.8 - 202.3 inches

b. 120 - 202.3 inches

c. 17.8 - 202.3 inches

d. 17.8 - 108.8 inches

QUESTION: 087 (1.00)

While at 100% power all drywell unit coolers except UC3A are in service. Reactor building closed loop cooling (CCP) drywell cooling water isolation valve 2CCP*MOV122 inadvertently closes. WHICH of the following describe the response of the drywell unit coolers?

a. All drywell unit coolers will trip.

b. Drywell unit coolers UC1A-D will trip.
Drywell unit coolers UC2A-D will continue to operate.
Drywell unit cooler UC3B will continue to operate.

c. Drywell unit coolers UC1A-D will trip.
Drywell unit coolers UC2A-D will continue to operate.
Drywell unit cooler UC3B will trip.

d. Drywell unit coolers UC1A-D will continue to operate.
Drywell unit coolers UC2A-D will trip.
Drywell unit cooler UC3B will continue to operate.

QUESTION: 088 (1.00)

WHICH of the following is the largest cooling load on the turbine building closed loop cooling (CCS)?

a. Reactor feedpump lube oil cooler.

b. Turbine building equipment drain cooler.

c. Offgas condenser.

d. Electro-Hydraulic Control unit cooler.

QUESTION: 089 (1.00)

A high drywell pressure reactor scram has occurred. WHICH of the following describe the response of the instrument air or nitrogen supply to the Non-ADS SRVs and inboard MSIVs during the high drywell pressure condition?

a. Non-ADS SRVs - supply automatically isolates and cannot be reopened.
   Inboard MSIVs - supply automatically isolates and cannot be reopened.

b. Non-ADS SRVs - supply automatically isolates and can be reopened with operator action.
   Inboard MSIVs - supply automatically isolates and can be reopened with operator action.

c. Non-ADS SRVs - supply does NOT isolate.
   Inboard MSIVs - supply automatically isolates and can be reopened with operator action.

d. Non-ADS SRVs - supply does NOT isolate.
   Inboard MSIVs - supply does NOT isolate.

QUESTION: 090 (1.00)

While operating at 100% power, a 4 X normal radiation signal is sensed by the "B" main steamline radiation detector.

Which of the following correctly describes the expected automatic response of the main steam system to this event?

a. The B steam line inboard and outboard MSIV will close.

b. A Full Group 1 containment isolation signal will result.

c. A Half Group 1 containment isolation logic actuation will result.

d. One solenoid on each MSIV energizes, but no valve actuation will occur.

QUESTION: 091 (1.00)

The operating CRD pump has tripped due to low suction pressure. The standby pump will NOT start. For these conditions, the operator is directed in N2-OP-30 "Control Rod Drive," to isolate the RDS RPV Water Level Instrument Backfill System. WHICH of the following is the reason for isolating the backfill system?

a. To prevent CRD pump runout when restarting the CRD pump.

b. To prevent a feedwater pump trip on spurious low suction pressure signal.

c. To minimize the possibility of air getting into the backfill lines when starting a CRD pump.

d. To minimize the amount of fluid injected into the instrument reference leg when starting a CRD pump.

QUESTION: 092 (1.00)

WHICH of the following conditions will require initiation of drywell sprays irrespective of whether adequate core cooling is assured?

a. Drywell temperature is 250 degrees F.
Suppression pool water level is below 217 feet.
Drywell pressure and temperature are within the Drywell Spray Initiation Limit Curve.

b. Drywell temperature is 250 degrees F.
Suppression pool water level cannot be maintained below 217 feet.
Drywell pressure and temperature are NOT within the Drywell Spray Initiation Limit Curve.

c. Suppression pool hydrogen cannot be maintained below 6%.
Suppression pool oxygen cannot be maintained below 5%
Suppression pool water level is below 217 feet.
Drywell pressure and temperature are within the Drywell Spray Initiation Limit Curve.

d. Suppression chamber pressure cannot be maintained below the Primary Containment Pressure Limit.
Suppression pool water level cannot be maintained below 217 feet.
Drywell pressure and temperature are NOT within the Drywell Spray Initiation Limit Curve.

QUESTION: 093 (1.00)

Refer to Attachment 23 of N2-EOP-6 which is provided. Given the following data:

Containment Flooding is being performed by RHS Service Water Crosstie.
Lake Temperature is 55 degrees.
SUPPR CHAMBER PRESS on 2CMS*PI7A is 60.2 psig
PRIMARY CONTMT INLET N2 PRESS on 2CPS-PI127 is 31.4 psig

WHICH of the following describes containment water level and fuel zone level instrumentation?

a. Containment water level is between 293 and 294 feet.
   Fuel zone level instrumentation is NOT on scale.

b. Containment water level is between 290 and 291 feet.
   Fuel zone level instrumentation is NOT on scale.

c. Containment water level is between 290 and 291 feet.
   Fuel zone level instrumentation is on scale.

d. Containment water level is between 293 and 294 feet.
   Fuel zone level instrumentation is on scale.

QUESTION: 094 (1.00)

WHICH color code identification of the Digital Radiation Monitoring System (DRMS) monitor represents a high radiation condition?

a. Yellow

b. Red

c. White

d. Blue

QUESTION: 095 (1.00)

The reactor is operating at power. No primary systems are discharging into the reactor building. WHICH of the following conditions require initiation of an OP-101C shutdown in accordance with N2-EOP-SC with reactor building differential pressure at 0 inches of water?

a. A reactor building area radiation monitor reads 1,000 mrem/hr.

b. Three inches of water is reported in the RCIC room.

c. A RHS room and an adjacent room temperature are 140 degrees F.

d. Reactor building ventilation (HVR) isolates and HVR exhaust radiation is below the isolation setpoint.

QUESTION: 096 (1.00)

One SRV has inadvertently opened while at power. In accordance with N2-OP-34, if the relief valve cannot be closed within _______ minutes or the suppression pool temperature reaches _________ degrees F, place the mode switch to shutdown. WHICH of the following correctly completes the blanks?

a. 2 minutes 90 degrees F

b. 5 minutes 105 degrees F

c. 5 minutes 110 degrees F

d. 2 minutes 120 degrees F

QUESTION: 097 (1.00)

The offsite radiation release rate is above the Alert limit and the Turbine Building Ventilation has shutdown. WHICH of the following is the reason N2-EOP-RR, Radioactivity Release Control, directs that the Turbine Building Ventilation be restarted?

a. To maintain positive pressure in the Turbine Building.

b. To prevent unmonitored radiation release to the environment.

c. To provide a filtered release path to the environment.

d. To assure max safe temperature limits are NOT reached.

QUESTION: 098 (1.00)

Given the following data:

Suppression Pool Water Level 193 feet
Suppression Pool Temperature 230 degrees F
Suppression Chamber pressure 5 psig
HPCS flow 6000 gpm

The following references are provided:
EOP-6 Attachment 29 "Determining Suppression Chamber Overpressure"
Figure RPV-2 HPCS Pump NPSH Limit
Figure RPV-5 HPCS Pump Vortex Limit

WHICH of the following describe the status of HPCS vortex and NPSH limits?

a. Vortex limit is in the GOOD range.
NPSH limit is in the GOOD range.

b. Vortex limit is in the GOOD range.
NPSH limit is in the BAD range.

c. Vortex limit is in the BAD range.
NPSH limit is in the BAD range.

d. Vortex limit is in the BAD range.
NPSH limit is in the GOOD range.

QUESTION: 099 (1.00)

In accordance with N2-FHP-3, Refueling Manual,WHICH of the following areas need to be evacuated in the event of a dropped irradiated fuel assembly? Assume NO airborne radioactivity has been detected.

1. Refueling Bridge
2. Refuel floor
3. Drywell
4. Entire reactor building

a. 1 only

b. 1 and 2 only

c. 1 and 2 and 3

d. 4

QUESTION: 100 (1.00)

During a start of the reactor building normal ventilation system, the operator started supply fan 2HVR-FN1A and then one minute later placed the reactor building floor exhaust fan 2HVR-FN2A start switch in the START position. WHICH of the following describe the consequences of the operator actions?

a. Positive pressure was permitted in the reactor building. The supply fan had the potential to trip on high reactor building positive pressure.

b. Positive pressure was permitted in the reactor building. The exhanust fan had the potential to NOT start on the high reactor building positive pressure.

c. Negative pressure was maintained in the reactor building. The exhanust fan had the potential to NOT start on excessive reactor building negative pressure.

d. This is the expected method to place reactor building normal ventilation in service.

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

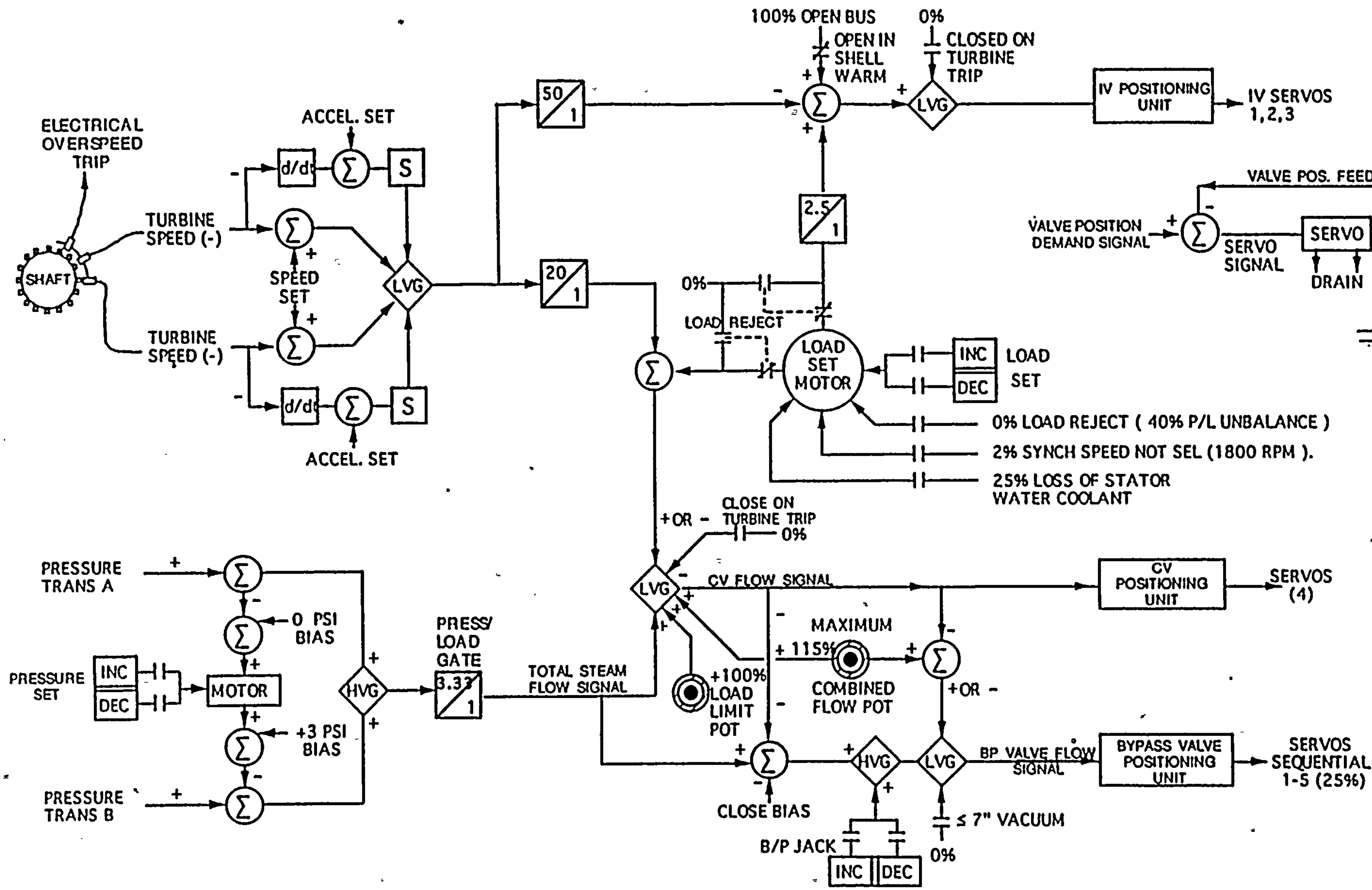


FIGURE 2

QUESTION 27

EHC Control Circuit

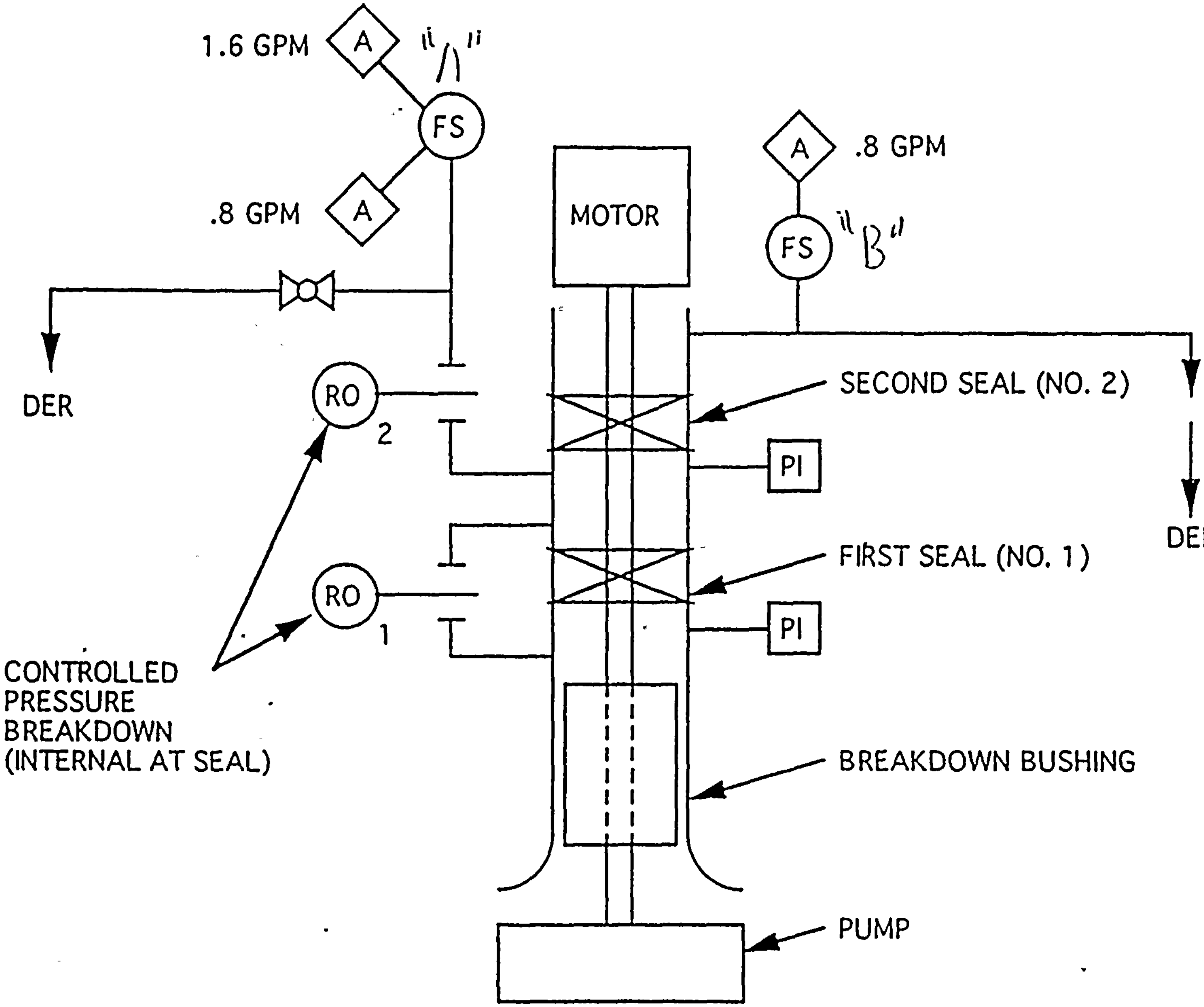


FIGURE 3
RECIRCULATION PUMP SEALS

QUESTION 41

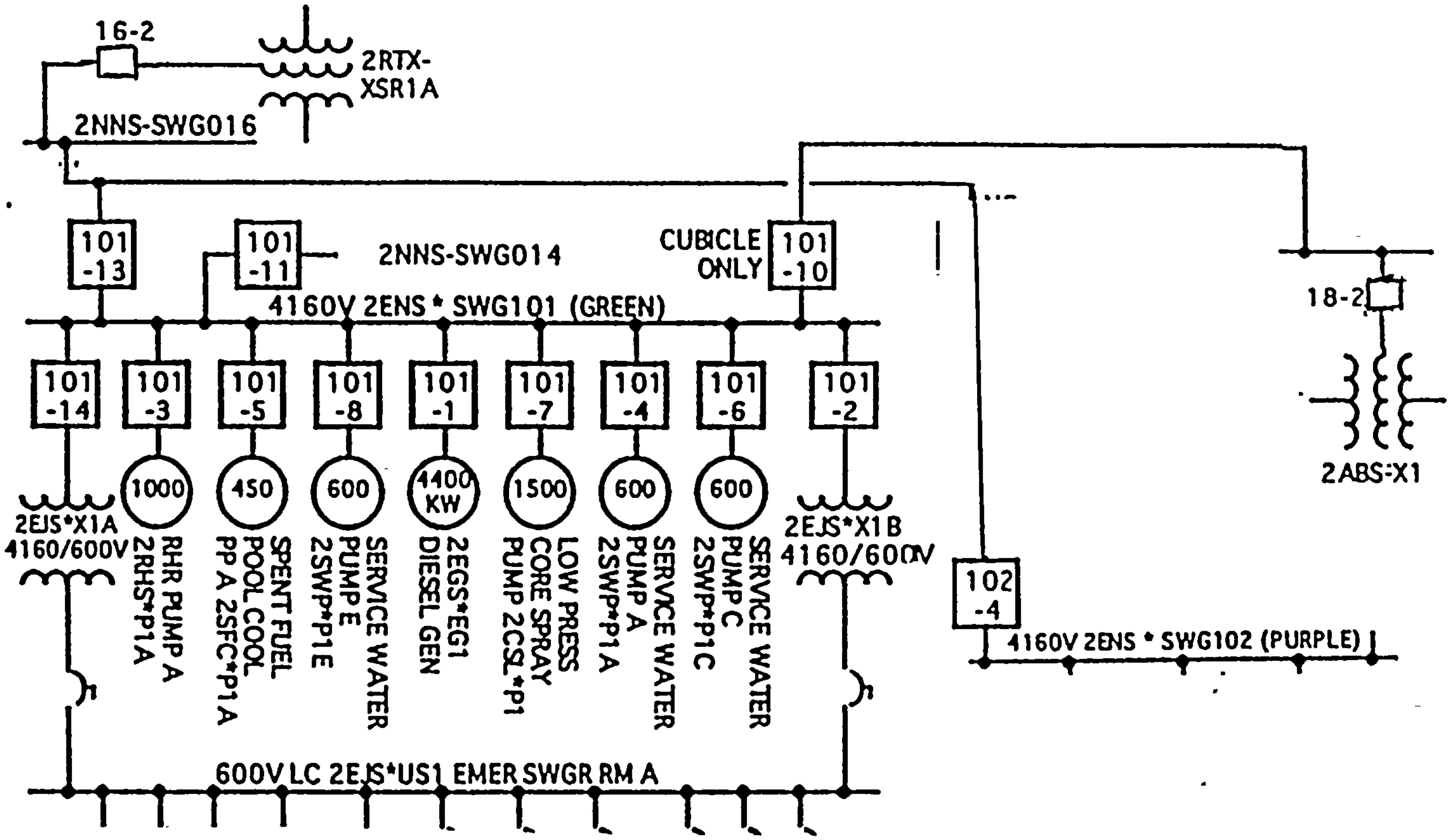


FIGURE 4

EMER AC DIST

QUESTION 51

QUESTION 72

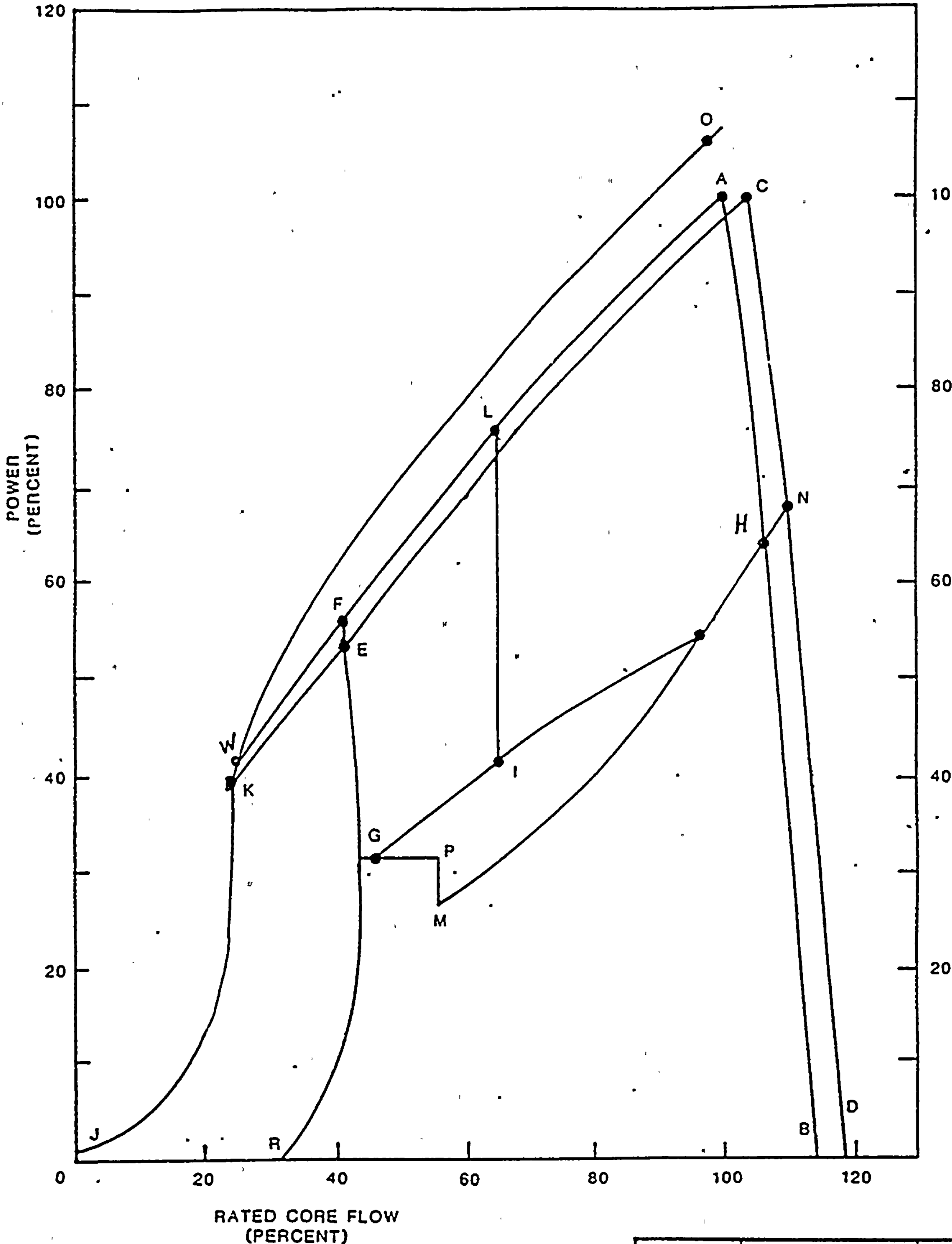
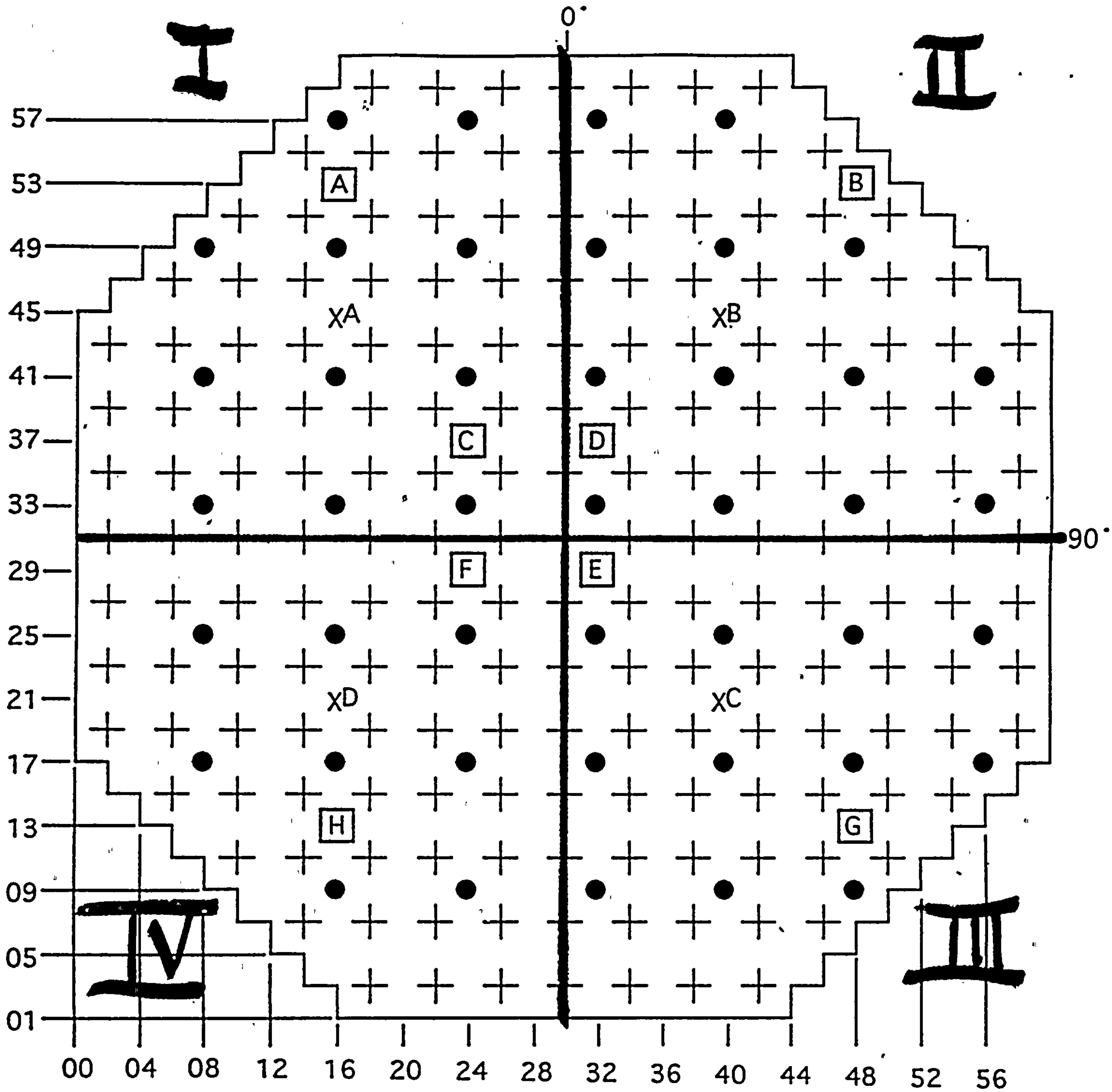


Figure 11	O2-OPS-001-202-2-01	Rev 0
TITLE Typical Operating Map		

QUESTION 79



LEGEND

- ● - LPRM DETECTOR ASM (43)
- + - CONTROL RODS (185)
- X - SRM DETECTORS (4)
- □ - IRM DETECTORS (8)

FIGURE 1

TOP VIEW OF CORE

QUESTION 93

CONTAINMENT LEVEL DETERMINATION

1.0 PURPOSE

1.1 To provide instruction for determining Containment Level, when actual containment level exceeds range of containment level instrumentation.

1.2 Applicability

1.2.1 When used to support the following EOP Flow Charts, it is required to determine containment level above el 224 ft.

- N2-EOP-RPV Section RL, Level Control
- N2-EOP-PC Section SPL, Suppression Pool Level Control
- N2-EOP-PC Section PCP, Primary Containment Pressure Control
- N2-EOP-C1, Alternate Level Control
- N2-EOP-C4, RPV Flooding
- N2-EOP-C5, Level Power Control
- N2-EOP-C6, Primary Containment flooding

1.2.2 Containment level CANNOT be determined between el 217 ft, upper range of level instrument, and el 224 ft.

2.0 TOOLS AND MATERIALS

ITEM	QTY	LOCATION
PA235 Key (See Note Below)	2	Control Room CSO Desk

NOTE: Keys PA235, PA1235 and PA2235 are interchangeable.

3.0 PROCEDURE

3.1 Place control switch for 2CPS-FV125, CONTMT N2 MAKEUP FLOW CONTROL to CLOSE *(2CEC*PNL873 Control Room)* . . . . (_)

3.2 Verify closed, the following valves:

- 2CPS*SOV119, SUPPR CHAM N2 MAKEUP OUTBOARD ISOL VLV *(2CEC*PNL873)* . . . . (_)
- 2CPS*SOV121, SUPPR CHAM N2 MAKEUP INBOARD ISOL VLV *(2CEC*PNL875)* . . . . (_)

T 3.3 IF a LOCA signal is present, using a PA235 key, place the following keylock switches in OVERRIDE:

N/A, LOCA signal is <u>NOT</u> present . . . . (_)

- PURGE OUTBD VALVES OVERRIDE *(2CEC*PNL873)* . (_)
- PURGE INBOARD VLVS OVERRIDE *(2CEC*PNL875)* . (_)

3.4 IF possible, close 2GSN-V88, N2 Sply Header Isol *(Rx Bldg, EL 261', 2AAS-TK2, Rx Bldg Breathing Air Accumulator)* . . . . (_)

N/A, 2GSN-V88 could <u>NOT</u> be closed . . . . (_)

3.5 Open the following valves:

- 2CPS*SOV120, DRYWELL N2 MAKEUP OUTBOARD ISOL VLV, *(2CEC*PNL873)* . . . . (_)
- 2CPS*SOV122, DRYWELL N2 MAKEUP INBOARD ISOL VLV, *(2CEC*PNL875)* . . . . (_)

3.6 Using Figure 23.1, track primary containment water level as a function of ΔP (S-D) . . . . (_)

<u>NOTES</u>:

1. "S" pressure is indicated on 2CMS*PI7A, SUPPR CHAMBER PRESS, *(2CEC*PNL601)*. "D" pressure is indicated on 2CPS-PI127, PRIMARY CONTMT INLET N2 PRESS, *(2CEC*PNL873)*.

2. When injection temperatures are less than or equal to 70°F, water levels are referenced to the 70°F curve of Figure 23.1.

   When injection temperatures are greater than 70°F, water levels are referenced to the 210°F curve of Figure 23.1.

<u>NOTES</u>: (Cont)

3. As the primary containment water level rises toward el 292.5 ft, the RPV Fuel Zone level instrument should come on scale and track with containment level.

3.7 WHEN, with injection into the primary containment from sources external to the primary containment, one of the following conditions exist, notify the EOP Director.

- Primary containment water level rises to 292.5 Ft . . . . (__)

OR

- The quantity (S-D) remains constant with active injection . . . . (__)

SSS notified . . . . (__)

3.8 Monitor containment water level using B22-R615, REACTOR VESSEL LEVEL FUEL ZONE Instrument *(2CEC*PNL601)* . . . . (__)
(See Figure 23.2)

3.9 IF REACTOR VESSEL LEVEL FUEL ZONE Instrument is <u>NOT</u> on scale AND tracking, OR is otherwise unavailable, notify the EOP Director.

N/A, Instrument is on scale AND tracking . . . . (__)

SSS notified . . . . (__)

<u>NOTE</u>: Containment level should be considered at el 298.5 ft (vent elevation) at this point.

4.0 RESTORATION — Initials/Date

NOTES:
1. This section is NOT to be performed until specifically directed by the EOP Director/SSS.
2. Independent verifications may be delayed until emergency conditions no longer exist.

4.1 Close the following valves:

- 2CPS*SOV120, DRYWELL N2 MAKEUP OUTBOARD ISOL VLV, *(2CEC*PNL873)* . . . . (__)
- 2CPS*SOV122, DRYWELL N2 MAKEUP INBOARD ISOL VLV, *(2CEC*PNL875)* . . . . (__) ____/______

____/______
Ind. Verifier

4.2 Verify open 2GSN-V88, N2 Sply Header Isol, *(Rx Bldg, EL 261', 2AAS-TK2, Rx Bldg Breathing Air Accumulator).* ____/______

____/______
Ind. Verifier

(T) 4.3 IF a LOCA signal was present, using a PA235 key, place the following keylock switches in RESET:

N/A, LOCA signal was NOT present . . . . (__)

- PURGE OUTBD VALVES OVERRIDE *(2CEC*PNL873)* . (__)
- PURGE INBOARD VLVS OVERRIDE *(2CEC*PNL875)* . (__) ____/______

____/______
Ind. Verifier

4.4 Open the following valves:

- 2CPS*SOV119, SUPPR CHAM N2 MAKEUP OUTBOARD ISOL VLV *(2CEC*PNL873)* . . . . (__)
- 2CPS*SOV121, SUPPR CHAM N2 MAKEUP INBOARD ISOL VLV *(2CEC*PNL875)* . . . . (__) ____/______

____/______
Ind. Verifier

Initials/Date

4.5 Place control switch for 2CPS-FV125, CONTAINMENT N2 MAKEUP FLOW CONTROL to MOD *(2CEC*PNL873)*. ____/____

____/____
Ind. Verifier

4.6 SSS Review

Verify that restoration is complete. Record comments in Remarks below:

Remarks: ____
____
____
____
____
____

______________________________ / ________ / ________
SSS Signature Date Time

ATTACHMENT 23
CONTAINMENT LEVEL DETERMINATION

PRIMARY CONTAINMENT WATER LEVEL
AS A FUNCTION OF
DIFFERENTIAL PRESSURE (ΔP) BETWEEN
2CMS*PI7A (S) AND 2CPS-PI127 (D)

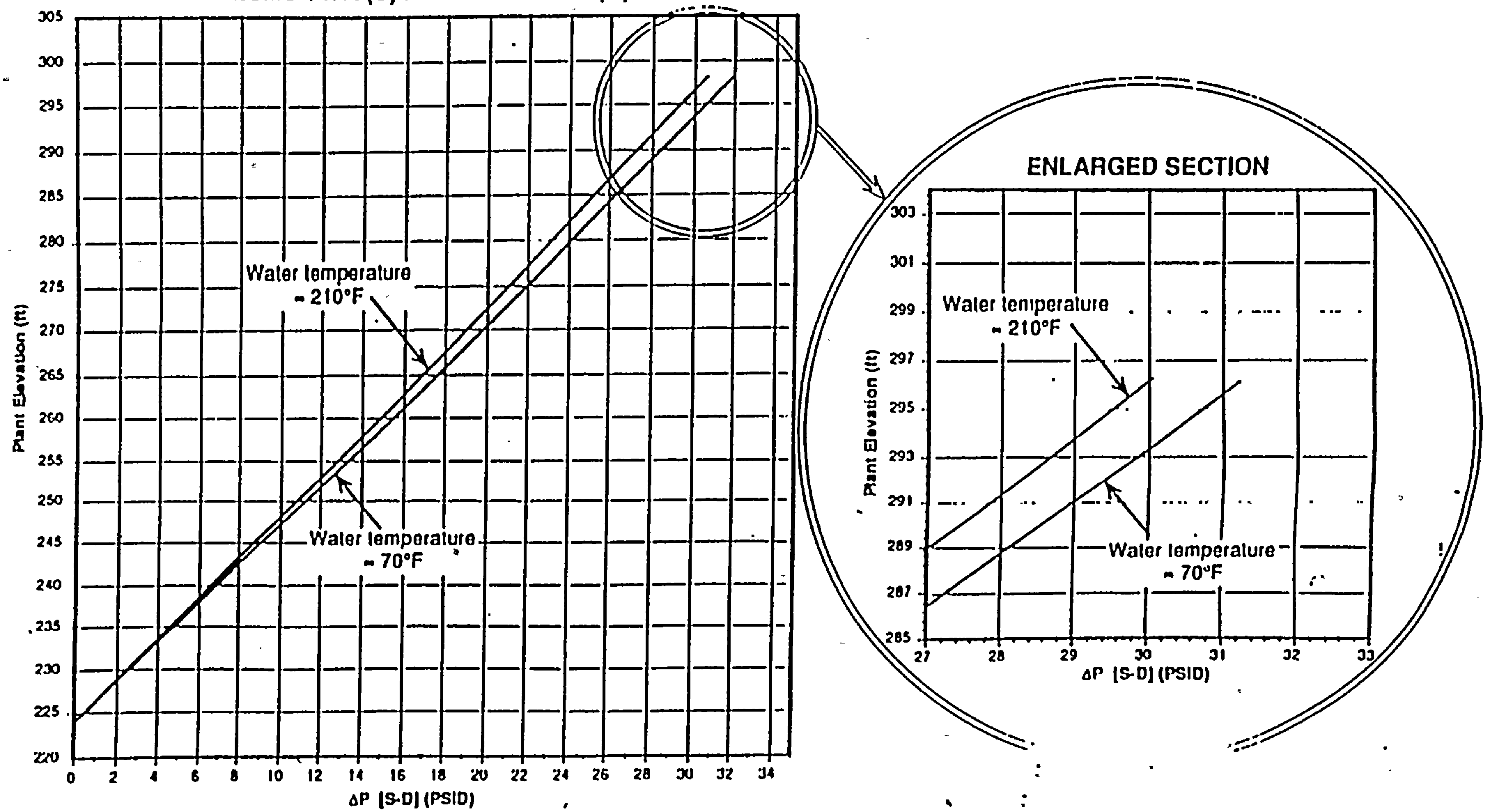


Figure 23.1

FIGURE 23.2

RPV INSTRUMENT WATER LEVEL AND RELATED PLANT ELEVATIONS

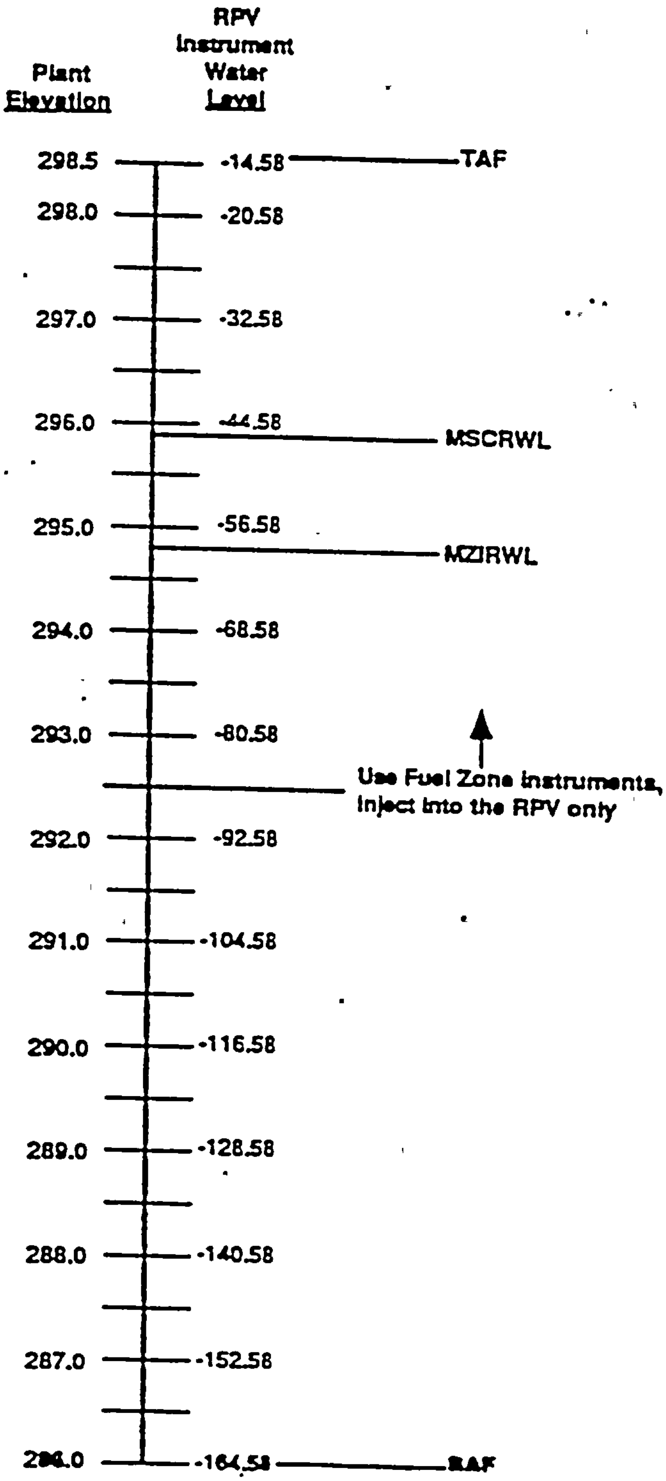
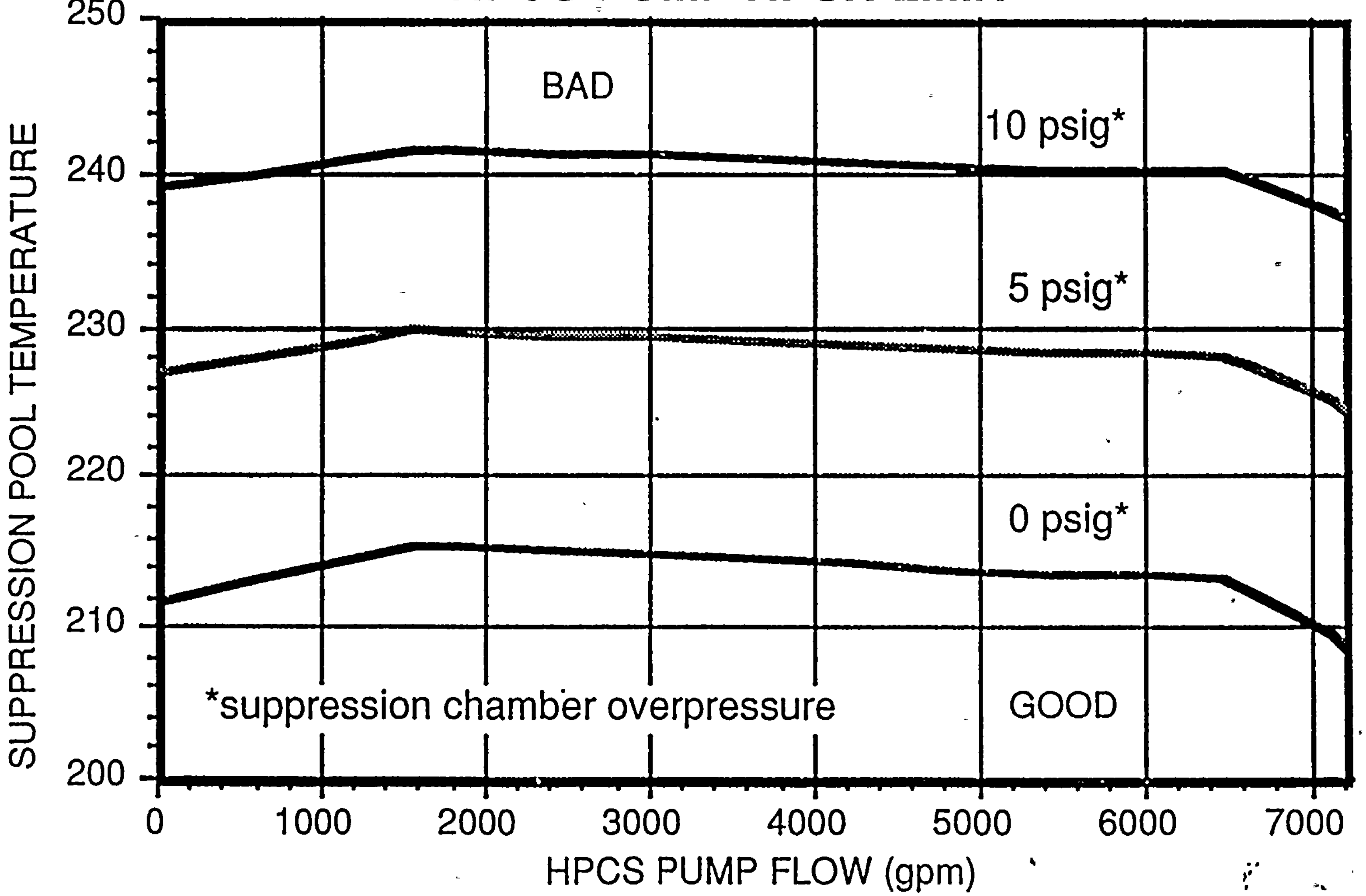
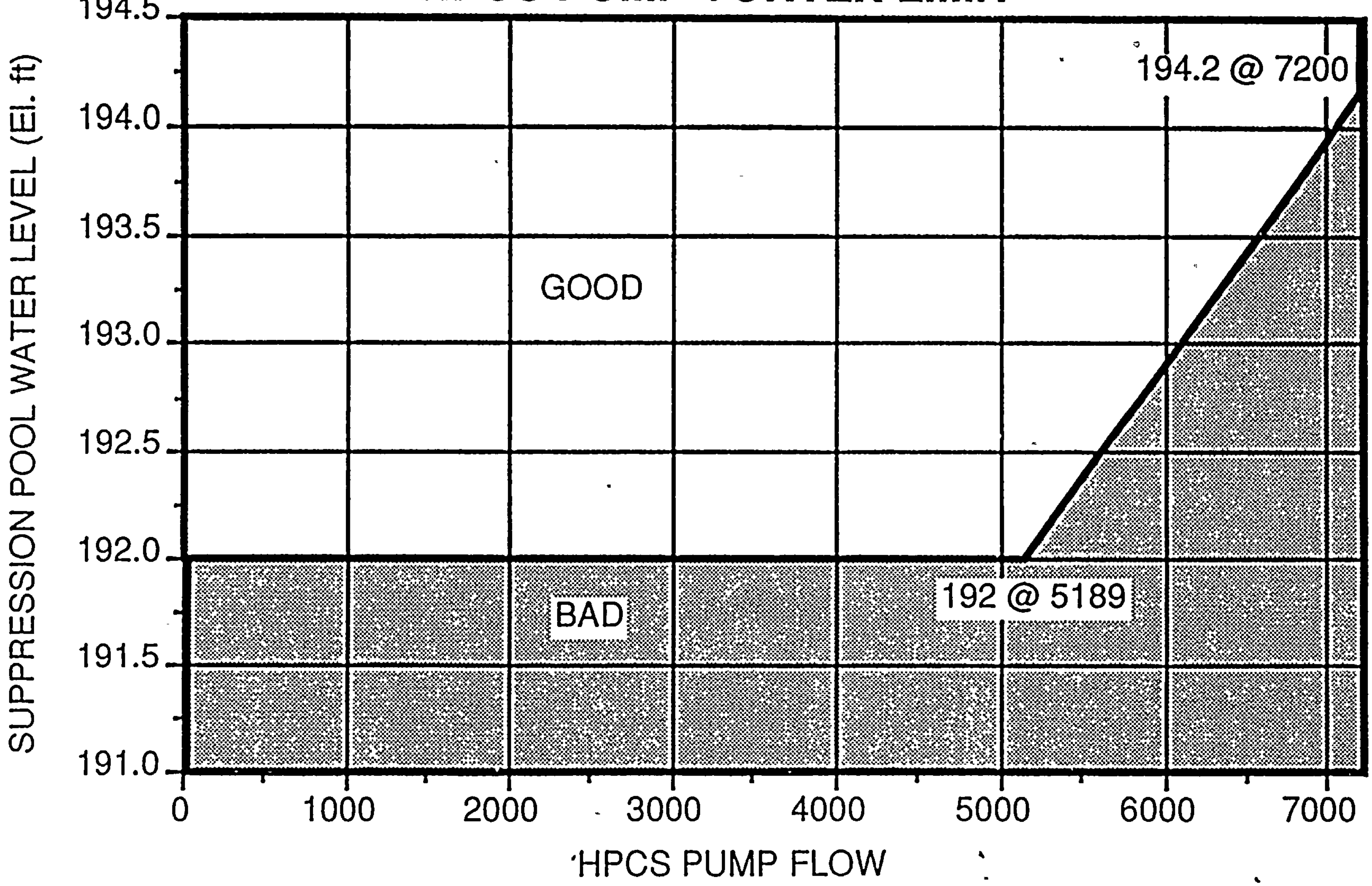


FIGURE RPV-2
HPCS PUMP NPSH LIMIT



QUESTION 98

FIGURE RPV-5
HPCS PUMP VORTEX LIMIT



Question 98

QUESTION 98

ATTACHMENT 29
DETERMINING SUPPRESSION CHAMBER OVERPRESSURE

1.0 PURPOSE

1.1 To provide instruction for determining Suppression Chamber Overpressure for use with Emergency Core Cooling System (ECCS) Pump Net Positive Suction Head (NPSH) Limit curves.

1.2 Applicability

When used to support N2-EOP-RPV, Section RL, Level Control, this attachment is used to determine the Suppression Chamber Overpressure to allow more accurate use of the ECCS Pump NPSH Limit curves by taking credit for the pressure resulting from the hydrostatic head of water over the suction of the ECCS Pump.

2.0 TOOLS AND MATERIALS

None

3.0 PROCEDURE

3.1 IF an ECCS Pump NPSH Limit curve has NOT been exceeded, perform the following:

3.1.1 Use Suppression Chamber Pressure, as read in the Control Room, as Suppression Chamber Overpressure (__)

3.1.2 IF Suppression Chamber Overpressure falls between the curves on the ECCS Pump NPSH Limit figure, use the lower curve . . . . (__)

3.2 IF an ECCS Pump NPSH Limit curve is exceeded, perform the following:

N/A, An ECCS Pump NPSH Limit curve was never exceeded . . . . (__)

3.2.1 Record Suppression Pool Water Level:

___________ Feet . . . . (__)

3.2.2 Using the value of Suppression Pool Water Level obtained in Step 3.2.1 AND Figure 29-1, Hydrostatic Head Pressure Determination, determine the Hydrostatic Head Pressure due to the height of water in the Suppression Pool AND record below:

___________ psig . . . . (__)

DETERMINING SUPPRESSION CHAMBER OVERPRESSURE

3.2.3 Record Suppression Chamber Pressure:

__________ psig . . . . (__)

3.2.4 Calculate Suppression Chamber Overpressure as follows:

________psig +	________psig =	________psig . .	(__)
Suppression Chamber Pressure	Hydrostatic Head Pressure	Suppression Chamber Overpressure	

3.2.5 Use the calculated value of Suppression Chamber Overpressure with the ECCS Pump NPSH Limit curves from N2-EOP-RPV, Section RL . . . . (__)

3.2.6 IF Suppression Chamber Overpressure falls between the curves on the ECCS Pump NPSH Limit figure, use the lower curve . . . . (__)

4.0 RESTORATION

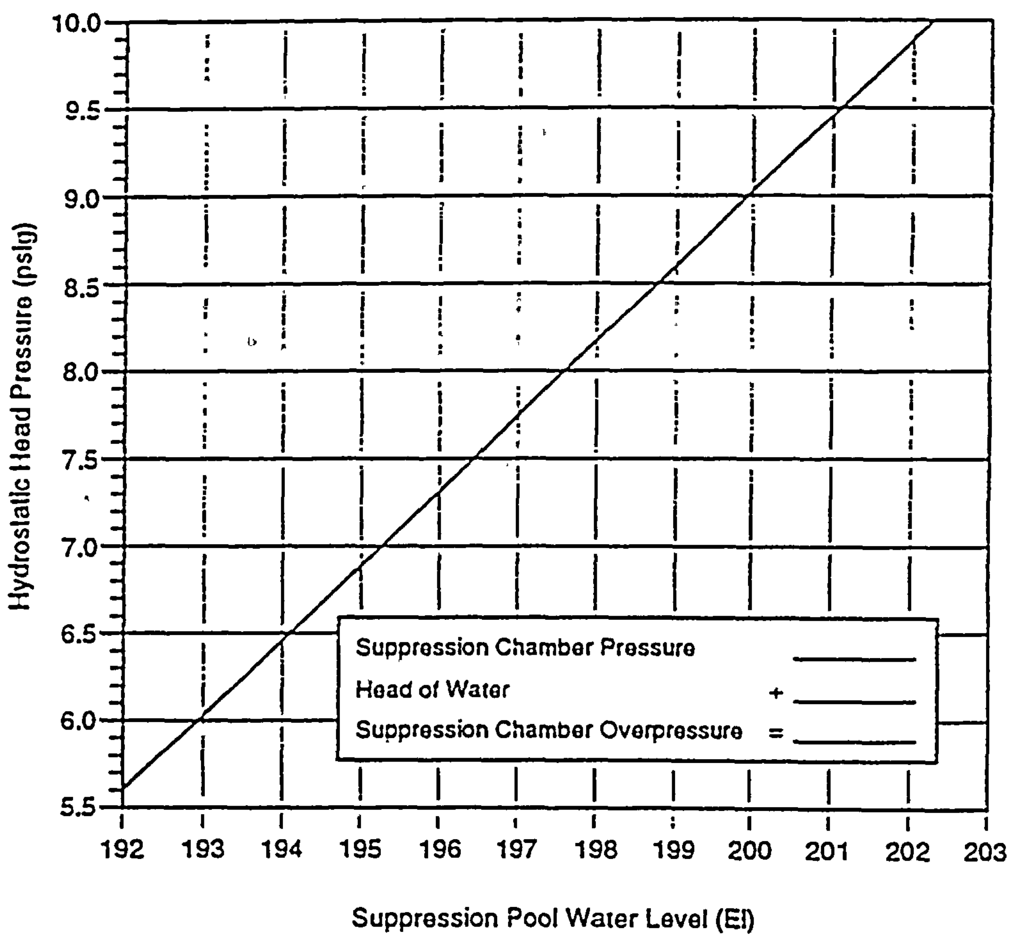
None

ATTACHMENT 29

DETERMINING SUPPRESSION CHAMBER OVERPRESSURE

FIGURE 29-1

SUPPRESSION CHAMBER OVERPRESSURE



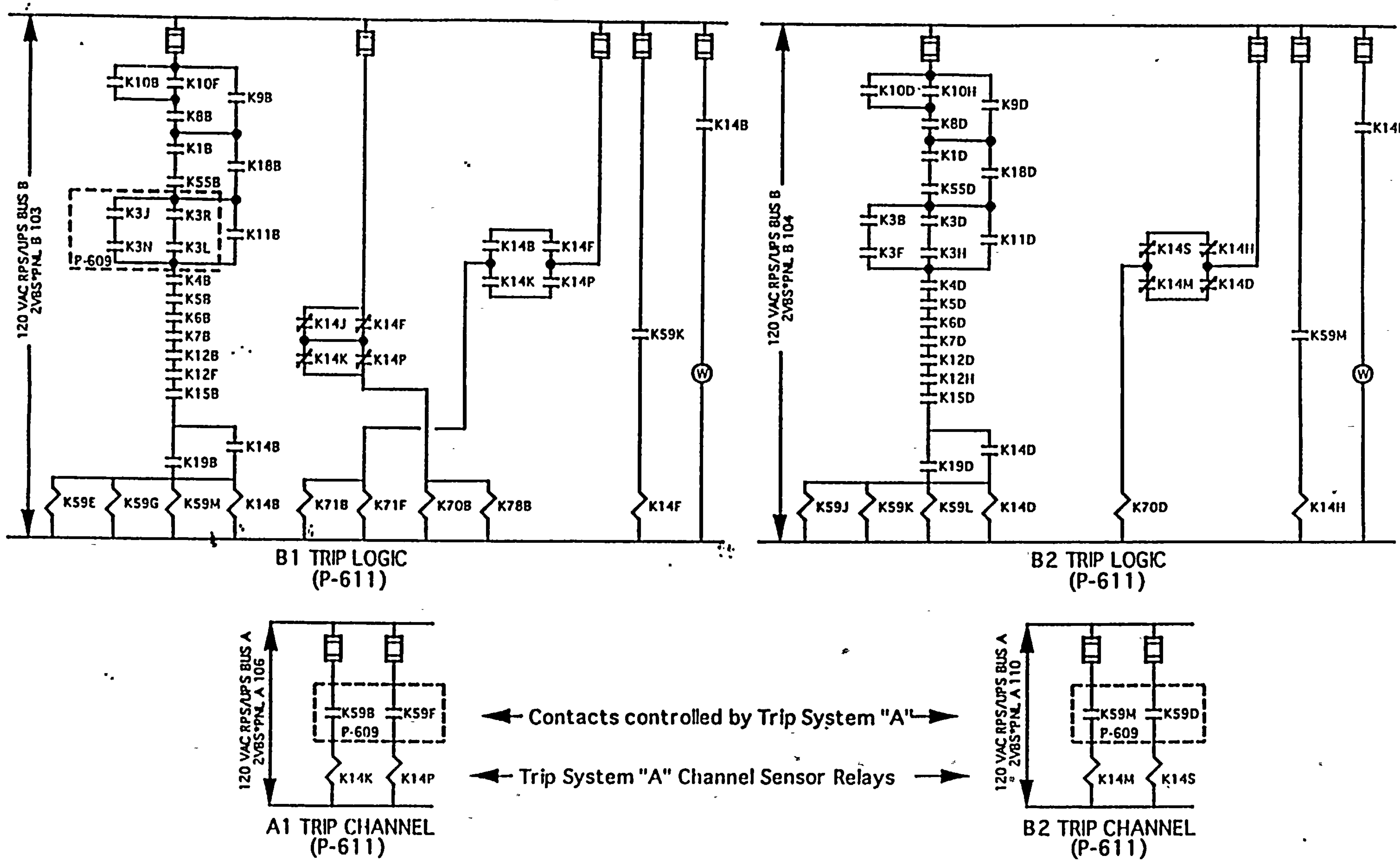


Figure 6B	O2-OPS-001-212-2-00	Rev 1
TITLE		
RPS TRIP SYSTEM "B" ARRANGEMENT		

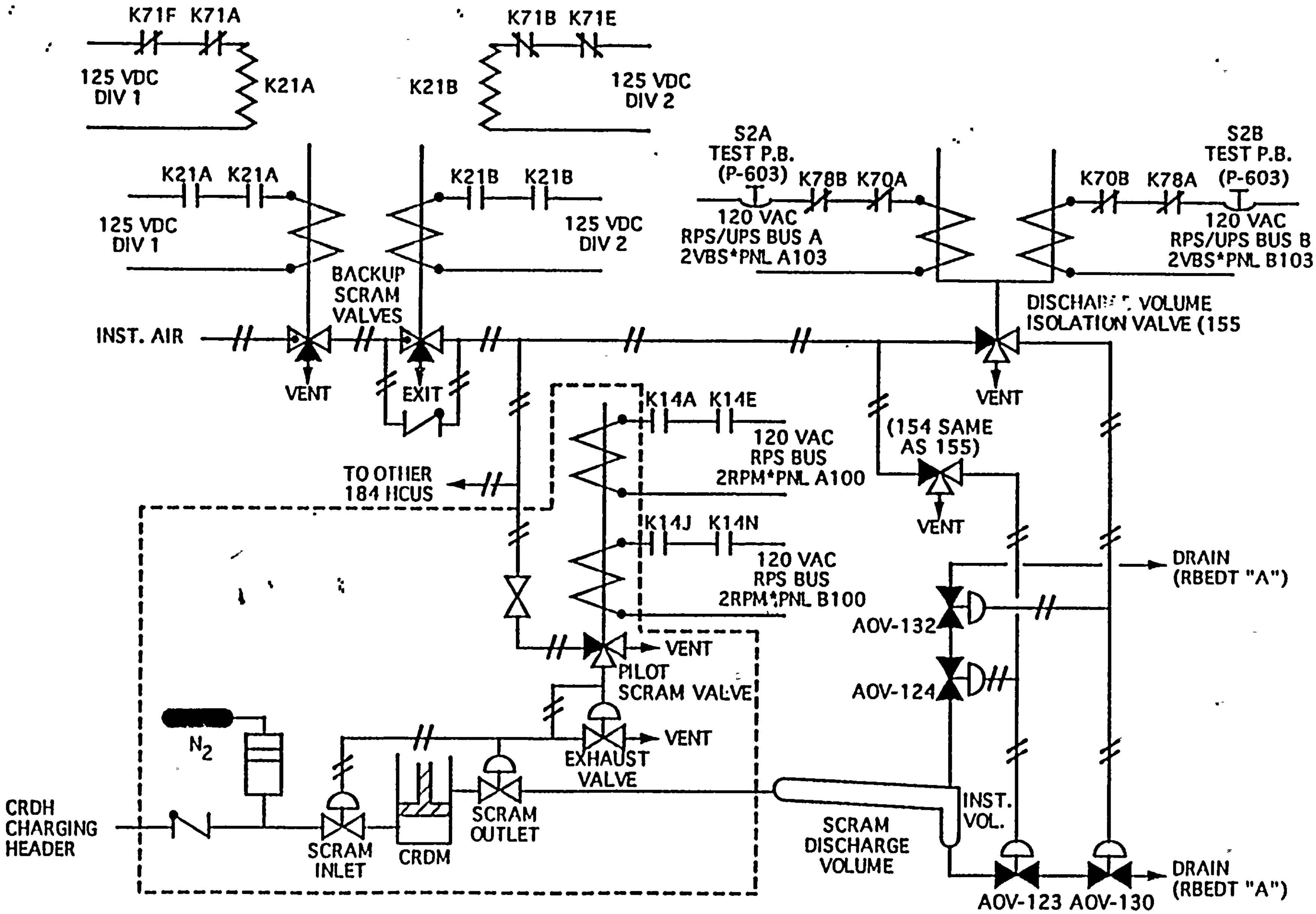


Figure 4	02-OPS-001-212-2-00	Rev 1
TITLE		
SIMPLIFIED SCRAM VALVE ARRANGEMENT		

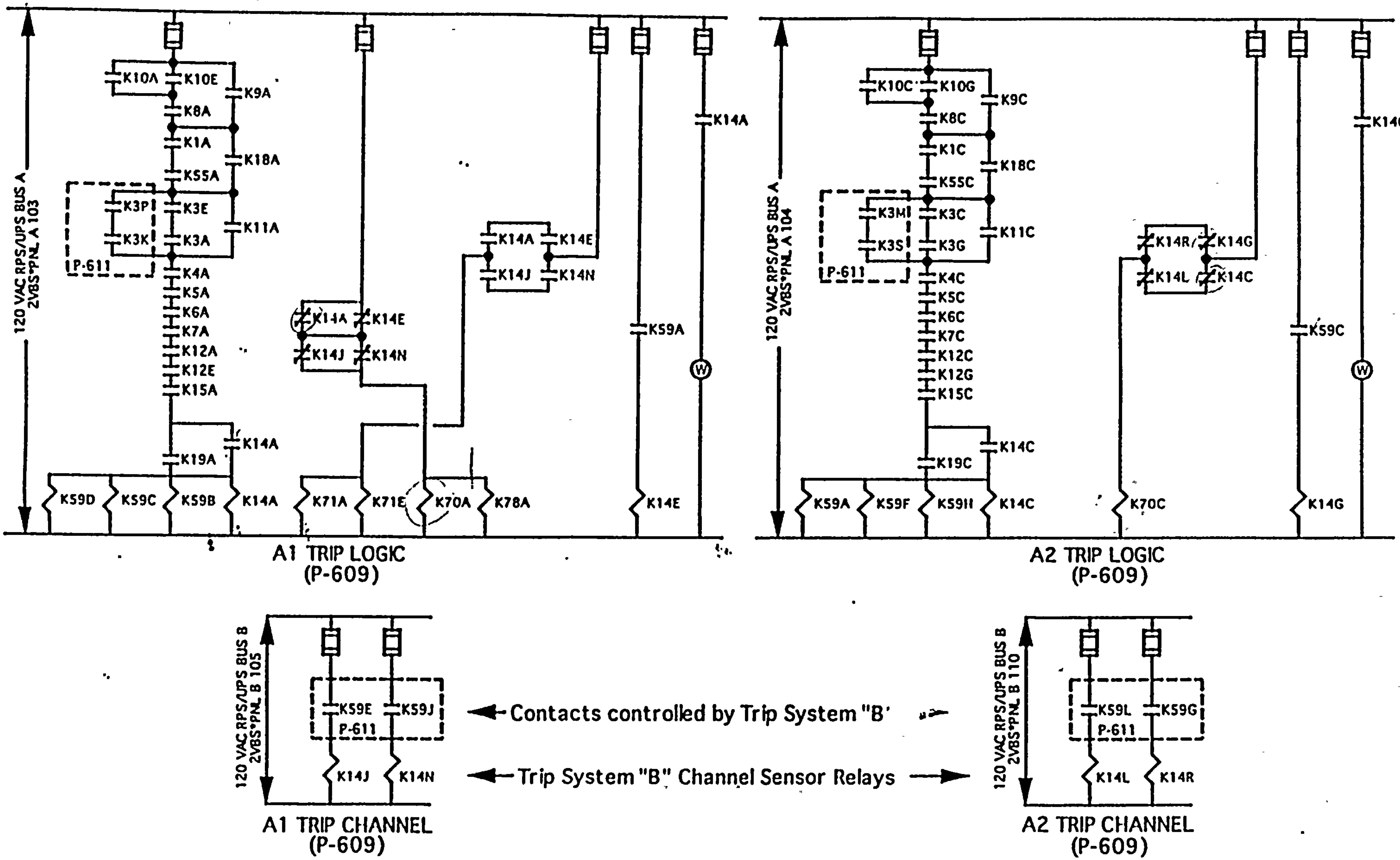


Figure 6A	O2-OPS-001-212-2-00	Rev 1
TITLE RPS TRIP SYSTEM "A" ARRANGEMENT		

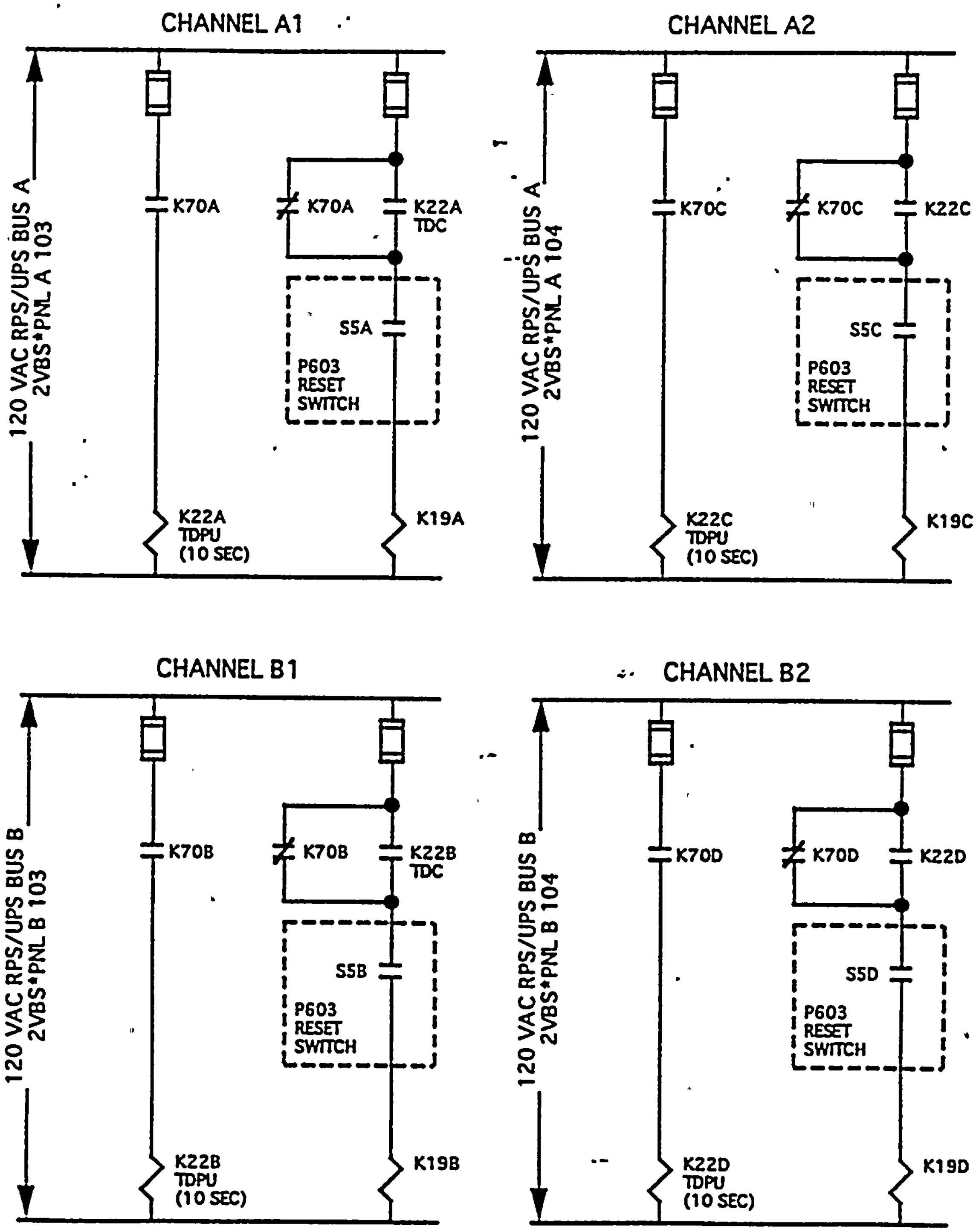


Figure 12	O2-OPS-001-212-2-00	Rev 1
TITLE SCRAM RESET LOGIC		

ANSWER KEY

MULTIPLE CHOICE

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

A N S W E R K E Y

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

ANSWER KEY

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

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

U. S. NUCLEAR REGULATORY COMMISSION
SITE SPECIFIC EXAMINATION
SENIOR OPERATOR LICENSE
REGION 1

APPLICANT'S NAME: ____________________

FACILITY: Nine Mile Point 2

REACTOR TYPE: BWR-GE5

DATE ADMINISTERED: May 6, 1994

INSTRUCTIONS TO APPLICANT:

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	APPLICANT'S SCORE	FINAL GRADE
100.00	________	________

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

____
Applicant's Signature

ANSWER SHEET

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. Ensure all information you wish to have evaluated as part of your answer is on your answer sheet. Scrap paper will be disposed of immediately following the examination.

11. To pass the examination, you must achieve a grade of 80% or greater.

12. There is a time limit of four (4) hours for completion of the examination.

13. 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)

Following a failure to scram with a CRD pump operating WHICH of the following actions is required to manually insert (drive) control rods?

a. Pull fuses to fail closed the ARI Valves.

b. Defeat RPS interlocks and reset the Scram.

c. Install jumpers to defeat RSCS.

d. Open the CRD charging header isolation valve, 2RDS-V28.

QUESTION: 002 (1.00)

The spent fuel pool level is 352 ft., rapidly trending downward, and normal makeup from condensate storage and transfer is unavailable to maintain level.

In accordance with N2-OP-38, Spent Fuel Pool Cooling and Cleanup, WHICH actions should the SSS direct to restore level?

a. Rig a hose from the fire water system.

b. Valve in service water makeup to the pool.

c. Fill the pool with either RHR system A or B.

d. Rig a hose from the demineralized water system.

QUESTION: 003 (1.00)

WHICH statement describes the direct automatic response of the reactor recirculation pumps (EOC-RPT) as a result of a turbine control valve fast closure main turbine trip?

a. Recirculation pumps trip to off if operating in fast, regardless of the initial reactor power.

b. Recirculation pumps trip to low speed if operating in fast, only if reactor power is initially above 30%.

c. Recirculation pumps trip to low speed if operating in fast, regardless of the initial reactor power.

d. Recirculation pumps trip to off if operating in low speed, if reactor power is initially above 30%.

QUESTION: 004 (1.00)

Which ONE of the following components has the capability to be cooled ONLY by the reactor building closed loop cooling water system?

a. Residual heat removal pump seal coolers.

b. Hydrogen recombiner spray cooler.

c. Spent fuel pool cooling heat exchangers.

d. Instrument air compressor heat exchangers.

QUESTION: 005 (1.00)

In accordance with N2-OP-31, Residual Heat Removal System, WHICH statement below describes the basis for raising RPV water level to 227-243 inches following a loss of shutdown cooling.

a. To aid in establishing a natural circulation flowpath.

b. To increase NPSH of the reactor recirc. pumps to allow starting one of them.

c. To increase NPSH of the reactor water cleanup pump to allow a higher system flowrate.

d. To initiate alternate shutdown cooling by starting flow through the SRVs.

QUESTION: 006 (1.00)

The Refueling Bridge has been tagged for maintenance. Testing of the bridge is required prior to completion of the work. WHICH of the following tags should be applied for testing the Refueling Bridge?

a Reference Tags

b Yellow Hold Out Tags

c Blue Mark Up Tags

d Red Mark Up Tags

QUESTION: 007 (1.00)

The plant is in startup with RPV pressure at 500 psig. A valid LOCA signal is generated on abnormally low reactor water level. The operator places the LPCS Injection Valve control switch in the close position.

Under which of the following conditions will the LPCS injection valve reopen?

a. The LPCI/LPCS pushbutton is armed and depressed.

b. A High Drywell pressure signal is received.

c. Reactor pressure decreases to the pressure permissive setpoint.

d. The LOCA signal clears, the initiation logic is reset, and a high drywell pressure occurs.

QUESTION: 008 (1.00)

In response to a steam leak in the drywell the "B" loop of RHR was placed in drywell and suppression chamber spray simultaneously. WHICH of the following describe the AUTOMATIC system response, if any, when the high drywell pressure initiation subsequently clears?

a. Drywell spray isolates and suppression chamber spray continues.

b. Drywell spray continues and suppression chamber spray isolates.

c. Drywell and suppression chamber sprays isolate.

d. Drywell and suppression chamber sprays continue.

QUESTION: 009 (1.00)

The plant is operating at 100% Rx power when inadvertent group 8 primary containment isolation occurs due to I&C testing. WHICH of the following is an expected plant response.

a. Drywell cooling fans trip.

b. Suppression chamber to Drywell vacuum breakers open.

c. Reactor sample valves isolate.

d. Reactor Recirc pump seal purge isolates.

QUESTION: 010 (1.00)

Fuel reload has just been completed, the reactor head has been replaced but the hold-down studs have NOT been fully tensioned. The Reactor Engineer informs you that shutdown margin has been calculated to be 0.32%. The MODE switch is in STARTUP for the performance of a surveillance. Which ONE of the following describes the actions required by Technical Specifications?

a. Lock the Mode Switch in SHUTDOWN.

b. Establish the required shutdown margin within 6 hours and establish Secondary Containment within 8 hours.

c. Lock the Mode Switch in REFUEL.

d. Insert all insertable control rods within 1 hour, and establish Secondary Containment within 8 hours.

QUESTION: 011 (1.00)

During refueling operations, a plant operator reports the discovery of a Fuel Pool Cooling system manual valve out of position. WHICH of the following is the required course of action?

a. Immediately correct the valve position and notify the Markup Desk.

b. Immediately correct the valve position and notify the SSS.

c. DO NOT alter the valve position. DO notify the Markup Desk.

d. DO NOT alter the valve position. DO notify the SSS.

QUESTION: 012 (1.00)

Refueling is in progress with the reactor cavity flooded and the fuel pool gates removed.

WHICH ONE (1) of the following actions must be suspended on the loss of secondary containment integrity?

a. Removal of a jet pump nozzle with no fuel in the vessel.

b. Moving a fuel cask over the spent fuel pool.

c. Channeling new fuel.

d. Adding water to the Spent Fuel Pool with hoses.

QUESTION: 013 (1.00)

NMP-2 is operating at 11% rated power with the mode switch in STARTUP. The following is a status of the number of LPRM inputs and indicated reactor power for each APRM:

	APRM A	APRM B	APRM C	APRM D	APRM E	APRM F
D LPRMs	5	5	6	5	4	6
C LPRMs	5	2	4	4	6	4
B LPRMs	4	2	6	4	5	4
A LPRMs	6	4	4	4	6	4
INDICATED POWER	12%	11%	11%	10%	16%	13%

Based on the above status, WHAT signal/signals, if any, would be going to the reactor manual control system and RPS system?

a. No scram signal, no rod withdraw block signal.

b. No scram signal, rod withdrawal block signal.

c. Half-scram signal, rod withdrawal block signal.

d. Full-scram signal, rod withdrawal block signal.

QUESTION: 014 (1.00)

Given the following data during refueling activities and referring to the attached Figure 1, "Top View of the Core":

Shutdown margin has **NOT** been demonstrated.
Shorting links are removed.
No special moveable detectors are in place.
All SRMs are surrounded by fuel assemblies.

	Counts per second	Conditions
SRM A	2	Signal/Noise = 3.5
SRM B	190	
SRM C	200	Bypassed due to occasional upscale alarms
SRM D	170	

WHICH of the following describes the limitation, if any, on fuel movement activity?

a No fuel movement is permitted.

b. Fuel movement is permitted in quadrants II and IV only.

c. Fuel movement is permitted in quadrants II, III and IV only.

d. Fuel movement is permitted in all quadrants.

QUESTION: 015 (1.00)

The reactor was just made critical and is on a stable period, but **NOT** yet in the heating range. One Division of IRM readings are as follows

IRM	READING	RANGE
A	30	3
C	20	3
E	35	2
G	10	3

The operator upranged IRM E to range 4 and downranged IRM G to range 2. WHAT alarms are active?

a. IRM E Downscale in alarm
IRM G Upscale in alarm
Division 1 Upscale/Inoperable Scram in alarm

b. IRM E Downscale in alarm
IRM G Upscale - NOT IN ALARM
Division 1 Upscale/Inoperable Scram - NOT IN ALARM

c. IRM E Upscale in alarm
IRM G Downscale in alarm
Division 1 Upscale/Inoperable Scram in alarm

d. IRM E Downscale - NOT IN ALARM
IRM G Upscale in alarm
Division 1 Upscale/Inoperable Scram in alarm

QUESTION: 016 (1.00)

The CRD system is in operation with the reactor operating at 50% power. The CRD flow controller is in automatic. The operator takes the Drive Water Pressure Control Throttle Valve (MOV PV101) switch to open for two seconds.

HOW will the parameters stabilize when the transient is over?

a. Drive water pressure will increase.
   Cooling water flow will remain the same.

b. Drive water pressure will increase.
   Cooling water flow will decrease.

c. Drive water pressure will decrease.
   Cooling water flow will remain the same.

d. Drive water pressure will decrease.
   Cooling water flow will increase.

QUESTION: 017 (1.00)

The plant is approaching criticality with reactor water level being controlled by CRD and reject. If a level transient occurs with level lowering to 175 inches, WHICH of the following describes the response of the recirculation flow control valves and recirculation pumps?

a. Recirculation flow control valves stay as is.
   Recirculation pumps trip.

b. Recirculation flow control valves stay as is.
   Recirculation pumps continue running.

c. Recirculation flow control valves runback.
   Recirculation pumps trip.

d. Recirculation flow control valves runback.
   Recirculation pumps continue running.

QUESTION: 018 (1.00)

During refueling, the "A" and "B" RHS are lined us as follows:

"A" loop of RHS is being used for suppression pool cooling.

"B" loop RHS is being used for shutdown cooling.

If a valid Level 1 reactor water level condition occurs, WHICH of the following describes the response of the "A" and "B" RHS loops?

a.
- "A" loop realigns from suppression pool cooling mode to LPCI mode with the heat exchanger bypass valve closed.
- "B" loop realigns from shutdown cooling to LPCI mode with the heat exchanger bypass valve closed.

b.
- "A" loop realigns from suppression pool cooling mode to LPCI mode with the heat exchanger bypass valve closed.
- "B" pump trips and does NOT automatically restart.

c.
- "A" loop real realigns from suppression pool cooling mode to LPCI mode with the heat exchanger bypass valve open.
- "B" pump trips and does NOT automatically restart.

d.
- "A" loop realigns from suppression pool cooling mode to LPCI mode with the heat exchanger bypass valve open.
- "B" loop realigns from shutdown cooling to LPCI mode with the heat exchanger bypass valve open.

QUESTION: 019 (1.00)

The reactor is shutdown. Reactor pressure is at 0 psig. Reactor water level is being maintained at 183 inches on the narrow range level instruments. The high pressure core spray (CSH) is lined up from the suppression pool.

The operator arms and depresses CSH manual initiation. WHICH of the following actions, if any, will occur in the CSH system?

a. - CSH will NOT initiate due to adequate water level indication.

b. - Minimum flow valve *MOV105 opens and then shuts when adequate injection flow is established.
   - Injection valve *MOV107 opens.
   - CST suction valve *MOV101 opens.
   - Suppression pool suction valve *MOV118 closes.

c. - Minimum flow valve *MOV105 opens and remains open.
   - Injection valve *MOV107 remains shut.
   - Suppression pool suction valve *MOV118 remains open.

d. - Minimum flow valve *MOV105 opens and then shuts when adequate injection flow is established.
   - Injection valve *MOV107 opens.
   - Suppression pool suction valve *MOV118 remains open.

QUESTION: 020 (1.00)

HOW will the Standby Liquid Control (SLS) system pumps (P1A/P1B) and storage tank outlet valves *MOV1A/1B respond if SLS Storage Tank Level Transmitter 2SLS*LT6A fails low concurrent with a valid redundant reactivity control system (RRCS) initiation signal?

a. P1A starts
   P1B starts
   MOV1A opens
   MOV1B opens

b. P1A does NOT start
   P1B does NOT start
   MOV1A does NOT open
   MOV1B does NOT open

c. P1A does NOT start
   P1B starts
   MOV1A opens
   MOV1B opens

d. P1A does NOT start
   P1B starts
   MOV1A does NOT open
   MOV1B opens

QUESTION: 021 (1.00)

Concerning the Standby Liquid Control System, WHICH one of the analyses of the boron solution meets Technical Specifications?

a. - Sodium pentaborate concentration (wt%) = 14.3
   - SLC Tank Volume (Gal) = 4500
   - SLC Tank Solution Temperature (Deg F) = 68

b. - Sodium pentaborate concentration (wt%) = 14.0
   - SLC Tank Volume (Gal) = 4700
   - SLC Tank Solution Temperature (Deg F) = 77

c. - Sodium pentaborate concentration (wt%) = 13.8
   - SLC Tank Volume (Gal) = 4400
   - SLC Tank Solution Temperature (Deg F) = 80

d. - Sodium pentaborate concentration (wt%) = 14.5
   - SLC Tank Volume (Gal) = 4400
   - SLC Tank Solution Temperature (Deg F) = 95

QUESTION: 022 (1.00)

While at rated reactor pressure, a leak on the variable leg of the Upset Range level instrument has occurred. WHICH one of the following describes the effect of the leak on Upset, Narrow, and Shutdown level indication. (P&ID is provided for reference.)

a. - The Upset Range indicates lower than actual
   - All Narrow Range channels indicates normal level.
   - Shutdown Range indicates normal level.

b. - The Upset Range indicates lower than actual.
   - One Narrow Range channel indicates lower than normal.
   - Shutdown Range indicates lower than normal.

c. - The Upset Range indicates higher than actual.
   - One Narrow Range channel indicates higher than normal.
   - Shutdown Range indicates higher than normal level.

d. - The Upset Range indicates higher than actual
   - All Narrow Range channels indicates normal level.
   - Shutdown Range indicates normal level.

QUESTION: 023 (1.00)

While at rated power, during a remote-manual startup of RCIC (NOT Arm and Depress), an operator inadvertently opened injection valve *MOV126, RCIC Pump Discharge to the Reactor. The operator immediately recognized the mistake and then depressed the RCIC Manual Isolation pushbutton. WHICH of the following describe the effects of the operator actions on the main turbine and RCIC?

a. The main turbine tripped and RCIC isolated.

b. The main turbine tripped and RCIC continued to inject into the vessel.

c. The main turbine continued to operate and RCIC isolated.

d. The main turbine continued to operate and RCIC continued to inject into the vessel.

QUESTION: 024 (1.00)

Given the following for the past 110 seconds:

- Reactor vessel water level is between Level ~~3~~ 1 and the top of active fuel.
- RHS "B" and RHS "C" are the only low pressure ECCS systems operating.
- The ADS Initiation Inhibit switches for Channel A and B are in inhibit.

WHICH of the following actions will IMMEDIATELY actuate the ADS valves?

a. Arm and depress either Channel "A" or "B" manual ADS initiation push button.

b. Arm and depress only Channel "A" manual ADS initiation push button.

c. Arm and depress only Channel "B" manual ADS initiation push button.

d. Restore Channel "A" and "B" ADS Inhibit Initiation switch to normal.

QUESTION: 025 (1.00)

The hydrogen recombiner was manually placed in service following an accident in which hydrogen was generated inside the primary containment. WHICH of the following describes the hydrogen recombiner response, without operator intervention, as the hydrogen concentration is reduced from containment?

a. As hydrogen concentration is reduced, the recombiner system will energize the electric heaters to maintain temperature in the reaction chamber.

b. As hydrogen concentration is reduced, the recombiner system will throttle system flow to maintain temperature in the reaction chamber.

c. As hydrogen concentration is reduced, the recombiner system will throttle service water flow to maintain temperature in the reaction chamber.

d. As hydrogen concentration is reduced, the recombiner system will trip on low reaction chamber temperature.

QUESTION: 026 (1.00)

The reactor mode switch is in STARTUP with one turbine bypass valve open. High pressure core spray (HPCS) has been inoperable for one day. HPCS is the only component known to be inoperable when the RCIC steam supply outside isolation valve (*MOV121) is found to be failed in the open position. WHAT actions are required or permitted in accordance with Technical Specifications?

a. Within 4 hours, close the RCIC steam supply inboard isolation valve (*MOV128). Continued operation in the STARTUP mode is permitted for 13 days.

b. Within 6 hours, close the RCIC steam supply inboard isolation valve (*MOV128). Be in at least HOT SHUTDOWN within the next 12 hours and COLD SHUTDOWN within the following 24 hours.

c. Within 6 hours, close the RCIC steam supply inboard isolation valve (*MOV128). Be in at least HOT SHUTDOWN within the next 6 hours and COLD SHUTDOWN within the following 24 hours.

d. Within 4 hours, close the RCIC steam supply inboard isolation valve (*MOV128). Within 6 hours reduce reactor pressure to less than 150 psig.

QUESTION: 027 (1.00)

Regarding the primary containment isolation system, the operator armed and depressed three of the four manual channel isolation switches, MSIV & DRAIN V MANUAL ISOLATION. The operator did NOT depress Channel "D". WHICH of the following is the status of the Group 2 through 9 valves and MSIV's.

a. Group 2 through 9 Inboard Valves - open
Group 2 through 9 Outboard Valves - closed
Inboard MSIV's - open
Outboard MSIV's - closed

b. Group 2 through 9 Inboard Valves - open
Group 2 through 9 Outboard Valves - closed
Inboard MSIV's - closed
Outboard MSIV's - closed

c. Group 2 through 9 Inboard Valves - closed
Group 2 through 9 Outboard Valves - open
Inboard MSIV's - closed
Outboard MSIV's - closed

d. Group 2 through 9 Inboard Valves - closed
Group 2 through 9 Outboard Valves - open
Inboard MSIV's - closed
Outboard MSIV's - open

QUESTION: 028 (1.00)

Power is lost to all of the "C" solenoids of the safety relief valves coincident with a successful scram that causes the MSIV's to close. WHICH of the following method(s) is(are) available for control of reactor pressure?

1. Automatic relief mode controlling at 1076 psig.

2. Automatic relief mode controlling at 1116 psig.

3. Operator manual control using the individual keylock SRV control switches located on panel 601.

4. Safety mode controlling at 1148 psig.

a. 1 and 2 and 3 and 4

b. Only 1 and 2 and 4

c. Only 3 and 4

d. Only 4

QUESTION: 029 (1.00)

Given the following initial conditions:

Reactor Power = 100%
Core Flow = 100%
Maximum combined flow pot = 115%
Load Limit Pot = 100%
Pressure Setpoint = 935 psig
Turbine Throttle Pressure = 965 psig

The load limit pot fails to a 0 output signal. WHICH of the following describes the control valve and bypass valve response. An EHC drawing is provided in Figure 2.

a. Control valves close.
   Bypass valves open fully.

b. Control valves remain as is.
   Bypass valves open fully.

c. Control valves remain as is.
   Bypass valves remain as is.

d. Control valves close.
   Bypass valves remain as is.

QUESTION: 030 (1.00)

The Rx operating at 7% power with Feed Water Control (FWC) in single element control.

The low flow controller is in automatic using high pressure/low flow control valve LV-55A to control at 185 inches. The low flow controller input signal and the output signal on the LV-55A controller are equal.

Narrow range level instrument *PDT14A is selected for FWC level control.

Narrow range level instrument *PDT14B indicates downscale.

WHICH the following describes the reactor water level response to *PDT14A failing downscale, ASSUMING NO OPERATOR ACTIONS?

a. RPV water level will decrease, and the reactor will scram on low water level. HPCS and RCIC will inject to restore water level.

b. RPV water level will continually increase.

c. RPV water level will increase to Level 8. LV-55A will shift to manual and reactor water level will be controlled at Level 8.

d. RPV water level will increase to Level 8. LV-55A will shift to manual and reactor water level will be controlled at 185 inches.

QUESTION: 031 (1.00)

The "A" train of Standby Gas Treatment System (GTS) is in operation with the reactor building ventilation isolated. The GTS is maintaining a -1/4 inch WG differential pressure in the reactor building when the fan recirculation pressure control valve (PV5A) closes. WHICH of the following describes the effect on total GTS exhaust flow and reactor building differential pressure.

a. Total GTS exhaust flow will decrease, reactor building differential pressure will be less negative.

b. Total GTS exhaust flow will decrease, reactor building differential pressure will be more negative.

c. Total GTS exhaust flow will increase, reactor building differential pressure will be less negative.

d. Total GTS exhaust flow will increase, reactor building differential pressure will be more negative.

QUESTION: 032 (1.00)

The Division 1 standby diesel generator is operating in the test mode, synchronized and paralleled to the offsite power grid. A LOCA signal is received. WHICH of the following describes the Division 1 status?

a. Offsite feeder breaker remains closed.
Diesel generator output breaker opens.
Diesel remains running.
Only emergency diesel trips are in effect.

b. Offsite feeder breaker opens.
Diesel generator output breaker remains closed.
Diesel remains running.
Only emergency diesel trips are in effect.

c. Offsite feeder breaker opens.
Diesel generator output breaker remains closed.
Diesel remains running.
Non emergency diesel trips are still in effect.

d. Offsite feeder breaker remains closed.
Diesel generator output breaker opens.
Diesel remains running.
Non emergency diesel trips are still in effect.

QUESTION: 033 (1.00)

The reactor is at 75% power. "A", "B" and "C" condensate pumps, "A" and "B" condensate booster pumps and "A" and "B" feedpumps are in service.

House loads are powered via the normal station service transformer when 13.8 2NPS-SWG001 KV feeder breaker ACB 1-3 trips open.

The "fast" timer timed out before an automatic fast transfer was attempted.

WHICH of the following describe the bus, recirculation pump, condensate booster pump and feedpump response?

a. 2NPS-SWG001 remains deenergized.
   There is NO effect on the "A" recirculation pump, "A" condensate booster pump and "A" feedpump.

b. 2NPS-SWG001 remains deenergized.
   "A" recirculation pump, "A" condensate booster pump and "A" feedpump trip.

c. 2NPS-SWG001 is reenergized from the reserve station service transformer by closure of 13.8 2NPS-SWG001 KV feeder breaker ACB 1-1.
   The "A" recirculation pump, "A" condensate booster pump and "A" feedpump trip during the transfer.

d. 2NPS-SWG001 is reenergized from the reserve station service transformer by closure of 13.8 2NPS-SWG001 KV feeder breaker ACB 1-1.
   The "A" recirculation pump, "A" condensate booster pump and "A" feedpump do NOT trip during the transfer.

QUESTION: 034 (1.00)

A reactor scram has occurred due to low reactor water level. All scram signals are cleared or bypassed except the channel A1 low reactor water level. The operator attempts to reset the scram by turning the four reactor scram reset logic switches (S55A though D). WHICH of the following describes the RPS response?

a. RPS Channel A does NOT reset.
RPS Channel B resets.
The scram air header repressurizes.

b. RPS Channel A does NOT reset.
RPS Channel B resets.
The scram air header does NOT repressurize.

c. RPS Channel A does NOT reset.
RPS Channel B does NOT reset.
The scram air header does NOT repressurize.

d. RPS Channel A resets.
RPS Channel B resets.
The scram air header repressurizes.

QUESTION: 035 (1.00)

During a reactor startup, the reactor power is below the Low Power Setpoint of the Rod Worth Minimizer. The insert/withdraw limits for a group of four control rods is 00-12. The operator is withdrawing the last rod of the group and the rod position for the selected rod settles on notch position 14. Assuming no operator action is taken, WHICH, if any, of the following rod blocks will be active?

a. No rod block.

b. RWM withdraw block only.

c. RSCS withdraw rod block only.

d. RSCS and RWM withdraw rod block.

QUESTION: 036 (1.00)

The reactor is operating at 100% power with all thermal limits within specification. The APRM flow biased trip setpoint is currently set to trip at:

0.58 * (% recirculation drive flow) + 59.

WHICH one of the following is the maximum required APRM flow biased trip setpoint to continue plant operation if the "A" recirculation pump is removed from service.

a. 0.58 * (% recirculation drive flow) + 59.

b. 0.58 * (0.95 * % recirculation drive flow) + 59.

c. FRTP/CMFPDP * (0.58 * (% recirculation drive flow) + 59).

d. FRTP/CMFLPD * 0.58 * (0.95 * % recirculation drive flow) + 59.

QUESTION: 037 (1.00)

During a reactor startup with reactor pressure at 10 psig, reactor water cleanup (WCS) reject flow valve (FV-135) has been set up for 170 gpm to the main condenser. As reactor pressure and power are increased, WHICH of the following describe how reject flow and NRHX outlet temperature will change? ASSUME no operator actions and reactor building closed loop cooling (CCP) inlet temperature and flow remain constant.

a. Reject flow increases.
   NRHX outlet temperature increases.

c. Reject flow increases.
   NRHX outlet temperature remains the same.

c. Reject flow remain the same.
   NRHX outlet temperature increases.

d. Reject flow remain the same.
   NRHX outlet temperature remains the same.

QUESTION: 038 (1.00)

WHICH of the following describes an acceptable flow path for the shutdown cooling mode of RHS? Assume all recirculation pump suction valves are open.

a. Suction from recirc loop "A" pump suction piping.
RHS pump "B" through "B" RHS heat exchanger.
Injection into recirc loop "B" pump discharge piping.
"A" recirc pump discharge valve closed.
"B" recirc pump discharge valve open.

b. Suction from recirc loop "A" pump suction piping.
RHS pump "B" through "B" RHS heat exchanger.
Injection into recirc loop "B" pump discharge piping.
"A" recirc pump discharge valve open.
"B" recirc pump discharge valve closed.

c. Suction from recirc loop "B" pump suction piping.
RHS pump "B" through "B" RHS heat exchanger.
Injection into recirc loop "B" pump discharge piping.
"A" recirc pump discharge valve open.
"B" recirc pump discharge valve closed.

d. Suction from recirc loop "A" pump suction piping.
RHS pump "A" through "A" RHS heat exchanger.
Injection into recirc loop "A" pump discharge piping.
"A" recirc pump discharge valve open.
"B" recirc pump discharge valve closed.

QUESTION: 039 (1.00)

Given the following plant conditions:

Reactor Power 33%
Center rod selected
Two LPRM's associated with the "A" RBM failed downscale

Which one of the following describes the minimum LPRM failure combinations that will result in a Channel "A" RBM rod block?

a. 2 "A" level and 1 "C" level LPRMs fail downscale.

b. 1 "A" level and 1 "C" level LPRMs fail downscale.

c. 2 "B" level and 1 "D" level LPRMs fail downscale.

d. 1 "B" level and 1 "D" level LPRMs fail downscale.

QUESTION: 040 (1.00)

WHICH one of the following describes the control building special filter train response to a Division 1 LOCA signal?

a. The control building special filters will NOT respond until high radiation is detected in the control building air supply duct.

b. Only special filter train 2HVC*FN2A starts and special filter bypass valve 2HCV*MOV1A isolates.

c. Special filter trains 2HVC*FN2A and 2HVC*FN2B start and special filter bypass valves 2HCV*MOV1A and 2HCV*MOV1B isolate.

d. Only special filter train 2HVC*FN2B starts and special filter bypass valve 2HCV*MOV1B isolates.

QUESTION: 041 (1.00)

The halon system inadvertently discharged into the main control room. WHICH of the following describes the effect of this inadvertent discharge?

a. The halon was discharged into the main control room subfloor area. No immediate personnel safety concern, however unnecessary personnel should be asked to leave the control room.

b. The halon was discharged into the main control room subfloor area. All personnel should immediately evacuate the control room when wintergreen scent is detected.

c. The halon was discharged into the main control room habitable space. No immediate personnel safety concern, however unnecessary personnel should be asked to leave the control room.

d. The halon was discharged into the main control room habitable space. All personnel should immediately evacuate the control room when wintergreen scent is detected.

QUESTION: 042 (1.00)

Offgas vacuum pump P1A is in service and P1B is tagged out of service for maintenance. Vacuum pump P1A trips on motor overload. WHICH of the following describes the effect of the trip of the vacuum pump?

a. Service air system (SAS) system supply to the offgas vacuum pumps will increase flow to maintain total offgas system flow.

b. Offgas system outlet valve AOV-103 will auto close 30 seconds after the pump trip with no flow indication from vacuum pump P1B. Main condenser vacuum will start to degrade.

c. Offgas system flow to the main stack will cease. Main condenser vacuum will start to degrade.

d. Freeze out dryer d/p will increase which will initiate a defrost cycle on the operating freezer out dryer.

QUESTION: 043 (1.00)

During operation at 100% power, the over voltage protection circuit actuates on the Division I safety related battery charger, 2BYS*CHGR2A1.

WHICH of the following describes the effect this would have on the Division I safety related 125 VDC bus.

a. The safety related battery charger, 2BYS*CHGR2A1, output breaker will trip and alternate battery charger, 2BYS*CHGR2A2, will automatically assume the load and maintain Division 1 battery loads.

b. The 600 VAC power supply to safety related battery charger, 2BYS*CHGR2A1, will trip and the battery output breaker will trip. Division 1 battery loads will be deenergized.

c. The 600 VAC power supply to safety related battery charger, 2BYS*CHGR2A1 will automatically transfer to the alternate battery charger, 2BYS*CHGR2A2, and maintain Division 1 battery loads.

d. The 600 VAC power supply to safety related battery charger, 2BYS*CHGR2A1 will trip and the battery will supply Division 1 loads.

QUESTION: 044 (1.00)

Uninterruptible Power Supply, UPS 1A, is in service with the transfer switch selected to AUTO RESTART. A step change in current flow on the load center feeder line is sensed. WHICH one of the following describes the response of UPS 1A?

a. UPS will transfer to maintenance power. When the transient is over and output is stable, the load will transfer back to the inverter.

b. UPS will transfer to battery power. When the transient is over and output is stable, the load will transfer back to the inverter.

c. UPS will transfer to maintenance power. When the transient is over and output is stable, or 40 seconds have elapsed, "UPS ON MAINTENANCE SUPPLY" annunciator will alarm. Manual transfer to the inverter will be required.

d. UPS will transfer to battery power. When the transient is over and output is stable, or 40 seconds have elapsed, "UPS ON BATTERY" annunciator will alarm. Manual transfer to the inverter will be required.

QUESTION: 045 (1.00)

The spent fuel pool cooling system is in service with the fuel pool gates installed. WHICH of the following describes the fuel pool level and cooling system response to a leak in the skimmer surge tank? ASSUME no operator actions and that the condensate transfer system is NOT available.

a. Fuel pool level will continue to decrease.
Cooling capability will be lost.

b. Fuel pool level will continue to decrease.
Cooling capability will be maintained.

c. Fuel pool level will be maintained.
Cooling capability will be lost.

d. Fuel pool level will be maintained.
Cooling capability will be maintained.

QUESTION: 046 (1.00)

A Transversing Incore Probe (TIP) was inserted in the core in the "Automatic Mode" when a DBA LOCA occurs coincident with loss of offsite power. WHICH of the following describes the isolation capability of the TIP?

a. Independent of diesel generator operation, the TIP will automatically withdraw to its shield chamber. Once inside the shield chamber the TIP ball valve closes.

b. When diesel generator power is available, the TIP will automatically withdraw to its shield chamber. Once inside the shield chamber the TIP ball valve closes.

c. When diesel generator power is available, the TIP must be manually withdrawn to its shield chamber. Once inside the shield chamber the TIP ball valve must be manually closed.

d. The TIP cannot be withdrawn. The TIP must be isolated by manually actuating the shear valve.

QUESTION: 047 (1.00)

During a reactor startup, main steam tunnel transfer fan (2HVT-FN11) switch was maintained in the Off position. WHAT effect will this have on plant operation as reactor power is increased? ASSUME no operator actions are taken.

a. Turbine building supply fans FN1A,B,C will trip on high turbine building positive differential pressure.

b. Damper MOD4A/B closes to reduce ventilation recirculation flow to maintain building differential pressure.

c. Additional turbine building unit coolers will autostart and all exhaust fans (2HVT-FN2A,B,C) will operate to maintain steam tunnel temperature.

d. Steam tunnel temperature will increase which may exceed the main steamline isolation temperature setpoint.

QUESTION: 048 (1.00)

During refueling, a fuel bundle falls off the refueling grapple and into the reactor vessel. The bundle is dropped in a manner such that it falls in a horizontal orientation. WHICH of the following components in the reactor vessel could be damaged by such a drop?

a. Steam separator assembly.

b. Top guide grid.

c. Fuel support piece.

d. Jet pump diffuser section.

QUESTION: 049 (1.00)

An operator worked 10 hours in an area with an airborne contamination level for cesium-137 at the derived airborne concentration of 10 CFR 20. Upon exit of the area, it was determined that the respirator was defective and provided no protection. WHICH of the following is the maximum committed effective dose equivalent (CEDE) he should have received?

a. 5000 mrem

b. 250 mrem

c. 25 mrem

d. 5 mrem

QUESTION: 050 (1.00)

Which of the following will result in the lowest ALARA exposure?

a. One individual performing a job in a 60 mrem/hr field for 60 minutes.

b. One individual installing temporary shielding in a 60 mrem/hr field for 30 minutes and then performing the job in a 6 mrem/hr field for 60 minutes.

c. Two individuals performing a job in a 60 mrem/hr field for 35 minutes.

d. Two individuals installing temporary shielding in a 60 mrem/hr field for 15 minutes and then both performing the job in a 6 mrem/hr field for 40 minutes.

QUESTION: 051 (1.00)

Given the following radiological data for a room:

Smear data is 300/dpm/100 cm squared of beta
General radiation level in the room is 125 mrem/hr

WHICH of the following describes the complete posting for the area?

a. - CAUTION HIGH RADIATION AREA

b. - CAUTION LOCKED HIGH RADIATION AREA
- CAUTION Contaminated Area

c. - CAUTION LOCKED HIGH RADIATION AREA

d. - CAUTION HIGH RADIATION AREA
- CAUTION Contaminated Area

QUESTION: 052 (1.00)

A non licensed operator has worked the following schedule which excludes shift turnover and non working lunches:

Mon	0700 - 1900
Tues	0700 - 1900
Wed	0700 - 1900
Thur	0700 - 1500
Fri	0700 - 2300

WHICH of the following describes the maximum hours, if any, permitted to work on Saturday and **NOT** violate the overtime guidelines of GAP-FFD-02, "Control of Working Hours"?

a. NOT permitted to work

b. 0700 - 1100

c. 0700 - 1500

d. 0700 - 1900

QUESTION: 053 (1.00)

WHICH of the following is **NOT** required when work is performed under a Hot Work Permit?

a. Fire watch established for the duration of the work and 30 minutes after completion of the work.

b. Immoveable combustibles are protected with flameproof blanket materials or shielded with fire resistant guards.

c. Fire extinguishers are available in the hot work area.

d. Automatic suppression systems (such as the wet pipe sprinkler) are in service.

QUESTION: 054 (1.00)

WHICH of the following describes the work zone and cleanliness controls required for the spent fuel pool and area above the spent fuel pool on the 409' elevation while the plant is still operating and preparation activities are ongoing for an upcoming refueling outage?

a. Radiation Work Permit.
   Material Accountability Log.
   Use of special environmental controls.
   Material precleaning prior to entry.
   A complete change of clothing by personnel before entering.
   Protective clothing with shoe covers, head covers, and gloves.

b. Radiation Work Permit.
   Material Accountability Log.
   Protective clothing with shoe covers, head covers, and gloves.
   Securing all loose or potentially loose items.

c. Radiation Work Permit NOT required if work does NOT access the refueling bridge.
   Material Accountability Log.
   Protective clothing with shoe covers, head covers, and gloves.
   Securing all loose or potentially loose items

d. Radiation Work Permit.
   Material Accountability log NOT required if work does NOT require access to the refueling bridge.
   Protective clothing and head covers NOT required if work does NOT access the refueling bridge.
   Shoe covers and gloves.
   Securing all loose or potentially loose items.

QUESTION: 055 (1.00)

During mode 2 operation, while the Assistant Station Shift Supervisor (ASSS) was touring the plant, the Station Shift Supervisor (SSS) left the control room for one minute to provide additional instructions to an I&C supervisor who was performing a high priority troubleshooting activity. WHICH of the following describes the SSS actions?

a. Actions did NOT violate technical specifications.
   Actions did NOT violate station administrative procedures.

b. Actions did NOT violate technical specifications.
   Actions violated station administrative procedures.

c. Actions violated technical specifications.
   Actions did NOT violate station administrative procedures.

d. Actions violated technical specifications.
   Actions violated station administrative procedures.

QUESTION: 056 (1.00)

WHICH of the following is the minimum Post-Maintenance Testing required following corrective maintenance on the Division 1 diesel generator motor driven lubrication pump? ASSUME no other maintenance was performed on the diesel generator.

a. Pressure/flow test of the motor driven lubrication pump.
   No diesel generator load test.
   No diesel generator air receiver test.

b. Pressure/flow test of the motor dirven lubrication pump.
   Diesel generator load test.
   No diesel generator air receiver test.

c. No pressure/flow test of the motor driven lubrication pump.
   Diesel generator load test.
   Diesel generator air receiver test.

d. Pressure/flow test of the motor driven lubrication pump.
   No diesel generator load testing.
   Diesel generator air receiver test.

QUESTION: 057 (1.00)

The year to date exposure of a worker is 15 mrem when she declares that she is pregnant. WHICH of the following describes the maximum exposure limit for the declared pregnant worker?

a. 5000 mrem for the duration of the pregnancy.

b. 500 mrem for the duration of the pregnancy.

c. 50 mrem for each quarter that the worker is pregnant.

d. 50 mrem for the duration of the pregnancy.

QUESTION: 058 (1.00)

WHICH of the following schedules do **NOT** assure maintenance of an active NRC operator license?

a. CSO position for 7 eight hour shifts in March.
   Reactor Building Upper position for 1 shift in March.

b. CSO position for 6 eight hour shifts in March
   CSO position for 6 eight hour shifts in April

c. ASSS position for 6 eight hour shifts in February
   SSS position for 6 eight hour shifts in March

d. NAOE position for 4 eight hour shifts in March
   CSO position for 4 eight hour shifts in March

QUESTION: 059 (1.00)

WHICH of the following describes the permitted actions for a circuit breaker trip and a thermal overload trip in a non-emergency situation?

a. Circuit breaker trip can be reset once.
Thermal Overload trip can be reset once.

b. Circuit breaker trip can be reset once.
Thermal Overload trip should NOT be reset.

c. Circuit breaker trip should NOT be reset.
Thermal Overload trip can be reset once.

d. Circuit breaker trip should NOT be reset.
Thermal Overload trip should NOT be reset.

QUESTION: 060 (1.00)

Outside air temperature is currently above 100 degrees and predicted to stay above 100 degrees for the next 3 hours. WHICH of the following describes the operability status of the diesel generators?

a. All three diesel generators are considered to be inoperable.

b. EDG-1 and EDG-3 are considered to be inoperable. EDG-2 can be considered operable providing one of the EDG-2 general area emergency ventilation air handling units are operable.

c. EDG-2 is considered to be inoperable. EDG-1 and EDG-3 can be considered operable providing one of the EDG-1 and EDG-3 general area emergency ventilation air handling units are operable.

d. All diesel generators can be considered operable providing all the general area emergency ventilation air handling units are operable.

QUESTION: 061 (1.00)

While Unit 2 was operating at rated power, a fire alarm occured in detection zone PNL 106, fire zone 252SW and fire area FSA34. The fire was under control in 9 minutes, however the damage was intense in the area. WHICH of the following is the classification for the event?

a. Operational Event (Non-emergency)

b. Unusual Event

c. Alert

d. Site Area Emergency

QUESTION: 062 (1.00)

NMP-2 is experiencing a ground release emergency. Analysis of the release indicates a release rate of 150 - 175 Ci/sec. No emergency classification has been established.

The 30' foot met tower data indicates:

wind speed of 5 mph
wind direction from 336 degrees
"D" stability class.

Release duration is unknown, offsite dose projections are in progress, but **NOT** completed, and EDAMS is **NOT** operating.

WHICH of the following indicate the offsite protective action recommendations, if any, that need to be made?

a. No offsite protective action recommendations are required.

b. Evacuate ERPAs 1, 2, 3, 4, 5, 9, 10, 11, 26, 27
Shelter all other ERPAs

c. Evacuate ERPAs 1, 2, 3, 26, 27
Shelter all other ERPAs

d. Evacuate ERPAs 1, 2, 3, 4, 5, 7, 9, 10
Shelter all other ERPAs

QUESTION: 063 (1.00)

The cooling tower is operating at 40% load in the ice prevention mode. Outside ambient air temperature is 20 degrees. WHICH of the following describes the purpose of operating in the ice prevention mode?

a. Prevent ice formation on cooling tower legs.

b. Prevent the formation of icicle missle hazards on the top of the cooling tower.

c. Prevent ice accumulation that impedes cooling tower thermal performance.

d. Prevent frost heave of the cooling tower basin.

QUESTION: 064 (1.00)

The plant is operating at 100% power at 100% core flow when both recirculation pumps trip. ASSUMING no operator actions are taken and the plant does NOT automatically scram, WHICH of the following points on the attached operating map will the plant automatically stabilize?

a. F

b. H

c. L

d. W

QUESTION: 065 (1.00)

Following a reactor scram a plant cooldown has been commenced. Currently reactor pressure is 250 psig. WHICH of the following describes the actions to be taken if notching of level instruments associated with Channel A occurs? ASSUME notching is NOT observed on the other channels.

a. Reduce reactor cooldown rate to as low as practical until notching subsides.
Use level instruments from the other channels as the most valid reactor water level indication.

b. Reduce reactor cooldown rate to as low as practical until notching subsides.
Use the lowest indicated level from Channel A as the most valid reactor water level indication.

c. Maximize cooldown rate to the point when shutdown cooling is in service.
Use level instruments from the other channels as the most valid reactor water level indication.

d. Maximize cooldown rate to the point when shutdown cooling is in service.
Use the lowest indicated level from Channel A as the most valid reactor water level indication.

QUESTION: 066 (1.00)

While at 65% power, a reactor scram occurred when reactor water level reached 205 inches. If reactor pressure decreases while reactor water level is stabilized at 150 inches, WHICH of the following will automatically inject into the vessel?

a. Reactor feedpumps.

b. Condensate booster pumps.

c. Low pressure core spray.

d. Reactor core isolation cooling.

QUESTION: 067 (1.00)

The reactor mode switch is in RUN. Reactor power is 25%. All the MSIVs inadvertently shut and did NOT generate a reactor scram signal. WHICH of the following scram signals will generate a scram signal following this transient? Assume no operator action and the mode switch remains in RUN.

a. Intermediate Range Monitors Neutron Flux - High

b. Reactor Vessel Steam Dome Pressure - High

c. Average Power Range Monitor Neutron Flux - Upscale Setdown

d. Turbine Control Valve Fast Closure

QUESTION: 068 (1.00)

Reactor pressure = 40 psig and decreasing.
Drywell Temperature = 240 degrees
Reactor Building Temperature is normal
RPV Instrument Readings are:

Shutdown	180 inches
Upset	180 inches
Narrow Range	180 inches
Wide Range	180 inches
Fuel Zone	-100 ~~180~~ inches

WHICH of the following describes the useability of the level instruments?

a. All are useable as long as reactor pressure is above 15 psig.

b. Only shutdown and upset are useable independent of reactor pressure.

c. Only narrow range, wide range and fuel zone are useable as long as reactor pressure is above 15 psig.

d. No instruments are useable.

QUESTION: 069 (1.00)

WHICH of the following is projected to occur FIRST as primary containment pressure increases above the primary containment pressure limit?

a. Pressure capability of the primary containment fails.

b. Vent valves sized to reject all decay heat from the primary containment cannot be opened or closed.

c. SRVs cannot be opened and remain open.

d. RPV vent valves cannot be opened and closed.

QUESTION: 070 (1.00)

WHICH of the following control rod movements, during an approach to criticality, will result in the highest positive reactivity addition into the core?

a. Control rod moved from 04 to 08.

b. Control rod moved from 08 to 12.

c. Control rod moved from 12 to 16.

d. Control rod moved from 16 to 24.

QUESTION: 071 (1.00)

The plant is operating at 100% power. Refer to the attached figure on suppression pool temperature monitoring instrumentation. Suppression pool temperature element 2CMS*TE69A indicates downscale and has been for 24 hours. Suppression pool temperature element 2CMS*TE-69B has failed upscale. In accordance with technical specifications, WHAT actions need to be taken?

a. Restore at least one temperature element to operable status within 8 hours or be in at least HOT SHUTDOWN within the next 12 hours and COLD SHUTDOWN within the following 24 hours.

b. Restore at least one temperature element to operable status within 24 hours or be in at least HOT SHUTDOWN within the next 12 hours and COLD SHUTDOWN within the following 24 hours.

c. Restore at least one temperature element to operable status within 48 hours or be in at least HOT SHUTDOWN within the next 12 hours.

d. Restore at least one temperature element to operable status within 7 days or verify suppression pool water temperature to be within limits at least once per 12 hours.

QUESTION: 072 (1.00)

During a high drywell pressure condition, an operator sprays both the drywell and suppression chamber at the same time when drywell pressure and temperature are in the bad portion of the Drywell Spray Initiation Limit Curve. WHICH of the following describe the effect of the operator actions?

a. Because convective cooling in the drywell and convective cooling in the suppression chamber are occurring at the same time, no adverse effects will occur.

b. Because of the evaporative cooling in the drywell, the design differential pressure limit between the drywell and suppression chamber can be quickly exceeded.

c. Because of the convective cooling in the suppression chamber, the design differential pressure limit between the drywell and suppression chamber can be quickly exceeded.

d. Because of the evaporative cooling in the drywell and the convective cooling in the suppression chamber, the negative design pressure of containment can be exceeded.

QUESTION: 073 (1.00)

The plant was operating at 100% power when a MSL high flow signal initiated an MSIV isolation and reactor scram. Conditions are as follows:

RPV pressure cycling 1076 psig to 978 psig
RPV level 105"
Reactor building pipe chase temperature 145 F
Main steam line pipe tunnel temperature 155 F

Which of the following systems are available for RPV pressure control?

1. SRVs
2. RHR in steam condensing
3. RCIC operating with suction from the CST
4. Main Steam line drains

a. 1 only.

b. 1 and 3 only.

c. 1, 2 and 3 only.

d. 1, and 4 only.

QUESTION: 074 (1.00)

Given the following during an ATWS:

Reactor power is 5%
Suppression pool water temperature is 127 degrees.
Reactor pressure is being controlled 800 to 1000 psig with SRVs.
Reactor water level is slowly decreasing.
Boron injection and CRD are operating.
All other high pressure injection systems are unavailable.
All low pressure injection systems are available.

Reactor water level decreases to -40 inches. WHICH of the following describe the required actions?

a. Assure that 7 SRVs are open.
When reactor pressure is below the shutoff head, slowly inject with condensate and maintain water level less than 202.3 inches.

b. Assure that 7 SRVs are open.
When reactor pressure is below the shutoff head, slowly inject with low pressure ECCS systems and maintain water level above -14 inches but as low as possible.

c. Prevent all injection into the RPV except boron and CRD.
Assure that 7 SRVs are open.
When reactor pressure decreases to 153 psig slowly begin injection with condensate and maintain water level above -14 inches but as low as possible.

d. Prevent all injection into the RPV except boron and CRD.
Assure that 7 SRVs are open.
When reactor pressure decreases to 153 psig slowly begin injection with ECCS and maintain water level less than 202.3 inches.

QUESTION: 075 (1.00)

During a forced control room evacuation, the operators actuated the Appendix "R" disconnect switches in panels 2CES*PNL415, 416, and 417. WHICH of the following describe the effect on feedwater and RCIC?

a. Reactor Feedpumps A and B are NOT available for injection. RCIC is available for injection, auto initiations and isolations are operable.

b. Reactor Feedpumps A and B are NOT available for injection. RCIC is available for injection, but auto initiations and isolations are NOT available except for turbine overspeed.

c. Reactor Feedpumps A and B are available for injection. RCIC is available for injection, auto initiations and isolations are operable.

d. Reactor Feedpumps A and B are available for injection. RCIC is available for injection, but auto initiations and isolations are NOT available except for turbine overspeed.

QUESTION: 076 (1.00)

During a forced control room evacuation, the reactor was NOT shutdown prior to leaving the control room. WHICH of the following positions has the responsibility to scram the reactor outside of the control room?

a. SSS

b. ASSS

c. CSO

d. Control Room "E"

QUESTION: 077 (1.00)

WHICH of the following will result in reactor coolant discharging into the reactor building?

a. Low pressure core spray injection valve open. Injection check valve closed. Core spray pump is running. Leak in core spray discharge pipe upstream of the injection check valve.

b. Reactor water cleanup pump seal failure. Isolation valves are open.

c. RCIC is operating on minimum flow. Leak in minimum flow line downstream of minimum flow valve.

d. Reactor building closed loop cooling system leak in the pipe to recirculation pump 1A.

QUESTION: 078 (1.00)

During an ATWS, suppression pool temperature is at 150 degrees F and rising. Reactor pressure is being controlled 800 - 1000 psig. WHICH of the following describes actions that need to be taken?

a. Continue with pressure control 800 - 1000 psig.

b. Reduce the pressure control band to 700 - 800 psig.

c. Emergency RPV depressurization is required.

d. Depressurize the RPV maintaining the cooldown rate less than 100 degrees F/hour.

QUESTION: 079 (1.00)

Reactor pressure is 400 psig
Reactor water level is 180 inches
Suppression pool temperature is 165 degrees
Suppression pool water level is 199 feet

WHICH of the following describes the Heat Capacity Level Limit.

a. 192 feet.

b. Between 193 - 195 feet.

c. Between 196 - 198 feet.

d. 199 feet.

QUESTION: 080 (1.00)

What is the Maximum Core Uncovery Time Limit?

a. The time that the core may remain uncovered and uncooled before peak clad temperatures exceed 1500 degrees F.

b. The time that the core may remain uncovered and uncooled before fuel melting will occur.

c. The time allowed to establish RPV flooding pressure.

d. The time to flood the RPV to the top of the active fuel with RPV pressure at the minimum RPV flooding pressure.

QUESTION: 081 (1.00)

A reactor scram has occurred due to MSL high radiation. All MSIVs are closed. Turbine building HVAC is operating in the normal mode. Offgas is unavailable.

WHICH of the following conditions will require filling of the main steamlines between the MSIVs with water? ASSUME 60 ~~minutes~~ hours after reactor shutdown.

a. Main steam line radiation level cannot be determined.
   Turbine Building HVAC radiation level 3.00E-3 uCi/cc.

b. Main steam line radiation level 600 mR/hr.
   Turbine Building HVAC radiation level 3.00E-3 uCi/cc.

c. Main steam line radiation level 600 mR/hr.
   Turbine Building HVAC radiation level cannot be determined.

d. Main steam line radiation level 800 mR/hr.
   Turbine Building HVAC radiation level ~~cannot be determined~~. 2.00 E-3 uCi/cc

/ mef tmp

QUESTION: 082 (1.00)

The operator determines that RPV water level cannot be maintained above 159.3 inches with the normal subsystems. The shift supervisor directs implementation of EOP-6 and OP-36A. WHICH of the following subsystems can maintain a LONG TERM injection path into the RPV with a reactor pressure band of 300 - 400 psig?

a. Condensate transfer using EOP-6 Attachment 8

b. SLS boron tank using OP-36A

c. RHR service water cross tie using EOP-6 Attachment 5

d. ECCS keep full using EOP-6 Attachment 7

QUESTION: 083 (1.00)

Containment pressure is approaching the primary containment pressure limit. Primary containment water level is 210 feet. WHICH of the following describes the required containment vent path.

a. Vent the drywell through the 2 inch purge line only.

b. Vent the suppression chamber through the 2 inch purge line only.

c. Vent the drywell through the 2 inch purge line and 2GTS*AOV101 after GTS Train B Blind Flanged.

d. Vent the suppression chamber through the 2 inch purge line and 2GTS*AOV101 after GTS Train B Blind Flanged.

QUESTION: 084 (1.00)

While at 100% power the following conditions are observed:

A decrease in reactor pressure.
A small decrease in reactor power.
An increase in reactor water level stabilizing out at a slightly higher level than normal.

WHICH of the following can explain the plant response?

a. High pressure core spray initiation.

b. RCIC initiation.

c. SRV actuation.

d. Loss of the steam flow signal to the feedwater level controller.

QUESTION: 085 (1.00)

WHICH of the following is NOT a required operator action for a dropped irradiated fuel bundle.

a. Evacuate the drywell.

b. Isolate normal reactor building ventilation.

c. Evacuate the refueling floor.

d. Assure that the dropped fuel bundle is in a safe position.

QUESTION: 086 (1.00)

During preparation for refueling with the fuel pool at the normal level, the gate between the reactor cavity and fuel pool fails with the outer reactor cavity seal NOT yet installed. SELECT the fuel pool level response.

a. Fuel pool level will decrease but be maintained above the technical specification minimum fuel pool level.

b. Fuel pool level will decrease approximately 12 feet.

c. Fuel pool level will decrease to approximately 1 feet above the top of the fuel.

d. Fuel pool level will decrease to below the top of fuel with two thirds of the fuel covered.

QUESTION: 087 (1.00)

WHICH statement below describes the basis for the CAUTION in N2-OP-61A, Primary Containment Ventilation Purge and Nitrogen System, "DO NOT VENT, DEPRESSURIZE OR PURGE THE PRIMARY CONTAINMENT IF CONTAINMENT TEMPERATURE IS ABOVE 150 degrees F."

a. This is the maximum operating temperature for the standby gas treatment system filters.

b. Venting above this temperature will cause "chugging" at the downcomer vents.

c. Venting will result in excessive loss of non-condensibles which could cause containment failure, if sprays are subsequently used to lower pressure.

d. Above this temperature possible recombination of hydrogen and oxygen can occur in the standby gas treatment system which could fail the system piping and damage the SBGT filters.

QUESTION: 088 (1.00)

The MSIV's and the inboard and outboard steam line drain valves have automatically isolated on a steam tunnel high temperature, which has cleared. Condenser vacuum is 8.0" Hg.

If the condenser vacuum remains at 8.0" Hg, WHICH of the following conditions will allow the inboard and outboard steam line drain valves to be opened?

a. Reactor Mode Switch in STARTUP.
Turbine stop valves are closed.
Reset Group 1 isolation signal

b. Condenser Vacuum Bypass Switches in the BYPASS position.
Reactor Mode Switch in REFUEL.
Turbine bypass valves are closed.
Turbine control valves closed.
Turbine stop valves open.
Reset Group 1 isolation signal

c. Condenser Vacuum Bypass Switches in the BYPASS position.
Reactor Mode Switch in SHUTDOWN.
Turbine stop valves and bypass valves are closed.
Reset Group 1 isolation signal

d. Condenser Vacuum Bypass Switches in the BYPASS position.
Reactor Mode Switch in RUN.
Turbine stop valves are closed.
Reset Group 1 isolation signal

QUESTION: 089 (1.00)

The reactor mode switch is in STARTUP and the plant is critical to the point of adding heat. Annunciator "24/48VDC DISTRIBUTION PANEL 300A UNDERVOLTAGE" alarms in the control room. It is determined that panel 2BWS-PNL300A is lost. WHICH of the following describe the plant effects?

a. Loss of A and C SRMs
   Loss of A, C, E, and G IRMs
   No trip of RPS A

b. Loss of A and C SRMs
   Loss of A, C, E, and G IRMs
   Trip of RPS A

c. Loss of A and C SRMs
   Loss of A, C, E, and G IRMs
   Loss of A, C, E APRMs
   Trip of RPS A

d. Loss of A, C, E APRMs
   Trip of RPS A

QUESTION: 090 (1.00)

A complete loss of offsite power has occurred.
2ENS*SWG101 and 2ENS*SWG103 are NOT available.
Division III Diesel is running.

WHICH of the following describe immediate operator actions to be taken in accordance with SOP-3 "Loss of AC Power?"

a. Throttle service water flow to obtain at least 650 gpm to the diesel.
   Monitor diesel frequency, voltage and loading.

b. Depress Division III EMERGENCY STOP pushbutton.
   Enter N2-SOP-01 Station Blackout procedure.

c. Verify isolation of non essential service water.
   Throttle service water discharge valves to maintain service water flow less than 10,000 gpm.
   Monitor diesel frequency, voltage and loading.

d. Verify proper automatic response of service water system.
   Monitor diesel frequency, voltage and loading.

QUESTION: 091 (1.00)

The high pressure core spray (CSH) system was manually initiated when RPV water level was 120 inches following a reactor scram due to loss of all feedwater pumps. Assuming no other operator action and reactor pressure is maintained at 920 psig by the turbine bypass valves, WHAT long term water level band will be automatically maintained by the CSH system?

a. 108.8 - 202.3 inches

b. 120 - 202.3 inches

c. 17.8 - 202.3 inches

d. 17.8 - 108.8 inches

QUESTION: 092 (1.00)

While at 100% power all drywell unit coolers except UC3A are in service. Reactor building closed loop cooling (CCP) drywell cooling water isolation valve 2CCP*MOV122 inadvertently closes. WHICH of the following describe the response of the drywell unit coolers?

a. All drywell unit coolers will trip.

b. Drywell unit coolers UC1A-D will trip.
   Drywell unit coolers UC2A-D will continue to operate.
   Drywell unit cooler UC3B will continue to operate.

c. Drywell unit coolers UC1A-D will trip.
   Drywell unit coolers UC2A-D will continue to operate.
   Drywell unit cooler UC3B will trip.

d. Drywell unit coolers UC1A-D will continue to operate.
   Drywell unit coolers UC2A-D will trip.
   Drywell unit cooler UC3B will continue to operate.

QUESTION: 093 (1.00)

WHICH of the following is the largest cooling load on the turbine building closed loop cooling (CCS)?

a. Reactor feedpump lube oil cooler.

b. Turbine building equipment drain cooler.

c. Offgas condenser.

d. Electro-Hydraulic Control unit cooler.

QUESTION: 094 (1.00)

A high drywell pressure reactor scram has occurred. WHICH of the following describe the response of the instrument air or nitrogen supply to the Non-ADS SRVs and inboard MSIVs during the high drywell pressure condition?

a. Non-ADS SRVs - supply automatically isolates and cannot be reopened.
   Inboard MSIVs - supply automatically isolates and cannot be reopened.

b. Non-ADS SRVs - supply automatically isolates and can be reopened with operator action.
   Inboard MSIVs - supply automatically isolates and can be reopened with operator action.

c. Non-ADS SRVs - supply does NOT isolate.
   Inboard MSIVs - supply automatically isolates and can be reopened with operator action.

d. Non-ADS SRVs - supply does NOT isolate.
   Inboard MSIVs - supply does NOT isolate.

QUESTION: 095 (1.00)

While operating at 100% power, a 4 X normal radiation signal is sensed by the "B" main steamline radiation detector.

Which of the following correctly describes the expected automatic response of the main steam system to this event?

a. The B steam line inboard and outboard MSIV will close.

b. A Full Group 1 containment isolation signal will result.

c. A Half Group 1 containment isolation logic actuation will result.

d. One solenoid on each MSIV energizes, but no valve actuation will occur.

QUESTION: 096 (1.00)

The operating CRD pump has tripped due to low suction pressure. The standby pump will NOT start. For these conditions, the operator is directed in N2-OP-30 "Control Rod Drive," to isolate the RDS RPV Water Level Instrument Backfill System. WHICH of the following is the reason for isolating the backfill system?

a. To prevent CRD pump runout when restarting the CRD pump.

b. To prevent a feedwater pump trip on spurious low suction pressure signal.

c. To minimize the possibility of air getting into the backfill lines when starting a CRD pump.

d. To minimize the amount of fluid injected into the instrument reference leg when starting a CRD pump.

QUESTION: 097 (1.00)

Refer to Attachment 23 of N2-EOP-6 which is provided. Given the following data:

Containment Flooding is being performed by RHS Service Water Crosstie.
Lake Temperature is 55 degrees.
SUPPR CHAMBER PRESS on 2CMS*PI7A is 60.2 psig
PRIMARY CONTMT INLET N2 PRESS on 2CPS-PI127 is 31.4 psig

WHICH of the following describes containment water level and fuel zone level instrumentation?

a. Containment water level is between 293 and 294 feet.
Fuel zone level instrumentation is NOT on scale.

b. Containment water level is between 290 and 291 feet.
Fuel zone level instrumentation is NOT on scale.

c. Containment water level is between 290 and 291 feet.
Fuel zone level instrumentation is on scale.

d. Containment water level is between 293 and 294 feet.
Fuel zone level instrumentation is on scale.

QUESTION: 098 (1.00)

WHICH color code identification of the Digital Radiation Monitoring System (DRMS) monitor represents a high radiation condition?

a. Yellow

b. Red

c. White

d. Blue

QUESTION: 099 (1.00)

During a start of the reactor building normal ventilation system, the operator started supply fan 2HVR-FN1A and then one minute later placed the reactor building floor exhaust fan 2HVR-FN2A start switch in the START position. WHICH of the following describe the consequences of the operator actions?

a. Positive pressure was permitted in the reactor building. The supply fan had the potential to trip on high reactor building positive pressure.

b. Positive pressure was permitted in the reactor building. The exhanust fan had the potential to NOT start on the high reactor building positive pressure.

c. Negative pressure was maintained in the reactor building. The exhanust fan had the potential to NOT start on excessive reactor building negative pressure.

d. This is the expected method to place reactor building normal ventilation in service.

QUESTION: 100 (1.00)

While at power the STATION BAT 1A/1B/1C 125 VDC SYSTEM TROUBLE annunciator illuminates. The computer point indicates 125VDC STA BAT 1A GROUND. The operator removes the affected battery from service and the ground condition remains. The operator restores the battery to service and the ground condition remains. The operator opens the connected load breaker and the ground condition clears. WHICH of the following describe the source of the ground condition?

a. Battery and connected load.

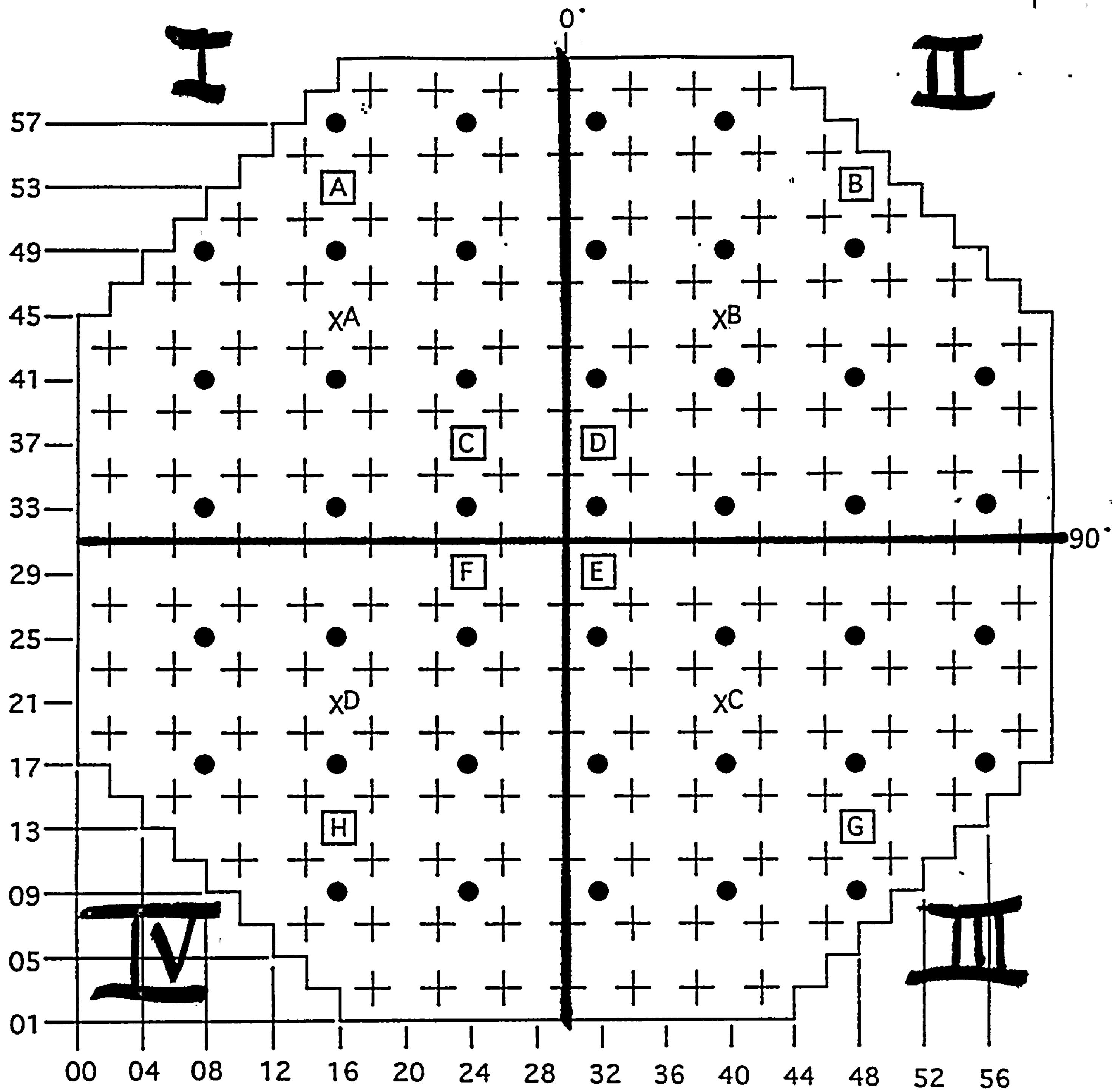
b. Battery charger only.

c. Connected load only.

d. Battery only.

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

QUESTION 14



LEGEND

● - LPRM DETECTOR ASM (43)

+ - CONTROL RODS (185)

X - SRM DETECTORS (4)

□ - IRM DETECTORS (8)

FIGURE 1

TOP VIEW OF CORE

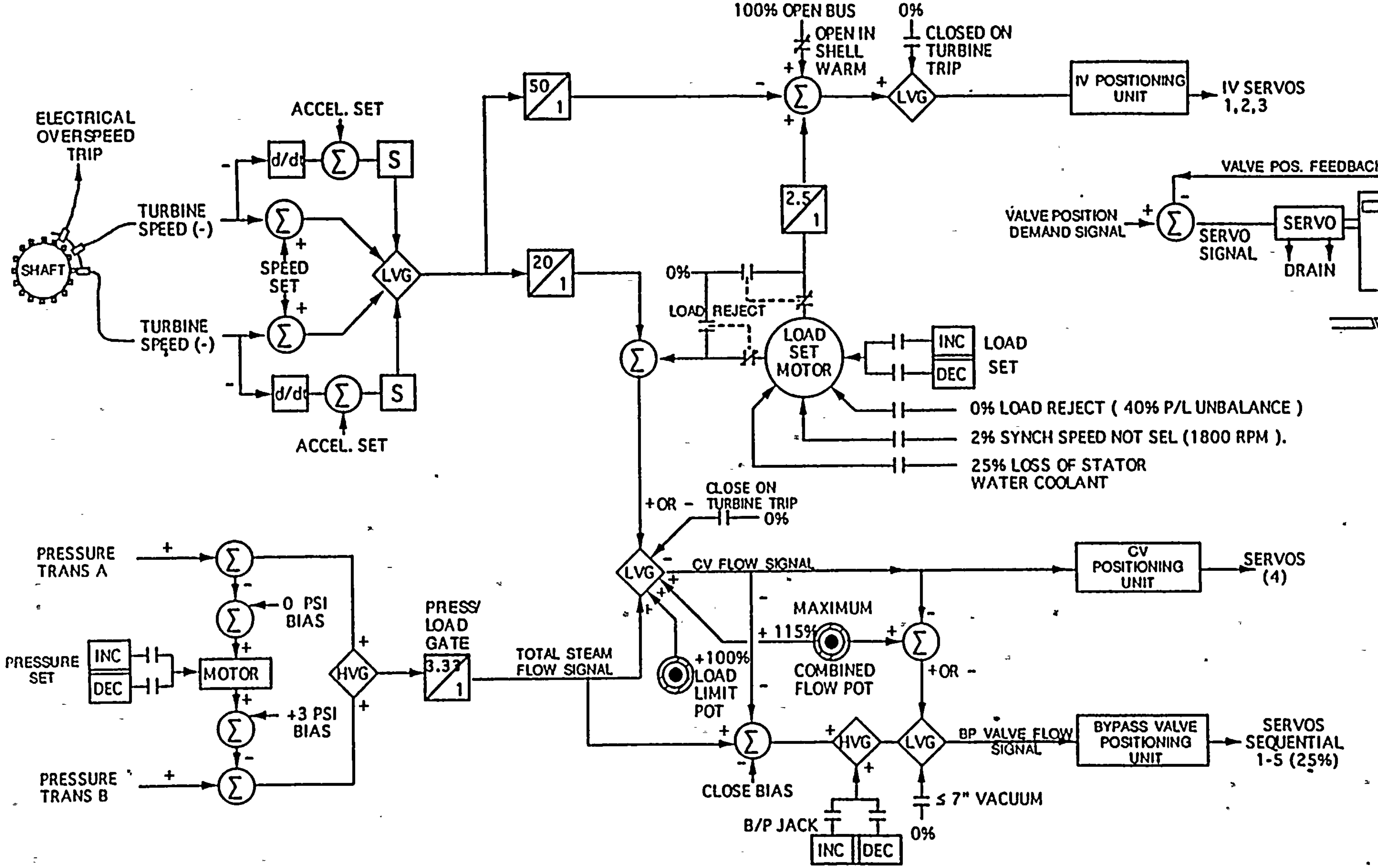


FIGURE 2

EHC Control Circuit

QUESTION 29

QUESTION 64

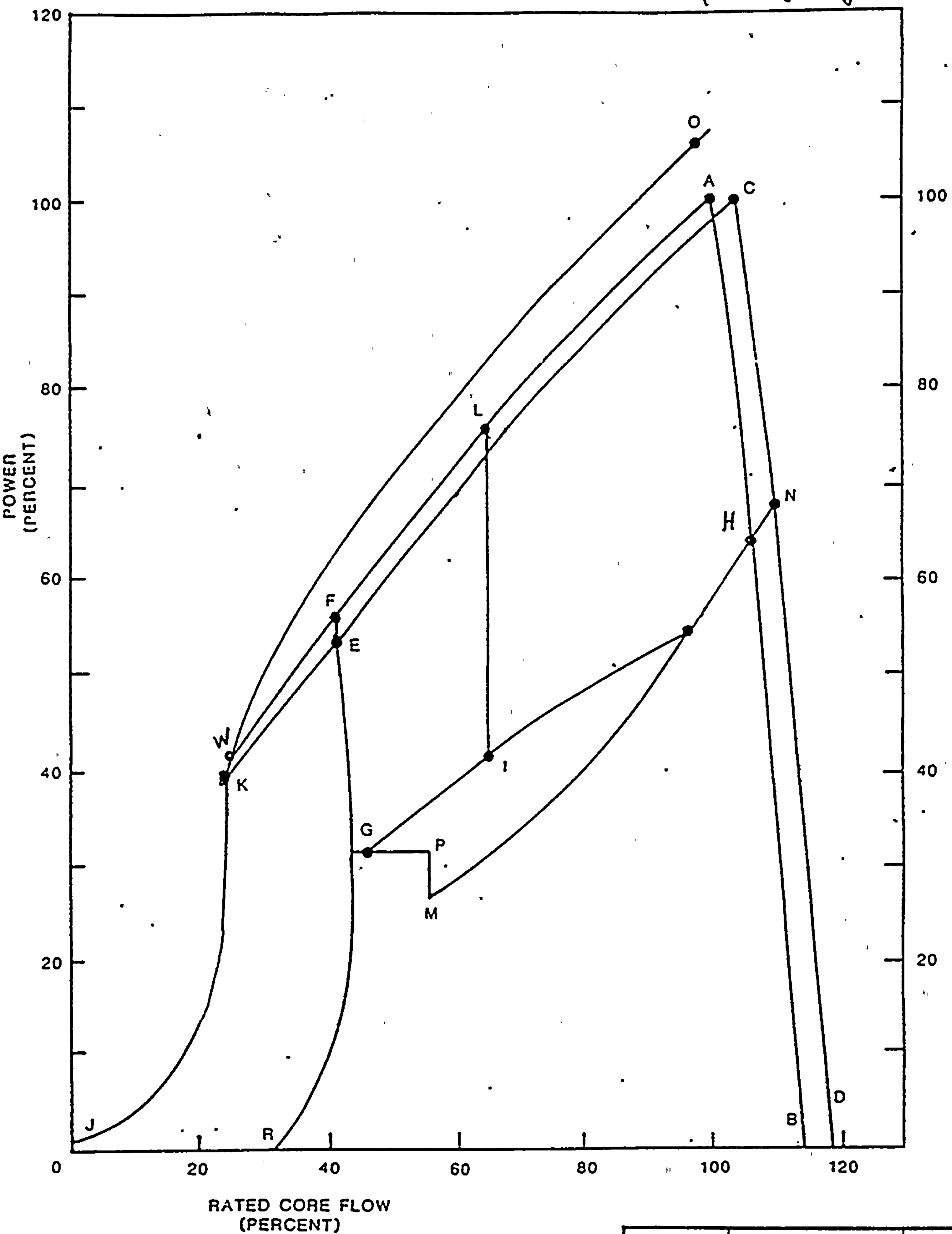
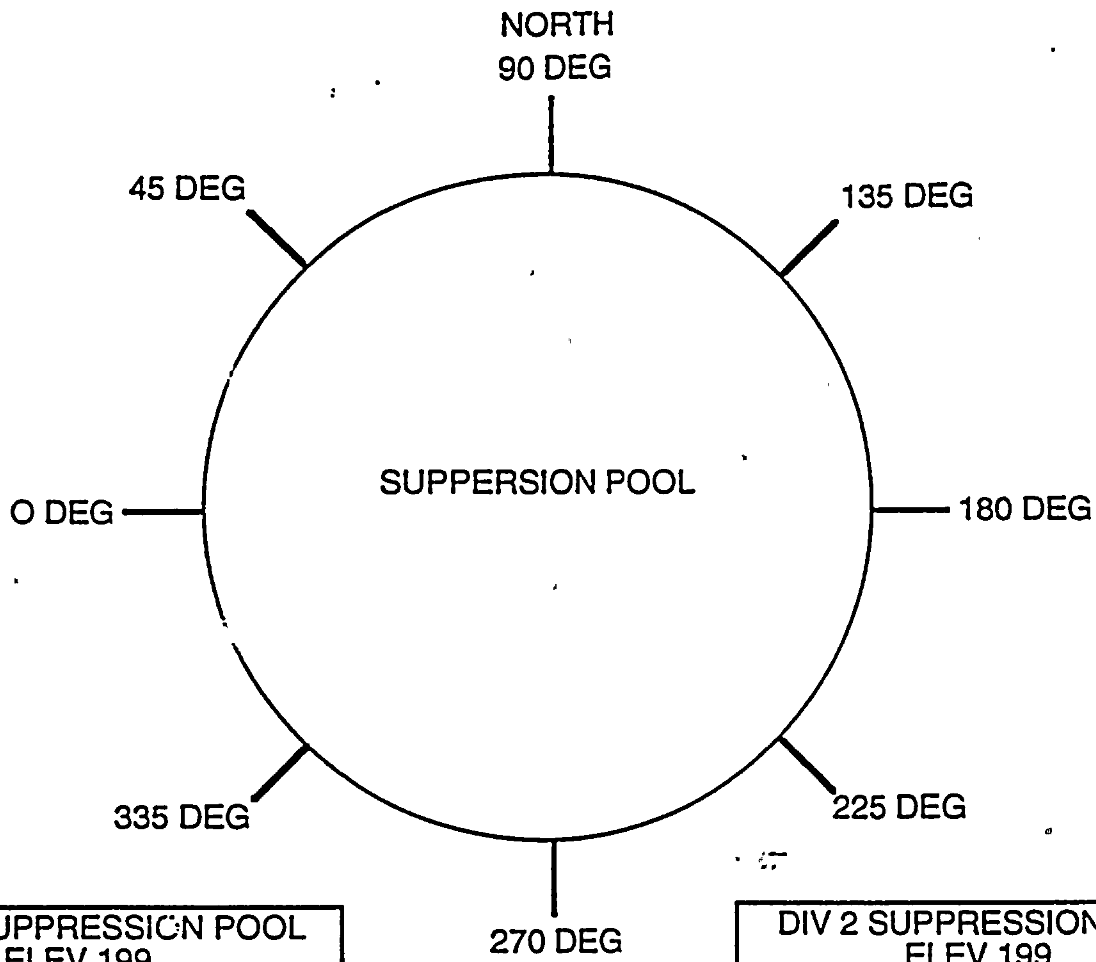


Figure 11	O2-OPS-001-202-2-01	Rev 0
TITLE Typical Operating Map		

QUESTION 71

SUPPRESION POOL TEMEPERATURE MONITORING



DIV 1 SUPPRESSION POOL ELEV 199	
TEMP ELEMENT	AZIMUTH
2CMS*TE50A	14 DEG
2CMS*TE51A	50 DEG
2CMS*TE52A	84 DEG
2CMS*TE53A	122 DEG
2CMS*TE54A	156 DEG
2CMS*TE55A	193 DEG
2CMS*TE56A	230 DEG
2CMS*TE57A	264 DEG
2CMS*TE58A	302 DEG
2CMS*TE59A	341 DEG

DIV 1 SUPPRESSION POOL ELEV 197	
2CMS*TE67A	60 DEG
2CMS*TE68A	140 DEG
2CMS*TE69A	240 DEG
2CMS*TE70A	328 DEG

DIV 2 SUPPRESSION POOL ELEV 199	
TEMP ELEMENT	AZIMUTH
2CMS*TE50B	14 DEG
2CMS*TE51B	50 DEG
2CMS*TE52B	84 DEG
2CMS*TE53B	122 DEG
2CMS*TE54B	156 DEG
2CMS*TE55B	193 DEG
2CMS*TE56B	230 DEG
2CMS*TE57B	264 DEG
2CMS*TE58B	302 DEG
2CMS*TE59B	341 DEG

DIV 2 SUPPRESSION POOL ELEV 197	
2CMS*TE67B	60 DEG
2CMS*TE68B	140 DEG
2CMS*TE69B	240 DEG
2CMS*TE70B	328 DEG

Figure 3	O2-OPS-001-223-2-06	Rev 2
TITLE Suppression Pool Temperature Monitoring		

QUESTION 97

1.0 PURPOSE

1.1 To provide instruction for determining Containment Level, when actual containment level exceeds range of containment level instrumentation.

1.2 Applicability

1.2.1 When used to support the following EOP Flow Charts, it is required to determine containment level above el 224 ft.

- N2-EOP-RPV Section RL, Level Control
- N2-EOP-PC Section SPL, Suppression Pool Level Control
- N2-EOP-PC Section PCP, Primary Containment Pressure Control
- N2-EOP-C1, Alternate Level Control
- N2-EOP-C4, RPV Flooding
- N2-EOP-C5, Level Power Control
- N2-EOP-C6, Primary Containment flooding

1.2.2 Containment level CANNOT be determined between el 217 ft, upper range of level instrument, and el 224 ft.

2.0 TOOLS AND MATERIALS

ITEM	QTY	LOCATION
PA235 Key (See Note Below)	2	Control Room CSO Desk

NOTE: Keys PA235, PA1235 and PA2235 are interchangeable.

3.0 PROCEDURE

3.1 Place control switch for 2CPS-FV125, CONTMT N2 MAKEUP FLOW CONTROL to CLOSE *(2CEC*PNL873 Control Room)* . . . . (__)

3.2 Verify closed, the following valves:

- 2CPS*SOV119, SUPPR CHAM N2 MAKEUP OUTBOARD ISOL VLV *(2CEC*PNL873)* . . . . (__)
- 2CPS*SOV121, SUPPR CHAM N2 MAKEUP INBOARD ISOL VLV *(2CEC*PNL875)* . . . . (__)

T 3.3 IF a LOCA signal is present, using a PA235 key, place the following keylock switches in OVERRIDE:

N/A, LOCA signal is NOT present . . . . (__)

- PURGE OUTBD VALVES OVERRIDE *(2CEC*PNL873)* . (__)
- PURGE INBOARD VLVS OVERRIDE *(2CEC*PNL875)* . (__)

3.4 IF possible, close 2GSN-V88, N2 Sply Header Isol *(Rx Bldg, EL 261', 2AAS-TK2, Rx Bldg Breathing Air Accumulator)* . . . . (__)

N/A, 2GSN-V88 could NOT be closed . . . . (__)

3.5 Open the following valves:

- 2CPS*SOV120, DRYWELL N2 MAKEUP OUTBOARD ISOL VLV, *(2CEC*PNL873)* . . . . (__)
- 2CPS*SOV122, DRYWELL N2 MAKEUP INBOARD ISOL VLV, *(2CEC*PNL875)* . . . . (__)

3.6 Using Figure 23.1, track primary containment water level as a function of ΔP (S-D) . . . . (__)

NOTES:

1. "S" pressure is indicated on 2CMS*PI7A, SUPPR CHAMBER PRESS, *(2CEC*PNL601)*. "D" pressure is indicated on 2CPS-PI127, PRIMARY CONTMT INLET N2 PRESS, *(2CEC*PNL873)*.
2. When injection temperatures are less than or equal to 70°F, water levels are referenced to the 70°F curve of Figure 23.1.

   When injection temperatures are greater than 70°F, water levels are referenced to the 210°F curve of Figure 23.1.

<u>NOTES</u>: (Cont)

3. As the primary containment water level rises toward el 292.5 ft, the RPV Fuel Zone level instrument should come on scale and track with containment level.

3.7 WHEN, with injection into the primary containment from sources external to the primary containment, one of the following conditions exist, notify the EOP Director.

- Primary containment water level rises to 292.5 Ft . . . . (__)

OR

- The quantity (S-D) remains constant with active injection . . . . (__)

SSS notified . . . . (__)

3.8 Monitor containment water level using B22-R615, REACTOR VESSEL LEVEL FUEL ZONE Instrument *(2CEC*PNL601)* . . . . (__)
(See Figure 23.2)

3.9 IF REACTOR VESSEL LEVEL FUEL ZONE Instrument is <u>NOT</u> on scale AND tracking, OR is otherwise unavailable, notify the EOP Director.

N/A, Instrument is on scale AND tracking . . . . (__)

SSS notified . . . . (__)

<u>NOTE</u>: Containment level should be considered at el 298.5 ft (vent elevation) at this point.

4.0 RESTORATION — Initials/Date

NOTES:
1. This section is NOT to be performed until specifically directed by the EOP Director/SSS.
2. Independent verifications may be delayed until emergency conditions no longer exist.

4.1 Close the following valves:

- 2CPS*SOV120, DRYWELL N2 MAKEUP OUTBOARD ISOL VLV, *(2CEC*PNL873)* . . . . (__)
- 2CPS*SOV122, DRYWELL N2 MAKEUP INBOARD ISOL VLV, *(2CEC*PNL875)* . . . . (__) ____/____

____/____
Ind. Verifier

4.2 Verify open 2GSN-V88, N2 Sply Header Isol, *(Rx Bldg, EL 261', 2AAS-TK2, Rx Bldg Breathing Air Accumulator)*. ____/____

____/____
Ind. Verifier

(T) 4.3 IF a LOCA signal was present, using a PA235 key, place the following keylock switches in RESET:

N/A, LOCA signal was NOT present . . . . (__)

- PURGE OUTBD VALVES OVERRIDE *(2CEC*PNL873)* . (__)
- PURGE INBOARD VLVS OVERRIDE *(2CEC*PNL875)* . (__) ____/____

____/____
Ind. Verifier

4.4 Open the following valves:

- 2CPS*SOV119, SUPPR CHAM N2 MAKEUP OUTBOARD ISOL VLV *(2CEC*PNL873)* . . . . (__)
- 2CPS*SOV121, SUPPR CHAM N2 MAKEUP INBOARD ISOL VLV *(2CEC*PNL875)* . . . . (__) ____/____

____/____
Ind. Verifier

Initials/Date

4.5 Place control switch for 2CPS-FV125, CONTAINMENT N2 MAKEUP FLOW CONTROL to MOD *(2CEC*PNL873)*. ____/____

____/____
Ind. Verifier

4.6 SSS Review

Verify that restoration is complete. Record comments in Remarks below:

Remarks: ____
____
____
____
____
____

______________________________/________/________
SSS Signature Date Time

PRIMARY CONTAINMENT WATER LEVEL AS A FUNCTION OF DIFFERENTIAL PRESSURE (ΔP) BETWEEN 2CMS*PI7A (S) AND 2CPS-PI127 (D)

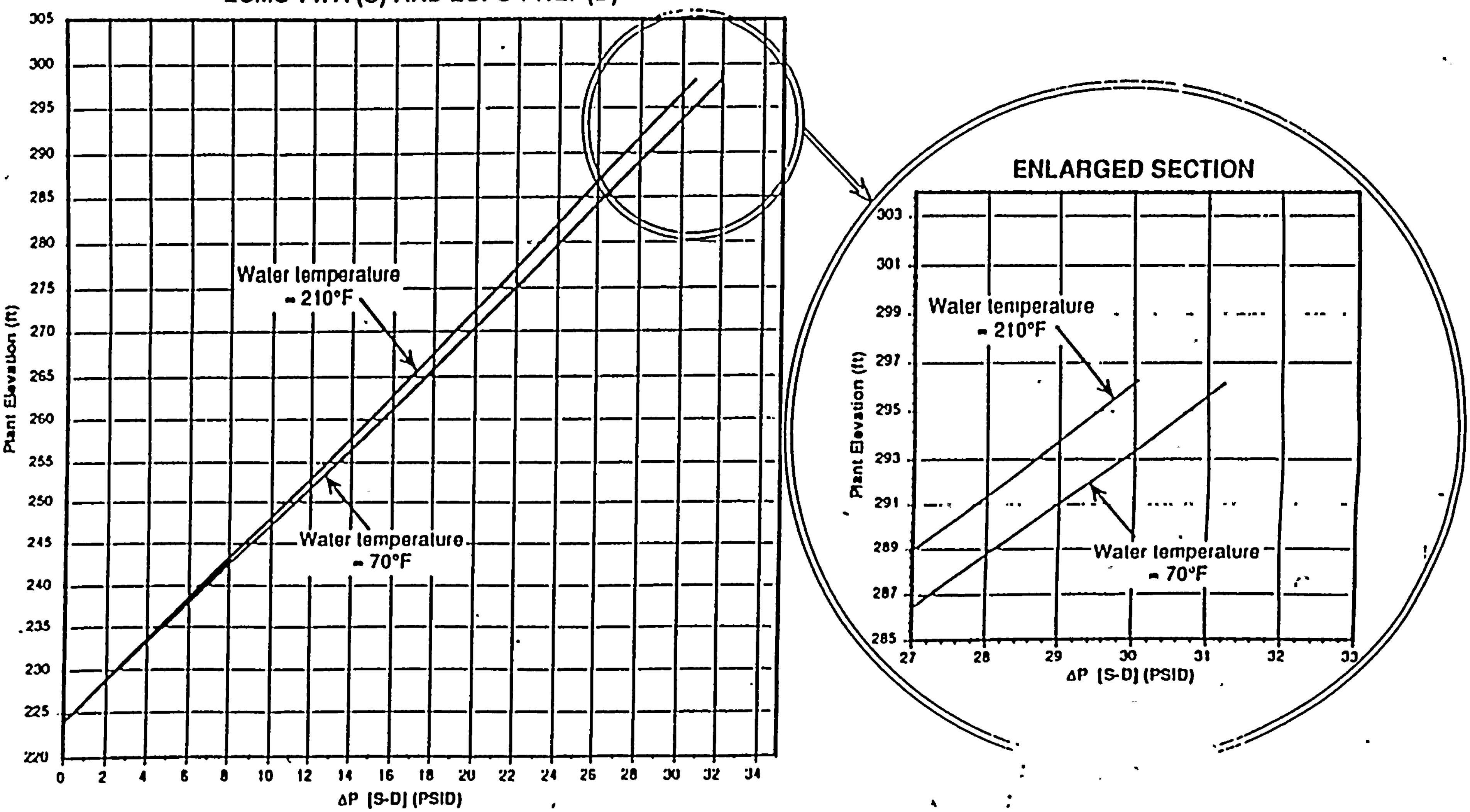
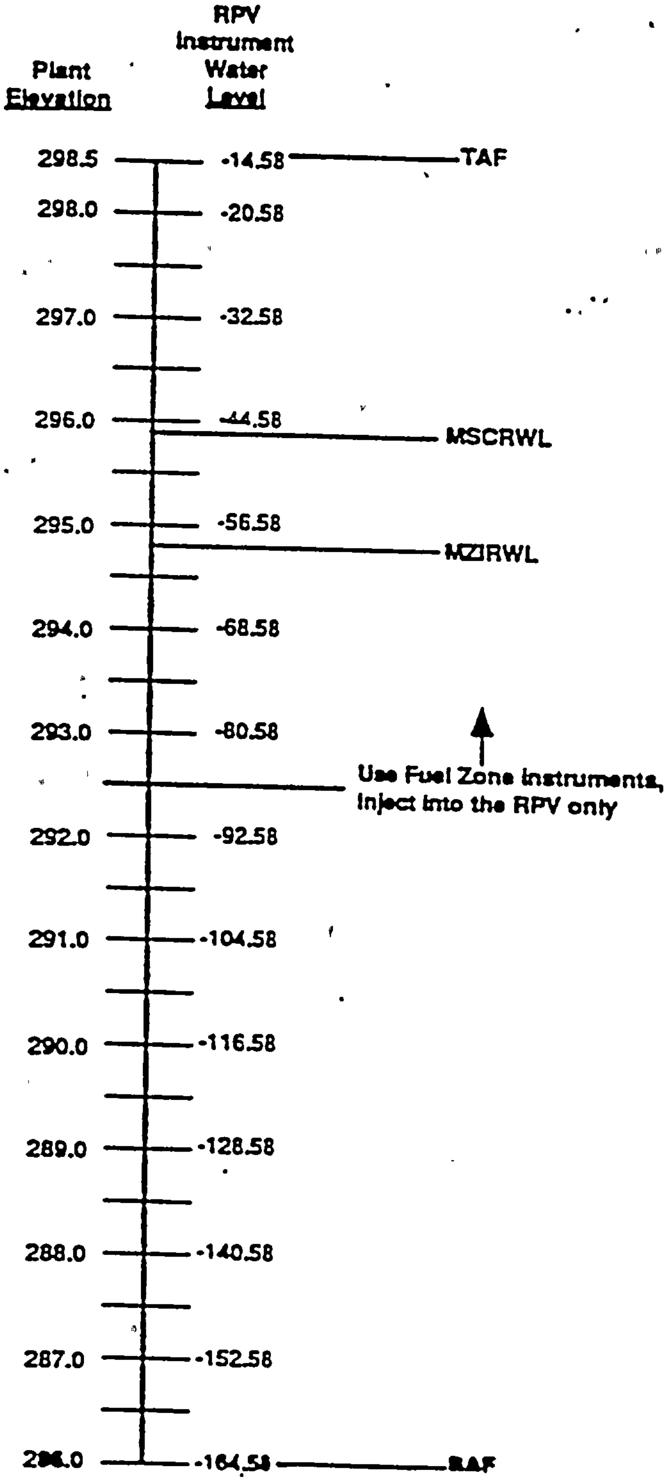


Figure 23.1

FIGURE 23.2

RPV INSTRUMENT WATER LEVEL AND RELATED PLANT ELEVATIONS



A N S W E R   K E Y

MULTIPLE CHOICE

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

ANSWER KEY

046 d

047 d

048 b

049 c

050 b

051 a

052 c

053 d

054 b

055 d

056 a

057 b

058 b

059 c

060 a

061 c

062 b

063 c

064 d

065 a

066 b

067 b

068 c

069 b

070 b

071 c

072 b

073 a

074 c

075 b

076 d

077 b

078 b

079 c

080 a

081 a

082 b

083 d

084 a

085 d

086 c

087 c

088 c

089 b

090 b

091 a

ANSWER KEY

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

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

U. S. NUCLEAR REGULATORY COMMISSION
SITE SPECIFIC EXAMINATION
LIMITED SENIOR OPERATOR LICENSE
REGION 1

APPLICANT'S NAME: ______________________

FACILITY: Nine Mile Point 2

REACTOR TYPE: BWR-GE5

DATE ADMINISTERED: May 6, 1994

INSTRUCTIONS TO APPLICANT:

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 three (3) hours after the examination starts.

TEST VALUE	APPLICANT'S SCORE	FINAL GRADE
55.00	________	________ %

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

____
Applicant's Signature

ANSWER SHEET

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	____

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	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	___

(********** 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. Ensure all information you wish to have evaluated as part of your answer is on your answer sheet. Scrap paper will be disposed of immediately following the examination.

11. To pass the examination, you must achieve a grade of 80% or greater.

12. There is a time limit of three (3) hours for completion of the examination.

13. 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)

With K-eff = 0.985, HOW MUCH reactivity must be added to make the reactor critical?

a. 0.0148 delta k/k

b. 0.0150 delta k/k

c. 0.0152 delta k/k

d. 0.0154 delta k/k

QUESTION: 002 (1.00)

A reactor is shutdown by 1.8% delta k/k. Positive reactivity is added which increases stable neutron count rate from 15 to 300 cps.

WHAT is the current value of K-eff?

a. 0.982

b. 0.990

c. 0.995

d. 0.999

QUESTION: 003 (1.00)

A cooling water system is operating at steady-state conditions at a flow rate of 900 gpm with 60 psid across the flow transmitter venturi. If cooling water flow rate is increased to 1800 gpm, WHICH of the following is the approximate differential pressure across the flow transmitter venturi?

a. 240 psid.

b. 180 psid.

c. 120 psid.

d. 60 psid.

QUESTION: 004 (1.00)

Refer to the attached drawing of the lube oil heat exchanger.

Based on the data in the figure, WHICH of the following is the temperature of the oil exiting the heat exchanger?

a. 110 degree F

b. 135 degree F

c. 140 degree F

d. 160 degree F

QUESTION: 005 (1.00)

Given the following data during refueling activities and referring to the attached Figure 1, "Top View of the Core":

Shutdown margin has **NOT** been demonstrated.
Shorting links are removed.
No special moveable detectors are in place.
All SRMs are surrounded by fuel assemblies.

	Counts per second	Conditions
SRM A	2	Signal/Noise = 3.5
SRM B	190	
SRM C	200	Bypassed due to occasional upscale alarms
SRM D	170	

WHICH of the following describes the limitation, if any, on fuel movement activity?

a No fuel movement is permitted.

b. Fuel movement is permitted in quadrants II and IV only.

c. Fuel movement is permitted in quadrants II, III and IV only.

d. Fuel movement is permitted in all quadrants.

QUESTION: 006 (1.00)

During refueling, the "A" loop of the residual heat removal is being used for suppression pool cooling and the "B" loop of the residual heat removal system is being used for shutdown cooling.

If a valid Level 1 reactor water level condition occurs, WHICH of the following describes the response of the "A" and "B" loops of the residual heat removal system?

a. - "A" loop realigns from suppression pool cooling mode to LPCI mode with the heat exchanger bypass valve closed.
   - "B" loop realigns from shutdown cooling to LPCI mode with the heat exchanger bypass valve closed.

b. - "A" loop realigns from suppression pool cooling mode to LPCI mode with the heat exchanger bypass valve closed.
   - "B" pump trips and does NOT automatically restart.

c. - "A" loop real realigns from suppression pool cooling mode to LPCI mode with the heat exchanger bypass valve open.
   - "B" pump trips and does NOT automatically restart.

d. - "A" loop realigns from suppression pool cooling mode to LPCI mode with the heat exchanger bypass valve open.
   - "B" loop realigns from shutdown cooling to LPCI mode with the heat exchanger bypass valve open.

QUESTION: 007 (1.00)

The "A" train of Standby Gas Treatment System (GTS) is in operation with the reactor building ventilation isolated. The GTS is maintaining a -1/4 in WG differential pressure in the reactor building when the fan recirculation pressure control valve (PV5A) closes. WHICH of the following describes the effect on total GTS flow and reactor building differential pressure.

a. Total GTS flow will decrease, reactor building differential pressure will be less negative.

b. Total GTS flow will decrease, reactor building differential pressure will more negative.

c. Total GTS flow will increase, reactor building differential pressure will be less negative.

d. Total GTS flow will increase, reactor building differential pressure will be more negative.

QUESTION: 008 (1.00)

Refueling is in progress with the Reactor Cavity flooded and the Fuel Pool Gates removed.

WHICH ONE (1) of the following actions must be suspended on the loss of secondary containment integrity?

a. Removal of a jet pump nozzle with no fuel in the vessel.

b. Moving a fuel cask over spent fuel.

c. Channeling new fuel.

d. Adding water to the spent fuel pool with hoses.

QUESTION: 009 (1.00)

WHICH of the following describes an acceptable flow path for the shutdown cooling mode of RHS?

a. Suction from recirc loop "A" pump suction piping.
RHS pump "B" through "B" RHS heat exchanger.
Injection into recirc loop "B" pump discharge piping.
"A" recirc pump discharge valve closed.
"B" recirc pump discharge valve open.

b. Suction from recirc loop "A" pump suction piping.
RHS pump "B" through "B" RHS heat exchanger.
Injection into recirc loop "B" pump discharge piping.
"A" recirc pump discharge valve open.
"B" recirc pump discharge valve closed.

c. Suction from recirc loop "B" pump suction piping.
RHS pump "B" through "B" RHS heat exchanger.
Injection into recirc loop "B" pump discharge piping.
"A" recirc pump discharge valve open.
"B" recirc pump discharge valve closed.

d. Suction from recirc loop "A" pump suction piping.
RHS pump "A" through "A" RHS heat exchanger.
Injection into recirc loop "A" pump discharge piping.
"A" recirc pump discharge valve open.
"B" recirc pump discharge valve closed.

QUESTION: 010 (1.00)

Fuel reload has just been completed, the reactor head has been replaced but the hold-down studs have NOT been fully tensioned. The Reactor Engineer informs you that shutdown margin has been calculated to be 0.32%. The MODE switch is in STARTUP for the performance of a surveillance. WHICH of the following describes the actions required by Technical Specifications?

a. Lock the Mode Switch in SHUTDOWN.

b. Establish the required shutdown margin within 6 hours and establish secondary containment within 8 hours.

c. Lock the Mode Switch in REFUEL.

d. Insert all insertable control rods within 1 hour, and establish secondary containment within 8 hours.

QUESTION: 011 (1.00)

The spent fuel cooling system is in service with the fuel pool gates installed. WHICH of the following describes the fuel pool level and cooling system response to a leak in the skimmer surge tank? ASSUME no operator actions and that the condensate transfer system is NOT available.

a. Fuel pool level will continually decrease.
Cooling capability will be lost.

b. Fuel pool level will continually decrease.
Cooling capability will be maintained.

c. Fuel pool level will be maintained.
Cooling capability will be lost.

d. Fuel pool level will be maintained.
Cooling capability will be maintained.

QUESTION: 012 (1.00)

The Refueling Bridge has been tagged for maintenance. Testing of the bridge is required prior to completion of the work. WHICH of the following tags should be applied for testing the Refueling Bridge?

a Reference Tags

b Yellow Hold Out Tags

c Blue Mark Up Tags

d Red Mark Up Tags

QUESTION: 013 (1.00)

Which of the following will result in the lowest ALARA exposure?

a. One individual performing a job in a 60 mrem/hr field for 60 minutes.

b. One individual installing temporary shielding in a 60 mrem/hr field for 30 minutes and then performing the job in a 6 mrem/hr field for 60 minutes.

c. Two individuals performing a job in a 60 mrem/hr field for 35 minutes.

d. Two individuals installing temporary shielding in a 60 mrem/hr field for 15 minutes and then both performing the job in a 6 mrem/hr field for 40 minutes.

QUESTION: 014 (1.00)

Given the following radiological data for a room:

Smear data is 300/dpm/100 cm squared of beta
General radiation level in the room is 125 mrem/hr

WHICH of the following describes the complete posting for the area?

a. - CAUTION HIGH RADIATION AREA

b. - CAUTION LOCKED HIGH RADIATION AREA
   - CAUTION Contaminated Area

c. - CAUTION LOCKED HIGH RADIATION AREA

d. - CAUTION HIGH RADIATION AREA
   - CAUTION Contaminated Area

QUESTION: 015 (1.00)

A non licensed operator has worked the following schedule which excludes shift turnover and non working lunches:

Mon	0700 - 1900
Tues	0700 - 1900
Wed	0700 - 1900
Thur	0700 - 1500
Fri	0700 - 2300

WHICH of the following describes the maximum hours, if any, permitted to work on Saturday and NOT violate the overtime guidelines?

a. Not permitted to work

b. 0700 - 1100

c. 0700 - 1500

d. 0700 - 1900

QUESTION: 016 (1.00)

WHICH of the following describes the work zone and cleanliness controls required for the spent fuel pool and area above the spent fuel pool on the 409' elevation while the plant is still operating and preparation activities are ongoing for an upcoming refueling outage?

a. Radiation Work Permit.
   Material Accountability Log.
   Use of special environmental controls.
   Material precleaning prior to entry.
   A complete change of clothing by personnel before entering.
   Protective clothing with shoe covers, head covers, and gloves.

b. Radiation Work Permit.
   Material Accountability Log.
   Protective clothing with shoe covers, head covers, and gloves.
   Securing all loose or potentially loose items.

c. Radiation Work Permit NOT required if work does NOT access the refueling bridge.
   Material Accountability Log.
   Protective clothing with shoe covers, head covers, and gloves.
   Securing all loose or potentially loose items.

d. Radiation Work Permit.
   Material Accountability log NOT required if work does NOT require access to the refueling bridge.
   Protective clothing and head covers NOT required if work does NOT access the refueling bridge.
   Shoe covers and gloves.
   Securing all loose or potentially loose items.

QUESTION: 017 (1.00)

The year to date exposure of a worker is 15 mrem when she declares that she is pregnant. WHICH of the following describes the maximum exposure limit for the declared pregnant worker?

a. 5000 mrem for the duration of the pregnancy.

b. 500 mrem for the duration of the pregnancy.

c. 50 mrem for each quarter that the worker is pregnant.

d. 50 mrem for the duration of the pregnancy.

QUESTION: 018 (1.00)

WHICH of the following describes the permitted actions for a circuit breaker trip and a thermal overload trip in a non-emergency situation?

a. Circuit breaker can be reset once.
Thermal Overload trip can be reset once.

b. Circuit breaker can be reset once.
Thermal Overload trip should NOT be reset.

c. Circuit breaker should not be reset.
Thermal Overload trip can be reset once.

d. Circuit breaker should NOT be reset.
Thermal Overload trip should NOT be reset.

QUESTION: 019 (1.00)

The spent fuel pool level is 352 ft., rapidly trending downward, and normal makeup from condensate storage and transfer is unavailable to maintain level.

In accordance with N2-OP-38, Spent Fuel Pool Cooling and Cleanup, select the ONE statement below that correctly describes the action the Station Shift Supervisor should direct to restore level.

a. Rig a hose from the fire water system.

b. Valve in service water makeup to the pool.

c. Fill the pool with either RHR system A or B.

d. Rig a hose from the demineralized water system.

QUESTION: 020 (1.00)

WHICH of the following is **NOT** a required action for a dropped irradiated fuel bundle.

a. Inform the SSS.

b. Isolate normal reactor building ventilation.

c. Monitor for radioactive release.

d. Assure that the dropped fuel bundle is in a safe position.

QUESTION: 021 (1.00)

During preparation for refueling with the fuel pool at the normal level, the gates between the reactor cavity and fuel pool fail with the outer reactor cavity seal NOT yet installed. SELECT the fuel pool level response.

a. Fuel pool level will decrease but be maintained above the technical specification minimum fuel pool level.

b. Fuel pool level will decrease approximately 12 feet.

c. Fuel pool level will decrease to approximately 1 foot above the top of the fuel.

d. Fuel pool level will decrease to below the top of fuel with two thirds of the fuel covered.

QUESTION: 022 (1.00)

An operator worked 10 hours in an area with an airborne contamination level for cesium-137 at the derived airborne concentration of 10 CFR 20. Upon exit of the area, it was determined that the respirator was defective and provided no protection. WHICH of the following is the maximum committed effective dose equivalent (CEDE) he should have received?

a. 5000 mrem

b. 250 mrem

c. 25 mrem

d. 5 mrem

QUESTION: 023 (1.00)

During a severe heat wave, outside air temperature is currently above 100 degrees and predicted to stay above 100 degrees for the next 3 hours. WHICH of the following describes the operability status of the diesel generators?

a. All three diesel generators are considered to be inoperable.

b. EDG-1 and EDG-3 are considered to be inoperable. EDG-2 can be considered operable providing one of the EDG-2 general area emergency ventilation air handling units are operable.

c. EDG-2 is considered to be inoperable. EDG-1 and EDG-3 can be considered operable providing one of the EDG-1 and EDG-3 general area emergency ventilation air handling units are operable.

d. All diesel generators can be considered operable providing all the general area emergency ventilation air handling units are operable.

QUESTION: 024 (1.00)

During refueling operations, a plant operator reports the discovery of a Fuel Pool Cooling system manual valve out of position. WHICH of the following is required?

a. Immediately correct the valve position and notify the Markup Desk.

b. Immediately correct the valve position and notify the SSS.

c. DO NOT alter the valve position. DO notify the Markup Desk.

d. DO NOT alter the valve position. DO notify the SSS.

QUESTION: 025 (1.00)

During refueling, a fuel bundle falls off the refueling grapple and into the reactor vessel. The bundle is dropped in a manner such that it falls in a horizontal orientation. WHICH of the following components in the reactor vessel could be damaged by such a drop?

a. Steam separator assembly.

b. Top guide grid.

c. Fuel support piece.

d. Jet pump diffuser section.

QUESTION: 026 (1.00)

Concerning the Standby Liquid Control System, WHICH one of the analyses of the boron bearing solution meets Technical Specifications?

a.
- Sodium pentaborate concentration (wt%) = 14.3
- SLC Tank Volume (Gal) = 4500
- SLC Tank Solution Temperature (Deg F) = 68

b.
- Sodium pentaborate concentration (wt%) = 14.0
- SLC Tank Volume (Gal) = 4700
- SLC Tank Solution Temperature (Deg F) = 77

c.
- Sodium pentaborate concentration (wt%) = 13.8
- SLC Tank Volume (Gal) = 4400
- SLC Tank Solution Temperature (Deg F) = 80

d.
- Sodium pentaborate concentration (wt%) = 14.5
- SLC Tank Volume (Gal) = 4400
- SLC Tank Solution Temperature (Deg F) = 95

QUESTION: 027 (1.00)

WHICH of the following describes the design to remove LPRM detector strings and storage in the fuel pool?

a. The LPRM strings are spring loaded into the core plate; the LPRM strings are bent to store in the fuel pool.

b. The LPRM strings are spring loaded into the core plate; the LPRM strings are cut in half to store in the fuel pool.

c. The LPRM strings are spring loaded into the top guide; the LPRM strings are bent to store in the fuel pool.

d. The LPRM strings are spring loaded into the top guide; the LPRM string are cut in half to store in the fuel pool.

QUESTION: 028 (1.00)

During removal of irradiated control rods from the reactor, in accordance with N2-FHP-021 Control Rod Uncoupling, Removal and Installation, WHICH of the following describe the status of radiation monitoring?

a. Continuous monitoring of radiation levels is required below the vessel.
Continuous monitoring of radiation levels is required on the refuel floor.

b. Continuous monitoring of radiation levels is required below the vessel.
Monitoring of radiation levels on the refuel floor is only required as the control rod is in transit from the core to the spent fuel pool.

c. Monitoring of radiation levels below the vessel is NOT required.
Continuous monitoring of radiation levels is required on the refuel floor.

d. Monitoring of radiation levels below the vessel is NOT required.
Monitoring of radiation levels on the refuel floor is only required as the control rod is in transit from the core to the spent fuel pool.

QUESTION: 029 (1.00)

WHICH of the following describe the required condition(s) prior to performing a control rod uncoupling from the refuel floor?

a. The control room operator verifies that the "Control Rod Overtravel" alarm is illuminated.

b. The control room operator verifies that the control rod is at position 00.

c. The control room operator verifies that the control rod is at position 48.

d. After the control rod latch tool is in place, the control room operator applies a continuous insert signal.

QUESTION: 030 (1.00)

An unshielded point source of gamma radiation results in a measured dose rate of 12 mrem/hour at ten feet from the source. An operator performs a task for one hour standing twenty feet from the unshielded source. WHICH of the following describe the radiation exposure that the operator received?

a. 0.3 mrem

b. 3.0 mrem

c. 6.0 mrem

d. 12.0 mrem

QUESTION: 031 (1.00)

A spent fuel bundle was loaded in the Fuel Preparation Machine when a loss of level occurred in the Spent Fuel Pool. The spent fuel bundle in the machine is partially uncovered, however the fuel storage racks remain covered with water. The Refueling Floor was evacuated. During the evacuation, one of the workers fell and is unconscious and lying near the Fuel Preparation Machine.

WHICH of the following describes the MAXIMUM Total Effective Dose Equivalent (TEDE) allowed? (Assume that two separate volunteers are available, one will lower the Fuel Prep Machine and one will attend the injured worker.)

a. 75 Rem to attend to the injured worker and 10 Rem to lower the Fuel Preparation Machine.

b. 25 Rem to attend to the injured worker and 10 Rem to lower the Fuel Preparation Machine.

c. 75 Rem to attend to the injured worker 25 Rem to lower the Fuel Preparation Machine.

d. 25 Rem to attend to the injured worker 25 Rem to lower the Fuel Preparation Machine.

QUESTION: 032 (1.00)

WHICH of the following RWPs shall be used for accessing the RCA and refueling bridge during a complete core unload?

a. Specific RWP for access to the RCA.
Standing RWP for access to the refueling bridge.

b. Specific RWP for access to the RCA.
Specific RWP for access to the refueling bridge.

c. General RWP for access to the RCA.
Specific RWP for access to the refueling bridge.

d. General RWP for access to the RCA.
Standing RWP for access to the refueling bridge.

QUESTION: 033 (1.00)

WHICH of the following describes core bypass flow and its effects?

a. Undesirable, but cannot be prevented due to machined clearances within the reactor vessel.

b. Undesirable because it makes core flow hard to measure.

c. Desirable because it provides cooling for incore instrumentation.

d. Desirable because it provides cooling for the low power areas of the core.

QUESTION: 034 (1.00)

WHICH of the following combinations represents a REFUELING condition with fuel in the vessel and the head removed?

a. The mode switch in SHUTDOWN
Average reactor coolant temperature 160 degree F

b. The mode switch in SHUTDOWN
Average reactor coolant temperature 140 degree F

c. The mode switch in REFUEL
Average reactor coolant temperature 180 degree F

d. The mode switch in REFUEL
Average reactor coolant temperature 160 degree F

QUESTION: 035 (1.00)

During core offload with 20 fuel bundles still in the core, WHICH of the following levels violate the Technical Specification Safety Limit?

1. 22 feet above the top of the reactor pressure vessel flange.
2. 0 inches on fuel zone level instrument.
3. -14 inches on fuel zone level instrument.
4. -50 inches on fuel zone level instrument.

a. 1 only.

b. 2 and 3 and 4 only.

c. 3 and 4 only.

d. 4 only.

QUESTION: 036 (1.00)

WHICH one of the following would constitute a core alteration?

a. Removal of an irradiated NDT sample located inside the core shroud with fuel in the reactor vessel.

b. Relocating a fuel loading chamber in the core during refueling.

c. Replacement of a defective SRM detector with the reactor vessel head removed and fuel in the vessel.

d. Removal of a control rod with the reactor head removed and no fuel in the vessel.

QUESTION: 037 (1.00)

Given the following conditions:

- The refueling bridge is over the core
- The auxiliary hoist is loaded to 350 lbs
- All rods are inserted

If the mode switch is placed in STARTUP, WHICH of the following responses describes the operation of the refuel bridge?

a. Bridge will move in the forward OR reverse direction.

b. Bridge will move in the forward BUT NOT in the reverse direction.

c. Bridge will move in the reverse BUT NOT in the forward direction.

d. Bridge will NOT move in either direction.

QUESTION: 038 (1.00)

The Residual Heat Removal system is in Shutdown Cooling (SDC) mode with pump B in service. Reactor water level begins decreasing and reaches 159 inches.

WHICH ONE of the following valves **DOES NOT** go closed?

a. SDC suction valve (MOV2B)

b. SDC isolation valve (MOV112)

c. SDC return bypass valve (MOV67B)

d. SDC return valve (MOV40B)

QUESTION: 039 (1.00)

WHICH one of the following correctly matches the radiation monitor type with the monitored area or process?

a. The standby gas treatment system (GTS) discharge is monitored by an offline gaseous and particulate monitor.

b. The service water to the RHS heat exchanger is monitored by an online liquid monitor.

c. The main stack exhaust is monitored by an online isotopic effluent monitor.

d. During refueling operation, drywell atmosphere is monitored by an online gas monitor.

QUESTION: 040 (1.00)

A radiation level of 2.5E-3 uci/cc is detected at the reactor building above/below refueling floor radiation monitor. WHICH of the following describe the response, if any, of the emergency recirculation mode of the reactor building ventilation (HVR) and standby gas treatment system (GTS)?

a. Emergency recirculation mode of HVR does NOT initiate.
GTS does NOT initiate.

b. Emergency recirculation mode of HVR initiates.
GTS initiates.

c. Emergency recirculation mode of HVR initiates.
GTS does NOT initiate.

d. Emergency recirculation mode of HVR does NOT initiate.
GTS initiates.

QUESTION: 041 (1.00)

WHICH of the following status display module control functions are illuminated when the platform is over the reactor, all control rods are fully inserted, a 600# load is on the monorail auxiliary hoist and the "Grapple Full Up" indicator is lit?

a. Monorail Auxiliary Hoist Interlock

b. Rod Block Interlock No. 2

c. Bridge Reverse Stop No. 2

d. Backup Hoist Limit

QUESTION: 042 (1.00)

The refueling bridge is in transit from the reactor to the spent fuel pool with a double blade guide on the main grapple, when reactor cavity water level rapidly drops due to an observed catastrophic failure of a refueling cavity seal. In accordance with N2-FHP-3, Refueling Manual, WHICH of the following areas are required to be evacuated?

a. Refueling floor only

b. Drywell only

c. Drywell and refueling floor only

d. Entire reactor building

QUESTION: 043 (1.00)

All refueling interlocks are operable and all rods are inserted. While a fuel bundle is being loaded into the core, the control room operator informs the refueling floor SRO of a continuously increasing SRM count rate indication. WHICH of the following describe the SRM response and the actions, if any, that need to be taken?

a. Expected SRM response. Continue with normal refueling activities.

b. Unexpected SRM response. The control room operator should initiate a manual scram to insert negative reactivity.

c. Unexpected SRM response. The refueling bridge operator should remove the fuel bundle to remove positive reactivity.

d. Unexpected SRM response. When the bundle is fully inserted into the core, suspend core alterations and contact reactor engineering for further directions.

QUESTION: 044 (1.00)

WHICH of the following reactor building crane restricted areas require operation of a bypass switch to enter?

1. Aux Hoist #1 (1/2 ton) is restricted from the fuel pool area.

2. Aux Hoist #2 (25 ton) is restricted from the fuel pool area.

3. Main Hoist is restricted from the fuel pool area.

4. Main Hoist is restricted from the cask area.

a. 3 only

b. 2 and 3 only

c. 3 and 4 only

d. 1 and 2 and 3 and 4

QUESTION: 045 (1.00)

The plant is shutdown with refueling operations in progress. The fuel pool cooling system is in operation with two pumps running when a loss of off site power occurs which causes both pumps to trip. WHICH ONE (1) of the following describes the response of the Spent Fuel Cooling System?

a. One pump and cooling water to the heat exchanger automatically start as soon as diesel power is restored to the bus. The second pump must be manually started.

b. Both pumps and cooling water to the heat exchanger automatically start as soon as diesel power is restored to the bus.

c. One pump automatically starts as soon as diesel power is restored to the bus. Cooling water to the heat exchanger and the second pump must be manually started.

d. Both pumps and cooling water to the heat exchanger must be manually started when diesel power is restored to the bus.

QUESTION: 046 (1.00)

During a Refueling outage with the core partially off loaded SELECT the activity that requires a SRO to be present on the refueling floor.

a. When installing or removing LPRMs from the reactor core.

b. When installing or removing blade guides from the reactor core.

c. When placing new fuel bundles into the spent fuel pool.

d. When lifting loads of 2000 lbs or more over the spent fuel pool.

QUESTION: 047 (1.00)

Refer to the attached Fuel Assembly Orientation figure. WHICH of the following describe the fuel assembly orientation?

a. NW

b. NE

c. SW

d. SE

QUESTION: 048 (1.00)

During core alterations, the refueling bridge has been inadvertently driven out of the Boundary Zone. WHICH ONE (1) of the following actions must be taken to return the bridge to within the Boundary Zone?

a. Permission to use TRAVEL OVERRIDE to drive the bridge back into the Boundary Zone can be granted by the on shift Senior Reactor Operator Limited to Fuel Handling.

b. Core alterations must be suspended. Permission to use TRAVEL OVERRIDE and resume Core Alterations can be granted from the Reactor Analyst.

c. Core alterations must be suspended. Permission to use TRAVEL OVERRIDE and resume Core Alterations must be obtained from the Station Shift Supervisor.

d. Core alterations must be suspended. Permission to use TRAVEL OVERRIDE and resume Core Alterations can only be granted by joint approval from the Reactor Analyst and Station Shift Supervisor.

QUESTION: 049 (1.00)

With the fuel grappled, WHICH of the following bridge and grapple move sequences are permitted in N2-OP-39 "Fuel Handling and Reactor Service Equipment," when removing a fuel assembly from the vessel to the spent fuel pool?

1.
   - Raise grapple to "GRAPPLE NORMAL UP".
   - When "GRAPPLE NORMAL UP" is illuminated, align the fuel grapple with the refueling canal.
   - When aligned, operate the bridge in the forward direction toward spent fuel pool.

2.
   - Raise the grapple to clear the core.
   - While continuing to raise the grapple to "GRAPPLE NORMAL UP," align the fuel grapple with the refueling canal.
   - When aligned, operate bridge in the forward direction toward spent fuel pool.

3.
   - Raise grapple to "GRAPPLE NORMAL UP".
   - When "GRAPPLE NORMAL UP" is illuminated, concurrently align the fuel grapple with the refueling canal and operate the bridge in the forward direction toward spent fuel pool.

4.
   - Raise the grapple to clear the core.
   - While continuing to raise the grapple to "GRAPPLE NORMAL UP," concurrently align the fuel grapple with the refueling canal and operate the bridge in the forward direction toward spent fuel pool.

a. 1 only

b. 1 and 3 only

c. 1 and 2 and 3 only

d. All are permitted

QUESTION: 050 (1.00)

While in the process of dechanneling fuel in the fuel preparation machine, the "red" danger indicator appears on the fuel holder. WHICH of the following describes the IMMEDIATE required action to be taken?

a. Move the tool holder gently from side to side to free any binding between the fuel and the channel.

b. Raise the carriage to unload the tool holder.

c. Cease attempts to remove the channel and evacuate the refueling floor.

d. Lower the carriage to its full-down position and check dimensional tolerances of the channel.

QUESTION: 051 (1.00)

During the second day of refueling you are the swing shift LSRO and have just removed your sixth fuel bundle at 9:30 pm. The reactor operator inform you that the last verification that all SRM were fully inserted was at 7:00am. WHICH of the following describes the actions required by technical specifications?

a. Report the technical specification violation, lock the mode switch in SHUTDOWN and immediately suspend core alterations.

b. Report the technical specification violation, lock the mode switch in REFUEL, core alterations can continue.

c. Verify the SRM positions before 10:00pm, this is NOT a technical specification violation, core alterations can continue.

d. Verify the SRM positions before 12:00pm, this is NOT a technical specification violation, core alterations can continue.

QUESTION: 052 (1.00)

WHICH of the following describe the Emergency Classification(s) that require offsite emergency protective action recommendations?

a. Unusual Event, Alert, Site Area Emergency, and General Emergency

b. Alert, Site Area Emergency and General Emergency

c. Site Area Emergency and General Emergency

d. General Emergency

QUESTION: 053 (1.00)

The vessel head is removed, reactor water level is 22 feet 3 inches above the vessel flange and the refueling gates are installed. A double ended shear of the "A" recirculation suction line occurs. WHICH of the following describe the reason and where the reactor water level will stabilize, assuming no operator action or ECCS initiation?

a. Because of the plugs normally installed in the pipes during refueling, reactor water level will stay at 22 feet 3 inches above the vessel flange.

b. Because the recirculation suction line connects to the vessel at the top of the fuel, reactor water level will stabilize at the top of the fuel.

c. Because the jet pumps act as a standpipe, reactor water level will stabilize at the jet pump drive nozzle, which is below the top of the fuel.

d. Because the recirculation discharge line connects to the vessel below the core support plate, reactor water level will stabilize below the core support plate.

QUESTION: 054 (1.00)

Three fresh fuel assemblies are being inspected outside of their shipping containers on the refueling floor and no fuel assemblies are in the new fuel storage vault.

HOW MANY additional fresh fuel assemblies can be removed from their shipping containers and added to the new fuel storage vault while the three other fresh fuel assemblies are being inspected?

a. None

b. 3

c. 7

d. 10

[illegible]

QUESTION: 055 (1.00)

During a core load, the detailed fuel movement instructions specify a fuel bundle orientation that is incorrect. WHAT are the permitted actions of the refueling LSRO?

a. Stop fuel movement activities. Inform the on shift reactor engineer and station shift supervisor. If both agree that the orientation is incorrect, then both can correct the instructions by single lining out the incorrect orientation and inserting the correct orientation. Both must initial and date the change.

b. Stop fuel movement activities. Inform the on shift reactor engineer. If the reactor engineer agrees that the orientation is incorrect, then the LSRO can correct the instructions by single lining out the incorrect orientation and inserting the correct orientation. The LSRO must initial and date the change.

c. Stop fuel movement activities. Initiate a Procedure Change Evaluation per NIP-PRO-04, Procedure Change Evaluation." Subsequent steps of the fuel movement instructions can be performed while the procedure change is being processed.

d. Stop fuel movement activities. Initiate a Procedure Change Evaluation per NIP-PRO-04, Procedure Change Evaluation." Subsequent steps of the fuel movement instructions cannot be performed while the procedure change is being processed.

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

EQUATIONS

$\dot{Q} = \dot{m} c_p \Delta T$

$\dot{Q} = \dot{m} \Delta h$

$\dot{Q} = UA\Delta T$

$SUR = 26.06/\tau$

$$SUR = \frac{26.06(\lambda_{eff}\rho)}{(\bar{\beta} - \rho)}$$

$P = P_o 10^{SUR(t)}$

$P = P_o e^{(t/\tau)}$

$\tau = (\ell^*/\rho) + [(\bar{\beta} - \rho)/\lambda_{eff}\rho]$

$\rho = (K_{eff} - 1)/K_{eff}$

$\rho = \Delta K_{eff}/K_{eff}$

$$\text{Cycle Efficiency} = \frac{\text{Net Work (out)}}{\text{Energy (in)}}$$

$SCR = S/(1 - K_{eff})$

$CR_1(1 - K_{eff1}) = CR_2(1 - K_{eff2})$

$M = 1/(1 - K_{eff}) = CR_1/CR_0$

$$M = \frac{(1 - K_{eff0})}{(1 - K_{eff1})}$$

$SDM = (1 - K_{eff})/K_{eff}$

$\tau = \ell^*/(\rho - \bar{\beta})$

$\ell^* = 1 \times 10^{-5}$ seconds

$\lambda_{eff} = 0.1$ seconds^{-1}

$\dot{W}_{pump} = \dot{m} \Delta P v$

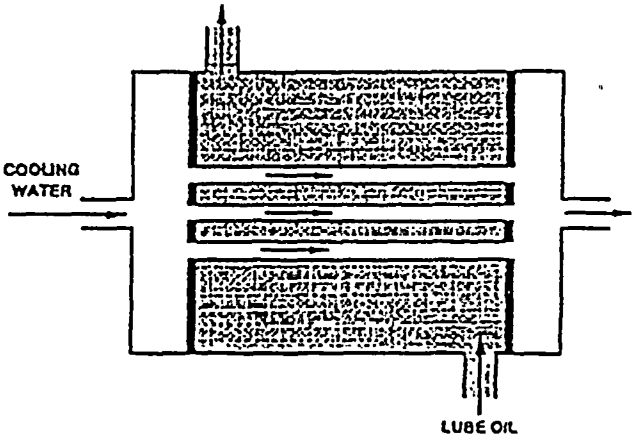
$$v(P_e - P_i) + \frac{(V_o^2 - V_i^2)}{2} + g(z_e - z_i) = 0$$

$R_1 D_1^2 = R_2 D_2^2$

CONVERSIONS

1 Curie	=	3.7×10^{10} dps	1 kg	=	2.21 lbm
1 hp	=	2.54×10^3 BTU/hr	1 Mw	=	3.41×10^6 BTU/hr
1 BTU	=	778 ft-lbf	°F	=	9/5 °C + 32
°C	=	5/9(°F - 32)			

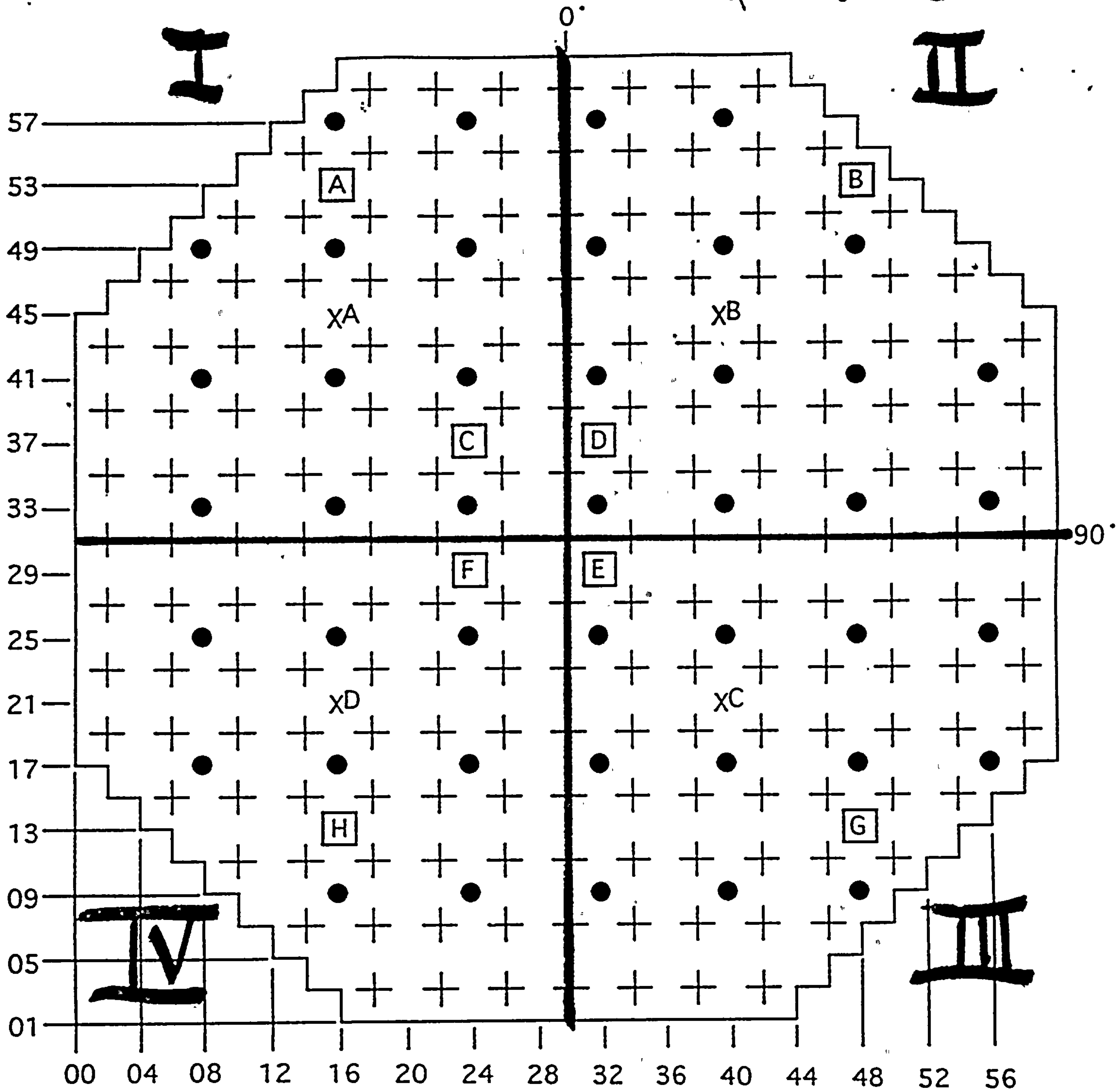
QUESTION 4



LUBE OIL HEAT EXCHANGER

$$\dot{m}_{oil} = 1.8 \times 10^4 \text{ lbm/hr}$$
$$\dot{m}_{water} = 3.3 \times 10^4 \text{ lbm/hr}$$
$$C_{p\text{-}oil} = 1.1 \text{ BTU/lbm-°F}$$
$$C_{p\text{-}water} = 1.0 \text{ BTU/lbm-°F}$$
$$T_{cw\text{-}in} = 90°F$$
$$T_{cw\text{-}out} = 120°F$$
$$T_{oil\text{-}in} = 190°F$$
$$T_{oil\text{-}out} = ?$$

QUESTION 5



LEGEND

● - LPRM DETECTOR ASM (43)

+ - CONTROL RODS (185)

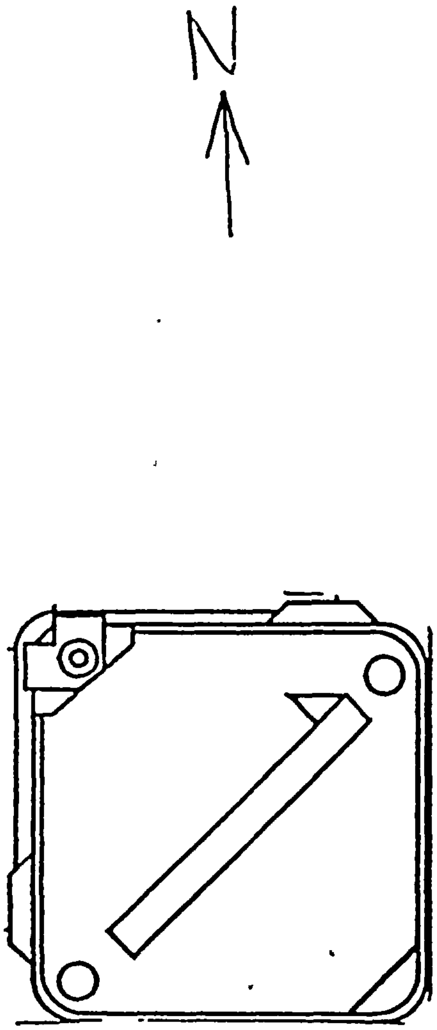
X - SRM DETECTORS (4)

□ - IRM DETECTORS (8)

FIGURE 1

TOP VIEW OF CORE

QUESTION 47



FUEL ASSEMBLY ORIENTATION

A N S W E R   K E Y

MULTIPLE CHOICE

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

ANSWER KEY

046	a
047	a
048	a
049	a
050	b
051	c
052	d
053	c
054	a
055	a

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

ATTACHMENT 4

SIMULATION FACILITY REPORT

Facility License: NPF-69

Facility Docket No: 50-410

Operating Test Preparation and Administration: May 9-12, 1994

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 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 in response to these observations.

During the conduct of the simulator portion of the operating tests, the following items were observed:

ITEM	DESCRIPTION
1.	Secondary containment temperature and radiation responses to a scram discharge volume rupture were not realistic. Although the rupture was at Elevation 261, indication of problems started at Elevation 206. Secondary containment temperature indication is only modeled for Division 1. Division 2 is not included as part of the simulator hardware or model. The NMP-2 training representative informed the examiner that the secondary containment model was not realistic and has been developed on a case-by-case as-needed basis. Simulator improvements in this area were being evaluated by NMP-2.
2.	For one of the simulator scenarios, when the malfunctions for loss of Division 2 electrical supply breaker with failure of the diesel generator load sequencer were activated, the diesel generator unexpectedly auto-started and picked up the bus. In two other scenarios the diesel generator responded as expected.