



Florida Power & Light Company, 6351 S. Ocean Drive, Jensen Beach, FL 34957

December 22, 1998

L-98-318  
10 CFR 55.5

Regional Administrator, Region II  
U. S. Nuclear Regulatory Commission  
Attn: Mr. Thomas A. Peebles, Chief  
Operator Licensing and  
Human Performance Branch  
Atlanta, GA 30303

Re: St. Lucie Units 1 and 2  
Docket Nos. 50-335 and 50-389  
Operator License Training Program  
December 18, 1998 RO/SRO Exam Comments

On December 18, 1998, the NRC administered Reactor Operator (RO) and Senior Reactor Operator (SRO) Examinations at St. Lucie Plant. An exam analysis was performed after administration of the exams and the attached comments on the RO/SRO written examinations are submitted by the facility for consideration by the NRC. These comments affect questions 22, 23, 47, 59, 61, 66, 77, 88, and 98 on the RO examination. The comments on questions 22, 23, 47, 59, 61, and 66 also affect the SRO Examination.

The nine graded exam sheets for the six RO and three SRO candidates and the proctor comment sheets are forwarded for your review. Please contact Tim Bolander if you have any questions.

Very truly yours,

J. A. Stall  
Vice President  
St. Lucie Plant

JAS/GRM

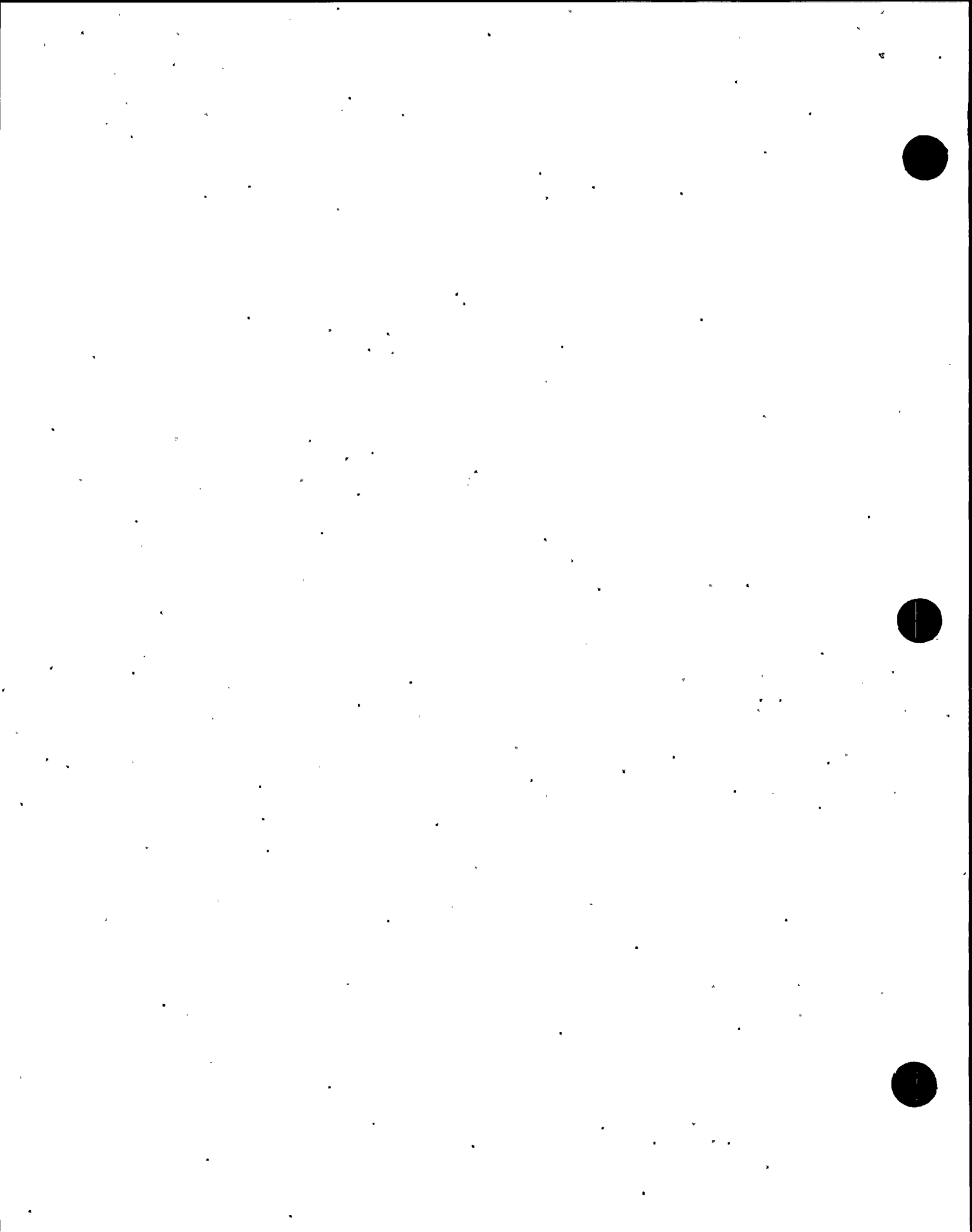
Attachments

9903240147 990312  
PDR ADDCK 05000335  
PDR

an FPL Group company

ENCLOSURE 3

9903240147



St. Lucie Units 1 and 2  
Docket Nos. 50-335 and 50-389  
L-98-318 Attachment 2

**Florida Power & Light Company**

**December 18, 1998**

**RO/SRO Written Examination Comments**

Question 22, RO Exam

Comment:

Late entries are documented in the log with the actual time and date of occurrence. This may result in the entry being out of chronological sequence.

Recommendation:

Accept A and C

Reference:

AP 0010120, "Conduct of Operations"

Late entries were not taken into consideration when the question was validated and reviewed.

## USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 22

Unit 1 has tripped from 100% power due to a feedwater problem. According to AP-0010120, "Conduct of Operations", which of the following is the approved method of chronological log entries during this event?

- a. The events can be reconstructed at a later time using all available references, but must be made in chronological order when making an entry.
- b. The desk RO will record all events in the RCO chronological log as they occur, after performing SPTAs.
- c. The events can be reconstructed at a later time using all available references, chronological order is desired but not necessary when making an entry.
- d. A designated person, preferably the STA, will record all events in the RCO chronological log as they occur.



ST. LUCIE PLANT  
ADMINISTRATIVE PROCEDURE NO. 0010120, REVISION 109  
CONDUCT OF OPERATIONS

**APPENDIX D**  
**LOG KEEPING**  
(Page 1 of 8)

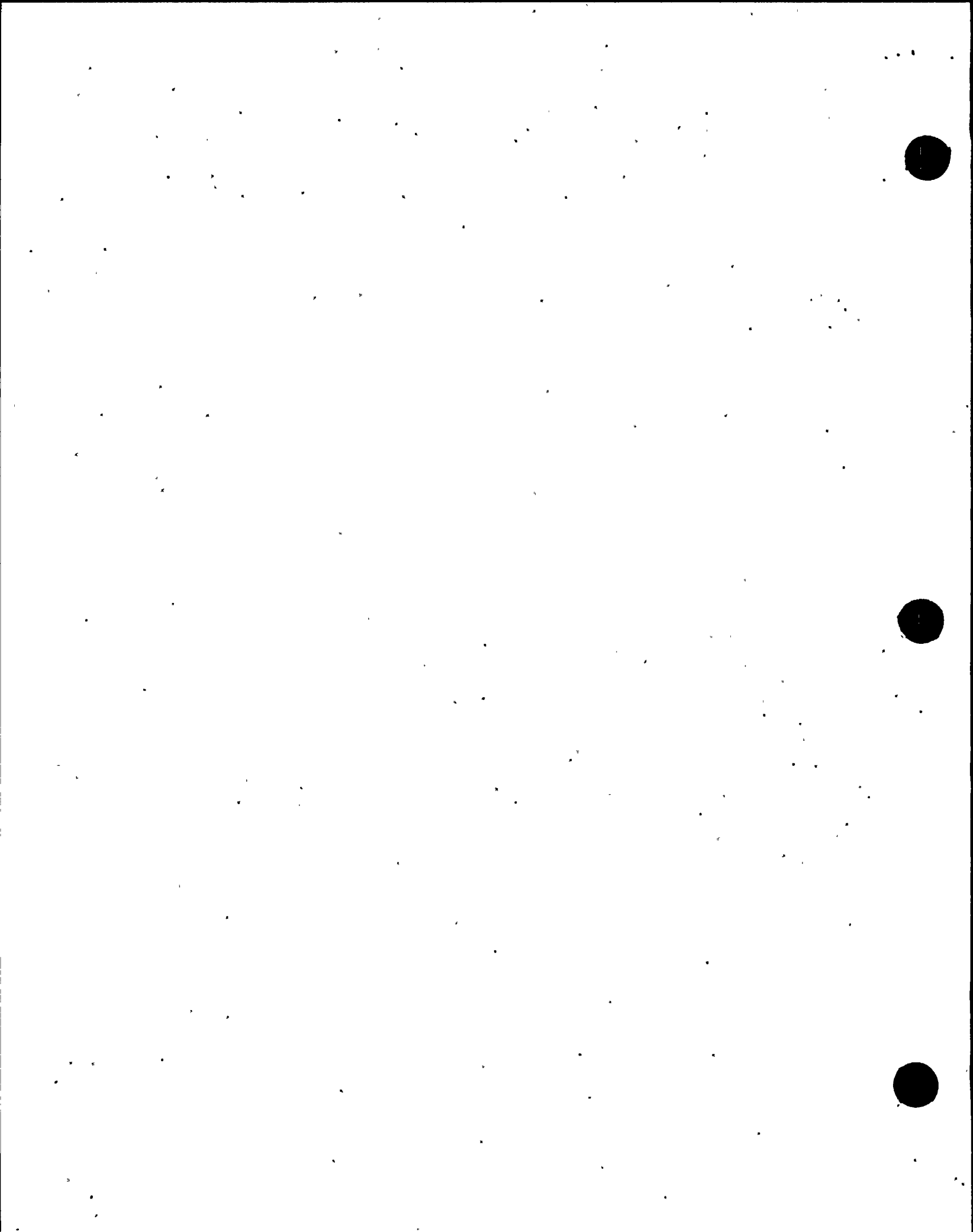
1. General:

- A. Watch station log entries shall be recorded in ink or by another permanent, reproducible recording method.
- B. There shall be no erasures, liquid paper, correction tape, highlighters or other methods of obliteration. Handwritten errors shall be lined through to indicate a deletion, but the deletion entry shall be legible. The operator making the deletion shall initial along side it and enter the correct information.
- C. Log books are considered a legal record and are to be limited to factual information.
- D. Completed log books and hard copies of electronic logs shall be maintained for the life of the plant.
- E. Plant Management will conduct periodic reviews of the RCO chronological log. This review shall be documented by an entry in the chronological log.

2. Chronological Logs:

- A. Log books and/or computerized logs shall be maintained by the RCO, NO/SNPO, NTO/NPO and ANPO.
- §<sub>3</sub> B. Log entries shall be **CONCISE** and **DEFINITIVE**. Entries shall be complete enough to reconstruct the events of the shift. They shall be made in a style to provide an inclusive history of events or evolutions including their disposition regardless of the time or date of commencement. Particular attention should be made to entries pertaining to any abnormal condition or occurrence.
  - 1. When it is necessary to correct handwritten information recorded in error, or electronically recorded information on a previous shift, then the entry shall be recorded with the actual time, and date (if necessary), of occurrence, the words "Corrected Entry" in parenthesis, and the information to be logged.

Example:     1234     Started the 1B EDG for surveillance run  
              1345     Secured the 1A EDG. Surveillance run SAT.  
              1234     (Corrected Entry) Started the 1A EDG for  
                          surveillance run





ST. LUCIE PLANT  
ADMINISTRATIVE PROCEDURE NO. 0010120, REVISION 109  
CONDUCT OF OPERATIONS

APPENDIX D  
LOG KEEPING

(Page 2 of 8)

2. (continued)

C. Evolutions, manipulations and operations that are performed, observed, or monitored by operators NOT actively assuming the responsibilities of a particular watch station shall be recorded in the applicable watch station chronological log and initialed by that operator. The operator should notify the responsible watchstander of the log entry.

D. Times for each entry shall be as near correct as possible using military time. The entries are to be made in chronological order.

1. When it is necessary to insert additional information after the fact, Then the entry shall be recorded with the actual time, and date (if necessary), of occurrence, the words Late Entry in parenthesis, and the information to be logged.

Example:	1234	Started the 1A EDG for surveillance run
	0827	(Late Entry) Filled the 1A2 SIT with the 1B HPSI Pump in accordance with OP 1-0410021
	1345	Secured the 1A EDG. Surveillance run SAT.

E. No lines shall be left blank on a handwritten chronological log. If no pertinent entries to plant operation are recorded between shifts or between the last entry of a shift and the bottom of a page, Then No further entries shall be recorded on the first blank line and single vertical line with arrow at the bottom shall be drawn down to the next shift's first entry or the bottom of the page, whichever applies.

For example: No further entries



F. When events occur such that multiple entries are required in accordance with this appendix and/or operator attention to needs of the plant prevent making entries as they occur, such as in the event of a plant trip, utilization of other information sources (SOER, chart recorders, rough logs, etc.) is permissible to reconstruct events as accurately as possible for entry into the chronological log.

Question 23, RO Exam

Comment:

The change to the procedure is incorporated within 90 days. This will result in the actual Temporary Change being canceled.

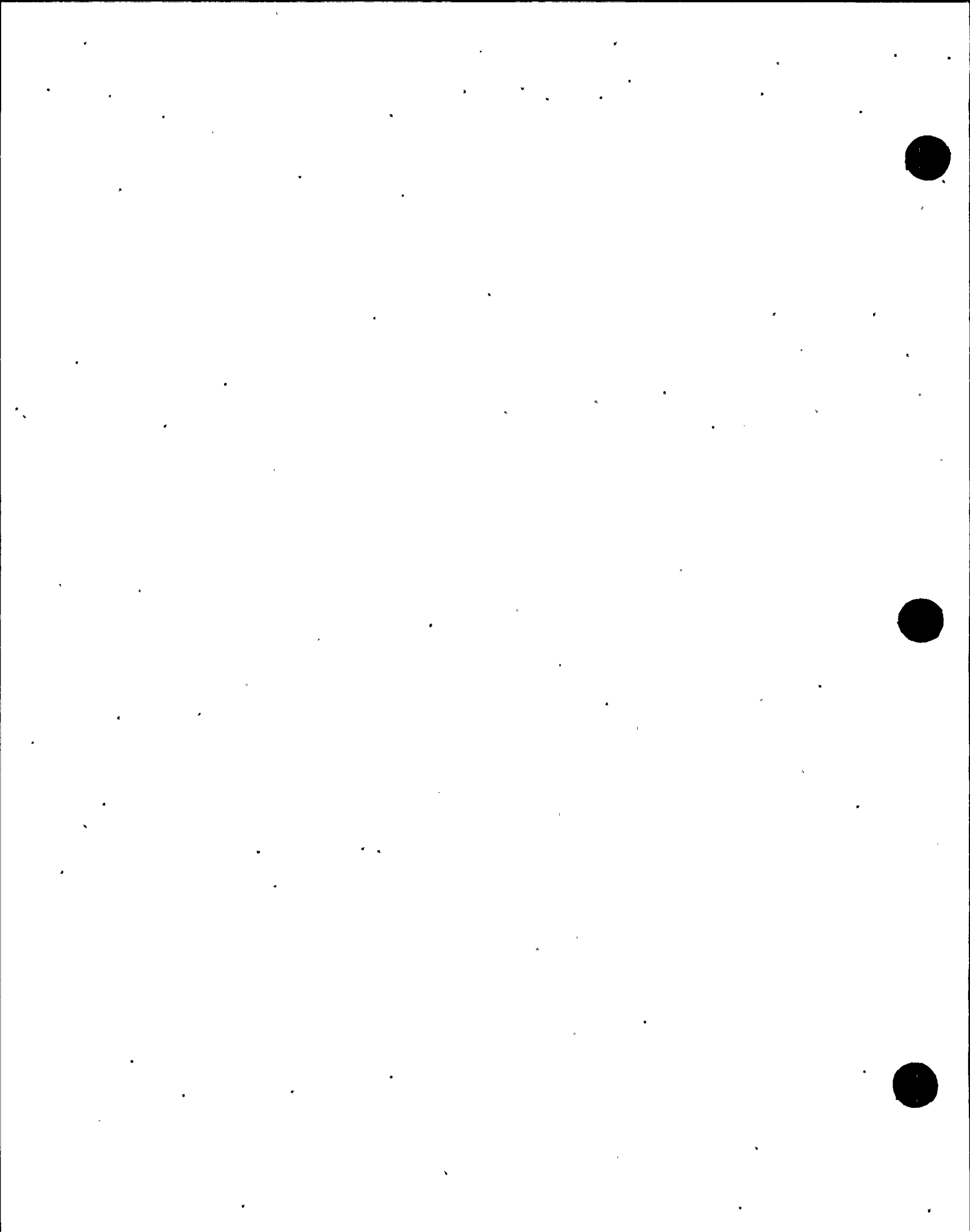
Recommendation:

Accept A and D

Reference:

ADM-11.03, "Temporary Changes to Procedures"

During validation and review, the TC process was not completely followed through and no one realized the TC was actually terminated.



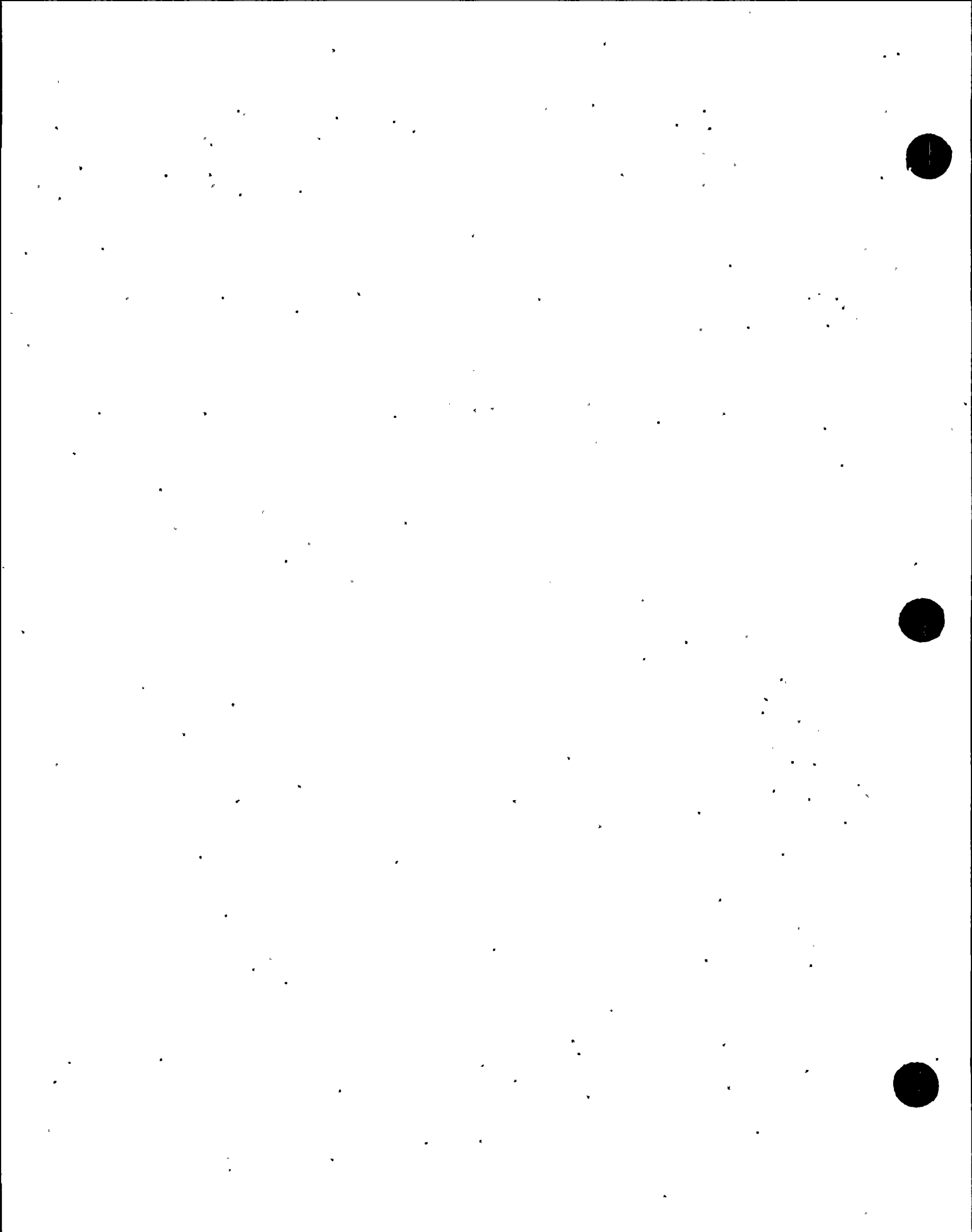
## USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 23

The Unit 1 SNPO was in the process of performing a valve lineup when he discovered an incorrect valve number and valve position. To correct this condition, he generated a temporary change (TC) to the procedure IAW ADM-11.03, "Temporary Change to Procedures". Which of the following describes the status of the TC, ninety five days later, assuming no action was taken by the originator?

The Temporary Change:

- a. was automatically canceled after 90 days.
- b. still exists in the TC log.
- c. was canceled after the valve lineup was performed.
- d. was automatically incorporated into the procedure.



REVISION NO.: 6	PROCEDURE TITLE: TEMPORARY CHANGE TO PROCEDURES ST. LUCIE PLANT	PAGE: 16 of 22
PROCEDURE NO.: ADM-11.03		

6.0 INSTRUCTIONS (continued)

6.3 Closing a TC

**NOTE**

- The following step only applies to TCs written against a PSL procedure.
- TCs to Contractor or Vendor procedures shall expire upon completion of the activity or on the date specified in Block 2 on Appendix A.

1. If the TC is to become a permanent change, the FRG Technician shall forward a copy of the TC to Responsible Procedures Group.
  - A. The Responsible Procedures Group shall:
    1. Review the TC to verify compliance with QI 5-PSL-1, Preparation, Revision, Review/Approval of Procedures.
    2. If the TC affects an upgraded procedure, verify the proposed change is written in accordance with ADM-11.02, St. Lucie Procedure Writer's Guide.
    3. If required, modify the TC in accordance with QI 5-PSL-1, Preparation, Revision, Review/Approval of Procedures.
    4. When the TC meets the necessary requirements, complete, sign and date Block 2 of the Temporary Change Closure Form.
  - B. When the Responsible Procedures Group approves the TC, the Procedure Production Group shall:
    1. Attach the signed copy of the Temporary Change Closure Form to the original TC package.
    2. Word process the TC as a permanent change within 90 days.
  - C. If a procedure revision is implemented before an associated TC is incorporated, the outstanding TC shall be processed as follows:

/R6

REVISION NO.: <b>6</b>	PROCEDURE TITLE: <b>TEMPORARY CHANGE TO PROCEDURES</b>	PAGE: <b>22 of 22</b>
PROCEDURE NO.: <b>ADM-11.03</b>	<b>ST. LUCIE PLANT</b>	

**APPENDIX B**  
**TEMPORARY CHANGE CLOSURE FORM**  
(Page 1 of 1)

TC Number	Procedure Number	FRG Review Date	Date TC Completed
		___/___/___	___/___/___

**1. CLOSING A ONE TIME ONLY TC**

TO: Procedure Production Group Date: \_\_\_/\_\_\_/\_\_\_

FROM: \_\_\_\_\_  
Department Providing Notification

Notifier/Contact: \_\_\_\_\_  
Print Name Phone

The following One Time Only TC has been completed and has been removed from the Active TC Log.

**2. CLOSING A TC**

Similar changes that affect the other Unit's procedure, related train or  
Yes N/A related channel(s) have been changed or identified to be changed.

Actions Taken: \_\_\_\_\_  
\_\_\_\_\_

This TC may become a permanent change.

Reviewed by: \_\_\_\_\_  
Signature Print Name Date

Question 47, RO Exam

Comment:

The Off-Normal Procedure directs Chemistry to be notified to perform local sampling, but does not specify primary or secondary sampling.

Recommendation:

Accept B and D

References:

1[2]-ONP-49.01, "SUPS - Non-Safety Vital or Fire and Security Inverter Malfunction"

This was not picked up in validation and review because none of the exam validators missed this question.





## USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 47

The Unit 2 Fire and Security Sups has been de-energized due to an electrical fault and will remain out of service for 4 hours. According to 2-ONP-49.01, "Sups - Non Safety Vital AC or Fire and Security Inverter Malfunction", which of the following actions must be performed on Unit 2 that would NOT have to be performed in the same situation on Unit 1?

- a. All vital access doors must be posted.
- b. Local primary sampling for activity must be performed.
- c. Fire watches must be posted.
- d. Local secondary sampling for activity must be performed.

REVISION NO.: 0	PROCEDURE TITLE: SUPS - NON-SAFETY VITAL AC OR FIRE AND SECURITY INVERTER MALFUNCTION	PAGE: 13 of 20
PROCEDURE NO.: 2-NOP-49.01	ST. LUCIE UNIT 2	

6.0 OPERATOR ACTIONS (continued)

6.3 Loss of Fire and Security SUPS Inverter (continued)

**INSTRUCTIONS**

**CONTINGENCY ACTIONS**

**NOTE**

If the Fire and Security Inverter is left out of service for greater than 1 hour, the following compensatory measures are required:

- Fire watches set in required areas.
- Chemistry notified that sampling will be from local sample points.

6. CHECK with the Control Room to verify power has been restored.

NOTIFY EM to investigate the malfunction and repair the inverter.

8. When the inverter has been repaired, Then RESTORE the inverter to service in accordance with 2-NOP-49.03, Fire and Security SUPS Inverter Operation.

**END OF SECTION 6.3**

REVISION NO.: 0	PROCEDURE TITLE: SUPS - NON-SAFETY VITAL AC OR FIRE AND SECURITY INVERTER MALFUNCTION	PAGE: 13 of 17
PROCEDURE NO.: 1-ONP-49.01	ST. LUCIE UNIT 1	

6.0 OPERATOR ACTIONS (continued)

6.3 Loss of Fire and Security SUPS Inverter (continued)

**INSTRUCTIONS**

**CONTINGENCY  
ACTIONS**

**NOTE**

If the Fire and Security Inverter is left out of service for greater than 1 hour, compensatory fire watches will be required.

5. CHECK with the Control Room to verify power has been restored.
6. NOTIFY EM to investigate the malfunction and repair the inverter.
7. When the inverter has been repaired, Then RESTORE the inverter to service in accordance with 1-NOP-49.03, Fire and Security SUPS Inverter Operation.

END OF SECTION 6.3

Question 59, RO Exam

Comment:

Two MG Sets running with the tie breaker (TCB-9) open is not allowed by procedure.

Recommendation:

Accept B and C

Reference:

1-NOP-66.01, "CEDM MG Set Operation"

Validated the question with P&ID, did not refer to the procedure for operational accuracy.

## USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 59

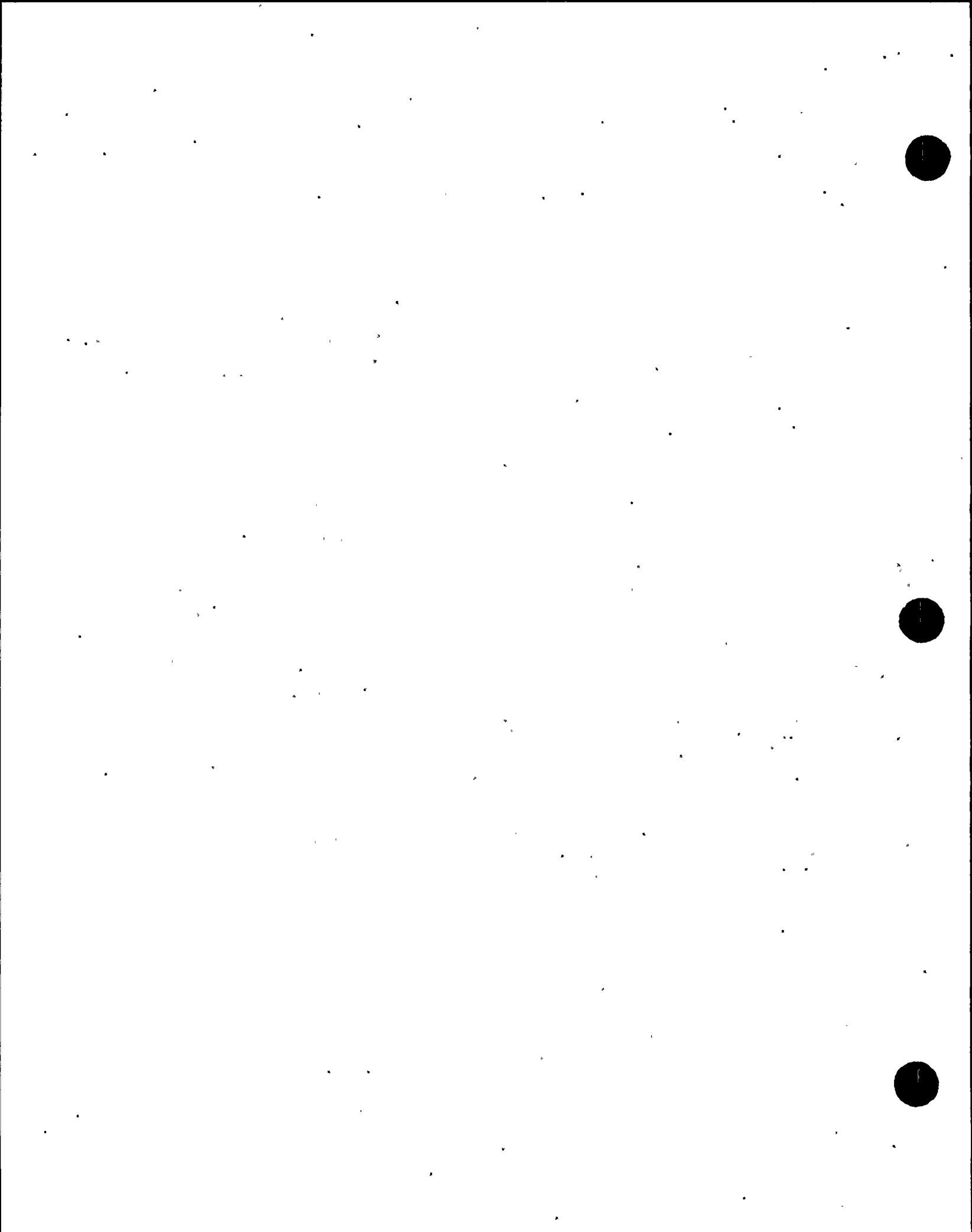
The following conditions exist:

- Motor Generator (MG) set 1A and 1B are running
- Bus tie breaker (TCB #9) is open
- Reactor Trip breakers 3, 4, 7 and 8 are open (B side)
- Reactor Trip breakers 1, 2, 5 and 6 are closed (A side)

Which of the following is correct concerning the closure of the reactor trip breakers 3, 4, 7 and 8 by the RO?

The operator:

- a. may close the reactor trip breakers in any combination at any time.
- b. must close the bus tie breaker prior to closing the reactor trip breakers.
- c. must ensure one MG set is taken out of service prior to closing the reactor trip breakers.
- d. must synchronize 1A and 1B MG sets with the bus tie breaker open prior to closure of the reactor trip breakers.



REVISION NO.: 0	PROCEDURE TITLE: CEDM MG SET OPERATION	PAGE: 4 of 34
PROCEDURE NO.: 1-NOP-66.01	NORMAL OPERATING PROCEDURE ST. LUCIE UNIT 1	

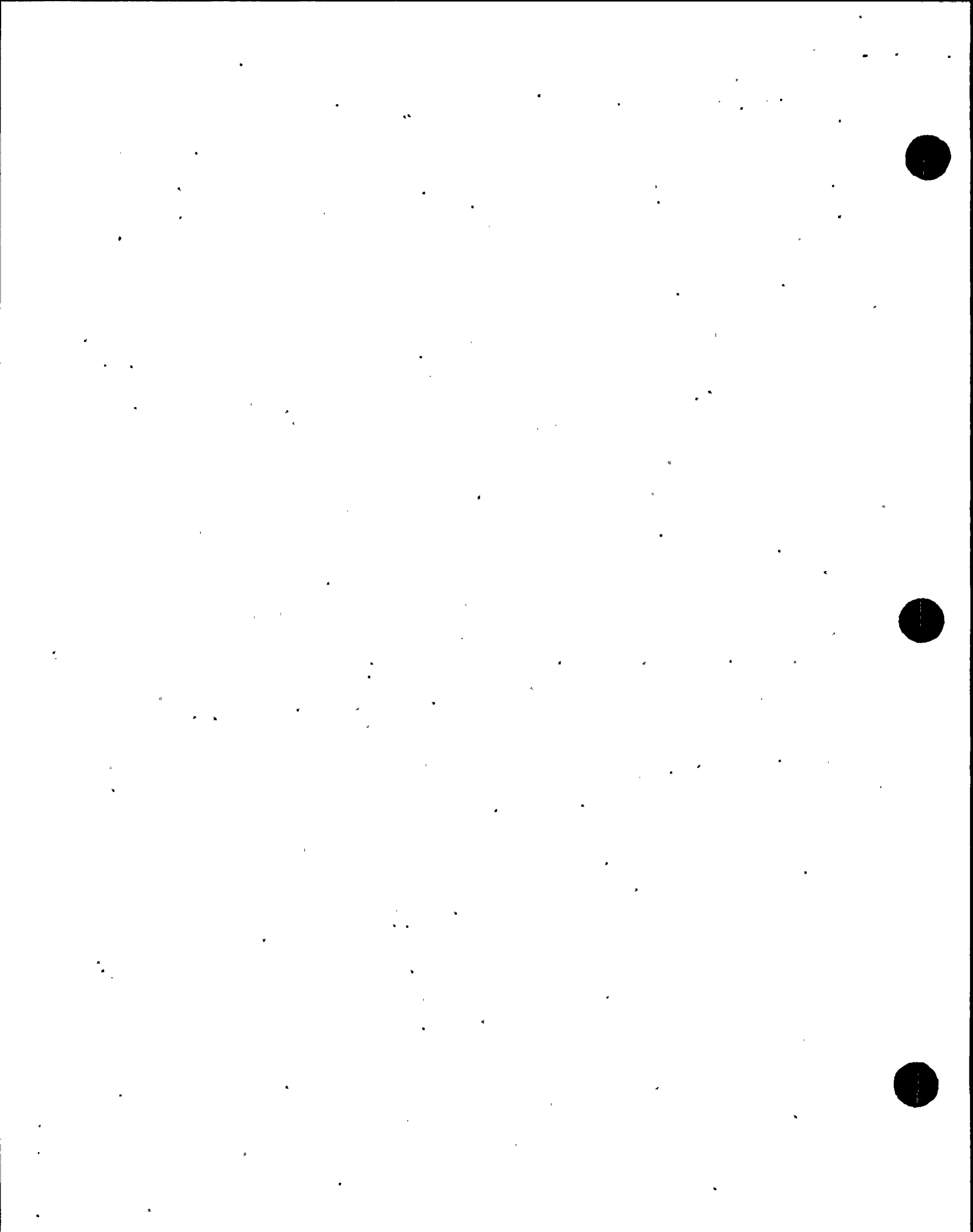
#### 4.0 PRECAUTIONS AND LIMITATIONS

- 4.1 Do NOT attempt to parallel the MG sets across any TCB. Synchronizing capability is NOT available across any TCB.
- 4.2 The following conditions cause an MG set trip:
1. Output overvoltage (Setpoint: 267 plus or minus 1%VAC)
  2. Input undervoltage (Setpoint: 415VAC)
  3. High/Low field current (6.2 amps high; 1.2 amps low)
  4. Output underfrequency (Setpoint: 55 Hz)
- 4.3 The following conditions cause a reactor trip circuit breaker to OPEN:
1. Loss of DC control power
  2. Overcurrent
  3. Manual or automatic reactor trip
- 4.4 Normal operation is two MG set parallel operation. If this condition CANNOT be met, Then a one MG set line-up may be used. A two MG set line-up with TCB 9 OPEN shall NOT be used.
- 4.5 If the sync check relay is determined to be failed, Then CONTACT the Electrical Maintenance Department. The MG set output breakers can NOT be closed in either Manual or Auto mode with the Sync check relay inoperable.
- 4.6 Following the starting and paralleling of the second MG set, the time duration of running unloaded should be limited to approximately one hour to avoid situations where an unbalanced load could result in a MG set trip.

#### 5.0 RECORDS REQUIRED

- 5.1 A copy of this procedure shall be maintained in the plant files in accordance with QI 17-PR/PSL-1, Quality Assurance Records.
- 5.2 Normal RCO and or SNPO chronological log entries.





Question 61, RO Exam

Comment:

At 88% Steam Generator level, both main feedwater pumps will trip, terminating the event. No correct answer.

Recommendation:

Delete question 61

Reference:

0711310, "Main Feedwater and Condensate Systems"

When validated on simulator, Narrow Range indication was observed to go to 100% indication after feedwater flow stopped due to swell. Neglected to observe Wide Range indication which did not reach 100%.



The S/G feed pumps will trip under the following conditions:

1. Lube oil pressure <4 psig.
2. Operating pump suction pressure <275 psig.
3. Electrical fault.
4. Loss of one condensate pump with total feed flow >50% and both feed pumps running. (Loss of condensate pump trips its respective side feed pump)
5. Both running condensate pumps are stopped.
6. Feedwater pump suction flow  $\leq 3000$  gpm.
7. Hi-Hi steam generator level  $\geq 90\%$  [ $\geq 88\%$ ].

Each feedwater pump motor has two radial sleeve bearings, which are lubricated and cooled by oil from the feed pump oil system. Each feed pump's oil system has a shell-and-tube heat exchanger for oil cooling. The heat exchanger is supplied with cooling water from the turbine cooling water system.

Forced oil lubrication for the feed pump and motor is supplied by a shaft-driven positive displacement pump mounted on the end of the pump shaft. This pump supplies oil for the feed pump and motor bearings. In addition there is an auxiliary oil pump in each feed pump's oil system.

USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 61

The following conditions exist:

- Unit 2 is at 50% power, all equipment operable
- A large, unisolable instrument air leak occurs
- The operators manually trip the reactor when I/A pressure reaches 50 psig

Which of the following correctly describes Steam Generator water level trends and the reason for the trends immediately following the trip? (Assume no operator action)

Steam Generator levels will:

- a. increase to approximately 80% NR, then decrease after the main feed reg valves close.
- b. decrease due to main feed isolation valves failing closed.
- c. increase to solid conditions due to no response from the main feedwater control system.
- d. decrease to normal post trip values as 15% bypass valves establish 5% feed flow to each Steam Generator.

Question 66, RO Exam

Comment:

A Human Clearance may be used to enable safe plant shutdown or a degrading plant condition. The initial conditions given in the stem of the question could meet the criteria for a degrading plant condition.

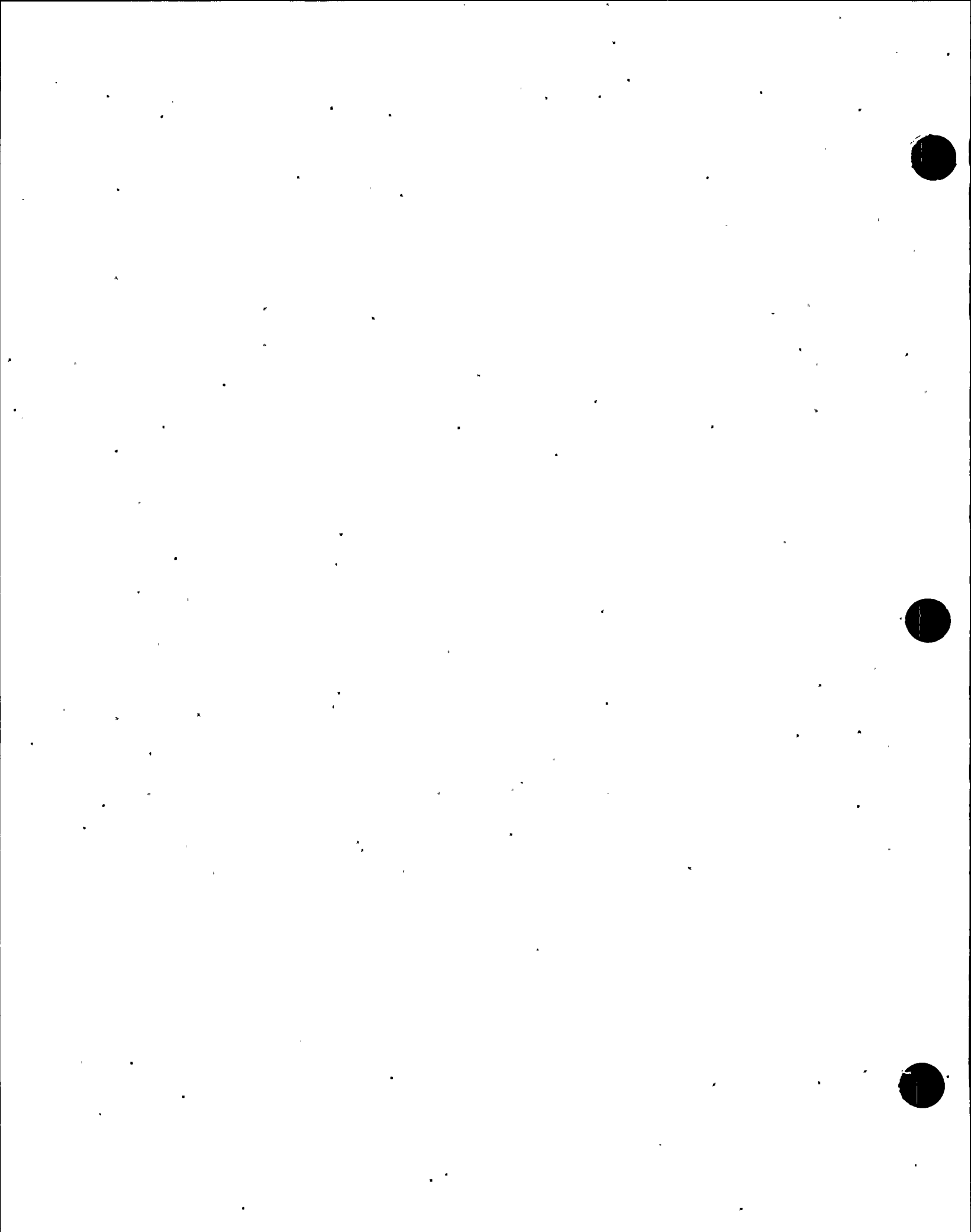
Recommendation:

Accept A and B

Reference:

ADM-09.04, "In-Plant Equipment Clearance Orders"

Did not adequately review the Clearance Procedure to detect the plausibility of the Human Clearance criteria.



## USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 66

The following conditions exist:

- Unit 2 is at 100% power
- An instrument air leak has occurred at the instrument air accumulator on the 19.5' elevation of the turbine building
- The leak has been isolated by a single isolation valve
- Service air and Instrument air have been crosstied
- Mechanical Maintenance is standing by to repair the leak

Which of the following describes the minimum administrative requirements in this case that will allow Mechanical Maintenance to begin work?

- a. A full Equipment Clearance Order must be issued prior to Mechanical Maintenance commencing work.
- b. A Human Clearance can be put in place to allow Mechanical Maintenance to commence work.
- c. A Caution tag must be placed on the isolation valve prior to Mechanical Maintenance commencing work.
- d. A deviation tag can be placed on the isolation valve and instrument air crosstie to allow Mechanical Maintenance to commence work.





REVISION NO. 6	PROCEDURE TITLE: IN-PLANT EQUIPMENT CLEARANCE ORDERS	PAGE: 5 of 118
PROCEDURE NO.: ADM-09.04	ST. LUCIE PLANT	

## 1.0 PURPOSE

1.1 This procedure provides guidance in the use of Equipment Clearance Orders (ECO) for isolation of equipment to protect personnel from energy sources, when possible, for the use of other controls when isolation is not possible, and for administrative control of equipment.

1. Compliance with this procedure provides a safe working environment for personnel and equipment.

1.2 This procedure provides guidance in the use of a Human Clearance. Human Clearances may be used to enable safe plant shutdown in the event of an emergency or a degrading plant condition which would require an immediate response to ensure the safety and welfare of plant employees for the following tasks:

- Cleaning ICW/CCW Basket Strainers
- Cleaning ICW/TCW Basket Strainers
- Cleaning Screen Wash Pump Basket Strainers
- Cleaning Lube Water Strainers
- Hand roll and vent of a charging pump may be done under a Human Clearance.
- Cleaning of the Chemical, Equipment, and Laundry Drain Tank Strainers during conditions that limit the time available for hanging a clearance.
- During declared plant emergencies (activation of the St. Lucie Plant Radiological Emergency Plan), Re-entry Teams are dispatched under the authority of the Emergency Coordinator. The use of a Human Clearance, as delineated by this procedure, may be used to perform any activity deemed necessary to protect plant critical equipment, plant personnel or the health and safety of the general public.

Question 77, RO Exam

Comment:

One of the criteria for RCS Heat Removal safety function is  $T_{avg}$  between  $525^{\circ}F$  and  $535^{\circ}F$ . If a calculation is performed using the numbers in distractor A, RCS  $T_{avg}$  would be  $544.5^{\circ}F$  and would not meet RCS Heat Removal safety function.

Recommendation:

Accept A and D

Reference:

1-EOP-01, "Standard Post Trip Actions"

Did not calculate  $T_{avg}$  in distractor A during validation and review, assumed loop delta T was the information in that distractor.

## USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 77

The Unit 2 reactor has tripped from 50% power and SPTAs are in progress. The RO reports that RCS Heat Removal safety function is not being met. Which of the following conditions is the reason for the ROs report? (Assume no contingency actions have been taken. Consider each case independently)

- a. RCS hot leg temperatures are 562°F, RCS cold leg temperatures are 527°F.
- b. Steam Generator pressures 935 psia.
- c. RCS average temperature is 527°F.
- d. Steam Generator levels are 37% WR with 1 Main Feedwater pump supplying feed.



REVISION NO.: 13A	PROCEDURE TITLE: <b>STANDARD POST TRIP ACTIONS</b>	PAGE: 12 of 21
PROCEDURE NO.: 1-EOP-01	EMERGENCY OPERATING PROCEDURE ST. LUCIE UNIT 1	

5.0 OPERATOR ACTIONS: (continued)

## RCS HEAT REMOVAL

### INSTRUCTIONS

6. Verify RCS Heat Removal by the following:
- A. At least one S/G with level greater than 40% (wide range) and main feedwater available.
- AND
- B. RCS T-avg is between or trending to 525°F and 535°F.
- AND
- C. Steam Generator pressure is between 750 and 950 psia.
- AND
- D. The four "MSR TCV Block Valves" are CLOSED:
- MV-08-4    MV-08-8  
MV-08-6    MV-08-10

### CONTINGENCY ACTIONS

6. If RCS Heat Removal is NOT being maintained, Then do the following as necessary:
- A. Ensure Auxiliary Feedwater flow after AFAS time delay.
  - B. If all feedwater has been stopped, Then do NOT exceed a flow rate of 150 gpm per S/G for 5 minutes.
  - C. If A or B AFW Pump is the only source of feedwater, Then do the following:
    1. STOP one RCP in each loop

AND

    2. INITIATE seal injection to the RCPs if available:
      - a. ENSURE Charging flow is available.
      - b. OPEN MV-02-1, RCP Seal Injection (Isolation).

(Continued on Next Page)

REVISION NO.: 13A	PROCEDURE TITLE: <b>STANDARD POST TRIP ACTIONS</b>	PAGE: 13 of 21
PROCEDURE NO.: 1-EOP-01	EMERGENCY OPERATING PROCEDURE ST. LUCIE UNIT 1	

5.0 OPERATOR ACTIONS: (continued)

## RCS HEAT REMOVAL

### INSTRUCTIONS

### CONTINGENCY ACTIONS

6.

6. (continued)

D. If Main or Auxiliary Feedwater flow can NOT be reestablished, Then:

1. STOP one RCP in each loop

AND

2. INITIATE seal injection to the RCPs if available:

a. Ensure Charging flow is available.

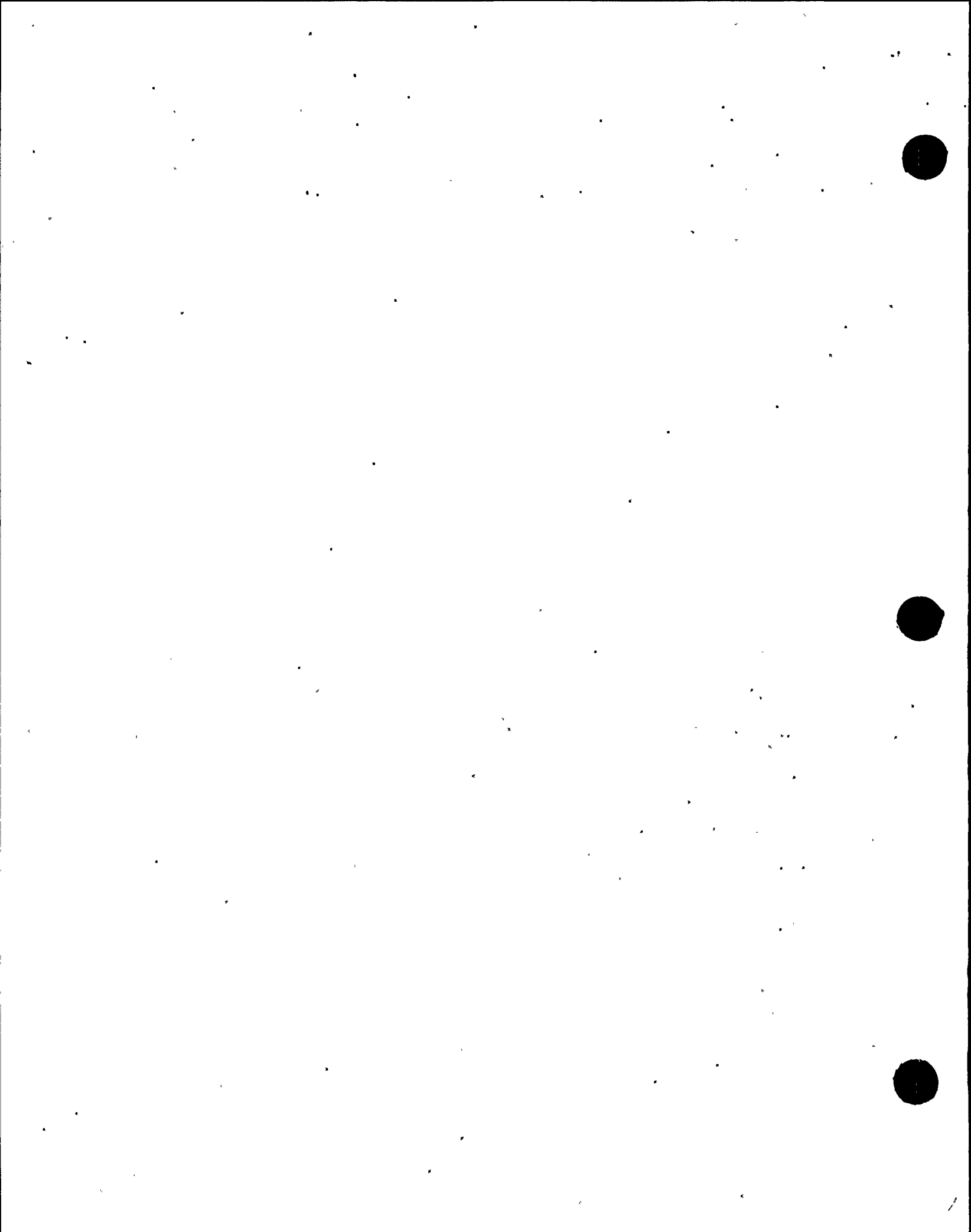
b. OPEN MV-02-1, "RCP Seal Injection (Isolation)."

E. If RCS T-avg is greater than 535°F, Then do the following:

1. Ensure Main or Auxiliary Feedwater is controlling or restoring level to at least one S/G.

2. Operate SBCS to control RCS T-avg between 525°F and 535°F.

(Continued on Next Page)





Question 88, RO Exam

Comment:

Resetting AFW could be confused with placing the AFW system back to its normal configuration (standby lineup) following AFAS reset. In this case, the AB bypass switch would be used to close the 1C AFW pump steam admission valves.

Recommendation:

Accept A and C

Reference:

OP 1-0700022; "Auxiliary Feedwater - Normal Operation"

Missed interpretation of what resetting means during validation and review.

## USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 88

Which of the following EOP directed evolutions would warrant the use of the "AB" bypass switch on the Unit 1 Auxiliary Feedwater System (AFW) portion of RTGB 102? (Assume all plant equipment operable)

- a. Resetting AFW after steam generator levels have reached the AFAS reset level.
- b. Manual initiation of AFAS after lockout when cooling down with an isolated steam generator.
- c. Isolation of a steam generator when performing 1-EOP-99, Appendix R.
- d. Placing the AFW system in service manually after a trip from low power and steam generator levels did not reach AFAS actuation setpoint.

ST. LUCIE UNIT 1  
OPERATING PROCEDURE NO. 1-0700022, REVISION 40  
AUXILIARY FEEDWATER - NORMAL OPERATION

8.0 INSTRUCTIONS: (continued)

8.1 (continued)

8. To terminate flow to the 1A Steam Generator from the 1B AFW pump.
  - A. Close MV-09-9, 1A AFW Pump to 1A S/G.
  - 11, B. Close MV-09-14, 1B AFW Pump disch to 1A S/G.
  - 11, C. Close MV-09-13, 1A AFW Pump disch to 1B S/G.
9. To secure the 1C AFW pump following use:
  - A. Close MV-09-11, 1C AFW Pump disch to 1A S/G, or MV-09-12, 1C AFW Pump disch to 1B S/G, verify zero (0) gpm flow on FI-09-7C.
  - B. Manually trip the 1C AFW pump locally by using overspeed trip lever on MV-08-3.
  - C. Place the key in the AFAS AB bypass keyswitch and position the switch to BYPASS.
  - D. Using the AFW pump 1C control switch, CLOSE steam admission valve MV-08-13, 1A S/G steam to 1C AFW Pump, or MV-08-14, 1B S/G steam to 1C AFW Pump, by placing switch in STOP.
  - E. Reset the manual overspeed trip locally and verify MV-08-3 is ready for operation.
  - F. Place the AFAS AB bypass keyswitch in NORMAL.
  - G. Ensure HC-09-1C, 1C AFW Pump Speed Control, is set at 100% on indicator.

Question 98, RO Exam

Comment:

Correct setpoint for opening Containment Vacuum Breakers is -2.5" hg containment to annulus differential pressure. The answer does not indicate a negative value.

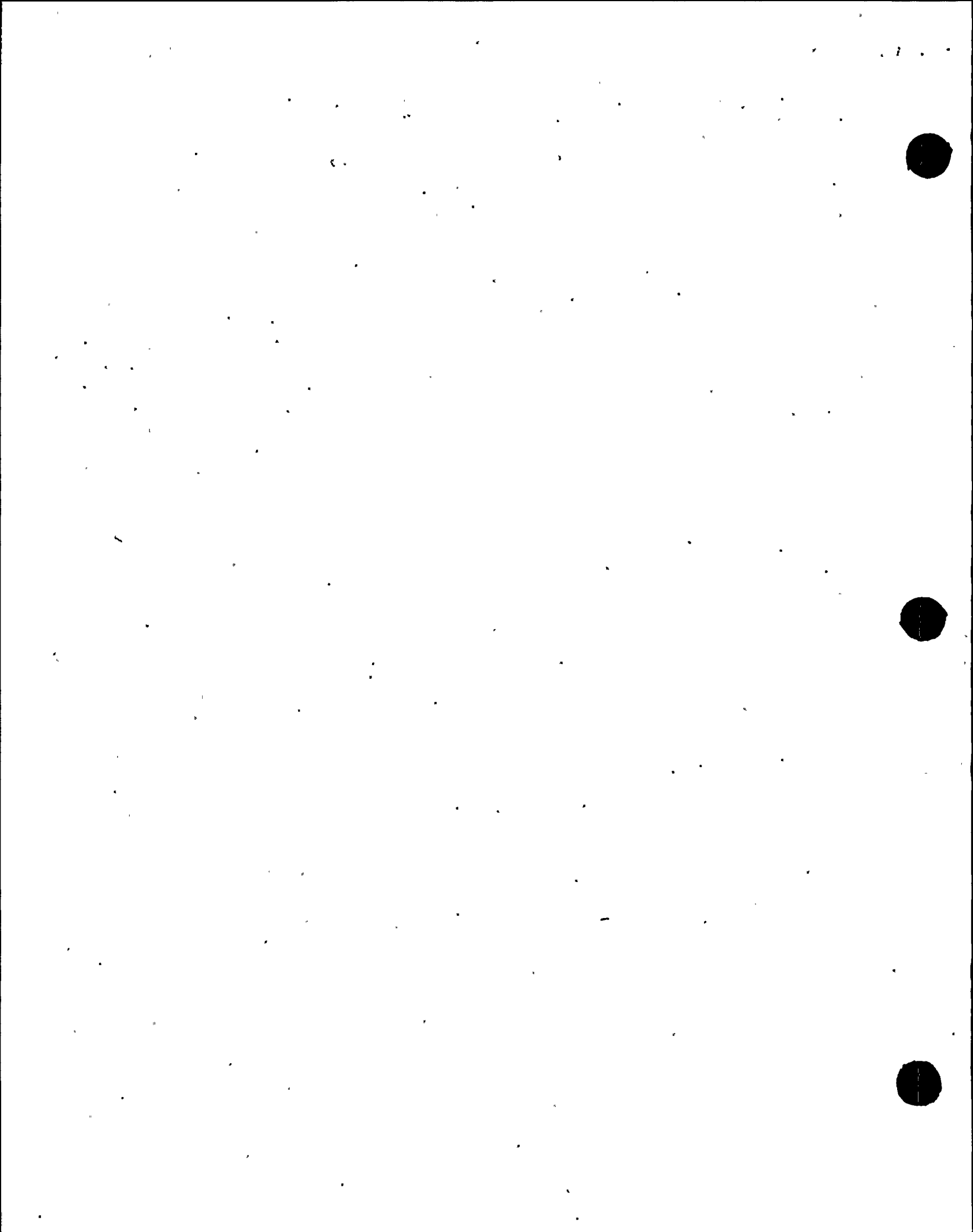
Recommendation:

Delete question 98

Reference:

2-ARP-01-T1, "Annunciator Response Procedure", 0711602, "Containment Ventilation Systems"

Typos in the question were not picked up in validation and review and caused misinterpretation.



## USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 98

Which of the following conditions would cause FCV-15-7 and FCV-25-8 (containment vacuum relief valves) to open? (Assume all plant equipment operating properly)

- a. During a surveillance run of the Shield Building Ventilation System, annulus to containment  $\Delta P$  reaches 4" H<sub>2</sub>O.
- b. Instrument air to FCV-15-7 and FCV-15-8 accumulators has been isolated.
- c. An inadvertent Containment Spray actuation during normal operations has occurred and containment to annulus  $\Delta P$  reaches 3" H<sub>2</sub>O.
- d. 125 V DC power to to FCV-15-7 and FCV-15-8 solenoid valves has been de-energized.

REVISION: 0	PROCEDURE TITLE: ANNUNCIATOR RESPONSE PROCEDURE	PANEL: T
PROCEDURE NO: 2-ARP-01-T1	ST. LUCIE UNIT 2	WINDOW: 1

### ANNUNCIATOR PANEL T

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24

**CNTMT .  
TO ANNULUS  
ΔP  
HIGH**

**T-1**

**DEVICE:**

63XA1  
PDIS-25-11A  
63XB1  
PDIS-25-11B

**LOCATION:**

HVCB  
RAB/24/S-RA1Z/ W-RAE  
HVCB  
RAB/24/ S-RA1Z/E-RAG

**SETPOINT:**

De-energized  
-9 in. H<sub>2</sub>O rising  
De-energized  
-9 in. H<sub>2</sub>O rising

**ALARM CONFIRMATION:**

1. PDIS-25-1A, Cntmt To Annulus Diff Press, indicates -9 in. H<sub>2</sub>O rising.
2. PDIS-25-1B, Cntmt To Annulus Diff Press, indicates -9 in. H<sub>2</sub>O rising.
3. PDIS-25-11A, Cntmt To Annulus Diff Press, indicates -9 in. H<sub>2</sub>O rising.
4. PDIS-25-11B, Cntmt To Annulus Diff Press, indicates -9 in. H<sub>2</sub>O rising.
5. If Containment Purge was in progress, the following is indicated:
  - 2-HVE-8A and 2-HVE-8B, Containment Purge Fans, indicate STOPPED.
  - FCV-25-7 and FCV-25-8, Containment Vacuum Reliefs, indicate OPEN.
  - FCV-25-1, 2 and 3, Containment Purge Inlet Valves, indicate OPEN.

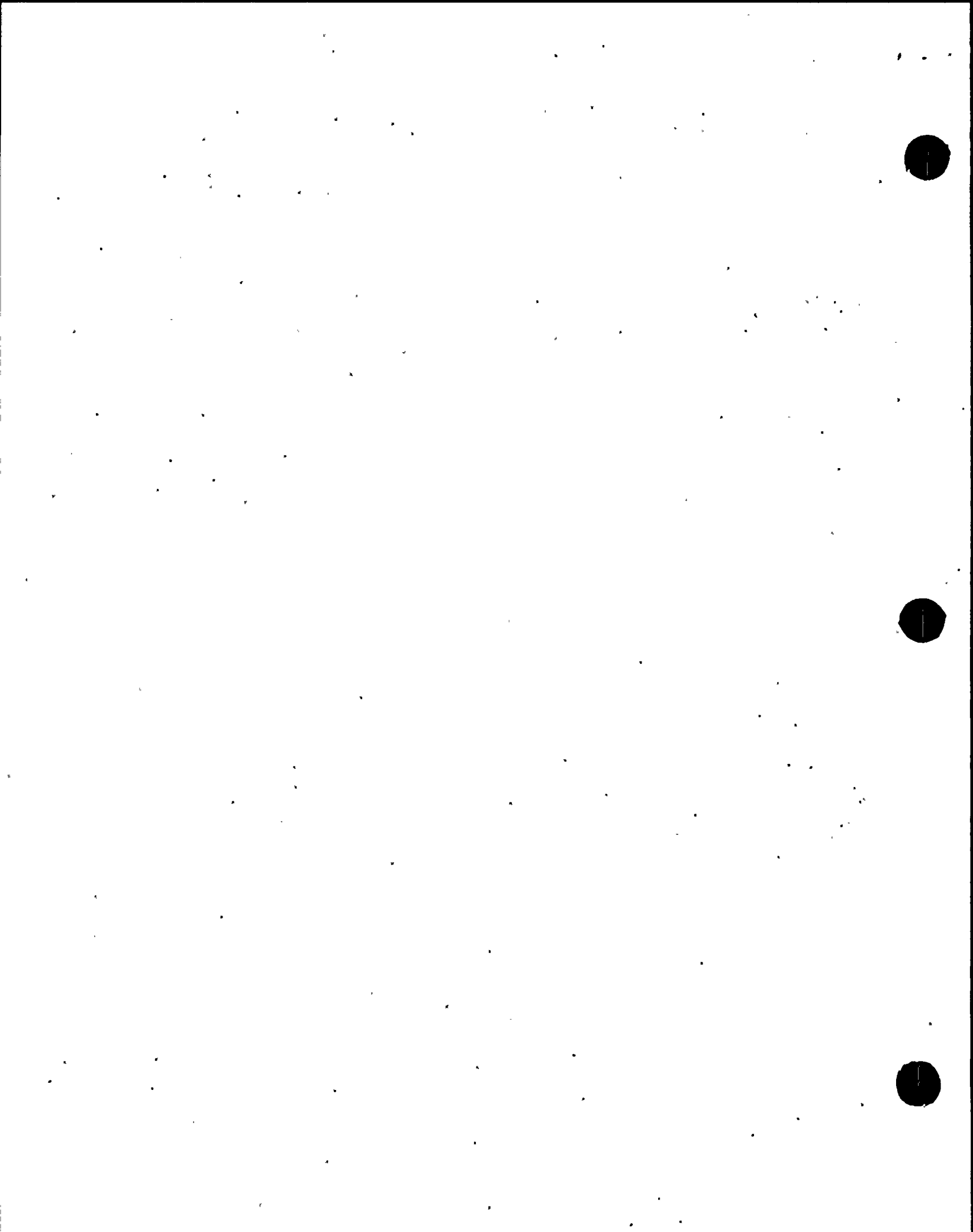
**OPERATOR ACTIONS:**

1. If Containment Purge Fans are running, Then STOP the running fan:
  - 2-HVE-8A, Containment Purge Exhaust Fan.
  - 2-HVE-8B, Containment Purge Exhaust Fan.
2. If Containment Vacuum Reliefs are closed, Then at the direction of the ANPS, OPEN the valves manually:
  - FCV-25-7, Containment Vacuum Relief.
  - FCV-25-8, Containment Vacuum Relief.

**CAUSES:** This annunciator may be caused by failure of the purge inlet dampers to open, failure of the containment vacuum relief valves to open, or a misaligned valve lineup.

**REFERENCES:**

1. CWD 2998-B-327 sheets 482, 509, 510, 529 and 1146
2. P&IDs 2998-G-862 and 8770-G-878
3. TEDB





The fans are controlled by STOP/START switches that spring return to neutral (auto) on RTGB 106 [HVCB]. When the switch is taken to START, exhaust butterfly valves FCV-25-4, 5 and 6 open and, through valve limit switches, the fan is started when the dampers have all completely opened. In neutral after stop, the fan is in standby; it will start on a low flow condition at the outlet of running fan. The fan inlet dampers are automatically opened on a fan start signal and automatically close down on a fan stop signal. The purge fans are interlocked to trip on a high containment to outside differential pressure of -4.0" water gage. Ten seconds after a low flow condition or motor overload the standby fan starts and actuates the CONTAINMENT PURGE HVE-8A(B) LOW FLOW MOTOR OVERLOAD alarm on RTGB 106 [HVCB].

#### E. VACUUM RELIEF SYSTEM

The vacuum relief system's function is to protect the containment vessel against insufficient internal pressure. The design basis for the vacuum relief system is the accidental initiation of the containment spray system (both pumps) while all four containment fan coolers are in operation and the containment is at its maximum normal operating temperature of 120°F. The containment spray pumps are assumed to reach full flow instantaneously, the initial humidity is assumed to be 40%, and one of the two redundant vacuum relief systems is assumed to be inoperable.

The vacuum relief system performs its function by two independent vacuum relief lines each sized to prevent the differential pressure between the containment and the shield building from exceeding the design value of 0.7 psid. Figure 6 shows the vacuum relief system. Each vacuum relief system consists of a check valve (V-25-20 and 21) inside containment and an automatic air-operated butterfly valve (FCV-25-7 and 8) outside of containment. Actuation of the butterfly valve is controlled by the differential pressure between the shield building annulus and the containment. Differential pressure transmitters provide signals to the pilot solenoid to open the air-operated butterfly valve. The vacuum breaker check valve is balanced to open at 1.1" water gage differential and the butterfly valve is set to open at a differential pressure of 2.5" water gage. Power to the control circuits of each automatic butterfly valve is provided from a separate emergency 125 VDC bus.

Since the vacuum relief valves also perform a containment isolation function in the event of a LOCA, the automatic butterfly valves have been designed to fail closed. A Seismic Class I air accumulator is provided to ensure a reliable energy source for the operation of each valve. Each accumulator is sized to allow three cycles of operation of its associated valve. The Seismic Class I air supply is isolated from the normal non-Seismic Class I air supply system by a set of check valves which will prevent a loss of air from the accumulator in the event of a failure of the non-Seismic Class I system. The REACTOR CONTAINMENT VACUUM RELIEF FCV-25-7 (8) ACCUMULATOR LOW AIR PRESSURE alarms on RTGB 106 [HVCB], annunciators P-11 (P-21) [T-7 (T-8)], are provided by PS-25-12A and PS-25-12B at 70 [80] psig.

Other instrumentation and controls associated with the vacuum relief system are detailed as follows and are shown on Figure 6.

1. Open and closed indication for FCV-25-7 and 8 on RTGB 106 [HVCB].
2. PDIS-25-1A (for FCV-25-7) and PDIS-25-1B (for FCV-25-8) provide differential pressure indication on RTGB 106 [HVCB] and modulating signals for the vacuum relief valves.
3. PDS-25-13A (for FCV-25-7) and PDS-25-13B (for FCV-25-8) provide redundant modulating signals for the vacuum relief valves.
4. PDIS-25-11A (for FCV-25-7) and PDIS-25-11B (for FCV-25-8) provide local containment to annulus differential pressure indication and REACTOR CONTAINMENT VACUUM HIGH pressure alarms on RTGB 106 [HVCB] at -4.0 [-9.0] inches water gage.

## NRC RESOLUTION OF FACILITY RECOMMENDATIONS

### Question # 22 RO/SRO:

*Recommendation accepted.* The additional answer is essentially correct when considering late entries. Based on the additional information provided, both answers A and C will be allowed for full credit.

### Question # 23 RO/SRO:

*Recommendation NOT accepted.* The additional answer is a subsequent action completed after the automatic incorporation of the procedural change.

### Question # 47 RO/SRO:

*Recommendation NOT accepted.* The additional answer is not allowed because the candidate's should have known that the loss of Fire and Security Sups would loose power to the PC-11 computer, resulting in a loss of secondary sampling. Primary sampling is done normally done manually.

### Question # 59 RO/SRO:

*Recommendation NOT accepted.* Even though the conditions proposed in the initial conditions are not procedurally allowable, those were the conditions that the plant was hypothesized to be in. The additional answer is NOT procedurally allowable, in that; there is no synch switch that would allow the paralleling of these two machines through TCB-9. The only way to recover from the conditions proposed was first to secure one of the MG sets.

### Question # 61 RO/SRO:

*Recommendation accepted.* Based on the additional information provided by the licensee that there is no correct answer, the question will be deleted.

### Question # 66 RO/SRO:

*Recommendation NOT accepted.* ADM-09.04, In-plant Equipment Clearance Orders, states in §1.2 that "During declared plant emergencies (activation of the St. Lucie Plant Radiological Emergency Plan), Re-entry Teams are dispatched under the authority of the Emergency Coordinator. The use of a Human clearance, as delineated by this procedure, may be used to perform any activity deem necessary to protect plant critical equipment, plant personnel or the health or safety of the general public." The initial conditions in the stem of the question state that an instrument air leak occurred and was isolated with a single isolation valve. The stem of the question does NOT provide a basis for the urgency stated in the administrative procedure.



**Question # 77 RO ONLY:**

*Recommendation accepted.* Based on the additional information provided by the licensee both A and D will be accepted for full credit.

**Question # 88 RO ONLY:**

*Recommendation NOT accepted.* The stem of the question speaks to an "EOP directed evolution..." Distractor A is comprised of actions provided in Auxiliary Feed Water Normal Operating Procedure, OP-1-070022. During the performance of an EOP you would not place the Auxiliary Feed Water system in a normal standby lineup as described in this procedure.

**Question # 98 RO ONLY:**

*Recommendation accepted.* Based on additional information provided by the licensee, the numerous typographical errors and the incorrect lesson plan this question will be deleted.



Master SRO  
St Lucie 98-30.

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

**Applicant Information**

Name:	Region: II
Date:	Facility/Unit: St. Lucie 1/2
License Level: SRO	Reactor Type: CE
Start Time:	Finish Time:

**Instructions**

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

**Applicant Certification**

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

\_\_\_\_\_  
Applicant's Signature

**Results**

Examination Value \_\_\_\_\_ Points

Applicant's Score \_\_\_\_\_ Points

Applicant's Grade \_\_\_\_\_ Percent

## NRC RULES AND GUIDELINES FOR WRITTEN EXAMINATIONS

During the administration of this exam, the following rules apply:

### PART A - GENERAL GUIDELINES

1. Cheating on any part of the examination will result in a denial of your application and/or action against your license.
2. If you have any questions concerning the administration of any part of the examination, do not hesitate asking them prior to starting that part of the test.
3. SRO applicants will be tested at the level of responsibility of the senior shift position (ie. NPS, ANPS)
4. You must pass every part of the examination to receive a license or to continue performing license duties.
5. The NRC examiner is not allowed to reveal the results of any part of the examination until they have been reviewed and approved by NRC management. Grades provided by the facility licensee are preliminary until approved by the NRC. You will be informed of the official examination results about 30 days after all examinations are complete.

### PART B - WRITTEN EXAMINATION GUIDELINES

1. After you complete the examination, sign the statement on the cover sheet indicating that the work was your own and you have not received or given assistance in completing the examination.
2. To pass the examination, you must achieve a grade of 80 percent or greater. Every question is worth one point.
3. For initial examinations, the time limit for completing the examination is FOUR hours.
4. You may bring pens, calculators or slide rules into the examination room. Use only black ink to ensure legible copies.
5. Print your name in the blank provided on the examination cover sheet and answer sheet. You may be asked to provide the examiner with some form of positive identification.
6. Mark your answers on the answer sheet provided and do not leave any question blank. Use only the answer sheet provided and do not write on the back side of the pages. If you decide to change your original answer, draw a single line through the error, enter the desired answer, and initial the change.





7. If the intent of the question is unclear, ask questions of the examiner only.
8. Restroom trips are permitted, but only one applicant at a time will be permitted to leave. Avoid all contact with anyone outside the examination room to eliminate the appearance or possibility of cheating.
9. When you complete the examination, assemble a package including the examination questions, examination aids, answer sheets and scrap paper and give it to the proctor. Remember to sign the statement on the cover sheet indicating that the work was your own and you have not received or given assistance in completing the examination. The scrap paper will be disposed of immediately after the examination.
10. After you have turned in your examination, leave the examination area as defined by the proctor. If you are found in this area while the examination is still in progress, your license may be denied or revoked.
11. Do you have any questions?



## USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 1

Unit 1 is in mode 6. The NPS has suspended fuel movement due to a Tech Spec LCO violation. Which of the following conditions has caused fuel movement to be suspended?

Less than two (2):

- a. Wide Range Log Safety Channels operable.
- b. Appendix R Neutron monitors operable.
- c. Linear Range Safety Channels operable.
- d. Startup Range Neutron monitors operable.



## USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 2

The following conditions exist:

- Unit 2 has tripped from 100% power due to a LOOP
- 2A Emergency Diesel has failed to start
- CEAs 42 and 39 are indicating UEL
- The ANPS directs the RO to perform an emergency boration
- 2B charging pump is running

Which one of the following statements describes the correct operator actions?

- a. Start 2B BAMT Pump, open V2514 (Emergency Borate Valve).
- b. Hold close V2501(VCT Outlet Valve), hold open V2504 (RWT Makeup Valve).
- c. Start 2B BAMT Pump, open V2508 or V2509 (Gravity Feed Valves).
- d. Open V2508 or V2509 (Gravity Feed Valves), ensure closed V2501(VCT Outlet Valve).

## USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 3

While operating in MODE 5 with the pressurizer solid and the RCS in an isothermal condition at 150° F, RCS pressure rapidly increases. Which one of the following could cause this pressure increase?

- a. Letdown pressure control valve diaphragm ruptures
- b. Pressurizer heaters energize
- c. Shutdown cooling flow is increased
- d. Letdown level control valve setpoint is increased

USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 4

The following conditions exist:

- A total loss of feedwater event has occurred on Unit 1
- S/G levels are 14% on wide range indication
- The control room crew has exited EOP-6 and entered EOP-15, "RCS and Core Heat Removal", Success Path 4, "Once through Cooling"

After Once through Cooling has been initiated, which one of the following is the correct action by the control room crew?

- a. Implement EOP-6 and continue with feedwater restoration.
- b. Implement in EOP-15 starting at step 1.
- c. Remain in Success Path 4 until feed is recovered.
- d. Implement EOP-3, RCS inventory is now decreasing.



USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 5

The following conditions exist:

- 1B Steam Generator has been diagnosed with a tube rupture
- An RCS cooldown to 523°F That is completed
- 1B Steam Generator has been isolated per 1-EOP-99, Appendix R
- All RCPs are off

With cooldown in progress for an additional 30 minutes, which one of the following RCS That temperatures is correct if the maximum recommended cooldown rate is utilized?

- a. 473 °F
- b. 485.5 °F
- c. 498 °F
- d. 508 °F



USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 6

Due to a condenser tube leak, The ANPS has directed entry into 1-ONP-22.01, "Rapid Downpower", and has directed the ROs to commence a downpower at 30 MW/minute, and maintain Tavg within 6.6°F of Tref. Which one of the following is the procedurally correct method of reducing RCS Tavg.? (Assume one BAM pump running)

- a. Open Boric Acid Load Control Valve V2525; cycle the running BAM pump.
- b. Open Emergency Borate Valve V2514; cycle V-2514.
- c. Open Boric Acid Load Control Valve V2525; cycle V2525.
- d. Open Emergency Borate Valve V2514; cycle the running BAM pump.



## USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 7

A large instrument air leak has occurred on Unit 1. As PCV-18-5 (Unit 2 to Unit 1 Instrument Air Crosstie) is stroking open, it becomes mechanically bound in the full open position. Assuming no operator action, which one of the following statements correctly describes the system response?

- a. Unit 1 (PCV-18-6) crosstie will automatically close at 85 psig decreasing, isolating instrument air to Unit 2.
- b. Unit 2 instrument air depressurization is prevented by a check valve located in the crosstie line.
- c. Unit 1 station to instrument air crosstie will automatically open at 85 psig decreasing to supply compressed air to Unit 1.
- d. Unit 2 instrument air system will depressurize as Unit 1 instrument air system depressurizes.

## USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 8

Unit 2 is at 100% power, 2A charging pump was running with 2B charging pump selected as backup. 2A charging pump tripped due to a faulty breaker. The following conditions now exist:

- 2B charging pump was started to replace 2A charging pump
- 2A charging pump control switch was placed in the "OFF" position
- No other switch manipulations were made

If pressurizer level setpoint is increased to 69%, which of the following is a correct description of the current CVCS configuration?

- a. 2B charging pump running with no change in letdown flow.
- b. 2B and 2C charging pumps running with minimum letdown flow.
- c. 2B charging pump running with minimum letdown flow.
- d. 2B and 2C charging pumps running with no change in letdown flow.



USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 9

Unit 2 ROs have just performed a shutdown of the reactor and turbine due to lower and middle seal failures on the 2B1 Reactor Coolant Pump. After the 2B1 RCP was stopped, the upper seal also failed. Which of the following describes the flowpath of controlled bleedoff from the 2B1 RCP at this time?

2B1 RCP controlled bleedoff:

- a. has been directed to the floor drains.
- b. is being directed to the Volume Control Tank.
- c. is being directed to the Quench Tank.
- d. has been isolated.





USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 10

2-EOP-6, "Total Loss of Feed" addresses the use of a Condensate pump to establish feed to the steam generators if certain conditions are met. Which one of the following situations would warrant the use of a Condensate pump?

- a. A loss of both non-vital 4160 KV busses has occurred and steam generator pressures are 600 psig.
- b. A trip from 80% power has occurred and Steam Generator levels are 45% wide range.
- c. A trip from 30% power has occurred and Steam Generator levels are 35% narrow range.
- d. Steam Generator levels are 25% wide range and steam generator pressures are 650 psig.

USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 11

Unit 2 is performing a rapid unit shutdown due to a Steam Generator tube leak on the 2A Steam Generator. According to ONOP 2-0800030, "Steam Generator Tube Leak", under what conditions would the ROs be required to trip the reactor and turbine?

- a. Three of four TM/LP pretrips are in alarm on the RPS.
- b. Pressurizer level cannot be maintained with 28 gpm letdown and all available charging pumps running.
- c. The difference between actual Pressurizer level and Pressurizer level setpoint exceeds 6.6%.
- d. Pressurizer level cannot be maintained with V-2522 closed and all available charging pumps running.



USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 12

The Unit 2 CCW Radiation Monitor has gone into an alarm condition. Further investigation revealed the solenoid flow control valve closed and isolated flow. Which of the following has occurred at the CCW Radiation Monitor and is the probable cause of this condition?

- a. Low CCW flow.
- b. High CCW radiation.
- c. Low CCW pressure.
- d. High CCW temperature.

USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 13

Unit 1 is at 100% power, steady state. 1A and 1B steam generator pressures are at 890 psig. If a main steam leak inside containment were to occur, which of the following is the minimum value that 1A steam generator pressure would have to change to cause a reactor trip strictly on steam generator parameters?

- a. 13%
- b. 15%
- c. 30%
- d. 33%

USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 14

The following Unit 2 conditions exist:

- CCW surge tank Lo-Lo level switch (LS-14-6A) is valved out for replacement
- All "N" header valves are OPEN
- 2A CCW pump develops a large discharge flange leak
- The leak exceeds the capacity of makeup flow

Assuming no operator action, which of the following correctly describes FIRST response of the system?

- a. "A" side N header valves (HCV-14-8A and HCV-14-9) close.
- b. 2A CCW pump trips on low suction pressure.
- c. "B" side N header valves (HCV-14-8B and HCV-14-10) close.
- d. 2A CCW pump cavitates.

USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 15

The following conditions exist:

- Unit 2 is at 100% power
- Charging and letdown are in normal configuration
- Regen HX inlet pressure is 2250
- Regen HX outlet pressure is 2200

If a 10 gpm leak occurs in the letdown line downstream of the regenerative heat exchanger, which one of the following indications will occur as a result of the leak? (assume system in auto)

Indicated letdown flow:

- a. will decrease due to LCV-2110P closing.
- b. will isolate due to V-2516 closing.
- c. will increase due to LCV-2110P opening.
- d. will isolate due to V-2515 closing.



USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 16

The following conditions exist:

- Unit 1 is at 100% power
- Linear Range Control Channel # 9 is out of service for I&C repair
- Linear Range Channel # 10 is supplying the RPS Power Ratio Calculator

Which of the following would be the system response if Channel 10 upper detector failed high?

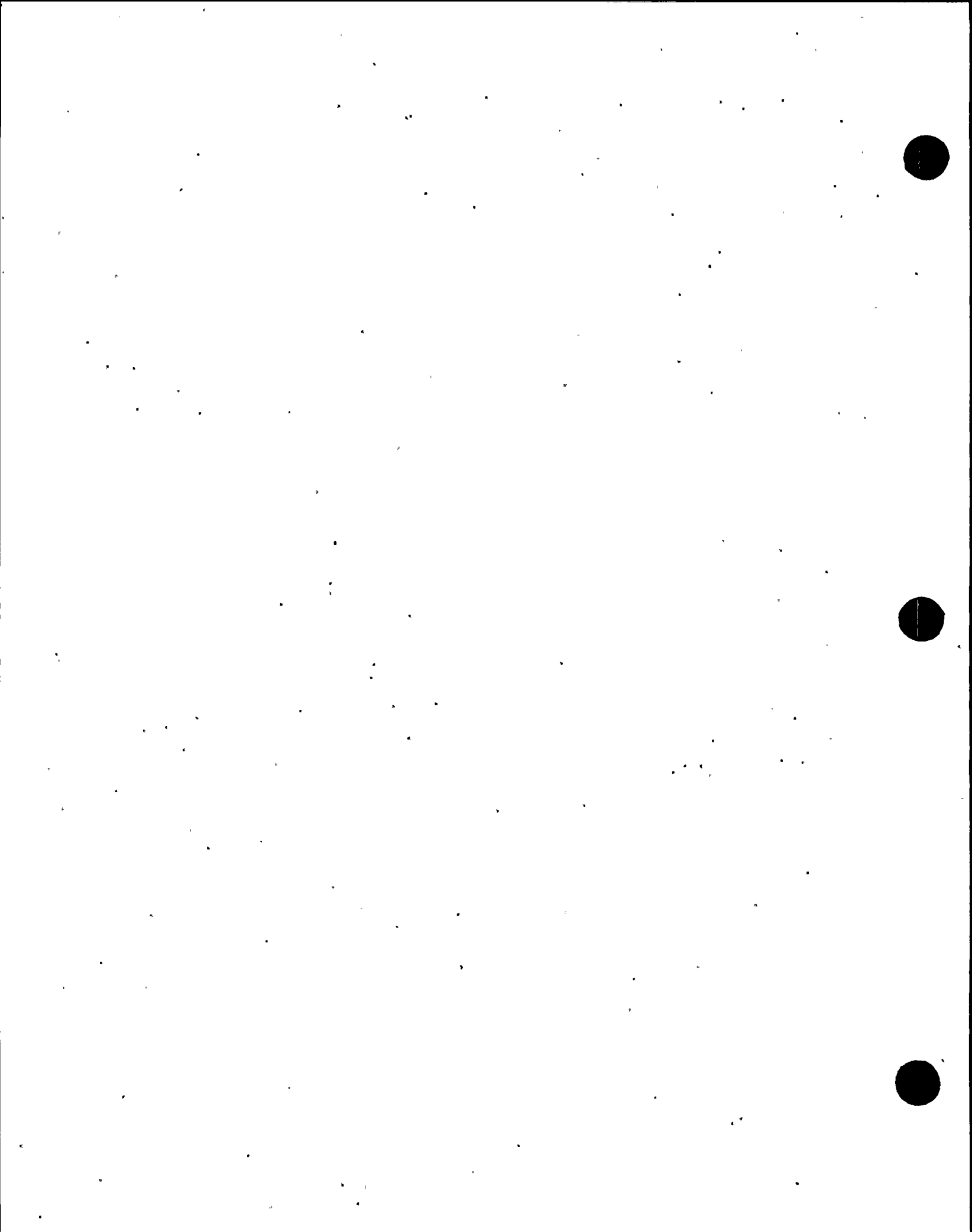
- a. ASI as indicated on the Power Ratio Recorder would violate the negative setpoint, an alarm would be generated.
- b. The lower setpoint for ASI as indicated on the Power Ratio Recorder would become more negative, no alarm would be generated.
- c. ASI as indicated on the Power Ratio Recorder would violate the positive setpoint, an alarm would be generated.
- d. The upper setpoint for ASI as indicated on the Power Ratio Recorder would become more positive, no alarm would be generated.

## USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 17

The 1B 125 VDC bus has been lost due to a wiring fault. The control room crew is carrying out the actions of ONOP 1-0030136, "Loss of a Safety Related D.C. Bus". The ANPS has directed the ROs to align the 1B 125 VDC bus to the 1D 125 VDC non-safety bus. Which of the following statements correctly describes the process of bus alignment?

- a. The 1B 125 VDC bus can be fed directly from the 1D 125 VDC bus by aligning the keyswitches on RTGB 101.
- b. The 1B 125 VDC bus can be fed from the 1D 125 VDC bus through the 1AB 125 VDC bus only by unlocking and aligning local breakers.
- c. The 1B 125 VDC bus can be fed directly from the 1D 125 VDC bus by unlocking and aligning local breakers.
- d. The 1B 125 VDC bus can be fed from the 1D 125 VDC bus through the 1AB 125 VDC bus only by aligning the keyswitches on RTGB 101.



USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 18

Unit 2 is at 100% steady state power. Annunciator B-13, "2A2 4.16 KV  $\Delta$  Current Trip" has just gone into alarm. Which one of the following correctly describes the effect of this condition on the 2A Emergency Diesel Generator?

The 2A Emergency Diesel Generator:

- a. starts, but does not load on the 2A3 bus.
- b. does not start. It will only start on 2A3 bus undervoltage.
- c. starts and loads on the 2A3 bus.
- d. does not start, but will start and load on the 2A3 bus when the bus lockout relay is reset.



USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

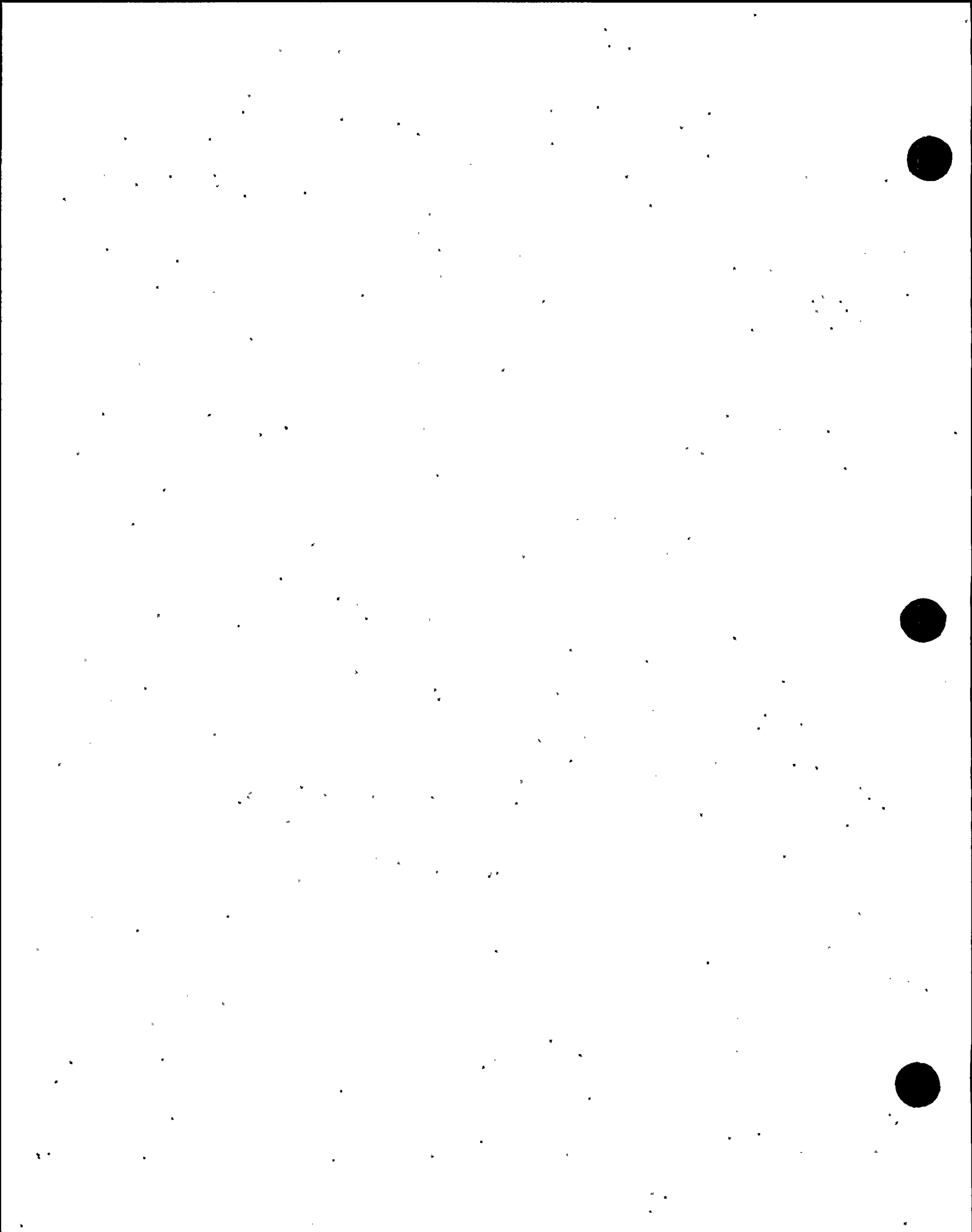
QUESTION 19

The following conditions exist:

- Unit 1 is at 20% power, returning from a refueling outage, turbine on hold
- MTC is +1 pcm/°F
- The RO places steam generator blowdown in service at 120 gpm/SG

Which of the following describes the immediate plant response to this evolution?  
Assume no operator action.

- a. Reactor power increases, letdown flow increases, feedwater flow increases
- b. Reactor power decreases, letdown flow increases, feedwater flow decreases
- c. Reactor power increases, letdown flow decreases, feedwater flow decreases
- d. Reactor power decreases, letdown flow decreases, feedwater flow increases



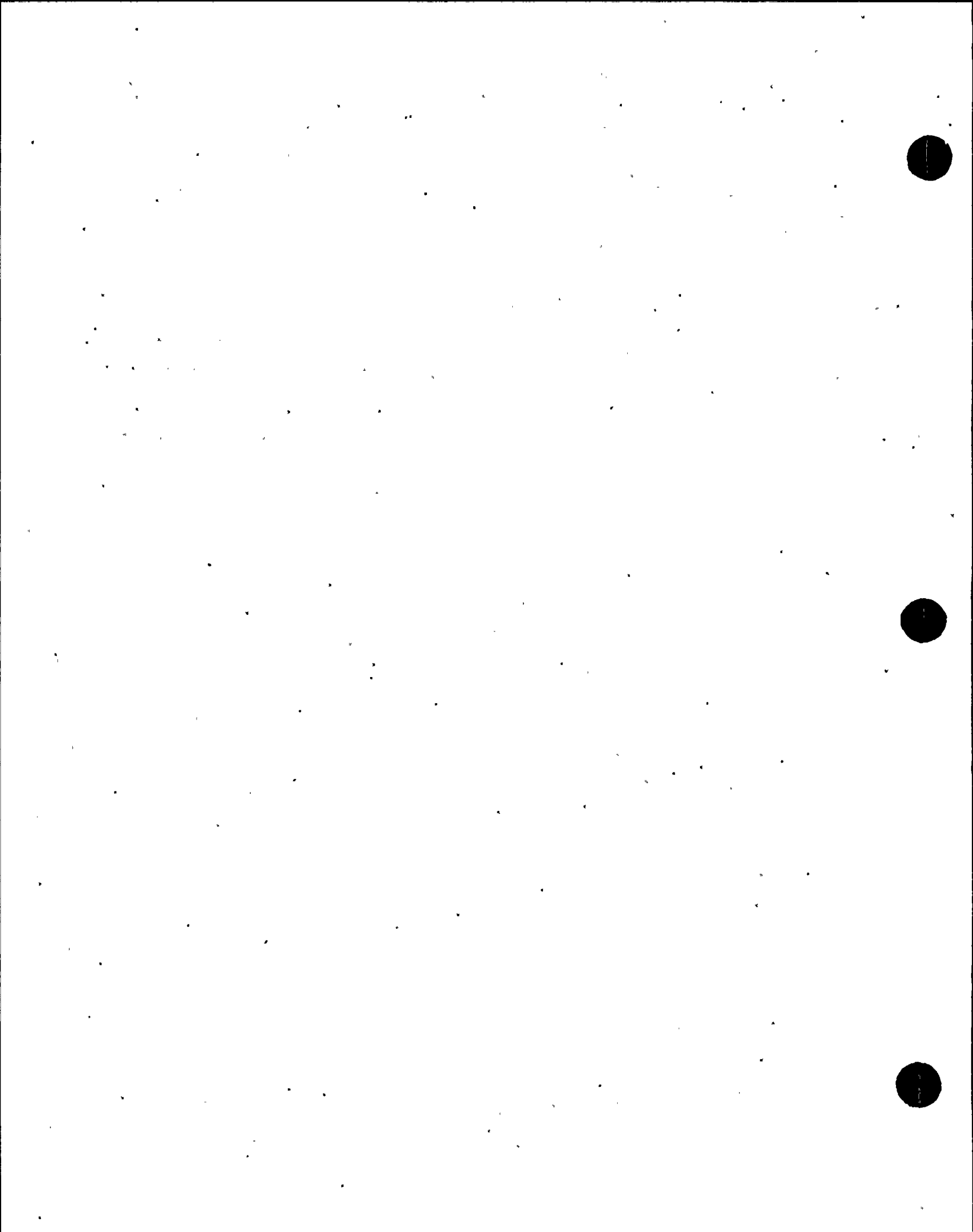
## USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 20

Unit 1 is in Mode 1, 100% power. The SNPO is preparing the 1B Containment Spray Pump for its quarterly surveillance run. Which of the following correctly describes an additional manipulation that the SNPO must perform on Unit 1 but not on Unit 2?

- a. Open the CCW isolation valve to the 1B Containment Spray pump seal heat exchanger.
- b. Open 1B Containment Spray pump manual recirc valves.
- c. Close MV-07-3B, B CS Header Isolation.
- d. Close the Sodium Hydroxide tank vent to atmosphere.





USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

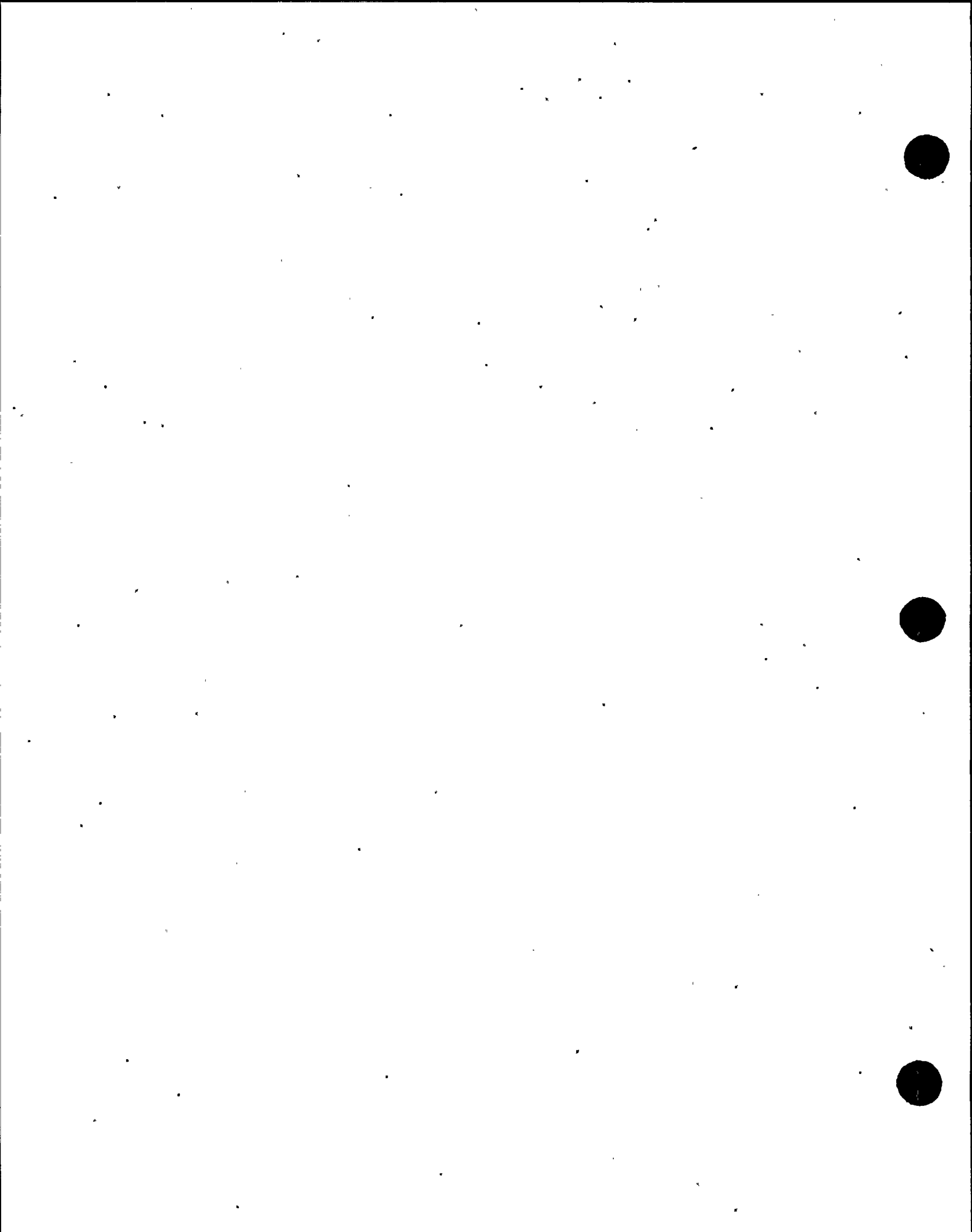
QUESTION 21

The following conditions exist:

- A large break LOCA has occurred on Unit 1
- 1-EOP-03, "Loss of Coolant Accident" is being implemented
- Hydrogen Analyzers initially indicated 0.7%
- Hydrogen concentration has increased another 2.6% since the initial reading
- No equipment is out of service

Which of the following actions are required to satisfy the Containment Combustible Gas Control safety function of 1-EOP-03?

- a. Ensure both Hydrogen Recombiners and Containment Spray in service.
- b. Ensure the Hydrogen Purge System in service.
- c. Ensure both Hydrogen Recombiners and Hydrogen Purge System in service.
- d. Ensure both Hydrogen Recombiners in service.



## USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 22

Unit 1 has tripped from 100% power due to a feedwater problem. According to AP-0010120, "Conduct of Operations", which of the following is the approved method of chronological log entries during this event?

- a. The events can be reconstructed at a later time using all available references, but must be made in chronological order when making an entry.
- b. The desk RO will record all events in the RCO chronological log as they occur, after performing SPTAs.
- c. The events can be reconstructed at a later time using all available references, chronological order is desired but not necessary when making an entry.
- d. A designated person, preferably the STA, will record all events in the RCO chronological log as they occur.



## USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 23

The Unit 1 SNPO was in the process of performing a valve lineup when he discovered an incorrect valve number and valve position. To correct this condition, he generated a temporary change (TC) to the procedure IAW ADM-11.03, "Temporary Change to Procedures". Which of the following describes the status of the TC, ninety five days later, assuming no action was taken by the originator?

The Temporary Change:

- a. was automatically canceled after 90 days.
- b. still exists in the TC log.
- c. was canceled after the valve lineup was performed.
- d. was automatically incorporated into the procedure.

USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

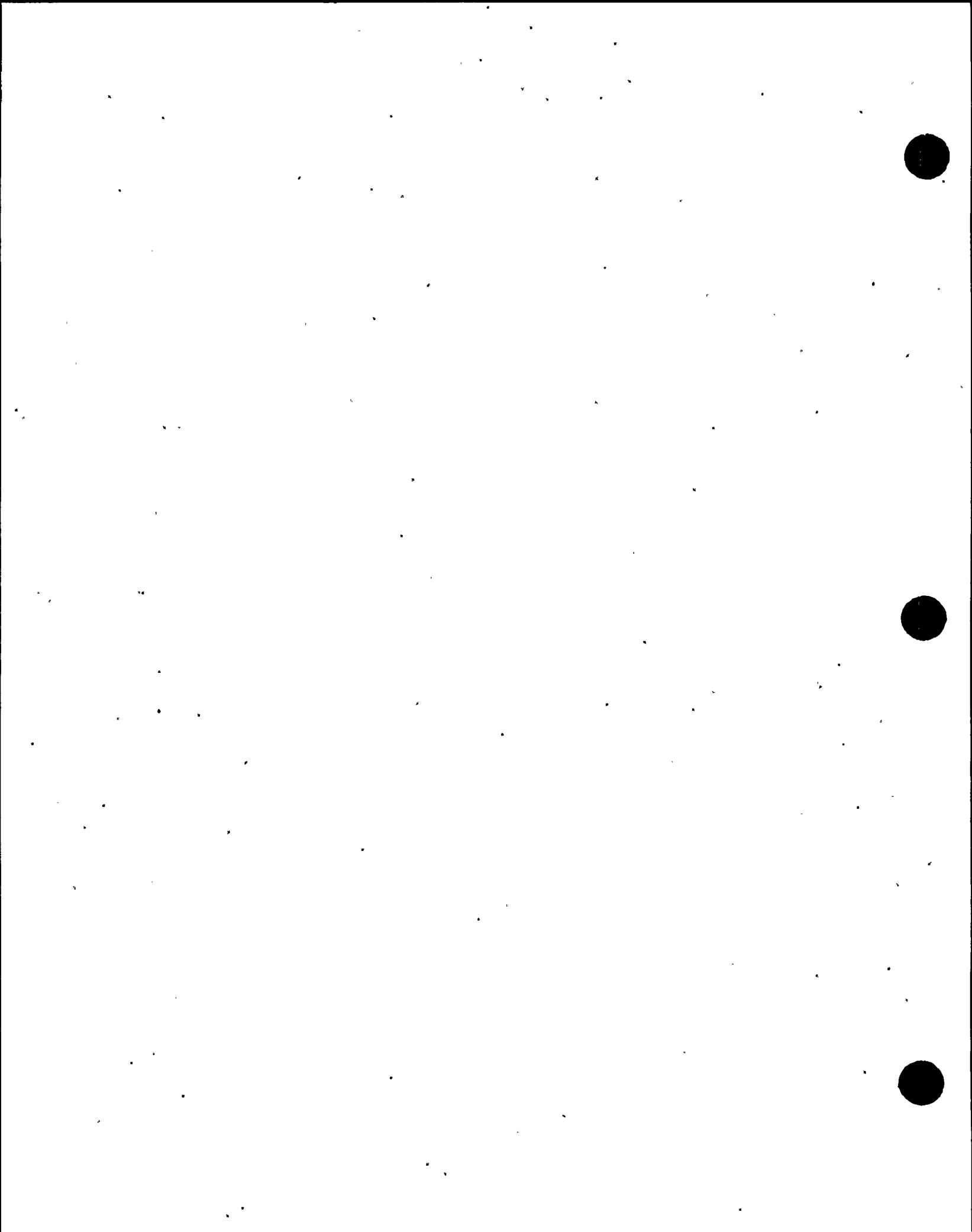
QUESTION 24

The 1B CVCS Ion Exchanger has been placed in service following resin replacement. Although the RO rinsed the ion exchanger for 1 hour, after 10 minutes of in-service time, the following conditions exist:

RCS Tcold	548.9
Reactor Power	100.6%

According to AP 0010120, "Conduct of Operations", which of the following is the correct action to be taken by the control room crew?

- a. Immediately implement ONOP 1-0250030, "Emergency Boration".
- b. Reduce reactor power to  $\leq 100\%$  within 15 minutes.
- c. Reduce reactor power to  $\leq 100\%$  within 30 minutes.
- d. Trip the Reactor and Turbine.





## USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 25

For entry into a VERY HIGH RADIATION AREA, which of the following correctly describes all requirements that must be met?

- a. Continuous HP coverage, a high range dosimeter, HP department head approval, NPS approval.
- b. A specific RWP, continuous HP coverage, HP department head approval, NPS approval.
- c. A specific RWP, a hand held survey instrument, a high range dosimeter, HP department head approval.
- d. Continuous HP coverage, a hand held survey instrument, HP department head approval, NPS approval.



USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 26

Unit 2 tripped from 100% power. Reactor power is  $5 \times 10^{-4}\%$  as indicated on Wide Range Instrumentation. Which of the following correctly describes the status of the Nuclear Startup Channels at this time?

The Startup Channels:

- a. are energized. They automatically energize at  $10^{-3}\%$  power.
- b. are not energized. They will energize if the switches are placed in "on".
- c. are energized. They automatically energize on the reactor trip signal.
- d. are not energized. They will not energize if the switches are placed in "on".

## USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 27

The following conditions exist:

- Unit 2 is at 100% power
- An electrician, performing a surveillance, de-energizes the 2B3 4.16 KV bus
- The 2B EDG successfully starts and loads
- All plant equipment is operable

Assuming no operator action aside from resetting individual pressurizer heater banks on RTGB 203, which of the following correctly describes the TOTAL pressurizer heater availability at this time?

- a. Two proportional banks, six backup banks
- b. One proportional bank, three backup banks
- c. One proportional bank, four backup banks
- d. Two proportional banks, four backup banks

USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 28

2A steam generator pressure safety channel A has failed low. 2B steam generator pressure safety channel A is normal. Which of the following correctly describes plant response if 2B steam generator pressure safety channel D were to fail low?

- a. RPS reactor trip only
- b. RPS reactor trip and ESFAS actuation
- c. ESFAS actuation only
- d. No RPS reactor trip or ESFAS actuation

USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 29

The bistable for RCS Low Flow reactor trip has been removed from RPS channel "D" for I&C work. Which one of the following conditions would cause a reactor trip on RCS Low Flow with the RPS in its current configuration?

- a. "A" channel Reactor Coolant Pump differential pressure (PDT 1110 & 1112) de-energizes.
- b. "A" channel Steam Generator differential pressure (PDT 1111 & 1121) fails low.
- c. "A" channel Reactor Coolant Pump differential pressure (PDT 1110 & 1112) instrument tap develops a leak.
- d. "A" channel Core differential pressure (PDT 1124W & 1124Z) de-energizes.



USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 30

Unit 2 was at 100% power when a Loss of Offsite Power/SIAS occurred. Which of the following correctly describes the configuration of the Containment Cooling System after both Emergency Diesel Generators start and load on their respective busses?  
(Assume all plant equipment in normal configuration prior to the LOOP/SIAS)

- a. Four coolers running in fast speed.
- b. Three coolers running in slow speed.
- c. Four coolers running in slow speed.
- d. Three coolers running in fast speed.





## USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 31

The following conditions exist:

- Unit 2 tripped from 100% power
- B steam generator narrow range level channel A has failed low
- Auxiliary Feedwater was throttled to 150 gpm / steam generator after AFAS actuation
- Both steam generator levels are currently 10% narrow range and increasing

Which of the following correctly describes the response of the "B" train AFW system if the MB 120 V Instrument Inverter is de-energized and no operator action is taken?

- a. At 29% NR indication, AFW flow to the 2B S/G automatically isolates, the header valves must be manually opened to reestablish flow.
- b. AFW flow to the 2B S/G remains in service and will continue to fill the 2B S/G.
- c. AFW flow to the 2B S/G automatically isolates on Rupture ID due to the failure, AFAS-1 must be manually actuated to reestablish flow.
- d. At 29% NR indication, AFW flow to the 2B S/G automatically isolates, the header valves automatically re-open at 19.5% NR.

## USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 32

Unit 2 was performing a rapid power reduction due to an RCS leak inside containment when the reactor was manually tripped. SIAS actuated 1 minute following the manual trip. SPTAs are in progress and the following conditions exist 12 minutes after trip:

- RCS pressure 1200 psia
- RCS Thot 476°F
- Pressurizer level 0%
- Containment Pressure 2 psig
- SG levels 43% WR with feed available

Which of the following is the correct RCP trip strategy for the current conditions?

- a. Trip all four RCPs
- b. Trip one RCP in each loop
- c. Leave all four RCPs running
- d. Trip one RCP



USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 33

SE-07-1A, (Iodine Removal System eductor valve) is closed and de-energized for solenoid replacement. Which of the following correctly describes the flowpath of Sodium Hydroxide if a full CSAS occurred with the system in its current configuration?

Sodium Hydroxide would flow:

- a. through 2 eductor solenoid valves to the discharge of the 1B Containment Spray Pump.
- b. through 1 eductor solenoid valve to the discharge of 1A and 1B Containment Spray Pumps.
- c. through 2 eductor solenoid valves to the suction of 1A and 1B Containment Spray Pumps.
- d. through 1 eductor solenoid valve to the suction of the 1B Containment Spray Pump.

USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 34

The following conditions exist:

- Unit 2 is at 100% power
- The 2A HPSI is being used to fill the 2A2 SIT
- An electrical fault has caused the 2A3 4.16 KV bus to de-energize

Which one of the following will occur when the 2A EDG starts and loads on the bus?

The 2A HPSI will:

- a. auto sequence onto the bus six seconds after the EDG output breaker closes.
- b. auto sequence onto the bus thirty seconds after the EDG output breaker closes.
- c. will not sequence onto the bus and will have to be manually started.
- d. loads onto the bus immediately after the EDG output breaker closes.

USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 35

Unit 2 is in Mode 6, refueling in progress. A leak has developed in the suction line of the in service Fuel Pool Cooling pump, upstream of the suction isolation valve. Which of the following correctly describes the status of fuel pool water level if no action is taken to isolate the leak?

Fuel pool water level will decrease:

- a. to 23 feet above the top of the fuel assemblies.
- b. to the bottom of the fuel transfer canal gate.
- c. to the bottom of the skimmer suction.
- d. to approximately 52 feet.

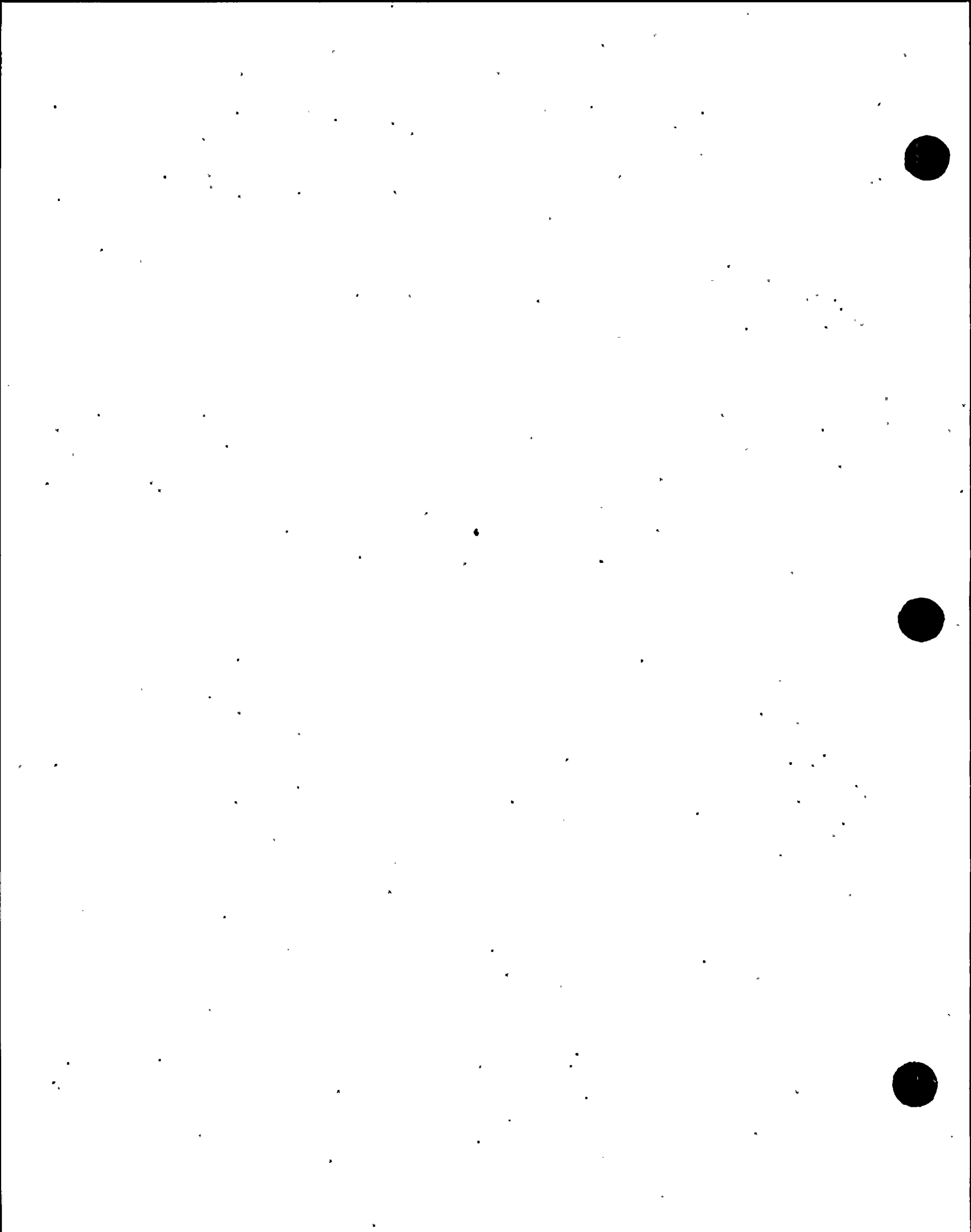
## USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 36

A large ESDE has occurred on Unit 2. The RO, performing safety function status checks for 2-EOP-05, reports that RCS temperature is 350°F and RCS pressure is 1290 psia. The crew should:

- a. secure all running RCPs, initiate seal injection.
- b. stabilize RCS temperature, depressurize the RCS.
- c. reduce RCS temperature to establish 20°F subcooling.
- d. stabilize RCS pressure and temperature at current values.





USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 37

Which one of the following actions would be permissible according to AP 0010120, "Conduct of Operations"? (assume all equipment operable)

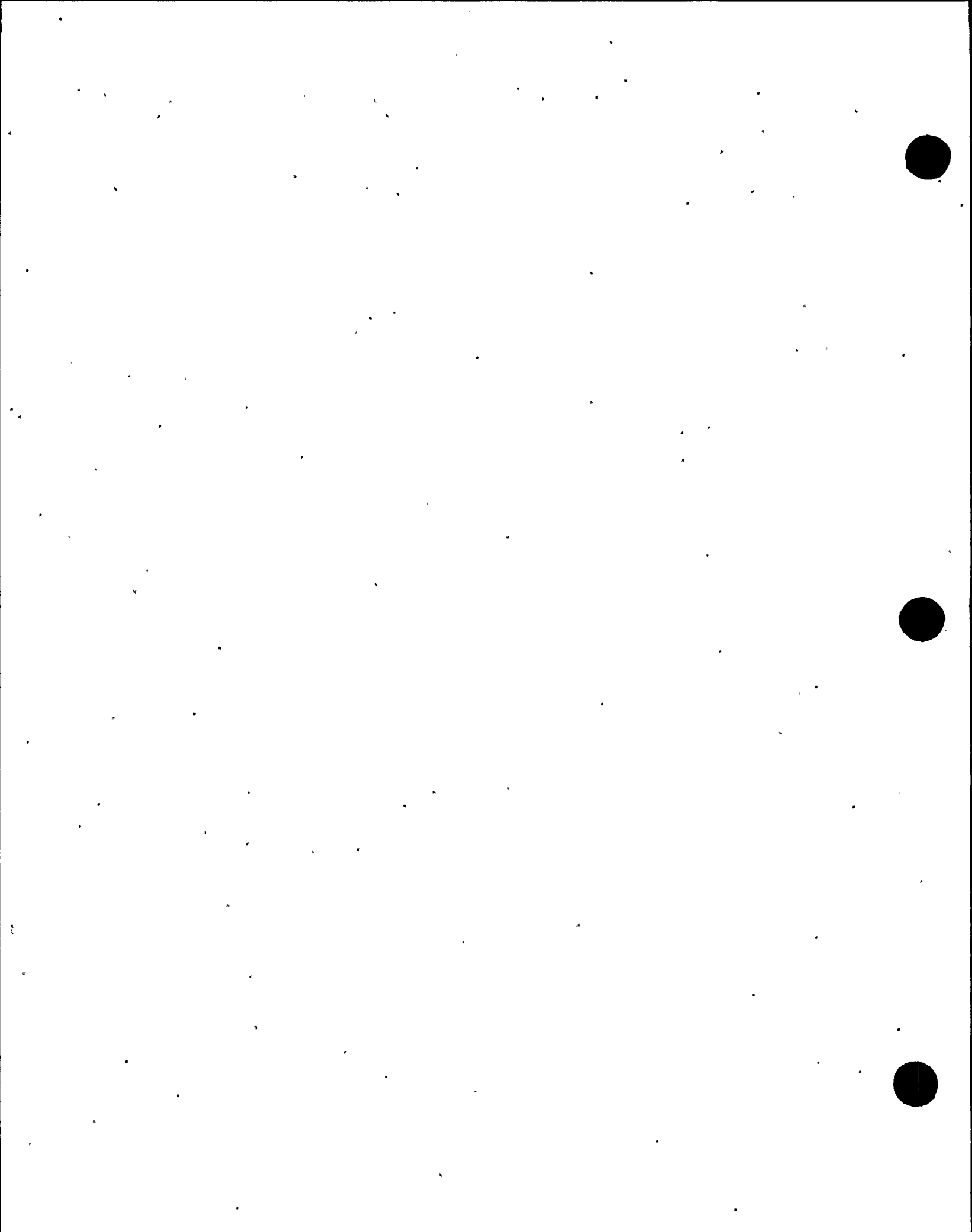
- a. Manual initiation of AFAS post reactor trip with S/G levels at 22% NR.
- b. Blocking SIAS during a plant shutdown due to a 100 gpm RCS leak inside containment.
- c. Blocking MSIS during a plant cooldown due to a 100 gpm SGTR.
- d. Manual actuation of SIAS prior to auto actuation due to a 200 gpm LOCA.

## USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 38

Unit 1 is at 100% power, steady state. The 1C 120 VAC Instrument bus becomes de-energized due to an electrical fault. Which of the following correctly describes the status of the Diverse Scram System (DSS) at this time?

- a. The MG set input breaker will open if ONE DSS channel becomes actuated.
- b. A line contactor will open if TWO DSS channels become actuated.
- c. The MG set input breaker will open if TWO DSS channels become actuated.
- d. A line contactor will open if ONE DSS channel becomes actuated.



USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 39

The following conditions exist:

- Unit 2 is at 100% power, NOP / NOT
- A steam leak has developed on the 2A main steam line outside containment
- An RCS leak has developed on the 2A hot leg

Which of the following correctly describes the the condition of the steam exiting each leak? (Assume containment pressure is atmospheric)

- a. The primary side steam is saturated, the secondary steam is saturated.
- b. The secondary steam is superheated, the primary steam is saturated.
- c. The primary steam is superheated, the secondary steam is superheated.
- d. The secondary steam is saturated, the primary steam is superheated.

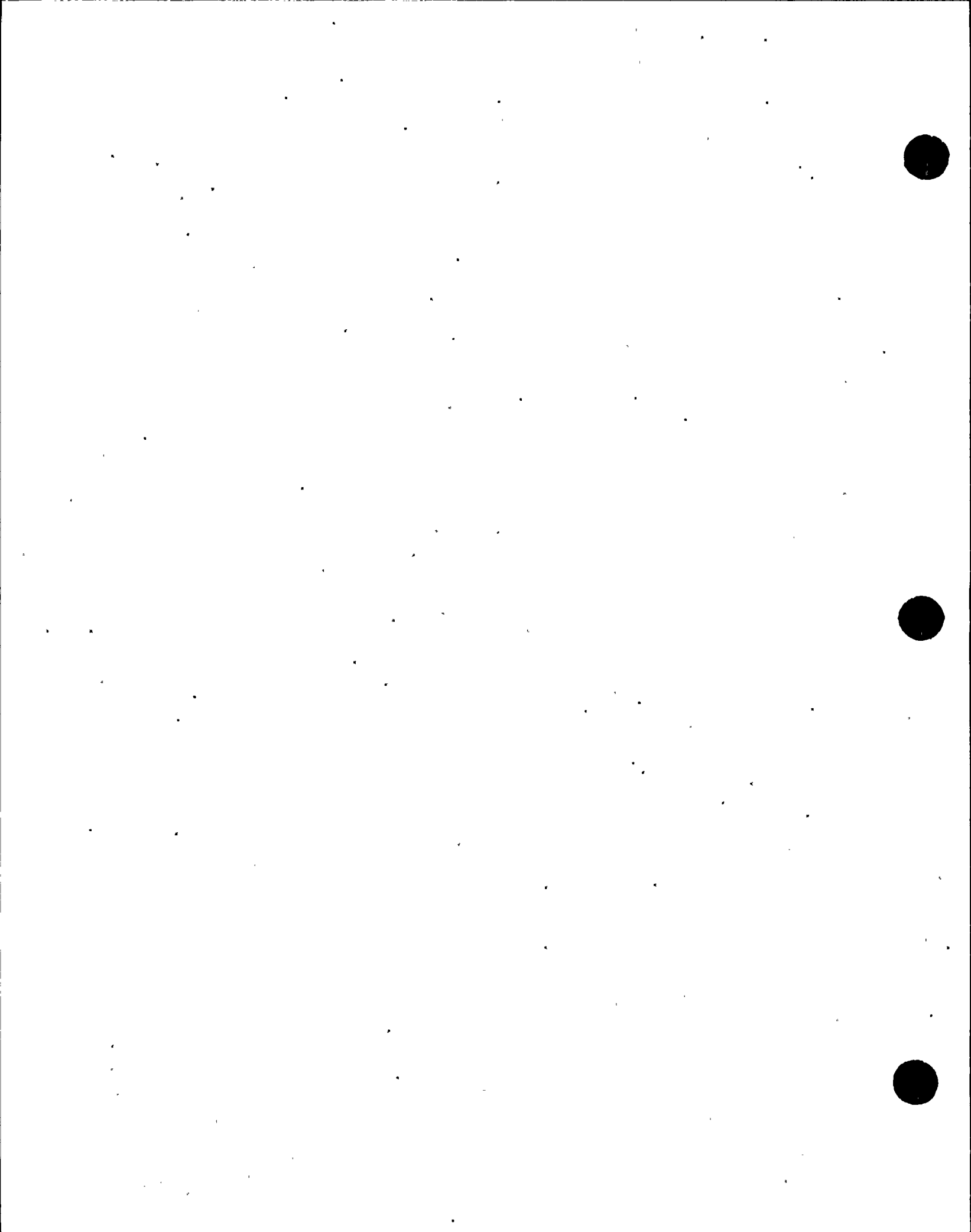


USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 40

Unit 2 is at 50% power, turbine startup in progress. Which one of the following de-energized CEDM components is the FIRST component to be energized when the RO places the CEA control switch to WITHDRAW?

- a. Lift Coil
- b. Upper Gripper Coil
- c. Load Transfer Coil
- d. Lower Gripper Coil





## USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 41

Which of the following is the method of level indication/annunciation of the Unit 2 reactor cavity sump?

- a. Indication is provided by reed switches, annunciation is provided by a bubbler system.
- b. Annunciation is provided by a float device, indication is provided by reed switches.
- c. Indication is provided by a bubbler system, annunciation is provided by a float device.
- d. Annunciation is provided by reed switches, indication is provided by a float device.

USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 42

The following conditions exist:

- Unit 2 is in the process of a turbine startup
- Reactor power is at 10%
- The RO is preparing to latch the turbine
- Valve position limits have been set to "0"

Which of the following correctly describes the response of the system when the RO depresses and holds the "Latch" pushbutton on RTGB 201?

- a. Auto stop oil pressure increases to approximately 100 psig, governor and intercept valves stroke open.
- b. DEH supply header pressure increases to approximately 1800 psig, intercept and reheat stop valves stroke open.
- c. Auto stop oil pressure increases to approximately 100 psig, intercept and reheat stop valves stroke open.
- d. DEH supply header pressure increases to approximately 1800 psig, governor and intercept valves stroke open.



USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 43

Unit 1 turbine startup is in progress. The RO is in the process of placing the MSRs in service. Which of the following describes the system response when the "Ramp" pushbutton on the reheat control panel is depressed?

- a. The four MSR TCVs open over a four hour period.
- b. The four smaller MSR TCVs open over a two hour period, the four large MSR TCVs open after an additional half hour.
- c. The four MSR TCVs open over a two hour period.
- d. The four smaller MSR TCVs open over a four hour period, the four large MSR TCVs open after an additional half hour.

USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 44

2A Emergency Diesel Generator has been started and is loaded to the grid for a periodic surveillance run. Which of the following describes the response of the 2A Emergency Diesel Generator if a loss of offsite power occurs during this evolution?

The 2A Emergency Diesel Generator:

- a. remains running and carrying the 2A3 4160 V bus loads.
- b. trips on overspeed.
- c. output breaker opens and re-closes, normally running loads are sequenced on the 2A3 4160 V bus.
- d. trips on overcurrent.

USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 45

Which of the following plant conditions would present the most significant challenge to shutdown margin requirements during a main steam line rupture?

- a. Hot full power, beginning of cycle.
- b. Hot zero power, end of cycle.
- c. Hot zero power, beginning of cycle.
- d. Hot full power, end of cycle.



USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 46

The following conditions exist:

- A Station Blackout has occurred on Unit 1
- 2A and 2B Emergency Diesel Generators are available

Which of the following describes the preferred method of supplying Unit 1 with 4160V power through the Station Blackout Crosstie?

Crosstie:

- a. 2A3 4160V bus with 1B3 4160V bus.
- b. 2B3 4160V bus with 1B3 4160V bus.
- c. 2A3 4160V bus with 1A3 4160V bus.
- d. 2B3 4160V bus with 1A3 4160V bus.



## USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 47

The Unit 2 Fire and Security Sups has been de-energized due to an electrical fault and will remain out of service for 4 hours. According to 2-ONP-49.01, "Sups - Non Safety Vital AC or Fire and Security Inverter Malfunction", which of the following actions must be performed on Unit 2 that would NOT have to be performed in the same situation on Unit 1?

- a. All vital access doors must be posted.
- b. Local primary sampling for activity must be performed.
- c. Fire watches must be posted.
- d. Local secondary sampling for activity must be performed.

USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 48

Unit 2 generator output is 485 MW. According to ONOP 2-0610031, "Loss of Condenser Vacuum", which of the following conditions would require an immediate reactor/turbine trip?

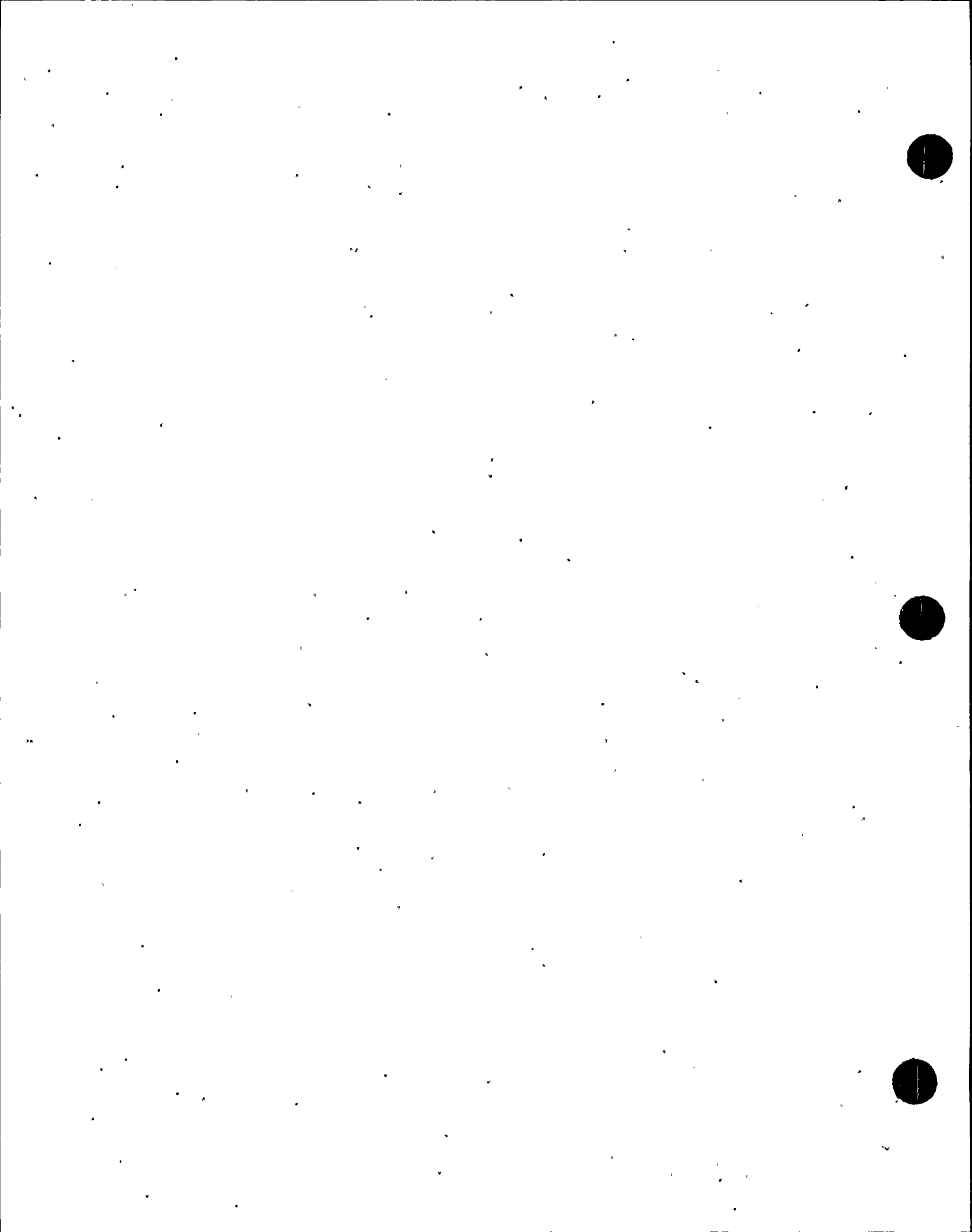
- a. Condenser backpressure is 2.85 psia.
- b. Two circulating water pumps in the same discharge tunnel trip.
- c. The differential pressure between A and B condenser is 1.13 psid.
- d. Condenser air in leakage is 12 CFM.

USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 49

Unit 2 is at 100% power. Due to a power supply failure, ONE CEA has dropped to the bottom of the core. Which of the following components is de-energized?  
(Assume system in normal configuration)

- a. Coil Power Programmer
- b. Power Switch
- c. Hold Bus
- d. ACTM module

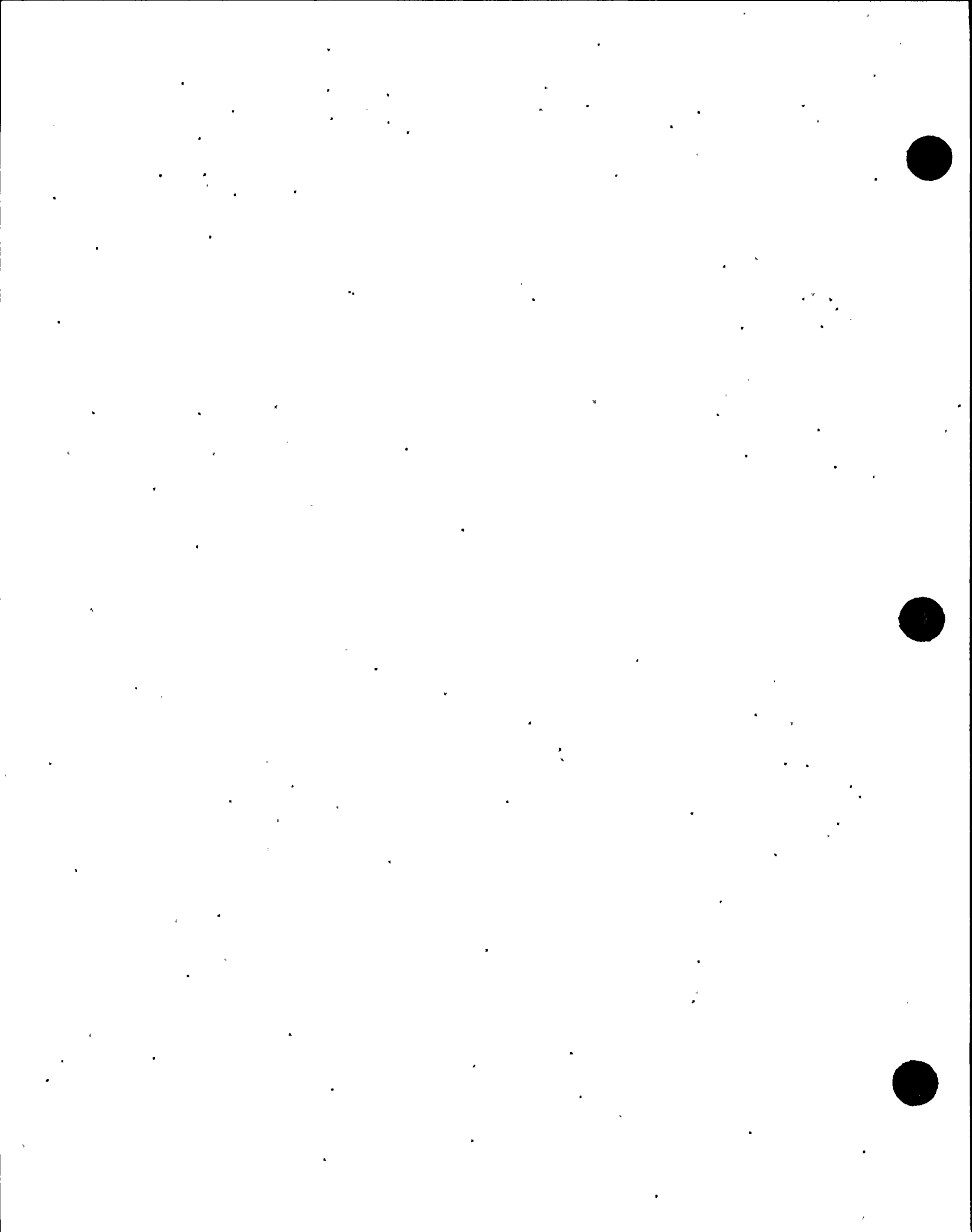


## USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 50

Unit 1 was at 100% power when the control room was evacuated due to a fire in the cable spreading room. Prior to exiting the control room, the operators had time to perform their initial actions. Assuming all appendices of 1-ONP-100.02, "Control Room Inaccessibility" were performed, which one of the following will be AVAILABLE to the RO when he arrives at the HSDCP?

- a. Letdown
- b. Main spray
- c. PORV
- d. Aux Spray



USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 51

According to 2-EOP-1, "Standard Post Trip Actions", in which of the following situations would it NOT be permissible to initiate seal injection after RCPs are removed from service while in 2-EOP-1?

- a. A cooldown has caused RCS T<sub>cold</sub> to decrease to 495°F.
- b. RCS pressure is at 1290 psia after SIAS with subcooling at 40°F.
- c. Main and Auxiliary feedwater has been lost and cannot be restored.
- d. A valid CCW to RCP trip has actuated and caused the reactor trip.

USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 52

Which of the following Inadequate Core Cooling Monitor (QSPDS) indications would be inaccurate if Reactor Coolant Pumps remained running with the Reactor Vessel Level Monitor reading less than 100%?

- a. Upper head region level indication.
- b. CET saturation margin indication.
- c. Plenum region level indication.
- d. RCS saturation margin indication.





USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 53

The ANPS was in the process of reviewing the RO logs from the previous shift when he noticed the following trend on 2A1 RCP lower oil reservoir level:

0900	+3"
1200	+2"
1500	+1"

Assuming no system leakage, which of the following could be the cause of the 2A1 RCP lower oil reservoir level trend?

- a. Instrument air pressure to the transmitter is increased slightly.
- b. A buildup of debris has occurred at the bubbler tube outlet.
- c. An I/A leak has developed where the bubbler tube enters the reservoir.
- d. Containment pressure has decreased.

USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 54

Unit 1 has just come off line and is in Mode 3. The ANPS has directed the ROs to reduce  $T_{avg}$  to  $< 500^{\circ}\text{F}$ . Which of the following parameters was exceeded and is the reason for this Tech Spec required evolution?

- a. Primary Chemistry
- b. Secondary Activity
- c. Primary Activity
- d. Secondary Chemistry



## USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 55

Unit 1 has tripped from 100% power due to a loss of offsite power. Two minutes after the trip, the 1B 125 VDC bus becomes de-energized. Which of the following correctly describes the auxiliary feedwater configuration ten minutes post trip? (Assume no operator action)

- a. 1A and 1C AFW pumps running and feeding the 1A steam generator.
- b. No AFW pumps running.
- c. Only 1A AFW pump running and feeding the 1A steam generator.
- d. 1A AFW pump running and feeding the 1A steam generator, 1C AFW pump running and feeding both steam generators.



USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 56

A large break LOCA has occurred on Unit 2. The ANPS has directed the RO to make the alignment to pump the safeguard sumps to containment IAW 2-EOP-3, "Loss of Coolant Accident". Which of the following describes the flowpath of the safeguards sumps after the alignment is made?

The safeguard sump water will be pumped directly to the:

- a. reactor drain tank
- b. containment sump
- c. reactor cavity sump
- d. quench tank





USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 57

The following conditions exist:

- Unit 1 is currently at 80% power
- VCT level is currently at 42%
- A 5 MW/MIN downpower is in progress due to a 18 gpm RCS leak
- 2 charging pumps are running with letdown in automatic
- Due to a malfunction in the Boric Acid Makeup System, the downpower must be performed using 10 gpm of boric acid being supplied via the manual borate valve
- No other makeup is available
- VCT level = 33.8 gal./%

If the rate of power reduction and RCS leakage remain constant, at approximately what power level will the RWT begin to supply the suction of the charging pumps? (assume 10% VCT level decrease due to RCS density change)

- a. 5%
- b. 16%
- c. 24%
- d. 32%



USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 58

The Unit 2 board RO had just assumed the shift and was taking his first set of hourly logs when he noticed Shield Building Exhaust fan HVE-6A running. Which of the following conditions could be the reason for HVE-6A running? (Assume all plant equipment operating properly)

- a. High radiation in the fuel pool area.
- b. A containment mini purge is in progress.
- c. High shield building to containment DP.
- d. Failure of the MA channel CIS monitor.



USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 59

The following conditions exist:

- Motor Generator (MG) set 1A and 1B are running
- Bus tie breaker (TCB #9) is open
- Reactor Trip breakers 3, 4, 7 and 8 are open (B side)
- Reactor Trip breakers 1, 2, 5 and 6 are closed (A side)

Which of the following is correct concerning the closure of the reactor trip breakers 3, 4, 7 and 8 by the RO?

The operator:

- a. may close the reactor trip breakers in any combination at any time.
- b. must close the bus tie breaker prior to closing the reactor trip breakers.
- c. must ensure one MG set is taken out of service prior to closing the reactor trip breakers.
- d. must synchronize 1A and 1B MG sets with the bus tie breaker open prior to closure of the reactor trip breakers.

USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 60

According to ONOP 2-0530030, "Waste Gas System", which of the following correctly describes the immediate operator actions concerning the combination of hydrogen and oxygen in the waste gas decay tanks?

If the in-service gas decay tank:

- a. hydrogen concentration exceeds 4% and the oxygen concentration exceeds 2%, immediately admit nitrogen to reduce the oxygen concentration to within limits.
- b. oxygen concentration exceeds 4% and the hydrogen concentration exceeds 2%, immediately admit nitrogen to reduce the oxygen concentration to within limits.
- c. hydrogen concentration exceeds 4% and the oxygen concentration exceeds 2%, immediately admit nitrogen to reduce the hydrogen concentration to within limits.
- d. oxygen concentration exceeds 4% and the hydrogen concentration exceeds 2%, immediately admit nitrogen to reduce the hydrogen concentration to within limits.

USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 61

The following conditions exist:

- Unit 2 is at 50% power, all equipment operable
- A large, unisolable instrument air leak occurs
- The operators manually trip the reactor when I/A pressure reaches 50 psig

Which of the following correctly describes Steam Generator water level trends and the reason for the trends immediately following the trip? (Assume no operator action)

Steam Generator levels will:

- a. increase to approximately 80% NR, then decrease after the main feed reg valves close. *Decrease*
- b. decrease due to main feed isolation valves failing closed.
- c. increase to solid conditions due to no response from the main feedwater control system.
- d. decrease to normal post trip values as 15% bypass valves establish 5% feed flow to each Steam Generator.

# USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

## QUESTION 62

The following conditions exist:

- The Unit 1 reactor was manually tripped by the operators due to a rupture of the CCW N header
- Prior to stopping all RCPs, the 1A 125 VDC bus became de-energized

Which of the following states the location where the RCPs can be most expeditiously tripped?

- a. Trip 1A2 and 1B1 RCPs from the RTGB, trip 1A1 and 1B2 RCPs locally at their respective breakers.
- b. Trip 1B1 and 1B2 RCPs from the RTGB, trip 1A1 and 1A2 RCPs locally at their respective breakers.
- c. Trip 1A1 and 1B2 RCPs from the RTGB, trip 1A2 and 1B1 RCPs locally at their respective breakers.
- d. Trip 1A1 and 1A2 RCPs from the RTGB, trip 1B1 and 1B2 RCPs locally at their respective breakers.



USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 63

Unit 2 is at 100% power. PIS-07-2A, containment pressure safety channel has failed high. Assuming no operator action, which one of the following conditions would cause Containment Spray pump(s) to start and borated water to be admitted into containment?

- a. The 120 VAC MC Instrument Inverter trips due to an electrical fault.
- b. The 2B 125 VDC bus de-energizes.
- c. PIS-07-2C containment pressure safety channel drifts to 6 psig.
- d. An I&C tech inadvertently injects a high containment pressure signal into the MB CSAS ESFAS channel.

USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 64

The following conditions exist:

- A plant shutdown was commenced 1 hour ago due to a power supply failure
- Operators have been monitoring containment temperature
- The ANPS has instructed the operators to trip the reactor when containment temperature exceeds 120°F

Which of the following is the power supply that has failed? (Assume all other plant equipment operable, consider each case separately)

- a. 2A5 480V Load Center
- b. 1A2 480V Load Center
- c. 1AB 480V Load Center
- d. 2A9 480V Load Center

USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 65

A category 4 hurricane has caused an extended loss of offsite power at St. Lucie Plant. One minute after the Emergency Diesel Generators started and loaded, the 2B 125VDC bus was lost. Which of the following correctly describe the status of the 2B Emergency Diesel Generator fuel oil system?

The 2B Emergency Diesel Generator will continue to run as fuel is supplied to the day tanks through the:

- a. normally open bypass valve.
- b. failed open inlet valves.
- c. energized inlet valves.
- d. inlet valves if manually pinned open.

USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 66

The following conditions exist:

- Unit 2 is at 100% power
- An instrument air leak has occurred at the instrument air accumulator on the 19.5' elevation of the turbine building
- The leak has been isolated by a single isolation valve
- Service air and Instrument air have been crosstied
- Mechanical Maintenance is standing by to repair the leak

Which of the following describes the minimum administrative requirements in this case that will allow Mechanical Maintenance to begin work?

- a. A full Equipment Clearance Order must be issued prior to Mechanical Maintenance commencing work.
- b. A Human Clearance can be put in place to allow Mechanical Maintenance to commence work.
- c. A Caution tag must be placed on the isolation valve prior to Mechanical Maintenance commencing work.
- d. A deviation tag can be placed on the isolation valve and instrument air crosstie to allow Mechanical Maintenance to commence work.



USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

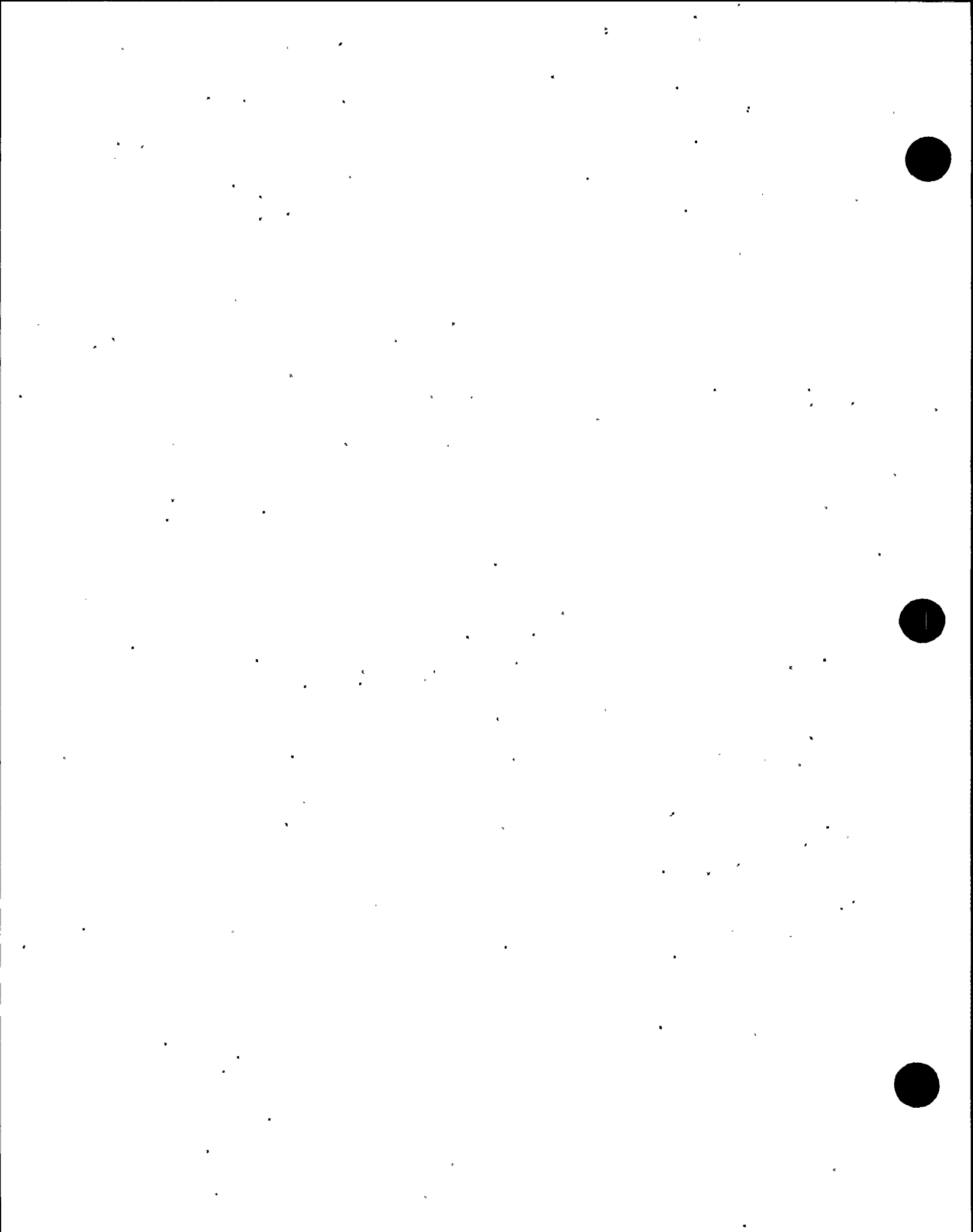
QUESTION 67

A Unit 2 refueling outage was scheduled to begin on October 16th. The following are the sequence of events as they took place:

10-16 / 0900	Turbine tripped, breaker open
10-16 / 1030	Mode 2 entered
10-16 / 1200	Mode 3 entered
10-16 / 1400	ARI
10-17 / 0300	Mode 4 entered

Which of the following is the earliest time the movement of fuel in the reactor vessel can commence?

- a. 10-19 / 0900
- b. 10-18 / 1030
- c. 10-19 / 1200
- d. 10-20 / 0300



## USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 68

Which of the following operator actions would require ANPS concurrence prior to taking the action? (Assume 100% power operation)

- a. The desk RO manually trips the reactor because 2A steam generator level is 41% NR and decreasing.
- b. The board RO performs an emergency boration due to two stuck out CEAs post trip.
- c. The board RO takes manual control of the selected pressurizer pressure controller because it has failed high.
- d. The desk RO stops the 2A CCW pump during a surveillance run because the ammeter indicates full scale and flow is decreasing.





USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 69

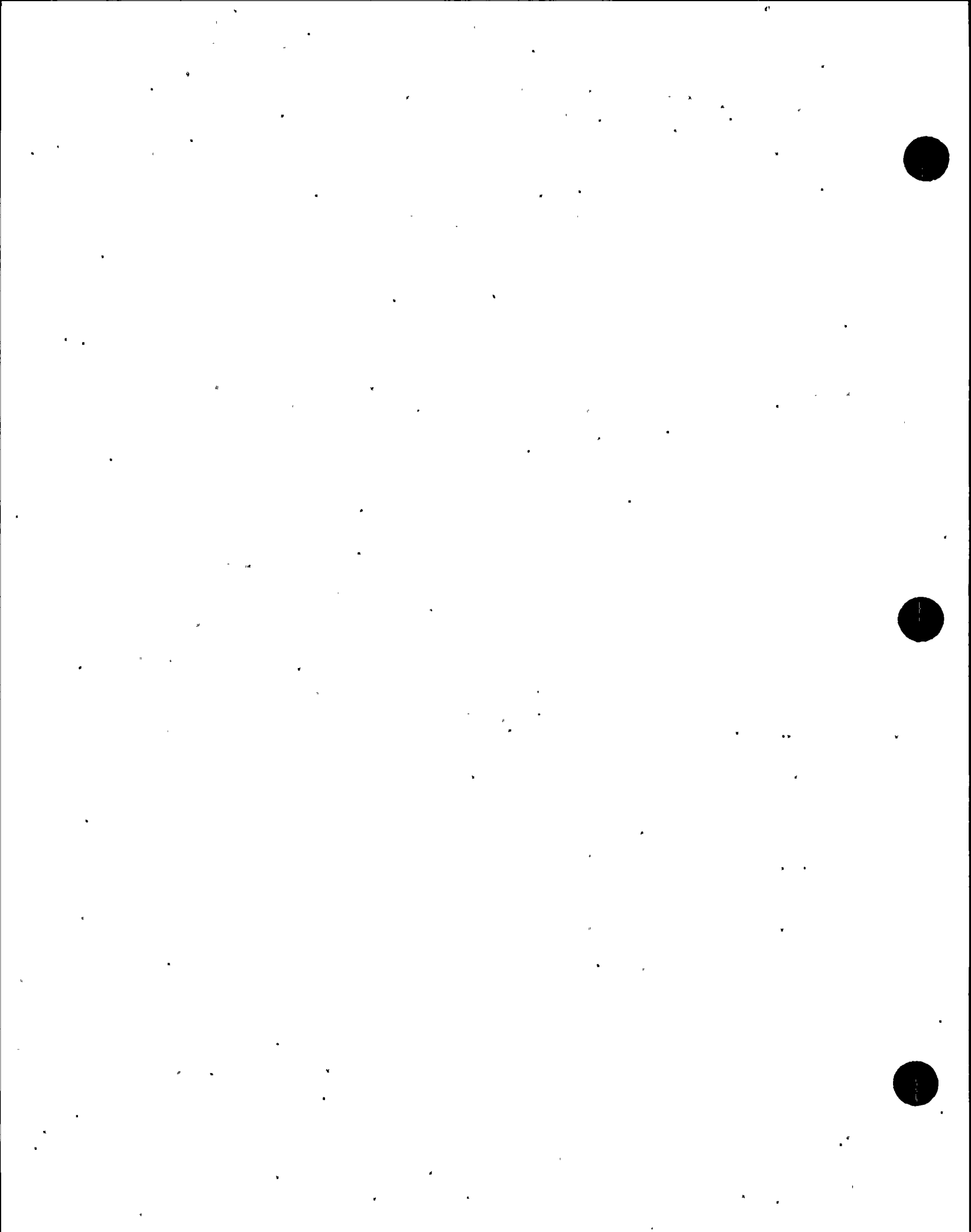
The following is the dose record for an individual:

- Committed Dose Equivalent (CDE) is 2525 mr
- Deep Dose Equivalent (DDE) is 2335 mr
- Lens Dose Equivalent (LDE) is 744 mr
- Committed Effective Dose Equivalent (CEDE) is 405 mr
- Total Organ Dose Equivalent (TODE) is 4865 mr
- Shallow Dose Equivalent (SDE) is 435 mr
- Maximum Extremity Dose (ME) is 6565 mr

Which of the following is the individual's dose margin if the NRC limit is used?

The individual:

- a. has a margin of 2260 mr
- b. has a margin of 2475 mr
- c. has a margin of 2665 mr
- d. has exceeded the NRC limit



USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 70

Which of the following conditions would require a Total Effective Dose Equivalent ALARA review prior to issuing an RWP?

On any job that:

- a. is to be performed in a Hot Particle Area.
- b. requires a full face air purifying respirator.
- c. neutron radiation is present.
- d. noble gas is present and respirators will not be used.

USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 71

A steam generator tube rupture has occurred on Unit 2 and the Emergency Plan is being implemented. The NPS (Emergency Coordinator) has declared a Site Area Emergency and is about to announce the evacuation of the owner controlled area. Which of the following is the correct assembly area considering the wind direction given?

Wind direction from:

- a. 135°, evacuate to JayCee Park.
- b. 278°, evacuate to Jensen Beach Causway.
- c. 175°, evacuate to Jensen Beach Causway.
- d. 225°, evacuate to JayCee Park.

USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 72

An unexpected annunciator has alarmed in the Control Room. According to AP-0010120, "Conduct of Operations", which of the following correctly describes the correct response of the RO in the vicinity of the control board?

Acknowledge the annunciator:

- a. reset the annunciator, visually scan the annunciator panels to verify no other alarms were received simultaneously.
- b. visually scan the annunciator panels to verify no other alarms were received simultaneously, reset the annunciator.
- c. reset the annunciator, notify the ANPS, NPS or other senior licensed individual fulfilling the control room command function of the alarm received.
- d. notify the ANPS, NPS or other senior licensed individual fulfilling the control room command function of the alarm received, reset the annunciator.



## USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 73

According to 1-ONP-100.01, "Response to Fire", which of the following describes the procedural guidance in the event of a fire in the cable spreading room?

- a. Use only A train equipment, B train equipment is considered unreliable during this event.
- b. Use both B and A train equipment, but A train equipment may be unreliable during this event.
- c. Use only B train equipment, A train equipment is considered unreliable during this event.
- d. Use both A and B train equipment, but B train equipment may be unreliable during this event.



USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 74

Unit 1 is in the process of a reactor startup. Which of the following conditions correctly describes the point in the startup where a continuous CEA withdrawal accident would result in the highest peak power?

- a. BOC, lead group CEA continuously withdraws after reaching 2% power.
- b. EOC, lead group CEA continuously withdraws at a point 2" prior to criticality.
- c. EOC, lead group CEA continuously withdraws after reaching 2% power.
- d. BOC, lead group CEA continuously withdraws at a point 2" prior to criticality.

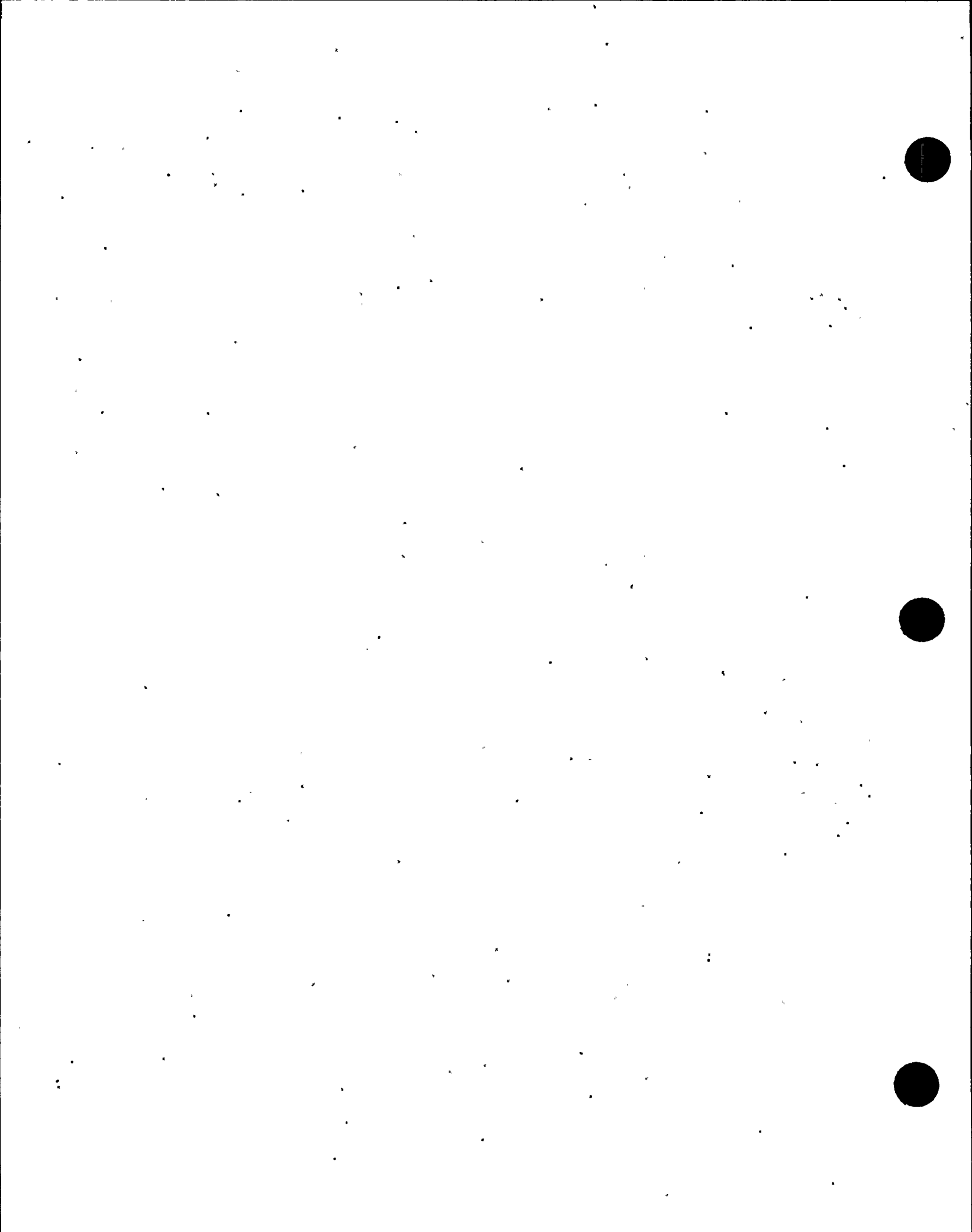


USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 75

Unit 2 is in mode 5 returning from a refueling outage. The RCS has been filled and vented IAW OP 2-0120020, "RCS Fill and Vent". Pressurizer level is 32%. Which of the following conditions must also exist to meet the "Loops Filled" condition concerning Shutdown Cooling requirements?

- a. Steam Generator wide range levels  $>10\%$  and the RCS is capable of being pressurized to greater than or equal to 50 psia.
- b. The RCS is capable of being pressurized to greater than or equal to 70 psia and Steam Generator wide range levels are  $>15\%$ .
- c. Steam Generator narrow range levels  $>10\%$  and the RCS is capable of being pressurized to greater than or equal to 70 psia.
- d. The RCS is capable of being pressurized to greater than or equal to 50 psia and Steam Generator narrow range levels are  $>15\%$ .



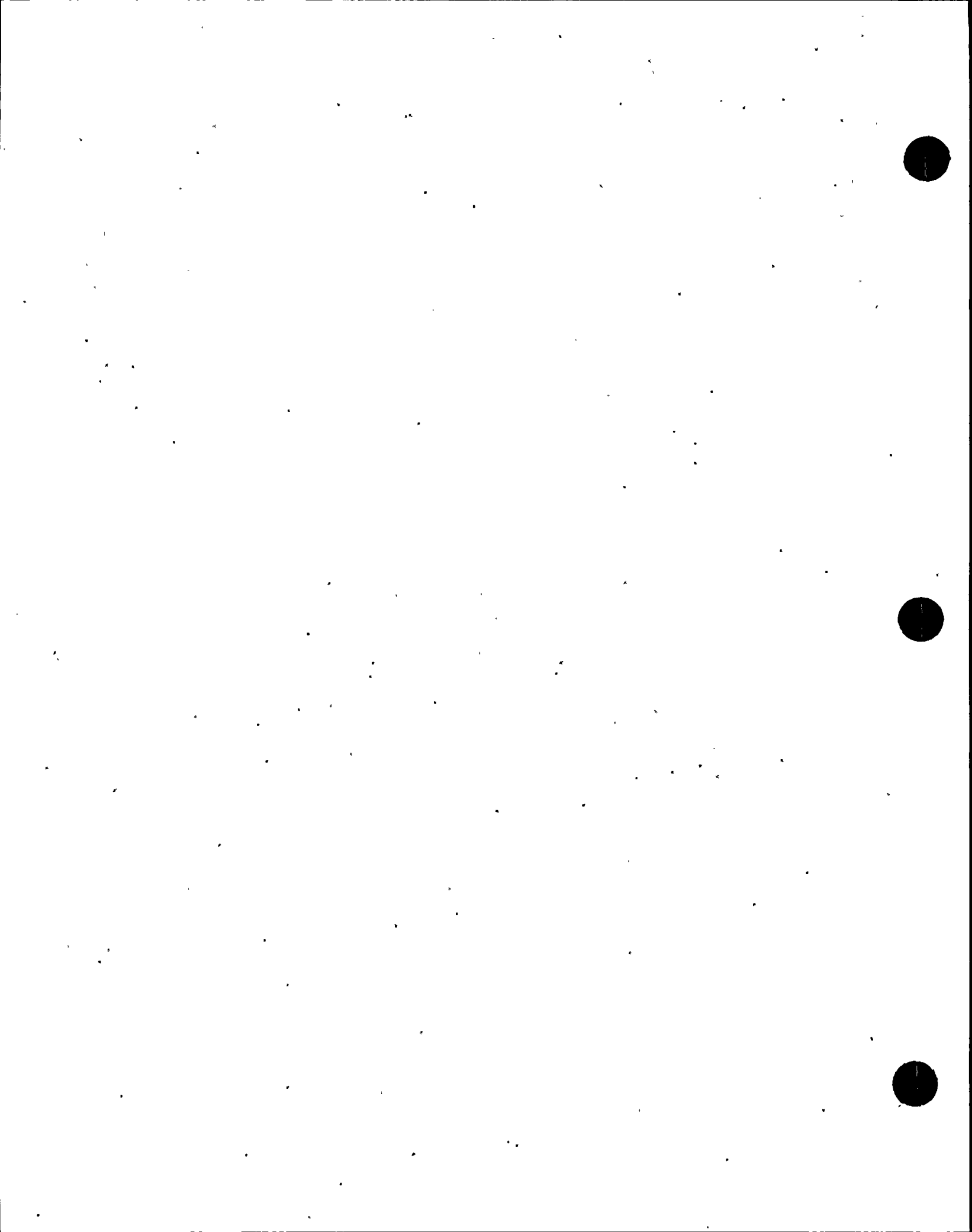
USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 76

Unit 2 was at 100% power when an RCS leak of 12 gpm occurred. The plant was in the process of being shutdown when the leak was isolated. Reactor power has been stabilized at 75%. The NPS did not have time to make an E-plan call prior to isolation of the leak. Which of the following describes the responsibility of the NPS concerning E-plan classification with the plant in its present state?

The NPS must:

- a. fully implement the E-plan.
- b. notify the NRC only.
- c. notify the State only.
- d. notify plant management only.



USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 77

The following conditions exist:

- Unit 2 is at 40% power
- The RO withdraws group 5 CEAs
- CEAs #8 and #9 do not move
- I&C reports both CEAs are mechanically bound and will not insert or withdraw under any circumstances

According to ONOP 2-0110030, "CEA Off Normal and Realignment", which of the following is the FIRST required response by the control room crew?

- a. Trip the reactor and turbine.
- b. Realign Group 5 CEAs and remain at 40% power.
- c. Commence emergency boration per ONOP 2-0250030, "Emergency Boration".
- d. Place CEAs #8 and #9 on the hold bus.

## USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 78

While verifying incore detectors during the performance of Check Sheet 2 of his shiftly paperwork, the RO notices an asterisk indicated on channels 19, 20, 21 and 22. Which of the following describes the significance of the indications, and action that is required to be taken?

Each incore channel:

- a. has one failed detector and each channel must be placed in the out of service log.
- b. has one detector in alarm and no action is required to be taken.
- c. has one failed detector and no action is required to be taken.
- d. has one detector in alarm and action must be taken to reduce linear heat rate.



USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 79

The following conditions exist:

- Unit 2 is at 60% power
- 2C Intake Cooling Water pump is out of service
- 2B Intake Cooling Water pump trips on overcurrent

Which of the following correctly describes a partial list of plant equipment that will be rendered inoperable due to this condition? (Assume no operator action, all plant equipment in normal configuration )

- a. 2B Containment Spray Pump, 2B Waste Gas Compressor, 2C Containment Cooler, 3C Control Room Air Conditioner.
- b. 2B LPSI Pump, 2B Instrument Air Compressor, 2B Containment Cooler, 2B Shutdown Cooling Heat Exchanger.
- c. 2B HPSI Pump, 2B Fuel Pool heat Exchanger, 2C Containment Cooler, 3B Control Room Air Conditioner.
- d. 2B CCW Pump, 2B Sample Heat Exchanger, 2D Containment Cooler, 2B Shutdown Cooling Heat Exchanger.



**USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION**

**QUESTION 80**

Unit 2 is in Mode 6, refueling operations in progress. According to St. Lucie Technical Specifications, which of the following conditions would require the Refueling Supervisor to suspend fuel movement?

- a. The equipment hatch is found to not be fully bolted in place.
- b. A main steam safety valve and secondary manway are found to be removed from 2B S/G.
- c. An RPM cannot open the outer personnel airlock because the inner airlock is open.
- d. A containment purge isolation valve is found in the pinned position.

USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 81

The following conditions exist:

- Unit 1 has tripped from 100% power
- The CCW N header has isolated on the trip
- No other malfunctions exist

Which of the following 1-EOP-01 Safety Functions would require contingency actions to be taken?

- a. RCS Pressure Control, Core Heat Removal
- b. RCS Inventory Control, Containment Temperature Control
- c. RCS Heat Removal, Containment Temperature Control
- d. RCS Pressure Control, RCS Heat Removal

## USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 82

The following conditions exist:

- A liquid release was in progress on Unit 1
- A spike in activity has caused an alarm on Liquid waste monitor (channel 43)
- Channel 43 is indicating normal values
- FCV-6627X (liquid release discharge valve) is closed

According to OP 1-0510022, "Controlled Liquid Release to the Circulating Water Discharge", which of the following describes the status of the impending release?

The liquid release can be re-initiated:

- a. at any time provided channel 43 decreases below the alarm setpoint.
- b. if authorized by the Chemistry Department.
- c. only if a new release permit is issued.
- d. if authorized by the NPS/ANPS.

USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 83

The following conditions exist:

- Unit 2 is in Station Blackout
- Unit 1 has both Emergency Diesel Generators available
- The Station Blackout Crosstie is available
- The ANPS has directed the performance of 2-EOP-99, Table 7 and Appendix V

Which of the following describes the initial preparations that are required to be made on Unit 2 prior to receiving 4.16KV power from Unit 1?

- a. Rack out only vital 4.16 KV and 480 V load center breakers and throttle all ICW and CCW discharge valves to 10 turns open.
- b. Open all 6.9 KV, 4.16 KV and 480 V load center breakers and place all ICW and CCW pump control switches in pull to lock.
- c. Open only vital 4.16 KV and 480 V load center breakers and place all ICW and CCW pump control switches in pull to lock.
- d. Rack out all 6.9 KV, 4.16 KV and 480 V load center breakers and throttle all ICW and CCW discharge valves to 10 turns open.

USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 84

Unit 1 is at 100% power. Due to an off-normal condition, the ANPS has conducted a shift brief and has directed the RO to place the pressurizer on recirc and remain at 100% power. Which of the following conditions has warranted this procedurally directed action?

- a. Main Steam Safety leak
- b. Pressurizer spray line leak
- c. Reactor Coolant Gas Vent System leak
- d. Pressurizer Code Safety leak

USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 85

Unit 1 is in mode 6, refueling in progress. According to St. Lucie Technical Specifications, which of the following describes the evolution that would allow the operating crew to secure shutdown cooling for an extended period of time?

- a. Movement of fuel
- b. CEA latching
- c. Movement refueling equipment
- d. Core verification



## USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 86

The following conditions exist:

- A SGTR has occurred on the 2A steam generator
- During the power reduction to remove the unit from service, the reactor tripped on TM/LP
- A MSSV on the 2B steam generator stuck open on the trip
- Immediately after MSIS occurred, the MSSV reseated

According to AP 0010120, "Conduct of Operations", which of the following is the correct strategy concerning steam generator isolation?

- a. Continue steaming both steam generators until RCS That is  $\leq 525^{\circ}\text{F}$ , then isolate the 2A steam generator.
- b. Steam only the 2B steam generator until isolation criteria is met for the 2A steam generator, then isolate the 2A steam generator.
- c. Steam only the 2A steam generator until the failed safety on the 2B steam generator is gagged, then isolate the 2A steam generator.
- d. Continue steaming both steam generators until RCS That is  $\leq 525^{\circ}\text{F}$ , then isolate the 2B steam generator.



USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

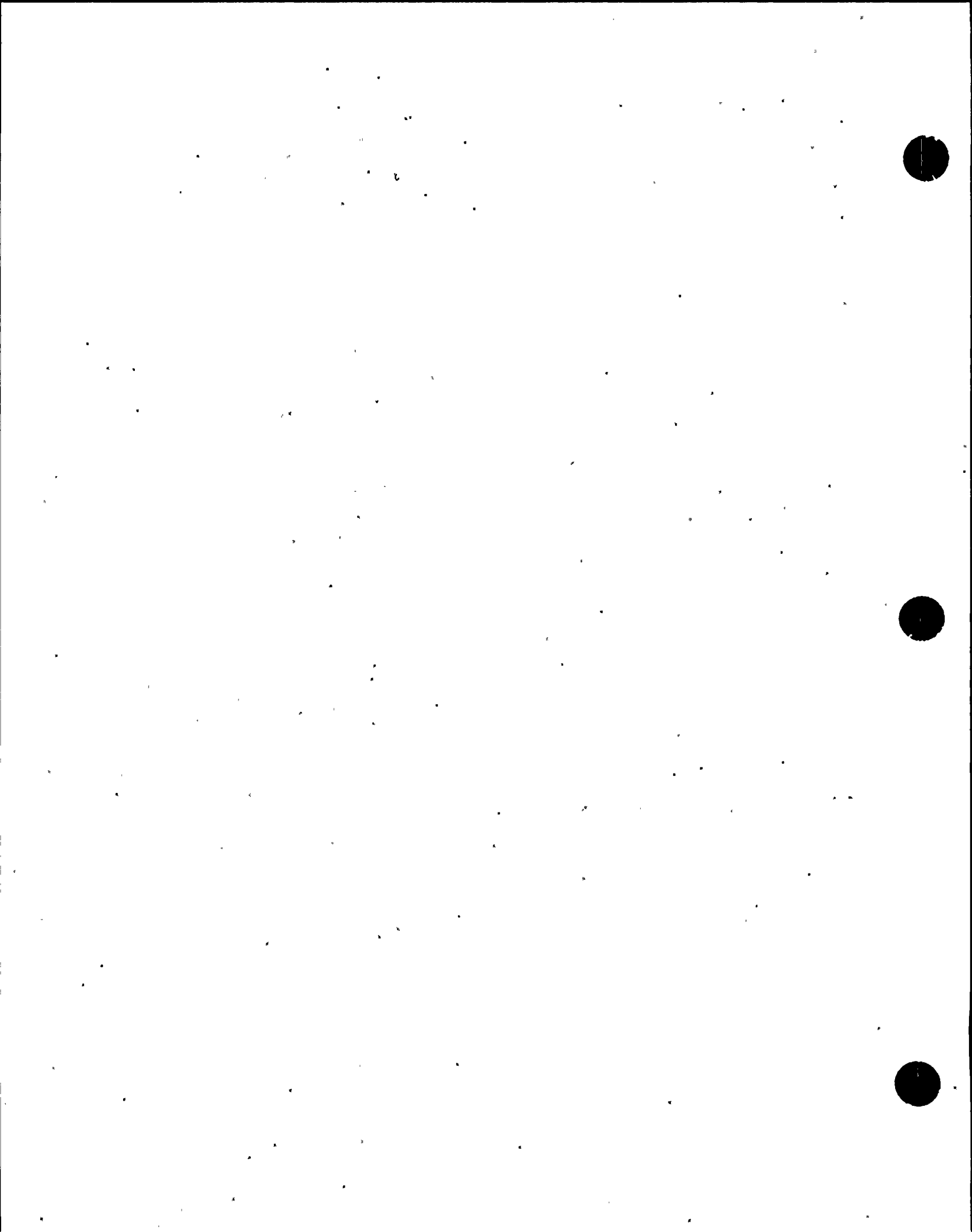
QUESTION 87

The following conditions exist:

- Unit 2 is in 2-EOP-15 due to a LOCA/ESDE
- RAS has just initiated
- The RO reports 2A HPSI flow is 105 gpm, 2B HPSI flow is 110 gpm

Which of the following correctly describes the first action that is required to be taken as specified in 2-EOP-15, "Functional Recovery"? (assume all equipment operable)

- a. Stop both HPSI pumps, minimum flow requirements are not being met.
- b. Stop one LPSI pump at a time until minimum flow requirements are met.
- c. Stop one charging pump at a time until minimum flow requirements are met.
- d. Stop the HPSI pump with the lowest flow and verify minimum flow requirements are met.



USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 88

Unit 2 is at 100% power. Due to a malfunction of the Linear Range NI channel 2C, the Channel C Variable High Power reactor trip bistable has been removed. Which of the following conditions will cause a reactor trip with the RPS in its present condition?

- a. Channel A Thot RPS input fails low.
- b. Channel B Linear NI drawer "Average Control to Upper" switch placed in the "Upper" position.
- c. Channel A Tcold RPS input fails high.
- d. Channel B Linear NI drawer "PR TEST" switch taken out of "operate" position.

USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

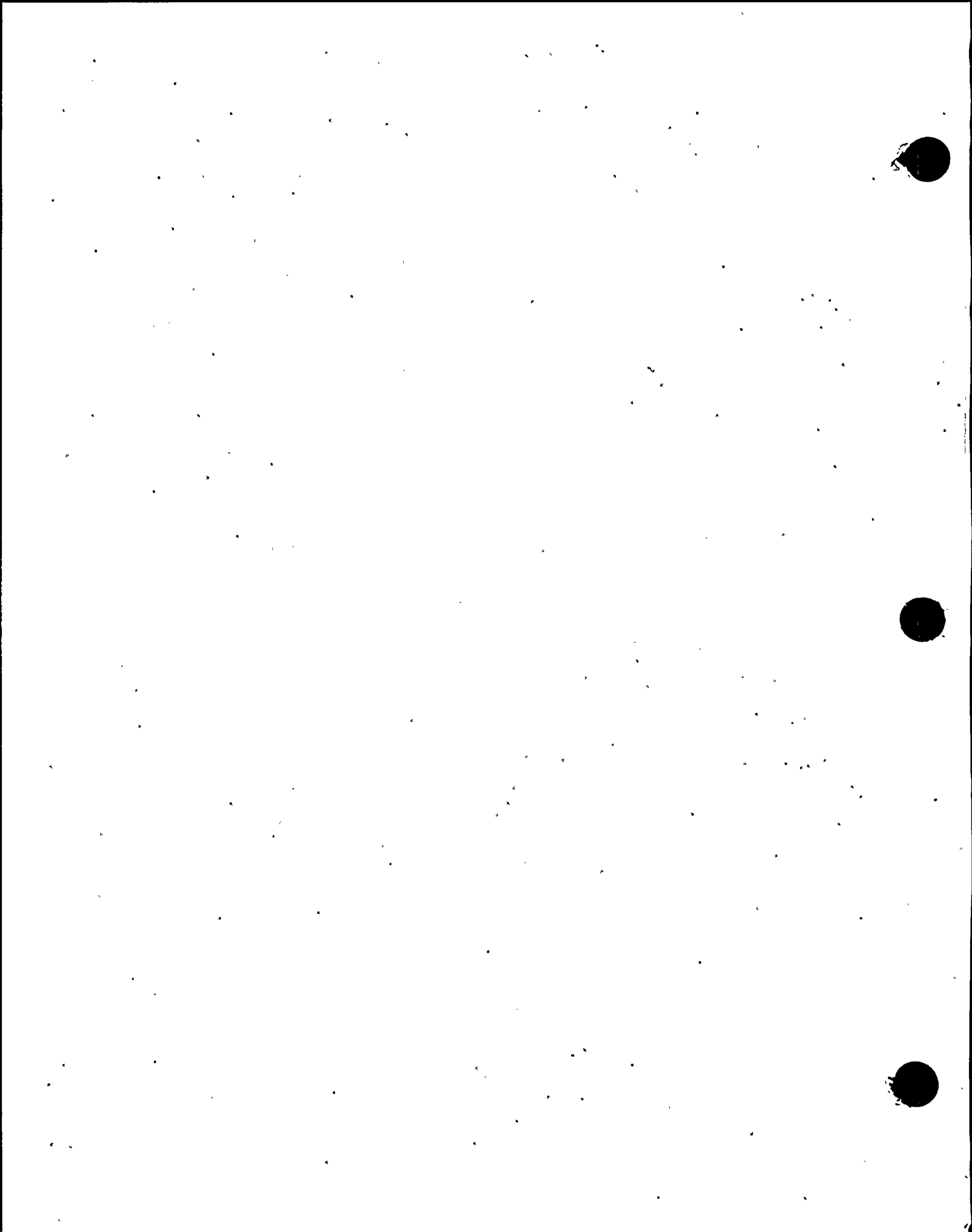
QUESTION 89

The following conditions exist:

- Unit 2 is at 100% power
- Pressurizer level control channel X is selected for level control
- LT-1110X has failed low

Which of the following correctly describes the Tech Spec LCO that will be violated if no operator action is taken. (Assume no reactor trip)

- a. Maximum pressurizer level
- b. DNB requirements
- c. Low pressurizer pressure
- d. Minimum pressurizer level



## USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 90

The following conditions exist:

- A loss of offsite power occurred on Unit 2 four hours ago
- Unit 2 is in a stable, Mode 3 condition
- All 2-EOP-9 Safety Functions are being met
- The TSC has recommended transition into NOP-2-0030127, "Reactor Plant Cooldown-Hot Standby to Cold Shutdown"

According to 2-EOP-9, "Loss of Offsite Power", which of the following are the minimum conditions that must exist in order for this transition to take place?

- a. At least one vital 4160V bus is powered from either a Unit 1 or Unit 2 startup transformer.
- b. Both vital 4160V busses are powered from a Unit 2 startup transformer.
- c. At least one vital 4160V bus is powered from a Unit 2 startup transformer.
- d. Both vital 4160V busses are powered from either a Unit 1 or Unit 2 startup transformer.





## USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 91

The following conditions exist:

- Unit 1 is in mode 3
- RCS cooldown for a refueling outage in progress
- RCS temperature is 512°F
- RCS pressure is 1720 psia
- A 140 gpm RCS leak inside containment occurs

Which of the following correctly describes the required procedure selection for the current plant conditions?

The control room crew must use Excessive Reactor Coolant System Leakage ONOP in conjunction with:

- a. RCS Cooldown Procedure
- b. Low Mode ONOP, Plant Condition 1
- c. 1-EOP-01 and 1-EOP-03
- d. 1-EOP-03



USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 92

Which of the following describes the Tech Spec bases for the minimum water volume in the Unit 2 Condensate Storage Tank?

To ensure sufficient water volume available to maintain hot standby conditions for:

- a. four (4) hours, followed by an orderly cooldown to 325°F.
- b. eight (8) hours, followed by an orderly cooldown to 350°F.
- c. four (4) hours, followed by an orderly cooldown to 350°F.
- d. eight (8) hours, followed by an orderly cooldown to 325°F.



USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 93

Unit 1 is at 100% power when the 1B MSR develops a 2000 lbm/hr leak to atmosphere in the shell side relief valve. Which of the following correctly describes the plant response to this transient?

- a. Reactor power increases, main generator output remains constant.
- b. Reactor power remains constant, main generator output increases.
- c. Reactor power decreases, main generator output decreases.
- d. Reactor power remains constant, main generator output decreases.



USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

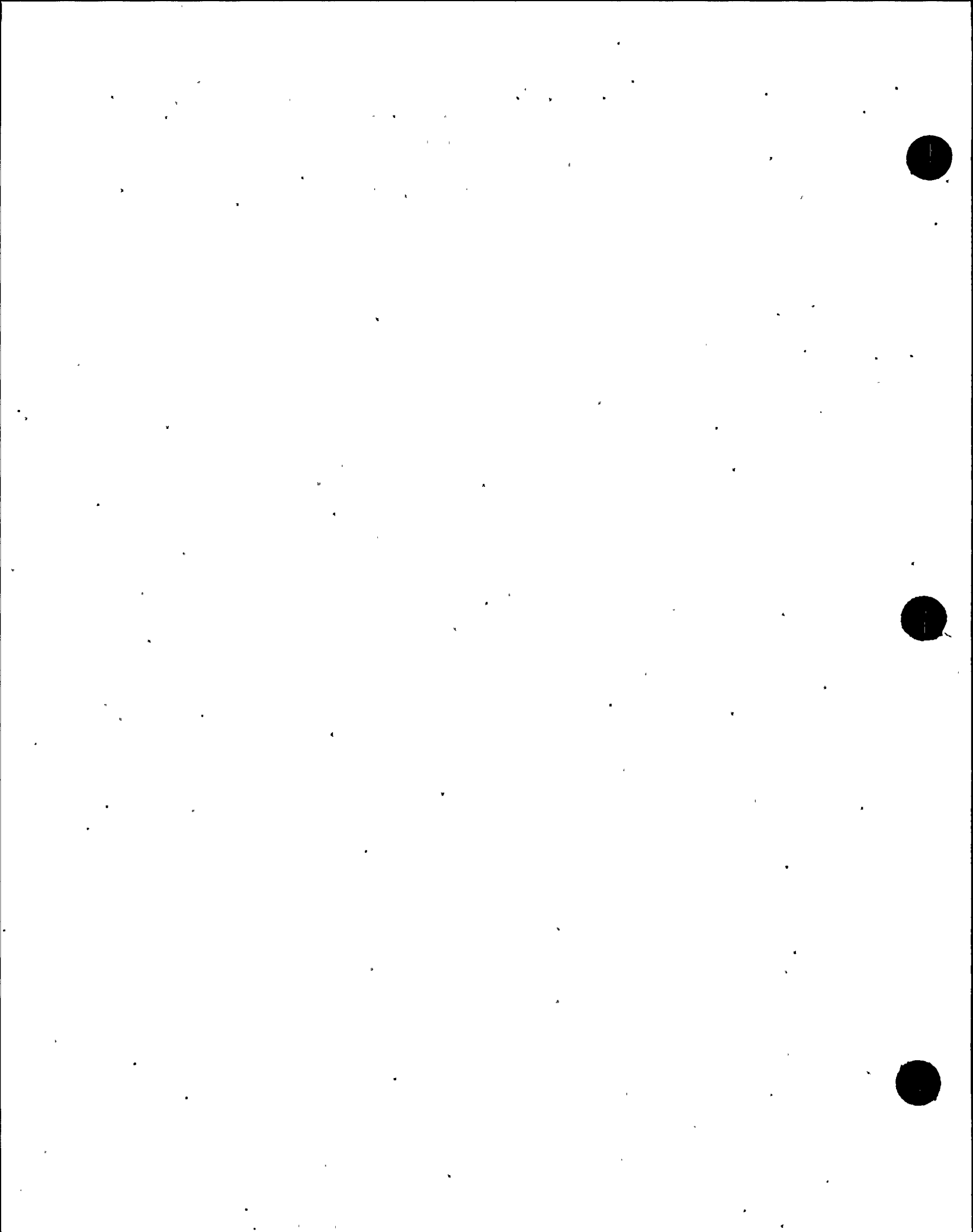
QUESTION 94

Which of the following correctly describes the Tech Spec bases for the Unit 2 containment purge isolation valves requirement of being closed and sealed during power operations?

The Unit 2 Containment Purge:

- a. isolation valves are not capable of being closed during an ESDE/LOCA.
- b. filter train is not environmentally qualified for accident conditions.
- c. isolation valves could inadvertently leak to atmosphere during an ESDE/LOCA.
- d. filter train is not monitored and would exceed ODCM limits if used.





USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 95

Unit 2 is at 100% power, all equipment is in normal configuration. Which of the following is correct concerning RCS leakage into the quench tank?

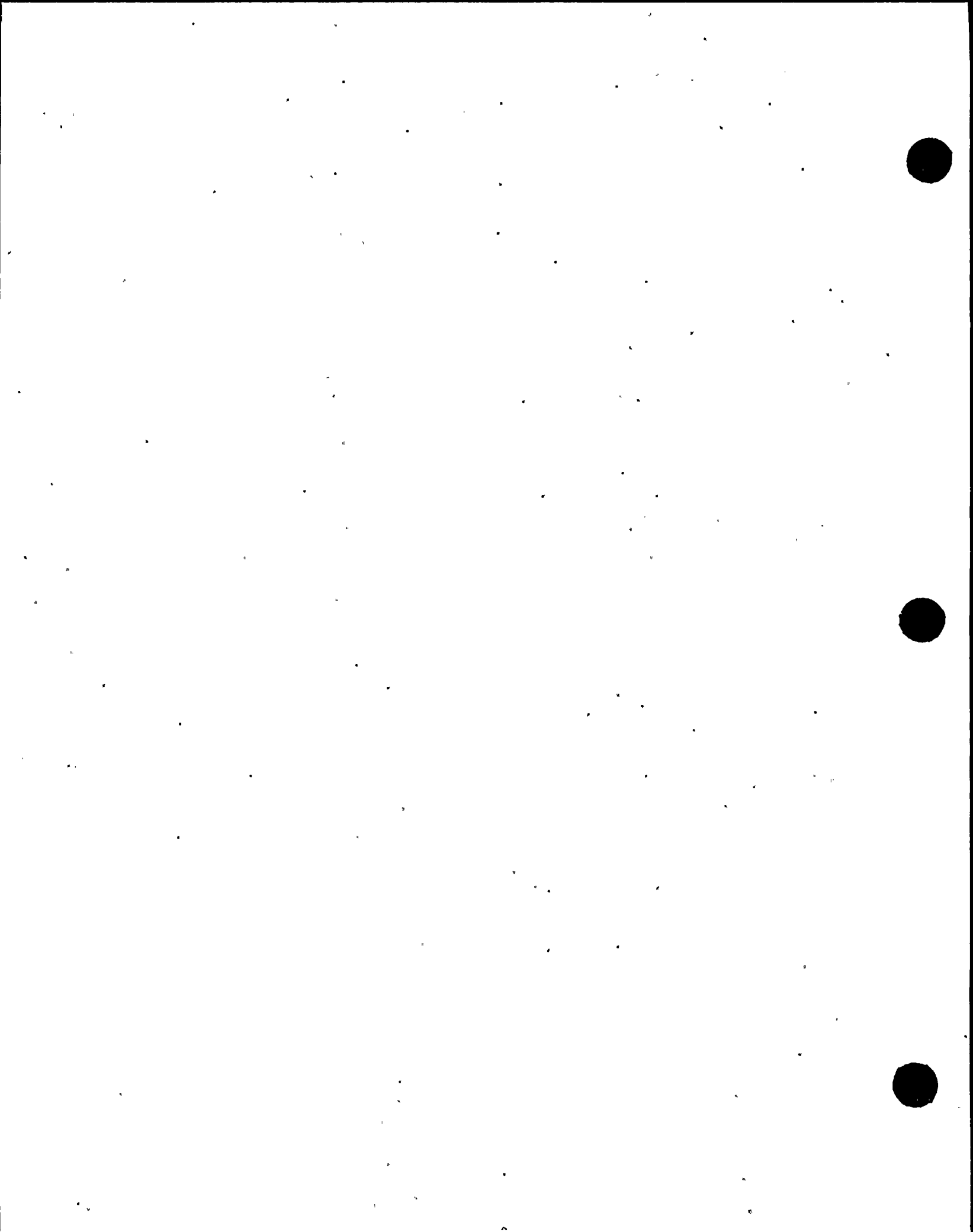
- a. >1 gpm requires a plant shutdown, >1 gpm requires entry into the Emergency Plan.
- b. >10 gpm requires a plant shutdown, >1 gpm requires entry into the Emergency Plan.
- c. >1gpm requires a plant shutdown, >10 gpm requires entry into the Emergency Plan.
- d. >10 gpm requires a plant shutdown, >10 gpm requires entry into the Emergency Plan.

USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 96

Unit 1 is at 100% power. The 1B Emergency Diesel Generator has been taken out of service for belt replacement. Which of the following equipment, if also taken out of service would challenge a Technical Specification LCO? (Assume all plant equipment in normal configuration)

- a. 1C Charging Pump
- b. 1-HVS-1B Containment Cooler
- c. 1A Boric Acid Makeup pump
- d. HVE 7A Hydrogen Purge fan



USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 97

Which of the following conditions would constitute the shortest period of time in which action must be taken to comply with a Tech Spec Action Statement?

- a. Unit 2, Mode 2, RCS Tavg 512°F
- b. Unit 1, RCS Tavg 195°F, shutdown margin 2200 pcm
- c. Unit 2, 100% power, both trains of ECCS declared inoperable
- d. Unit 1, Mode 6, RCS boron concentration 1700 ppm

## USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 98

Unit 2 is in mode 6. The containment purge system has been in service for the last three days, and must be secured for 2 hours due to maintenance work. Which of the following describes the batch release permit requirements concerning the restart of the containment purge system?

- a. The original batch release permit will be used for the upcoming restart of the containment purge system.
- b. A batch release permit is no longer needed for the upcoming restart of the containment purge system; the release is now considered continuous.
- c. The original batch release permit can be used provided new ODCM limits are entered prior to restart of the containment purge system.
- d. A new batch release permit must be issued prior to restart of the containment purge system.

USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 99

An event has occurred at St. Lucie Plant and the NPS, who is now the Emergency Coordinator, has made the following protective action recommendations:

0-2 miles E(CR)  
2-5 miles E(DW)+S(RS)  
5-10 miles S(CR)  
10 miles-TBD None

Which of the following events is taking place at St. Lucie Plant?

- a. A General Emergency with no projected core damage.
- b. A confirmed hurricane warning with winds expected to reach 200 mph.
- c. A terrorist group has taken over the Unit 1 control room.
- d. A major tornado has hit the plant and caused massive damage to plant systems.

USNRC SENIOR REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 100

Which of the following correctly describes the St. Lucie Unit 2 Technical Specification Bases for MAXIMUM Pressurizer water level?

To ensure:

- a. the pressurizer heaters are not uncovered following a full power reactor trip.
- b. the pressurizer level instrumentation remains within normal operating range.
- c. the RCS is not operated in a solid condition and prevent water intrusion in the code safety valves.
- d. RCS pressure limits are not exceeded following a loss of load event at full power.



**U.S. Nuclear Regulatory Commission  
St. Lucie Nuclear Plant  
Senior Reactor Operator Examination  
Answer Key**

1. A

2. D

3. A

4. B

5. D

6. D

7. D

8. C

9. D

10. C

11. D

12. C

13. B

14. C

15. A

16. A

17. B

18. C

U.S. Nuclear Regulatory Commission  
St. Lucie Nuclear Plant  
Senior Reactor Operator Examination  
Answer Key

19. D

20. B

21. D

22. A or C

23. D

24. B

25. B

26. D

27. B

28. A

29. B

30. C

31. B

32. A

33. C

34. D

35. D

36. B

37. C

**U.S. Nuclear Regulatory Commission  
St. Lucie Nuclear Plant  
Senior Reactor Operator Examination  
Answer Key**

38. B

39. B

40. A

41. C

42. C

43. A

44. D

45. B

46. B

47. D

48. A

49. D

50. D

51. D

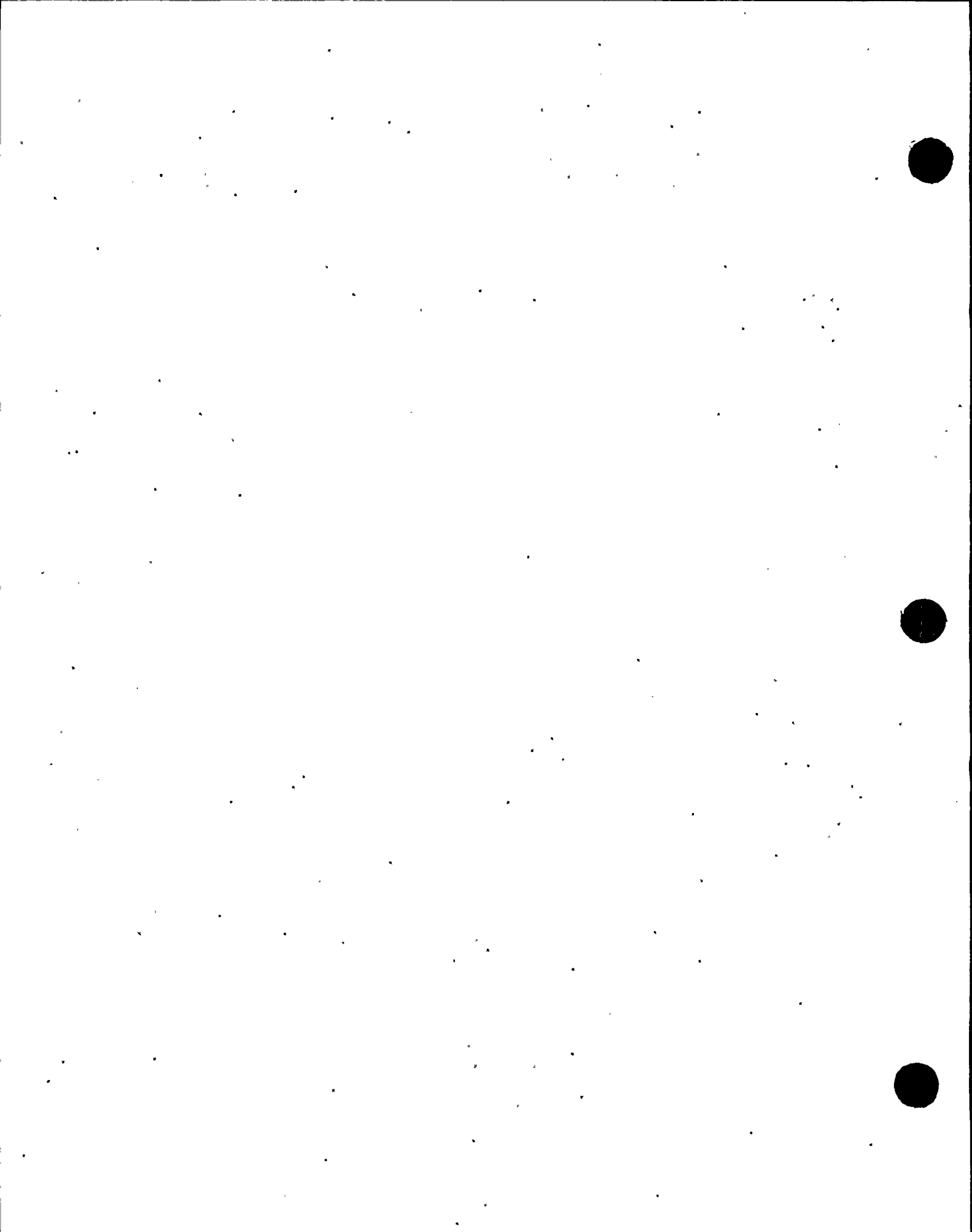
52. C

53. C

54. C

55. C

56. C



U.S. Nuclear Regulatory Commission  
St. Lucie Nuclear Plant  
Senior Reactor Operator Examination  
Answer Key

57. B

58. A

59. C

60. B

~~61. C~~ *HS*  
*Dee*

62. A

63. C

64. B

65. D

66. A

67. C

68. A

69. A

70. B

71. C

72. B

73. B

74. D

75. C

**U.S. Nuclear Regulatory Commission  
St. Lucie Nuclear Plant  
Senior Reactor Operator Examination  
Answer Key**

76. A

77. C

78. D

79. C

80. B

81. A

82. C

83. B

84. D

85. A

86. C

87. C

88. B

89. A

90. C

91. D

92. C

93. D

94. A



**U.S. Nuclear Regulatory Commission  
St. Lucie Nuclear Plant  
Senior Reactor Operator Examination  
Answer Key**

95. D

96. B

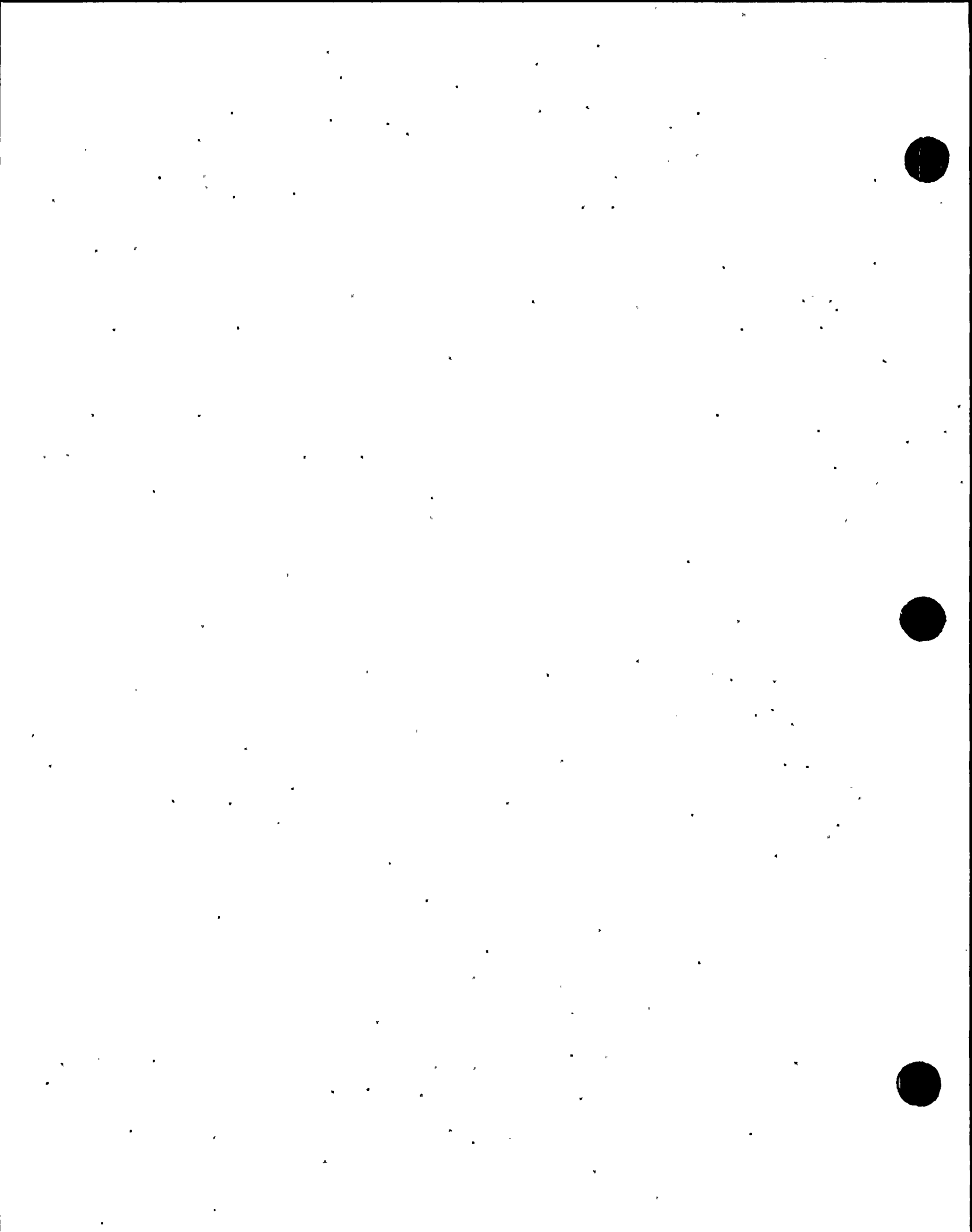
97. D

98. B

99. C

100. C





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PART 1  
CODE I.D. NUMBER AT LEFT BY FILLING IN THE APPROPRIATE BOXES ACCORDING TO THE EXAMPLE.

NKS	C1 KEY	SP	NE	C2 KEY
1	A	B	C	D
2	A	B	C	D
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100	A	B	C	D

**IMPORTANT**

USE NO. 2 PENCIL ONLY

- MAKE DARK MARKS
- EXAMPLE: A B C D
- ERASE COMPLETELY TO CHANGE

NAME SRD KEY

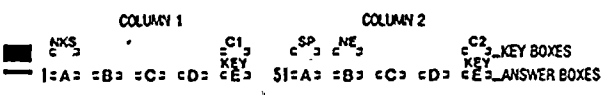
SUBJECT \_\_\_\_\_

HOUR \_\_\_\_\_ DATE \_\_\_\_\_

**KEY MARKING INSTRUCTIONS**

This form is used for:  
a) Program Key  
b) Test Answer Sheet

When used as Program Key, you can control the results depending on which Key Boxes are marked.



Marking a Key Box or Combination of Key Boxes produces the following scoring and error marking results:

NKS	No score printed on Key
C1 KEY	Prints score and error marks for column 1.
C1 KEY NE	Prints score for column 1 with no error marks.
C2 KEY	Prints score and error marks for column 2.
C2 KEY NE	Prints score for column 2 with no error marks.
C1 C2 KEY KEY	Prints total score and error marks for columns 1 and 2.
C1 C2 KEY KEY NE	Prints total score for columns 1 and 2 with no error marks.
C1 C2 KEY KEY SP	Prints separate scores for columns 1 and 2 with no error marks.

After marking the appropriate Key Boxes, mark correct answers on your program key.

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PART 2  
CODE I.D. NUMBER AT LEFT BY FILLING IN THE APPROPRIATE BOXES ACCORDING TO THE EXAMPLE.

NKS	C1 KEY	SP	NE	C2 KEY
101	A B C D E	151	A B C D E	
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103	A B C D E	153	A B C D E	
104	A B C D E	154	A B C D E	
105	A B C D E	155	A B C D E	
106	A B C D E	156	A B C D E	
107	A B C D E	157	A B C D E	
108	A B C D E	158	A B C D E	
109	A B C D E	159	A B C D E	
110	A B C D E	160	A B C D E	
111	A B C D E	161	A B C D E	
112	A B C D E	162	A B C D E	
113	A B C D E	163	A B C D E	
114	A B C D E	164	A B C D E	
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116	A B C D E	166	A B C D E	
117	A B C D E	167	A B C D E	
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119	A B C D E	169	A B C D E	
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121	A B C D E	171	A B C D E	
122	A B C D E	172	A B C D E	
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148	A B C D E	198	A B C D E	
149	A B C D E	199	A B C D E	
150	A B C D E	200	A B C D E	

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FEED THIS DIRECTION

Please refer to key marking instructions on front.

St Lucie  
98-302

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

**Applicant Information**

Name:	Region: II
Date:	Facility/Unit: St. Lucie 1/2
License Level: RO	Reactor Type: CE
Start Time:	Finish Time:

**Instructions**

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

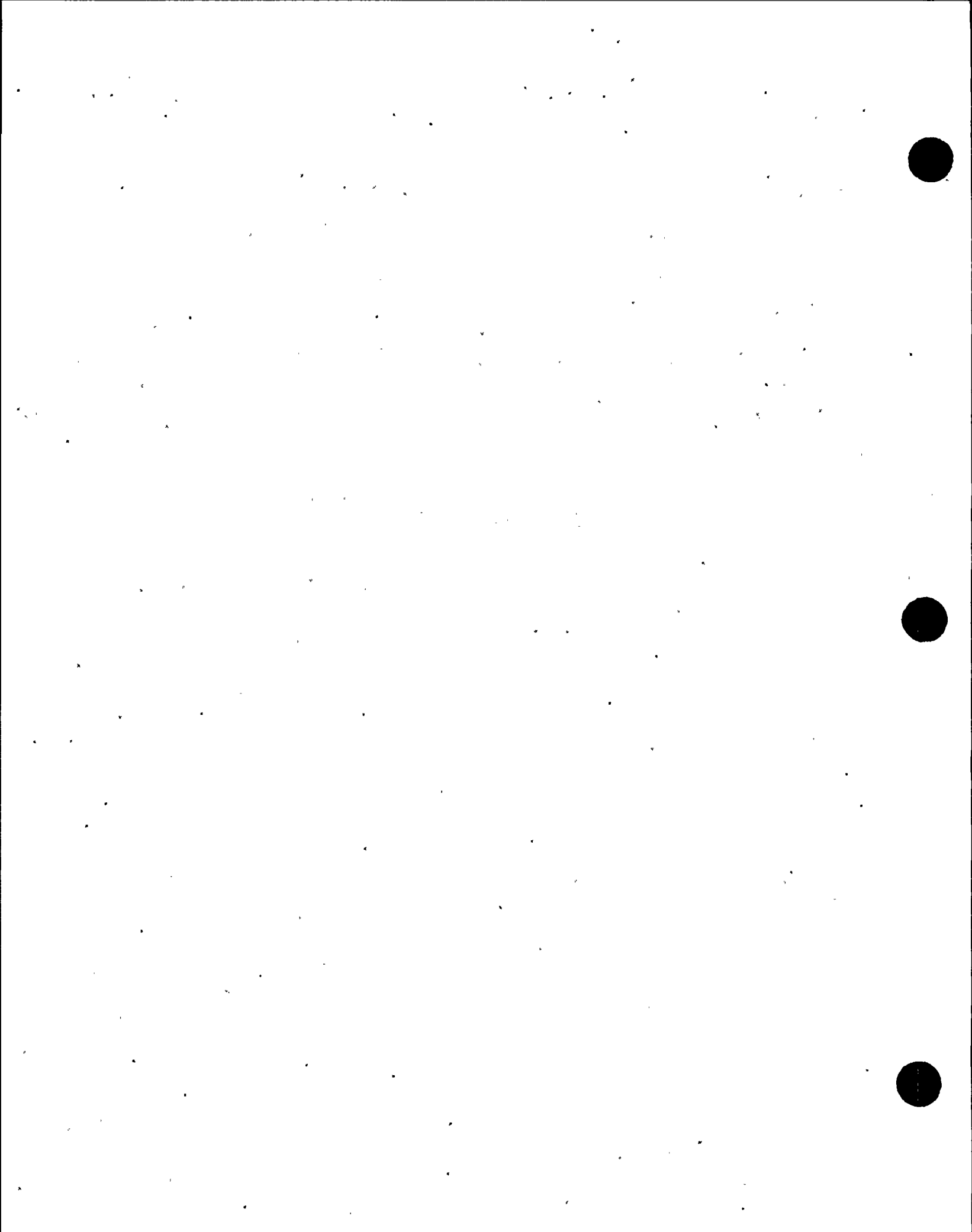
**Applicant Certification**

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

\_\_\_\_\_  
Applicant's Signature

**Results**

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



## NRC RULES AND GUIDELINES FOR WRITTEN EXAMINATIONS

During the administration of this exam, the following rules apply:

### PART A - GENERAL GUIDELINES

1. Cheating on any part of the examination will result in a denial of your application and/or action against your license.
2. If you have any questions concerning the administration of any part of the examination, do not hesitate asking them prior to starting that part of the test.
3. SRO applicants will be tested at the level of responsibility of the senior shift position (ie. NPS, ANPS)
4. You must pass every part of the examination to receive a license or to continue performing license duties.
5. The NRC examiner is not allowed to reveal the results of any part of the examination until they have been reviewed and approved by NRC management. Grades provided by the facility licensee are preliminary until approved by the NRC. You will be informed of the official examination results about 30 days after all examinations are complete.

### PART B - WRITTEN EXAMINATION GUIDELINES

1. After you complete the examination, sign the statement on the cover sheet indicating that the work was your own and you have not received or given assistance in completing the examination.
2. To pass the examination, you must achieve a grade of 80 percent or greater. Every question is worth one point.
3. For initial examinations, the time limit for completing the examination is FOUR hours.
4. You may bring pens, calculators or slide rules into the examination room. Use only black ink to ensure legible copies.
5. Print your name in the blank provided on the examination cover sheet and answer sheet. You may be asked to provide the examiner with some form of positive identification.
6. Mark your answers on the answer sheet provided and do not leave any question blank. Use only the answer sheet provided and do not write on the back side of the pages. If you decide to change your original answer, draw a single line through the error, enter the desired answer, and initial the change.



7. If the intent of the question is unclear, ask questions of the examiner only.
8. Restroom trips are permitted, but only one applicant at a time will be permitted to leave. Avoid all contact with anyone outside the examination room to eliminate the appearance or possibility of cheating.
9. When you complete the examination, assemble a package including the examination questions, examination aids, answer sheets and scrap paper and give it to the proctor. Remember to sign the statement on the cover sheet indicating that the work was your own and you have not received or given assistance in completing the examination. The scrap paper will be disposed of immediately after the examination.
10. After you have turned in your examination, leave the examination area as defined by the proctor. If you are found in this area while the examination is still in progress, your license may be denied or revoked.
11. Do you have any questions?



## USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 1

Unit 1 is in mode 6. The NPS has suspended fuel movement due to a Tech Spec LCO violation. Which of the following conditions has caused fuel movement to be suspended?

Less than two (2):

- a. Wide Range Log Safety Channels operable.
- b. Appendix R Neutron monitors operable.
- c. Linear Range Safety Channels operable.
- d. Startup Range Neutron monitors operable.

USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 2

The following conditions exist:

- Unit 2 has tripped from 100% power due to a LOOP
- 2A Emergency Diesel has failed to start
- CEAs 42 and 39 are indicating UEL
- The ANPS directs the RO to perform an emergency boration
- 2B charging pump is running

Which one of the following statements describes the correct operator actions?

- a. Start 2B BAMT Pump, open V2514 (Emergency Borate Valve).
- b. Hold close V2501(VCT Outlet Valve), hold open V2504 (RWT Makeup Valve).
- c. Start 2B BAMT Pump, open V2508 or V2509 (Gravity Feed Valves).
- d. Open V2508 or V2509 (Gravity Feed Valves), ensure closed V2501(VCT Outlet Valve).

USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 3

While operating in MODE 5 with the pressurizer solid and the RCS in an isothermal condition at 150° F, RCS pressure rapidly increases. Which one of the following could cause this pressure increase?

- a. Letdown pressure control valve diaphragm ruptures
- b. Pressurizer heaters energize
- c. Shutdown cooling flow is increased
- d. Letdown level control valve setpoint is increased



## USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 4

The following conditions exist:

- A total loss of feedwater event has occurred on Unit 1
- S/G levels are 14% on wide range indication
- The control room crew has exited EOP-6 and entered EOP-15, "RCS and Core Heat Removal", Success Path 4, "Once through Cooling"

After, Once through Cooling has been initiated, which one of the following is the correct action by the control room crew?

- a. Implement EOP-6 and continue with feedwater restoration.
- b. Implement in EOP-15 starting at step 1.
- c. Remain in Success Path 4 until feed is recovered.
- d. Implement EOP-3, RCS inventory is now decreasing.



## USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 5

The following conditions exist:

- 1B Steam Generator has been diagnosed with a tube rupture
- An RCS cooldown to 523°F That is completed
- 1B Steam Generator has been isolated per 1-EOP-99, Appendix R
- All RCPs are off

With cooldown in progress for an additional 30 minutes, which one of the following RCS That temperatures is correct if the maximum recommended cooldown rate is utilized?

- a. 473 °F
- b. 485.5 °F
- c. 498 °F
- d. 508 °F

USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 6

Due to a condenser tube leak, The ANPS has directed entry into 1-ONP-22.01, "Rapid Downpower", and has directed the ROs to commence a downpower at 30 MW/minute, and maintain  $T_{avg}$  within 6.6°F of  $T_{ref}$ . Which one of the following is the procedurally correct method of reducing RCS  $T_{avg}$ ? (Assume one BAM pump running)

- a. Open Boric Acid Load Control Valve V2525; cycle the running BAM pump.
- b. Open Emergency Borate Valve V2514; cycle V-2514.
- c. Open Boric Acid Load Control Valve V2525; cycle V2525.
- d. Open Emergency Borate Valve V2514; cycle the running BAM pump.





## USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 7

A large instrument air leak has occurred on Unit 1. As PCV-18-5 (Unit 2 to Unit 1 Instrument Air Crosstie) is stroking open, it becomes mechanically bound in the full open position. Assuming no operator action, which one of the following statements correctly describes the system response?

- a. Unit 1 (PCV-18-6) crosstie will automatically close at 85 psig decreasing, isolating instrument air to Unit 2.
- b. Unit 2 instrument air depressurization is prevented by a check valve located in the crosstie line.
- c. Unit 1 station to instrument air crosstie will automatically open at 85 psig decreasing to supply compressed air to Unit 1.
- d. Unit 2 instrument air system will depressurize as Unit 1 instrument air system depressurizes.



## USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 8

Unit 2 is at 100% power, 2A charging pump was running with 2B charging pump selected as backup. 2A charging pump tripped due to a faulty breaker. The following conditions now exist:

- 2B charging pump was started to replace 2A charging pump
- 2A charging pump control switch was placed in the "OFF" position
- No other switch manipulations were made

If pressurizer level setpoint is increased to 69%, which of the following is a correct description of the current CVCS configuration?

- a. 2B charging pump running with no change in letdown flow.
- b. 2B and 2C charging pumps running with minimum letdown flow.
- c. 2B charging pump running with minimum letdown flow.
- d. 2B and 2C charging pumps running with no change in letdown flow.



USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 9

Unit 2 ROs have just performed a shutdown of the reactor and turbine due to lower and middle seal failures on the 2B1 Reactor Coolant Pump. After the 2B1 RCP was stopped, the upper seal also failed. Which of the following describes the flowpath of controlled bleedoff from the 2B1 RCP at this time?

2B1 RCP controlled bleedoff:

- a. has been directed to the floor drains.
- b. is being directed to the Volume Control Tank.
- c. is being directed to the Quench Tank.
- d. has been isolated.



## USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 10

2-EOP-6, "Total Loss of Feed" addresses the use of a Condensate pump to establish feed to the steam generators if certain conditions are met. Which one of the following situations would warrant the use of a Condensate pump?

- a. A loss of both non-vital 4160 KV busses has occurred and steam generator pressures are 600 psig.
- b. A trip from 80% power has occurred and Steam Generator levels are 45% wide range.
- c. A trip from 30% power has occurred and Steam Generator levels are 35% narrow range.
- d. Steam Generator levels are 25% wide range and steam generator pressures are 650 psig.





## USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 11

Unit 2 is performing a rapid unit shutdown due to a Steam Generator tube leak on the 2A Steam Generator. According to ONOP 2-0800030, "Steam Generator Tube Leak", under what conditions would the ROs be required to trip the reactor and turbine?

- a. Three of four TM/LP pretrips are in alarm on the RPS.
- b. Pressurizer level cannot be maintained with 28 gpm letdown and all available charging pumps running.
- c. The difference between actual Pressurizer level and Pressurizer level setpoint exceeds 6.6%.
- d. Pressurizer level cannot be maintained with V-2522 closed and all available charging pumps running.

USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 12.

The Unit 2 CCW Radiation Monitor has gone into an alarm condition. Further investigation revealed the solenoid flow control valve closed and isolated flow. Which of the following has occurred at the CCW Radiation Monitor and is the probable cause of this condition?

- a. Low CCW flow.
- b. High CCW radiation.
- c. Low CCW pressure.
- d. High CCW temperature.

USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 13

Unit 1 is at 100% power, steady state. 1A and 1B steam generator pressures are at 890 psig. If a main steam leak inside containment were to occur, which of the following is the minimum value that 1A steam generator pressure would have to change to cause a reactor trip strictly on steam generator parameters?

- a. 13%
- b. 15%
- c. 30%
- d. 33%



USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 14

The following Unit 2 conditions exist:

- CCW surge tank Lo-Lo level switch (LS-14-6A) is valved out for replacement
- All "N" header valves are OPEN
- 2A CCW pump develops a large discharge flange leak
- The leak exceeds the capacity of makeup flow

Assuming no operator action, which of the following correctly describes FIRST response of the system?

- a. "A" side N header valves (HCV-14-8A and HCV-14-9) close.
- b. 2A CCW pump trips on low suction pressure.
- c. "B" side N header valves (HCV-14-8B and HCV-14-10) close.
- d. 2A CCW pump cavitates.

USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 15

The following conditions exist:

- Unit 2 is at 100% power
- Charging and letdown are in normal configuration
- Regen HX inlet pressure is 2250
- Regen HX outlet pressure is 2200

If a 10 gpm leak occurs in the letdown line downstream of the regenerative heat exchanger, which one of the following indications will occur as a result of the leak? (assume system in auto)

Indicated letdown flow:

- a. will decrease due to LCV-2110P closing.
- b. will isolate due to V-2516 closing.
- c. will increase due to LCV-2110P opening.
- d. will isolate due to V-2515 closing.





## USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 16

The following conditions exist:

- Unit 1 is at 100% power
- Linear Range Control Channel # 9 is out of service for I&C repair
- Linear Range Channel # 10 is supplying the RPS Power Ratio Calculator

Which of the following would be the system response if Channel 10 upper detector failed high?

- a. ASI as indicated on the Power Ratio Recorder would violate the negative setpoint, an alarm would be generated.
- b. The lower setpoint for ASI as indicated on the Power Ratio Recorder would become more negative, no alarm would be generated.
- c. ASI as indicated on the Power Ratio Recorder would violate the positive setpoint, an alarm would be generated.
- d. The upper setpoint for ASI as indicated on the Power Ratio Recorder would become more positive, no alarm would be generated.

USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 17

The 1B 125 VDC bus has been lost due to a wiring fault. The control room crew is carrying out the actions of ONOP 1-0030136, "Loss of a Safety Related D.C. Bus". The ANPS has directed the ROs to align the 1B 125 VDC bus to the 1D 125 VDC non-safety bus. Which of the following statements correctly describes the process of bus alignment?

- a. The 1B 125 VDC bus can be fed directly from the 1D 125 VDC bus by aligning the keyswitches on RTGB 101.
- b. The 1B 125 VDC bus can be fed from the 1D 125 VDC bus through the 1AB 125 VDC bus only by unlocking and aligning local breakers.
- c. The 1B 125 VDC bus can be fed directly from the 1D 125 VDC bus by unlocking and aligning local breakers.
- d. The 1B 125 VDC bus can be fed from the 1D 125 VDC bus through the 1AB 125 VDC bus only by aligning the keyswitches on RTGB 101.



USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 18

Unit 2 is at 100% steady state power. Annunciator B-13, "2A2 4.16 KV  $\Delta$  Current Trip" has just gone into alarm. Which one of the following correctly describes the effect of this condition on the 2A Emergency Diesel Generator?

The 2A Emergency Diesel Generator:

- a. starts, but does not load on the 2A3 bus.
- b. does not start. It will only start on 2A3 bus undervoltage.
- c. starts and loads on the 2A3 bus.
- d. does not start, but will start and load on the 2A3 bus when the bus lockout relay is reset.



USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 19

The following conditions exist:

- Unit 1 is at 20% power, returning from a refueling outage, turbine on hold
- MTC is +1 pcm/°F
- The RO places steam generator blowdown in service at 120 gpm/SG

Which of the following describes the immediate plant response to this evolution?  
Assume no operator action.

- a. Reactor power increases, letdown flow increases, feedwater flow increases
- b. Reactor power decreases, letdown flow increases, feedwater flow decreases
- c. Reactor power increases, letdown flow decreases, feedwater flow decreases
- d. Reactor power decreases, letdown flow decreases, feedwater flow increases



USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 20

Unit 1 is in Mode 1, 100% power. The SNPO is preparing the 1B Containment Spray Pump for its quarterly surveillance run. Which of the following correctly describes an additional manipulation that the SNPO must perform on Unit 1 but not on Unit 2?

- a. Open the CCW isolation valve to the 1B Containment Spray pump seal heat exchanger.
- b. Open 1B Containment Spray pump manual recirc valves.
- c. Close MV-07-3B, B CS Header Isolation.
- d. Close the Sodium Hydroxide tank vent to atmosphere.





## USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 21

The following conditions exist:

- A large break LOCA has occurred on Unit 1
- 1-EOP-03, "Loss of Coolant Accident" is being implemented
- Hydrogen Analyzers initially indicated 0.7%
- Hydrogen concentration has increased another 2.6% since the initial reading
- No equipment is out of service

Which of the following actions are required to satisfy the Containment Combustible Gas Control safety function of 1-EOP-03?

- a. Ensure both Hydrogen Recombiners and Containment Spray in service.
- b. Ensure the Hydrogen Purge System in service.
- c. Ensure both Hydrogen Recombiners and Hydrogen Purge System in service.
- d. Ensure both Hydrogen Recombiners in service.



## USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 22

Unit 1 has tripped from 100% power due to a feedwater problem. According to AP-0010120, "Conduct of Operations", which of the following is the approved method of chronological log entries during this event?

- a. The events can be reconstructed at a later time using all available references, but must be made in chronological order when making an entry.
- b. The desk RO will record all events in the RCO chronological log as they occur, after performing SPTAs.
- c. The events can be reconstructed at a later time using all available references, chronological order is desired but not necessary when making an entry.
- d. A designated person, preferably the STA, will record all events in the RCO chronological log as they occur.

## USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 23

The Unit 1 SNPO was in the process of performing a valve lineup when he discovered an incorrect valve number and valve position. To correct this condition, he generated a temporary change (TC) to the procedure IAW ADM-11.03, "Temporary Change to Procedures". Which of the following describes the status of the TC, ninety five days later, assuming no action was taken by the originator?

The Temporary Change:

- a. was automatically canceled after 90 days.
- b. still exists in the TC log.
- c. was canceled after the valve lineup was performed.
- d. was automatically incorporated into the procedure.



## USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

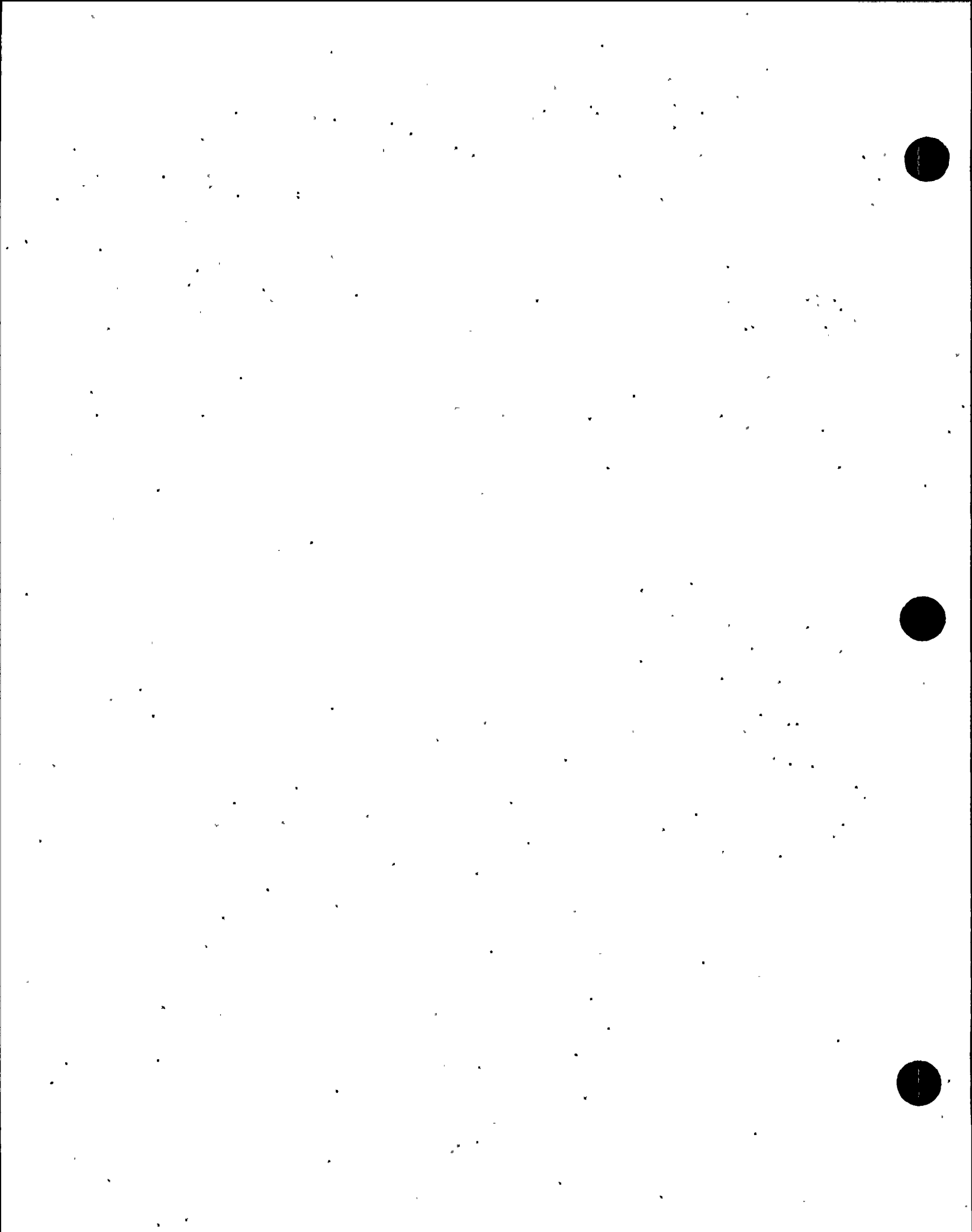
### QUESTION 24

The 1B CVCS Ion Exchanger has been placed in service following resin replacement. Although the RO rinsed the ion exchanger for 1 hour, after 10 minutes of in-service time, the following conditions exist:

RCS Tcold	548.9
Reactor Power	100.6%

According to AP 0010120, "Conduct of Operations", which of the following is the correct action to be taken by the control room crew?

- a. Immediately implement ONOP 1-0250030, "Emergency Boration".
- b. Reduce reactor power to  $\leq 100\%$  within 15 minutes.
- c. Reduce reactor power to  $\leq 100\%$  within 30 minutes.
- d. Trip the Reactor and Turbine.





## USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 25

For entry into a VERY HIGH RADIATION AREA, which of the following correctly describes all requirements that must be met?

- a. Continuous HP coverage, a high range dosimeter, HP department head approval, NPS approval.
- b. A specific RWP, continuous HP coverage, HP department head approval, NPS approval.
- c. A specific RWP, a hand held survey instrument, a high range dosimeter, HP department head approval.
- d. Continuous HP coverage, a hand held survey instrument, HP department head approval, NPS approval.

USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 26

Unit 2 tripped from 100% power. Reactor power is  $5 \times 10^{-4}\%$  as indicated on Wide Range Instrumentation. Which of the following correctly describes the status of the Nuclear Startup Channels at this time?

The Startup Channels:

- a. are energized. They automatically energize at  $10^{-3}\%$  power.
- b. are not energized. They will energize if the switches are placed in "on".
- c. are energized. They automatically energize on the reactor trip signal.
- d. are not energized. They will not energize if the switches are placed in "on".

## USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 27

The following conditions exist:

- Unit 2 is at 100% power
- An electrician, performing a surveillance, de-energizes the 2B3 4.16 KV bus
- The 2B EDG successfully starts and loads
- All plant equipment is operable

Assuming no operator action aside from resetting individual pressurizer heater banks on RTGB 203, which of the following correctly describes the TOTAL pressurizer heater availability at this time?

- a. Two proportional banks, six backup banks
- b. One proportional bank, three backup banks
- c. One proportional bank, four backup banks
- d. Two proportional banks, four backup banks



USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 28

2A steam generator pressure safety channel A has failed low. 2B steam generator pressure safety channel A is normal. Which of the following correctly describes plant response if 2B steam generator pressure safety channel D were to fail low?

- a. RPS reactor trip only
- b. RPS reactor trip and ESFAS actuation
- c. ESFAS actuation only
- d. No RPS reactor trip or ESFAS actuation



USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 29

The bistable for RCS Low Flow reactor trip has been removed from RPS channel "D" for I&C work. Which one of the following conditions would cause a reactor trip on RCS Low Flow with the RPS in its current configuration?

- a. "A" channel Reactor Coolant Pump differential pressure (PDT 1110 & 1112) de-energizes.
- b. "A" channel Steam Generator differential pressure (PDT 1111 & 1121) fails low.
- c. "A" channel Reactor Coolant Pump differential pressure (PDT 1110 & 1112) instrument tap develops a leak.
- d. "A" channel Core differential pressure (PDT 1124W & 1124Z) de-energizes.





USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 30

Unit 2 was at 100% power when a Loss of Offsite Power/SIAS occurred. Which of the following correctly describes the configuration of the Containment Cooling System after both Emergency Diesel Generators start and load on their respective busses? (Assume all plant equipment in normal configuration prior to the LOOP/SIAS)

- a. Four coolers running in fast speed.
- b. Three coolers running in slow speed.
- c. Four coolers running in slow speed.
- d. Three coolers running in fast speed.



USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 31

The following conditions exist:

- Unit 2 tripped from 100% power
- B steam generator narrow range level channel A has failed low
- Auxiliary Feedwater was throttled to 150 gpm / steam generator after AFAS actuation
- Both steam generator levels are currently 10% narrow range and increasing

Which of the following correctly describes the response of the "B" train AFW system if the MB 120 V Instrument Inverter is de-energized and no operator action is taken?

- a. At 29% NR indication; AFW flow to the 2B S/G automatically isolates, the header valves must be manually opened to reestablish flow.
- b. AFW flow to the 2B S/G remains in service and will continue to fill the 2B S/G.
- c. AFW flow to the 2B S/G automatically isolates on Rupture ID due to the failure, AFAS-1 must be manually actuated to reestablish flow.
- d. At 29% NR indication, AFW flow to the 2B S/G automatically isolates, the header valves automatically re-open at 19.5% NR.

## USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 32

Unit 2 was performing a rapid power reduction due to an RCS leak inside containment when the reactor was manually tripped. SIAS actuated 1 minute following the manual trip. SPTAs are in progress and the following conditions exist 12 minutes after trip:

- RCS pressure 1200 psia
- RCS Thot 476°F
- Pressurizer level 0%
- Containment Pressure 2 psig
- SG levels 43% WR with feed available

Which of the following is the correct RCP trip strategy for the current conditions?

- a. Trip all four RCPs
- b. Trip one RCP in each loop
- c. Leave all four RCPs running
- d. Trip one RCP

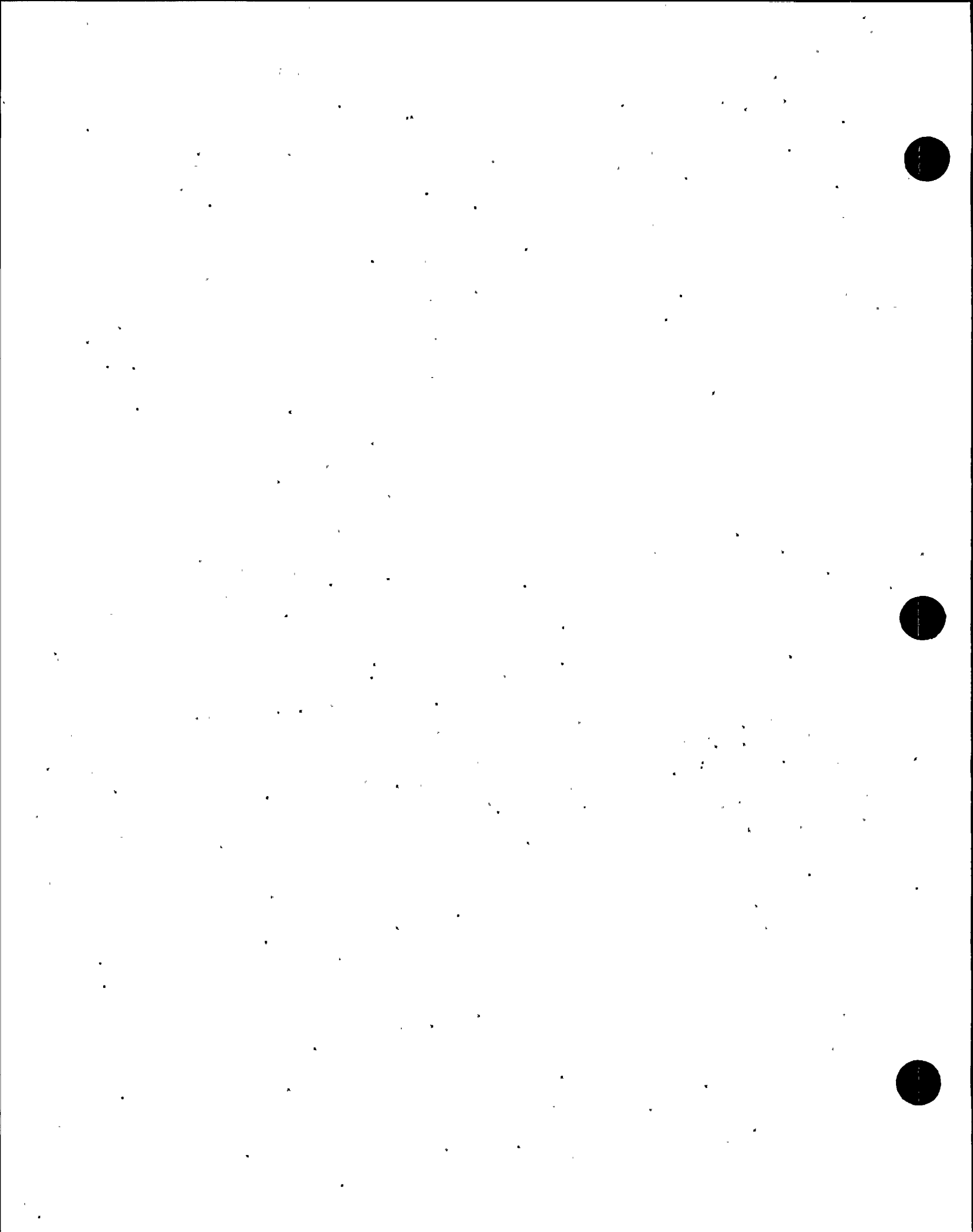
USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 33

SE-07-1A, (Iodine Removal System eductor valve) is closed and de-energized for solenoid replacement. Which of the following correctly describes the flowpath of Sodium Hydroxide if a full CSAS occurred with the system in its current configuration?

Sodium Hydroxide would flow:

- a. through 2 eductor solenoid valves to the discharge of the 1B Containment Spray Pump.
- b. through 1 eductor solenoid valve to the discharge of 1A and 1B Containment Spray Pumps.
- c. through 2 eductor solenoid valves to the suction of 1A and 1B Containment Spray Pumps.
- d. through 1 eductor solenoid valve to the suction of the 1B Containment Spray Pump.



USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 34

The following conditions exist:

- Unit 2 is at 100% power
- The 2A HPSI is being used to fill the 2A2 SIT
- An electrical fault has caused the 2A3 4.16 KV bus to de-energize

Which one of the following will occur when the 2A EDG starts and loads on the bus?

The 2A HPSI will:

- a. auto sequence onto the bus six seconds after the EDG output breaker closes.
- b. auto sequence onto the bus thirty seconds after the EDG output breaker closes.
- c. will not sequence onto the bus and will have to be manually started.
- d. loads onto the bus immediately after the EDG output breaker closes.





USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 35.

Unit 2 is in Mode 6, refueling in progress. A leak has developed in the suction line of the in service Fuel Pool Cooling pump, upstream of the suction isolation valve. Which of the following correctly describes the status of fuel pool water level if no action is taken to isolate the leak?

Fuel pool water level will decrease:

- a. to 23 feet above the top of the fuel assemblies.
- b. to the bottom of the fuel transfer canal gate.
- c. to the bottom of the skimmer suction.
- d. to approximately 52 feet.

USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 36

A large ESDE has occurred on Unit 2. The RO, performing safety function status checks for 2-EOP-05, reports that RCS temperature is 350°F and RCS pressure is 1290 psia. The crew should:

- a. secure all running RCPs, initiate seal injection.
- b. stabilize RCS temperature, depressurize the RCS.
- c. reduce RCS temperature to establish 20°F subcooling.
- d. stabilize RCS pressure and temperature at current values.

USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 37

Which one of the following actions would be permissible according to AP 0010120, "Conduct of Operations"? (assume all equipment operable)

- a. Manual initiation of AFAS post reactor trip with S/G levels at 22% NR.
- b. Blocking SIAS during a plant shutdown due to a 100 gpm RCS leak inside containment.
- c. Blocking MSIS during a plant cooldown due to a 100 gpm SGTR.
- d. Manual actuation of SIAS prior to auto actuation due to a 200 gpm LOCA.

## USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 38

Unit 1 is at 100% power, steady state. The 1C 120 VAC Instrument bus becomes de-energized due to an electrical fault. Which of the following correctly describes the status of the Diverse Scram System (DSS) at this time?

- a. The MG set input breaker will open if ONE DSS channel becomes actuated.
- b. A line contactor will open if TWO DSS channels become actuated.
- c. The MG set input breaker will open if TWO DSS channels become actuated.
- d. A line contactor will open if ONE DSS channel becomes actuated.



USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 39

The following conditions exist:

- Unit 2 is at 100% power, NOP / NOT
- A steam leak has developed on the 2A main steam line outside containment
- An RCS leak has developed on the 2A hot leg

Which of the following correctly describes the the condition of the steam exiting each leak? (Assume containment pressure is atmospheric)

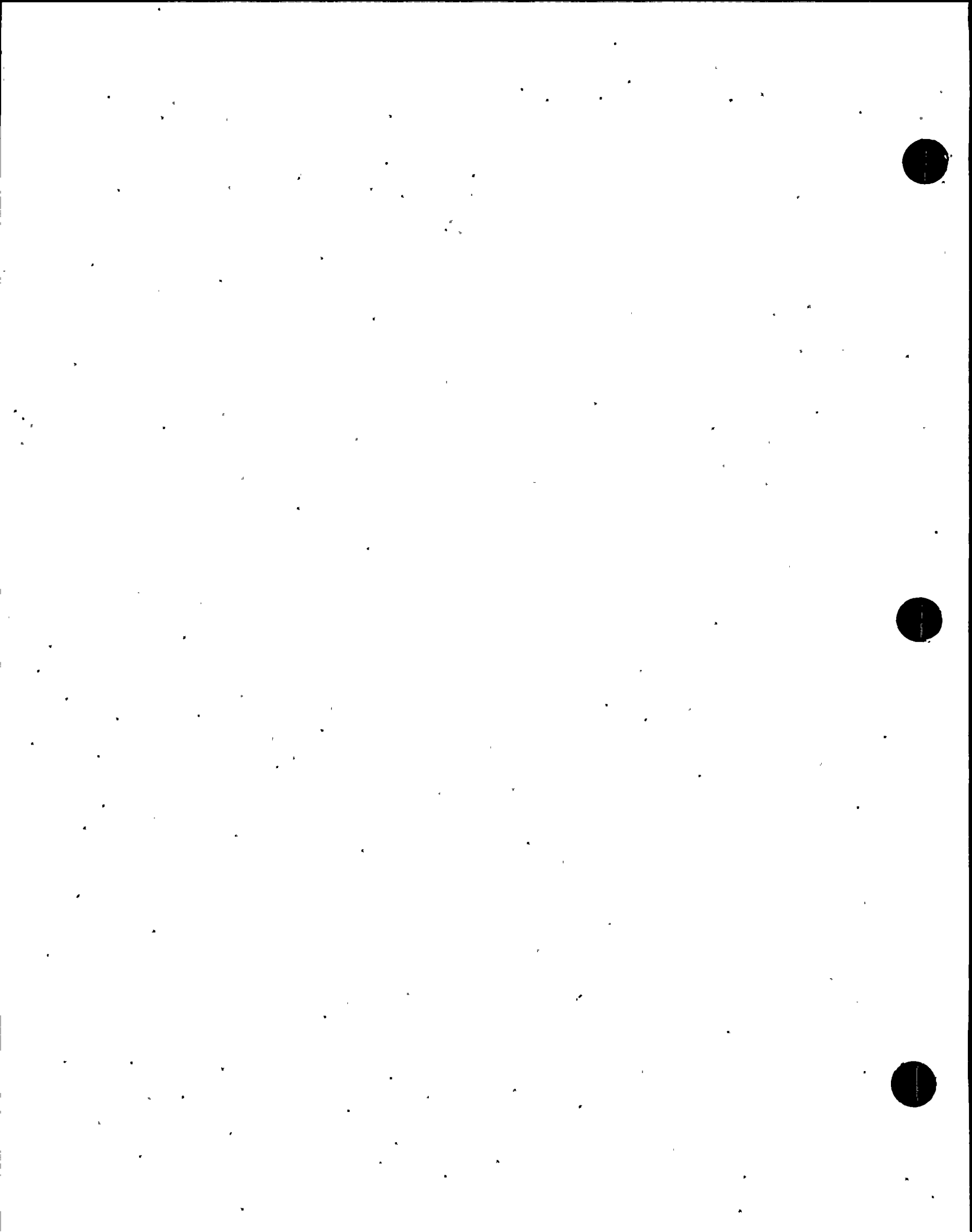
- a. The primary side steam is saturated, the secondary steam is saturated.
- b. The secondary steam is superheated, the primary steam is saturated.
- c. The primary steam is superheated, the secondary steam is superheated.
- d. The secondary steam is saturated, the primary steam is superheated.

## USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 40

Unit 2 is at 50% power, turbine startup in progress. Which one of the following de-energized CEDM components is the FIRST component to be energized when the RO places the CEA control switch to WITHDRAW?

- a. Lift Coil
- b. Upper Gripper Coil
- c. Load Transfer Coil
- d. Lower Gripper Coil





## USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 41

Which of the following is the method of level indication/annunciation of the Unit 2 reactor cavity sump?

- a. Indication is provided by reed switches, annunciation is provided by a bubbler system.
- b. Annunciation is provided by a float device, indication is provided by reed switches.
- c. Indication is provided by a bubbler system, annunciation is provided by a float device.
- d. Annunciation is provided by reed switches, indication is provided by a float device.

## USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 42

The following conditions exist:

- Unit 2 is in the process of a turbine startup
- Reactor power is at 10%
- The RO is preparing to latch the turbine
- Valve position limits have been set to "0"

Which of the following correctly describes the response of the system when the RO depresses and holds the "Latch" pushbutton on RTGB 201?

- a. Auto stop oil pressure increases to approximately 100 psig, governor and intercept valves stroke open.
- b. DEH supply header pressure increases to approximately 1800 psig, intercept and reheat stop valves stroke open.
- c. Auto stop oil pressure increases to approximately 100 psig, intercept and reheat stop valves stroke open.
- d. DEH supply header pressure increases to approximately 1800 psig, governor and intercept valves stroke open.

## USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 43

Unit 1 turbine startup is in progress. The RO is in the process of placing the MSRs in service. Which of the following describes the system response when the "Ramp" pushbutton on the reheat control panel is depressed?

- a. The four MSR TCVs open over a four hour period.
- b. The four smaller MSR TCVs open over a two hour period, the four large MSR TCVs open after an additional half hour.
- c. The four MSR TCVs open over a two hour period.
- d. The four smaller MSR TCVs open over a four hour period, the four large MSR TCVs open after an additional half hour.

USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 44

2A Emergency Diesel Generator has been started and is loaded to the grid for a periodic surveillance run. Which of the following describes the response of the 2A Emergency Diesel Generator if a loss of offsite power occurs during this evolution?

The 2A Emergency Diesel Generator:

- a. remains running and carrying the 2A3 4160 V bus loads.
- b. trips on overspeed.
- c. output breaker opens and re-closes, normally running loads are sequenced on the 2A3 4160 V bus.
- d. trips on overcurrent.

USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 45

Which of the following plant conditions would present the most significant challenge to shutdown margin requirements during a main steam line rupture?

- a. Hot full power, beginning of cycle.
- b. Hot zero power, end of cycle.
- c. Hot zero power, beginning of cycle.
- d. Hot full power, end of cycle.

USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 46

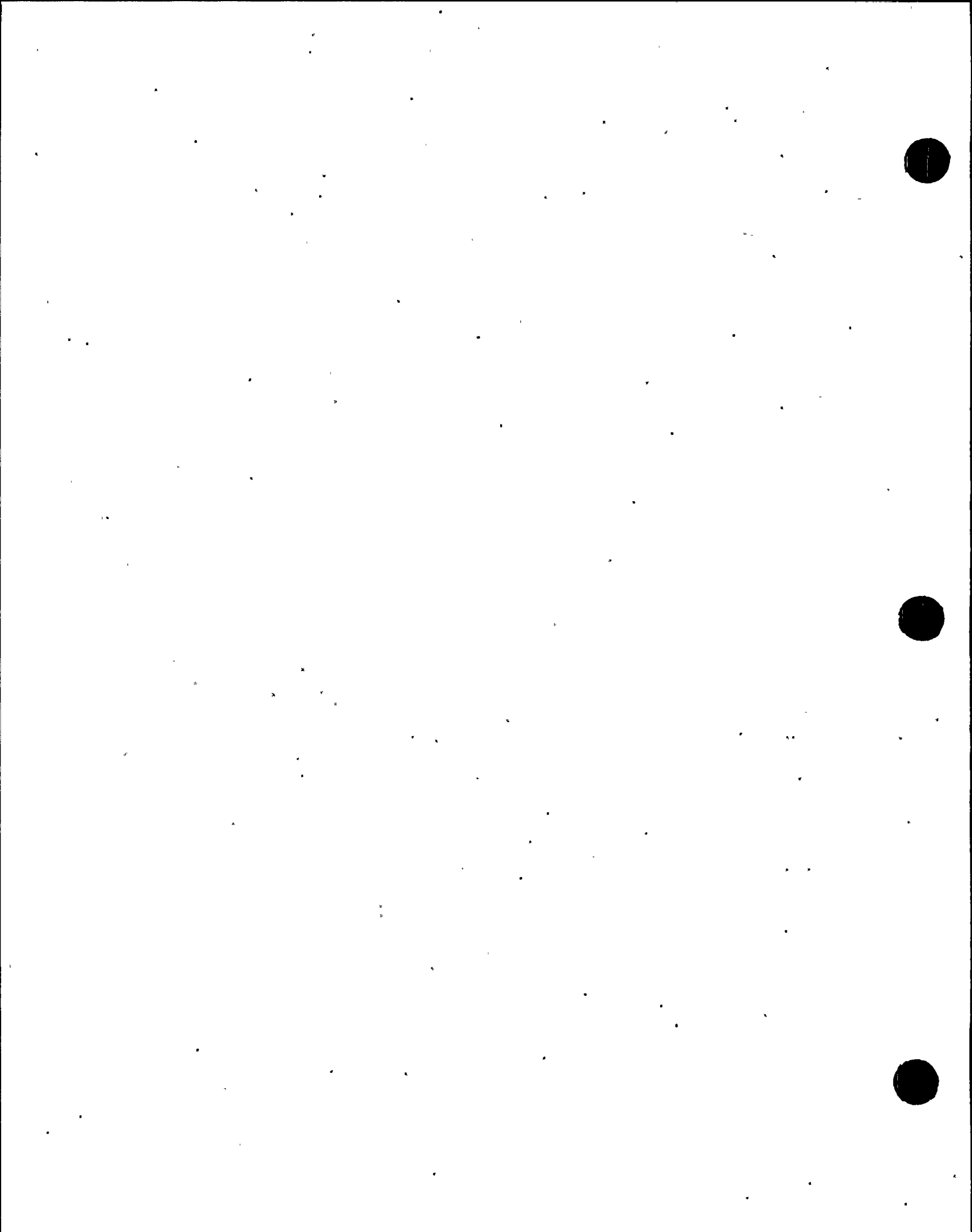
The following conditions exist:

- A Station Blackout has occurred on Unit 1
- 2A and 2B Emergency Diesel Generators are available

Which of the following describes the preferred method of supplying Unit 1 with 4160V power through the Station Blackout Crosstie?

Crosstie:

- a. 2A3 4160V bus with 1B3 4160V bus.
- b. 2B3 4160V bus with 1B3 4160V bus.
- c. 2A3 4160V bus with 1A3 4160V bus.
- d. 2B3 4160V bus with 1A3 4160V bus.



## USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 47

The Unit 2 Fire and Security Sups has been de-energized due to an electrical fault and will remain out of service for 4 hours. According to 2-ONP-49.01, "Sups - Non Safety Vital AC or Fire and Security Inverter Malfunction", which of the following actions must be performed on Unit 2 that would NOT have to be performed in the same situation on Unit 1?

- a. All vital access doors must be posted.
- b. Local primary sampling for activity must be performed.
- c. Fire watches must be posted.
- d. Local secondary sampling for activity must be performed.



USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 48

Unit 2 generator output is 485 MW. According to ONOP 2-0610031, "Loss of Condenser Vacuum", which of the following conditions would require an immediate reactor/turbine trip?

- a. Condenser backpressure is 2.85 psia.
- b. Two circulating water pumps in the same discharge tunnel trip.
- c. The differential pressure between A and B condenser is 1.13 psid.
- d. Condenser air in leakage is 12 CFM.



USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 49

Unit 2 is at 100% power. Due to a power supply failure, ONE CEA has dropped to the bottom of the core. Which of the following components is de-energized?  
(Assume system in normal configuration)

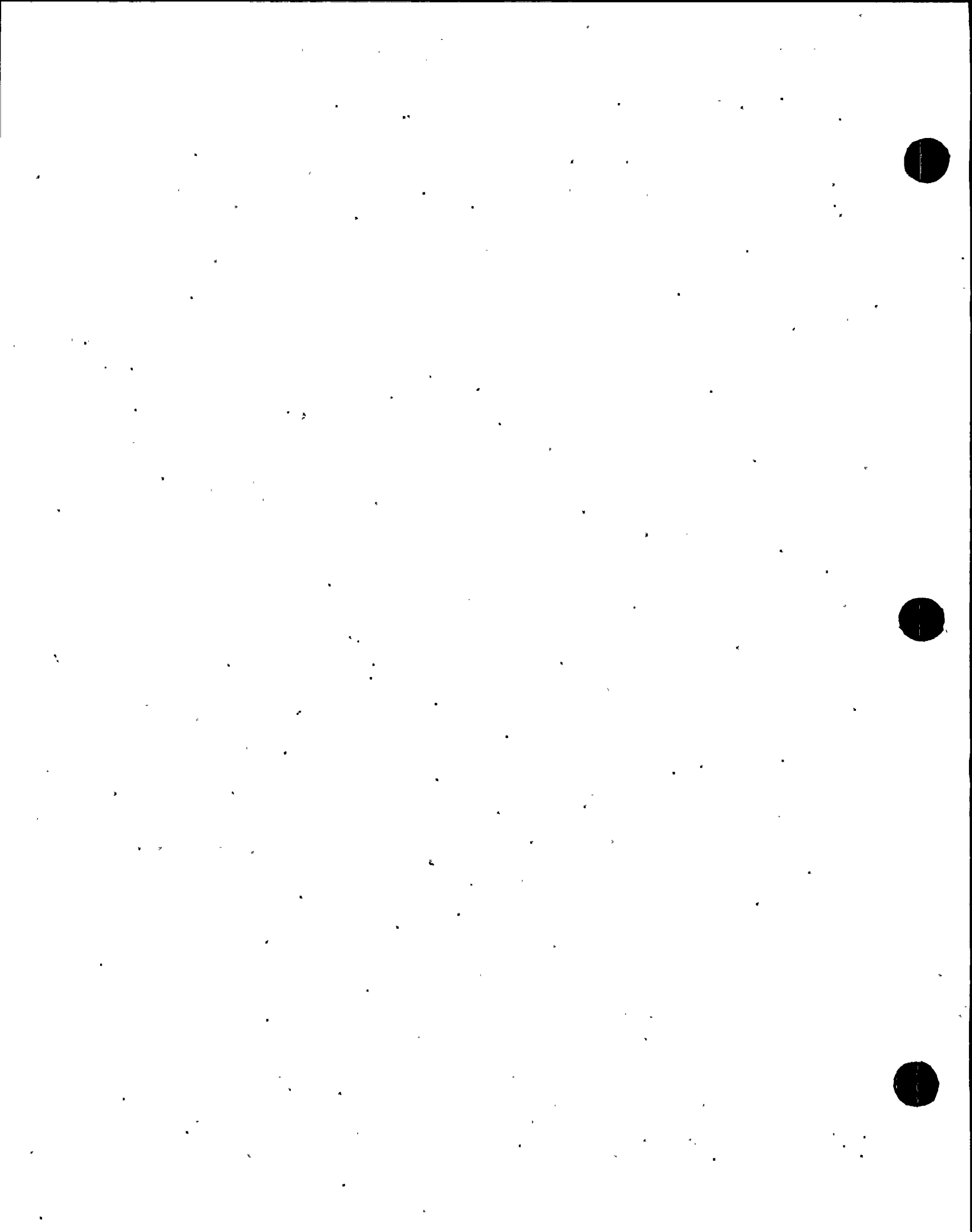
- a. Coil Power Programmer
- b. Power Switch
- c. Hold Bus
- d. ACTM module

USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 50

Unit 1 was at 100% power when the control room was evacuated due to a fire in the cable spreading room. Prior to exiting the control room, the operators had time to perform their initial actions. Assuming all appendices of 1-ONP-100.02, "Control Room Inaccessibility" were performed, which one of the following will be AVAILABLE to the RO when he arrives at the HSDCP?

- a. Letdown
- b. Main spray
- c. PORV
- d. Aux Spray



USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 51

According to 2-EOP-1, "Standard Post Trip Actions", in which of the following situations would it NOT be permissible to initiate seal injection after RCPs are removed from service while in 2-EOP-1?

- a. A cooldown has caused RCS Tcold to decrease to 495°F. :
- b. RCS pressure is at 1290 psia after SIAS with subcooling at 40°F.
- c. Main and Auxiliary feedwater has been lost and cannot be restored.
- d. A valid CCW to RCP trip has actuated and caused the reactor trip.

USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 52

Which of the following Inadequate Core Cooling Monitor (QSPDS) indications would be inaccurate if Reactor Coolant Pumps remained running with the Reactor Vessel Level Monitor reading less than 100%?

- a. Upper head region level indication.
- b. CET saturation margin indication.
- c. Plenum region level indication.
- d. RCS saturation margin indication.

## USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 53

The ANPS was in the process of reviewing the RO logs from the previous shift when he noticed the following trend on 2A1 RCP lower oil reservoir level:

0900	+3"
1200	+2"
1500	+1"

Assuming no system leakage, which of the following could be the cause of the 2A1 RCP lower oil reservoir level trend?

- a. Instrument air pressure to the transmitter is increased slightly.
- b. A buildup of debris has occurred at the bubbler tube outlet.
- c. An I/A leak has developed where the bubbler tube enters the reservoir.
- d. Containment pressure has decreased.



USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 54

Unit 1 has just come off line and is in Mode 3. The ANPS has directed the ROs to reduce Tavg to < 500°F. Which of the following parameters was exceeded and is the reason for this Tech Spec required evolution?

- a. Primary Chemistry
- b. Secondary Activity
- c. Primary Activity
- d. Secondary Chemistry

USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 55

Unit 1 has tripped from 100% power due to a loss of offsite power. Two minutes after the trip, the 1B 125 VDC bus becomes de-energized. Which of the following correctly describes the auxiliary feedwater configuration ten minutes post trip? (Assume no operator action)

- a. 1A and 1C AFW pumps running and feeding the 1A steam generator.
- b. No AFW pumps running.
- c. Only 1A AFW pump running and feeding the 1A steam generator.
- d. 1A AFW pump running and feeding the 1A steam generator, 1C AFW pump running and feeding both steam generators.



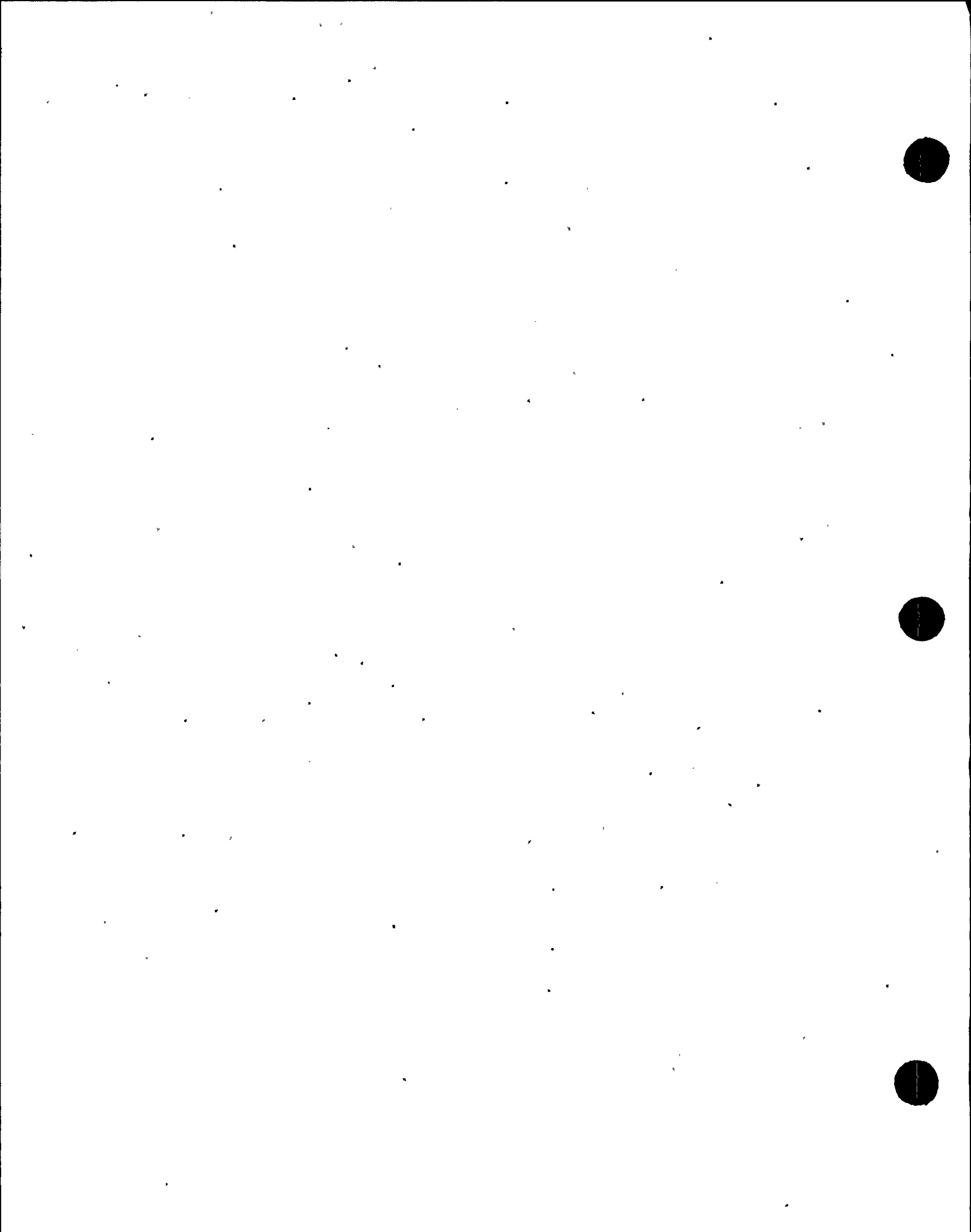
USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 56

A large break LOCA has occurred on Unit 2. The ANPS has directed the RO to make the alignment to pump the safeguard sumps to containment IAW 2-EOP-3, "Loss of Coolant Accident". Which of the following describes the flowpath of the safeguards sumps after the alignment is made?

The safeguard sump water will be pumped directly to the:

- a. reactor drain tank
- b. containment sump
- c. reactor cavity sump
- d. quench tank



## USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 57

The following conditions exist:

- Unit 1 is currently at 80% power
- VCT level is currently at 42%
- A 5 MW/MIN downpower is in progress due to a 18 gpm RCS leak
- 2 charging pumps are running with letdown in automatic
- Due to a malfunction in the Boric Acid Makeup System, the downpower must be performed using 10 gpm of boric acid being supplied via the manual borate valve
- No other makeup is available
- VCT level = 33.8 gal./%

If the rate of power reduction and RCS leakage remain constant, at approximately what power level will the RWT begin to supply the suction of the charging pumps? (assume 10% VCT level decrease due to RCS density change)

- a. 5%
- b. 16%
- c. 24%
- d. 32%

## USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 58

The Unit 2 board RO had just assumed the shift and was taking his first set of hourly logs when he noticed Shield Building Exhaust fan HVE-6A running. Which of the following conditions could be the reason for HVE-6A running? (Assume all plant equipment operating properly)

- a. High radiation in the fuel pool area.
- b. A containment mini purge is in progress.
- c. High shield building to containment DP.
- d. Failure of the MA channel CIS monitor.

USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 59

The following conditions exist:

- Motor Generator (MG) set 1A and 1B are running
- Bus tie breaker (TCB #9) is open
- Reactor Trip breakers 3, 4, 7 and 8 are open (B side)
- Reactor Trip breakers 1, 2, 5 and 6 are closed (A side)

Which of the following is correct concerning the closure of the reactor trip breakers 3, 4, 7 and 8 by the RO?

The operator:

- a. may close the reactor trip breakers in any combination at any time.
- b. must close the bus tie breaker prior to closing the reactor trip breakers.
- c. must ensure one MG set is taken out of service prior to closing the reactor trip breakers.
- d. must synchronize 1A and 1B MG sets with the bus tie breaker open prior to closure of the reactor trip breakers.





## USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 60

According to ONOP 2-0530030, "Waste Gas System", which of the following correctly describes the immediate operator actions concerning the combination of hydrogen and oxygen in the waste gas decay tanks?

If the in-service gas decay tank:

- a. hydrogen concentration exceeds 4% and the oxygen concentration exceeds 2%, immediately admit nitrogen to reduce the oxygen concentration to within limits.
- b. oxygen concentration exceeds 4% and the hydrogen concentration exceeds 2%, immediately admit nitrogen to reduce the oxygen concentration to within limits.
- c. hydrogen concentration exceeds 4% and the oxygen concentration exceeds 2%, immediately admit nitrogen to reduce the hydrogen concentration to within limits.
- d. oxygen concentration exceeds 4% and the hydrogen concentration exceeds 2%, immediately admit nitrogen to reduce the hydrogen concentration to within limits.



USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 61

The following conditions exist:

- Unit 2 is at 50% power, all equipment operable
- A large, unisolable instrument air leak occurs
- The operators manually trip the reactor when I/A pressure reaches 50 psig

Which of the following correctly describes Steam Generator water level trends and the reason for the trends immediately following the trip? (Assume no operator action)

Steam Generator levels will:

- a. increase to approximately 80% NR, then decrease after the main feed reg valves close.
- b. decrease due to main feed isolation valves failing closed.
- c. increase to solid conditions due to no response from the main feedwater control system.
- d. decrease to normal post trip values as 15% bypass valves establish 5% feed flow to each Steam Generator.

USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 62

The following conditions exist:

- The Unit 1 reactor was manually tripped by the operators due to a rupture of the CCW N header
- Prior to stopping all RCPs, the 1A 125 VDC bus became de-energized

Which of the following states the location where the RCPs can be most expeditiously tripped?

- a. Trip 1A2 and 1B1 RCPs from the RTGB, trip 1A1 and 1B2 RCPs locally at their respective breakers.
- b. Trip 1B1 and 1B2 RCPs from the RTGB, trip 1A1 and 1A2 RCPs locally at their respective breakers.
- c. Trip 1A1 and 1B2 RCPs from the RTGB, trip 1A2 and 1B1 RCPs locally at their respective breakers.
- d. Trip 1A1 and 1A2 RCPs from the RTGB, trip 1B1 and 1B2 RCPs locally at their respective breakers.



USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 63

Unit 2 is at 100% power. PIS-07-2A, containment pressure safety channel has failed high. Assuming no operator action, which one of the following conditions would cause Containment Spray pump(s) to start and borated water to be admitted into containment?

- a. The 120 VAC MC Instrument Inverter trips due to an electrical fault.
- b. The 2B 125 VDC bus de-energizes.
- c. PIS-07-2C containment pressure safety channel drifts to 6 psig.
- d. An I&C tech inadvertently injects a high containment pressure signal into the MB CSAS ESFAS channel.





USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 64

The following conditions exist:

- A plant shutdown was commenced 1 hour ago due to a power supply failure
- Operators are monitoring containment temperature
- The ANPS has instructed the operators to trip the reactor when containment temperature exceeds 120°F

Which of the following is the power supply that has failed? (Assume all other plant equipment operable, consider each case separately)

- a. 2A5 480V Load Center
- b. 1A2 480V Load Center
- c. 1AB 480V Load Center
- d. 2A9 480V Load Center



USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 65

A category 4 hurricane has caused an extended loss of offsite power at St. Lucie Plant. One minute after the Emergency Diesel Generators started and loaded, the 2B 125VDC bus was lost. Which of the following correctly describe the status of the 2B Emergency Diesel Generator fuel oil system?

The 2B Emergency Diesel Generator will continue to run as fuel is supplied to the day tanks through the:

- a. normally open bypass valve.
- b. failed open inlet valves.
- c. energized inlet valves.
- d. inlet valves if manually pinned open.



## USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

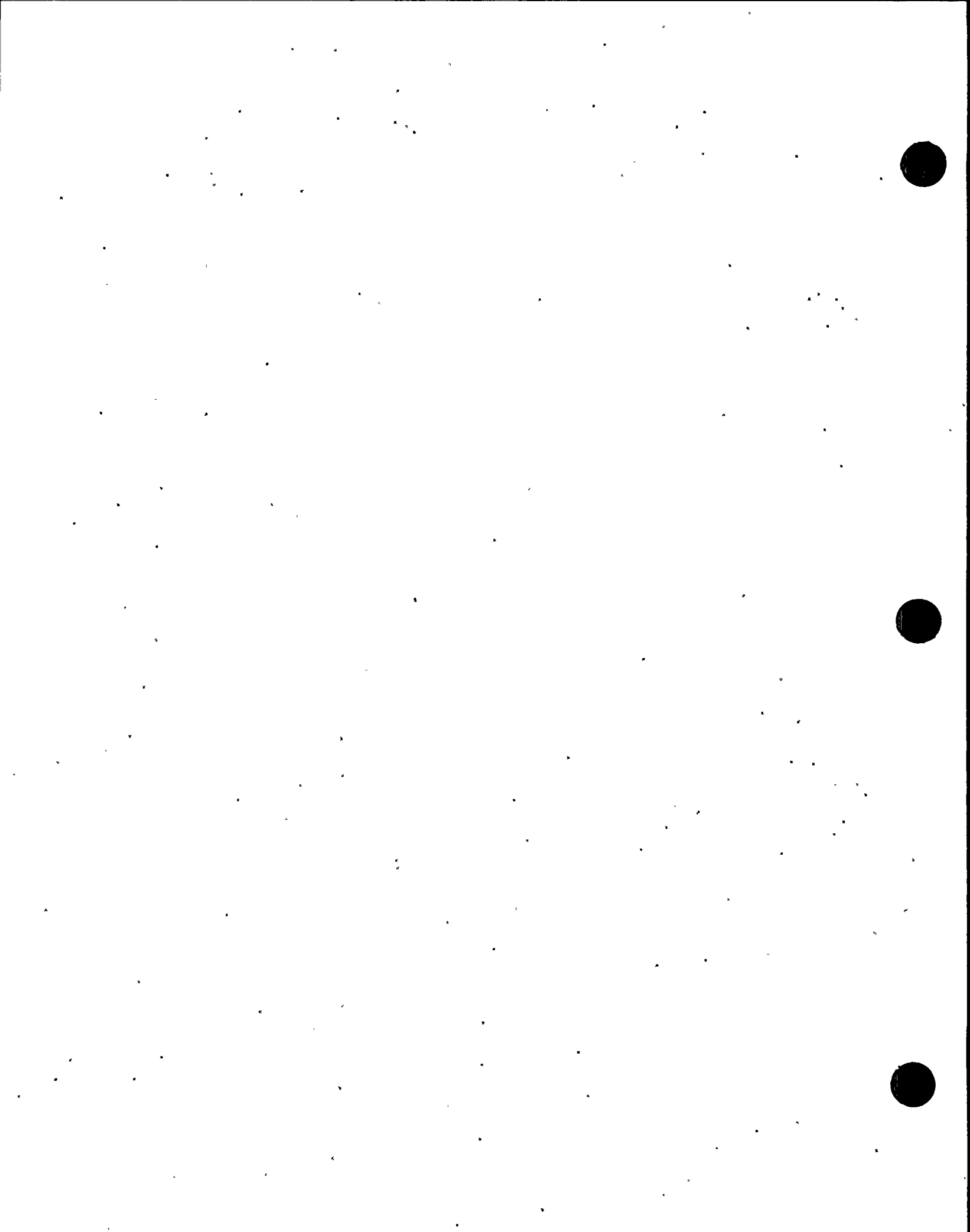
### QUESTION 66

The following conditions exist:

- Unit 2 is at 100% power
- An instrument air leak has occurred at the instrument air accumulator on the 19.5' elevation of the turbine building
- The leak has been isolated by a single isolation valve
- Service air and Instrument air have been crosstied
- Mechanical Maintenance is standing by to repair the leak

Which of the following describes the minimum administrative requirements in this case that will allow Mechanical Maintenance to begin work?

- a. A full Equipment Clearance Order must be issued prior to Mechanical Maintenance commencing work.
- b. A Human Clearance can be put in place to allow Mechanical Maintenance to commence work.
- c. A Caution tag must be placed on the isolation valve prior to Mechanical Maintenance commencing work.
- d. A deviation tag can be placed on the isolation valve and instrument air crosstie to allow Mechanical Maintenance to commence work.



USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 67

A Unit 2 refueling outage was scheduled to begin on October 16th. The following are the sequence of events as they took place:

10-16 / 0900	Turbine tripped, breaker open
10-16 / 1030	Mode 2 entered
10-16 / 1200	Mode 3 entered
10-16 / 1400	ARI
10-17 / 0300	Mode 4 entered

Which of the following is the earliest time the movement of fuel in the reactor vessel can commence?

- a. 10-19 / 0900
- b. 10-18 / 1030
- c. 10-19 / 1200
- d. 10-20 / 0300

USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 68

Which of the following operator actions would require ANPS concurrence prior to taking the action? (Assume 100% power operation)

- a. The desk RO manually trips the reactor because 2A steam generator level is 41% NR and decreasing.
- b. The board RO performs an emergency boration due to two stuck out CEAs post trip.
- c. The board RO takes manual control of the selected pressurizer pressure controller because it has failed high.
- d. The desk RO stops the 2A CCW pump during a surveillance run because the ammeter indicates full scale and flow is decreasing.



## USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 69

The following is the annual dose record for an individual:

- Committed Dose Equivalent (CDE) is 2525 mr
- Deep Dose Equivalent (DDE) is 2335 mr
- Lens Dose Equivalent (LDE) is 744 mr
- Committed Effective Dose Equivalent (CEDE) is 405 mr
- Total Organ Dose Equivalent (TODE) is 4865 mr
- Shallow Dose Equivalent (SDE) is 435 mr
- Maximum Extremity Dose (ME) is 6565 mr.

Which of the following is the individual's dose margin if the NRC annual limit is used?

The individual:

- a. has a margin of 2260 mr
- b. has a margin of 2475 mr
- c. has a margin of 2665 mr
- d. has exceeded the NRC limit



USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 70

Which of the following conditions would require a Total Effective Dose Equivalent ALARA review prior to issuing an RWP?

On any job that:

- a. is to be performed in a Hot Particle Area.
- b. requires a full face air purifying respirator.
- c. neutron radiation is present.
- d. noble gas is present and respirators will not be used.



## USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 71

A steam generator tube rupture has occurred on Unit 2 and the Emergency Plan is being implemented. The NPS (Emergency Coordinator) has declared a Site Area Emergency and is about to announce the evacuation of the owner controlled area. Which of the following is the correct assembly area considering the wind direction given?

Wind direction from:

- a. 135°, evacuate to JayCee Park.
- b. 278°, evacuate to Jensen Beach Causway.
- c. 175°, evacuate to Jensen Beach Causway.
- d. 225°, evacuate to JayCee Park.

USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 72

An unexpected annunciator has alarmed in the Control Room. According to AP-0010120, "Conduct of Operations", which of the following correctly describes the correct response of the RO in the vicinity of the control board?

Acknowledge the annunciator:

- a. reset the annunciator, visually scan the annunciator panels to verify no other alarms were received simultaneously.
- b. visually scan the annunciator panels to verify no other alarms were received simultaneously, reset the annunciator.
- c. reset the annunciator, notify the ANPS, NPS or other senior licensed individual fulfilling the control room command function of the alarm received.
- d. notify the ANPS, NPS or other senior licensed individual fulfilling the control room command function of the alarm received, reset the annunciator.

## USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 73

According to 1-ONP-100.01, "Response to Fire", which of the following describes the procedural guidance in the event of a fire in the cable spreading room?

- a. Use only A train equipment, B train equipment is considered unreliable during this event.
- b. Use both B and A train equipment, but A train equipment may be unreliable during this event.
- c. Use only B train equipment, A train equipment is considered unreliable during this event.
- d. Use both A and B train equipment, but B train equipment may be unreliable during this event.





USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 74

The following conditions exist:

- Unit 2 is in the process of a power ascension following a refueling outage.
- Generator output is 170 MW
- The transfer from single to sequential valve has just been completed
- The impulse feedback loop is IN SERVICE
- While withdrawing control rods for ASI control, a 30 second continuous rod withdrawal occurs until the RO places the CEDMCS panel in "Off"
- No other operator action is taken and no reactor trip occurs

Which one of the following parameters will return to essentially the same value as it was prior to the event?

- a. RCS Tavg
- b. Reactor Power
- c. Pressurizer level
- d. Steam Generator Pressure

USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 75

Unit 2 is in Mode 6, returning from a refueling outage. The RO is performing a valve stroke test on HCV-15-1, primary makeup water to containment isolation valve. After stroking the valve closed, it fails to reopen. Which of the following is an immediate concern if HCV-15-1 cannot be opened?

RMW is the source of water for :

- a. pressurization of nozzle dams.
- b. the fire protection system in containment.
- c. makeup to the Quench Tank.
- d. RCS makeup for fill and vent.

USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 76

Comparing a B train CCW header rupture on BOTH units, which of the following components would be rendered inoperable?

- a. B Containment Cooler
- b. B LPSI pump
- c. B Sample Heat Exchanger
- d. B HPSI pump

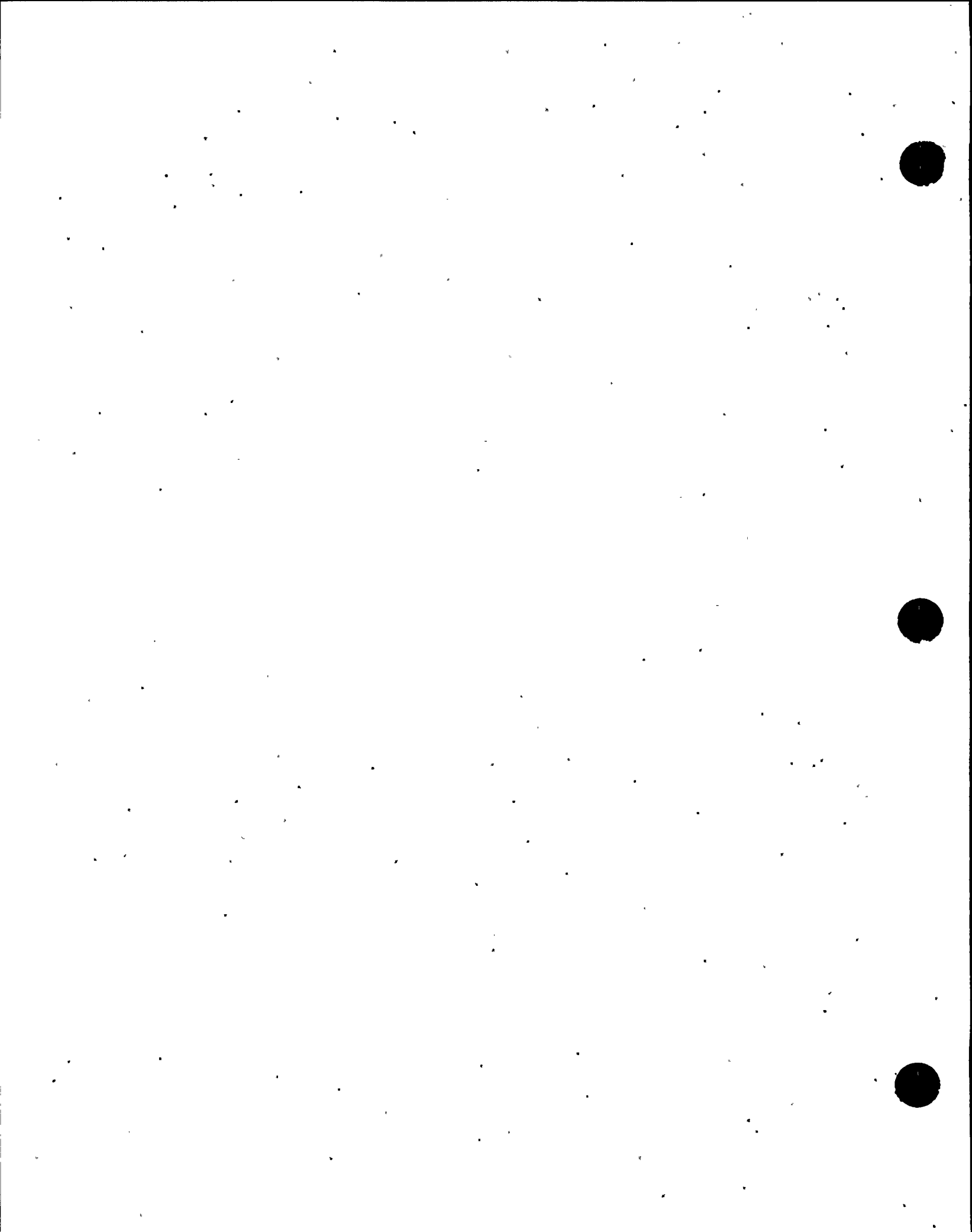


## USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 77

The Unit 2 reactor has tripped from 50% power and SPTAs are in progress. The RO reports that RCS Heat Removal safety function is not being met. Which of the following conditions is the reason for the ROs report? (Assume no contingency actions have been taken. Consider each case independently)

- a. RCS hot leg temperatures are 562°F, RCS cold leg temperatures are 527°F.
- b. Steam Generator pressures 935 psia.
- c. RCS average temperature is 527°F.
- d. Steam Generator levels are 37% WR with 1 Main Feedwater pump supplying feed.



USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 78

The Unit 1 RO is preparing to release the contents of the 1B waste monitor tank. The Unit 1 Liquid Rad Waste Monitor (channel R-6627) appears to be failed low. Which of the following is a correct statement concerning the status of a pending liquid release?

- a. The Plant General Manager must approve the release permit.
- b. Two independent samples and release rate calculations must be performed prior to the release.
- c. The liquid release can be performed using Unit 2 Liquid Rad Waste Monitor.
- d. The liquid release cannot be performed until channel R-6627 is determined to be operable.

USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 79

The following conditions exist:

- Unit 1 is at 100% power
- RCS pressure is 2250 psia
- Pressurizer Code Safety V-1201 develops a seat leak
- Quench tank pressure is 15 psig

Assuming the leak increases until the quench tank pressure is discharged into containment, which of the following is approximately the highest indicated tailpipe temperature for V-1201 that will be seen by the RO? (Assume all equipment functions as designed)

- a. 251°F
- b. 316°F
- c. 328°F
- d. 338°F





USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 80

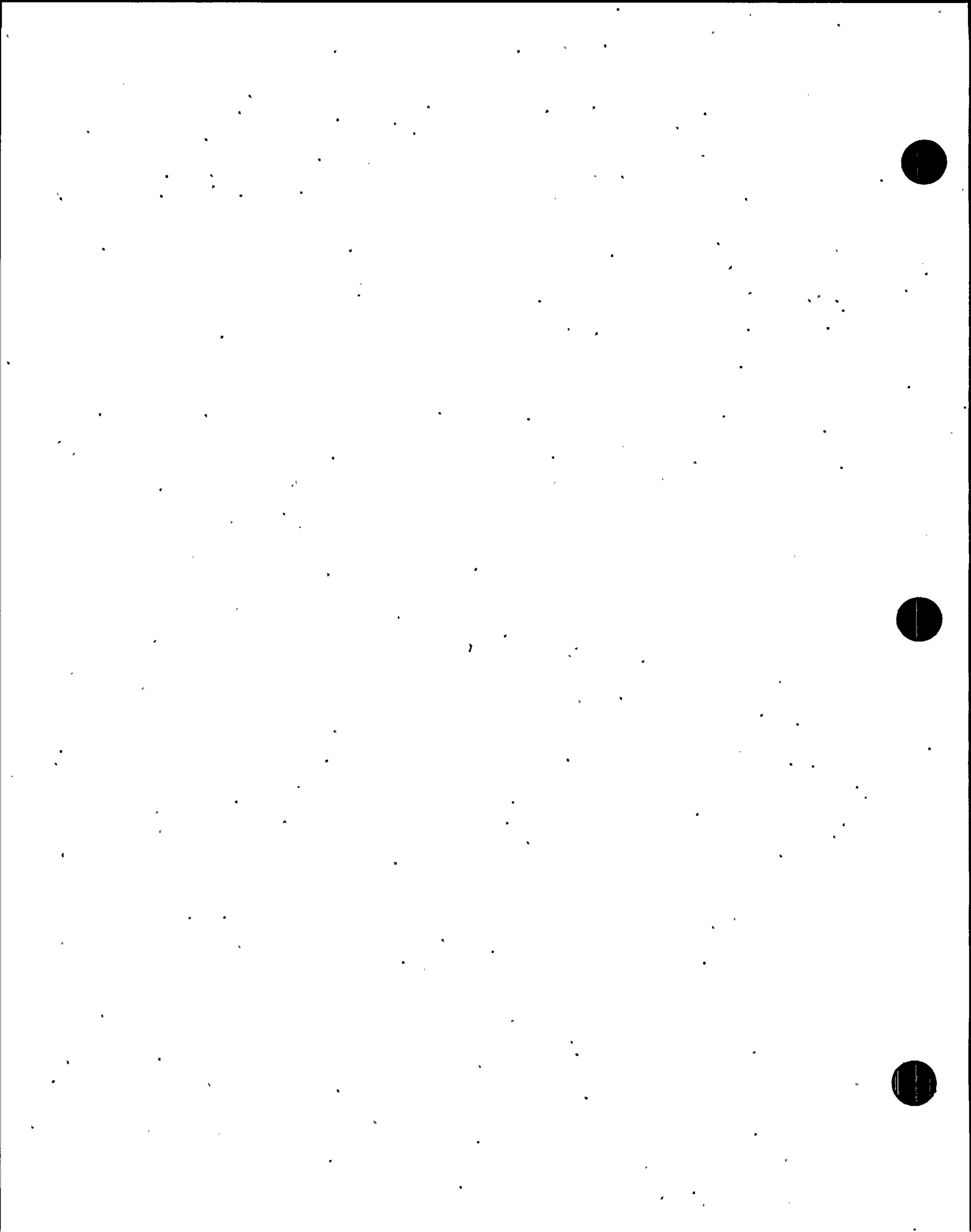
The following conditions exist:

- Unit 1 is in Mode 5
- RCS temperature is 190°F
- Shutdown Cooling is in service
- A large instrument air leak has occurred where the instrument air header enters the RAB

Which of the following correctly describes the response of RCS temperature as instrument air pressure degrades to 0 psig? (Assume no operator action)

RCS temperature will:

- a. decrease as full SDC flow is passed through the SDC heat exchangers.
- b. increase as CCW flow is isolated from the SDC heat exchangers.
- c. decrease as full CCW flow is passed through the SDC heat exchangers.
- d. increase as SDC flow is isolated from the SDC heat exchangers.



USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 81

Unit 2 is implementing 2-EOP-4. Both Steam Generators have been identified as being faulted. Which of the following parameters will be the deciding factor as to which steam generator will be isolated?

- a. Steam generator activity
- b. Steam generator pressure
- c. Steam generator level
- d. Main steam line monitor activity



USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 82

The following conditions exist:

- Unit 1 is at 100% power
- Pressurizer level control channel X is selected for level control
- The low level cutout switch is selected to "Both"
- LT-1110X has failed low

Which of the following correctly describes the response of the system if no operator action is taken?

Actual pressurizer level will:

- a. increase, all heaters will de-energize and pressurizer pressure will be controlled by the main sprays.
- b. decrease, all heaters will energize and pressurizer pressure will be controlled by the heaters.
- c. increase, all heaters will energize and pressurizer pressure will be controlled by the heaters.
- d. decrease, all heaters will de-energize and pressurizer pressure will be controlled by the main sprays.

USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 83

The following conditions exist:

- Unit 2 is at 100% power
- The RO has just filled 2B1 SIT 2% using the 2B HPSI pump
- Chemistry has been notified to sample 2B1 SIT
- Performance Group has been notified to perform Data Sheet 25 of OP 2-0010125A, "Surveillance Data Sheets"

Which of the following correctly describes the reason Data Sheet 25 is performed after filling 2B1 Safety Injection Tank?

To ensure no leakage leakage from the:

- a. 2B1 SIT to the RWT
- b. ECCS to the 2B1 SIT
- c. RCS to the 2B1 SIT
- d. RCS to the ECCS





USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 84

The following conditions exist:

- Unit 2 is in Hot Standby
- A loss of offsite power occurred two hours ago
- System reports that power could be unavailable for up to 24 hours
- The TSC has recommended a cooldown to shutdown cooling entry conditions

If the procedurally recommended cooldown rate is used during this evolution, which of the following is the approximate amount of condensate that will be used from time of trip to shutdown cooling entry conditions?

- a. 73,000 gallons
- b. 78,000 gallons
- c. 96,000 gallons
- d. 120,000 gallons

USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 85

The following conditions exist:

- Unit 2 tripped from 100% power due to a LOOP
- The 2A Emergency Diesel Generator tripped on overspeed
- SPTAs are complete

Which one of the following is the method the board RO would use to maintain RCS heat removal from the PACB?

- a. "A" atmospheric steam dump in Auto/Manual, "B" atmospheric steam dump in Auto/Manual.
- b. "A" atmospheric steam dump in Manual/Manual, "B" atmospheric steam dump in Auto/Auto.
- c. "A" atmospheric steam dump in Auto/Auto, "B" atmospheric steam dump in Manual/Manual.
- d. "A" atmospheric steam dump in Auto/Auto, "B" atmospheric steam dump in Auto/Auto.

USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 86

Which of the following describes the Unit 2 Incore Neutron Monitoring System?

The Unit 2 Incore Neutron Monitoring System consists of:

- a. 225 Rhodium detectors and 45 Core Exit Thermocouples which both provide values that are printed out on the DDPS.
- b. 280 Rhodium detectors and 56 Core Exit Thermocouples, only the Rhodium detectors provide values that are printed out on the DDPS.
- c. 180 Rhodium detectors and 45 Core Exit Thermocouples which both provide values that are printed out on the DDPS.
- d. 224 Rhodium detectors and 56 Core Exit Thermocouples, only the Rhodium detectors provide values that are printed out on the DDPS.



USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 87

Which of the following Unit 1 ventilation systems would change flowpaths if associated Area Radiation Monitor(s) went into high alarm?

- a. Fuel Pool Ventilation System
- b. Control Room Ventilation System
- c. Containment Purge Ventilation System
- d. Reactor Auxiliary Building Ventilation System

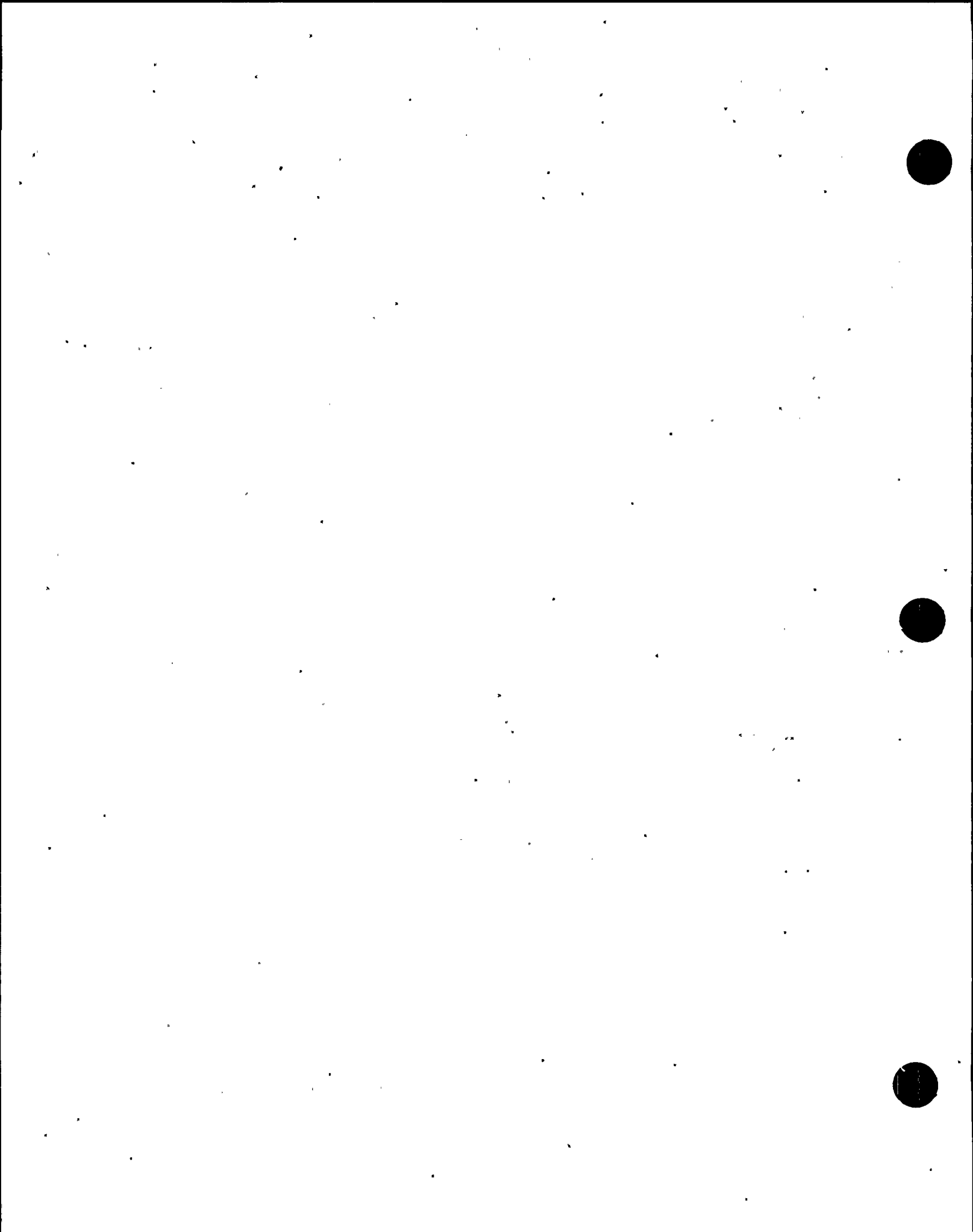


## USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 88

Which of the following EOP directed evolutions would warrant the use of the "AB" bypass switch on the Unit 1 Auxiliary Feedwater System (AFW) portion of RTGB 102? (Assume all plant equipment operable)

- a. Resetting AFW after steam generator levels have reached the AFAS reset level.
- b. Manual initiation of AFAS after lockout when cooling down with an isolated steam generator.
- c. Isolation of a steam generator when performing 1-EOP-99, Appendix R.
- d. Placing the AFW system in service manually after a trip from low power and steam generator levels did not reach AFAS actuation setpoint.





USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 89

The following conditions exist:

- All feedwater on Unit 1 has been lost
- Both steam generators are dry
- Once through cooling is being implemented
- 1A Main Feedwater pump has been started and a flowpath to both steam generators is available
- Neither steam generator is faulted

Which of the following correctly describes the action required to be taken by the control room crew prior to terminating once through cooling?

- a. Feed both steam generators to 15% narrow range level.
- b. Feed one steam generator to 15% narrow range level.
- c. Feed both steam generators to 40% wide range level.
- d. Feed one steam generator to 40% wide range level.

USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 90

Unit 2 is at 100% power, steady state. Instrument air has been isolated to the CCW to letdown heat exchanger temperature control valve (TCV-2223). Assuming no automatic or operator action, which of the following correctly describes the response of RCS temperature and the reason for the response?

RCS temperature will:

- a. increase due to higher CVCS temperature entering the CVCS ion exchangers.
- b. decrease due to lower CVCS temperature entering the CVCS ion exchangers.
- c. increase due to lower CVCS temperature entering the CVCS ion exchangers.
- d. decrease due to higher CVCS temperature entering the CVCS ion exchangers.



## USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 91

Unit 2 is returning from a refueling outage and is in the process of a plant heatup. The RO has been instructed by the ANPS to start 2A1 RCP. The RO notifies the ANPS that the yellow permissive light on the 2A1 RCP is not illuminated. Other than power to the breaker, which of the following parameters are measured to ensure the RCP start permissive is enabled?

The 2A1 RCP must have sufficient:

- a. oil lift pump flow and component cooling water flow.
- b. component cooling water pressure and oil lift pump flow.
- c. oil lift pump pressure and component cooling water pressure.
- d. component cooling water flow and oil lift pump pressure.

USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 92

The following conditions exist:

- Unit 1 is at 85% power
- 1B1 Circulating Water pump (CWP) has tripped for an unknown reason
- The RO places the 1B1 Circulating Water pump control switch in the "pull-to-drain" position

Which of the following describes the configuration of the 1B1 Circulating Water train after the "pull-to-drain" shutdown is complete?

- a. 1B1 CWP discharge valve full open, 1B1 waterbox outlet valve closed.
- b. 1B1 waterbox outlet valve open, 1B1 CWP discharge valve closed.
- c. 1B1 CWP discharge valve full open, 1B1 waterbox outlet valve open.
- d. 1B1 waterbox outlet valve closed, 1B1 CWP discharge valve 30% open.



USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 93

Unit 1 is in the process of a plant heatup. A bubble is being drawn in the pressurizer and level has just come on scale (98%). Which one of the following components is procedurally operated/manipulated and will dictate the rate of level decrease in the pressurizer during this evolution?

- a. pressurizer spray
- b. letdown level control valves
- c. letdown backpressure control valves
- d. charging pumps





USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 94

The following conditions exist:

- Unit 1 is at 98% power, returning from a SNO
- The RO is withdrawing CEAs in manual individual from 133" to UEL
- The upper electrical limit reed switch for CEA #10 has failed

Which of the following correctly describes the mechanism/signal in place to stop motion and prevent equipment damage as CEA #10 is fully withdrawn?

CEA #10 motion will be stopped by a:

- a. back-up stop signal from the DDPS.
- b. mechanical stop installed on the CEDM.
- c. back-up stop signal from the CEAPDS.
- d. second upper electrical limit reed switch.

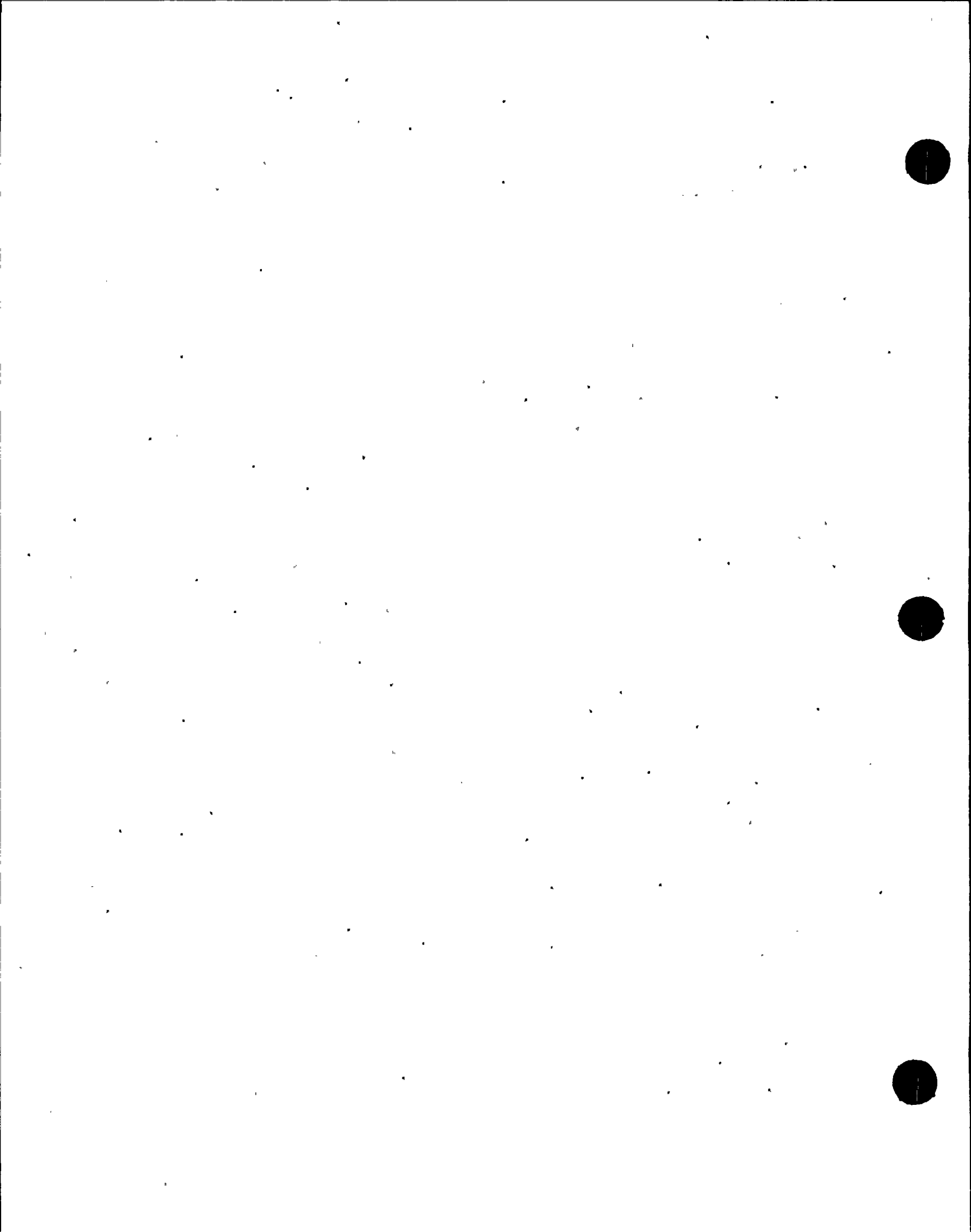


## USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 95

Which of the following ventilation systems, if placed out of service for an extended period of time, would prohibit entry into containment at power?

- a. Unit 1 Radioactivity Removal System (HVE 1 & 2)
- b. Unit 2 Containment Purge System (2-HVE 8A & 8B)
- c. Unit 1 Containment Purge System (1-HVE 8A & 8B)
- d. Unit 2 Hydrogen Purge System (HVE 7A & 7B)



## USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 96

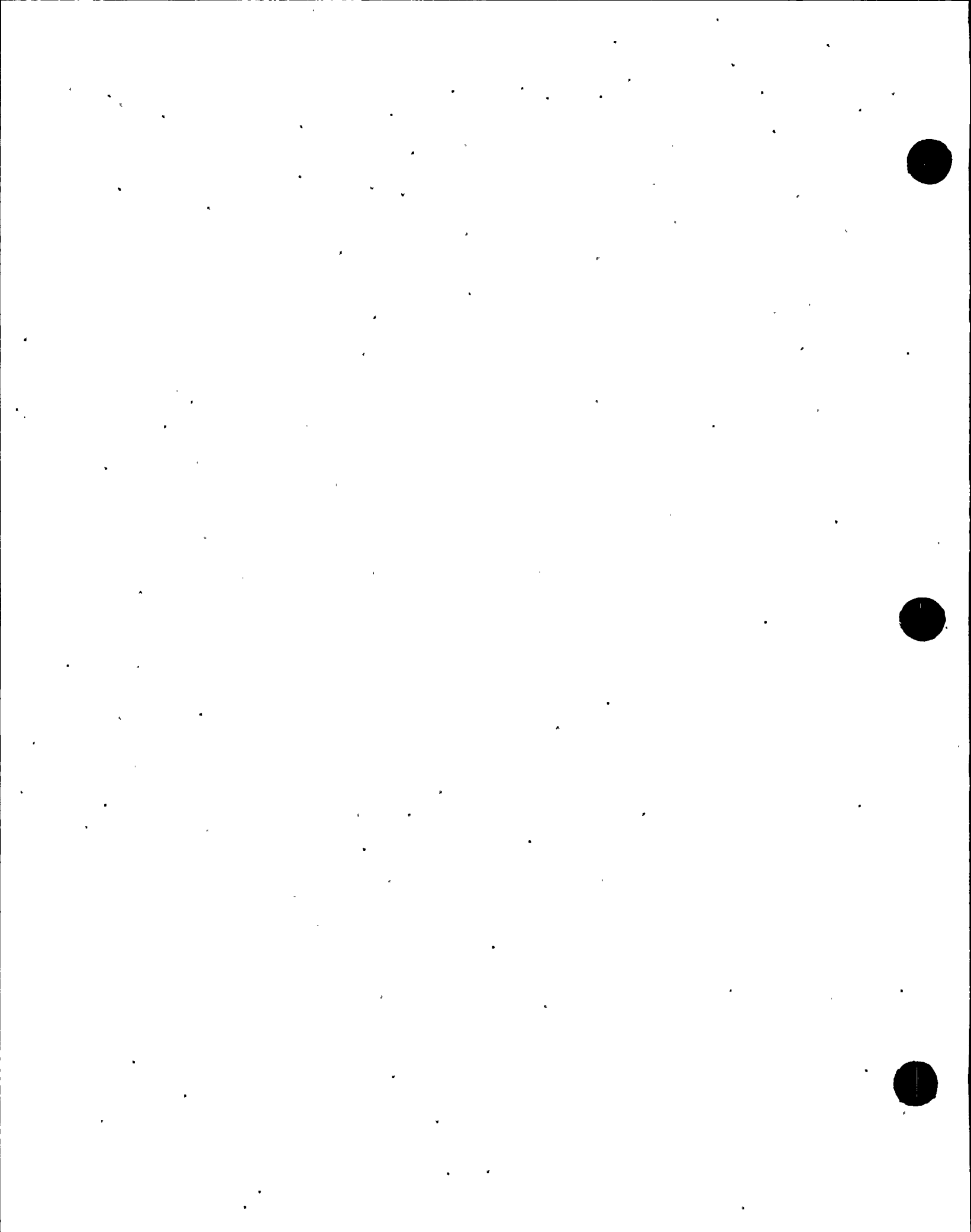
The following conditions exist:

- 2B ICW pump has tripped from an electrical fault
- The ANPO has aligned the 2C ICW pump to the 2B ICW header
- 2C ICW pump has been started and is running
- 2B ICW pump control switch is in the pull-to-lock position
- No other operator actions have been performed

If a Loss of Offsite Power were to occur with the ICW system in the present configuration, which of the following correctly describes the status of the 2C ICW pump after the Emergency Diesel Generators start and load on their respective busses?

2C ICW pump:

- a. has automatically started and is being powered by the 2A Emergency Diesel Generator.
- b. has not automatically started, and should not be manually started due to diesel loading concerns.
- c. has automatically started and is being powered by the 2B Emergency Diesel Generator.
- d. has not automatically started, and cannot be manually started until the AB power supply is realigned.



## USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 97

Unit 2 is in mode 5 preparing to drain the RCS for nozzle dam installation. According to 2-NOP-03.05, "Shutdown Cooling Normal Operation", shutdown cooling flow must be maintained at a MINIMUM of 3000 gpm to:

- a. prevent shutdown cooling suction vortexing in the RCS hot legs.
- b. ensure that both LPSI pumps flows are  $\geq 800$  gpm.
- c. prevent an RCS dilution event.
- d. ensure adequate heat removal with minimum RCS inventory.

USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

QUESTION 98

Which of the following conditions would cause FCV-15-7 and FCV-25-8 (containment vacuum relief valves) to open? (Assume all plant equipment operating properly)

- a. During a surveillance run of the Shield Building Ventilation System, annulus to containment  $\Delta P$  reaches 4" H<sub>2</sub>O.
- b. Instrument air to FCV-15-7 and FCV-15-8 accumulators has been isolated.
- c. An inadvertent Containment Spray actuation during normal operations has occurred and containment to annulus  $\Delta P$  reaches 3" H<sub>2</sub>O.
- d. 125 V DC power to to FCV-15-7 and FCV-15-8 solenoid valves has been de-energized.

*Deleted*



## USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 99

Unit 1 is in Mode 6, core reload in progress. Due to an Equipment Clearance Order error, instrument air to containment has been isolated. Which of the following would be an immediate concern if instrument air is not restored?

- a. Shutdown Cooling operation
- b. Steam Generator nozzle dam integrity
- c. Containment sump level indication
- d. Fuel Movement



## USNRC REACTOR OPERATOR INITIAL LICENSE EXAMINATION

### QUESTION 100

The Site has been placed under a Hurricane Warning, and the NPS has declared an Unusual Event. He has tasked you, the Unit 1 RO, with making the State notification call. ALL phone lines are down due to high winds. While using the Hot Ring Down Phone, you get no response from State Warning Point (SWP). Which of the following is the next proper course of action in accordance with EPIP-02, "Duties and Responsibilities of the Emergency Coordinator"?

Contact SWP via the:

- a. Hot Ringdown Phone in the Unit 2 control room.
- b. ENS phone in the Unit 1 control room.
- c. ESATCOM system in the Unit 1 control room.
- d. Local Government Radio in the Unit 1 control room.

REVISION NO.:

4

PROCEDURE TITLE:

CONTROL ROOM INACCESSIBILITY

PAGE:

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PROCEDURE NO.:

2-ONP-100.02

ST. LUCIE UNIT 2

**FIGURE 3  
TIME UNTIL SHUTDOWN COOLING REQUIRED VS  
CONDENSATE AVAILABILITY**

**NOTE**

Condensate required by this Figure should be combined with the condensate required by Figure 4 to determine condensate required to cool down to SDC entry temperature.

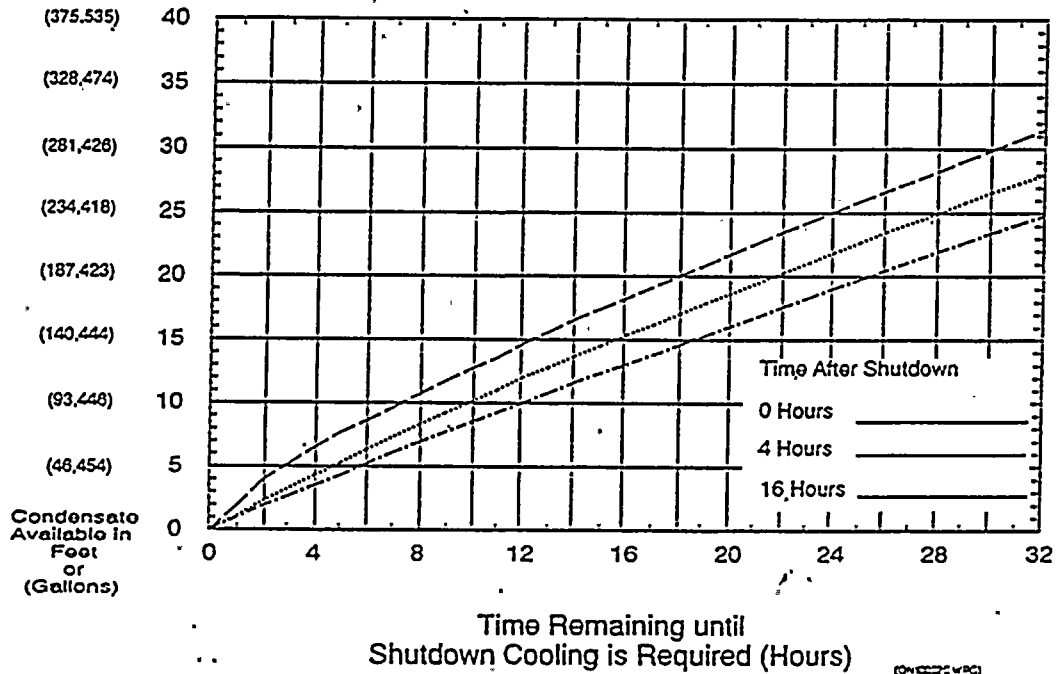
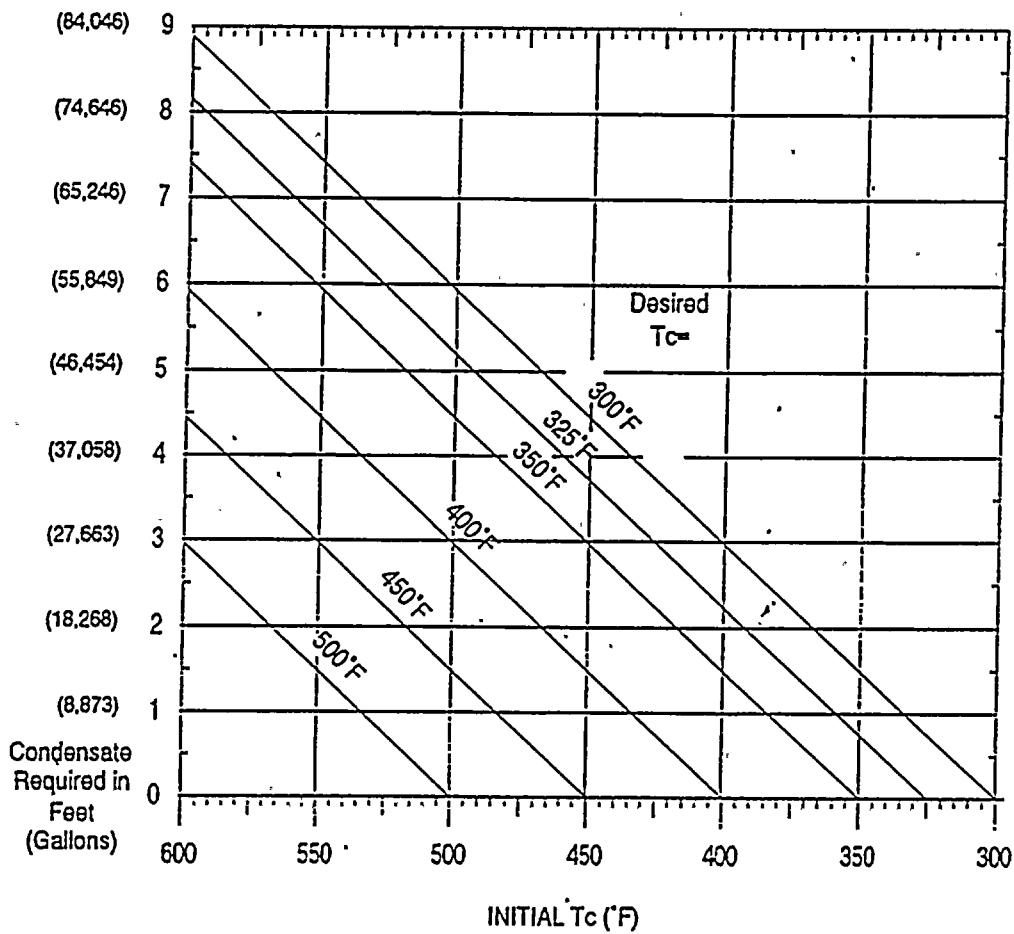


FIGURE 4  
CONDENSATE REQUIRED FOR COOLDOWN  $T_c$

**NOTE**  
Condensate required by this figure should be combined with the condensate required by Figure 3 to determine condensate required to cool down to SDC entry temperature.



(ON10002D.WPG)

U.S. Nuclear Regulatory Commission  
St. Lucie Nuclear Plant  
Reactor Operator  
Answer Key

1. A

2. D

3. A

4. B

5. D

6. D

7. D

8. C

9. D

10. C

11. D

12. C

13. B

14. C

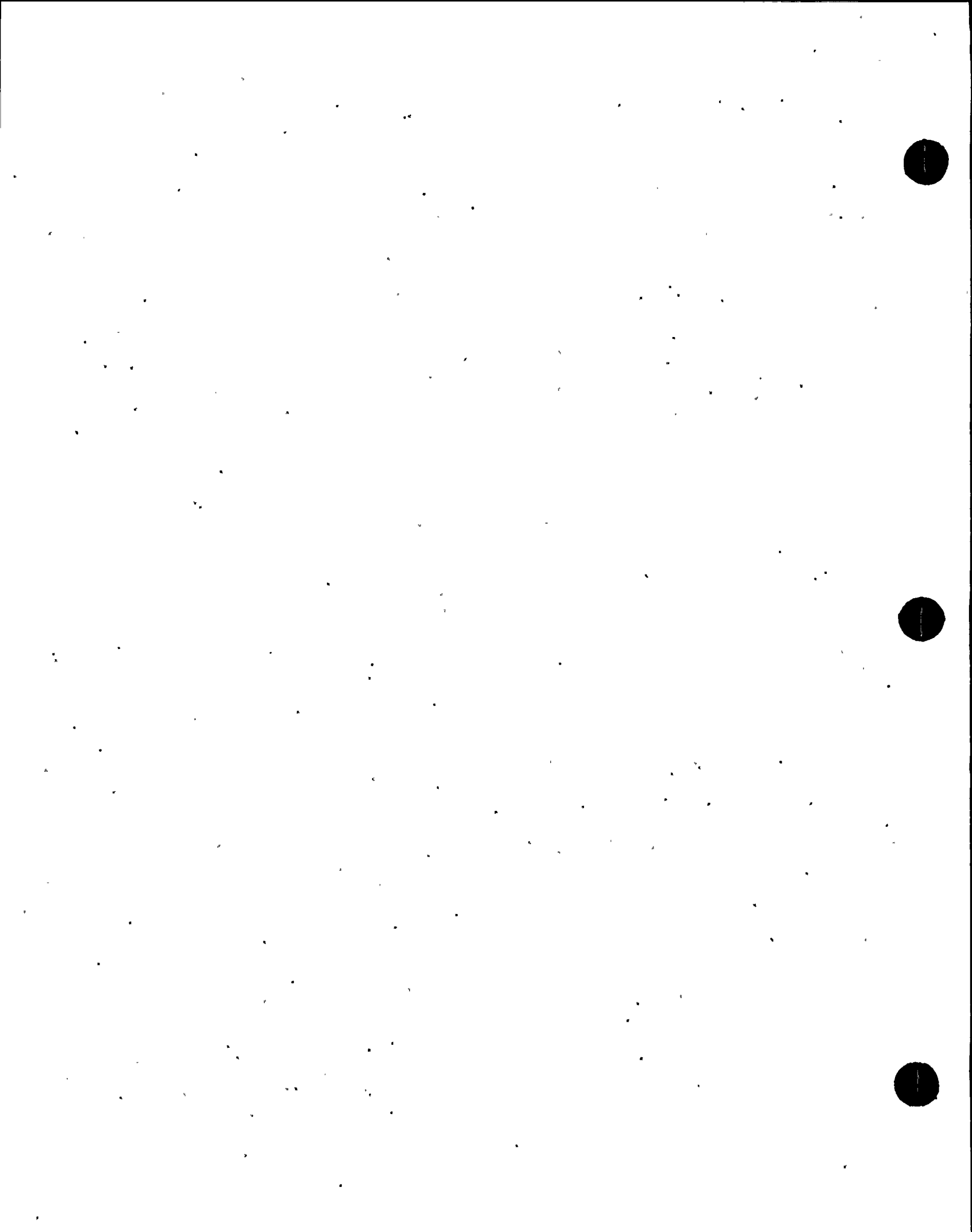
15. A

16. A

17. B

18. C

19. D



U.S. Nuclear Regulatory Commission  
St. Lucie Nuclear Plant  
Reactor Operator  
Answer Key

20. B

21. D

22. A *or C*

23. D

24. B

25. B

26. D

27. B

28. A

29. B

30. C

31. B

32. A

33. C

34. D

35. D

36. B

37. C

38. B



**U.S. Nuclear Regulatory Commission  
St. Lucie Nuclear Plant  
Reactor Operator  
Answer Key**

39. B

40. A

41. C

42. C

43. A

44. D

45. B

46. B

47. D

48. A

49. D

50. D

51. D

52. C

53. C

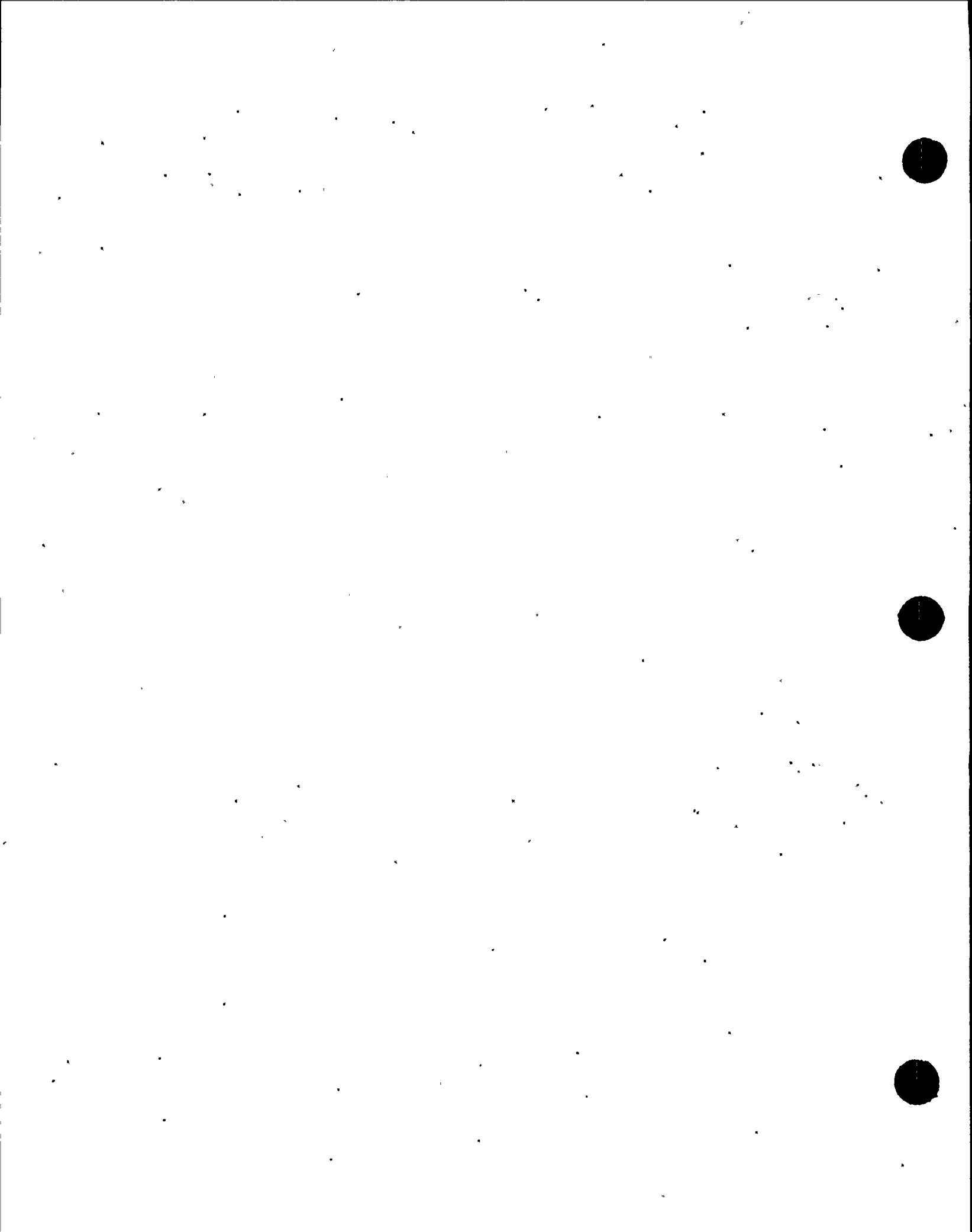
54. C

55. C

56. C

57. B

58. A



U.S. Nuclear Regulatory Commission  
St. Lucie Nuclear Plant  
Reactor Operator  
Answer Key

59. C

60. B

~~61. C~~ <sup>126</sup>  
*126*

62. A

63. C

64. B

65. D

66. A

67. C

68. A

69. A

70. B

71. C

72. B

73. B

74. B

75. B

76. D

77. D *or A*

78. B



U.S. Nuclear Regulatory Commission  
St. Lucie Nuclear Plant  
Reactor Operator  
Answer Key

79. D

80. D

81. A

82. A

83. D

84. C (Reference needed for exam)

85. C

86. D

87. B

88. C

89. D

90. D

91. C

92. A

93. C

94. D

95. D

96. B

97. C

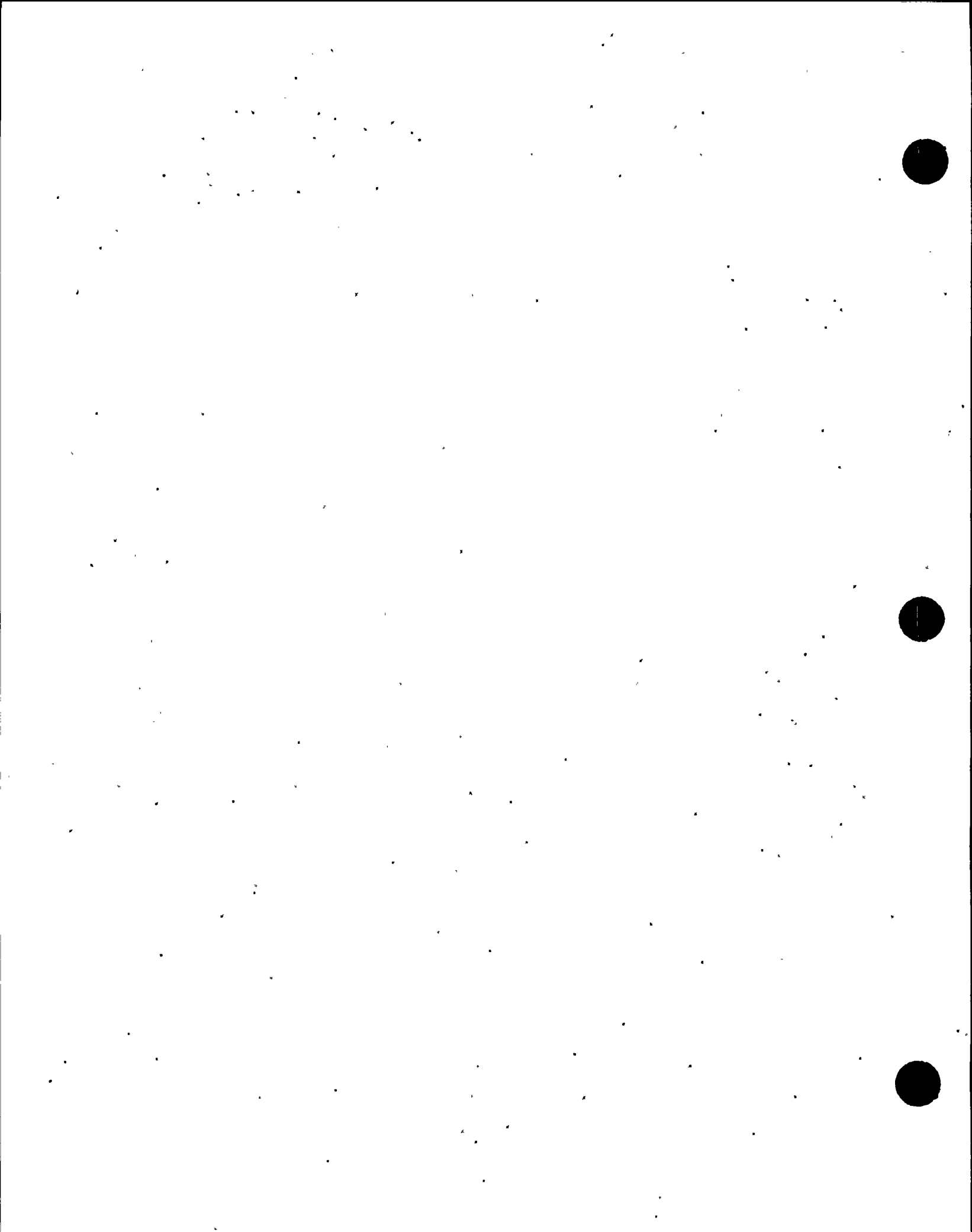
98. C

*1.2.15*  
*rechecked*

U.S. Nuclear Regulatory Commission  
St. Lucie Nuclear Plant  
Reactor Operator  
Answer Key

99. D

100. C



=0=	=1=	=2=	=3=	=4=	=5=	=6=	=7=	=8=	=9=
=0=	=1=	=2=	=3=	=4=	=5=	=6=	=7=	=8=	=9=
=0=	=1=	=2=	=3=	=4=	=5=	=6=	=7=	=8=	=9=
=0=	=1=	=2=	=3=	=4=	=5=	=6=	=7=	=8=	=9=
=0=	=1=	=2=	=3=	=4=	=5=	=6=	=7=	=8=	=9=
=0=	=1=	=2=	=3=	=4=	=5=	=6=	=7=	=8=	=9=
=0=	=1=	=2=	=3=	=4=	=5=	=6=	=7=	=8=	=9=
=0=	=1=	=2=	=3=	=4=	=5=	=6=	=7=	=8=	=9=
=0=	=1=	=2=	=3=	=4=	=5=	=6=	=7=	=8=	=9=
=0=	=1=	=2=	=3=	=4=	=5=	=6=	=7=	=8=	=9=

WRITE I.D. NUMBER HERE

MARK I.D. NUMBER HERE

=0=	=1=	=2=	=3=	=4=	=5=	=6=	=7=	=8=	=9=
=0=	=1=	=2=	=3=	=4=	=5=	=6=	=7=	=8=	=9=
=0=	=1=	=2=	=3=	=4=	=5=	=6=	=7=	=8=	=9=
=0=	=1=	=2=	=3=	=4=	=5=	=6=	=7=	=8=	=9=
=0=	=1=	=2=	=3=	=4=	=5=	=6=	=7=	=8=	=9=
=0=	=1=	=2=	=3=	=4=	=5=	=6=	=7=	=8=	=9=
=0=	=1=	=2=	=3=	=4=	=5=	=6=	=7=	=8=	=9=
=0=	=1=	=2=	=3=	=4=	=5=	=6=	=7=	=8=	=9=
=0=	=1=	=2=	=3=	=4=	=5=	=6=	=7=	=8=	=9=
=0=	=1=	=2=	=3=	=4=	=5=	=6=	=7=	=8=	=9=

WRITE I.D. NUMBER HERE

MARK I.D. NUMBER HERE

PART 1  
CODE I.D. NUMBER AT LEFT BY FILLING IN THE APPROPRIATE BOXES ACCORDING TO THE EXAMPLE.

NKS	C1 KEY	SP	NE	C2 KEY
1	A	B	C	D
2	A	B	C	D
3	A	B	C	D
4	A	B	C	D
5	A	B	C	D
6	A	B	C	D
7	A	B	C	D
8	A	B	C	D
9	A	B	C	D
10	A	B	C	D
11	A	B	C	D
12	A	B	C	D
13	A	B	C	D
14	A	B	C	D
15	A	B	C	D
16	A	B	C	D
17	A	B	C	D
18	A	B	C	D
19	A	B	C	D
20	A	B	C	D
21	A	B	C	D
22	A	B	C	D
23	A	B	C	D
24	A	B	C	D
25	A	B	C	D
26	A	B	C	D
27	A	B	C	D
28	A	B	C	D
29	A	B	C	D
30	A	B	C	D
31	A	B	C	D
32	A	B	C	D
33	A	B	C	D
34	A	B	C	D
35	A	B	C	D
36	A	B	C	D
37	A	B	C	D
38	A	B	C	D
39	A	B	C	D
40	A	B	C	D
41	A	B	C	D
42	A	B	C	D
43	A	B	C	D
44	A	B	C	D
45	A	B	C	D
46	A	B	C	D
47	A	B	C	D
48	A	B	C	D
49	A	B	C	D
50	A	B	C	D
51	A	B	C	D
52	A	B	C	D
53	A	B	C	D
54	A	B	C	D
55	A	B	C	D
56	A	B	C	D
57	A	B	C	D
58	A	B	C	D
59	A	B	C	D
60	A	B	C	D
61	A	B	C	D
62	A	B	C	D
63	A	B	C	D
64	A	B	C	D
65	A	B	C	D
66	A	B	C	D
67	A	B	C	D
68	A	B	C	D
69	A	B	C	D
70	A	B	C	D
71	A	B	C	D
72	A	B	C	D
73	A	B	C	D
74	A	B	C	D
75	A	B	C	D
76	A	B	C	D
77	A	B	C	D
78	A	B	C	D
79	A	B	C	D
80	A	B	C	D
81	A	B	C	D
82	A	B	C	D
83	A	B	C	D
84	A	B	C	D
85	A	B	C	D
86	A	B	C	D
87	A	B	C	D
88	A	B	C	D
89	A	B	C	D
90	A	B	C	D
91	A	B	C	D
92	A	B	C	D
93	A	B	C	D
94	A	B	C	D
95	A	B	C	D
96	A	B	C	D
97	A	B	C	D
98	A	B	C	D
99	A	B	C	D
100	A	B	C	D

**IMPORTANT**

USE NO. 2 PENCIL ONLY

- MAKE DARK MARKS
- EXAMPLE: A B C D
- ERASE COMPLETELY TO CHANGE

NAME RO KEY

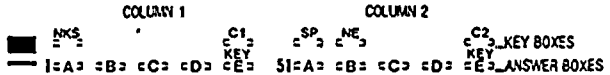
SUBJECT \_\_\_\_\_

HOUR \_\_\_\_\_ DATE \_\_\_\_\_

**KEY MARKING INSTRUCTIONS**

This form is used for:  
a) Program Key  
b) Test Answer Sheet

When used as Program Key, you can control the results depending on which Key Boxes are marked.



Marking a Key Box or Combination of Key Boxes produces the following scoring and error marking results:

NKS	No score printed on Key
C1 KEY	Prints score and error marks for column 1.
C1 KEY NE	Prints score for column 1 with no error marks.
C2 KEY	Prints score and error marks for column 2.
C2 KEY NE	Prints score for column 2 with no error marks.
C1 C2 KEY KEY	Prints total score and error marks for columns 1 and 2.
C1 C2 KEY KEY NE	Prints total score for columns 1 and 2 with no error marks.
C1 C2 KEY KEY SP	Prints separate scores for columns 1 and 2 with no error marks.

After marking the appropriate Key Boxes, mark correct answers on your program key.



00	01	02	03	04	05	06	07	08	09	
00	01	02	03	04	05	06	07	08	09	
00	01	02	03	04	05	06	07	08	09	
00	01	02	03	04	05	06	07	08	09	
00	01	02	03	04	05	06	07	08	09	
00	01	02	03	04	05	06	07	08	09	
00	01	02	03	04	05	06	07	08	09	
00	01	02	03	04	05	06	07	08	09	
00	01	02	03	04	05	06	07	08	09	
00	01	02	03	04	05	06	07	08	09	
00	01	02	03	04	05	06	07	08	09	

WRITE I.D. NUMBER HERE

MARK I.D. NUMBER HERE

00	01	02	03	04	05	06	07	08	09	7
00	01	02	03	04	05	06	07	08	09	9
00	01	02	03	04	05	06	07	08	09	4
00	01	02	03	04	05	06	07	08	09	0
00	01	02	03	04	05	06	07	08	09	6
00	01	02	03	04	05	06	07	08	09	8
00	01	02	03	04	05	06	07	08	09	5
00	01	02	03	04	05	06	07	08	09	3
00	01	02	03	04	05	06	07	08	09	2
00	01	02	03	04	05	06	07	08	09	1

WRITE I.D. NUMBER HERE

MARK I.D. NUMBER HERE

PART 2  
CODE I.D. NUMBER AT LEFT BY FILLING IN THE APPROPRIATE BOXES ACCORDING TO THE EXAMPLE.

FEED THIS DIRECTION

	NKS	C1 KEY	SP	NE	C2 KEY
101	A	B	C	D	E
102	A	B	C	D	E
103	A	B	C	D	E
104	A	B	C	D	E
105	A	B	C	D	E
106	A	B	C	D	E
107	A	B	C	D	E
108	A	B	C	D	E
109	A	B	C	D	E
110	A	B	C	D	E
111	A	B	C	D	E
112	A	B	C	D	E
113	A	B	C	D	E
114	A	B	C	D	E
115	A	B	C	D	E
116	A	B	C	D	E
117	A	B	C	D	E
118	A	B	C	D	E
119	A	B	C	D	E
120	A	B	C	D	E
121	A	B	C	D	E
122	A	B	C	D	E
123	A	B	C	D	E
124	A	B	C	D	E
125	A	B	C	D	E
126	A	B	C	D	E
127	A	B	C	D	E
128	A	B	C	D	E
129	A	B	C	D	E
130	A	B	C	D	E
131	A	B	C	D	E
132	A	B	C	D	E
133	A	B	C	D	E
134	A	B	C	D	E
135	A	B	C	D	E
136	A	B	C	D	E
137	A	B	C	D	E
138	A	B	C	D	E
139	A	B	C	D	E
140	A	B	C	D	E
141	A	B	C	D	E
142	A	B	C	D	E
143	A	B	C	D	E
144	A	B	C	D	E
145	A	B	C	D	E
146	A	B	C	D	E
147	A	B	C	D	E
148	A	B	C	D	E
149	A	B	C	D	E
150	A	B	C	D	E
151	A	B	C	D	E
152	A	B	C	D	E
153	A	B	C	D	E
154	A	B	C	D	E
155	A	B	C	D	E
156	A	B	C	D	E
157	A	B	C	D	E
158	A	B	C	D	E
159	A	B	C	D	E
160	A	B	C	D	E
161	A	B	C	D	E
162	A	B	C	D	E
163	A	B	C	D	E
164	A	B	C	D	E
165	A	B	C	D	E
166	A	B	C	D	E
167	A	B	C	D	E
168	A	B	C	D	E
169	A	B	C	D	E
170	A	B	C	D	E
171	A	B	C	D	E
172	A	B	C	D	E
173	A	B	C	D	E
174	A	B	C	D	E
175	A	B	C	D	E
176	A	B	C	D	E
177	A	B	C	D	E
178	A	B	C	D	E
179	A	B	C	D	E
180	A	B	C	D	E
181	A	B	C	D	E
182	A	B	C	D	E
183	A	B	C	D	E
184	A	B	C	D	E
185	A	B	C	D	E
186	A	B	C	D	E
187	A	B	C	D	E
188	A	B	C	D	E
189	A	B	C	D	E
190	A	B	C	D	E
191	A	B	C	D	E
192	A	B	C	D	E
193	A	B	C	D	E
194	A	B	C	D	E
195	A	B	C	D	E
196	A	B	C	D	E
197	A	B	C	D	E
198	A	B	C	D	E
199	A	B	C	D	E
200	A	B	C	D	E

Please refer to key marking instructions on front.

(T) (F) (T) (F)