



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II  
101 MARIETTA STREET, N.W.  
ATLANTA, GEORGIA 30326

ENCLOSURE 1

EXAMINATION REPORT - 50-321/92-300

Facility Licensee: Georgia Power Company  
P. O. Box 1295  
Birmingham, AL 35201

Facility Name: Hatch Nuclear Plant

Facility Docket Nos.: 50-321 and 50-366

Facility License Nos.: DPR-57 and 57-5

Examinations were administered at the Hatch Nuclear Plant near Waynesboro, Georgia.

Chief Examiner: James H. Moorman, III 3/24/92  
Date Signed

Approved By: Lawrence L. Lawyer 3/23/92  
Date Signed  
Lawrence L. Lawyer, Chief  
Operator Licensing Section 1  
Division of Reactor Safety

SUMMARY

Operating examinations were administered February 25-27, 1992. The written examination was administered February 24, 1992.

Written examinations and operating tests were administered to five Reactor Operator (RO) applicants and three Senior Reactor Operator (SRO) applicants. All applicants passed the examinations.

Evaluation of the Diesel Generator DC bus ground detection system failure modes in accordance with NRC Information Notice 88-86, Supplement 1 is identified as Inspector Followup Item 50-321/92-300-01 (Paragraph 4a). The lack of procedural guidance for a loss of the 2A 125/250 vdc bus with the plant aligned for start up or shutdown is discussed in paragraph 4b. The inclusion of non-immediate operator actions in the Immediate Actions section of Abnormal Operating Procedures is discussed in paragraph 4c.

## REPORT DETAILS

### 1. Facility Employees Attending Exit:

C. Coggin, Manager, Training and Emergency Preparedness  
S. Crosby, Operations Training Supervisor (Classroom)  
O. Fraser, Southern Nuclear Company, SAER Site Supervisor  
S. Grantham, Supervisor, Operations Training  
R. King, Engineering Supervisor  
T. Metzler, NSAC Manager (Acting)  
D. Moran, Instructor  
D. Read, Assistant General Manager - Operations  
K. Russell, Southern Nuclear Company, Nuclear Specialist  
L. Sumner, Plant Manager  
P. Wells, Operations Manager (Acting)

### 2. Examiners:

\*J. Moorman, Senior Examiner, Region II  
J. Bartley, License Examiner, Region II  
B. Holbrook, License Examiner, Region II  
L. Lawyer, Chief, Operator Licensing Section 1  
M. Daniels, License Examiner, Sonalysts, Inc.

\*Chief Examiner

### 3. Others attending the exit meeting

L. Wert, Senior Resident Inspector

### 4. Discussion

- a. NRC Information Notice 88-86, supplement 1 identified a previously unidentified potential failure mode of DC distribution systems. In this failure mode, DC grounds can cause equipment to fail in the energized state instead of the deenergized state necessary to satisfy protection system performance. Plant Hatch's Diesel Generator DC system is nearly the same as that discussed in the Information Notice supplement. It appears that the licensee has not evaluated the failure modes for the Diesel Generator DC bus discussed in the Information Notice supplement. This will be identified as Inspector Followup Item 50-321/92-300-01.
- b. During simulator scenario validation, a scenario involving the loss of 125/250 vdc bus 2A was run. The simulator was set up in a startup/shutdown configuration with the station service buses powered from offsite power. When the 2A 125/250 vdc bus is lost, tripping power for both Reactor Feed Pump Turbines (RFPT) is also lost and the feed pumps cannot be tripped using the control board switches. The local

mechanical trip of the feed pumps is still operable. If reactor Water Level control is selected to the "B" level (the normal position) when the bus is lost, the RFPT's speed demand will go to 100% due to loss of power to the "B" Reactor Water Level Instrument. This causes the running feed pump(s) to go to 100% speed with only the local mechanical trip available. If the RFPT(s) fail to trip on mechanical overspeed, are not locally tripped by a Plant Equipment Operator, or the control room operator does not reduce pump speed using the pump controller, the RFPs will continue to flood the Reactor Vessel until operator action is taken to close the MSIVs or until pump failure occurs.

Procedural guidance does not exist for this event. A Request For Engineering Review was submitted by the training department to determine if any corrective actions are required.

- c. The Plant Hatch Abnormal Operating Procedures (AB-OPS Series) include Immediate Operator Actions. The plant policy is that operators are expected to perform both immediate and subsequent actions referencing the procedure. The policy allows the operators to perform actions without reference to a procedure, if those actions were memorized, as long as the operator follows this with a review of the appropriate procedure steps to ensure that all of the required actions were performed.

The Immediate Operator Actions section of some of the AB-OPS procedures contain some actions which require immediate operator attention and must be completed before the operator could reasonably be expected to obtain a procedure for reference. This section also contains actions which are not required to be performed in such a short time frame that obtaining a procedure would be impractical. Plant Hatch Training Department lesson plans delineate which of the "Immediate Operator Actions" need to be performed without reference to a procedure and require memorization. Mixing actions that are required to be performed immediately and those which do not need to be performed immediately and calling them all "Immediate Actions" can be confusing to the operators.

- d. The Hatch Training department has made an attempt to enhance the test items used in the Licensed Operator Requalification Program. The examiners reviewed some of the changed and newly generated material. It appeared that the changes made the material better in terms of its ability to differentiate between safe and

unsafe operators. The training department was encouraged to continue their test material enhancement program in the manner that it was being implemented.

- e. During the exam preparation week, an inspection was conducted relating to the licensees' untimely report concerning the medical condition of a licensed operator. The results of this inspection are contained in Inspection Report 50-321 and 50-366/92-06.
- f. Procedures 34SO-T48-002-2S, 31EO-EOP-103-2S and 34SO-N21-007-2S were noted in Examination Report 50-321/OL-91-01 as containing errors. New revisions of these procedures were reviewed and the items noted had been addressed.
- g. The material condition of the simulator indicated that routine maintenance is in need of improvement, possibly due to being assigned a low priority.

5. Resolution of Written Examination Comments

- a. SRO Question 2 (RO Question 3)

Facility comment accepted. The answer key has been changed.

- b. SRO Question 89 (RO Question 84)

Facility comment accepted. The answer key has been changed.

6. Exit Interview

At the conclusion of the site visit, the examiners met with representatives of the plant staff to discuss the results of the examinations. The following items, as well as those items in paragraph 4 above were discussed.

The written examination and simulator scenarios were reviewed by the Region II operator licensing team and members of the Hatch training staff February 10-14 at the Hatch site. This review helped improve the validity of the exams and helped insure smooth exam administration.

The Plant Hatch training department lesson plans for the Emergency Operating Procedures were noted as being very well written and informative.

There were some problems noted with the reference material submitted for preparation of the exam. Some of the lesson

plans were of poor copy quality. There were no lesson plans or Job Performance Measures (JPMs) submitted relating to radiation monitors. Some of the JPMs were not revised to reflect the latest revision of the procedure being implemented in the JPM.

The cleanliness and appearance of the plant was noted as being very good.

The control room operators on duty while the exams were in progress were thanked for allowing the examiners and candidates ready access to the control room and fostering an atmosphere conducive to administering exams. The Security and Health Physics staff was thanked for their assistance.

The training staff was thanked for their diligent effort during the exam review and their assistance in operating the simulator during the simulator exams and during the administration of Job Performance Measures.

There is no proprietary material contained in this report. No dissenting comments were received from the licensee.

<u>Item Number</u>	<u>Description</u>
321/92-300-01	Diesel Generator DC bus not analyzed per NRC Information Notice 88-86, Supplement 1

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

CANDIDATE'S NAME: MASTER COPY  
FACILITY: E. I. Hatch 1 & 2  
REACTOR TYPE: BWR-GE4  
DATE ADMINISTERED: 92/02/24

INSTRUCTIONS TO CANDIDATE:

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

<u>TEST VALUE</u>	<u>CANDIDATE'S SCORE</u>	<u>%</u>	
97.5			
<u>100.00</u>		<u>    </u>	TOTALS
BH 2/27/92	<u>FINAL GRADE</u>		

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

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

ANSWER SHEET

Multiple Choice (Circle or X your choice)

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

MULTIPLE CHOICE

012

MATCHING

001 a b c d \_\_\_

a \_\_\_

002 a b c d \_\_\_

b \_\_\_

~~003 a b c d~~ DELETED <sup>6/11</sup> 2/27/92

~~c \_\_\_~~ DELETED <sup>6/11</sup> 2/27/92

004 a b c d \_\_\_

d \_\_\_

005 a b c d \_\_\_

MULTIPLE CHOICE

006 a b c d \_\_\_

013 a b c d \_\_\_

007 a b c d \_\_\_

014 a b c d \_\_\_

008 MATCHING

015 a b c d \_\_\_

a \_\_\_

016 a b c d \_\_\_

b \_\_\_

017 a b c d \_\_\_

c \_\_\_

018 a b c d \_\_\_

d \_\_\_

019 a b c d \_\_\_

009 MATCHING

020 a b c d \_\_\_

a \_\_\_

021 a b c d \_\_\_

b \_\_\_

022 a b c d \_\_\_

c \_\_\_

023 a b c d \_\_\_

d \_\_\_

024 a b c d \_\_\_

MULTIPLE CHOICE

025 a b c d \_\_\_

010 a b c d \_\_\_

026 a b c d \_\_\_

011 a b c d \_\_\_

027 a b c d \_\_\_

028 a b c d \_\_\_

029 a b c d \_\_\_

A N S W E R S H E E T

Multiple Choice (Circle or X your choice)

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

030 MATCHING

\* \_\_\_\_

d \_\_\_\_

MULTIPLE CHOICE

031 a b c d \_\_\_\_

032 a b c d \_\_\_\_

033 a b c d \_\_\_\_

034 a b c d \_\_\_\_

035 a b c d \_\_\_\_

036 a b c d \_\_\_\_

037 a b c d \_\_\_\_

038 a b c d \_\_\_\_

039 a b c d \_\_\_\_

040 a b c d \_\_\_\_

041 a b c d \_\_\_\_

042 a b c d \_\_\_\_

043 a b c d \_\_\_\_

044 a b c d \_\_\_\_

045 MATCHING

a \_\_\_\_

b \_\_\_\_

c \_\_\_\_

d \_\_\_\_

MULTIPLE CHOICE

046 a b c d \_\_\_\_

047 MATCHING

a \_\_\_\_

b \_\_\_\_

c \_\_\_\_

d \_\_\_\_

MULTIPLE CHOICE

048 a b c d \_\_\_\_

049 a b c d \_\_\_\_

050 a b c d \_\_\_\_

051 a b c d \_\_\_\_

052 a b c d \_\_\_\_

053 a b c d \_\_\_\_

054 a b c d \_\_\_\_

055 MATCHING

a \_\_\_\_

b \_\_\_\_

c \_\_\_\_

d \_\_\_\_

MULTIPLE CHOICE

056 a b c d \_\_\_\_

057 a b c d \_\_\_\_



A N S W E R S H E E T

Multiple Choice (Circle or X your choice)

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

- |     |   |   |   |   |     |                |              |              |              |              |                |
|-----|---|---|---|---|-----|----------------|--------------|--------------|--------------|--------------|----------------|
| 058 | a | b | c | d | ___ | 081            | a            | b            | c            | d            | ___            |
| 059 | a | b | c | d | ___ | 082            | a            | b            | c            | d            | ___            |
| 060 | a | b | c | d | ___ | 083            | a            | b            | c            | d            | ___            |
| 061 | a | b | c | d | ___ | <del>084</del> | <del>a</del> | <del>b</del> | <del>c</del> | <del>d</del> | <del>___</del> |
| 062 | a | b | c | d | ___ | 085            | a            | b            | c            | d            | ___            |
| 063 | a | b | c | d | ___ | 086            | a            | b            | c            | d            | ___            |
| 064 | a | b | c | d | ___ | 087            | a            | b            | c            | d            | ___            |
| 065 | a | b | c | d | ___ | 088            | a            | b            | c            | d            | ___            |
| 066 | a | b | c | d | ___ | 089            | a            | b            | c            | d            | ___            |
| 067 | a | b | c | d | ___ | 090            | a            | b            | c            | d            | ___            |
| 068 | a | b | c | d | ___ | 091            | a            | b            | c            | d            | ___            |
| 069 | a | b | c | d | ___ | 092            | a            | b            | c            | d            | ___            |
| 070 | a | b | c | d | ___ | 093            | a            | b            | c            | d            | ___            |
| 071 | a | b | c | d | ___ |                |              |              |              |              |                |
| 072 | a | b | c | d | ___ |                |              |              |              |              |                |
| 073 | a | b | c | d | ___ |                |              |              |              |              |                |
| 074 | a | b | c | d | ___ |                |              |              |              |              |                |
| 075 | a | b | c | d | ___ |                |              |              |              |              |                |
| 076 | a | b | c | d | ___ |                |              |              |              |              |                |
| 077 | a | b | c | d | ___ |                |              |              |              |              |                |
| 078 | a | b | c | d | ___ |                |              |              |              |              |                |
| 079 | a | b | c | d | ___ |                |              |              |              |              |                |
| 080 | a | b | c | d | ___ |                |              |              |              |              |                |

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

## NRC RULES AND GUIDELINES FOR LICENSE EXAMINATIONS

During the administration of this examination the following rules apply:

1. Cheating on the examination means an automatic denial of your application and could result in more severe penalties.
2. After the examination has been completed, you must sign the statement on the cover sheet indicating that the work is your own and you have not received or given assistance in completing the examination. This must be done after you complete the examination.
3. Restroom trips are to be limited and only one applicant at a time may leave. You must avoid all contacts with anyone outside the examination room to avoid even the appearance or possibility of cheating.
4. Use black ink or dark pencil ONLY to facilitate legible reproductions.
5. Print your name in the blank provided in the upper right-hand corner of the examination cover sheet and each answer sheet.
6. Mark your answers on the answer sheet provided. USE ONLY THE PAPER PROVIDED AND DO NOT WRITE ON THE BACK SIDE OF THE PAGE.
7. Before you turn in your examination, consecutively number each answer sheet, including any additional pages inserted when writing your answers on the examination question page.
8. Use abbreviations only if they are commonly used in facility literature. Avoid using symbols such as < or > signs to avoid a simple transposition error resulting in an incorrect answer. Write it out.
9. The point value for each question is indicated in parentheses after the question.
10. Show all calculations, methods, or assumptions used to obtain an answer to any short answer questions.
11. Partial credit may be given except on multiple choice questions. Therefore, ANSWER ALL PARTS OF THE QUESTION AND DO NOT LEAVE ANY ANSWER BLANK.
12. Proportional grading will be applied. Any additional wrong information that is provided may count against you. For example, if a question is worth one point and asks for four responses, each of which is worth 0.25 points, and you give five responses, each of your responses will be worth 0.20 points. If one of your five responses is incorrect, 0.20 will be deducted and your total credit for that question will be 0.80 instead of 1.00 even though you got the four correct answers.
13. If the intent of a question is unclear, ask questions of the examiner only.

14. When turning in your examination, assemble the completed examination with examination questions, examination aids and answer sheets. In addition, turn in all scrap paper.
15. Ensure all information you wish to have evaluated as part of your answer is on your answer sheet. Scrap paper will be disposed of immediately following the examination.
16. To pass the examination, you must achieve a grade of 80% or greater.
17. There is a time limit of four (4) hours for completion of the examination.
18. When you are done and have turned in your examination, leave the examination area (EXAMINER WILL DEFINE THE AREA). If you are found in this area while the examination is still in progress, your license may be denied or revoked.

QUESTION: 001 (1.00)

A loss of both recirculation pumps has occurred with the plant operating at 75% power and 100% load line.

Which ONE of the following is the IMMEDIATE operator action required?

- a. Place the mode switch in shutdown.
- b. Drive control rods until power is below the 80% rod line.
- c. Commence a normal reactor shutdown.
- d. Verify operation outside the instability region and restart at least one pump.

QUESTION: 002 (1.00)

Which ONE of the following explains the control of systems from the remote shutdown panel(s)?

- a. The interlock preventing simultaneous opening of the RHR suction valves for shutdown cooling, F006 and from the torus F004 are bypassed at the Remote Shutdown Panel.
- b. The low low set function is not operable when SRV control has been transferred to the Remote Shutdown Panel.
- c. Containment isolation functions are operable for all systems operated.
- d. The Unit 2 RCIC trip throttle valve is not operable when control has been transferred to the Remote Shutdown Panel.

QUESTION: 003 (1.00)

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Which ONE of the following defines the Heat Capacity Temperature Limit for an RPV depressurization?

- a. The highest Suppression Pool temperature which will not result in exceeding the Suppression Pool design temperature.
- b. The highest Suppression Pool temperature which will not result in exceeding the Primary Containment design temperature.
- c. The highest Primary Containment temperature which will not result in exceeding the Suppression Pool design temperature.
- d. The highest Primary Containment temperature which will not result in exceeding the Primary Containment design temperature.

QUESTION: 004 (1.00)

For steam cooling the operator is directed to open \_\_\_(1)\_\_\_ safety relief valve(s) when reactor level decreases to \_\_\_\_\_(2)\_\_\_\_\_ inches.

- a. 1, -162
- b. 7, -162
- c. 1, -207
- d. 7, -207

QUESTION: 005 (1.00)

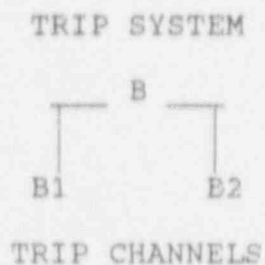
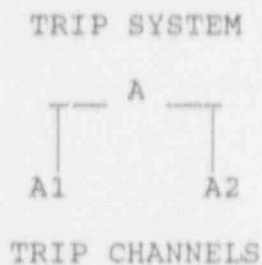
Hatch Unit 2 is operating at 95% power when a jet pump riser fails.

Which ONE of the following is the PRIMARY REASON that a plant shutdown is required by Technical Specifications and procedures?

- Invalid APRM Flow Biased SCRAM setpoints due to the change in flow through a failed jet pump
- Increased blowdown area during a Loss of Coolant Accident (LOCA)
- Unbalanced neutron flux across the core due to flow variations
- Physical core damage from a piece of a damaged jet pump

QUESTION: 006 (1.00)

Which ONE of the following trip channel conditions (A - B) from the Reactor Protection System shown in the diagram below will result in a HALF SCRAM. (Assume a "one-out-of-two taken twice" logic.)



- A1 and A2 tripped
- A1 and B2 tripped
- A1 and B1 tripped
- A2 and B1 tripped

QUESTION: 007 (1.00)

UNIT 2 has just experienced an initiation of the Automatic Depressurization System (ADS). Plant conditions are as follows:

Drywell pressure:	3.2 psig
Reactor water level:	-147 inches
All RHR pumps:	running
13 minute timer:	timed out
120 second timer:	timed out
7 ADS SRVs:	open
Main Steam pressure:	150 psig and lowering

*Both Core Spray Pump Assembly*

Which ONE of the following will cause the ADS SRVs to close?

- Reactor water level increases to -20 inches.
- Reactor pressure decreases to 25 psig.
- Resetting the High Drywell Pressure Bypass Timer
- Securing 4 RHR or both Core Spray pumps.

QUESTION: 008 (2.00)

For the each component in Column A, SELECT its functional description in Column B.

(Items in Column B may be used once, more than once, or not at all. Only one answer may occupy a space in Column A).

(4 answers required 0.50 each)

COLUMN A (Components) -----	COLUMN B (Functional Description) -----
___ a. Off Gas Preheater	1. Provides time for Xenon and Krypton isotopes to decay.
___ b. Off Gas Stack Isolation Valve	2. Is an electric boiler on Unit 2
___ c. Off Gas Catalytic Recombiner	3. Reduces the levels of Hydrogen and oxygen in the off-gas flow
___ d. Loop Seal Drain Valve	4. Will shut on HI-HI-HI radiation levels from the Post Treatment Radiation Monitor
	5. Will shut on High Hydrogen levels in the off-gas flow
	6. Uses 250 psig steam on Unit 2 to heat the off-gas flow
	7. Removes Iodine isotopes from the off-gas flow.



QUESTION: 009 (2.00)

For the Reactor Pressure Vessel (RPV) Safety Limits and Design features listed in Column A, SELECT the appropriate values from Column B. (All pressures are steam dome pressures)

(Items in column B may be used once, more than once or not at all. Only one answer may occupy a space in Column A).

(4 answers required at 0.50 each)

COLUMN A (Safety Limits/Design Features) -----	COLUMN B (Values) -----
___ a. RPV heatup and cooldown limit (per hour)	1. 1375 psig
___ b. RPV high pressure scram	2. 1325 psig
___ c. RPV Design Operating Pressure	3. 1250 psig
___ d. RPV Pressure Safety Limit	4. 1120 psig
	5. 1100 psig
	6. 1054 psig
	7. 100 degrees F.
	8. 90 degrees F.
	9. 70 degrees F.

QUESTION: 010 (1.00)

Unit 2 is operating at 72% power and 58% flow, when the operator observes a loss of feedwater heating.

Which ONE of the following describes the operator action to be taken as a result of the loss of feedwater heating?

(Attachment from 34GO-OPS-005-2S is provided).

- a. Reduce power to below the minimal load line by insertion of control rods.
- b. Reduce power by reducing recirculation flow to 45% and inserting control rods as necessary to get below the 80% load line.
- c. Reduce power to 20% without reducing core flow below 45% by reducing recirculation flow or driving control rods.
- d. Reduce power by 14.4% by reducing recirculation flow, without reducing core flow below 45%

QUESTION: 011 (1.00)

Which ONE of the following describes the automatic functions or procedural requirements for an unrecoverable loss of RBCCW due to a leak in the system while operating in mode 1?

- a. Entry into the abnormal procedure IS NOT required because the actions are covered in the EOPs.
- b. The reactor should be scrammed within 2-3 minutes because the RBCCW cannot be restored.
- c. Entry into EOP flow charts IS required to implement the recovery of the Loss of RBCCW.
- d. If a scram is required then the Abnormal Procedure for Loss of RBCCW should be exited and the EOP flowcharts entered.

QUESTION: 012 (2.00)

For each power source in Column A, SELECT the immediate action listed in Column B that is required to be taken if that power source is lost. (Items in Column B may be used once, more than once, or not at all. Only one answer may occupy a space in Column A).

(4 answers required at 0.50 each)

Column I (Power Source Loss)	Column II (Immediate Action)
-----	-----
_____ a. 125/250 V DC Switchgear 2A 2R22-S016	1. Transfer 4160 V buses 2A and 2B to Startup Supply.
_____ b. 125/250 V DC Switchgear 2B 2R22-S017	2. Manually trip Reactor Recirc Pump B.
<del>_____ c. 125 V DC Essential Cabinet 2A</del> <i>DELETED BAH 3/27/92</i>	3. Secure radwaste discharge.
_____ d. 24/48V DC Cabinet 2B, 2R25-S016	4. Manually open Main Generator output breakers.
	5. Enter Loss of Instrument Bus AB-OPS.
	6. Swap CRD Flow Control Valves
	7. None

QUESTION: 013 (1.00)

Under which ONE of the following sets of conditions may the OUTBOARD Main Steam Isolation Valve Leakage Control System (MSIV-LCS) be manually initiated?

- a. Reactor pressure is less than 35 psig, all of the MSIVs are closed and Main Steam Line pressure between the Outboard MSIVs and the Main Turbine Stop Valves is less than 35 psig.
- b. Reactor pressure has been less than 35 psig for a minimum of 10 minutes, all of the MSIVs are closed and Main Steam Line pressure between the Inboard MSIVs and the Outboard MSIVs is less than 35 psig.
- c. At least 10 minutes have elapsed since the Loss of Coolant Accident (LOCA), the Outboard MSIVs are closed and pressure between the Outboard MSIVs and the Main Turbine Stop Valves and Bypass Valves is less than 35 psig.
- d. At least 10 minutes have elapsed since the Loss of Coolant Accident (LOCA), all of the MSIVs are closed and pressure between the Inboard MSIVs and Outboard MSIVs has bled down to 0 psig.

QUESTION: 014 (1.00)

Which ONE of the following is the most significant contributor to reducing power when water level is lowered during a failure to scram event.

- a. Reduces evaporative cooling thus causing fuel temperature to increase.
- b. Lowering level reduces the pressure in the core by reducing the head of water above the core.
- c. Lowering level reduces the differential pressure between the annulus and the core thus increasing the void fraction.
- d. Lowering level reduces power by increasing the subcooling of the water entering the core.

QUESTION: 015 (1.00)

Caution 2 of the EOPs states that 2B21-LI-R604A/B and 2B21-LR-R623A/B CANNOT be used to determine RPV water level during rapid RPV depressurization below 500 psig.

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

- a. At low reactor pressures the reference leg would flash due to the rapid pressure reduction.
- b. Variable leg density will decrease due to the rapid pressure reduction causing invalid readings.
- c. At low indicated levels reference leg density causes on scale indications with level below the instruments monitoring range.
- d. At low drywell temperatures the reference leg will cause erroneously high indicated levels.

QUESTION: 016 (1.00)

Under which ONE of the following conditions would the Emergency Operating Procedure require Emergency Depressurization of the reactor?

- a. Any release in excess of 1000 mr/hr in the Primary Containment and the Primary Containment cannot be isolated.
- b. Offsite release rate is 1200 mr/hr and a main steam line break in the Turbine Building cannot be isolated.
- c. Any offsite release in excess of 1000 mr/hr and an unisolatable RBCCW is discharging outside the primary and secondary containment.
- d. Any release in excess of 1000 mr/hr from the CRD system and all the 130 foot elevation radiation levels are approximately 125 mr/hr.

QUESTION: 017 (1.00)

Unit 2 is in HOT SHUTDOWN with a reactor pressure of 805 psig. Operability tests are performed on all of the MSL Radiation Monitoring System Channels, 2D11-K603 A, B, C, and D. Channels A and D test UNSAT, while Channels B and C test SAT. Maintenance has no estimate of repair time and will not be able to commence troubleshooting and repairs for 16 hours.

WHICH ONE (1) of the following actions is required by the Technical Specifications?

- a. Place both unsat channels in the tripped condition within one hour and be in COLD SHUTDOWN within the next 24 hours.
- b. Place one trip system in the tripped condition within 1 hour and be in COLD SHUTDOWN within the next 12 hours.
- c. Close the main steam isolation valves within 1 hour and be less than 210 deg F within the next 12 hours.
- d. Place one trip system in the tripped condition within one hour and be in COLD SHUTDOWN within the next 30 hours.

QUESTION: 018 (1.00)

Which ONE of the following will cause a main turbine trip following a loss of stator water cooling? (ASSUME a 18,095 amp load, prior to failure of stator water cooling.)

- a. Time since failure 4.8 minutes  
Load 5290 amps
- b. Time since failure 2.6 minutes  
Load 15230 amps
- c. Time since failure 3.2 minutes  
Load 4675 amps
- d. Time since failure 2.3 minutes  
Load 16340 amps

QUESTION: 019 (1.00)

WHICH ONE of the following describes the use of a Danger Tag?

- a. Isolates equipment from all sources of energy in order to permit work to be performed safely.
- b. Identifies equipment that requires shift supervision authorization before it is operated.
- c. Designates equipment that is to be used only during a declared emergency.
- d. Provides operator with additional information and to protect equipment.

QUESTION: 020 (1.00)

Which ONE of the following is NOT required to be worn while operating a single pole disconnect switch?

- a. Hard hat
- b. Safety glasses
- c. Rubber boots
- d. Rubber gloves

QUESTION: 021 (1.00)

Given the following plant conditions:

- Reactor Mode Switch in STARTUP/HOT STANDBY
- Main Turbine in shell warming
- RFP A is maintaining level in single element control

Which ONE of the following describes the sequence of automatic actions if condenser vacuum decreases from 27" Hg vacuum to atmospheric pressure?

- a. 1st-Main and RFP turbines trip  
2nd-MSIVs close  
3rd-Main Turbine Bypass Valves close
- b. 1st-RFP turbine trips  
2nd-Main Turbine Bypass Valves close  
3rd-Reactor scrams on low vacuum
- c. 1st-RFP Turbine trips  
2nd-Main Turbine Bypass Valves close  
3rd-Main Turbine trips
- d. 1st-Main Turbine trips  
2nd-RFP Turbine trips and Main Turbine Bypass Valves close  
3rd-MSIVs close

QUESTION: 022 (1.00)

A contractor has the need to have access to non-vital areas outside the Operating Building and Outside Structure.

Which ONE of the following is the procedure to be used to allow him access?

- a. He may be issued a key from the OSOS key cabinet if he has completed the General Employee Training.
- b. He may be issued a key by the Department Manager for whom he works if accompanied by a GPC employee.
- c. He may be issued a key from the OSOS key cabinet if he has written permission from the Operations Superintendent.
- d. He as a contract employee may not be issued a key to any area of the plant.



QUESTION: 023 (1.00)

Hatch Unit 2 has experienced a significant loss of coolant accident. Plant conditions are as follows:

- RPV Pressure 150 psig (Emergency Depressurization in progress)
- Suppression Chamber pressure 37 psig increasing
- Suppression Pool water level 312 inches

Which ONE of the following actions is required by the EOPs to control Suppression Chamber pressure?

- a. Vent the Suppression Chamber per 31EO-EOP-101-2S irrespective of offsite release rate.
- b. Initiate Suppression Pool Sprays per 34SO-E11-010-2S irrespective of adequate core cooling.
- c. Vent the Drywell per 31EO-EOP-101-2S irrespective of offsite release rate.
- d. Initiate Drywell Sprays per 34SO-E11-2S irrespective of adequate core cooling.

QUESTION: 024 (1.00)

During normal Unit 2 power operations, Drywell pneumatics (N2 makeup via Drywell pneumatics) is lost.

Which ONE of the following describes the effect this loss has on the Unit 2 MSIVs. (Assume no operator action)

- a. As nitrogen bleeds off, the inboard MSIVs will shut.
- b. As air leaks off the outboard MSIVs will shut.
- c. As nitrogen bleeds off the inboard MSIVs, the first MSIV reaching 90% open initiates a Group I isolation..
- d. No action will occur since Instrument air will automatically backup the Drywell pneumatics.

QUESTION: 025 (1.00)

Which ONE of the following will cause an isolation of the Drywell Hydrogen and Oxygen monitor sample lines?

- a. High radiation on the Drywell and Torus Gamma Radiation Monitors (138 Rem/hr)
- b. High Drywell Hydrogen concentration (10%)
- c. High Drywell temperature (280 deg F)
- d. High Drywell pressure (1.92 psig)

QUESTION: 026 (2.00)

Which ONE of the following statements is correct concerning the Unit 1 SBT system?

- a. The SBT AOVs fail as is on a loss of Station Service Air.
- b. The SBT system fans load shed on a LOSP, but may be restored after depressing the Non-essential Load Lock-out pushbutton.
- c. The SBT suction from the Drywell and Torus are both connected to the SBT system through the excess flow isolation damper.
- d. If drywell pressure exceeds 1.92 psig, the Unit 1 SBT fans will auto-start and align for suction from the Drywell.

QUESTION: 027 (1.00)

HPCI is injecting to the vessel with its suction from the CST. A high Torus water level occurs.

Which ONE of the following describes the actions which should occur to the HPCI system (Assume no operator action has been taken)

- a. HPCI suction will remain from the CST until a high CST level occurs. Then the CST suction valve (2E41-F004) will auto shut. When the CST suction valve is fully closed, the Torus suction valves (2E41-F041 and F042) will open.
- b. The CST suction valve (2E41-F004) will auto shut. When the CST suction is fully closed the Torus suction valves (2E41-F041 and F042) will auto open.
- c. The Torus suction valves (2E41-F041 and F042) should be manually opened. When the Torus suction valves are 90% of full open, the CST suction valve (2E41-F004) should be manually shut.
- d. The Torus suction valves (2E41-F041 and F042) will auto open. When the Torus suction valves are 90% of full open, the CST suction valve (2E41-F004) will automatically shut.

QUESTION: 028 (1.00)

Unit 2 is operating at rated conditions with Core Spray loop "A" in its normal standby lineup with the following exception: 2E21-F004A (outboard discharge valve) is closed. A spurious Core Spray initiation signal is received.

Which ONE of the following describes the response of the Core Spray Valves?

- a. Both 2E21-F004A and 2E21-F005A will auto open.
- b. 2E21-F004A will immediately auto open and 2E21-F005A will auto open if reactor pressure decreases to below 500 psig.
- c. 2E21-F004A will immediately auto open and 2E21-F004A will auto open if reactor pressure decreases to below 500 psig.
- d. Neither 2E21-F005A or 2E21-F005A will auto open under these conditions.

QUESTION: 029 (1.00)

Which ONE of the following describes the response of the Main Turbine EHC control system when the pressure input to pressure regulator fails while operating at near rated conditions?

- a. If the "A" pressure regulator input fails HIGH, the "B" pressure regulator takes control and closes the Turbine Control Valves slightly to maintain pressure
- b. If the "A" pressure regulator input fails LOW, a full open signal is sent to the Turbine Control valves.
- c. If the "B" regulator input fails HIGH, a full open signal is sent to the Turbine Control and Bypass valves and the MSIVs close on low pressure.
- d. If the "B" regulator input fails LOW, a full closed signal is sent to the Turbine Control Valves.

QUESTION: 030 (1.00)

Which ONE of the following DESCRIBES the FINAL STEADY STATE plant conditions after the loss of the "A" Reactor Feed Pump from 100% power. Assume no operator action and all systems perform as designed.

- a. Reactor Power 50-55%  
Reactor Water Level at normal level  
Recirculation Pumps at 44% speed  
"B" Reactor Feed Pump speed higher than before the trip of "A"
- b. Reactor Power 50-55%  
Reactor Water Level at normal level  
Recirculation Pumps at 22% speed  
"B" Reactor Feed Pump speed the same as before the trip of "A"
- c. Reactor Power 60-65%  
Reactor Water Level below normal level  
Recirculation Pumps at 22% speed  
"B" Reactor Feed Pump speed lower than before the trip of "A"
- d. Reactor Power 60-65%  
Reactor Water Level at normal level  
Recirculation Pumps at 44% speed  
"B" Reactor Feed Pump speed higher than before the trip of "A"

QUESTION: 031 (1.00)

Which ONE of the following is the Primary Containment condition which would require the initiation of a Unit 2 LCO?

- a. Mode Switch in SHUTDOWN, reactor coolant temperature 350 deg F, and Torus level is 145 inches.
- b. Mode Switch in STARTUP, reactor coolant temperature 180 deg F, and Drywell pressure is .7 psig.
- c. Mode Switch is in RUN and Drywell average air temperature is 130 deg F.
- d. Mode Switch in RUN and Torus water temperature is 97 deg F.

QUESTION: 032 (1.00)

During fuel loading on Unit 2, the grapple is loaded and the platform is over the reactor.

Which ONE of the following is an acceptable means of placing the fuel bundle in a safe condition if the reactor cavity water level begins to slowly decrease?

- a. Move the fuel bundle to the fuel pool prep machine area and lower the bundle as low as possible and leave grappled.
- b. Move the fuel bundle to the fuel pool and lower it into any open fuel storage rack in the fuel pool.
- c. Move the fuel bundle over the core and lower it into any core location that is available.
- d. Do not move the bundle laterally but lower it to the lowest position possible in the reactor cavity.

QUESTION: 033 (1.00)

A transient on unit 2 has caused reactor pressure to peak at 1095 psig. Reactor pressure is now 878 psig and decreasing. All plant equipment functioned as required.

Which ONE of the following describes the present status of the reactor pressure relief system?

- a. LLS is NOT armed; no SRVs should be open.
- b. LLS is NOT armed; SRV 2B21-F013B, C, F, and G should be open.
- c. LLS IS armed; SRV 2B21-F013B and G should be open.
- d. LLS IS armed; SRV 2B21-F013B, and C should be open.

QUESTION: 034 (1.00)

A transient has occurred on Unit 2 causing the following plant conditions:

- Reactor water level CANNOT be determined
- The reactor has scrammed and all rods have inserted beyond 02
- Only 2 SRVs can be opened
- Drywell pressure is 2.8 psig and increasing
- Reactor pressure is 830 psig and decreasing slowly
- The MSIVs are closed and cannot be opened

Which ONE of the following is the next action to be taken in accordance with the EOPs?

- a. Using all available systems, inject into the RPV until level indication is restored, all Drywell RTDs read less than 210 deg F and RPV pressure has remained at least 50 psid above suppression chamber pressure for at least the core flooding interval.
- b. Trip the Drywell cooling fans, inject with all available systems until suppression pool water level increases to 300 inches then vent the RPV using HPCI and RCIC steam lines and the main steam line drains.
- c. Rapidly depressurize the RPV using HPCI, RCIC, HPCI drains, RCIC drains, main steam line drains and RHR steam condensing, then establish steam cooling until RPV water level indication is restored, then proceed to cooldown.
- d. Prevent all injection into the RPV except for RCIC and CRD until all Drywell RT's read less than 210 deg F and RPV water level indication has been restored and water level is at least above -162 inches.

QUESTION: 035 (1.00)

Which ONE of the following plant conditions will result in the 1B Emergency Diesel Generator tying to NEITHER Unit 1 or Unit 2.

- a. Select switch is in Unit 2 and LOSP occurs to each unit.
- b. Select switch is in Unit 1 a LOCA on Unit 2 and a LOSP on Unit 1.
- c. Select switch is in Unit 2 a LOCA/LOSP on Unit 1 and LOSP on Unit 2.
- d. Select switch is in Unit 1 and a simultaneous LOCA/LOSP to both units.

QUESTION: 036 (1.00)

Unit 2 is operating at 100% power with the Off-Gas Mode Switch in AUTO. Off-Gas Post-Treatment radiation monitor channel "A" indication increases to just above the high alarm setpoint. The "B" channel reading remains normal.

Which ONE of the following explains the response of the Off-Gas components?

- a. 2N62-F057, Off-Gas Stack Isolation Valve, receives a close signal.
- b. 2N62-F042, Off-Gas Discharge to Carbon Bed Valve, receives a close signal
- c. All Off-Gas Loop Seal Drain Valves receive a close signal
- d. 2N62-F043, Off-Gas Carbon Bed Bypass Valve, receives a close signal.



QUESTION: 037 (1.00)

Both units are operating at 100% power when a transient in Unit 1 causes the Unit 1 RPV level to decrease to -50 inches.

Which ONE of the following DESCRIBES the response of the Unit 1 and Unit 2 Standby Gas Treatment Systems?

- a. Neither unit running
- b. Both units running
- c. Unit 1 running
- d. Unit 2 running

QUESTION: 038 (1.00)

Which ONE of the following will reset the ADS 120 second timer while in the process of timing out following a valid initiation signal?

- a. Drywell pressure decreases to 1.5 psig.
- b. Reactor water level increases to -90 inches.
- c. "A" and "B" core spray pumps trip off.
- d. RHR pump discharge pressure decreases to 117 psig.

QUESTION: 039 (1.00)

A loss of the 2C and 2D 4160 VAC switchgear occurs following a main turbine trip.

Which ONE of the following describes the response of the Unit 2 Reactor Recirculation MG Set lube oil system(s)?

- a. The DC Oil Pumps for each Recirc MG set will auto start and supply oil to the Motor, Generator, and the Fluid Drive Coupler bearings.
- b. There is no effect since 2C and 2D do not supply the pumps for the Unit 2 Recirculation Oil Pumps.
- c. The A3 and B3 AC Lube Oil Pumps for the recirc MG Sets will auto start and supply oil to the Fluid Drive Coupler bearings only.
- d. The DC oil Pumps for both Unit 2 Recirc MG sets will auto start and supply oil to the Fluid Drive Coupler bearings only.

QUESTION: 040 (1.00)

A Loss of Coolant Accident (LOCA) has occurred on Unit 2. The following plant conditions exist:

Reactor Pressure	1000 psig
Suppression Pool Level	155 inches and increasing
Suppression Chamber Pressure	10 psig and increasing
HPCI is injecting into the RPV	

EOP PC-1 has been entered and all flow paths are being performed concurrently.

Which one of the following actions is the next to be performed in accordance with the EOP?

- a. Trip and prevent operation of HPCI IRRESPECTIVE of adequate core cooling.
- b. Terminate and prevent injection into RPV from external sources except for those required for adequate core cooling.
- c. Defeat high suppression pool water level transfer logic for HPCI.
- d. Trip the Recirculation Pumps and Drywell Cooling Fans and initiate Drywell Sprays.

QUESTION: 041 (1.00)

The Refueling Floor Health Physics Technicians are transporting contaminated trash on the Unit 2 refueling floor when the Fuel Pool Area Radiation Monitor alarms.

Which ONE of the following automatic actions occurs as a result of the alarming area monitor?

- a. The Unit 2 Refueling Floor Ventilation System ISOLATES.
- b. Control Room Ventilation shifts to PRESSURIZATION Mode.
- c. Drywell and Torus Vent and Purge Valves CLOSE.
- d. Unit 1 and 2 Standby Gas Treatment Systems START.

QUESTION: 042 (1.00)

Unit 2 is in Cold Shutdown with RHR in Shutdown Cooling, when reactor water level gradually decreases to less than 12.3 inches.

Which ONE of the following describes the response of the RHR system?

- a. The RHR Pumps in Shutdown Cooling trip then the SDC suction valves (2E11-F008 and 2E11-F009) close.
- b. The RHR Pumps in Shutdown Cooling do not trip but the RHR Inboard Injection Valve (2E11-F015A) closes
- c. The RHR Shutdown Cooling Suction Valves (2E11-F006A and C) and RHR Torus Suction Valves (2E11-F004A and C) close but the RHR Pumps must be tripped manually.
- d. The RHR Shutdown Cooling Suction Valves (2E11-F008 and 2E11-F009) and RHR Inboard Injection Valve (2E11-F015A) close and the RHR Pumps automatically trip.

QUESTION: 043 (1.00)

Unit 1 has experienced a transient due to a Primary System discharging into the Secondary Containment. The operating crew has just completed Emergency Depressurization.

Which ONE of the following level instrument indications is no longer valid and should not be used for level indication?

- a. 2B21-R605 Floodup Range.
- b. 2C32-R606A, B, C Narrow Range.
- c. 2B21-R623 Wide Range.
- d. 2B21-R610 Fuel Zone Range.

QUESTION: 044 (1.00)

Unit 2 is operating at 80% power when valve 2G31-F004, Outboard Suction Isolation Valve closes.

Which ONE of the following describes the possible status of the RWCU system and the cause of the isolation?

- a. ISOLATION FAILURE, Reactor Water Cleanup Valve 2G31-F001 should have also closed on high outlet temperature on the Non Regenerative Heat Exchanger.
- b. ISOLATION FAILURE, Return Isolation Valve 2G31-F042 should have also closed on high differential flow between the inlet and outlet of the heat exchanger.
- c. NO ISOLATION FAILURE, 2G31-F004 is the only valve which closes on High differential Flow Between Inlet and Outlet.
- d. NO ISOLATION FAILURE, 2G31-F004 is the only valve which closes on High Outlet Temperature on the Non-Regenerative Heat Exchanger.

QUESTION: 045 (2.00)

SELECT the items in Column B associated with the valves listed in Column A. (Items in Column B may be used once, more than once or not at all. Only one answer may occupy a space on Column A).

(4 answers required at 0.50 each)

COLUMN A	COLUMN B
_____ a. Heat Exchanger Shell Bypass Valve F048A	1. Auto opens and interlocked open for 5 minutes on receipt of a LOCA signal (with reactor pressure less than 449 psig)
_____ b. Inboard Injection Valve F015A	2. F006A must be closed in order to manually open the valve.
_____ c. Pressure Reducing Isolation Valve F091A	3. Can be manually opened with reactor pressure less than 138 psig and low reactor water level signal not present
_____ d. Injection Valve	4. Auto closes and interlocked closed upon receipt of a LOCA signal or RWL less than 2/3 core height
	5. Auto closes on a LOCA signal and is interlocked closed for the duration of the signal
	6. Opens and is interlocked open for three minutes following a LOCA signal
	7. Auto opens and is interlocked open on receipt of a LOCA signal (with reactor pressure less than 425 psig)

QUESTION: 046 (1.00)

Which ONE of the following describes the AUTOMATIC response of the CRD Hydraulic System to a scram with a LOCA signal present?

- a. Both CRD pumps will trip and the flow control valve (F002) will fully open.
- b. Both CRD pumps will trip and the flow control valve (F002) will fully close.
- c. The running CRD pump will remain running and the flow control valve (F002) will fully open.
- d. The running CRD pump will remain running and the flow control valve (F002) will fully close.

QUESTION: 047 (2.00)

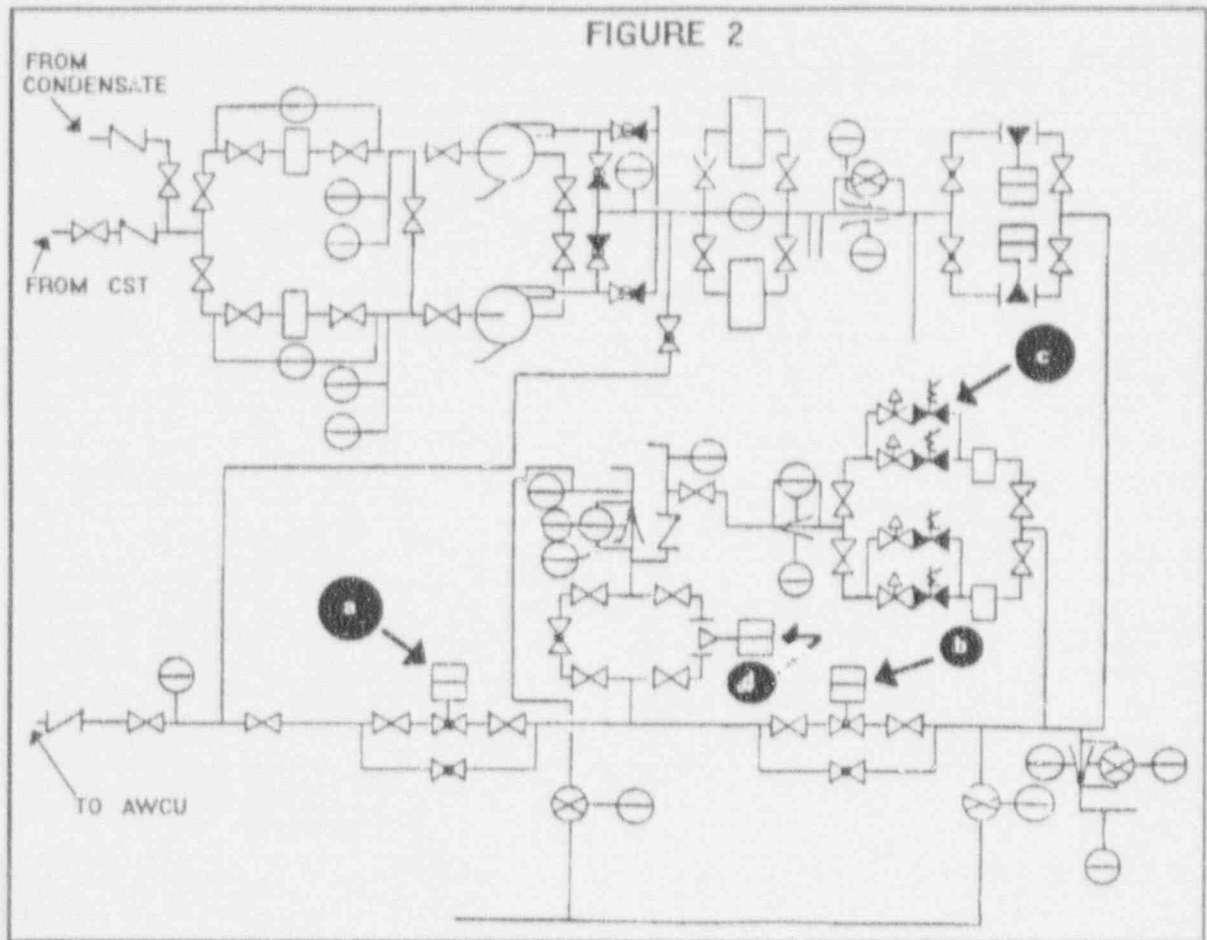
For the Control Rod Drive Hydraulic system components in Column A and labeled on figure 2, SELECT the component identification from Column B. (Items in column B will only be used once and only one answer may occupy a space in column A). (4 required at 0.50 each)

COLUMN A  
(Component)  
-----

COLUMN B  
(Component Identification)  
-----

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>_____ a.</li> <li>_____ b.</li> <li>_____ c.</li> <li>_____ d.</li> </ul> | <ul style="list-style-type: none"> <li>1. Drive Water Pressure Control Valve</li> <li>2. Flow Control Valve</li> <li>3. Drive Water Filter</li> <li>4. CRD Suction Filter</li> <li>5. Return Line Pressure Control Valve</li> <li>6. Cooling Water Pressure Control Valve</li> <li>7. Stabilizing Valve</li> <li>8. Directional Control Valve</li> </ul> |
|--|--|

FIGURE 2



QUESTION: 048 (1.00)

Which ONE of the following describes the response of the Reactor Manual Control System to a loss of the high voltage power supply to APRM Flow Converter Unit A?

- a. Initiates a full FLOW BIASED SCRAM.
- b. Initiates a ROD WITHDRAWAL block for all control rods.
- c. Initiates a 1/2 SCRAM on RPS bus A.
- d. Initiates a SELECT block for all control rods.

QUESTION: 049 (1.00)

Which ONE of the following describes ROD DENSITY?

- a. The number of control rod notches withdrawn as a fraction of the total number of control rod notches.
- b. The total number of control rods withdrawn as a fraction of the total number of control rods.
- c. The number of control rod notches inserted as a fraction of the total number of control rod notches.
- d. The number of control rods inserted as a fraction of the total number of control rods.

QUESTION: 050 (1.00)

Unit 2 is operating at 80% with RPS MG set "A" supplying RPS bus "A" and RPS bus "B" supplied from Essential Cabinet 2B.

Which ONE of the following describes the response of the Reactor Protection system to the loss of 600 VAC essential bus 2C?

- a. 1/2 scram on RPS bus "B" (no rod motion)
- b. 1/2 scram on RPS bus "A" (no rod motion)
- c. 1/2 isolation Groups II and V (no valve action)
- d. 1/2 isolation Group I (half of the valves close)



QUESTION: 051 (1.00)

Unit 2 is operating at 100% power when "B" steam flow signal to the Reactor Water Level Control System fails upscale.

Which ONE of the following describes the effect on the ACTUAL Reactor Vessel water level? (Assume no operator action.)

- a. Reactor water level will decrease to the low level scram setpoint.
- b. Reactor water level will increase until terminated by a high level feed pump trip.
- c. Reactor water level will decrease 6 to 10 inches and stabilize.
- d. Reactor water level will increase 6 to 10 inches and stabilize.

QUESTION: 052 (1.00)

A reactor startup is in progress on Unit 2. The following plant conditions exist:

All SRMs	Fully inserted
SRM A	180 counts/second
SRM B	170 counts/second
SRM C	205 counts/second
SRM D	215 counts/second
IRMs C and F	Range 2
All other IRMs	Range 3

The operator attempts to withdraw SRM detector B.

Which ONE of the following describes the effect on the rod block system as a result of the attempted detector withdrawal?

- a. The detector can be withdrawn with no rod block because all of its associated IRMs are on range 3.
- b. A rod block will be initiated because of less than 200 cps and associated IRMs not on range 3.
- c. A rod block will be initiated because associated IRMs are not on range 8
- d. A rod block will be initiated because the SRM count rate is less than 200 cps and the Mode Switch is not in RUN.

QUESTION: 053 (1.00)

Unit 2 is in reactor startup with the IRMs on range 5. A loss of power occurs on 24/48 VDC Cabinet A.

Which ONE of the following describes the effects on the IRM system?

- a. The IRM/APRM recorders for IRMs A, C, E and G become deenergized.
- b. Control power is lost for the IRM detector withdrawal motors.
- c. IRMs B, D, F, and H fail downscale with no rod block.
- d. IRMs A, C, E, and G fail downscale and initiate a rod block.

QUESTION: 054 (1.00)

Which ONE of the following conditions would result in a rod block generated by the Unit 2 Rod Block Monitor?

- a. With reactor power at 60%, outward rod motion causes the RBM recorder to read 114%.
- b. With reactor power at 50%, outward rod motion causes the RBM recorder to read 96%.
- c. With reactor power at 80%, outward rod motion causes the RBM recorder to read 110%.
- d. With reactor power at 95%, outward rod motion causes the RBM recorder to read 105%.

QUESTION: 055 (2.00)

For the automatic actions on reactor water level listed in Column "A" SELECT the appropriate required level setpoint from the list in Column "B". (Setpoints in column B may be used once, more than once, or not at all. Only one answer may occupy a space in Column A). (4 required 0.50 each)

COLUMN A Automatic Action	COLUMN B Level Setpoint
_____ a. Shutdown Cooling Valves Close	1. +58"
_____ b. Primary Containment Group V Isolation	2. +56.5"
_____ c. Containment Spray Permissive (2/3 core coverage)	3. +42"
_____ d. Standby Gas Treatment Starts	4. +37"
	5. +32"
	6. 00"
	7. -47"
	8. -113"
	9. -202"

QUESTION: 056 (1.00)

Which ONE of the following describes the operation of the RCIC Turbine Trip Throttle Valve and/or the RCIC Governor valve?

- a. The Turbine Trip Throttle Valve provides for manual throttling of the steam flow to the turbine on the failure of the Governor valve.
- b. The Turbine Trip Throttle Valve provides turbine speed control by throttling turbine steam flow during normal automatic operation.
- c. The Governor Valve provides for manual throttling of the steam flow to the turbine on failure of the Turbine Trip Throttle Valve.
- d. The Governor Valve provides for isolating the RCIC turbine from the steam supply on a RCIC turbine trip.

QUESTION: 057 (1.00)

Which ONE of the following describes the operation of the Recirculation Pump Speed Limiter #1?

- a. Limits the speed of the pump to 22% if either Feedwater Pump has less than 20% of rated flow AND reactor water level is less than 32".
- b. Limits the speed of the pump to 22% if the pump discharge valve is not full open OR total feedwater flow is less than 20% of rated flow.
- c. Limits the speed of the pump to 22% if the feedwater flow of either feedwater pump is less than 20% of rated flow OR reactor water level is less than 32".
- d. Limits the speed of the pump to 22% if the feedwater flow of either feedwater pump is less than 20% AND reactor water level is less than 32"

QUESTION: 058 (1.00)

Plant Hatch Unit 2 Technical Specification 4.4.1.2 requires demonstrating Recirculation Jet Pump operability if Jet Pump Failure is suspected. Which ONE of the following identifies the acceptance criteria which demonstrates operability?

- a. The recirculation pump flow/speed ratio does not deviate from the normal range by more than 20%.
- b. The recirculation pump flow/speed ratio does not deviate from the normal range by more than 15%.
- c. The jet pump loop flow/speed ratio does not deviate from the normal range by more than 10%.
- d. The jet pump loop flow/speed ratio not does deviate from the normal range by more than 5%.

QUESTION: 059 (1.00)

The RCIC System has received an initiation signal on Reactor Vessel Low Water Level (Level 2). The Steam to Turbine Bypass Valve 2E51-F119 fails to open.

Which one of the following describes the response of the RCIC system?

- a. Steam to Turbine Valve 2E51-F045 will not open and the RCIC turbine fails to start.
- b. Steam to Turbine Valve 2E51-F045 opens when the RCIC initiation signal is received.
- c. Steam to Turbine Valve 2E51-F045 opens 3-5 seconds after the RCIC initiation signal is received.
- d. Steam to Turbine Valve 2E51-F045 opens 8-10 seconds after the RCIC initiation signal.

QUESTION: 060 (1.00)

Units 1 and 2 are operating at 100% power when a Unit 1 Reactor Building Exhaust Ventilation High Radiation alarm is received.

Which one of the following describes the response of the Secondary Containment System(s) to this condition?

- a. Unit 1 Refueling Floor Ventilation System trips and isolates.  
Units 1 and 2 Reactor Building Ventilation Systems trip and Isolate.  
Unit 1 Standby Gas Treatment System Auto starts.
- b. Units 1 and 2 Refueling Floor Ventilation Systems trip and isolate.  
Units 1 and 2 Reactor Building Ventilation Systems trip and isolate.  
Units 1 and 2 Standby Gas Treatment Systems Auto start.
- c. Unit 1 Refueling Floor Ventilation System trips and isolates.  
Units 1 and 2 Reactor Building Ventilation Systems trip and isolate.  
Units 1 and 2 Standby Gas Treatment Systems will Auto start.
- d. Units 1 and 2 Refueling Floor Ventilation Systems trip and isolate.  
Unit 1 Reactor Building Ventilation trips and isolates.  
Units 1 and 2 Standby Gas Treatment Systems Auto start.

QUESTION: 061 (1.00)

Primary Containment Flooding is required utilizing the Fire System. Which ONE of the following describes the flow path to be utilized for Primary Containment Flooding from Fire Hydrant 11?

- a. Condensate transfer loop A and then into the RCIC loop.
- b. Condensate transfer loop B and then into and Core Spray Loop A
- c. Condensate transfer loop B and then into any RHR loop not operating in the LPCI mode.
- d. Condensate transfer loop A and then into Core Spray Loop B

QUESTION: 062 (1.00)

During a plant transient on Unit 2 it has been determined that Suppression Chamber pressure cannot be maintained below 49 psig. Suppression Pool water level is 304 inches. In accordance with the emergency procedures, which ONE of the following actions should be taken?

- a. Vent the Suppression Chamber utilizing Torus Vent Flow Control Valve 2T48-F337 A(B).
- b. Vent the Suppression Chamber utilizing Torus Air Purge Valve 2T48-F309.
- c. Vent the Drywell utilizing Drywell Vent Flow Control Valve 2T48-F336A(B).
- d. Vent the Drywell utilizing Drywell Air Purge Valve 2T48-F307.

QUESTION: 063 (1.00)

Unit 2 Scram Procedure 34AB-OPS-060-2S directs breaking turbine vacuum if the MSIVs are closed on a scram.

Which ONE of the following is the reason for taking this action?

- a. Prevents damage to the Intercept Stop valves due to passing condensate through the valves.
- b. Prevents rotor bowing of the low pressure rotors of the Main Turbine.
- c. Prevents sucking lube oil from the main turbine bearings into the condenser.
- d. Prevents damage to the turbine gland seal due to sucking cold air through the seal.

QUESTION: 064 (1.00)

A loss of Vital AC power has occurred on Unit 2.

Which of the following automatic RPS actions should immediately occur?

- a. A half scram.
- b. A full scram.
- c. A 1/2 Group I isolation.
- d. A control rod select block.

QUESTION: 065 (1.00)

A transient has occurred on Unit 2 due to the loss of a Recirculation Pump. Which of the following sets of plant conditions requires and immediate scram in accordance with 34 AB-OPS-058-2S? (Reactor Power Verses Flow Map attached)

- |                       |     |
|-----------------------|-----|
| a. Reactor Power      | 60% |
| Core Flow             | 46% |
| APRM Oscillations     | 3%  |
| b. Reactor Power      | 40% |
| Core Flow             | 38% |
| APRM Oscillations     | 9%  |
| c. Reactor Power      | 54% |
| Core Flow             | 42% |
| Two LPRM Oscillations | 8%  |
| d. Reactor Power      | 60% |
| Core Flow             | 39% |
| APRM Oscillations     | 5%  |

QUESTION: 066 (1.00)

An ATWS event has occurred on Unit 2. The following plant conditions exist:

MSIVs	Closed
RPV Level	TAF
No rod insertion steps can be performed	
The STA cannot confirm COLD SHUTDOWN with the current rod configuration	

Which ONE of the following conditions will allow the crew to INITIALLY restore the RPV water level to the normal level band (+12.5" to +51.5")?

- SRV Steam flow is less than the capacity of 3 valves.
- SBLC tank level is below the HOT SHUTDOWN level of 26%.
- Reactor power is less than 3% on all APRMs.
- The SRVs are no longer cycling and remain closed.



QUESTION: 067 (1.00)

Unit 2 is operating at 100% power when a loss of instrument air occurs.

Which ONE of the following conditions would require the operator to insert a manual scram?

- a. Five CRD mechanisms have temperatures greater than 250 deg F and local CRD pressure is 70 psig.
- b. Two CRD mechanisms have temperatures greater than 450 deg F, CRD high temperature alarm and local scram pilot air pressure is 51 psig.
- c. One CRD mechanism has a high temperature alarm and local scram pilot pressure is 40 psig.
- d. Six accumulator trouble lights exist and local CRD pressure is 55 psig.

QUESTION: 068 (1.00)

RHR Shutdown Cooling has just been placed in service on Unit 2.

Which ONE of the following describes the operation of the RHR valves if reactor pressure increases to 150 psig?

- a. RHR Shutdown Cooling Suction Valve 2E11-F006 and RHR Heat Exchanger Shell Side Outlet Valve 2E11-F003 close.
- b. RHR Heat Exchanger Inlet Valve 2E11-F047 and RHR Shutdown Cooling Suction Valve 2E11-F006 close.
- c. RHR Suction Cooling Valve 2E11-F008 and RHR Suction Cooling Valve 2E11-F009 close
- d. RHR Shutdown Cooling Suction Valve 2E11-F006 and RHR Discharge to Rad Waste 2E11-F040 close.

QUESTION: 069 (1.00)

Which ONE of the following describes why a manual scram should be initiated to prevent an area in the Secondary Containment from reaching MAX SAFE operating temperature?

- a. Limits radiation release to the secondary containment.
- b. Reduces the energy that the primary system is discharging.
- c. Returns area temperature below limits to allow personnel access.
- d. Eliminates the need for emergency depressurization.

QUESTION: 070 (1.00)

Which ONE of the following sets of conditions would be a Safety Limit violation in accordance with the Technical Specifications?

- a. While operating at full power the Unit 2 HPCI and ADS systems are declared inoperable.
- b. Unit 1 is in Cold Shutdown with the RHR system operating in Shutdown Cooling. The reactor steam dome pressure increases to 155 psig without occurrence of an isolation.
- c. Unit 1 is operating at 22% power and the EHC pressure regulator fails. The reactor pressure drops to 820 psig before the reactor scrams.
- d. During a Unit 2 core reload, RPV level is lost due to an unisolable leak. Level drops to -167 inches and is restored to -15 inches with emergency systems.

QUESTION: 071 (1.00)

Which ONE of the following is the basis for maintaining drywell temperatures below 135 deg F?

- a. To prevent false RPV level indication during depressurization.
- b. To avoid violation of the Drywell Spray Initiation Limit.
- c. To minimize damage to electrical equipment inside drywell.
- d. To ensure that temperatures remain below design limits during LOCA conditions.

QUESTION: 072 (1.00)

The RCIC System has initiated on a valid initiation signal and has operated for 15 minutes. The following conditions now exist:

- RCIC Steam Line Flow 265%
- RCIC Area Temperature 131 deg F
- Reactor Pressure 104 psig
- Reactor Level +59 inches

Which ONE of the following describes the RCIC System response?

- a. Steam Line Isolation Valves, E51-F007 and E51-F008, close.
- b. Minimum Flow Valve, E51-F019, closes.
- c. Steam Supply Valve, E51-F045, closes.
- d. Trip and Throttle Valve, E51-F524, closes.

QUESTION: 073 (1.00)

While restoring RPV water level following RPV Flooding, jumpers are installed for the RHR Torus Spray Valves (2E11-F028A/B).

Which ONE of the following is the reason that the jumpers are installed?

- a. To establish torus spray capability.
- b. To establish suppression pool cooling.
- c. To override the LOCA isolation signal.
- d. To drain/pump the RPV into the suppression pool.

QUESTION: 074 (1.00)

Which ONE of the following defines the status of the Parameters displayed and labeled a through d on Figure 1?

- a. The RED background indicates there is a valid Group I signal but no MSIVs have moved.
- b. The ORANGE background indicates that LLS is actuated and no LLS valves are open.
- c. The RED background indicates the SRMs have received an insert signal, but have not inserted into the core.
- d. The YELLOW background indicates that a signal is not available to SPDS from the H2 O2 analyzer, or the analyzer is not in service.

QUESTION: 075 (1.00)

Which ONE of the following correctly identifies the lowest qualifications for operations personnel conducting an independent verification?

- a. A first line work supervisor responsible for the activity who observed, but did not perform the activity.
- b. A Plant Equipment Operator separated by time and distance from the performer.
- c. A licensed SRO who observed but did not perform the activity.
- d. A non licensed Assistant Plant Equipment Operator separated by time and distance from the performer.

QUESTION: 076 (1.00)

Which ONE of the following is the LOWEST LEVEL OF AUTHORITY who can authorize or perform a plant shutdown in an emergency?

- a. The Plant Manager or his designee.
- b. A member of the plant staff holding an SRO license.
- c. A member of the operating crew holding an SRO license.
- d. A member of the plant staff holding an RO license.

QUESTION: 077 (1.00)

Which ONE of the following describes the required action to be taken if the Operations Supervisor on Shift is required to leave the Control Room while both Unit 1 and Unit 2 are operating?

- a. The Unit 2 Shift Supervisor assumes the Operations Supervisor duties until he returns to the Control Room.
- b. The Unit 1 Shift Supervisor assumes the Operations Supervisor duties and the Unit 1 senior RO assumes Unit 1 Shift Supervisor responsibilities.
- c. The Unit 2 Shift Supervisor assumes the Operations Supervisor duties and the Unit 2 senior RO assumes the Unit 2 Shift Supervisor responsibilities.
- d. The Unit 1 Shift Supervisor assumes the Operations Supervisor duties until he returns to the Control Room.

QUESTION: 078 (1.00)

Which ONE of the following describes the procedure to be followed to verify a LOCKED THROTTLE VALVE?

- a. Unlock the valve, turn the handwheel 1/4 turn in the close direction, then turn the handwheel 1/4 turn in the open direction and reinstall the locking device.
- b. Locked valves are not required to be verified following their initial positioning and verification.
- c. Unlock the valve turn the handwheel 1/4 turn in the open direction, then turn the valve handwheel 1/4 turn in the close direction and reinstall the locking device.
- d. The verification of locked throttle valves is performed by verifying the operability of the attached locking device.

QUESTION: 079 (1.00)

AN ECCS system has automatically started on a spurious initiation signal.

Which ONE of the following is the action to be taken for the initiation?

- a. Verify by multiple indications that no conditions exist which require the system to be operating, reset the automatic start signal, and return the system to standby per the system operating procedure.
- b. Shut the system down per the system operating procedure, reset the automatic start signal, and initiate a special surveillance to determine system operability.
- c. If the system is injecting into the vessel stop the operating pump(s), reset the automatic start signal and notify I&C to troubleshoot the initiation logic.
- d. Verify the initiating signal returned to normal, operation of the system is not required, reset the start signal and return the system automatic status per the system operating procedure.

QUESTION: 080 (1.00)

Which ONE of the following is the minimum level of authorization required for approval of a Locked Valve Manipulation Form?

- a. Operations Superintendent on Shift
- b. Shift Supervisor
- c. Shift Foreman
- d. Plant Operator

QUESTION: 081 (1.00)

Which ONE of the following describes, per Technical Specifications, when the Unit 2 Suppression Pool level needs to be maintained above 12 feet 2 inches?

- a. At all times when there is fuel in the core.
- b. AT all times for operational modes one through five.
- c. At all times in modes one through four.
- d. At all times in modes one through three.

QUESTION: 082 (1.00)

Which ONE of the following recirculation flow converter unit failures would result in a half scram on RPS Channel A? (Assume APRMs indicate 85% power.)

- a. Flow converter A fails upscale
- b. Flow converter B fails upscale
- c. Flow converter C fails downscale
- d. Flow converter D fails downscale



QUESTION: 083 (1.00)

The reactor is operating at 70% rated power when the outboard MS1V on steam line B inadvertently closes.

Which ONE of the following describes the expected RPV response to this transient?

- a. Reactor pressure increases and then returns to its initial value as the control valves throttle open.
- b. Reactor pressure increases and stabilizes at a higher pressure due to the increase in the steam line head losses.
- c. Reactor water level increases and then returns to its initial value due to the level error signal in reactor level control.
- d. Reactor water level decreases and stabilizes at a lower level as the steam flow decreases.

QUESTION: 084 (1.00)

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Which ONE of the following describes the basis for the Drywell Spray Initiation Limit Curve?

- a. To prevent unstable steam condensation in the SRV tailpipes from exerting excessive cyclic hydraulic loads on the suppression pool structure
- b. To prevent chugging in the drywell to torus downcomers from exerting excessive cyclic hydraulic loads on the suppression pool structure
- c. To ensure that the rate at which the primary containment is depressurized is within the capacity of the reactor building-to-suppression chamber vacuum breakers
- d. To ensure adequate noncondensibles remain in the drywell to prevent the reactor building-to-suppression chamber vacuum breakers from opening during drywell steam condensation

QUESTION: 085 (1.00)

A reactor scram has occurred and reactor water level is 100 inches and increasing.

Which ONE of the following is the reason for closing the MSIVs?

- a. To reduce the RPV cooldown rate
- b. To reduce RPV inventory losses
- c. To prevent failure of the feedwater pump turbines
- d. To prevent failure of the turbine building steam lines

QUESTION: 086 (1.00)

Following a LOCA signal, reactor water level is -133 inches decreasing and the operator is directed to start the CRD pump that was previously running.

Which ONE of the following describes the operator actions to start the CRD pump?

- a. Decrease CRD flow controller to zero with MANUAL control, depress the LOCA reset pushbutton on panel 603, and place the CRD pump switch to START
- b. Decrease CRD flow controller to zero with MANUAL control, take the CRD pump switch to OFF, depress the LOCA reset pushbutton on panel 603, and place the CRD pump switch to START
- c. Decrease CRD flow controller to zero with AUTOMATIC control, depress the LOCA reset pushbutton on panel 603, and take the CRD pump switch to OFF and then to START
- d. Decrease CRD flow controller to zero with AUTOMATIC control, send a PEO to reset the CRD pump breaker locally, depress the LOCA reset pushbutton on panel 603, and place the CRD pump switch to START

QUESTION: 087 (1.00)

Which ONE of the following is the primary concern regarding continued plant operation with an inoperable (or failed) jet pump.

- a. Invalid APRM Flow Biased SCRAM setpoints due to the change in flow through a failed jet pump.
- b. Increased blowdown area during a Loss of Coolant Accident (LOCA).
- c. Unbalanced neutron flux across the core due to flow variations.
- d. Jet pump riser vibrations due to unbalanced flow.

QUESTION: 088 (1.00)

Which ONE of the following describes the configuration of a fire protection DELUGE system?

- a. Consists of a riser and branch lines that are pressurized with water at fire header pressure with CLOSED sprinkler heads.
- b. Consists of a riser that is pressurized with water up to a clapper (check) valve being held closed by air pressure between the clapper and CLOSED sprinkler heads.
- c. Consists of a riser that is pressurized with air to monitor system integrity up to a quick opening automatic clapper (check) valve that supplies branch lines with OPEN sprinkler heads.
- d. Consists of a riser that is pressurized with water up to a quick opening manual or automatic valve that supplies branch lines with OPEN sprinkler heads.

QUESTION: 089 (1.00)

Which ONE of the following describes the arrangement of the valves in the Reactor Building-to-Suppression Chamber Vacuum Relief System?

- a. Two lines, each with a self actuated check valve and an air operated butterfly type vacuum breaker in series.
- b. Two lines, each with a self actuated check valve and an air operated butterfly type vacuum breaker in parallel.
- c. A single line with two self actuated check valves in series in each line.
- d. A single line with a self actuated check valve and an air operated butterfly type vacuum breaker in series.

QUESTION: 090 (1.00)

Unit 1 and Unit 2 are operating at 100% power when a loss of Startup Transformer 2D occurs.

Which ONE of the following describes the response of the 4160 volt electrical system?

- a. 4160 buses 2A, 2B, 2C and 2D deenergize, buses 2C and 2D fast transfer to Auxiliary Transformer 2B.
- b. 4160 buses 2E, 2F and 2G deenergize and the buses fast transfer to Startup Transformer 2C.
- c. 4160 buses 2A, 2B, 2C, and 2D deenergize and buses 2A and 2B fast transfer to Startup Transformer 2C.
- d. 4160 buses 2E, 2F, and 2G deenergize and the buses fast transfer to Auxiliary Transformer 2B.

QUESTION: 091 (1.00)

Which ONE of the following describes the condition, per procedure, in which a key may be allowed to remain in the keylock switch?

- a. Unit 2 Reactor Mode Switch Key in Condition 5
- b. Unit 1 Reactor Mode Switch Key in Refueling
- c. Unit 1 HPCI Steam Isolation Valves in the OPEN position
- d. Unit 2 Charcoal Adsorber Vessel Mode Switch

QUESTION: 092 (1.00)

As a result of a transient on Unit 2 the RHR pumps have been injecting in the LPCI Mode. Level increased to +12 inches and the RHR pumps were shut down manually.

Which ONE of the following describes the response of the RHR pumps if the level then falls to -101 inches?

- a. The pumps will start automatically since the low level will initiate an automatic reset of the manual stop signal.
- b. The pumps will remain stopped until the LOCA initiation signal has been reset.
- c. The pumps will start automatically if the low RPV level is also accompanied by high drywell pressure.
- d. The pumps will remain stopped and must be manually started with the pump control switch.

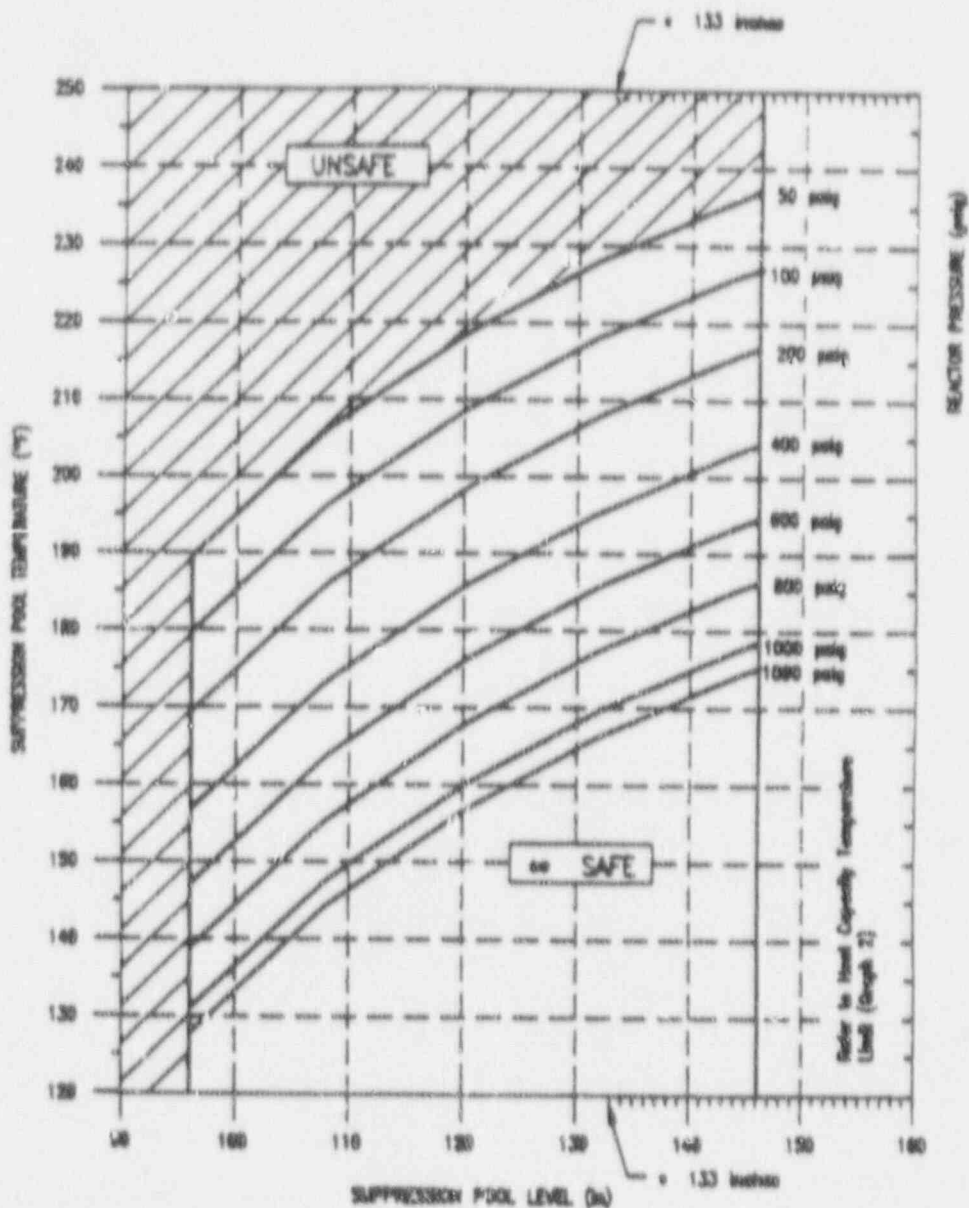
QUESTION: 093 (1.00)

Which ONE of the following describes the purpose of the enable/disable switch for the Reactor Water Cleanup System Blowdown Flow Control Valve (F033)?

- a. Enables the upstream pressure isolation signal for the valve when in the enable position
- b. Enables the operation of the valve with the flow controller when in the enable position.
- c. Disables the downstream pressure isolation signal for the valve when in the disable position.
- d. Disables the high differential pressure closure of the valve when in the disable position.

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

HEAT CAPACITY LEVEL LIMIT



NOTE: May use SPOS Emergency Displays in place of this Graph.

- \* 133 inches is the limit for narrow range suppression pool water level instrument
- o Safe operating region is below the applicable pressure line.

FIGURE: 20306-02  
EOP; HEAT CAPACITY  
LEVEL LIMIT

MASTER  
COPY

ANSWER: 001 (1.00)

a.

REFERENCE:

E.I. Hatch, Trip of One or Both Reactor Recirculation Pumps, 34AB-  
OPS-032-2S, pg 4.  
295001G010 [3.8/3.7]

295001G010 ..(KA's)

ANSWER: 002 (1.00)

b.

REFERENCE:

E.I. Hatch, Remote Shutdown Panel, LT-IH-05201-00, pg 12, 13, and 14.  
Learning Objective 6.  
295016K202 [4.1/4.1]

295016K202 ..(KA's)

ANSWER: 003 (1.00)

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a.

REFERENCE:

E.I. Hatch LR-IH-20306-02, EOP Curves and Limits Section III.A  
Learning Objective 5  
295026G007 [3.8/4.1]

295026G007 ..(KA's)

ANSWER: 004 (1.00)

d.



REFERENCE:

E.I. Hatch, EOP Flow Chart, Alternate Level Control CP-1  
295031K304 [4.0/4.3]

295031K304 ..(KA's)

ANSWER: 005 (1.00)

b.

REFERENCE:

E.I. Hatch LT-IH-00401-01, p. 12, E.O. 19.  
E.I.Hatch Unit 2 Technical Specification Bases 3.4.1.2  
K/A 202001G006 [3.0/4.1]

202001G006 ..(KA's)

ANSWER: 006 (1.00)

a.

REFERENCE:

E.I. Hatch LT-IH-01001-00, Reactor Protective System, Section V.B.1  
Learning Objective EO #6  
212000K502 [3.7/3.8]

212000K502 ..(KA's)

ANSWER: 007 (1.00)

b.

## REFERENCE:

E.I. Hatch, LT-IH-03801-03, Automatic Depressurization System,  
Section III.3.b  
Learning Objective TO 038.002.a  
218000A402 [4.2/4.2]

218000A402 ..(KA's)

ANSWER: 008 (2.00)

a. 6

b. 4

c. 3

d. 4

(4 answers required 0.50 each)

## REFERENCE:

E.I. Hatch LT-IH-03101-00, Off-Gas System, Section IV  
Learning Objective EO 6  
271000G004 [3.4/3.5]

271000G004 ..(KA's)

ANSWER: 009 (2.00)

a. 7

b. 6

c. 3

d. 2

(4 answers required 0.50 each)

REFERENCE:

E.I. Hatch LT-IH-04401-00, Reactor Vessel, Section III.A and B  
Learning Objectives 4 and 5  
290002K507 [3.9/4.4]

290002K507 ..(KA's)

ANSWER: 010 (1.00)

d.

REFERENCE:

E.I. Hatch, 34AB-OPS-045-2S, Loss of Feedwater Heating, Section 3.3  
Learning Objective LT-IH-20201-02 Objective 2  
295014A102 [3.6/3.8]

295014A102 ..(KA's)

ANSWER: 011 (1.00)

b.

REFERENCE:

E.I. Hatch, 34AB-OPS-011-2S, Loss of Reactor Building Closed Cooling Water,  
pg 2

295018K202 [3.4/3.6]

295018K202 ..(KA's)

ANSWER: 012 (2.00)

- a. 4
- b. 2
- ~~c. 5~~
- d. 3

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(4 answers required at 0.50 each)

REFERENCE:

E. I. Hatch 34 AB-OPS-013-2S, Loss of DC Buses,  
295004G010 3.2/3.4

295004G010 ..(KA's)

ANSWER: 013 (1.00)

c.

REFERENCE:

E.I. Hatch, LT-IH-04901-00, MSIV Leakage Control System Section  
Learning Objective EO 6  
239003K406 [3.1/3.3]

239003K406 ..(KA's)

ANSWER: 014 (1.00)

c.

REFERENCE:

E.I. Hatch, LT-IH-20103-02, CP3 31FO-FOP-017-2S  
Learning Objective EO 18.  
295037K303 [4.1/4.5]

295037K303 ..(KA's)

ANSWER: 015 (1.00)

a.

REFERENCE:

E.I. Hatch, LT-IH-20305-02, EOP Cautions III.D  
Learning Objective EO 8  
295028K203 [3.6/3.8]

295028K203 ..(KA's)

ANSWER: 016 (1.00)

b.

REFERENCE:

E. I. Hatch, LT-IH-20115-00, 31EO-EOP-14-2S, Radioactivity Release  
Control: Content and Use, LT-IH-20115-00, pg 6.  
Learning Objective EO6.  
295038K205 [3.7/4.7]

295038K205 ..(KA's)

ANSWER: 017 (1.00)

d.

REFERENCE:

E.I.Hatch Unit 2 Technical Specifications 3.3.1 & 3.3.2  
Learning Objective LT-IH-10007-00, E.O. 13a.  
272000G005 [2.9/3.9]

272000G005 ..(KA's)

ANSWER: 018 (1.00)

a.

REFERENCE:

E.I.Hatch LT-IH- 01701-01, Main Turbine and Auxiliaries  
Learning Objective E.O. 9  
245000G007 [3.5/3.6]

245000G007 ..(KA's)

ANSWER: 019 (1.00)

a.

REFERENCE:

E.I.Hatch LT-IH-30004-02, p. 21,  
Learning Objective 37.a  
K/A 294001K102 [3.9/4.2]

294001K102 ..(KA's)

ANSWER: 020 (1.00)

b.

REFERENCE:

E.I.Hatch LT-IH-30009-01, p. 10,  
Learning Objective E.O. 6.  
K/A 294001K107 [3.3/3.6]

294001K107 ..(KA's)

ANSWER: 021 (1.00)

a.

REFERENCE:

E.I. Hatch LT-IH-02501-01  
Learning Objective 200.087.A.01  
295002K302 [3.4/3.4]

295002K302 ..(KA's)

ANSWER: 022 (1.00)

c.

REFERENCE:

E.I. Hatch 80AC-SEC-002-OS Section 8.1.1.1.5 pg 5  
294001K105 [3.2/3.7]

294001K105 ..(KA's)

ANSWER: 023 (1.00)

c.

REFERENCE:

E.I. Hatch EOP Flow Chart PC-1, Primary Containment Control  
E.I. Hatch Emergency Operating Procedure 31EO-EOP-101-2S, Emergency  
Containment Venting, Section 3.2  
E.I. Hatch LT-IH-01301  
Learning Objective EO-9  
295024K307 [3.5/4.0]

295024K307 ..(KA's)

ANSWER: 024 (1.00)

*d. a* *BLH*  
*2/27/92*

## REFERENCE:

E.I. Hatch LT-IH-01401-01, Main Steam Low Low Set, Section III.D.2  
Learning Objective EO 5b  
239001K407 [3.7/3.7]

239001K407 ..(KA's)

ANSWER: 025 (1.00)

d.

## REFERENCE:

E.I. Hatch LT-IH-05101-00, Post LOCA Containment Radiation Monitors,  
Section 3.d.1  
Learning Objective 4  
295017K210 [3.3/3.6]

295017K210 ..(KA's)

ANSWER: 026 (2.00)

c.

## REFERENCE:

E.I. Hatch LT-ST-03001-01, Standby Gas Treatment System, Table 03001-2  
Learning Objective EO-1.a  
261000K401 [3.7/3.8]

261000K401 ..(KA's)

ANSWER: 027 (1.00)

d.



## REFERENCE:

E.I. Hatch LT-ST-00501-03, High Pressure Coolant Injection System  
Section IV.A.2  
Learning Object EO 14.e  
206000K417 [3.4/3.4]

206000K417 ..(KA's)

ANSWER: 028 (1.00)

d.

## REFERENCE:

E.I. Hatch LT-IH-00801-01, Core Spray, Section III.A.7  
Learning Objective EO 3f and 3g

209001K401 [3.2/3.4]

209001K401 ..(KA's)

ANSWER: 029 (1.00)

c.

## REFERENCE:

E.I. Hatch LT-IH-01901-01, Electro-Hydraulic Control System, Section  
III.C.7  
Learning Objective EO 5  
245000K602 [3.5/3.7]

245000K602 ..(KA's)

ANSWER: 030 (1.00)

\*ANSWER

d.

REFERENCE:

E.I. Hatch Lesson Plan, LT-IH-00201-00, Condensate and Feedwater,  
Section II.F.2  
Learning Objective EO 11  
259001A201 [3.7/3.7\

259001A201 ..(KA's)

ANSWER: 031 (1.00)

a.

REFERENCE:

E.I. Hatch Unit 2 Technical Specification 3.6.2.1  
Learning Objective LR-IH-01301-00 EO 300.006.A.22

223001G011 [3.3/4.2]

223001G011 ..(KA's)

ANSWER: 032 (1.00)

b.

REFERENCE:

E.I. Hatch LR-IH-04502-01  
Learning Objective 200.076.A.03  
E.I. Hatch 34AB-OPS-047-2S  
234000K503 [2.9/3.4]

234000K503 ..(KA's)

ANSWER: 033 (1.00)

c.

## REFERENCE:

E.I. Hatch LR-IH-10008-00, Automatic Depressurization and Low Low Set System

Learning Objective EO 4

E.I. Hatch 34SO-B21-001-2S, Automatic Depressurization and Low Low Set Section 7.2.3

239002A309 [3.9/3.9]

239002A209 ..(KA's)

ANSWER: 034 (1.00)

b.

## REFERENCE:

E.I. Hatch EOP Flow Charts CP-1, CP-2 and RC

Learning Objective LR-IH-20303-01 EO 4

295031K201 [4.4/4.4]

295031K201 ..(KA's)

ANSWER: 035 (1.00)

d.

## REFERENCE:

E.I. Hatch LT-IH-02801-00, Diesel Generators, Section IV.C.1

Learning Objective EO #2

264000K408 [3.8/3.7]

264000K408 ..(KA's)

ANSWER: 036 (1.00)

d.

REFERENCE:

E.I. Hatch LR-IH-03101-00, Off-Gas System Section VI.A.3  
Learning Objective EO 9.c

271000A204 [3.7/4.1]

271000A204 ..(KA's)

ANSWER: 037 (1.00)

b.

REFERENCE:

E.I. Hatch LT-IH-03001-00, Standby Gas Treatment System, Section V.A  
Learning Objective EO 1.a  
261000K401 [3.7/3.8]

261000K401 ..(KA's)

ANSWER: 038 (1.00)

b.

REFERENCE:

E.I.Hatch LT-ST-03801-04, p. 9,  
Learning Objective E.O. 3.h  
218000A405 [4.2/4.2]

218000A405 ..(KA's)

ANSWER: 039 (1.00)

d.

REFERENCE:

E.I. Hatch LT-IH-00401 Section II.H.6.c  
Learning Objective EO 3  
295005K203 [3.2/3.3]

295005K203 ..(KA's)

ANSWER: 040 (1.00)

c.

REFERENCE:

E.I. Hatch Unit 2 EOP Flow Chart PC-1, Primary Containment Control  
E.I. Hatch LR-IH-20310-01 Page 36  
Learning Objective EO 18  
295029K206 [3.4/3.5]

295029K206 ..(KA's)

ANSWER: 041 (1.00)

b.

REFERENCE:

E.I. Hatch 34 AB-OPS-031-2S, Irradiated Fuel Damage During Handling Section  
2.1  
Learning Objective LT-IH-01303-00 EO-8  
295023K303 [3.3/3.6]

295023K303 ..(KA's)

ANSWER: 042 (1.00)

d.

## REFERENCE:

E.I. Hatch LT-IH-00701-02, Residual heat Removal System Section III.D.2  
Learning Objective EO 11  
E.I. Hatch 34-AB-OPS-044-2S, Loss of Shutdown Cooling Section 2  
295021A102 [3.5/3.5]

295021A102 ..(KA's)

ANSWER: 043 (1.00)

c.

## REFERENCE:

E.I. Hatch LT-IH-04404-00, Reactor Vessel Instrumentation, Section III.B.d  
Learning Objective EO 5  
E.I. Hatch AB-OPS-044-2S, Loss of Shutdown Cooling, Section 4.3 NOTE  
205000K302 [3.2/3.3]

205000K302 ..(KA's)

ANSWER: 044 (1.00)

d.

## REFERENCE:

E.I. Hatch LT-IH-00301-02, Reactor Water Cleanup System Table 2  
Learning Objective EO 5.a  
E.I. Hatch 34 AB-OPS-050-2S, RWCU Isolation Section 2.1

205000K401 [3.4/3.4]

205000K401 ..(KA's)

ANSWER: 045 (2.00)

- a. 6
- b. 7
- c. 5
- d. 2

REFERENCE:

E.I. Hatch LT-IH-00701-02 Residual Heat Removal System Table 2  
Learning Objective EO-20, 21, 22, 23

203000K410 [3.9/4.1]

203000K410 ..(KA's)

ANSWER: 046 (1.00)

- a.

REFERENCE:

E.I. Hatch LT-IH-00101-01, Control Rod Drive Hydraulics Section V.3  
Learning Objective EO 18

201001K107 [3.4/3.5]

201001K107 ..(KA's)

ANSWER: 047 (2.00)

- a. 5
- b. 3
- c. 7
- d. 6

(4 required at 0.50 each)

## REFERENCE:

E.I. Hatch LT-IH-00101-01, Control Rod Drive Hydraulics Figure 00101-1  
Learning Objective OI 6  
201001G007 [3.6/3.7]

201001G007 ..(KA's)

ANSWER: 048 (1.00)

b.

## REFERENCE:

E.I. Hatch LT-IH-05401-00, Reactor Manual Control Table 05401-1  
Learning Objective EO 5

201002K402 [3.5/3.5]

201002K402 ..(KA's)

ANSWER: 049 (1.00)

c.

## REFERENCE:

E.I. Hatch LT-IH-05402-03, Rod Sequence Control System Section IV  
Learning Objective EO 5

201004K503 [3.3/3.5]

201004K503 ..(KA's)

ANSWER: 050 (1.00)

b.



REFERENCE:

E.I. Hatch LT-IH-010001-00, Reactor Protective System Section VI.A.1.a  
Learning Objective EO 10

212000K601 [3.6/3.8]

212000K601 ..(KA's)

ANSWER: 051 (1.00)

d.

REFERENCE:

E.I. Hatch LT-IH-00202-00, Reactor Water Level Control Section VI.A.5  
Learning Objective 19.e

259002K603 [3.1/3.1]

259002K603 ..(KA's)

ANSWER: 052 (1.00)

b.

REFERENCE:

E.I. Hatch LT-IH-01201-01, Source Range Monitors Section V.D  
Learning Objective EO 9

215004K401 [3.7/3.7]

215004K401 ..(KA's)

ANSWER: 053 (1.00)

d.

REFERENCE:

E.I. Hatch LT-IH-01202-00, Intermediate Range Monitors Section VII.A.1  
Learning Objective EO 6

215003A202 [3.5/3.7]

215003A202 ..(KA's)

ANSWER: 054 (1.00)

c.

REFERENCE:

E.I. Hatch LT-IH-01203-01, APRM/RBM Table 3, Rod Blocks and Setpoints  
Learning Objective EO 12

215002K401 [3.4/3.5]

215002K401 ..(KA's)

ANSWER: 055 (2.00)

a. 6

b. 7

c. 9

d. 7

(4 required at 0.50 each)

REFERENCE:

E.I. Hatch LT-IH-04404-00, Reactor Vessel Instrumentation Table 1  
Learning Objective EO 1

216000K406 [3.8/4.0]

216000K406 ..(KA's)

ANSWER: 056 (1.00)

a.

REFERENCE:

E.I. Hatch LT-IH-03901-01, Reactor Core Isolation Cooling System,  
Section III.A.5 and III.A.6  
Learning Objective EO 16  
217000A203 [3.4/3.3]

217000A203 ..(KA's)

ANSWER: 057 (1.00)

b.

REFERENCE:

E.I. Hatch LT-IH-00401-01, Recirculation System Section II.H.5.d  
Learning Objective EO 13  
202002K108 [3.1/3.2]

202002K108 ..(KA's)

ANSWER: 058 (1.00)

d.

REFERENCE:

E.I. Hatch Technical Specification Basis 4.4.1.2  
Learning Objective TO 200.084.a  
202002G006 [2.6/3.7]

202002G006 ..(KA's)

ANSWER: 059 (1.00)

d.

## REFERENCE:

E.I. Hatch 34SO-E51-001-2S, Reactor Core Isolation Cooling (RCIC) System  
Section 7.1.2.1.3 NOTE  
Lesson Plan LT-IH-03901-01, Reactor Core Isolation Cooling System  
Learning Objective EO 9

217000A301 [3.5/3.5]

217000A301 ..(KA's)

ANSWER: 060 (1.00)

d.

## REFERENCE:

E.I. Hatch LT-IH-01302-00, Secondary Containment, Section V  
Learning Objective 9  
290001A301 [3.9/4.0]

290001A301 ..(KA's)

ANSWER: 061 (1.00)

c.

## REFERENCE:

E.I. Hatch LR-IH-20323-01, EOP 112 Primary Containment Flooding  
Section III.C.4  
Learning Objective 5  
295031A108 [3.8/3.9]

295031A108 ..(KA's)

ANSWER: 062 (1.00)

d.

## REFERENCE:

E.I. Hatch LR-IH-20312-01, Emergency Containment Venting, Section IV.B.2  
Learning Objective 1  
E.I. Hatch 31EO-EOP-101-2S, Emergency Containment Venting Section 3.2.6.4  
295010K301 [3.8/4.0]

295010K301 ..(KA's)

ANSWER: 063 (1.00)

d.

## REFERENCE:

E.I. Hatch LR-IH-20301-01, Scram Procedure, Section IV.N.2  
Learning Objective SK 2  
295006G003 [3.8/4.4]

295006G003 ..(KA's)

ANSWER: 064 (1.00)

d.

## REFERENCE:

E.I. Hatch 34AB-OPS-015-2S, Loss of Vital AC Bus Section 2  
E.I. Hatch LT-IH-02703-00  
Learning Objective EO 8  
295003A202 [4.2/4.3]

295003A202 ..(KA's)

ANSWER: 065 (1.00)

d.

REFERENCE:

E.I. Hatch LR-IH-00401-01, Recirculation System  
E.I. Hatch 34AB-OPS-058-2S Section 3.2

295001K102 [3.3/3.5]

295001K102 ..(KA's)

ANSWER: 066 (1.00)

b.

REFERENCE:

E.I. Hatch LT-IH-20113-00  
E.I. Hatch 31EO-EOP-017-2S  
295037A104 [4.5/4.5]

295037A104 ..(KA's)

ANSWER: 067 (1.00)

c.

REFERENCE:

E.I. Hatch LT-IH-20201-00, Introduction to Abnormal Procedures  
Learning Objective EO 10  
E.I. Hatch 34AB-OPS-020-2S, Loss of Instrument and Service Air System  
Section 3.5.1  
295019K201 [3.8/3.9]

295019K201 ..(KA's)

ANSWER: 068 (1.00)

c.

## REFERENCE:

E.I. Hatch, LT-IH-00701-02, Residual Heat Removal System Section III.D.2  
Learning Objective EO 11  
34AB-OPS-044-2S, Loss of Shutdown Cooling  
295021K203 [3.6/3.6]

295021K203 ..(KA's)

ANSWER: 069 (1.00)

b.

## REFERENCE:

E.I.Hatch LR-IH-20325-01, Secondary Containment/Radioactivity Release  
Control pg 41  
Learning Objective E.O. 21.  
295032K302 [3.6/3.8]

295032K302 ..(KA's)

ANSWER: 070 (1.00)

d.

## REFERENCE:

E.I.Hatch Unit 2 Technical Specifications, 2.1.4.  
E.I.Hatch LT-IH-30002-02, Safety Limit Technical Specifications II.B.4  
Learning Objective E.O. 1.  
295009G003 [3.4/4.2]

295009G003 ..(KA's)

ANSWER: 071 (1.00)

d.

## REFERENCE:

E.I.Hatch LR-IH-20310-01, Primary Containment Control (PC-1 and PC-2)  
pg 134

Learning Objective E.O. 76.

E.I.Hatch Technical Specification Bases 3.6.1.7

295028G004 [2.7/3.9]

295028G004 ..(KA's)

ANSWER: 072 (1.00)

c.

## REFERENCE:

E.I.Hatch LT-IH-03901-01, Reactor Core Isolation Cooling System Section  
IV.A.2.b

Learning Objective E.O. 14.

295008K206 [3.4/3.6]

295008K206 ..(KA's)

ANSWER: 073 (1.00)

d.

## REFERENCE:

E.I. Hatch LR-IH-20317-02, EOP 106: Restoration of RPV Water Level  
Following RPV Flooding Section V.I.1

Learning Objective E.O. 6.

295008K210 [2.7/2.8]

295008K210 ..(KA's)

ANSWER: 074 (1.00)

d.



## REFERENCE:

E.I. Hatch LT-IH-05601-00, Safety Parameter Display System  
Section II.E.2.c.6  
Learning Objective EO 4  
294001A115 [3.2/3.4]

294001A115 ..(KA's)

ANSWER: 075 (1.00)

b.

## REFERENCE:

E.I.Hatch LT-IH-30004-02, Administrative Procedures Section I.B.1  
Learning Objective EO 3

2. K/A 294001K101 (3.7/3.7)

294001K101 [3.7/3.7]

294001K101 ..(KA's)

ANSWER: 076 (1.00)

d.

## REFERENCE:

E.I. Hatch LT-IH-30004-02, Administrative Procedures Section I.3  
Learning Objective EO-2  
294001A109 [3.3/4.2]

294001A109 ..(KA's)

ANSWER: 077 (1.00)

d.

REFERENCE:

E.I. Hatch LT-IH-30004-02, Administrative Procedures Section I.F.7  
Learning Objective EO 14  
294001A103 [2.7/3.7]

294001A103 ..(KA's)

ANSWER: 078 (1.00)

*d* *BAH*  
*2/27/92*

REFERENCE:

E.I. Hatch LT-IH-30004, Administrative Procedures Section V.2  
Learning Objective EO 22  
294001K101 [3.7/3.7]

294001K101 ..(KA's)

ANSWER: 079 (1.00)

*d. on a* *BAH*  
*2/27/92*

REFERENCE:

E.I. Hatch LT-IH-30004-02, Administrative Procedures, Section I.E.2  
Learning Objective EO 6  
294001A102 [4.2/4.2]

294001A102 ..(KA's)

ANSWER: 080 (1.00)

*b.*

REFERENCE:

E.I.Hatch LT-IH-30004-02, Section Z.3  
Learning Objective EO 20.

294001K101 [3.7/3.7]

294001K101 ..(KA's)

ANSWER: 081 (1.00)

d.

REFERENCE:

E.I. Hatch Unit 2 Technical Specification 3.5.4  
E.I. Hatch LR-IH-20310-01, Primary Containment Control pg 21  
Learning Objective EO 5  
295030G003 [3.3/3.4]

295030G003 ..(KA's)

ANSWER: 082 (1.00)

c.

REFERENCE:

LT-IH-01203, APRM/RBM, pg 11  
Learning Objective EO 13

215005K607 [3.2/3.3]

215005K607

.. (KA's)

ANSWER 083 (1.00)

b.

REFERENCE:

LT-IH-00202, Reactor Water Level Control  
Terminal Obj. 002.20  
Enabling Obj. 19a  
LT-IH-01401-01, Main Steam/LLS  
Obj. None

Note: Various BWRs have experienced a closure of ONE MSIV at power. Most recently occurred at Quad Cities in late 1991.

239001A203 [4.0/4.2]

239001A203 ..(KA's)

ANSWER: 084 (1.00)

c.

*DELETED BAH 2/27/92*

REFERENCE:

E.I Hatch LT-IH-20306-02, EOP Curves and Limits, pg 27  
Learning Objective EO 10

295024K101 [4.1/4.2]

295024K101 ..(KA's)

ANSWER: 085 (1.00)

d.

REFERENCE:

E.I. Hatch L5-IH-20301-01, Scram Procedure, pg 6  
Learning Objective SK-6

295006G007 [3.8/4.1]

295006G007 ..(KA's)

ANSWER: 086 (1.00)

b.

REFERENCE:

E.I. Hatch LT-IH-00101-01, pg 25  
Learning Objective EO 20

201001G009 [3.7/3.4]

201001G009 ..(KA's)

ANSWER: 087 (1.00)

b.

REFERENCE:

E.I.Hatch LT-IH-00401-01, Recirculation System  
Learning Objective EO 19.  
E.I.Hatch Unit 2 Technical Specification Bases 3.4.1.2

202001G006 [3.0/4.1]

202001G006 ..(KA's)

ANSWER: 098 (1.00)

d.

REFERENCE:

E.I. Hatch LT-IH-03601-00, Plant Fire Protection Systems, Section 5.B.2  
Learning Objective EO 2

286000G004 [3.8/3.9]

286000G004 ..(KA's)

ANSWER: 089 (1.00)

a.

REFERENCE:

E.I. Hatch LT-IH-01301, Primary Containment Section 4.D.4  
Learning Objective EO 3.b

295024A116 [3.4/3.4]

295024A116 ..(KA's)

ANSWER: 090 (1.00)

b.

REFERENCE:

E.I. Hatch LT-IH-02702-1, 4160 VAC Electrical Distribution Section IV.A.2  
Learning Objective EO 9

262001K403 [3.1/3.4]

262001K403 ..(KA's)

ANSWER: 091 (1.00)

d.

REFERENCE:

E.I. Hatch LT-IH-30004-02, Administrative Procedures, Section I.N.1  
Learning Objective EO 13

294001A113 [4.5/4.3]

294001A113 ..(KA's)

ANSWER: 092 (1.00)

d.

REFERENCE:

E.I. Hatch LT-IH-00701-02, Residual Heat Removal System  
Learning Objective E0 14  
203000K401 [4.2/4.2]

203000K401 ..(KA's)

ANSWER: 093 (1.00)

b.

REFERENCE:

E.I. Hatch LT-IH-00301-02, Reactor Water Cleanup System Section III.N  
Learning Objective 4i  
204000K404 [3.5/3.6]

204000K404 ..(KA's)

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



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

CANDIDATE'S NAME: MASTER  
FACILITY: E. I. Hatch 1 & 2  
REACTOR TYPE: BWR-GE4  
DATE ADMINISTERED: 92/02/24

INSTRUCTIONS TO CANDIDATE:

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

<u>TEST VALUE</u>	<u>CANDIDATE'S SCORE</u>	<u>%</u>	
<u>97.5</u>			
<u><del>100.00</del></u>			
<u>B.A 2/27/92</u>	<u>FINAL GRADE</u>	<u>    %</u>	<u>TOTALS</u>

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

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

A N S W E R   S H E E T

Multiple Choice (Circle or X your choice)

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

MULTIPLE CHOICE

a b c d \_\_\_\_\_

~~a b c d~~ DELETED B.H. 2/27/92

a b c d \_\_\_\_\_

a b c d \_\_\_\_\_

a b c d \_\_\_\_\_

a b c d \_\_\_\_\_

a b c d \_\_\_\_\_

MATCHING

a \_\_\_\_\_

b \_\_\_\_\_

c \_\_\_\_\_

d \_\_\_\_\_

MATCHING

a \_\_\_\_\_

b \_\_\_\_\_

c \_\_\_\_\_

d \_\_\_\_\_

MULTIPLE CHOICE

a b c d \_\_\_\_\_

a b c d \_\_\_\_\_

a b c d \_\_\_\_\_

013 MATCHING

a \_\_\_\_\_

b \_\_\_\_\_

~~c~~ DELETED B.H. 2/27/92

d \_\_\_\_\_

MULTIPLE CHOICE

014 a b c d \_\_\_\_\_

015 a b c d \_\_\_\_\_

016 a b c d \_\_\_\_\_

017 a b c d \_\_\_\_\_

018 a b c d \_\_\_\_\_

019 a b c d \_\_\_\_\_

020 a b c d \_\_\_\_\_

021 a b c d \_\_\_\_\_

022 a b c d \_\_\_\_\_

023 a b c d \_\_\_\_\_

024 a b c d \_\_\_\_\_

025 a b c d \_\_\_\_\_

026 a b c d \_\_\_\_\_

027 a b c d \_\_\_\_\_

028 a b c d \_\_\_\_\_

029 a b c d \_\_\_\_\_

030 a b c d \_\_\_\_\_

## A N S W E R   S H E E T

Multiple Choice    (Circle or X your choice)

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

- 031    a    b    c    d    \_\_\_  
 032    a    b    c    d    \_\_\_  
 033    a    b    c    d    \_\_\_  
 034    a    b    c    d    \_\_\_  
 035    a    b    c    d    \_\_\_  
 036    a    b    c    d    \_\_\_  
 037    a    b    c    d    \_\_\_  
 038    a    b    c    d    \_\_\_  
 039    a    b    c    d    \_\_\_  
 040    a    b    c    d    \_\_\_  
 041    a    b    c    d    \_\_\_  
 042    a    b    c    d    \_\_\_  
 043    a    b    c    d    \_\_\_  
 044    a    b    c    d    \_\_\_  
 045    a    b    c    d    \_\_\_  
 046    a    b    c    d    \_\_\_  
 047    a    b    c    d    \_\_\_  
 048    a    b    c    d    \_\_\_  
 049    a    b    c    d    \_\_\_  
 050    a    b    c    d    \_\_\_  
 051    a    b    c    d    \_\_\_

052    MATCHING

- a    \_\_\_  
 b    \_\_\_  
 c    \_\_\_  
 d    \_\_\_

053    MATCHING

- a    \_\_\_  
 b    \_\_\_  
 c    \_\_\_  
 d    \_\_\_

MULTIPLE CHOICE

- 054    a    b    c    d    \_\_\_  
 055    a    k    c    d    \_\_\_  
 056    a    b    c    d    \_\_\_  
 057    a    b    c    d    \_\_\_  
 058    a    b    c    d    \_\_\_  
 059    a    b    c    d    \_\_\_  
 060    a    b    c    d    \_\_\_  
 061    a    b    c    d    \_\_\_  
 062    a    b    c    d    \_\_\_  
 063    a    b    c    d    \_\_\_  
 064    a    b    c    d    \_\_\_  
 065    a    b    c    d    \_\_\_

A N S W E R   S H E E T

Multiple Choice    (Circle or X your choice)

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

- 066    a    b    c    d    \_\_\_
- 067    a    b    c    d    \_\_\_
- 068    a    b    c    d    \_\_\_
- 069    a    b    c    d    \_\_\_
- 070    a    b    c    d    \_\_\_
- 071    a    b    c    d    \_\_\_
- 072    a    b    c    d    \_\_\_
- 073    a    b    c    d    \_\_\_
- 074    a    b    c    d    \_\_\_
- 075    a    b    c    d    \_\_\_
- 076    a    b    c    d    \_\_\_
- 077    a    b    c    d    \_\_\_
- 078    a    b    c    d    \_\_\_
- 079    a    b    c    d    \_\_\_
- 080    a    b    c    d    \_\_\_
- 081    a    b    c    d    \_\_\_
- 082    a    b    c    d    \_\_\_

M U L T I P L E   C H O I C E

- 084    a    b    c    d    \_\_\_
- 085    a    b    c    d    \_\_\_
- 086    a    b    c    d    \_\_\_
- 087    a    b    c    d    \_\_\_
- 088    a    b    c    d    \_\_\_
- ~~089    a    b    c    d    \_\_\_~~ *DELETED 2/27/92*
- 090    a    b    c    d    \_\_\_
- 091    a    b    c    d    \_\_\_
- 092    a    b    c    d    \_\_\_
- 093    a    b    c    d    \_\_\_

*BLH*

*DELETED 2/27/92*

083    M A T C H I N G

- a    \_\_\_
- b    \_\_\_
- c    \_\_\_
- d    \_\_\_

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

## NRC RULES AND GUIDELINES FOR LICENSE EXAMINATIONS

During the administration of this examination the following rules apply:

1. Cheating on the examination means an automatic denial of your application and could result in more severe penalties.
2. After the examination has been completed, you must sign the statement on the cover sheet indicating that the work is your own and you have not received or given assistance in completing the examination. This must be done after you complete the examination.
3. Restroom trips are to be limited and only one applicant at a time may leave. You must avoid all contacts with anyone outside the examination room to avoid even the appearance or possibility of cheating.
4. Use black ink or dark pencil ONLY to facilitate legible reproductions.
5. Print your name in the blank provided in the upper right-hand corner of the examination cover sheet and each answer sheet.
6. Mark your answers on the answer sheet provided. USE ONLY THE PAPER PROVIDED AND DO NOT WRITE ON THE BACK SIDE OF THE PAGE.
7. Before you turn in your examination, consecutively number each answer sheet, including any additional pages inserted when writing your answers on the examination question page.
8. Use abbreviations only if they are commonly used in facility literature. Avoid using symbols such as < or > signs to avoid a simple transposition error resulting in an incorrect answer. Write it out.
9. The point value for each question is indicated in parentheses after the question.
10. Show all calculations, methods, or assumptions used to obtain an answer to any short answer questions.
11. Partial credit may be given except on multiple choice questions. Therefore, ANSWER ALL PARTS OF THE QUESTION AND DO NOT LEAVE ANY ANSWER BLANK.
12. Proportional grading will be applied. Any additional wrong information that is provided may count against you. For example, if a question is worth one point and asks for four responses, each of which is worth 0.25 points, and you give five responses, each of your responses will be worth 0.20 points. If one of your five responses is incorrect, 0.20 will be deducted and your total credit for that question will be 0.80 instead of 1.00 even though you got the four correct answers.
13. If the intent of a question is unclear, ask questions of the examiner only.

14. When turning in your examination, assemble the completed examination with examination questions, examination aids and answer sheets. In addition, turn in all scrap paper.
15. Ensure all information you wish to have evaluated as part of your answer is on your answer sheet. Scrap paper will be disposed of immediately following the examination.
16. To pass the examination, you must achieve a grade of 80% or greater.
17. There is a time limit of four (4) hours for completion of the examination.
18. When you are done and have turned in your examination, leave the examination area (EXAMINER WILL DEFINE THE AREA). If you are found in this area while the examination is still in progress, your license may be denied or revoked.

QUESTION: 001 (1.00)

Which ONE of the following explains the control of systems from the remote shutdown panel(s)?

- a. The interlock preventing simultaneous opening of the RHR suction valves for shutdown cooling, F006 and from the torus F004 are bypassed at the Remote Shutdown Panel.
- b. The low low set function is not operable when SRV control has been transferred to the Remote Shutdown Panel.
- c. Containment isolation functions are operable for all systems operated.
- d. The Unit 2 RCIC trip throttle valve is not operable when control has been transferred to the Remote Shutdown Panel.

~~QUESTION: 002 (1.00)~~

~~DELETED~~

~~BAA  
2/27/92~~

~~Which ONE of the following defines the Heat Capacity Temperature Limit for an RPV depressurization?~~

- ~~a. The highest Suppression Pool temperature which will not result in exceeding the Suppression Pool design temperature.~~
- ~~b. The highest Suppression Pool temperature which will not result in exceeding the Primary Containment design temperature.~~
- ~~c. The highest Primary Containment temperature which will not result in exceeding the Suppression Pool design temperature.~~
- ~~d. The highest Primary Containment temperature which will not result in exceeding the Primary Containment design temperature.~~

QUESTION: 003 (1.00)

The emergency depressurization procedure directs the operator to the alternate depressurization procedure if suppression pool level is below 57.5".

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

- a. The bottom of the downcomers is at 57.5".
- b. The safety relief valves discharge at 57.5".
- c. At 57.5" suppression pool level has insufficient heat capacity for depressurization.
- d. At 57.5" suppression pool level is below the suppression pool temperature detectors.

QUESTION: 004 (1.00)

For steam cooling the operator is directed to open \_\_ (1) \_\_ safety relief valve(s) when reactor level decreases to \_\_\_\_\_ (2) \_\_\_\_\_ inches.

- a. 1, -162
- b. 7, -162
- c. 1, -207
- a. 7, -207



QUESTION: 005 (1.00)

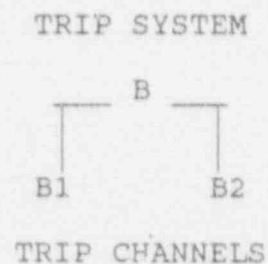
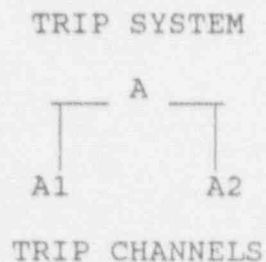
Hatch Unit 2 is operating at 95% power when a jet pump riser fails.

Which ONE of the following is the PRIMARY REASON that a plant shutdown is required by Technical Specifications and procedures?

- Invalid APRM Flow Biased SCRAM setpoints due to the change in flow through a failed jet pump
- Increased blowdown area during a Loss of Coolant Accident (LOCA)
- Unbalanced neutron flux across the core due to flow variations
- Physical core damage from a piece of a damaged jet pump

QUESTION: 006 (1.00)

Which ONE of the following trip channel conditions (A - B) from the Reactor Protection System shown in the diagram below will result in a HALF SCRAM. (Assume a "one-out-of-two taken twice" logic.)



- A1 and A2 tripped
- A1 and B2 tripped
- A1 and B1 tripped
- A2 and B1 tripped

QUESTION: 007 (1.00)

UNIT 2 has just experienced an initiation of the Automatic Depressurization System (ADS). Plant conditions are as follows:

Drywell pressure:	3.2 psig
Reactor water level:	-147 inches
All RHR pumps:	running
13 minute timer:	timed out
120 second timer:	timed out
7 ADS SRVs:	open
Main Steam pressure:	150 psig and lowering

*Prote Core Spray pumps are not working*

Which ONE of the following will cause the ADS SRVs to close?

- Reactor water level increases to -20 inches.
- Reactor pressure decreases to 25 psig.
- Resetting the High Drywell Pressure Bypass Timer
- Securing 4 RHR or both Core Spray pumps.

QUESTION: 008 (2.00)

For the each component in Column A, SELECT its functional description in Column B.

(Items in Column B may be used once, more than once, or not at all. Only one answer may occupy a space in Column A).

(4 answers required 0.50 each)

COLUMN A (Components) -----	COLUMN B (Functional Description) -----
_____ a. Off Gas Preheater	1. Provides time for Xenon and Krypton isotopes to decay.
_____ b. Off Gas Stack Isolation Valve	2. Is an electric boiler on Unit 2
_____ c. Off Gas Catalytic Recombiner	3. Reduces the levels of Hydrogen and oxygen in the off-gas flow
_____ d. Loop Seal Drain Valve	4. Will shut on HI-HI-HI radiation levels from the Post Treatment Radiation Monitor
	5. Will shut on High Hydrogen levels in the off-gas flow
	6. Uses 250 psig steam on Unit 2 to heat the off-gas flow
	7. Removes Iodine isotopes from the off-gas flow.

QUESTION: 009 (2.00)

For the Reactor Pressure Vessel (RPV) Safety Limits and Design features listed in Column A, SELECT the appropriate values from Column B. (All pressures are steam dome pressures)

(Items in column B may be used once, more than once or not at all. Only one answer may occupy a space in Column A).

(4 answers required at 0.50 each)

COLUMN A (Safety Limits/Design Features) -----	COLUMN B (Values) -----
_____ a. RPV heatup and cooldown limit (per hour)	1. 1375 psig
_____ b. RPV high pressure scram	2. 1325 psig
_____ c. RPV Design Operating Pressure	3. 1250 psig
_____ d. RPV Pressure Safety Limit	4. 1120 psig
	5. 1100 psig
	6. 1054 psig
	7. 100 degrees F.
	8. 90 degrees F.
	9. 70 degrees F.

QUESTION: 010 (1.00)

Which ONE of the following is acceptable, in accordance with Control of Operator Aids (DI-OPS-05-1084N), for use as an Operator Aid.

- a. Posting of a pending change to an Emergency Operating Procedure.
- b. Instructions used to replace a CAUTION TAG on a piece of plant equipment.
- c. Instructions used to operate equipment while procedure review and approval is in progress.
- d. Posting of a temporary label on a control until a permanent label can be attached other than as described in *the labeling procedure.*

QUESTION: 011 (1.00)

Unit 2 is operating at 72% power and 58% flow, when the operator observes a loss of feedwater heating.

Which ONE of the following describes the operator action to be taken as a result of the loss of feedwater heating?

(Attachment from 34GO-OPS-005-2S is provided).

- a. Reduce power to below the minimal load line by insertion of control rods.
- b. Reduce power by reducing recirculation flow to 45% and inserting control rods as necessary to get below the 80% load line.
- c. Reduce power to 20% without reducing core flow below 45% by reducing recirculation flow or driving control rods.
- d. Reduce power by 14.4% by reducing recirculation flow, without reducing core flow below 45%

QUESTION: 012 (1.00)

Which ONE of the following describes the automatic functions or procedural requirements for an unrecoverable loss of RBCCW due to a leak in the system while operating in mode 1?

- a. Entry into the abnormal procedure IS NOT required because the actions are covered in the EOPs.
- b. The reactor should be scrammed within 2-3 minutes because the RBCCW cannot be restored.
- c. Entry into EOP flow charts IS required to implement the recovery of the Loss of RBCCW.
- d. If a scram is required then the Abnormal Procedure for Loss of RBCCW should be exited and the EOP flowcharts entered.

294001A103 ..(KA's)

ANSWER: 011 (1.00)

d.

REFERENCE:

E.I. Hatch, 34AB-OPS-045-2S, Loss of Feedwater Heating, Section 3.3  
Learning Objective LT-IH-20201-02 Objective 2  
295014A102 (3.6/3.8]

295014A102 ..(KA's)

ANSWER: 012 (1.00)

b.

QUESTION: 013 (2.00)

For each power source in Column A, SELECT the immediate action listed in Column B that is required to be taken if that power source is lost. (Items in Column B may be used once, more than once, or not at all. Only one answer may occupy a space in Column A).

(4 answers required at 0.50 each)

Column I (Power Source Loss) -----	Column II (Immediate Action) -----
_____ a. 125/250 V DC Switchgear 2A 2R22-S016	1. Transfer 4160 V buses 2A and 2B to Startup Supply.
_____ b. 125/250 V D Switchgear 2B 2R22-S017	2. Manually trip Reactor Recirc Pump B.
_____ c. <del>125 V DC Essential Cabinet 2A</del> <i>DELETED</i> <i>BKA 2/27/92</i>	3. Secure radwaste discharge.
_____ d. 24/48V DC Cabinet 2B, 2R25-S016	4. Manually open Main Generator output breakers.
	5. Enter Loss of Instrument Bus AB-OPS.
	6. Swap CRD Flow Control Valves
	7. None



QUESTION: 014 (1.00)

Under which ONE of the following sets of conditions may the OUTBOARD Main Steam Isolation Valve Leakage Control System (MSIV-LCS) be manually initiated?

- a. Reactor pressure is less than 35 psig, all of the MSIVs are closed and Main Steam Line pressure between the Outboard MSIVs and the Main Turbine Stop Valves is less than 35 psig.
- b. Reactor pressure has been less than 35 psig for a minimum of 10 minutes, all of the MSIVs are closed and Main Steam Line pressure between the Inboard MSIVs and the Outboard MSIVs is less than 35 psig.
- c. At least 10 minutes have elapsed since the Loss of Coolant Accident (LOCA), the Outboard MSIVs are closed and pressure between the Outboard MSIVs and the Main Turbine Stop Valves and Bypass Valves is less than 35 psig.
- d. At least 10 minutes have elapsed since the Loss of Coolant Accident (LOCA), all of the MSIVs are closed and pressure between the Inboard MSIVs and Outboard MSIVs has bled down to 0 psig.

QUESTION: 015 (1.00)

Which ONE of the following is the most significant contributor to reducing power when water level is lowered during a failure to scram event.

- a. Reduces evaporative cooling thus causing fuel temperature to increase.
- b. Lowering level reduces the pressure in the core by reducing the head of water above the core.
- c. Lowering level reduces the differential pressure between the annulus and the core thus increasing the void fraction.
- d. Lowering level reduces power by increasing the subcooling of the water entering the core.

QUESTION: 016 (1.00)

Caution 2 of the EOPs states that 2B21-LI-R604A/B and 2B21-LR-R623A/B CANNOT be used to determine RPV water level during rapid RPV depressurization below 500 psig.

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

- a. At low reactor pressures the reference leg would flash due to the rapid pressure reduction.
- b. Variable leg density will decrease due to the rapid pressure reduction causing invalid readings.
- c. At low indicated levels reference leg density causes on scale indications with level below the instruments monitoring range.
- d. At low drywell temperatures the reference leg will cause erroneously high indicated levels.

QUESTION: 017 (1.00)

Under which ONE of the following conditions would the Emergency Operating Procedure require Emergency Depressurization of the reactor?

- a. Any release in excess of 1000 mr/hr in the Primary Containment and the Primary Containment cannot be isolated.
- b. Offsite release rate is 1200 mr/hr and a main steam line break in the Turbine Building cannot be isolated.
- c. Any offsite release in excess of 1000 mr/hr and an unisolatable RBCCW is discharging outside the primary and secondary containment.
- d. Any release in excess of 1000 mr/hr from the CRD system and all the 130 foot elevation radiation levels are approximately 125 mr/hr.

REFERENCE:

E.I. Hatch, LT-IH-20103-02, CP3 31FO-FOP-017-2S  
Learning Objective EO 18.  
295037K303 [4.1/4.5]

295037K303 ..(KA's)

ANSWER: 016 (1.00)

a.

REFERENCE:

E.I. Hatch, LT-IH-20305-02, EOP Cautions III.D  
Learning Objective EO 3  
295028K203 [3.6/3.8]

295028K203 ..(KA's)

ANSWER: 017 (1.00)

b.

REFERENCE:

E. I. Hatch, LT-IH-20115-00, 31EO-EOP-14-2S, Radioactivity Release  
Control: Content and Use, LT-IH-20115-00, pg 6.  
Learning Objective EO6.  
295038K205 [3.7/4.7]

295038K205 ..(KA's)

ANSWER: 018 (1.00)

a.

QUESTION: 018 (1.00)

Entry into a HIGH RADIATION AREA is required. To complete the task, the operator will receive an estimated 70 mrem whole body dose. You have the following information on available operators. Time constraints will not permit authorization of an increase in administrative limits. NRC Form 4s are on file. WHICH ONE (1) of the following operators can complete the job?

Operator	Age	Quarter	Exposure (mrem)	
			Year	Life
a.	29	920	4190	27890
b.	17	50	250	250
c.	24	125	4940	21735
d.	20	980	4730	9970

QUESTION: 019 (1.00)

Unit 2 is in HOT SHUTDOWN with a reactor pressure of 805 psig. Operability tests are performed on all of the MSL Radiation Monitoring System Channels, 2D11-K603 A, B, C, and D. Channels A and D test UNSAT, while Channels B and C test SAT. Maintenance has no estimate of repair time and will not be able to commence troubleshooting and repairs for 16 hours.

WHICH ONE (1) of the following actions is required by the Technical Specifications?

- Place both unsat channels in the tripped condition within one hour and be in COLD SHUTDOWN within the next 24 hours.
- Place one trip system in the tripped condition within 1 hour and be in COLD SHUTDOWN within the next 12 hours.
- Close the main steam isolation valves within 1 hour and be less than 210 deg F within the next 12 hours.
- Place one trip system in the tripped condition within one hour and be in COLD SHUTDOWN within the next 30 hours.

QUESTION: 020 (1.00)

Which ONE of the following will cause a main turbine trip following a loss of stator water cooling? (ASSUME a 18,095 amp load, prior to failure of stator water cooling.)

- a. Time since failure 4.8 minutes  
Load 5290 amps
- b. Time since failure 2.6 minutes  
Load 15230 amps
- c. Time since failure 3.2 minutes  
Load 4675 amps
- d. Time since failure 2.3 minutes  
Load 16340 amps

QUESTION: 021 (1.00)

Which ONE of the following is NOT required to be worn while operating a single pole disconnect switch?

- a. Hard hat
- b. Safety glasses
- c. Rubber boots
- d. Rubber gloves

QUESTION: 022 (1.00)

WHICH ONE (1) of the following is the MINIMUM Technical Specification required shift composition while both units are in a Hot Shutdown Condition?

- |    |                           |   |
|----|---------------------------|---|
| a. | Senior Operating Licenses | 2 |
|    | Operating Licenses        | 3 |
|    | Non-Licensed              | 3 |
|    | Shift Technical Advisor   | 1 |
| b. | Senior Operating Licenses | 2 |
|    | Operating Licenses        | 3 |
|    | Non-Licensed              | 2 |
|    | Shift Technical Advisor   | 1 |
| c. | Senior Operating Licenses | 1 |
|    | Operating Licenses        | 3 |
|    | Non-Licensed              | 2 |
|    | Shift Technical Advisor   | 1 |
| d. | Senior Operating Licenses | 1 |
|    | Operating Licenses        | 2 |
|    | Non-Licensed              | 3 |
|    | Shift Technical Advisor   | 1 |

QUESTION: 023 (1.00)

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

CMAPR: 0.96  
CMFLPD: 0.92  
CMFCP: 1.01

Which ONE of the following LIMITS is being exceeded?

- Fuel Cladding Integrity Safety Limit
- Linear Heat Generation Rate
- Average Planar Linear Heat Generation Rate
- Minimum Critical Power Ratio

QUESTION: 024 (1.00)

A Reactor Startup is in progress on Unit 2 with the Reactor Mode Switch in STARTUP/HOT STANDBY and Reactor Pressure at 700 psig.

The "2E" ADS valve's ADS function is declared INOP. HPCI and RCIC surveillance are current and not required.

Which ONE of the following actions SHOULD be initiated by the Shift Supervisor?

- a. Direct the unit 2 startup be continued and proceed to desired power level.
- b. Direct a reactor shutdown to HOT SHUTDOWN within 6 hours and COLD SHUTDOWN within the following 30 hours.
- c. Initiate a 14 day LCO and direct the Unit 2 startup be stopped prior to entering the run mode.
- d. Initiate a 14 day LCO and continue the unit startup to rated power.

QUESTION: 025 (1.00)

Which ONE of the following changes would alter the INTENT of a procedure?

- a. A procedure is changed to indicate an authorized temporary test pressure gauge will be in place for 3 weeks while the normal pressure instrument is in the instrument shop for repair.
- b. A procedure is changed so that when the APRM's are recalibrated, the neutron trip setpoint would be lower than that required by the Technical Specifications.
- c. A procedure is changed so that shielding is removed in the vicinity of the RWCU Filter/Demins which will result in a higher radiation dose to the PEO stationed in the area.
- d. A procedure is changed such that a trip setpoint listed in the procedure is altered to agree with the vendors technical manual but more conservative than the Technical Specifications.

QUESTION: 026 (1.00)

Unit 2 has experienced a loss of Main Condenser vacuum resulting in MSIV closure and a reactor scram. The following plant conditions exist:

- All control rods are fully inserted
- All MSIVs are closed
- HPCI system is inoperable
- RPV water level -10 inches and slowly increasing
- Reactor pressure 905 psig
- RCIC diagonal area temperature 195 deg F
- RCIC diagonal area radiation level 55 urem/hr
- RCIC system is still operating

Which ONE of the following actions should be taken by the crew?

- a. Operate RCIC area coolers until area temperature or radiation levels exceed Max Safe Operating value, then isolate RCIC and use Core Spray to restore RPV water level.
- b. Continue to operate RCIC system to restore RPV water level until RPV water level is greater than +32 inches.
- c. Isolate RCIC system immediately and use CRD system to restore RPV water level.
- d. Operate RCIC until area temperature exceeds Max Safe Operating value then Emergency Depressurize the plant.

QUESTION: 027 (1.00)

A contractor has the need to have access to non-vital areas outside the Operating Building and Outside Structure. *(inside protected areas)*

Which ONE of the following is the procedure to be used to allow him access?

- a. He may be issued a key from the OSOS key cabinet if he has completed the General Employee Training.
- b. He may be issued a key by the Department Manager for whom he works if accompanied by a GPC employee.
- c. He may be issued a key from the OSOS key cabinet if he has written permission from the Operations Superintendent.
- d. He as a contract employee may not be issued a key to any area of the plant.



QUESTION: 028 (1.00)

Hatch Unit 2 has experienced a significant loss of coolant accident. Plant conditions are as follows:

- RPV Pressure 150 psig (Emergency Depressurization in progress)
- Suppression Chamber pressure 37 psig increasing
- Suppression Pool water level 312 inches

Which ONE of the following actions is required by the EOPs to control Suppression Chamber pressure?

- a. Vent the Suppression Chamber per 31EO-EOP-101-2S irrespective of offsite release rate.
- b. Initiate Suppression Pool Sprays per 34SO-E11-010-2S irrespective of adequate core cooling.
- c. Vent the Drywell per 31EO-EOP-101-2S irrespective of offsite release rate.
- d. Initiate Drywell Sprays per 34SO-E11-2S irrespective of adequate core cooling.

QUESTION: 029 (1.00)

During normal Unit 2 power operations, Drywell pneumatics (N2 makeup via Drywell pneumatics) is lost.

Which ONE of the following describes the effect this loss has on the Unit 2 MSIVs. (Assume no operator action)

- a. As nitrogen bleeds off, the inboard MSIVs will shut.
- b. As air leaks off the outboard MSIVs will shut.
- c. As nitrogen bleeds off the inboard MSIVs, the first MSIV reaching 90% open initiates a Group I isolation..
- d. No action will occur since Instrument air will automatically backup the Drywell pneumatics.

QUESTION: 030 (1.00)

Which ONE of the following will cause an isolation of the Drywell Hydrogen and Oxygen monitor sample lines?

- a. High radiation on the Drywell and Torus Gamma Radiation Monitors (138 Rem/hr)
- b. High Drywell Hydrogen concentration (10%)
- c. High Drywell temperature (280 deg F)
- d. High Drywell pressure (1.92 psig)

QUESTION: 031 (2.00)

Which ONE of the following statements is correct concerning the Unit 1 SBGT system?

- a. The SBGT AOVs fail as is on a loss of Station Service Air.
- b. The SBGT system fans load shed on a LOSP, but may be restored after depressing the Non-essential Load Lock-out pushbutton.
- c. The SBGT suction from the Drywell and Torus are both connected to the SBGT system through the excess flow isolation damper.
- d. if drywell pressure exceeds 1.92 psig, the Unit 1 SBGT fans will auto-start and align for suction from the Drywell.

QUESTION: 032 (1.00)

HPCI is injecting to the vessel with its suction from the CST. A high Torus water level occurs.

Which ONE of the following describes the actions which should occur to the HPCI system (Assume no operator action has been taken)

- a. HPCI suction will remain from the CST until a high CST level occurs. Then the CST suction valve (2E41-F004) will auto shut. When the CST suction valve is fully closed, the Torus suction valves (2E41-F041 and F042) will open.
- b. The CST suction valve (2E41-F004) will auto shut. When the CST suction is fully closed the Torus suction valves (2E41-F041 and F042) will auto open.
- c. The Torus suction valves (2E41-F041 and F042) should be manually opened. When the Torus suction valves are 90% of full open, the CST suction valve (2E41-F004) should be manually shut.
- d. The Torus suction valves (2E41-F041 and F042) will auto open. When the Torus suction valves are 90% of full open, the CST suction valve 2E41-F004) will automatically shut.

QUESTION: 033 (1.00)

Unit 2 is operating at rated conditions with Core Spray loop "A" in its normal standby lineup with the following exception: 2E21-F004A (outboard discharge valve) is closed. A spurious Core Spray initiation signal is received.

Which ONE of the following describes the response of the Core Spray Valves?

- a. Both 2E21-F004A and 2E21-F005A will auto open.
- b. 2E21-F004A will immediately auto open and 2E21-F005A will auto open if reactor pressure decreases to below 500 psig.
- c. 2E21-F004A will immediately auto open and 2E21-F005A will auto open if reactor pressure decreases to below 500 psig.
- d. Neither 2E21-F005A or 2E21-F005A will auto open under these conditions.

QUESTION: 034 (1.00)

Which ONE of the following describes the response of the Main Turbine EHC control system when the pressure input to pressure regulator fails while operating at near rated conditions?

- a. If the "A" pressure regulator input fails HIGH, the "B" pressure regulator takes control and closes the Turbine Control Valves slightly to maintain pressure
- b. If the "A" pressure regulator input fails LOW, a full open signal is sent to the Turbine Control valves.
- c. If the "B" regulator input fails HIGH, a full open signal is sent to the Turbine Control and Bypass valves and the MSIVs close on low pressure.
- d. If the "B" regulator input fails LOW, a full closed signal is sent to the Turbine Control Valves.

QUESTION: 035 (1.00)

Which ONE of the following is the Primary Containment condition which would require the initiation of a Unit 2 LCO?

- a. Mode Switch in SHUTDOWN, reactor coolant temperature 350 deg F, and Torus level is 145 inches.
- b. Mode Switch in STARTUP, reactor coolant temperature 180 deg F, and Drywell pressure is .7 psig.
- c. Mode Switch is in RUN and Drywell average air temperature is 130 deg F.
- d. Mode Switch in RUN and Torus water temperature is 97 deg F.

QUESTION: 036 (1.00)

During fuel loading on Unit 2, the grapple is loaded and the platform is over the reactor.

Which ONE of the following is an acceptable means of placing the fuel bundle in a safe condition if the reactor cavity water level begins to slowly decrease?

- a. Move the fuel bundle to the fuel pool prep machine area and lower the bundle as low as possible and leave grappled.
- b. Move the fuel bundle to the fuel pool and lower it into any open fuel storage rack in the fuel pool.
- c. Move the fuel bundle over the core and lower it into any core location that is available.
- d. Do not move the bundle laterally but lower it to the lowest position possible in the reactor cavity.

QUESTION: 037 (1.00)

A transient on unit 2 has caused reactor pressure to peak at 1095 psig. Reactor pressure is now 878 psig and decreasing. All plant equipment functioned as required.

Which ONE of the following describes the present status of the reactor pressure relief system?

- a. LLS is NOT armed; no SRVs should be open.
- b. LLS is NOT armed; SRV 2B21-F013B, C, F, and G should be open.
- c. LLS IS armed; SRV 2B21-F013B and G should be open.
- d. LLS IS armed; SRV 2B21-F013B, and C should be open.

QUESTION: 038 (1.00)

A transient has occurred on Unit 2 causing the following plant conditions:

- Reactor water level CANNOT be determined
- The reactor has scrammed and all rods have inserted beyond 02
- Only 2 SRVs can be opened
- Drywell pressure is 2.8 psig and increasing
- Reactor pressure is 830 psig and decreasing slowly
- The MSIVs are closed and cannot be opened

Which ONE of the following is the next action to be taken in accordance with the EOPs?

- a. Using all available systems, inject into the RPV until level indication is restored, all Drywell RTDs read less than 210 deg F and RPV pressure has remained at least 50 psid above suppression chamber pressure for at least the core flooding interval.
- b. Trip the Drywell cooling fans, inject with all available systems until suppression pool water level increases to 300 inches then vent the RPV using HPCI and RCiC steam lines and the main steam line drains.
- c. Rapidly depressurize the RPV using HPCI, RCiC, HPCI drains, RCiC drains, main steam line drains and RHR steam condensing, then establish steam cooling until RPV water level indication is restored, then proceed to cooldown.
- d. Prevent all injection into the RPV except for RCiC and CRD until all Drywell RTDs read less than 210 deg F and RPV water level indication has been restored and water level is at least above -162 inches.

QUESTION: 039 (1.00)

Which ONE of the following plant conditions will result in the 1B Emergency Diesel Generator tying to NEITHER Unit 1 or Unit 2.

- a. Select switch is in Unit 2 and LOSP occurs to each unit.
- b. Select switch is in Unit 1 a LOCA on Unit 2 and a LOSP on Unit 1.
- c. Select switch is in Unit 2 a LOCA/LOSP on Unit 1 and LOSP on Unit 2.
- d. Select switch is in Unit 1 and a simultaneous LOCA/LOSP to both units.

QUESTION: 040 (1.00)

Unit 2 is operating at 100% power. "1B" Emergency Diesel has been inoperable for 12 hours. While running the "2A" Diesel Generator for testing, the output breaker would not close.

Which ONE of the following actions is required to be taken?

- a. The remaining Diesel Generator must be run within 24 hours, and at least two diesels returned to operable status within 60 hours or be in HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
- b. The remaining Diesel Generator must be run within 1 hour and at least every 8 hours thereafter. Return at least one of the inoperable diesels to operable status within 2 hours. Restore all three diesels to operable status within 72 hours from the initial loss.
- c. The remaining Diesel Generator must be run within 2 hours restore at least one of the inoperable diesels to operable status within 12 hours, or be in at least HOT SHUTDOWN in the next 12 hours and COLD SHUTDOWN within the following 24 hours.
- d. The remaining Diesel Generator must be run within 1 hour, all three diesels returned to operable status within 60 hours or be in at least HOT STANDBY in the next 12 hours and COLD SHUTDOWN within the following 24 hours.

QUESTION: 041 (1.00)

Unit 2 is in a refueling outage with fuel movement taking place. Diesel Generator 2A turbo charger is being repaired and the diesel will be INOP for 2 days. All other electrical equipment is operable. A PEO reports that both fuel oil pumps on Diesel Generator 2C have seized. Which ONE of the following is the correct action to be taken for refueling operations?

- a. Refueling operations must be discontinued until at least one of the diesels has been returned to operable status.
- b. Refueling operations can continue for up to 12 hours.
- c. Refueling operations can continue indefinitely.
- d. Refueling operations must be discontinued until at least one pump on the 2C diesel has been repaired.

QUESTION: 042 (1.00)

Unit 2 is operating at 100% power with the Off-Gas Mode Switch in AUTO. Off-Gas Post-Treatment radiation monitor channel "A" indication increases to just above the high alarm setpoint. The "B" channel reading remains normal.

Which ONE of the following explains the response of the Off-Gas components?

- a. 2N62-F037, Off-Gas Stack Isolation Valve, receives a close signal.
- b. 2N62-F042, Off-Gas Discharge to Carbon Bed Valve, receives a close signal
- c. All Off-Gas Loop Seal Drain Valves receive a close signal
- d. 2N62-F043, Off-Gas Carbon Bed Bypass Valve, receives a close signal.



QUESTION: 043 (1.00)

Both units are operating at 100% power when a transient in Unit 1 causes the Unit 1 RPV level to decrease to -50 inches.

Which ONE of the following DESCRIBES the response of the Unit 1 and Unit 2 Standby Gas Treatment Systems?

- a. Neither unit running
- b. Both units running
- c. Unit 1 running
- d. Unit 2 running

QUESTION: 044 (1.00)

Which ONE of the following will reset the ADS 120 second timer while in the process of timing out following a valid initiation signal?

- a. Drywell pressure decreases to 1.5 psig.
- b. Reactor water level increases to -90 inches.
- c. "A" and "B" core spray pumps trip off.
- d. RHR pump discharge pressure decreases to 117 psig.

QUESTION: 045 (1.00)

A loss of the 2C and 2D 4160 VAC switchgear occurs following a main turbine trip.

Which ONE of the following describes the response of the Unit 2 Reactor Recirculation MG Set lube oil system(s)?

- a. The DC Oil Pumps for each Recirc MG set will auto start and supply oil to the Motor, Generator, and the Fluid Drive Coupler bearings.
- b. There is no effect since 2C and 2D do not supply the pumps for the Unit 2 Recirculation Oil Pumps.
- c. The A3 and B3 AC Lube Oil Pumps for the recirc MG Sets will auto start and supply oil to the Fluid Drive Coupler bearings only.
- d. The DC oil Pumps for both Unit 2 Recirc MG sets will auto start and supply oil to the Fluid Drive Coupler bearings only.

QUESTION: 046 (1.00)

Unit 2 is operating at 22% power with Diesel Generator "B" inoperable. BOTH 2A and 2B Plant Service Water Pumps develop severe vibrations and must be secured.

Which ONE of the following actions SHOULD the Unit 2 Shift Supervisor take to be in compliance with the Technical Specifications?

- a. ALLOW plant operations to continue, provided that Diesel Generator "B" is restored to operable status within the next 2 days, or be in Hot Shutdown within the next 12 hours and Cold Shutdown within the following 24 hours.
- b. ALLOW plant operations to continue provided that PSW Pump is restored to operable status within 7 days or be in Hot Shutdown in the next 12 hours and in Cold Shutdown within the following 24 hours.
- c. NOT ALLOW plant operation to continue; the plant should be shutdown to Hot Shutdown within the next 12 hours and Cold Shutdown within the following 24 hours.
- d. NOT ALLOW plant operation to continue; the plant should be Shutdown to Hot Shutdown within the next 6 hours and Cold Shutdown within the following 30 hours.

QUESTION: 047 (1.00)

A Loss of Coolant Accident (LOCA) has occurred on Unit 2. The following plant conditions exist:

Reactor Pressure	1000 psig
Suppression Pool Level	155 inches and increasing
Suppression Chamber Pressure	10 psig and increasing
HPCI is injecting into the RPV	

EOP PC-1 has been entered and all flow paths are being performed concurrently.

Which one of the following actions is the next to be performed in accordance with the EOP?

- Trip and prevent operation of HPCI IRRESPECTIVE of adequate core cooling.
- Terminate and prevent injection into RPV from external sources except for those required for adequate core cooling.
- Defeat high suppression pool water level transfer logic for HPCI.
- Trip the Recirculation Pump<sup>s</sup> and Drywell Cooling Fans and initiate Drywell Sprays.

QUESTION: 048 (1.00)

The Refueling Floor Health Physics Technicians are transporting contaminated trash on the Unit 2 refueling floor when the Fuel Pool Area Radiation Monitor alarms.

Which ONE of the following automatic actions occurs as a result of the alarming area monitor?

- The Unit 2 Refueling Floor Ventilation System ISOLATES.
- Control Room Ventilation shifts to PRESSURIZATION Mode.
- Drywell and Torus Vent and Purge Valves CLOSE.
- Unit 1 and 2 Standby Gas Treatment Systems START.

QUESTION: 049 (1.00)

Unit 2 is in Cold Shutdown with RHR in Shutdown Cooling, when reactor water level gradually decreases to less than 12.3 inches.

Which ONE of the following describes the response of the RHR system?

- a. The RHR Pumps in Shutdown Cooling trip then the SDC Suction valves (2E11-F008 and 2E11-F009) close.
- b. The RHR Pumps in Shutdown Cooling do not trip but the RHR Inboard Injection Valve (2E11-F015A) closes
- c. The RHR Shutdown Cooling Suction Valves (2E11-F006A and C) and RHR Torus Suction Valves (2E11-F004A and C) close but the RHR Pumps must be tripped manually.
- d. The RHR Shutdown Cooling Suction Valves (2E11-F008 and 2E11-F009) and RHR Inboard Injection Valve (2E11-F015A) close and the RHR Pumps automatically trip.

QUESTION: 050 (1.00)

Unit 1 has experienced a transient due to a Primary System discharging into the Secondary Containment. The operating crew has just completed Emergency Depressurization.

Which ONE of the following level instrument indications is no longer valid and should not be used for level indication?

- a. 2B21-R605 Floodup Range.
- b. 2C32-R606A, B, C Narrow Range.
- c. 2B21-R623 Wide Range.
- d. 2B21-R610 Fuel Zone Range.

QUESTION: 051 (1.00)

Unit 2 is operating at 80% power when valve 2G31-F004, Outboard Suction Isolation Valve closes.

Which ONE of the following describes the possible status of the RWCU system and the cause of the isolation?

- a. ISOLATION FAILURE, Reactor Water Cleanup Valve 2G31-F001 should have also closed on high outlet temperature on the Non Regenerative Heat Exchanger.
- b. ISOLATION FAILURE, Return Isolation Valve 2G31-F042 should have also closed on high differential flow between the inlet and outlet of the heat exchanger.
- c. NO ISOLATION FAILURE, 2G31-F004 is the only valve which closes on High differential Flow Between Inlet and Outlet.
- d. NO ISOLATION FAILURE, 2G31-F004 is the only valve which closes on High Outlet Temperature on the Non-Regenerative Heat Exchanger.

QUESTION: 052 (2.00)

SELECT the items in Column B associated with the valves listed in Column A. (Items in Column B may be used once, more than once or not at all. Only one answer may occupy a space on Column A).

(4 answers required at 0.50 each)

COLUMN A	COLUMN B
___ a. Heat Exchanger Shell Bypass Valve F048A	1. Auto opens and interlocked open for 5 minutes on receipt of a LOCA signal (with reactor pressure less than 449 psig)
___ b. Inboard Injection Valve F015A	2. F00CA must be closed in order to manually open the valve.
___ c. Steam Pressure Reducing Isolation Valve F091A	3. Can be manually opened with reactor pressure less than 138 psig and low reactor water level signal not present
___ d. Torus Suction Valve F004A	4. Auto closes and interlocked closed upon receipt of a LOCA signal or RWL less than 2/3 core height
	5. Auto closes on a LOCA signal and is interlocked closed for the duration of the signal
	6. Opens and is interlocked open for three minutes following a LOCA signal
	7. Auto opens and is interlocked open on receipt of a LOCA signal (with reactor pressure less than 425 psig)

QUESTION: 053 (2.00)

For the automatic actions on reactor water level listed in Column "A" SELECT the appropriate required level setpoint from the list in Column "B". (Setpoints in column B may be used once, more than once, or not at all. Only one answer may occupy a space in Column A). (4 required 0.50 each)

COLUMN A Automatic Action	COLUMN B Level Setpoint
_____ a. Shutdown Cooling Valves Close	1. +58"
_____ b. Primary Containment Group V Isolation	2. +56.5"
_____ c. Containment Spray Permissive (2/3 core coverage)	3. +42"
_____ d. Standby Gas Treatment Starts	4. +37"
	5. +32"
	6. 00"
	7. -47"
	8. -113"
	9. -202"

QUESTION: 054 (1.00)

Plant Hatch Unit 2 Technical Specification 4.4.1.2 requires demonstrating Recirculation Jet Pump operability if Jet Pump Failure is suspected. Which ONE of the following identifies the acceptance criteria which demonstrates operability?

- The recirculation pump flow/speed ratio does not deviate from the normal range by more than 20%.
- The recirculation pump flow/speed ratio does not deviate from the normal range by more than 15%.
- The jet pump loop flow/speed ratio does not deviate from the normal range by more than 10%.
- The jet pump loop flow/speed ratio <sup>does not</sup> ~~does~~ deviate from the normal range by more than 5%.

QUESTION: 055 (1.00)

The RCIC System has received an initiation signal on Reactor Vessel Low Water Level (Level 2). The Steam to Turbine Bypass Valve 2E51-F119 fails to open.

Which one of the following describes the response of the RCIC system?

- a. Steam to Turbine Valve 2E51-F045 will not open and the RCIC turbine fails to start.
- b. Steam to Turbine Valve 2E51-F045 opens when the RCIC initiation signal is received.
- c. Steam to Turbine Valve 2E51-F045 opens 3-5 seconds after the RCIC initiation signal is received.
- d. Steam to Turbine Valve 2E51-F045 opens 8-10 seconds after the RCIC initiation signal.



QUESTION: 056 (1.00)

Unit 2 is at 100% power with all systems operating normally. The Monthly Suppression Pool to Drywell Vacuum Breaker Operability test has just been performed with the following results:

Six valves had opening setpoints of 0.4 psid.  
Two valves had opening setpoints of 0.7 psid.  
Three valves were inoperable for opening, but known to be closed.  
One valve was found to be open.  
One valve had a position indicator inoperable.

Which ONE of the following actions should be directed by the Shift Supervisor?

- a. Perform Surveillance 4.5.4.1.a on the OPERABLE vacuum breakers within 2 hours and at least once every 15 days thereafter.
- b. Perform Surveillance 4.6.4.1.a on the OPERABLE vacuum breakers and perform Surveillance 4.6.4.1.b within 2 hours and at least once every 15 days thereafter.
- c. Perform Surveillance 4.6.4.1.b within 4 hours and at least once every 72 hours thereafter.
- d. Perform Surveillance 4.6.4.1.a on the OPERABLE vacuum breakers and perform Surveillance 4.6.4.1.b within 2 hours and at least once every 72 hours thereafter.

QUESTION: 057 (1.00)

A transient has occurred at Unit 2 resulting in the following plant conditions:

Drywell pressure	2.1 psig
Drywell temperature	168 deg F
Torus water temperature	92 deg F

Which ONE of the following describes the sequence for placing an RHRSW pump in service in preparation for Suppression Pool Cooling?

- Wait for the LOCA signal to clear, then place the RHRSW LOCA Override Switch in MANUAL OVERRIDE and start the pump.
- Place the RHRSW LOCA Override Switch in AUTO and start the pump.
- Wait for the LOCA signal to clear, place the RHRSW LOCA Override Switch in AUTO and start the pump.
- Place the RHRSW LOCA Override Switch in MANUAL OVERRIDE and start the pump.

QUESTION: 058 (1.00)

Units 1 and 2 are operating at 100% power when a Unit 1 Reactor Building Exhaust Ventilation High Radiation alarm is received.

Which one of the following describes the response of the Secondary Containment System(s) to this condition?

- Unit 1 Refueling Floor Ventilation System trips and isolates. Units 1 and 2 Reactor Building Ventilation Systems trip and isolate. Unit 1 Standby Gas Treatment System Auto starts.
- Units 1 and 2 Refueling Floor Ventilation Systems trip and isolate. Units 1 and 2 Reactor Building Ventilation Systems trip and isolate. Units 1 and 2 Standby Gas Treatment Systems Auto start.
- Unit 1 Refueling Floor Ventilation System trips and isolates. Units 1 and 2 Reactor Building Ventilation Systems trip and isolate. Units 1 and 2 Standby Gas Treatment Systems will Auto start.
- Units 1 and 2 Refueling Floor Ventilation Systems trip and isolate. Unit 1 Reactor Building Ventilation trips and isolates. Units 1 and 2 Standby Gas Treatment Systems Auto start.

QUESTION: 059 (1.00)

Unit 1 is shut down for refueling. Unit 2 is operating at 90% power. The alarm annunciator for RB NW AL Elevation 132 is received. An investigation reveals the interlocks on the doors have been defeated and both doors are blocked open to permit a long pipe to be brought into the building.

Which ONE of the following describes the actions required to be taken?

- a. No action is required since Unit 1 Technical Specifications do not require Secondary Containment if the reactor is in COLD SHUTDOWN.
- b. Immediately suspend irradiated fuel handling and fuel cask handling in Unit 1 and shut down Unit 2 to at least HOT SHUTDOWN within the next 12 hours and COLD SHUTDOWN within the following 24 hours.
- c. Restore Secondary Containment within 4 hours or suspend irradiated fuel handling and fuel cask handling in Unit 1 and shut down Unit 2 to at least HOT SHUTDOWN within the next 12 hours and COLD SHUTDOWN within the following 24 hours.
- d. Immediately suspend irradiated fuel handling and fuel cask handling in Unit 1 and restore Secondary Containment integrity on Unit 1 within 4 hours, and be in at least HOT SHUTDOWN on Unit 2 within the next 12 hours and COLD SHUTDOWN within the following 24 hours.

QUESTION: 060 (1.00)

Unit 1 is starting up with the main turbine tied to the line. Turbine load is 110 GMWE and the operator is in the process of increasing the load set to close the two bypass valves which are presently open. The turbine develops high vibration and the operator depresses the "ALL VALVES CLOSED" pushbutton.

Which ONE of the following describes the actions initiated by the EHC?

- a. The main turbine Control Valves would close and the Bypass Valves would open to control pressure.
- b. The Bypass Valves would close, but the Control Valves would remain open at the position demanded by the load selector.
- c. Neither the Control Valves or the Bypass Valves would close.
- d. Both the Control Valves and the Bypass Valves would close.

QUESTION: 061 (1.00)

A transient has occurred on Unit 2 resulting in the following plant conditions:

RPV Pressure	800 psig decreasing
RPV Water Level	Cannot be determined
SRVs	7 open
Reactor Power Level	30%
Standby Liquid Control	Initiated
Drywell Pressure	2.65 psig

Which ONE of the following sets of actions should be directed by the Shift Supervisor?

- Prevent injection from all systems except Boron Injection, CRD and RCIC; rapidly depressurize per 31EO-EOP-108-2S; then perform RPV flooding for ATWS.
- Prevent injection from all systems except Boron Injection, RCIC, and CRD AND wait until RPV pressure is below 90 psig before proceeding with RPV flooding.
- Prevent injection from Core Spray and LPCI; wait until the Cold Shutdown Boron Weight has been injected; then begin RPV pressure reduction IAW 34GO-OPS-013-2S.
- Prevent injection from Core Spray and LPCI; wait until RPV pressure is less than 138 psig; and Cold Shutdown Boron Weight has been injected; then initiate Shutdown Cooling.

QUESTION: 062 (1.00)

Primary Containment Flooding is required utilizing the Fire System. Which ONE of the following describes the flow path to be utilized for Primary Containment Flooding from Fire Hydrant 11?

- Condensate transfer loop A and then into the RCIC loop.
- Condensate transfer loop B and then into and Core Spray Loop A
- Condensate transfer loop B and then into any RHR loop not operating in the LPCI mode.
- Condensate transfer loop A and then into Core Spray Loop B

QUESTION: 063 (1.00)

During a plant transient on Unit 2 it has been determined that Suppression Chamber pressure cannot be maintained below 49 psig. Suppression Pool water level is 304 inches. In accordance with the emergency procedures, which ONE of the following actions should be taken?

- a. Vent the Suppression Chamber utilizing Torus Vent Flow Control Valve 2T48-F337 A(B).
- b. Vent the Suppression Chamber utilizing Torus Air Purge Valve 2T48-F309.
- c. Vent the Drywell utilizing Drywell Vent Flow Control Valve 2T48-F336A(B).
- d. Vent the Drywell utilizing Drywell Air Purge Valve 2T48-F307.

QUESTION: 064 (1.00)

Unit 2 Scram Procedure 34AB-OPS-060-2S directs breaking turbine vacuum if the MSIVs are closed on a scram.

Which ONE of the following is the reason for taking this action?

- a. Prevents damage to the Intercept Stop valves due to passing condensate through the valves.
- b. Prevents rotor bowing of the low pressure rotors of the Main Turbine.
- c. Prevents sucking lube oil from the main turbine bearings into the condenser.
- d. Prevents damage to the turbine gland seal due to sucking cold air through the seal.

QUESTION: 065 (1.00)

A loss of Vital AC power has occurred on Unit 2.

Which of the following automatic RPS actions should immediately occur?

- a. A half scram.
- b. A full scram.
- c. A 1/2 Group I isolation.
- d. A control rod select block.

QUESTION: 066 (1.00)

Unit 2 is operating at 95% power when it has been determined that the Suppression Pool water temperature is 108 deg F.

Which ONE of the following actions is required to be taken?

- a. Return Suppression Pool water temperature to less than 100 deg F within 24 hours or be in at least HOT SHUTDOWN within the next 12 hours and COLD SHUTDOWN within the following 24 hours.
- b. Immediately place the Reactor Mode Switch to the SHUTDOWN position and cooldown to less than 212 deg F within the next 24 hours.
- c. Manually Scram the reactor, initiate a normal reactor depressurization to less than 200 psig within 12 hours and be in COLD SHUTDOWN within the following 24 hours.
- d. Return Suppression Pool temperature to less than 105 deg F within one hour or be in at least H.T SHUTDOWN within the next 12 hours and COLD SHUTDOWN within the following 24 hours.

QUESTION: 067 (1.00)

A transient has occurred on Unit 2 due to the loss of a Recirculation Pump. Which of the following sets of plant conditions requires an immediate scram in accordance with 34 AB-OPS-058-2S? (Reactor Power Verses Flow Map attached)

- a. Reactor Power           60%  
   Core Flow               46%  
   APRM Oscillations       3%
- b. Reactor Power           40%  
   Core Flow               38%  
   APRM Oscillations       9%
- c. Reactor Power           54%  
   Core Flow               42%  
   Two LPRM Oscillations   8%
- d. Reactor Power           60%  
   Core Flow               39%  
   APRM Oscillations       5%

QUESTION: 068 (1.00)

Unit 2 has scrammed from 100% power. The following plant conditions exist:

Highest Drywell Temperature	210 deg F
Drywell Pressure	1.3 psig
Reactor Pressure	920 psig

RPV Level Instruments indicate as shown:

Floodup Level 2B21-R605	+20 inches
Narrow Range Level 2C32-R606A	+6 inches
Wide Range Level 2B21-R604A	+5 inches
Fuel Zone Level 2B21-R610	-80 inches

Which ONE of the following level instruments is not reliable for level trending?

- Floodup Level 2B21-R605
- Narrow Range Level 2C32-R606A
- Wide Range Level 2B21-R604A
- Fuel Zone Level 2B21-R610

QUESTION: 069 (1.00)

An ATWS event has occurred on Unit 2. The following plant conditions exist:

MSIVs	Closed
RPV Level	TAF
No rod insertion steps can be performed	
The STA cannot confirm COLD SHUTDOWN with the current rod configuration	

Which ONE of the following conditions will allow the crew to INITIALLY restore the RPV water level to the normal level band (+12.5" to +51.5")?

- SRV Steam flow is less than the capacity of 3 valves.
- SBLC tank level is below the HOT SHUTDOWN level of 26%.
- Reactor power is less than 3% on all APRMs.
- The SRVs are no longer cycling and remain closed.



QUESTION: 070 (1.00)

Which ONE of the following describes the consequence of operating in the UNSAFE REGION of the Heat Capacity Level Limit GRAPH during ADS actuation?

- a. Containment\* failure due to excessive load stress on the suppression pool structural supports.
- b. Excessive hydrodynamic stress on submerged components in the Suppression Pool.
- c. Inadequate core cooling due to insufficient driving head through the SRVs.
- d. Containment failure due to exceeding the Primary Containment Design Pressure Limit.

QUESTION: 071 (1.00)

Unit 2 is operating at 100% power when a loss of instrument air occurs.

Which ONE of the following conditions would require the operator to insert a manual scram?

- a. Five CRD mechanisms have temperatures greater than 250 deg F and local CRD pressure is 70 psig.
- b. Two CRD mechanisms have temperatures greater than 450 deg F, CRD high temperature alarm and local scram pilot air pressure is 51 psig.
- c. One CRD mechanism has a high temperature alarm and local scram pilot pressure is 40 psig.
- d. Six accumulator trouble lights exist and local CRD pressure is 55 psig.

QUESTION: 072 (1.00)

Which ONE of the following is a condition which WOULD ALLOW the operator to initiate Primary Containment Sprays IRRESPECTIVE of adequate core cooling?

- a. Drywell Hydrogen concentration cannot be maintained below 5% and Oxygen concentration is 4%.
- b. Primary Containment Pressure is increasing and cannot be maintained less than 49 psig.
- c. The Suppression Chamber Pressure is in the unsafe region of the Pressure Suppression graph and Hydrogen concentration is 5%.
- d. The Suppression Chamber Hydrogen concentration is 5% and the Drywell Chamber Oxygen concentration is greater than 6%.

QUESTION: 073 (1.00)

RHR Shutdown Cooling has just been placed in service on Unit 2.

Which ONE of the following describes the operation of the RHR valves if reactor pressure increases to 150 psig?

- a. RHR Shutdown Cooling Suction Valve 2E11-F006 and RHR Heat Exchanger Shell Side Outlet Valve 2E11-F003 close.
- b. RHR Heat Exchanger Inlet Valve 2E11-F047 and RHR Shutdown Cooling Suction Valve 2E11-F006 close.
- c. RHR Suction Cooling Valve 2E11-F006 and RHR Suction Cooling Valve 2E11-F009 close
- d. RHR Shutdown Cooling Suction Valve 2E11-F006 and RHR Discharge to Rad Waste 2E11-F040 close.

QUESTION: 074 (1.00)

Which ONE of the following describes why a manual scram should be initiated to prevent the area in the Secondary Containment from reaching MAX SAFE operating temperature?

- a. Limits radiation release to the secondary containment.
- b. Limits the energy that the primary system is discharging.
- c. Maintains area temperature below limits to allow personnel access.
- d. Eliminates the need for emergency depressurization.

QUESTION: 075 (1.00)

Which ONE of the following sets of conditions would be a Safety Limit violation in accordance with the Technical Specifications?

- a. While operating at full power the Unit 2 HPCI and ADS systems are declared inoperable.
- b. Unit 1 is in Cold Shutdown with the RHR system operating in Shutdown Cooling. The reactor steam dome pressure increases to 155 psig without occurrence of an isolation.
- c. Unit 1 is operating at 22% power and the EHC pressure regulator fails. The reactor pressure drops to 820 psig before the reactor scrams.
- d. During a Unit 2 core reload, RPV level is lost due to an unisolable leak. Level drops to -167 inches and is restored to -15 inches with emergency systems.

QUESTION: 076 (1.00)

Which ONE of the following is the basis for maintaining drywell temperatures below 135 deg F?

- a. To prevent false RPV level indication during depressurization.
- b. To avoid violation of the Drywell Spray Initiation Limit.
- c. To minimize damage to electrical equipment inside drywell.
- d. To ensure that temperatures remain below design limits during LOCA conditions.

QUESTION: 077 (1.00)

The RCIC System has initiated on a valid initiation signal and has operated for 15 minutes. The following conditions now exist:

- RCIC Steam Line Flow 265%
- RCIC Area Temperature 131 deg F
- Reactor Pressure 104 psig
- Reactor Level +59 inches

Which ONE of the following describes the RCIC System response?

- a. Steam Line Isolation Valves, E51-F007 and E51-F008, close.
- b. Minimum Flow Valve, E51-F019, closes.
- c. Steam Supply Valve, E51-F045, closes.
- d. Trip and Throttle Valve, E51-F524, closes.

QUESTION: 078 (1.00)

While restoring RPV water level following RPV Flooding, jumpers are installed for the RHR Torus Spray Valves (2E11-F028A/B).

Which ONE of the following is the reason that the jumpers are installed?

- a. To establish torus spray capability.
- b. To establish suppression pool cooling.
- c. To override the LOCA isolation signal.
- d. To drain/pump the RPV into the suppression pool.

QUESTION: 079 (1.00)

Which ONE of the following defines the status of the Parameters displayed and labeled a through d on Figure 1?

- a. The RED background indicates there is a valid Group I signal but no MSIVs have moved.
- b. The ORANGE background indicates that LLS is actuated and no LLS valves are open.
- c. The RED background indicates the SRMs have received an insert signal, but have not inserted into the core.
- d. The YELLOW background indicates that a signal is not available to SPDS from the H2 O2 analyzer, or the analyzer is not in service.

QUESTION: 080 (1.00)

Which ONE of the following correctly identifies the lowest qualifications for operations personnel conducting an independent verification?

- a. A first line work supervisor responsible for the activity who observed, but did not perform the activity.
- b. A Plant Equipment Operator separated by time and distance from the performer.
- c. A licensed SRO who observed but did not perform the activity.
- d. A non licensed Assistant Plant Equipment Operator separated by time and distance from the performer.

QUESTION: 081 (1.00)

Which ONE of the following is the LOWEST LEVEL OF AUTHORITY who can authorize or perform a plant shutdown in an emergency?

- a. The Plant Manager or his designee.
- b. A member of the plant staff holding an SRO license.
- c. A member of the operating crew holding an SRO license.
- d. A member of the plant staff holding an RO license.

QUESTION: 082 (1.00)

Which ONE of the following describes the required action to be taken if the Operations Supervisor on Shift is required to leave the Control Room while both Unit 1 and Unit 2 are operating?

- a. The Unit 2 Shift Supervisor assumes the Operations Supervisor duties until he returns to the Control Room.
- b. The Unit 1 Shift Supervisor assumes the Operations Supervisor duties and the Unit 1 senior RO assumes Unit 1 Shift Supervisor responsibilities.
- c. The Unit 2 Shift Supervisor assumes the Operations Supervisor duties and the Unit 2 senior RO assumes the Unit 2 Shift Supervisor responsibilities.
- d. The Unit 1 Shift Supervisor assumes the Operations Supervisor duties until he returns to the Control Room.

QUESTION: 083 (2.00)

For the initiating event in Column A, SELECT the reporting requirement from Column B.

(Items in Column B may be used once, more than once or not at all. Only one answer may occupy a space in Column A.)

(4 required at 0.50 each)

COLUMN A (Initiating Event)	COLUMN B (Reporting Requirement)
_____ a. Injection into the vessel from RCIC during a special test	1. Immediate notification
_____ b. A deviation from the Tech Specs required to protect the public health and safety	2. One hour reporting requirement
_____ c. A valid automatic initiation and injection of Core Spray	3. Four hour report
_____ d. Accidental Criticality	4. 24 hour report
	5. 30 day report
	6. No notification required

QUESTION: 084 (1.00)

A Temporary Release (TR) to a clearance has been written and placed in the TR book. A Maintenance Foreman requests an additional subclearance on the clearance.

Which ONE of the following is the proper action to be taken by the Shift Supervisor for this request?

- a. Direct the Maintenance Foreman to obtain the current primary subclearance holder's authorization, then proceed with the Maintenance Foreman's subclearance.
- b. Deny the Maintenance Foreman a subclearance until the clearance is removed from the TR book.
- c. Authorize the subclearance after receiving authorization from all of the subclearance holders.
- d. Direct the Maintenance Foreman to contact the subclearance holder and proceed to perform work under the present subclearance holder.

QUESTION: 085 (1.00)

Which ONE of the following describes the procedure to be followed to verify a LOCKED THROTTLE VALVE?

- a. Unlock the valve, turn the handwheel 1/4 turn in the close direction, then turn the handwheel 1/4 turn in the open direction and reinstall the locking device.
- b. Locked valves are not required to be verified following their initial positioning and verification.
- c. Unlock the valve, turn the handwheel 1/4 turn in the open direction, then turn the valve handwheel 1/4 turn in the close direction and reinstall the locking device.
- d. The verification of locked throttle valves is performed by verifying the operability of the attached locking device.



QUESTION: 086 (1.00)

Which ONE of the following describes, per Technical Specifications, when the Unit 2 Suppression Pool level needs to be maintained above 12 feet 2 inches?

- a. At all times when there is fuel in the core.
- b. AT all times for operational modes one through five.
- c. At all times in modes one through four.
- d. At all times in modes one through three.

QUESTION: 087 (1.00)

Which ONE of the following recirculation flow converter unit failures would result in a half scram on RPS Channel A? (Assume APRMs indicate 85% power.)

- a. Flow converter A fails upscale
- b. Flow converter B fails upscale
- c. Flow converter C fails downscale
- d. Flow converter D fails downscale

QUESTION: 088 (1.00)

The reactor is operating at 70% rated power when the outboard MSIV on steam line B inadvertently closes.

Which ONE of the following describes the expected RPV response to this transient?

- a. Reactor pressure increases and then returns to its initial value as the control valves throttle open.
- b. Reactor pressure increases and stabilizes at a higher pressure due to the increase in the steam line head losses.
- c. Reactor water level increases and then returns to its initial value due to the level error signal in reactor level control.
- d. Reactor water level decreases and stabilizes at a lower level as the steam flow decreases.

QUESTION: 089 (1.00) ~~DELETED~~ <sup>BLH</sup> 2/27/92

Which ONE of the following describes the basis for the Drywell Spray Initiation Limit Curve?

- a. To prevent unstable steam condensation in the SRV tailpipes from exerting excessive cyclic hydraulic loads on the suppression pool structure
- b. To prevent chugging in the drywell to torus downcomers from exerting excessive cyclic hydraulic loads on the suppression pool structure
- c. To ensure that the rate at which the primary containment is depressurized is within the capacity of the reactor building-to-suppression chamber vacuum breakers
- d. To ensure adequate noncondensibles remain in the drywell to prevent the reactor building-to-suppression chamber vacuum breakers from opening during drywell steam condensation

QUESTION: 090 (1.00)

A reactor scram has occurred and reactor water level is 100 inches and increasing.

Which ONE of the following is the reason for closing the MSIVs?

- a. To reduce the RPV cooldown rate
- b. To reduce RPV inventory losses
- c. To prevent failure of the feedwater pump turbines
- d. To prevent failure of the turbine building steam lines

QUESTION: 091 (1.00)

Following a LOCA signal, reactor water level is -133 inches decreasing and the operator is directed to start the CRD pump that was previously running.

Which ONE of the following describes the operator actions to start the CRD pump?

- a. Decrease CRD flow controller to zero with MANUAL control, depress the LOCA reset pushbutton on panel 603, and place the CRD pump switch to START
- b. Decrease CRD flow controller to zero with MANUAL control, take the CRD pump switch to OFF, depress the LOCA reset pushbutton on panel 603, and place the CRD pump switch to START
- c. Decrease CRD flow controller to zero with AUTOMATIC control, depress the LOCA reset pushbutton on panel 603, and take the CRD pump switch to OFF and then to START
- d. Decrease CRD flow controller to zero with AUTOMATIC control, send a PEO to reset the CRD pump breaker locally, depress the LOCA reset pushbutton on panel 603, and place the CRD pump switch to START

QUESTION: 092 (1.00)

Which ONE of the following is the primary concern regarding continued plant operation with an inoperable (or failed) jet pump.

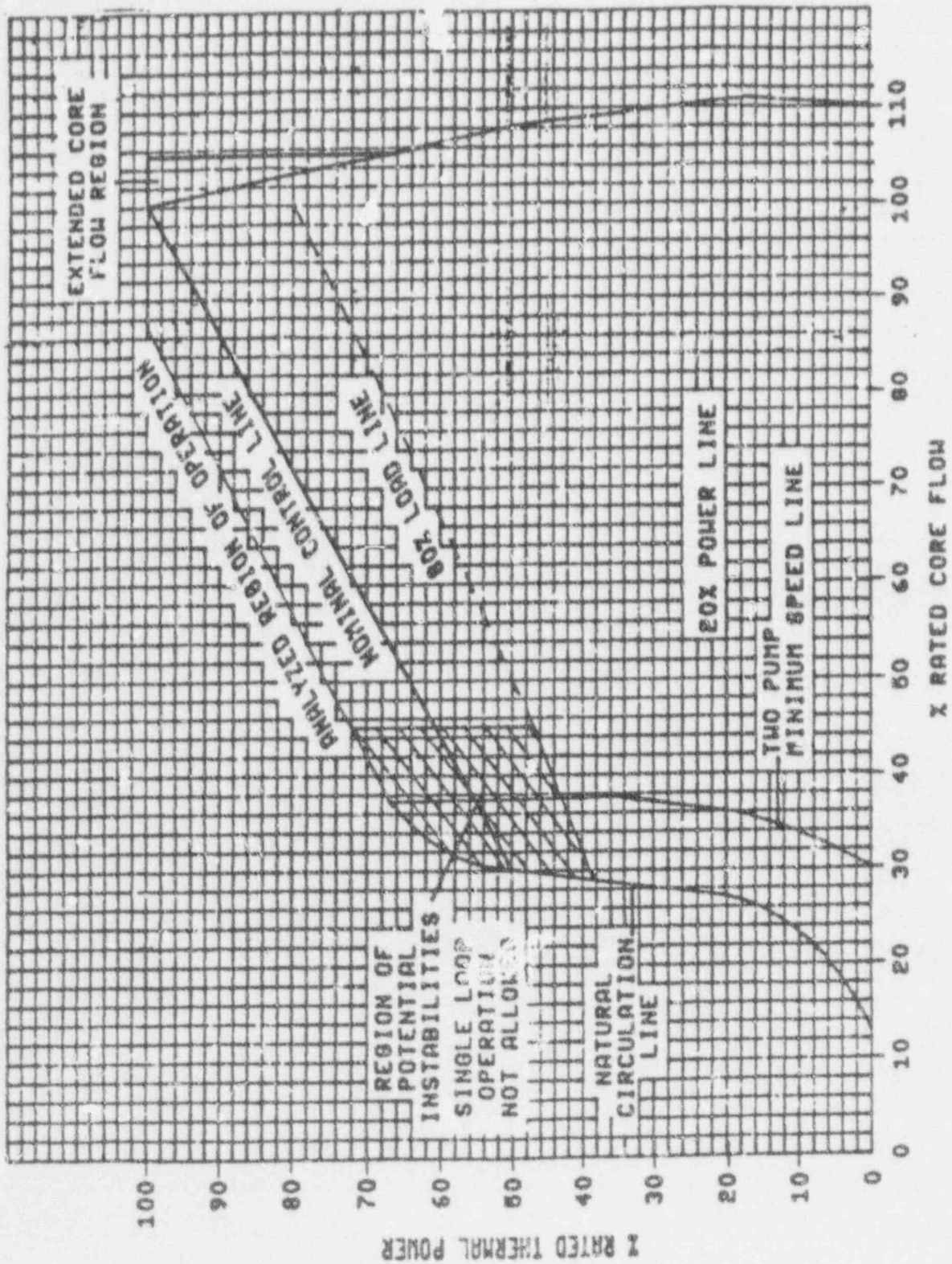
- a. Invalid APRM Flow Biased SCRAM setpoints due to the change in flow through a failed jet pump.
- b. Increased blowdown area during a Loss of Coolant Accident (LOCA).
- c. Unbalanced neutron flux across the core due to flow variations.
- d. Jet pump riser vibrations due to unbalanced flow.

QUESTION: 093 (1.00)

Which ONE of the following describes the condition, per procedure, in which a key may be allowed to remain in the keylock switch?

- a. Unit 2 Reactor Mode Switch Key in Condition 5
- b. Unit 1 Reactor Mode Switch Key in Refueling
- c. Unit 1 HPCI Steam Isolation Valves in the OPEN position
- d. Unit 2 Charcoal Adsorber Vessel Mode Switch

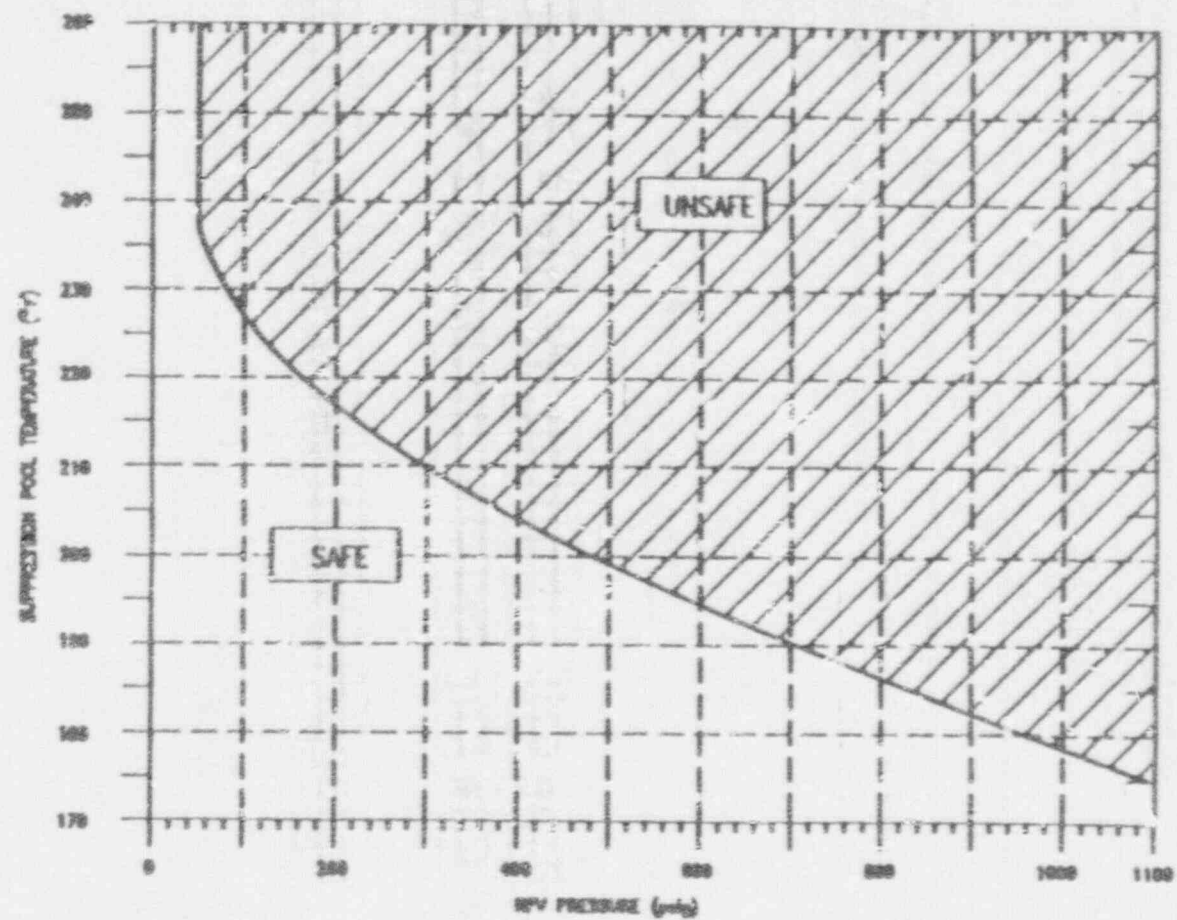
(\*\*\*\*\* END OF EXAMINATION \*\*\*\*\*)



GRAPH 2

### HEAT CAPACITY TEMPERATURE LIMIT

LIMIT 2

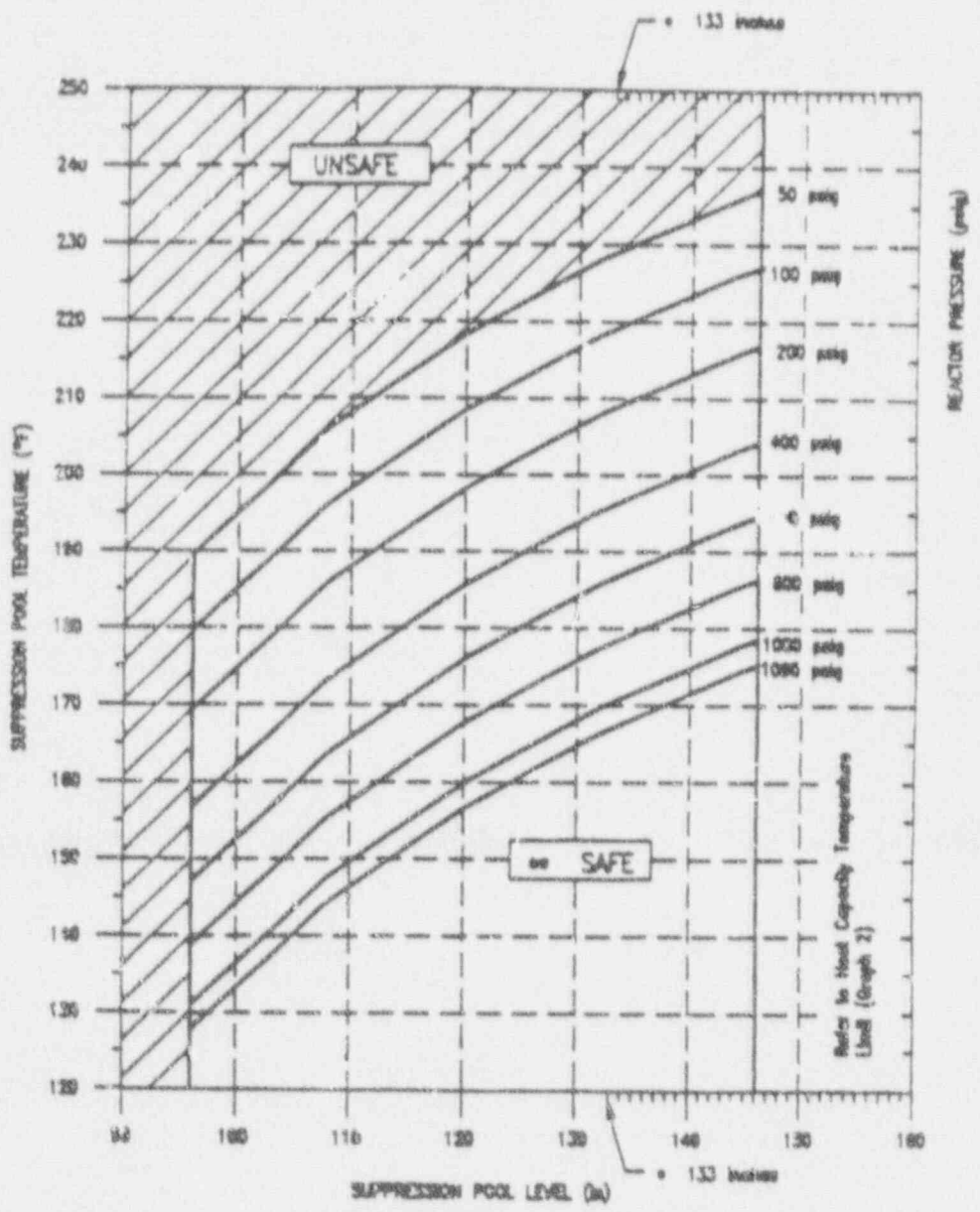


NOTE: May use SPSS Emergency Stoppage in place of this Graph.

FIGURE: 20306-03  
EOP; HEAT CAPACITY  
TEMPERATURE LIMIT

GRAPH 3

HEAT CAPACITY LEVEL LIMIT



NOTE: May use SPDS Emergency Displays in place of this Graph.

- 133 inches is One limit for narrow range suppression pool water level instrument
- Safe operating region is below the applicable pressure line.

FIGURE: 20306-02  
EOP; HEAT CAPACITY  
LEVEL LIMIT

MASTER  
COPY

ANSWER: 001 (1.00)

b.

REFERENCE:

E.I. Hatch, Remote Shutdown Panel, LT-IH-05201-00, pg 12, 13, and 14.  
Learning Objective 6.  
295016K202 [4.1/4.1]

295016K202 ..(KA's)

~~ANSWER: 002 (1.00)~~

~~DELETED~~

*BKH 2/27/92*

~~a.~~

~~REFERENCE:~~

~~E.I. Hatch LR-IH-20306-02, EOP Curves and Limits Section III.A  
Learning Objective 5  
295026G007 [3.8/4.1]~~

~~295026G007 ..(KA's)~~

ANSWER: 003 (1.00)

b.

REFERENCE:

E.I. Hatch, LT-IH-20114-00, pg 14.  
Learning Objective 2.  
295030K208 [3.5/3.8]

295030K208 ..(KA's)

ANSWER: 004 (1.00)

d.



REFERENCE:

E.I. Hatch, EOP Flow Chart, Alternate Level Control CP-1  
295031K304 [4.0/4.3]

295031K304 ..(KA's)

ANSWER: 005 (1.00)

b.

REFERENCE:

E.I. Hatch LT-IH-00401-01, p. 12, E.O. 19.  
E.I.Hatch Unit 2 Technical Specification Bases 3.4.1.2  
K/A 202001G006 [3.0/4.1]

202001G006 ..(KA's)

ANSWER: 006 (1.00)

a.

REFERENCE:

E.I. Hatch LT-IH-01001-00, Reactor Protective System, Section V.B.1  
Learning Objective EO #6  
212000K502 [3.7/3.8]

212000K502 ..(KA's)

ANSWER: 007 (1.00)

b.

REFERENCE:

E.I. Hatch, LT-IH-03801-03, Automatic Depressurization system,  
Section III.3.b  
Learning Objective TO 038.002.a  
218000A402 [4.2/4.2]

218000A402 ..(KA's)

ANSWER: 008 (2.00)

- a. 6
- b. 4
- c. 3
- d. 4 (4 answers required 0.50 each)

REFERENCE:

E.I. Hatch LT-IH-03101-00, Off-Gas System, Section IV  
Learning Objective EO 6  
271000G004 [3.4/3.5]

271000G004 ..(KA's)

ANSWER: 009 (2.00)

- a. 7
- b. 6
- c. 3
- d. 2 (4 answers required 0.50 each)

REFERENCE:

E.I. Hatch LT-IH-04401-00, Reactor Vessel, Section III.A and B  
Learning Objectives 4 and 5  
290002K507 [3.9/4.4]

290002K507 .. (KA's)

ANSWER: 010 (1.00)

a.

REFERENCE:

E.I. Hatch, Control of Operator Aids, DI-OPS-05-1084N, page 3.  
KA 294001A103 [4.2/4.2]

REFERENCE:

E.I. Hatch, 34AB-OPS-011-2S, Loss of Reactor Building Closed Cooling Water, pg 2

295018K202 [3.4/3.6]

295018K202 ..(KA's)

ANSWER: 013 (2.00)

- a. 4
- b. 2
- ~~c. 5~~
- d. 3

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(4 answers required at 0.50 each)

REFERENCE:

E. I. Hatch 34 AB-OPS-013-2S, Loss of DC Buses, 295004G010 3.2/3.4

295004G010 ..(KA's)

ANSWER: 014 (1.00)

c.

REFERENCE:

E.I. Hatch, LT-IH-04901-00, MSIV Leakage Control System Section Learning Objective EO 6 239003K406 [3.1/3.3]

239003K406 ..(KA's)

ANSWER: 015 (1.00)

c.

REFERENCE:

E I Hatch: LT-IH-30008-01, vol. 7, p. 5-6  
Learning Objective 1.  
E I Hatch: 60AC-HPX-001-OS, p. 6 and 9.  
K/A 294001K103 [3.3/3.8]

294001K103 ..(KA's)

ANSWER: 019 (1.00)

d.

REFERENCE:

E.I.Hatch Unit 2 Technical Specifications 3.3.1 & 3.3.2  
Learning Objective LT-IH-10007-00, E.O. 13a.  
272000G005 [2.9/3.9]

272000G005 ..(KA's)

ANSWER: 020 (1.00)

a.

REFERENCE:

E.I.Hatch LT-IH- 01701-01, Main Turbine and Auxiliari s  
Learning Objective E.O. 9  
245000G007 [3.5/3.6]

245000G007 ..(KA's)

ANSWER: 021 (1.00)

b.

REFERENCE:

E.I.Hatch LT-IH-30009-01, p. 10,  
Learning Objective E.O. 6.  
K/A 294001K107 [3.3/3.6]

294001K107 ..(KA's)

ANSWER: 022 (1.00)

a.

REFERENCE:

E.I.Hatch LT-IH-30003-03, p. 4,  
Learning Objective 1.a.  
E.I. Hatch Unit 2 Technical Specification 6.2.2 Table 6.2.2-1  
K/A 294001A103 [2.7/3.7]

294001A103 ..(KA's)

ANSWER: 023 (1.00)

d.

REFERENCE:

Hatch LT-IH-40001-00 Objective 11  
294001A115 [3.2/3.4]

294001A115 ..(KA's)

ANSWER: 024 (1.00)

c.

REFERENCE:

Hatch Unit 2 Technical Specification  
294001A102 [4.2//4.2]

294001A102 ..(KA's)

ANSWER: 025 (1.00)

C.

REFERENCE:

Hatch procedure 10AC-MGR-003-OS, Preparation and Control of Procedures  
Section 8.7  
Learning Objective LR-IH-30004-0 Objective 300.002.A.00  
294001A106 [3.4/3.6]

294001A106 ..(KA's)

ANSWER: 026 (1.00)

C.

REFERENCE:

LR-IH-20326-01  
Learning Objective 201.097.A.07  
31EO-EOP-010, &14  
295002G011 [3.7/3.8]

295002G011 ..(KA's)

ANSWER: 027 (1.00)

C.

REFERENCE:

E.I. Hatch 80AC-SEC-002-OS Section 8.1.1.1.5 pg 5  
294001K105 [3.2/3.7]

294001K105 ..(KA's)

ANSWER: 028 (1.00)

C.



## REFERENCE:

E.I. Hatch EOP Flow Chart PC-1, Primary Containment Control  
E.I. Hatch Emergency Operating Procedure 31EO-EOP-01-2S, Emergency  
Containment Venting, Section 3.2  
E.I. Hatch LT-IH-01301  
Learning Objective EO-9  
295024K307 [3.5/4.0]

295024K307 ..(KA's)

ANSWER: 029 (1.00)

*d. a BAH  
2/27/92*

## REFERENCE:

E.I. Hatch LT-IH-01401-01, Main Steam Low Low Set, Section III.D.2  
Learning Objective EO 5b  
239001K407 [3.7/3.7]

239001K407 ..(KA's)

ANSWER: 030 (1.00)

*d.*

## REFERENCE:

E.I. Hatch LT-IH-05101-00, Post LOCA Containment Radiation Monitors,  
Section 3.d.1  
Learning Objective 4  
295017K210 [3.3/3.6]

295017K210 ..(KA's)

ANSWER: 031 (2.00)

*c.*

REFERENCE:

E.I. Hatch LT-ST-03001-01, Standby Gas Treatment System, Table 03001-2  
Learning Objective EO-1.a  
261000K401 [3.7/3.8]

261000K401 ..(KA's)

ANSWER: 032 (1.00)

d.

REFERENCE:

E.I. Hatch LT-ST-00501-03, High Pressure Coolant Injection System  
Section IV.A.2  
Learning Object EO 14.e  
206000K417 [3.4/3.4]

206000K417 ..(KA's)

ANSWER: 033 (1.00)

d.

REFERENCE:

E.I. Hatch LT-IH-00801-01, Core Spray, Section III.A.7  
Learning Objective EO 3f and 3g

209001K401 [3.2/3.4]

209001K401 ..(KA's)

ANSWER: 034 (1.00)

c.

REFERENCE:

E.I. Hatch LT-IH-01901-01, Electro-Hydraulic Control System, Section III.C.7  
Learning Objective EO 5  
245000K602 [3.5/3.7]

245000K602 ..(KA's)

ANSWER: 035 (1.00)

a.

REFERENCE:

E.I. Hatch Unit 2 Technical Specification 3.6.2.1  
Learning Objective LR-IH-01301-00 EO 300.006.A.22

223001G011 [3.3/4.2]

223001G011 ..(KA's)

ANSWER: 036 (1.00)

b.

REFERENCE:

E.I. Hatch LR-IH-04502-01  
Learning Objective 200.076.A.03  
E.I. Hatch 34AB-OPS-047-2S  
234000K503 [2.9/3.4]

234000K503 ..(KA's)

ANSWER: 037 (1.00)

c.

## REFERENCE:

E.I. Hatch LR-IH-10008-00, Automatic Depressurization and Low Low Set System

Learning Objective EO 4

E.I. Hatch 34SO-B21-001-2S, Automatic Depressurization and Low Low Set Section 7.2.3

239002A309 [3.9/3.9]

239002A309 ..(KA's)

ANSWER: 038 (1.00)

b.

## REFERENCE:

E.I. Hatch EOP Flow Charts CP-1, CP-2 and RC

Learning Objective LR-IH-20303-01 EO 4

295031K201 [4.4/4.4]

295031K201 ..(KA's)

ANSWER: 039 (1.00)

d.

## REFERENCE:

E.I. Hatch LT-IH-02801-00, Diesel Generators, Section IV.C.1

Learning Objective EO #2

264000K408 [3.8/3.7]

264000K408 ..(KA's)

ANSWER: 040 (1.00)

b.

REFERENCE:

E.I. Hatch Technical Specification 3.8.1.1  
E.I. Hatch LT-IH-02801 Section VII.1.b  
Learning Objective EO 6  
264000G011 [3.4/4.1]

264000G011 ..(KA'c)

ANSWER: 041 (1.00)

c.

REFERENCE:

E.I. Hatch LT-IH-02801, Diesel Generators  
Learning Objective EO 6  
E.I. Hatch Technical Specificat' .8.1.2

264000G011 [3.4/4.1]

264000G011 ..(KA's)

ANSWER: 042 (1.00)

d.

REFERENCE:

E.I. Hatch LR-IH-03101-00, Off-Gas System Section VI.A.3  
Learning Objective EO 9.c

271000A204 [3.7/4.1]

271000A204 ..(KA's)

ANSWER: 043 (1.00)

b.

REFERENCE:

E.I. Hatch LT-IH-03001-00, Standby Gas Treatment System, Section V.A  
Learning Objective EO 1.a  
261000K401 [3.7/3.8]

261000K401 ..(KA's)

ANSWER: 044 (1.00)

b.

REFERENCE:

E.I.Hatch LT-ST-03801-04, p. 9,  
Learning Objective E.O. 3.h  
218000A405 [4.2/4.2]

218000A405 ..(KA's)

ANSWER: 045 (1.00)

d.

REFERENCE:

E.I. Hatch LT-IH-00401 Section II.H.6.c  
Learning Objective EO 3  
295005K203 [3.2/3.3]

295005K203 ..(KA's)

ANSWER: 046 (1.00)

d.

REFERENCE:

E.I. Hatch Unit 2 Technical Specifications 3.7.1.2  
E.I Hatch LR-IH-02801  
Learning Objective 6  
295018G008 [3.4/4.1]

295018G008 ..(KA's)

ANSWER: 047 (1.00)

c.

REFERENCE:

E.I. Hatch Unit 2 EOP Flow Chart PC-1, Primary Containment Control  
E.I. Hatch LR-IH-20310-01 Page 36  
Learning Objective EO 18  
295029K206 [3.4/3.5]

295029K206 ..(KA's)

ANSWER: 048 (1.00)

b.

REFERENCE:

E.I. Hatch 34 AB-OPS-031-2S, Irradiated Fuel Damage During Handling Section  
2.1  
Learning Objective LT-IH-01303-00 EO-8  
295023K303 [3.3/3.6]

295023K303 ..(KA's)

ANSWER: 049 (1.00)

d.

## REFERENCE:

E.I. Hatch LT-IH-00701-02, Residual heat Removal System Section III.D.2  
Learning Objective: EO 11  
E.I. Hatch 34-AB-OPS-044-2S, Loss of Shutdown Cooling Section 2  
295021A102 [3.5/3.5]

295021A102 ..(KA's)

ANSWER: 050 (1.00)

c.

## REFERENCE:

E.I. Hatch LT-IH-04404-00, Reactor Vessel Instrumentation, Section III.B.d  
Learning Objective EO 5  
E.I. Hatch AB-OPS-044-2S, Loss of Shutdown Cooling, Section 4.3 NOTE  
205000K302 [3.2/3.3]

205000K302 ..(KA's)

ANSWER: 051 (1.00)

d.

## REFERENCE:

E.I. Hatch LT-IH-00301-02, Reactor Water Cleanup System Table 2  
Learning Objective EO 5.a  
E.I. Hatch 34 AB-OPS-050-2S, RWCU Isolation Section 2.1

205000K401 [3.4/3.4]

205000K401 ..(KA's)



ANSWER: 052 (2.00)

- a. 6
- b. 7
- c. 5
- d. 2

REFERENCE:

E.I. Hatch LT-IH-00701-02 Residual Heat Removal System Table 2  
Learning Objective EO-20, 21, 22, 23

203000K410 [3.9/4.1]

203000K410 ..(KA's)

ANSWER: 053 (2.00)

- a. 6
- b. 7
- c. 9
- d. 7

(4 required at 0.50 each)

REFERENCE:

E.I. Hatch LT-IH-04404-00, Reactor Vessel Instrumentation Table 1  
Learning Objective EO 1

216000K406 [3.8/4.0]

216000K406 ..(KA's)

ANSWER: 054 (1.00)

d.

REFERENCE:

E.I. Hatch Technical Specification Basis 4.4.1.2  
Learning Objective TO 200.084.a  
202002G006 [2.6/3.7]

202002G006 ..(KA's)

ANSWER: 055 (1.00)

d.

REFERENCE:

E.I. Hatch 34SO-E51-001-2S, Reactor Core Isolation Cooling (RCIC) System  
Section 7.1.2.1.3 NOTE  
Lesson Plan LT-IH-03901-01, Reactor Core Isolation Cooling System  
Learning Objective EO 9

217000A301 [3.5/3.5]

217000A301 ..(KA's)

ANSWER: 056 (1.00)

d.

REFERENCE:

E.I. Hatch LT-IH-01301-00, Primary Containment  
Learning Objective EO 13  
E.I. Hatch Unit 2 Technical Specification 3.6.4.1

223001G011 [3.3/4.2]

223001G011 ..(KA's)

ANSWER: 057 (1.00)

d.

REFERENCE:

E.I. Hatch LT-IH-03401-01, Residual Heat Removal Water, Section V.C.3.b  
Learning Objective EO 9

219000A108 [3.7/3.6]

219000A108 ..(KA's)

ANSWER: 058 (1.00)

d.

REFERENCE:

E.I. Hatch LT-IH-01302-00, Secondary Containment, Section V  
Learning Objective 9  
290001A301 [3.9/4.0]

290001A301 ..(KA's)

ANSWER: 059 (1.00)

c.

REFERENCE:

E.I. Hatch Unit 1 Technical Specifications 3.7.C.1  
E.I. Hatch LT-IH-01302-00, Secondary Containment, IX.B.1  
Learning Objective EO 6  
290001G011 [3.3/4.2]

290001G011 ..(KA's)

ANSWER: 060 (1.00)

c.

REFERENCE:

E.I. Hatch LT-IH-07901-01, Electro-Hydraulic Control System IV.G.3  
Learning Objective 10  
241000K106 [3.8/3.9]

241000K106 ..(KA's)

ANSWER: 061 (1.00)

b.

REFERENCE:

E.I. Hatch LR-IH-20328-01, RPV Control - ATWS (RCA) Section II  
Learning Objective EO 5  
295037A202 [4.1/4.2]

295037A202 ..(KA's)

ANSWER: 062 (1.00)

c.

REFERENCE:

E.I. Hatch LR-IH-20323-01, EOP 112 Primary Containment Flooding  
Section III.C.4  
Learning Objective 5  
295031A108 [3.8/3.9]

295031A108 ..(KA's)

ANSWER: 063 (1.00)

d.

REFERENCE:

E.I. Hatch LR-IH-20312-01, Emergency Containment Venting, Section IV.B.2  
Learning Objective 1  
E.I. Hatch 31EO-EOP-101-2S, Emergency Containment Venting Section 3.2.6.4  
295010K301 [3.8/4.0]

295010K301 ..(KA's)

ANSWER: 064 (1.00)

d.

REFERENCE:

E.I. Hatch LR-IH-20301-01, Scram Procedure, Section IV.N.2  
Learning Objective SK 2  
295006G003 [3.8/4.4]

295006G003 ..(KA's)

ANSWER: 065 (1.00)

d.

REFERENCE:

E.I. Hatch 34AB-OPS-015-2S, Loss of Vital AC Bus Section 2  
E.I. Hatch LT-IH-02703-00  
Learning Objective EO 8  
295003A202 [4.2/4.3]

295003A202 ..(KA's)

ANSWER: 066 (1.00)

a.

REFERENCE:

E.I. Hatch Technical Specification 3.6.2.1  
295013G008 [3.5/4.4]

295013G008 ..(KA's)

ANSWER: 067 (1.00)

d.

REFERENCE:

E.I. Hatch LR-IH-00401-01, Recirculation System  
E.I. Hatch 34AB-OPS-058-2S Section 3.2

295001K102 [3.3/3.5]

295001K102 ..(KA's)

ANSWER: 068 (1.00)

a.

REFERENCE:

E.I. Hatch LR-IH-20305-02, EOP Cautions  
Learning Objective EO 7

295027K102 [3.0/3.2]

295027K102 ..(KA's)

ANSWER: 069 (1.00)

b.

REFERENCE:

E.I. Hatch LT-IH-20113-00  
E.I. Hatch 31EO-EOP-017-2S  
295037A104 [4.5/4.5]

295037A104 ..(KA's)

ANSWER: 070 (1.00)

d.

REFERENCE:

E.I. Hatch LR-IH-20306-02, EOP Curves and Limits Section III.B  
Learning Objective EO 6

295026K206 [3.5/3.7]

295026K206 ..(KA's)

ANSWER: 071 (1.00)

c.

REFERENCE:

E.I. Hatch LT-IH-20201-00, Introduction to Abnormal Procedures  
Learning Objective EO 10  
E.I. Hatch 34AB-OPS-020-2S, Loss of Instrument and Service Air System  
Section 3.5.1  
295019K201 [3.8/3.9]

295019K201 ..(KA's)

ANSWER: 072 (1.00)

b.



## REFERENCE:

E.I. Hatch LT-IH-20310-01, Primary Containment Control (PC-1 and PC-2)  
Learning Objective EO 2  
E.I. Hatch PC-1 and PC-22 Flow charts  
295024K101 [4.1/4.2]

295024K101 ..(KA's)

ANSWER: 073 (1.00)

c.

## REFERENCE:

E.I. Hatch, LT-IH-00701-02, Residual Heat Removal System Section III.D.2  
Learning Objective EO 11  
34AB-OPS-044-2S, Loss of Shutdown Cooling  
295021K203 [3.6/3.6]

295021K203 ..(KA's)

ANSWER: 074 (1.00)

b.

## REFERENCE:

E.I.Hatch LR-IH-20325-01, Secondary Containment/Radioactivity Release  
Control pg 41  
Learning Objective E.O. 21.  
295032K302 [3.6/3.8]

295032K302 ..(KA's)

ANSWER: 075 (1.00)

d.

REFERENCE:

E.I.Hatch Unit 2 Technical Specifications, 2.1.4.  
E.I.Hatch LT-IH-30002-02, Safety Limit Technical Specifications II.B.4  
Learning Objective E.O. 1.  
295009G003 [3.4/4.2]

295009G003 ..(KA's)

ANSWER: 076 (1.00)

d.

REFERENCE:

E.I.Hatch LR-IH-20310-01, Primary Containment Control (PC-1 and PC-2)  
pg 134  
Learning Objective E.O. 76.  
E.I.Hatch Technical Specification Bases 3.6.1.7  
295028G004 [2.7/3.9]

295028G004 ..(KA's)

ANSWER: 077 (1.00)

c.

REFERENCE:

E.I.Hatch LT-IH-03901-01, Reactor Core Isolation Cooling System Section  
IV.A.2.b  
Learning Objective E.O. 14.  
295008K206 [3.4/3.6]

295008K206 ..(KA's)

ANSWER: 078 (1.00)

d.

## REFERENCE:

E.I. Hatch LR-IH-20317-02, EOP 106: Restoration of RPV Water Level Following RPV Flooding Section V.I.1  
Learning Objective E.O. 6.  
295008K210 [2.7/2.8]

295008K210 ..(KA's)

ANSWER: 079 (1.00)

d.

## REFERENCE:

E.I. Hatch LT-IH-05601-00, Safety Parameter Display System  
Section II.E.2.c.6  
Learning Objective EO 4  
294001A115 [3.2/3.4]

294001A115 ..(KA's)

ANSWER: 080 (1.00)

b.

## REFERENCE:

E.I.Hatch LT-IH-30004-02, Administrative Procedures Section I.B.1  
Learning Objective EO 3

2. K/A 294001K101 (3.7/3.7)

294001K101 [3.7/3.7]

294001K101 ..(KA's)

ANSWER: 081 (1.00)

d.

REFERENCE:

E.I. Hatch LT-IH-30004-02, Administrative Procedures Section I.3  
Learning Objective EO-2  
294001A109 [3.3/4.2]

294001A109 ..(KA's)

ANSWER: 082 (1.00)

d.

REFERENCE:

E.I. Hatch LT-IH-30004-02, Administrative Procedures Section I.F.7  
Learning Objective EO 14  
294001A103 [2.7/3.7]

294001A103 ..(KA's)

ANSWER: 083 (2.00)

a. 6

b. 2

c. 2

d. 1

(4 required at 0.50 each)

REFERENCE:

E.I. Hatch LT-IH-30004-02, Administrative Procedures Section I.O  
Learning Objective EO 16  
294001A106 [3.4/3.6]

294001A106 ..(KA's)

ANSWER: 084 (1.00)

b.

REFERENCE:

E.I. Hatch LR-IH-30004-00, Administrative Procedures Section EE.5  
Learning Objective 34

294001K102 [3.9/4.5]

294001K102 ..(KA's)

ANSWER: 085 (1.00)

*d. d BAH  
2/27/92*

REFERENCE:

E.I. Hatch LT-IH-30004, Administrative Procedures Section V.2  
Learning Objective EO 22  
294001K101 [3.7/3.7]

294001K101 ..(KA's)

ANSWER: 086 (1.00)

d.

REFERENCE:

E.I. Hatch Unit 2 Technical Specification 3.5.4  
E.I. Hatch LR-IH-20310-01, Primary Containment Control pg 21  
Learning Objective EO 5  
295030G003 [3.3/3.4]

295030G003 ..(KA's)

ANSWER: 087 (1.00)

c.

REFERENCE:

LT-IH-01203, APRM/RBM, pg 11  
Learning Objective EO 13

215005K607 [3.2/3.3]

215005K607 ..(KA's)

ANSWER: 088 (1.00)

b.

REFERENCE:

LT-IH-00202, Reactor Water Level Control  
Terminal Obj. 002.20  
Enabling Obj. 19a  
LT-IH-01401-01, Main Steam/LLS  
Obj. None

Note: Various BWRs have experienced a closure of ONE MSIV at power. Most recently occurred at Quad Cities in late 1991.

239001A203 [4.0/4.2]

239001A203 ..(KA's)

~~ANSWER: 089 (1.00)~~

~~DELETED~~

*BAA*  
*2/27/92*

~~c.~~

~~REFERENCE:~~

~~E.I Hatch LT-IH-20306-02, EOP Curves and Limits, pg 27  
Learning Objective EO 10~~

~~295024K101 [4.1/4.2]~~

~~295024K101 ..(KA's)~~

ANSWER: 090 (1.00)

d.

REFERENCE:

E.I. Hatch L5-IH-20301-01, Scram Procedure, pg 6  
Learning Objective SK-6

295006G007 [3.8/4.1]

295006G007 ..(KA's)

ANSWER: 091 (1.00)

b.

REFERENCE:

E.I. Hatch LT-IH-00101-01, pg 25  
Learning Objective EO 20

201001G009 [3.7/3.4]

201001G009 ..(KA's)

ANSWER: 092 (1.00)

b.

REFERENCE:

E.I.Hatch LT-IH-00401-01, Recirculation System  
Learning Objective EO 19.  
E.I.Hatch Unit 2 Technical Specification Bases 3.4.1.2

202001G006 [3.0/4.1]

202001G006 ..(KA's)



ANSWER: 093 (1.00)

d.

REFERENCE:

E.I. Hatch LT-IH-30004-02, Administrative Procedures, Section I.N.1  
Learning Objective EO 13

294001A113 [4.5/4.3]

294001A113 ..(KA's)

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

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

<u>QUESTION</u>	<u>VALUE</u>	<u>REFERENCE</u>
001	1.00	13857
002	1.00	13861
003	1.00	13863
004	1.00	13871
005	1.00	13873
006	1.00	13876
007	1.00	13878
008	2.00	13899
009	2.00	13901
010	1.00	13904
011	1.00	14473
012	1.00	14476
013	2.00	14483
014	1.00	14491
015	1.00	14602
016	1.00	14610
017	1.00	14612
018	1.00	16509
019	1.00	16510
020	1.00	16523
021	1.00	16571
022	1.00	16573
023	1.00	9000001
024	1.00	9000002
025	1.00	9000003
026	1.00	9000004
027	1.00	9000006
028	1.00	9000007
029	1.00	9000008
030	1.00	9000009
031	2.00	9000010
032	1.00	9000011
033	1.00	9000012
034	1.00	9000013
035	1.00	9000016
036	1.00	9000017
037	1.00	9000018
038	1.00	9000019
039	1.00	9000020
040	1.00	9000021
041	1.00	9000022
042	1.00	9000023
043	1.00	9000024
044	1.00	9000025
045	1.00	9000026
046	1.00	9000027
047	1.00	9000028
048	1.00	9000029
049	1.00	9000030

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

<u>QUESTION</u>	<u>VALUE</u>	<u>REFERENCE</u>
050	1.00	9000031
051	1.00	9000032
052	2.00	9000033
053	2.00	9000043
054	1.00	9000046
055	1.00	9000047
056	1.00	9000048
057	1.00	9000049
058	1.00	9000050
059	1.00	9000051
060	1.00	9000052
061	1.00	9000053
062	1.00	9000054
063	1.00	9000055
064	1.00	9000056
065	1.00	9000057
066	1.00	9000058
067	1.00	9000059
068	1.00	9000060
069	1.00	9000061
070	1.00	9000062
071	1.00	9000063
072	1.00	9000064
073	1.00	9000065
074	1.00	9000066
075	1.00	9000067
076	1.00	9000068
077	1.00	9000069
078	1.00	9000070
079	1.00	9000071
080	1.00	9000072
081	1.00	9000073
082	1.00	9000074
083	2.00	9000075
084	1.00	9000076
085	1.00	9000077
086	1.00	9000080
087	1.00	9000081
088	1.00	9000082
089	1.00	9000083
090	1.00	9000084
091	1.00	9000085
092	1.00	9000086
093	1.00	9000090

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100.00

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100.00

S R O Exam BWR Reactor  
Organized by KA Group

## PLANT WIDE GENERICS

<u>QUESTION</u>	<u>VALUE</u>	<u>KA</u>
024	1.00	294001A102
082	1.00	294001A103
022	1.00	294001A103
010	1.00	294001A103
025	1.00	294001A106
083	2.00	294001A106
081	1.00	294001A109
093	1.00	294001A113
079	1.00	294001A115
023	1.00	294001A115
085	1.00	294001K101
080	1.00	294001K101
084	1.00	294001K102
018	1.00	294001K103
027	1.00	294001K105
021	1.00	294001K107
-----		
PWG Total	17.00	

## PLANT SYSTEMS

## Group I

<u>QUESTION</u>	<u>VALUE</u>	<u>KA</u>
054	1.00	202002G006
052	2.00	203000K410
032	1.00	206000K417
033	1.00	209001K401
006	1.00	212000K502
087	1.00	215005K607
053	2.00	216000K406
055	1.00	217000A301
007	1.00	218000A402
044	1.00	218000A405
035	1.00	223001G011
056	1.00	223001G011
037	1.00	239002A309
060	1.00	241000K106
031	2.00	261000K401
043	1.00	261000K401
040	1.00	264000G011
041	1.00	264000G011
039	1.00	264000K408
058	1.00	290001A301
059	1.00	290001G011

S R O Exam B W R Reactor  
Organized by KA Group

## PLANT SYSTEMS

## Group I

<u>QUESTION</u>	<u>VALUE</u>	<u>KA</u>
PS-I Total	24.00	

## Group II

<u>QUESTION</u>	<u>VALUE</u>	<u>KA</u>
091	1.00	201001G009
005	1.00	202001G006
092	1.00	202001G006
050	1.00	205000K302
051	1.00	205000K401
057	1.00	219000A108
036	1.00	234000K503
014	1.00	239003K406
020	1.00	245000G007
034	1.00	245000K602
042	1.00	271000A204
008	2.00	271000G004
019	1.00	272000G005
PS-II Total	14.00	

## Group III

<u>QUESTION</u>	<u>VALUE</u>	<u>KA</u>
088	1.00	239001A203
029	1.00	239001K407
009	2.00	290002K507
PS-III Total	4.00	
PS Total	42.00	

## EMERGENCY PLANT EVOLUTIONS

## Group I

<u>QUESTION</u>	<u>VALUE</u>	<u>KA</u>
065	1.00	295003A202
064	1.00	295006G003

S P O Exam B W R Reactor  
Organized by KA Group

## EMERGENCY PLANT EVOLUTIONS

## Group I

<u>QUESTION</u>	<u>VALUE</u>	<u>KA</u>
090	1.00	295006G007
075	1.00	295009G003
063	1.00	295010K301
066	1.00	295013G008
011	1.00	295014A102
001	1.00	295016K202
030	1.00	295017K210
048	1.00	295023K303
072	1.00	295024K101
089	1.00	295024K101
028	1.00	295024K307
002	1.00	295026G007
070	1.00	295026K206
068	1.00	295027K102
086	1.00	295030G003
003	1.00	295030K208
062	1.00	295031A108
038	1.00	295031K201
004	1.00	295031K304
069	1.00	295037A104
061	1.00	295037A202
015	1.00	295037K303
017	1.00	295038K205

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 EPE-I Total      25.00

## Group II

<u>QUESTION</u>	<u>VALUE</u>	<u>KA</u>
067	1.00	295001K102
026	1.00	295002G011
013	2.00	295004G010
045	1.00	295005K203
077	1.00	295008K206
078	1.00	295008K210
046	1.00	295018G008
012	1.00	295018K202
071	1.00	295019K201
049	1.00	295021A102
073	1.00	295021K203
076	1.00	295028G004
016	1.00	295028K203
047	1.00	295029K206
074	1.00	295032K302

S R O Exam B W R Reactor  
Organized by KA Group

## EMERGENCY PLANT EVOLUTIONS

## Group II

<u>QUESTION</u>	<u>VALUE</u>	<u>KA</u>
EPE-II Total	16.00	
EPE Total	41.00	
Test Total	100.00	