U. S. NUCLEAR REGULATORY COMMISSION

REGION 1

Docket No:	50-354
t No:	50-354/98-301
License No:	NPF-57
Licensee:	Public Service Electric & Gas Company
Facility:	Hope Creek Nuclear Generating Station
Location:	Hancocks Bridge, New Jersey 08038
Dates:	August 10-12, 1998
Examiners:	J. Williams, Senior Operations Engineer/Examiner J. Caruso, Operations Engineer/Examiner T. Fish, Operations Engineer/Examiner
Approved By:	Richard J. Conte, Chief Operator Licensing and Human Performance Branch Division of Reactor Safety

EXECUTIVE SUMMARY

Hope Creek Generating Station
Inspection Report No. 50-354/98-301

Operations

The four senior reactor operator candidates performed well on both the written and operating portions of the examination, and thus were issued licenses. The candidates were well prepared for the examination, indicating that the facility had thoroughly evaluated the knowledge and abilities of each candidate in an effort to determine their readiness to sit for an initial NRC, SRO examination. Crew communications, control board awareness, and crew briefings were very good.

During the review of the applications it was determined that two applicants had medical exams (NRC FORM 396) that were over six months old. When informed of this, the facility promptly completed new medical exams and provided the results to the NRC.

The facility informed NRC of exam overlap between the NRC written operating test and the facility written audit exam. The NRC exam was revised to eliminate the duplication and this resulted in a more valid measure of the candidate's knowledge and abilities.

Report Details

I. Operations

05 Operator Training and Qualifications

05.1 Senior Reactor Operator Initial Examinations

a. Scope

The NRC examiners prepared all portions of the exam in accordance with the guidelines in interim Revision 8, of NUREG-1021, "Examiner Standards," and Revision 1 of NUREG-1123, "Knowledge and Abilities Catalog for Nuclear Power Plant Operators: Boiling Water Reactors." The NRC examiners administered all portions of the examination to four senior reactor operator (SRO) candidates. The applications were reviewed for satisfactory completion of the educational, experience and medical requirements. The specific qualification requirements stated in the updated final safety analysis report, the technical specifications and the facility procedures were reviewed.

b. Observations and Findings

The results of the SRO examination are summarized below:

	SRO Pass/Fail
Written	4/0
Operating	4/0
Overall	4/0

The written examination was reviewed by the facility during the week of July 27, 1998 and administered on August 10, 1998. Several changes were made to the exam as a result of this review. The exam consisted of 100 multiple choice questions. An NRC analysis of the exam results did not identify any generic weaknesses in the candidates knowledge or the training program. The candidates performance on the written exam demonstrated that they were well prepared. The licensee did not make formal comments on the written exam following the administration of the exam.

The operating portion of the examination was reviewed by the facility the week of July 27, 1998 and was administered August 11-12, 1998, and consisted of three simulator scenarios and either five or ten JPMs depending upon the applicants status (i.e., upgrade or instant). All JPMs were followed up with two system-related questions. All candidates were also examined using JPMs and/or questions to evaluate the administrative requirement portion of the examination. During the facility exam review, the facility informed the NRC that four JPMs were identical or very similar to ones used on the facility audit exam. These JPMs were changed on the NRC exam to avoid duplication.

Simulator and JPM performance by the candidates was good. Communications were good, including the use of repeat backs. The examiners noted that crew briefings were routinely performed by the SROs. Control board awareness by all of the candidates was evident throughout each of the three scenarios. Control board awareness by the upgrade candidates was excellent.

A half core ATWS was planned for one scenario, but it did not occur. After the exam it was determined that inserting the malfunction 'CD20' (SDV drain valves fail to close on scram) canceled malfunction 'RP06' (half core ATWS). The licensee evaluated this problem and found a computer code problem which was corrected. The "as run" scenario was completely adequate for examination purposes.

Hope Creek procedure HC.OP-AP.ZZ-0014(Q), "Personnel Qualification and Training," implements the requirements from the technical specifications and the updated final safety analysis report (UFSAR). These requirements include compliance with ANSI/ANS 3.1-1981 and USNRC Regulatory Guide 1.8. Revision 2. Each candidate met the educational and experience requirements described in the facility procedure.

During the review of the applications it was determined that two applicants had medical exams (NRC FORM 396) that were over six months old contrary to the Examiner Standards. When informed of this, the facility completed new medical exams and provided the results to the NRC.

c. Conclusions

The four senior reactor operator candidates performed well on both the written and operating portions of the examination, and thus were issued licenses. The candidates were well prepared for the examination, indicating that the facility had thoroughly evaluated the knowledge and abilities of each candidate in an effort to determine their readiness to sit for an initial NRC, SRO examination. Crew communications, control board awareness, and crew briefings were very good.

During the review of the applications it was determined that two applicants had medical exams (NRC FORM 396) that were over six months old. When informed of this, the facility promptly completed new medical exams and provided the results to the NRC.

The facility informed NRC of exam overlap between the NRC written operating test and the facility written audit exam. The NRC exam was revised to eliminate the duplication and this resulted in a more valid measure of the candidate's knowledge and abilities.

E8 Review of the FSAR

While performing the preexamination activities discussed in this report, the examiners reviewed applicable portions of the UFSAR, that related to the selected examination questions or topic areas. No discrepancies were identified.

V. Management Meetings

X1 Exit Meeting Summary

On August 19, 1998 the NRC discussed their observations regarding the examination with Hope Creek operations and training management representatives. This discussion was conducted over the telephone. The results of the exam were provided to the licensee at that time.

The examiners expressed their appreciation for the cooperation and assistance that was provided during the review and administration of the exam by licensed operator training personnel and operations personnel. The following participated in the exit meeting.

PARTIAL LIST OF PERSONS CONTACTED

HOPE CREEK

K. Krueger, Acting Operations Manager
A. Faulkner, Operations Superintendent- Training Liaison
D. Rein, Operator Training Instructor
B. Havens, Operator Training Supervisor (not at exit)

Attachments:
1. Hope Creek SRO Written Examination w/Answer Key
2. Simulation Facility Report

Attachment 1

HOPE CREEK SRO WRITTEN EXAMINATION W/ANSWER KEY

#15

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

APPLICANT'S NAME: KEY

FACILITY: HOPE CREEK

REACTOR TYPE: BWR-GE4

DATE ADMINISTERED: August 10, 1998

INSTRUCTIONS TO APPLICANT:

Use the answer sheets provided to document your answers. Staple this cover sheet on top of the answer sheets. Points for each question are indicated in parentheses after the question. The passing grade requires a final grade of at least 80.00%. Examination papers will be picked up five (5) hours after the examination starts.

TEST VALUE	APPLICANT'S SCORE	FINAL GRADE %
100.00		

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

_____
Applicant's Signature

HOPE CREEK - SRO EXAM - ANSWER KEY - 8/98

QUES	ANS					QUES	ANS				
1.	C					26.	A				
2.	A					27.	C				
3.	B					28.	A				
4.	D					29.	A				
5.	D					30.	D				
6.	C					31.	C				
7.	D					32.	B				
8.	C					33.	C				
9.	C					34.	C				
10.	B					35.	D				
11.	C					36.	D				
12.	D					37.	A				
13.	A					38.	C				
14.	~~B~~ A					39.	B				
15.	D					40.	C				
16.	B					41.	D				
17.	C					42.	D				
18.	D					43.	C				
19.	A					44.	A				
20.	C					45.	A				
21.	D					46.	D				
22.	D					47.	B				
23.	A					48.	B				
24.	C					49.	C				
25.	C					50.	D				

HOPE CREEK - SRO EXAM - ANSWER KEY - 8/98

QUES	ANS					QUES	ANS				
51.	B					76.	D				
52.	C					77.	D				
53.	D					78.	B				
54.	B					79.	C				
55.	D					80.	B				
56.	A					81.	B				
57.	C					82.	C				
58.	A					83.	D				
59.	B					84.	B				
60.	B					85.	B				
61.	B					86.	A				
62.	D					87.	B				
63.	A					88.	C				
64.	B					89.	D				
65.	C					90.	A				
66.	A					91.	B				
67.	A					92.	D				
68.	B					93.	C				
69.	D					94.	D				
70.	B					95.	A				
71.	B					96.	A				
72.	C					97.	D				
73.	A					98.	D				
74.	B					99.	A				
75.	D					100.	C				

ANSWER SHEET

Multiple Choice (Circle or X your choice). If you change your answer, write your selection in the blank.

MULTIPLE CHOICE

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ANSWER SHEET

Multiple Choice (Circle or X your choice). If you change your answer, write your selection in the blank.

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090 a b c d ___
091 a b c d ___

ANSWER SHEET

Multiple Choice (Circle or X your choice). If you change your answer, write your selection in the blank.

092 a b c d ___

093 a b c d ___

094 a b c d ___

095 a b c d ___

096 a b c d ___

097 a b c d ___

098 a b c d ___

099 a b c d ___

100 a b c d ___

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

NRC RULES AND GUIDELINES FOR LICENSE EXAMINATIONS

During the administration of this examination the following rules apply:

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

2. After the examination has been completed, you must sign the statement on the cover sheet indicating that the work is your own and you have not received or given assistance in completing the examination. This must be done after you complete the examination.

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

4. Use black ink or dark pencil O[illegible] to facilitate legible reproductions.

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

6. Mark your answers on the answer sheet provided. USE ONLY THE PAPER PROVIDED AND DO NOT WRITE ON THE BACK SIDE OF THE PAGE.

7. The point value for each question is indicated in parentheses after the question.

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

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

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

11. To pass the examination, you must achieve a grade of 80.00% or greater.

12. There is a time limit of five (5) hours for completion of the examination.

13. When you are done and have turned in your examination, leave the examination area (EXAMINER WILL DEFINE THE AREA). If you are found in this area while the examination is still in progress, your license may be denied or revoked.

SENIOR REACTOR OPERATOR

QUESTION: #1 (1.00)

Following a LOCA, the SPDS Cooling System Injection Status display has Core Spray labeled as "INJ".

This indication should:

a. be used by the operators as an indication that both core spray subsystems are injecting at their design flow rate.

b. be used by the operators as an indication that at least one core spray subsystem is injecting at its design flow rate.

c. only be used with other indications because its based on system flow and the test flow valve being closed.

d. only be used with other indication because its based on system flow and the test flow valve being open.

ANSWER: c.

Question Topic: SPDS for Injections system status

REFERENCE: LP-107, Section IV.B.3.a.1, Page 28, fig 22E.

Learning Objective: R7.

KA: G119 [3.0/3.0] Memory Level

Material Required for Examination: No reference

Question Source: 10/97 NRC exam

SENIOR REACTOR OPERATOR

QUESTION: #2 (1.0)

WHICH ONE of the following combinations of valve positions can damage a control rod drive if a scram were to occur?

a. 1-BF-V101, Insert Riser Valve - Open
1-BF-V102, Withdraw Riser Valve - Closed

b. 1-BF-V101, Insert Riser Valve - Closed
1-BF-V102, Withdraw Riser Valve - Open

c. 1-BF-V103, Drive Water Riser Valve - Open
1-BF-V112, Scram Discharge Riser Valve - Open

d. 1-BF-V101, Insert Riser Valve - Closed
1-BF-V112, Scram Discharge Riser Valve - Open

ANSWER: a.

Question Topic: Valve Position Caution for HCUs

REFERENCE: HC.OP-SO.BF-0002, Section 3.1.2; LP-0006, L.O. 16.

Learning Objective: ELO-16.

KA: 201003A2.02 [3.2/3.3] Higher Order

Material Required for Examination: No Reference

Question Source: 10/97 NRC exam

SENIOR REACTOR OPERATOR

QUESTION: #3 (1.0)

Failure down scale of one RPV pressure input to the Low Low Set (LLS) Logic will result in:

a. neither LLS SRV operating in the LLS mode.

b. only one LLS SRV operating in the LLS mode.

c. one LLS SRV operating at the correct setpoint but the other will remain open once it has opened.

d. both LLS SRVs opening but failing to close.

ANSWER: b

Question Topic: Low Low Set Feature of the SRVs

REFERENCE: 0302-000.00H-000046,Section III.B.3(d), IV.B, Pages 16, 47, LO-3F

Learning Objective: LO-3F.

KA: 239002K4.04 [3.4/3.6] Higher order

Material Required for Examination: No Reference

Question Source: 10/97 NRC exam

SENIOR REACTOR OPERATOR

QUESTION: #4 (1.00)

When operating at full power, a small steam line break occurs on the "A" Main Steam Line. All available flow sensors tapped into the "A" Main Steam Line Flow Restrictor indicate greater than 140% (108.7 psid). The remaining flow elements on the B, C, and D Main Steam Line Flow Restrictors indicate less than 140% (108.7 psid). The expected automatic station response from the high steam line flow in the "A" Main Steam Line would be:

a. A half scram. Any other Main Steam Line exceeding 140% will provide a full scram signal.

b. A half scram. If the B or D Main Steam Line exceeds 140%, a full scram will occur.

c. A single NSSSS logic channel trip.

d. A reactor scram resulting from MSIV closure.

ANSWER: d

JUSTIFICATION: Each Main Steam line sends a signal to each NSSSS logic. A single MSL having a high flow will produce an isolation signal on all 4 NSSSS logics, closing the MSIVs and producing a reactor scram.

REFERENCE: LP-45, Pages 13-14, 18-19, Figure 7A, Annunciator C8-B4

Learning Objective: R-11, R-13

KA: 239001A3.01 [4.2/4.1] Higher Order

Material Required for Examination: No Reference.

Question Source: HC Requal Bank

SENIOR REACTOR OPERATOR

QUESTION: #5 (1.0)

While a diesel generator was running for a surveillance, the "Emergency Stop" pushbuttons were depressed as part of the surveillance. One minute later, a loss of its respective 4160 v bus lockout signal occurs.

Select how the diesel generator can be started or will automatically start.

a. Following a time delay, the diesel generator will automatically restart.

b. The operator must reset the engine shutdown relay and generator lockout, then the diesel generator will automatically restart.

c. The operator must reset the engine shutdown relay and generator lockout then, after a time delay the diesel generator can be restarted.

d. Following a time delay, the operator must reset the engine shutdown relay and the generator lockout, the the diesel generator can be restarted.

ANSWER: d.

Question Topic: Response to an Emergency Start Signal During a Shutdown Sequence

REFERENCE: 0302-000.00H-000068,Section III.C.3.b, Pages 54, 55.

Learning Objective: L.O. 16

KA: 264000A2.07[3.5/3.7] Higher Order

Material Required for Examination: No Reference

Question Source: 10/97 NRC exam

SENIOR REACTOR OPERATOR

QUESTION: #6 (1.0)

A loss of reactor feed has resulted in a reactor scram and automatic initiation of HPCI and RCIC.

With RPV level at +25 inches, WHICH ONE of the following conditions would **prevent** using RCIC in the pressure control mode?

(Assume bypasses of interlocks allowed by EOPs are performed).

a. RCIC tripped on high RPV water level which then lowered to +25 inches.

b. Low CST level.

c. Drywell pressure is 2.1 psig.

d. The RCIC Initiation Logic "Reset" pushbutton has not been depressed.

ANSWER: c

Question Topic: Combined RCIC and HPCI Return Valve Interlocks

REFERENCE: 0302-000.00H-000030,Section III.B.7.e.(1), Page 48, L.O. 20
0302-000.00H-000026,Section III.B.5.m.4.(c), Page 60, L.O. 11

KA: 217000A212 [3.0/3.0] Higher Order

Material Required for Examination: No Reference

Question Source: 10/97 NRC exam.

SENIOR REACTOR OPERATOR

QUESTION: #7 (1.00)

Given the following conditions:

- The plant is operating at 75% power
- Valve stroke time testing is in progress on the "A" RHR Pump Torus Suction Valve (F004A)
- F004A is currently closed
- All other RHR system components are in their normal standby lineup
- A steam break causes drywell pressure to reach 2.0 psig

WHICH ONE of the following describes the response of the F004A valve and the "A" RHR pump?

a. The F004A valve automatically opens and the "A" RHR pump automatically starts after the F004A is fully open.

b. The F004A valve must be manually opened and the "A" RHR pump automatically starts after F004A is fully open.

c. The F004A valve automatically opens but the "A" RHR pump must be started by the operator after F004A is fully open.

d. The F004A valve must be manually opened and the "A" RHR pump manually started after F004A is fully open.

ANSWER: d

Question Topic: RHR Pump Suction Valve and Pump Operations - LOCA With No Suction Path

REFERENCE: LP-28, Table 4, Page 86, and Pages 33-35.

Learning Objective: EL0-4

KA: 203000K406 [3.5/3.5] Higher Order

Material Required for Examination: print PN1-E11-1040-383, sheet 9.

Question Source: 10/97 NRC exam.

SENIOR REACTOR OPERATOR

QUESTION: #8 (1.00)

Given the following conditions:

- The plant had been operating at 75% power
- A loss of main condenser vacuum caused a complete Main Steam Isolation Valve (MSIV) closure
- The Main Condenser Vacuum Breakers had been opened
- The main turbine did **NOT** trip and was **NOT** manually tripped on the scram
- The MSIV switches have been placed in "Close"

WHICH ONE of the following conditions are required to allow resetting the NSSSS MSIV isolation logic for the given conditions?

a. The Main Condenser Low Vacuum Bypass switches must be in the "Bypass" and the Turbine Control Valves must be closed.

b. The Reactor Mode Switch must be out of "Run" and the Turbine Control Valves must be closed.

c. The Main Condenser Low Vacuum Bypass switches must be in "Bypass" and the Turbine Stop Valves must be less than 90% open.

d. The Reactor Mode Switch must be out of "Run" and the Turbine Stop Valves must be closed to less than 90% open.

ANSWER: c

Question Topic: Reopening MSIVs Following Low Vacuum Close - Signals Required

REFERENCE: LP-45, Section IV.C.1.d.4), Page 31.

Learning Objective: ELO-R4.

KA: 223003K4.08 [3.3/3.7] Higher order

Material Required for Examination: No Reference

Question Source: 10/97 NRC Exam

SENIOR REACTOR OPERATOR

QUESTION: #9 (1.00)

Given the following conditions:

- OPCON 1
- SLC Tank Temperature 45 degrees F
- SLC Tank Volume 4800 gallons
- SLC Tank Concentration 14.1 % weight %
- Temp. pump suction piping 80 degrees F

What is (are) the MINIMUM required action(s) that you the NSS should immediately initiate?

a. Demonstrate that the SLC system flow is within tech spec. limits.

b. Demonstrate that all heat traced piping between the storage tank and the pumps is unblocked.

c. Determine the available weight of sodium pentaborate and the concentration of boron in solution is in spec.

d. immediately commence a plant shutdown such that the plant can reach hot shutdown within 24 hours.

ANSWER: c.

REFERENCE: TS 3/4.1.5 and 4.1.5.b.2*, fig 3.1.5-1;
LP-23, Page 11-14, L.O. R7

KA: 211000A205 [3.1/.3.4] Higher Order

Material Required for Examination: TS

Question Source: new

SENIOR REACTOR OPERATOR

QUESTION: #10 (1.00)

Given the following:

- Reactor power is 85%
- Narrow Range "A" (PDT-N004A) = 36 inches.
- Narrow Range "B" (PDT-N004B) = 35 inches.
- Narrow Range "C" (PDT-N004C) = 34 inches.

If Narrow Range "A" (PDT-N004A) drifts from its present value to zero, actual RPV level will:

a. Remain constant at 35 inches.

b. Increase to 36 inches.

c. Lower to 30 inches then return to 35 inches.

d. Lower until Narrow Range "A" indicates bad quality, then it will return to 35 inches.

ANSWER: b

Question Topic: Response to a Failed Level Instrument

REFERENCE: 0302-000.00H-000059,Section III.D.2.e, Page Fig. 10, 20, L.O. 11.

KA: 259001A207 [3.7/3.8] Higher Order

Material Required for Examination: No Reference

Question Source: NRC exam March 98.

SENIOR REACTOR OPERATOR

QUESTION: #11 (1.00)

The plant is in OPCON 4 with Shutdown Cooling in service on the "A" Residual Heat Removal (RHR) loop with the "A" RHR Pump running and reactor water level B21-N080A fails low.

WHICH ONE of the following describes how this failure will affect the Inboard and Outboard Shutdown Cooling Isolation Valves (F008 & F009)?

a. The F008 and F009 valves both close.

b. The F008 valve closes and the F009 valve remains open.

c. The F008 and F009 valves both remain open.

d. The F008 valve remains open and the F009 valve closes.

ANSWER: c

Question Topic: Failure of reactor water level low effects on Shutdown Cooling

REFERENCE: 0302-000.00H-000045,Section Fig. 10A, Pages 14-15-16, 33.

Learning Objective: ELO-14

KA: 205000A209 [3.6/3.8] Higher Order

Material Required for Examination: Print M-42-1, sht 1 of 2.

Question Source: New

SENIOR REACTOR OPERATOR

QUESTION: #12 (1.00)

During a power reduction from 100% to 65%, by a combination of control rod insertion and recirculation flow WHICH ONE of the following describes how actual reactor water level and indicated wide range reactor water level will change.

a. Actual water level is lower than indicated level and the difference will get larger during the power reduction.

b. Actual water level is higher than indicated level and the difference will get larger during the power reduction.

c. Actual water level is lower than indicated level and the difference will get smaller during the power reduction.

d. Actual water level is higher than indicated level and the difference will get smaller during the power reduction.

ANSWER: d.

Question Topic: Decreased Recirc Flow Effect on Wide Range Level vs Actual Level

REFERENCE: LP-002, Page 40,.
Learning Objective: ELO-R14

KA: 216000A301 [3.4/3.4] HIGHER ORDER

Material Required for Examination: No Reference

Question Source: March 98 NRC exam.

SENIOR REACTOR OPERATOR

QUESTION: #13 (1.00)

The Unit is operating at 100% power when an operator determines that the Control Room Ventilation Radiation Monitors for Channels 4858D and 4858C1 are inoperable.

WHICH ONE of the following describes the actions that the CRS must direct?

a. Within ONE (1) hour initiate and maintain Control Room Emergency Filtration system in the pressurization mode.

b. Within SIX (6) hours initiate and maintain Control Room Emergency Filtration system in the pressurization mode.

c. Trip ONE of the inoperable channels within one (1) hour, or within the next (6) hours initiate Control Room Emergency Filtration in the pressurization mode.

d. Trip BOTH of the inoperable channels within one (1) hour, or within the next six (6) hours initiate Control Room Emergency Filtration system in the pressurization mode.

ANSWER: a

REFERENCE: AP 96, pg 33 and 34; TS Table 3.3.71-1, pg3/4 3-63 to 3/4 3-65.

Learning Objective: ELO-8

KA: 290003K1.01 [3.4/3.5] Higher Order

Material Required for Examination: TS and index no bases, no definitions, sections 3.1-3.11.

Question Source: new

SENIOR REACTOR OPERATOR

QUESTION: #14 (1.00)

Given the following conditions:

- A failure-to-scram with Main Steam Isolation Valve (MSIV) closure has occurred
- The pressure spike on the MSIV closure was 1120 psig
- Reactor power is 16%, water level is -25 inches and the 3.9 minute timer has timed out.
- Only Division II of the Redundant Reactivity Control System automatically initiates
- No operator actions are taken

WHICH ONE of the following is the expected plant response for the given conditions.

a. Both SLC Pumps start, both Squib Valves fire and the RWCU Isolation Valves (Inboard - F001 and Outboard - F004) close.

b. The "B" SLC Pumps starts, the "B" Squib Valve fires and only the RWCU Inboard Isolation Valve (F001) closes.

c. Both SLC Pumps start, both Squib Valves fire and only the RWCU Outboard Isolation Valve (F004) closes.

d. The "B" SLC Pump starts, the "B" Squib Valve fires and only the RWCU outboard Isolation Valve (F004) closes.

ANSWER: a.

Question Topic: RRCS Channel Failure to Actuate During an ATWS

REFERENCE: LP-24, Pages 16 & 17, L.O. R7.a
LP-23, Page 34, L.O. 5.e

KA: 211000A208 [4.1/4.2] Higher Order

Material Required for Examination: No Reference

Question Source: 1998 NRC exam

SENIOR REACTOR OPERATOR

QUESTION: #15 (1.00)

An accident is in progress. Suppression chamber sprays have been initiated, and suppression chamber pressure is 2.0 psig and decreasing.

WHICH ONE of the following is a reason for securing suppression chamber sprays when suppression chamber pressure decreases to 1.68 psig, per EOP-102B, Step PCC-1?

a. To prevent exceeding the drywell to suppression chamber design differential pressure.

b. To prevent exceeding the capacity of the drywell-to-suppression chamber vacuum breakers.

c. To prevent inducing chugging in the drywell downcomers.

d. To prevent de-inerting the primary containment atmosphere.

ANSWER: d.

REFERENCE: EOP-102B, Step PCC-1; LP-126B, para. I. and j., pg 14 and 15.

Learning Objective: ELO-6

KA: 295024EK213 [3.8/3.8] Memory

Material Required for Examination: none

Question Source: NRC exam bank

SENIOR REACTOR OPERATOR

QUESTION: #16 (1.00)

Following an ATWS, the reactor recirc pumps have been runback to minimum speed and reactor power on the APRMs is 3%.

WHICH ONE of the following is the reason for leaving the reactor recirculation pumps in operation during the ATWS?

a. To prevent thermal stratification.

b. To maximize boron mixing.

c. To prevent transition boiling in the core.

d. To minimize core flux peaking.

ANSWER: b.

REFERENCE: LP-124B, pg 19.

Learning Objective: ELO-8

KA: 295037EK3.01 [4.1/4.2] Memory

Material Required for Examination: none

Question Source: NRC exam bank

SENIOR REACTOR OPERATOR

QUESTION: #17 (1.00)

WHICH ONE of the following is an acceptable power excursion?

a. 103% for 10 continuous minutes.

b. 102% for 20 continuous minutes.

c. 101% for 25 continuous minutes.

d. 100.5% for 75 continuous minutes.

ANSWER: c.

REFERENCE: HC.OP-AP.ZZ-0005, pg 13.

Learning Objective: LP-113, ELO-R98

KA: G 2.1.10 [2.9/3.9] Memory

Material Required for Examination: none

Question Source: NRC exam 9/97.

SENIOR REACTOR OPERATOR

QUESTION: #18 (1.00)

A scram has just occurred and the operators are executing EOP-100, Reactor Scram.

WHICH ONE of the following is the reason that step S-10 directs the operator to reset the scram if conditions permit?

a. To reduce the potential for CRD pump runout and reduce the amount of time for the HCU accumulators to recharge.

b. To prevent excessive discharge of hot radioactive water to the Reactor Building Equipment Drain Sump.

c. To reestablish the normal primary vessel boundaries by isolating the CRD HCU from the scram discharge volume (SDV) and closing the SDV vent and drain valves.

d. To minimize the amount of time that the operator is unable to manually insert control rods in the event that all control rods are not fully inserted.

ANSWER: d.

REFERENCE: LP123. pg 17, step S-10, ELO-4; EOP-100, step S-10

Learning Objective: ELO-4

KA: 295006AK2.03 [3.7/3.8] memory

Material Required for Examination: EOPs

Question Source: NRC exam bank

SENIOR REACTOR OPERATOR

QUESTION: #19 (1.00)

The reactor is at 100% power when it is noted that the "A" Reactor Recirculation pump No. 2 seal pressure is decreasing toward zero and:

- FSHL N007A (STG FLW) is in alarm
- FSH N002A (LK DET) is NOT in alarm
- No. 1 seal is reading normal pressure

WHICH ONE of the following characterize the indications on the "A" Reactor Recirculation pump shaft seal assembly?

a. Plugging of the No.1 restricting orifice

b. Plugging of the No.2 restricting orifice

c. Failure of the No.1 seal

d. Failure of the No.2 seal

ANSWER: a.

REFERENCE: LP-19, pg 18-19.

Learning Objective: ELO - R19

KA: 202001A210[3.5/3.9] Higher order

Material Required for Examination: M-43-1, sht 1.

Question Source: new

SENIOR REACTOR OPERATOR

QUESTION: #20(1.00)

Hope Creek is performing a plant startup. Intermediate Range Monitors (IRMs) are all reading on range 5 or 6.

WHICH ONE of the following describe how a loss of the -24VDC supply to the +/- 24 VDC system would affect the operation of the IRMs.

a. IRMs would continue to indicate properly as power is increased.

b. IRM indicators would remain as is, no change would be observed as power is increased.

c. IRM indicated reactor power would be failed upscale.

d. IRM indicated reactor power would be failed downscale.

ANSWER: c.

REFERENCE: LP-14, pages 11, 27-28.

Learning Objective: ELO-R12

KA: 215003K6002 [3.6/3.8] Higher Order

Material Required for Examination: No reference

Question Source: new

SENIOR REACTOR OPERATOR

QUESTION: #21 (1.00)

WHICH ONE of the following conditions will generate an insert block in the Rod Worth Minimizer system?

a. When a withdraw block occurs due to a withdraw error on the selected control rod.

b. When the third insert error occurs and total steam flow indicates 31%.

c. When the low power setpoint is reached while inserting control rods in the currently latched sequence.

d. When a withdraw block occurs due to a withdraw error and any control rod other than the withdraw error rod is selected.

ANSWER: d.

REFERENCE: LP-9, pg 8, 18-19.

Learning Objective: ELO- R5

KA: 210006K513 [3.5/3.5] Memory

Material Required for Examination: No reference

Question Source: new

SENIOR REACTOR OPERATOR

QUESTION: #22 (1.00)

Given the following conditions:

- Reactor power increase is in progress from 30%
- Control rod 42-03 is selected for withdrawal
- An LPRM string next to the selected control rod is inoperable

WHICH ONE of the following describes the response of the Rod Block Monitor?

a. A rod block will be initiated due to a down scale trip.

b. The "REF DNSCL" light will be illuminated.

c. A rod block will initiated due to an inop trip.

d. The rod block monitor will be bypassed.

ANSWER: d.

REFERENCE: LP-17, pg 22-23.

Learning Objective: ELO-R7

KA: 215002A304 [3.6/3.5] Memory

Material Required for Examination: No reference

Question Source: new (test knowledge of RBM Bypass ckt for selection of a peripheral rod.

SENIOR REACTOR OPERATOR

QUESTION: #23 (1.00)

A plant transient occurs resulting in a successful reactor scram and appropriate PCIS isolations. The following conditions exist:

- Suppression chamber sprays are in service
- Drywell pressure is 11 psig and steady
- Drywell temperature is 300 degrees F. and increasing
- Suppression chamber pressure is 10 psig and steady
- Suppression pool level is 78"
- Drywell and suppression chamber H2 are both at 0.4%

WHICH ONE of the following actions is correct?

a. Initiate drywell sprays

b. Emergency Depressurization is required

c. Restart drywell cooling

d. Vent the suppression chamber

ANSWER: a.

REFERENCE: EOP 102, Rev 5.

Learning Objective: LP-126B, LO-1.d.

KA: 230000A215 [4.0/4.1] Higher Order

Material Required for Examination: EOPs white out entry conditions

Question Source: new

SENIOR REACTOR OPERATOR

QUESTION: #24 (1.00)

WHICH ONE of the following will cause the full core display DRIFT light to illuminate?

a. A control rod closing an even numbered reed switch with a rod motion signal present.

b. A control rod closing an even numbered reed switch with no rod motion signal present.

c. A control rod closing only an odd numbered reed switch with no rod motion signal present.

d. A control rod closing only an odd numbered reed switch with a rod motion signal present.

ANSWER: c.

REFERENCE: LP-7, pg 27, fig 17.

Learning Objective: ELO-2k.

KA: 201002K403 [3.6/3.6] Memory level

Material Required for Examination: No reference

Question Source: new

SENIOR REACTOR OPERATOR

QUESTION: #25 (1.00)

WHICH ONE of the following describes how a fully inserted TIP will withdraw to the in-shield position when an NSSSS containment isolation signal occurs(high drywell pressure signal 1.68 psig)? Assume the detector is clear of the core and is in the process of withdrawal.

a. Detector withdraws at slow speed until at indexer position 25 then shifts to fast speed until completely withdrawn.

b. Detector withdraws at slow speed until completely withdrawn.

c. Detector withdraws at fast speed until at indexer position 25 then shifts to slow speed until completely withdrawn.

d. Detector withdraws at fast speed until completely withdrawn.

ANSWER: c.

REFERENCE: LP-18, pg 31-32; LP-45, pg 36.

Learning Objective: ELO-6

KA: 215001K604 [3.1/3.4]Memory level

Material Required for Examination: No reference

Question Source: new

SENIOR REACTOR OPERATOR

QUESTION: #26 (1.00)

A reactor startup is in progress with reactor pressure at 200 psig. A reactor scram occurs and the scram inlet valve for one control rod fails to open.

WHICH ONE of the following describe the effect of this failure?

a. The control rod fails to scram and its blue scram light on the full core display does not illuminate.

b. The control rod fails to scram and its blue scram light on the full core display illuminates.

c. The control rod scrams and its blue scram light on the full core display does not illuminate.

d. The control rod scrams and its blue scram light on the full core display illuminates.

ANSWER: a.

REFERENCE: LP-6, pg 24.

Learning Objective: ELO-R26.

KA: 201003K6.01 [3.3/3.3]Higher Order

Material Required for Examination: No reference

Question Source:new

SENIOR REACTOR OPERATOR

QUESTION: #27 (1.00)

The plant is at 100% power. While test closing an inboard MSIV, a loss of vital AC power occurs.

WHICH ONE of the following describe the response of the MSIVs?

a. The selected MSIV will reopen. All other inboard MSIVs remain open.

b. The selected MSIV will continue to test close. All other inboard MSIVs will close.

c. The selected MSIV will continue to test close. All other inboard MSIVs remain open.

d. All inboard MSIVs fast close.

ANSWER: c.

REFERENCE: LP-13, pg 22-23, 24, 52, and fig 9.

Learning Objective: ELO-R8c and R12.

KA:262001A2.04 [3.8/4.2] Higher Order

Material Required for Examination: No reference

Question Source: new

SENIOR REACTOR OPERATOR

QUESTION: #28 (1.00)

RCIC auto initiated and was injecting at rated flow into the reactor vessel. Subsequently, the RCIC minimum flow valves, FO19 and SV4405, both inadvertently opened and went full open.

WHICH ONE of the following describe the change in RCIC speed and flow after the transient has stabilized?

a. Speed increases to attempt to maintain the 600 gpm flow setpoint.

b. Speed decreases to attempt to maintain the 600 gpm flow setpoint.

c. Speed decreases and indicated flow decreases.

d. Speed remains the same and indicated flow remains the same.

ANSWER: a.

REFERENCE: LP-30, pg 45-46.

Learning Objective: ELO-8

KA: 217000A101 [3.7/3.7] Higher Order

Material Required for Examination: No reference

Question Source: new

SENIOR REACTOR OPERATOR

QUESTION: #29 (1.00)

Due to degraded plant conditions HPCI initiated and was injecting to the reactor vessel. While injecting, HPCI isolated on low steam supply pressure due to spurious signals. The spurious low steam supply pressure signals have cleared and there are no indications of a steam leak from HPCI.

WHICH ONE of the following describe the action(s), if any, that MUST be taken to allow HPCI to restart? Assume reactor pressure is 900 psig, and the initiation signal is still present,

a. Reset the isolation logic and manually reopen the steam supply valves.

b. No actions are required.

c. Reset the isolation logic.

d. Reset the isolation logic and then arm and depress the manual initiation pushbutton on 10C650B.

ANSWER: a.

REFERENCE:LP-26, pg 13, 22, 97, fig. 5.

Learning Objective: ELO-5

KA: 206000K403 [4.2/4.1] Higher Order

Subject: Resetting HPCI turbine trip

Material Required for Examination: No reference

Question Source: NEW

SENIOR REACTOR OPERATOR

QUESTION: #30 (1.00)

Given the following conditions:

- Drywell pressure 3.0 psig
- Reactor water level -135" inches

Both parameters have been at those values for 3.5 minutes. You then place all the low pressure ECCS pumps in pull-to-lock except for "A" and "B" core spray pumps.

WHICH ONE of the following describes ADS response?

a. ADS blowdown is terminated but will resume when the 105 second timer times out

b. ADS blowdown is terminated but will resume when the 5 minute timer times out

c. ADS blowdown is terminated

d. ADS blowdown continues

ANSWER: d.

REFERENCE: LP-29, pg 9&14; LP-28, pg 32; print 971E403AC, sht 4.

Learning Objective: LP-29, ELO-4.

KA: 218000K501 [3.8/3.8] Higher Order

Material Required for Examination: No reference

Question Source: new

SENIOR REACTOR OPERATOR

QUESTION: #31 (1.00)

The reactor is at 90% power. The BOP operator inadvertently depresses the INCREASE push button for the bypass valve jack and holds it until the percent demand indication on panel 10C651D reads 100%.

WHICH ONE of the following describe the turbine control and bypass valve response?

a. Control valves throttle close to raise reactor pressure, and bypass valves remain closed.

b. Control valves open to the Speed/Load changer setpoint and then the bypass valves start to open.

c. Control valves throttle close to maintain reactor pressure and bypass valves open.

d. Control valves throttle open to lower reactor pressure, and bypass valves remain closed.

ANSWER: c.

REFERENCE: LP-16, pg 23.

Learning Objective: ELO-R4c.

KA: 241000K610 [3.6/3.7] Higher Order

Material Required for Examination: No reference

Question Source: new

SENIOR REACTOR OPERATOR

QUESTION: #32 (1.00)

The following plant conditions exist:

- Reactor startup is in progress
- Mode switch is in "RUN"
- Reactor power is 30%
- "A" FRVS vent unit was decalred inoperable 8 hours ago. Repair is expected to be completed in 8 hours.

The "A" EDG capability test was completed at the end of the previous shift. As you review the paperwork you determine that the EDG must be declared inoperable due to unsatisfactory acceptance criteria.

WHICH ONE of the following actions are required per technical specifications?

a. The reactor must be in Hot Shutdown within 24 hours.

b. Startup may continue provided the "A" EDG is operable within the following 72 hours.

c. The reactor must be in Cold Shutdown within 24 hours.

d. The reactor must be in Cold Shutdown within 36 hours.

ANSWER: b.

REFERENCE: LP-42, ELO-R-16; LP-68, ELO-30; TS 3.6.5.3.1 and 3.8.1.1.

KA: G 2.1.12 [2.9/4.0] Higher Order

Material Required for Examination: TS

Question Source: new

SENIOR REACTOR OPERATOR

QUESTION: #33 (1.00)

WHICH ONE of the following describes an APRM GAF of 1.02

a. The APRM channel is indicating a higher percent power than core thermal power.

b. The APRM channel is indicating a higher percent power than the sum of its LPRM inputs.

c. The APRM channel is indicating a lower percent power than core thermal power.

d. The APRM channel is indicating a lower percent power than the sum of its LPRM inputs.

ANSWER: c.

REFERENCE: LP-16

Learning Objective: ELO-6.b.

KA:215005A1.07 [3.0/3.4] Memory

Material Required for Examination: No reference

Question Source: new

SENIOR REACTOR OPERATOR

QUESTION: #34 (1.00)

A small leak was discovered in a welded non-isolable joint within the class 2 piping boundary of the HPCI system. The IST engineer was consulted to determine operability. It was determined using engineering judgment that a complete failure of the weld would not pose a significant hazard and therefore the engineer concluded that the system was still operable.

Is the HPCI system operable?

a. The system is operable but degraded and compensatory measures are required.

b. The system is operable but degraded and compensatory measures are not required.

c. The system is not operable because engineering judgment cannot used to justify operability in this case.

d. The system is not operable until a 50.59 evaluation has been been completed.

ANSWER: c. (Engineering judgment cannot be used to justify operability under the code)

REFERENCE: LP-113A, pg 38; HC.OP-AP.ZZ-0108, Attachment 1, pg 3.

Learning Objective: ELO-R2

KA: G2.2.21 [2.3/3.5] Memory

Material Required for Examination: No reference

Question Source: new

SENIOR REACTOR OPERATOR

QUESTION: #35 (1.00)

WHICH ONE of the following approaches to performing a job should be used based on ALARA considerations for total collective dose?

a. Two individuals performing the job in a 60 Mrem/hr field for 35 minutes.

b. Two individuals installing temporary shielding in a 60 Mrem/hr field for 15 minutes and then these individuals performing the job in a 6 Mrem/hr field for 40 minutes.

c. One individual performing the job in a 60 Mrem/hr field for 60 minutes.

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

ANSWER: d.

REFERENCE: NC.NA-AP-ZZ-0024, pg 19, attachment 3; LP-113.

Learning Objective: LO-1

KA: G2.3.2 [2.5/2.9] Higher order

Material Required for Examination: No reference

Question Source: new

SENIOR REACTOR OPERATOR

QUESTION: #36 (1.00)

With an Unusual Event (UE) still in effect and an EAL still exceeded and the plant in a stable condition, who must determine if the "UE" can be terminated by entry into recovery?

a. TSC Coordinator with concurrence from the Recovery Manager.

b. TSC Coordinator with concurrence from the EDO.

c. Emergency Coordinator with concurrence from the Recovery Manager.

d. Emergency Coordinator with concurrence from the EDO.

ANSWER: d.

REFERENCE: ECG, attachment 1, pg 6.

Learning Objective: LP-0215-008-00B-000800, ELO-1.5.

KA: G2.4.29 [3.6/4.0] Memory

Material Required for Examination: No reference

Question Source: new

SENIOR REACTOR OPERATOR

QUESTION: #37 (1.00)

A job to be performed while the plant is shutdown requires a Hot Work Control Permit. The Work Control Permit was issued at 7:00 am this morning. The job is expected to be completed over two days.

WHICH ONE of the following describes the maximum time limit that the Hot Work Control Permit is active for this job?

a. until midnight tonight

b. for the duration of the job

c. until 7:00 am tomorrow morning

d. one operating shift

ANSWER: a.

REFERENCE: NC.NA-AP.ZZ-0025, sect 5.5; LP-113, LO-1.

Learning Objective: #1

KA: G2.4.25 [2.9/3.4] Memory

Material Required for Examination: No reference

Question Source: new

SENIOR REACTOR OPERATOR

QUESTION: #38 (1.00)

A plant operator initiated an on-the-spot change (OTSC) package for a monthly system surveillance test that changes the acceptance criteria based on what he considered a typographical error. The plant operator then presents it to you for review. What actions will you take as the CRS?

a. Review and sign the on-the-spot change.

b. Direct that an SQR review be completed and then sign the on-the-spot change.

c. Write an AR documenting the problem and place the ST on administrative hold.

d. Write an AR documenting the problem and sign the on-the-spot change.

ANSWER: c.

REFERENCE: NC.NA-AP.ZZ-0001, pg 18-19, 23-24, attachment 6; LP-113, LO-1.

Learning Objective: LC-1

KA: G2.2.6 [2.3/3.3] Memory

Material Required for Examination: No reference

Question Source: new

SENIOR REACTOR OPERATOR

QUESTION: #39 (1.00)

ALL of the following occur as a direct result of a main generator differential overcurrent lockout signal EXCEPT:

a. Trip of the stator coolant water pumps.

b. Trip of the cooling fans for the main power transformers.

c. Initiation of the breaker failure protection of generator output breakers BS 6-5 and BS 2-6.

d. Trip of the alternator exciter field breaker.

ANSWER: b

JUSTIFICATION:

A Generator Lockout will actuate the following:

-- Trip of BS 2-6 and BS 6-5 breakers
-- Trip of Exciter Field Breaker
-- Trip of the Main Turbine
-- Breaker failure protection on BS 2-6 and BS 6-5 initiated

Although the Xfmr fans will stop, this is due to the loss of potential not directly as a function of the generator lockout.

REFERENCE: LP-60, pages 20-21, Table 2, 3, L.O. R11.a

KA: 245000K4.05 [2.9/3.0] Memory

Material Required for Examination: No Reference.

Question Source: HC requal Bank

SENIOR REACTOR OPERATOR

QUESTION: #40 (1.00)

The reactor is operating at power when a recirculation flow reduction event results in entry into the EXIT REGION of the Power to Flow Map. Plant conditions prior to the event were as follows:

- Reactor power 90% of rated thermal power.
- APRMs indicated 90% +/- 3%.
- All LPRMs above downscale alarms and below upscale alarms.
- LPRMs near center of core indicate 95% +/- 3%.
- ALL SRMs are fully withdrawn

WHICH ONE of the following neutron instrumentation responses POSITIVELY indicates reactor instability after core flow first reaches its lowest flow rate?

a. APRMs indicate 60% with +/- 4% swings.

b. LPRMs near center of the core indicate 70% +/- 4%.

c. Period meter indicates strong negative and positive swings.

d. LPRM downscale alarms occur at 5 seconds, 30 seconds, and 90 seconds.

ANSWER: c.

REFERENCE: HC.OP-AB.ZZ-0300, pg 3 and 4; LP-114

Learning Objective: ELO-3

KA: G 2.4.4 [4.0/4.3] Memory

Material Required for Examination: NONE.

SENIOR REACTOR OPERATOR

QUESTION: #41 (1.00)

The plant was operating at 100% reactor power when the "A" reactor recirc pump tripped. The "B" recirc pump is now operating satisfactorily at 50% speed and 24,000 gpm drive flow.

HOW is core flow determined?

a. Directly from Loop "B" flow indication.

b. By subtracting idle loop flow from the operating loop flow recorder.

c. By adding idle loop flow and the operating loop flow recorder.

d. Directly from the total core flow recorder.

ANSWER: d.

REFERENCE: HC.OP.SO.BB-0002, pg 33; LP-19, pg 69, Total flow recorder.

Learning Objective: ELO-R-16 and 23.

KA: 295001AA1.01 [3.5/3.6] Higher Order

Material Required for Examination: No reference

Question Source: new

SENIOR REACTOR OPERATOR

QUESTION: # 42 (1.00)

The plant is operating at 28% reactor power, all systems operable, when a loss of voltage occurs on the 4.16 KV buses (10A401, 10A402, 10A403,10A404) The reactor scrams.

WHICH ONE of the following caused the reactor scram?

a. High reactor pressure

b. Turbine control valve fast closure

c. Loss of power to RPS

d. Low RPV water level

ANSWER: d.

REFERENCE: LP-22, pg14.

Learning Objective: ELO-R12.

KA: 295003AK305 [3.7/3.7] Higher Order

Material Required for Examination: No reference

Question Source: new

SENIOR REACTOR OPERATOR

QUESTION: #43 (1.00)

WHICH ONE of the following conditions requires emergency depressurization?

Assume a primary system is discharging into the areas listed.

a. HPCI (4111) - area temperature is 255 deg.F.
RCIC (4110) - area temperature is 195 deg.F.

b. TIPS room ARM reading 1,000 times normal.
HPCI room ARM reading 750 times normal.

c. SACS "B&D" (4307) area temperature is 150 degrees F.
RWCU pipe chase(4402)area temperature is 170 degrees F.

d. Core Spray pump rooms "B&D"(4104&4105)area temperatures are 135 deg.F.
RHR pump rooms - "B&D"(4109&4107) area temperatures are 130 deg.F.

ANSWER: c.

REFERENCE: LP-127, pg 15 & 29 ; EOP-103, table 1 and step RB/T-13. .

Learning Objective: ELO-6.

KA: 295032EK3.01 [3.5/3.8] Higher Order

Material Required for Examination: EOP-103 - white out entry conditions.

Question Source: new

SENIOR REACTOR OPERATOR

QUESTION: #44 (1.00)

A loss of all RPV level indication due to high drywell temperature has occurred. The reactor was successfully scrammed at 1020. The following conditions have existed since 1121.

- 4 SRVs manually opened
- RPV pressure - steady at 120 psig
- Supp chamber water level - 75"
- Supp chamber pressure - 10 psig and stable
- DW pressure - 11 psig and stable
- DW temperature - 195 degrees F. and stable
- Core spray pump "B" injecting
- RPV water level instrumentation is available

WHICH ONE of the following actions should be taken?

a. Continue to inject but at time 1240 terminate RPV injection for a maximum of 6 minutes or until RPV level indication is restored.

b. Continue to inject but at time 1240 terminate RPV injection for a maximum of 9 minutes or until RPV level indication is restored.

c. Continue to inject but at time 1207 terminate RPV injection for a maximum of 6 minutes or until RPV level indication is restored.

d. Continue to inject but at time 1207 terminate RPV injection for a maximum of 9 minutes or until RPV level indication is restored.

ANSWER: a.

REFERENCE: EO-206, step RF-25; LP-134, pg 27, 28.

Learning Objective: ELO-6

KA: 295028EK3.02 [3.5/3.8] Higher Order

Material Required for Examination: EO-206.

Question Source: new

SENIOR REACTOR OPERATOR

QUESTION: #45 (1.00)

Given the following plant conditions:

- A failure to scram occurred
- Reactor power is 20%
- Supp pool water temperature is 112 degrees F.
- MSIVs were closed on main steam line High-High Rad
- 2 SRVs are cycling to control reactor pressure
- Drywell pressure is 2.2 PSIG
- RPV level is 50" and slowly lowering

WHICH ONE of the following actions is required?

a. Terminate and prevent all injection to the RPV except from CRD and boron.

b. Maintain RPV water level between -161" and +54".

c. Maintain RPV water level between -190" and -161".

d. Reopen the MSIVs to reestablish the condenser as a heat sink.

ANSWER: a.

REFERENCE: EOP-207, step LP-10; LP-135, pg 17.

Learning Objective: ELO-7.

KA: 295015AK1.03 [3.8/3.9] Higher Order

Material Required for Examination: EOP-207 with entry conditions removed.

Question Source: new

SENIOR REACTOR OPERATOR

QUESTION: #46 (1.00)

The plant is operating at 70% reactor power when the "A" outboard MSIV fails closed.

WHICH ONE of the following describes the response of the reactor power and reactor water level from steady state to steady state condition?

Assume no operator action is taken.

a. Reactor power will decrease and stabilize at a lower power.
RPV water level will decrease and then return to a normal level.

b. Reactor power will decrease and stabilize at a lower power.
RPV water level will increase and then return to a normal level.

c. Reactor power will increase and stabilize at a higher power.
RPV water level will increase and then return to a normal level.

d. Reactor power will increase and stabilize at a higher power.
RPV water level will decrease and then return to a normal level.

ANSWER: d.

REFERENCE: AB202, sect 4.0; LP-114.

Learning Objective: ELO-3

KA: 295020AA203 [3.7/3.7] Higher Order

Material Required for Examination: no reference.

Question Source: new

SENIOR REACTOR OPERATOR

QUESTION: #47 (1.00)

The following conditions exist:

- Suppression pool water level is 50 inches.
- Suppression pool water temperature is 220 degrees F.
- Reactor pressure is 800 psig.

Under these conditions, Emergency Depressurization is:

a. Not required since primary containment limits are not exceeded.

b. Required to ensure that the suppression chamber design temperature is not exceeded.

c. Prohibited since the downcomers are now exhausting to suppression pool free air space.

d. Prohibited since the HPCI is now exhausting to the suppression chamber free air space.

ANSWER: b

Downcomers uncovered at 38.5" and HPCI exhaust uncovered at 25".

REFERENCE: EOP-102A, SP/T-9

Learning Objective: LP-125A, ELO-9.

KA: 295026K301 [3.8/4.1] Higher Order

Material Required for Examination: EOPs.

Question Source: New

SENIOR REACTOR OPERATOR

QUESTION: #48 (1.00)

The plant is operating at 100% reactor power when a "CRD HYD UNIT TEMP HI" alarm is received.

WHICH ONE of the following caused this condition?

a. Eroded CRD cooling water orifice

b. Leaking scram outlet valve

c. CRD flow control valve fails open

d. Leaking scram inlet valve

ANSWER: b.

REFERENCE: LP-6, table 2; ARP C6-C3, causes.

Learning Objective: ELO-18 & R26.

KA: 295022AK302 [2.9/3.1]Higher Order

Material Required for Examination: no reference.

Question Source: new

SENIOR REACTOR OPERATOR

QUESTION: #49 (1.00)

A fire protection header rupture has resulted in 10 inches of water in the HPCI (4111) and RCIC (4110)rooms. All appropriate systems have been isolated and all sump pumps are operating but level remains at 10 inches.

WHICH ONE of the following actions should be taken?

a. A scram should be initiated.

b. Recirc should be run back to minimum.

c. A normal shutdown should be commenced.

d. No action is required.

ANSWER: c.

REFERENCE: EOP-103, steps RB/L-10 & 11; LP-127, pg 27-28.

Learning Objective: ELO-6.

KA: 295036EK201 [3.1/3.2] Higher Order

Material Required for Examination: EOP-103 with the entry conditions removed.

Question Source: new

SENIOR REACTOR OPERATOR

QUESTION: #50 (1.00)

WHICH ONE of the following thermal limits are related to power oscillations at high power/low flow conditions?

a. APLHGR

b. LHGR

c. CMFLPD

d. MCPR

ANSWER: d

REFERENCE LP-106, pg 27-30.

Learning Objective: ELO-2.

KA:295014AK105[3.7/4.2] Memory

Material Required for Examination: no reference.

Question Source: new

SENIOR REACTOR OPERATOR

QUESTION: 51 (1.00)

A LOCA has occurred and the following conditions exist.

- Reactor pressure is 400 psig
- Reactor is shutdown
- Drywell pressure is 8.5 psig
- Drywell temperature SPDS point A2266 is 475 degrees F.
- Drywell temperature is 270 degrees F. for all other SPDS points
- Instrument reference leg temperatures are <300 degrees F

WHICH ONE of the following instruments would be the most accurate reactor vessel level indication under the listed conditions?

a. LR-R623A-B21 Wide Range "A"

b. LR-R623B-B21 Wide Range "B"

c. LR-3683B Narrow Range "B"

d. LR-3683A Narrow Range "A"

ANSWER: b.

REFERENCE: EOP caution 1; LP-126A.

Learning Objective: LO-1c.

KA:295012AK101 [3.3/3.5]Higher Order

Material Required for Examination: EOP caution 1.

Question Source: new

SENIOR REACTOR OPERATOR

QUESTION: 52 (1.00)

WHICH ONE of the following is the basis for the limit of 125" in the suppression pool?

a. SRV tailpipes will be submerged.

b. Supp chamber vent path will be uncovered.

c. Supp chamber to drywell vacuum breaker inlets are submerged.

d. Vent header drain lines will be submerged.

ANSWER: c.

REFERENCE: EO-102B, step SP/L-24; LP-125B, pg 29.

Learning Objective: ELO-6.

KA: 295029EK101 [3.4/3.7] Memory

Material Required for Examination: no reference.

Question Source: new

SENIOR REACTOR OPERATOR

QUESTION: #53 (1.00)

Which of the following describes the effect of failing to restart the Turbine Building Ventilation System if it trips while operating in HC.OP-EO.ZZ-0104(Q)-FC, "Radioactive Release Control"? Assume a release in the turbine building is in progress.

a. The Turbine Building releases will be monitored but not treated.

b. The total off-site calculated release could be higher.

c. The Turbine Building will go to a slightly negative pressure.

d. The total off-site calculated release could be lower.

ANSWER: d.

REFERENCE: LP-128, Page 8, L.O. R-3

KA: 295038EA1.06 [3.5/3.6] Higher order

Material Required for Examination: No Reference.

Question Source: HC requal bank

SENIOR REACTOR OPERATOR

QUESTION: 54 (1.00)

Due to a transient an offsite release is in progress. A sample analysis of the discharge as well as a projected offsite dose calculation has been done with the following results.

- Noble gas at the site boundary will result in a dose rate of 2 rem/year total body
- The projected duration of the gaseous release at the site boundary will result in a TEDE of 150 mrem
- The projected duration of the gaseous release at the site boundary will result in a thyroid CDE of 400 mrem

WHAT is the emergency plan classification of this event?

a. General Emergency

b. Site Area Emergency

c. Alert

d. Unusual Event

ANSWER: b.

REFERENCE: ECG, classification sect. 6.0; LP-0215-008.00B-000800.

Learning Objective: LO 2.0

KA: 295017AK2.06 [3.4/4.6] Higher Order

Material Required for Examination: EALs only portion of ECGs.

Question Source: new

SENIOR REACTOR OPERATOR

QUESTION: 55 (1.00)

Condenser backpressure is rapidly increasing with reactor power at 90%.

WHICH ONE of the following is the required immediate operator action for this event per HC.OP-AB.ZZ-208(Q)?

a. Reduce reactor power as necessary to maintain condenser pressure less than 6 inches HgA by inserting control rods.

b. Ensure proper operation of the steam jet air ejectors (SJAE)

c. Ensure turbine steam seal pressure is normal.

d. Reduce reactor power as necessary to maintain condenser pressure less than 5 inches HgA.

ANSWER: d.

REFERENCE: AB-208; LP-114.

Learning Objective: ELO-1.

KA: 295002AK3.09 [3.2/3.2] Memory

Material Required for Examination: no reference.

Question Source: new

SENIOR REACTOR OPERATOR

QUESTION: 56 (1.00)

The reactor is at 100% power. All systems are operable and in their normal alignment.

WHICH ONE of the following would be the plant response to a loss of the total steam flow signal to the feedwater level control system? Assume no operator action is taken.

a. Vessel level control will automatically swap to single element control and control level in the normal band.

b. Vessel level will increase until the main turbine trips.

c. Vessel level will decrease until the reactor scrams.

d. Vessel level control will remain in 3 element control and control level in the normal band.

ANSWER: a.

REFERENCE: LP-59, pg 20; AB-200, sect 5.2; ARP B3-F1.

Learning Objective: ELO-13.

KA: 295009AA202 [3.6/3.7] Higher Order

Material Required for Examination: no reference.

Question Source: new

SENIOR REACTOR OPERATOR

QUESTION: 57 (1.00)

Given the following plant conditions:

- Reactor pressure 500 psig
- Reactor level 125 inches
- Supp pool water temperature 182 degrees F.

WHICH ONE of the following bands contain the actual Heat Capacity Level Limit?

a. 32" - 34"

b. 35" - 37"

c. 38" - 40"

d. 41" - 43"

ANSWER: c.

REFERENCE: EOP-102A, step SP/L-5; LP-125B, pg 15-16.

Learning Objective: ELO-R8.

KA: 295030EK103 [3.8/4.1] Higher Order

Material Required for Examination: provide EOPs.

Question Source: new

SENIOR REACTOR OPERATOR

QUESTION: 58(1.00)

A primary containment atmospheric sample indicates a hydrogen concentration of 2.2%.

WHICH ONE of the following actions are required per the EOPs? Assume all other reactor parameters are stable and are being controlled as required by the EOPs. All systems are operable and NO OFFSITE RELEASES ARE IN PROGRESS also offsite releases are expected to remain below the LCO limit during venting.

a. Vent the supp chamber.

b. Vent the drywell.

c. Purge the supp chamber.

d. Purge the drywell.

ANSWER: a.

REFERENCE: EO-102B; LP-126C, pages 23-25.

Learning Objective: ELO-8.

KA: 500000EK3.08 [3.1/3.6] Higher Order

Material Required for Examination: EOPs

Question Source: new

SENIOR REACTOR OPERATOR

QUESTION: 59(1.00)

A loss of drywell cooling results in a drywell pressure reaching 2.6 psig.

WHICH ONE of the following describes EDG, RCIC, and RWCU expected response? Assume no operator action has been taken.

a. EDGs - running and loaded
   RCIC - running and injecting
   RWCU - pumps tripped

b. EDGs - running and NOT loaded
   RCIC - not affected
   RWCU - not affected

c. EDGs - running and loaded
   RCIC - not affected
   RWCU - pumps tripped

d. EDGs - running and NOT loaded
   RCIC - running and injecting
   RWCU - not affected

ANSWER: b.

REFERENCE: AB-201; LP-114.

Learning Objective: ELO-3.

KA: 295010AK1.03 [3.2/3.4] Higher Order

Material Required for Examination: no reference.

Question Source: new

SENIOR REACTOR OPERATOR

QUESTION: 60 (1.00)

The MSIVs have closed and the reactor has scrammed due to a loss of condenser vacuum. Current plant conditions are as follows:

- All rods in
- Mode switch in Shutdown
- Reactor level is 145 inches
- Reactor pressure is 900 psig
- Drywell pressure is 1.4 psig
- Supp pool water temperature is 125 degrees F.

WHICH ONE of the following is the Technical Specification action required at this time?

a. Reduce the pool temperature to less or equal to 95 degrees F within 24 hours.

b. Reactor shall be depressurized to less than 200 psig within 12 hours.

c. The reactor shall be in a cold shutdown condition within 24 hours.

d. Maintain Primary Containment integrity until pool temperature is reduced below 95 degrees F.

ANSWER: b.

REFERENCE: TS 3.6.2.1, action b.3.; LP-125A, pg 16.

Learning Objective: ELO-9.

KA: G2.1.12 [2.9/4.0] Higher Order

Material Required for Examination: TS.

Question Source: new

SENIOR REACTOR OPERATOR

QUESTION: 61 (1.00)

Given the following plant conditions:

- Reactor is shutdown, all rods in
- RPV pressure is 0 psig
- Core Spray system "A" is injecting to the vessel
- Core Spray system "B" is injecting to the vessel
- CRD is injecting to the vessel
- All available normal injection subsystems are lined up and injecting
- RPV level is -161" and decreasing

WHICH ONE of the following actions is required per EOPs?

a. Perform Primary containment flooding

b. Perform emergency depressurization

c. Perform Steam Cooling

d. Line up alternate injection systems

ANSWER: b.

REFERENCE: EOP-201; LP-129, pg 20.

Learning Objective: ELO-6.

KA: 295031EK302 [4.4/4.7] Higher Order

Material Required for Examination: EOPs

Question Source: new

SENIOR REACTOR OPERATOR

QUESTION: 62 (1.00)

All three primary and secondary condensate pumps are initially operating with reactor power at 40% when "A" & "B" secondary condensate pumps both trip. "A" & "B" feedwater pumps were operating with "C" feedwater pump down for maintenance.

WHICH ONE of the statements below describes the response of the the feedwater pumps and the reactor recirc pumps assuming no operator action is taken?

a. When the "A" and "B" secondary pumps trip both operating feedwater pumps trip on a signal from the secondary condensate pumps. Both reactor recirc pumps runback to 30% speed.

b. When the "A" and "B" secondary pumps trip only one of the operating feedwater pumps trips on a signal from the secondary condensate pumps. Both reactor recirc pumps runback to 45% speed.

c. When the "A" and "B" secondary pumps trip both operating feedwater pumps trip on a signal from the secondary condensate pumps. The reactor recirc pumps will not runback.

d. When the "A" and "B" secondary pumps trip only one of the operating feedwater pumps trips on a signal from the secondary condensate pumps. The reactor recirc pumps will not runback.

ANSWER: d.

REFERENCE: LP-19, pg 59-60, 65; LP-58, pg 82, ELO-27.

Learning Objective: ELO-13.

KA: 256000K3.04 [3.6/3.2] Higher Order

Material Required for Examination: no reference.

Question Source: new

SENIOR REACTOR OPERATOR

QUESTION: #63 (1.00)

Given the following conditions:

- A plant startup is in progress with the Reactor Mode Switch in "Run"
- The Main Turbine is reset and is at 950 rpm accelerating to 1800 rpm
- A loss of 125 VDC power from distribution panel 1CD318 to the EHC control logic occurs

Which of the following is the expected plant response?

a. Main turbine trips.

b. Main turbine startup would continue at the selected acceleration rate.

c. Main turbine speed will remain constant at 950 rpm.

d. Main turbine control valves throttle closed due to a loss of the speed reference signal.

ANSWER: a

Question Topic: Reactor Scram From Turbine Trip During Startup Due to Loss of 125 VDC

REFERENCE: LP-51, Page 33-34, L.O. 12

KA: 295004K203 [3.3/3.3] Higher Order

Material Required for Examination: No Reference

Question Source: New

SENIOR REACTOR OPERATOR

QUESTION: #64

Given the following conditions:

- The plant is operating at 35% power
- A main generator load reject has just occurred
- The power/load unbalance circuit tripped unexpectedly during the load reject

WHICH ONE of the following is the expected response of the Turbine Control Valves and the Reactor Protection System (RPS) for the given conditions?

a. -- The Turbine Control Valves throttle closed
-- RPS does not cause a SCRAM

b. -- The Turbine Control Valves fast close
-- RPS does cause a SCRAM

c. -- The Turbine Control Valves throttle closed
-- RPS does cause a SCRAM

d. -- The Turbine Control Valves fast close
-- RPS does not cause a SCRAM

ANSWER: b

Question Topic: Power/Load Unbalance Trip - Expected Plant Response

REFERENCE: LP-48, Page 92.

Learning Objective: ELO-R10.b& 16.

KA: 295005K201 [3.8/3.9] Higher Order

Material Required for Examination: No Reference

Question Source: New

SENIOR REACTOR OPERATOR

QUESTION: #65

With the plant at 100% power, a severe overfeeding transient is occurring. Water level is +50 inches and rising rapidly.

WHICH ONE of the following reactor water levels require termination of all feed to the reactor, closing the MSIVs and a reactor scram assuming none of these actions have occurred?

a. +54 inches

b. +65 inches

c. +90 inches

d. +118 inches

ANSWER: c

Question Topic: Actions for Severe Reactor Overfeeding

REFERENCE: AB-0200, Page 7.

Learning Objective: LP-114, L.O. ELO-1 & 3

KA: 295008AA2.01 [3.9/3.9] memory

Material Required for Examination: No Reference

Question Source: HC Bank Requal

SENIOR REACTOR OPERATOR

QUESTION: #66

Given the following conditions:

- SACS pumps "A" and "C" are running, supplying TACS loads.
- SACS pump "B" is running.
- SACS pump "D" is in standby.
- Due to improper testing, a low SACS pump "A" differential pressure signal is generated.

Following all automatic actions, identify the running SACS pumps and which SACS loop is supplying TACS loads.

a. SACS pumps "B", and "D" are running and SACS loop "B" is supplying TACS loads.

b. SACS pumps "B", and "D" are running and both SACS loops are supplying TACS loads.

c. SACS pumps "A", "B", "C", and "D" are running and SACS loop "B" is supplying TACS loads.

d. SACS pumps "B", "C", and "D" are running and SACS loop "A" is supplying TACS loads.

ANSWER: a

Question Topic: Status of SACS Following a Low Pump Differential Pressure Signal

REFERENCE: LP-80, Pages 18-24, L.O. ELO-16

KA: 295018K101 [3.5/3.6] Memory

Material Required for Examination: No Reference

Question Source: HC requal bank

SENIOR REACTOR OPERATOR

QUESTION: #67

Given the following conditions:

- A loss of coolant accident has occurred and all systems responded normally.
- The Reactor Auxiliaries Cooling System (RACS) has been restored.

WHICH ONE of the following describes the availability/response of the Emergency Instrument Air Compressor (EIAC) for these conditions should instrument air header pressure begin lowering?

a. The EIAC is not available until the LOCA signal is reset or bypassed, and the 1E breaker is closed.

b. The EIAC is not available until the LOCA signal is reset or bypassed, and the non-1E breaker is closed.

c. The EIAC will automatically start on instrument air header pressure less than 85 psig.

d. The EIAC will not automatically start but may be started manually from the Control Room.

ANSWER: a

Question Topic: Emergency Air Compressor Responses

REFERENCE: LP-75, Page 43; ELO-7

KA: 295019A101 [3.5/3.3] Higher Order

Material Required for Examination: No Reference

Question Source: HC requal bank

SENIOR REACTOR OPERATOR

QUESTION: #68 (1.00)

The plant has just reached COLD SHUTDOWN when an inadvertent shutdown cooling isolation occurs. HV-F008 (RHR shutdown cooling isolation valve) cannot be reopened. For these conditions, decay heat should be removed by filling and venting the suction line, starting a Reactor Recirculation pump, and:

a. Opening the MSIVs, starting a mechanical vacuum pump and dumping steam to the main condenser.

b. Verifying the RWCU system is in service with maximum RACS flow to the non-regenerative heat exchanger.

c. Raising RPV level to +80 inches on the Shutdown Range.

d. Placing alternate shutdown cooling in service using "C" to "A" RHR cross-tie.

ANSWER: b

JUSTIFICATION:

a. Opening the MSIV's, starting a mechanical vacuum pump and dumping steam to the main condenser. - Alternate means are available and the plant is in cold shutdown - no steam.
b. Verifying the RWCU System is in service with maximum RACS flow to the non-regenerative heat exchanger. - OK per step 4.7.a of AB-142.
c. Raising RPV level to +80 inches on the Shutdown Range. - Not done if RR is started.
d. Placing Suppression Pool Cooling in service, opening two SRV's and circulating the suppression pool through the reactor using and RHR pump. - Done only if all other possibilities are exhausted.

REFERENCE: AB-142, Pages 2 and 3.

Learning Objective: LP-28, ELO-R16.

KA: 295021AK3.05 [3.6/3.8] Higher Order

Material Required for Examination: No Reference.

Question Source: HC Requal Bank

SENIOR REACTOR OPERATOR

QUESTION: #69 (1.00)

Given the following conditions:

- The plant has been operating at 100% power for several weeks.
- Main Steam Line (MSL) radiation levels have been averaging 95 mR/hr but are slowly trending upwards.
- Before receipt of the MSL Hi Radiation alarm, it is noted that offgas activity and reactor coolant conductivity are both increasing.

What are the Immediate Operator Actions required for the given conditions?

a. Place additional Condensate Demineralizers in service if possible.

b. Scram the reactor and close the Main Steam Isolation Valves when MSL levels are greater than 142 mR/hr.

c. Direct Reactor Water Cleanup flow to the main condenser to reduce coolant activity.

d. Reduce reactor power to maintain MSL radiation levels less than 142 mR/hr.

ANSWER: d

Question Topic: Actions for MSL Hi-Hi Radiation

REFERENCE: AB-100, Page 1; LP-221, pg 52-54.

Learning Objective: LP-114, L.O. ELO-1.

KA: 2950033EK1.03 [3.9/4.2] Memory

Material Required for Examination: No Reference

Question Source: HC requal bank

SENIOR REACTOR OPERATOR

QUESTION: #70 (1.00)

Given the following conditions:

- The plant is operating at 50% power
- All systems are operating normally
- One Reactor Building Ventilation System (RBVS) Exhaust Fan discharge damper has failed to the full "open" position with the fan running
- No other RBVS components have changed

Which of the following describes how this will affect the initiation of the Emergency Core Cooling Systems (ECCS) and the reason for this?

a. ECCS will initiate after it is required because the failed damper raises Reactor Building pressure resulting in a lower indicated drywell pressure.

b. ECCS will initiate before it is required because the failed damper lowers Reactor Building pressure resulting in a higher indicated drywell pressure.

c. ECCS will initiate after it is required because the failed damper lowers Reactor Building pressure resulting in a lower indicated drywell pressure.

d. ECCS will initiate before it is required because the failed damper raises Reactor Building pressure resulting in a higher indicated drywell pressure.

ANSWER: b

REFERENCE: AB-115.

Learning Objective: LP-114, ELO-3

KA: 2950035EA1.01 [3.6/3.6] Higher Order

Material Required for Examination: No Reference

Question Source: NRC exam 2/98.

SENIOR REACTOR OPERATOR

QUESTION: #71 (1.00)

The reactor is in OPCON 5 for a short outage. During a containment inspection, the Operations Superintendent notices a radiation barricade rope around an area. A radiation sign on the rope reads "Caution - High Radiation Area" and indicates a maximum radiation level of 900 mrem/hr inside the roped area.

Which one of the following additional controls should be used for this area?

a. The area should be kept locked and the keys kept under the administrative control of the Operations Superintendent.

b. The area access should be controlled by issuance of a Radiation Work Permit.

c. The area should have a flashing light in the immediate area as a warning device.

d. The area should have a closed circuit TV monitor installed to provide radiation protection personnel with continuous monitoring capabilities.

ANSWER: b

REFERENCE: NC.NA-AP.ZZ-0024, Pages 17-18; L.O. LP-113, ELO-52

KA: G.2.3.10 [2.9/3.3] Memory

Material Required for Examination: No Reference

Question Source: HC Bank

SENIOR REACTOR OPERATOR

QUESTION: #72 (1.00)

WHICH ONE of the following persons is authorized to provide release authorization for a tag to be removed from a piece of I&C equipment during non-emergency conditions when the responsible individual can not be contacted?

a. Only responsible individual.

b. Control Room Supervisor.

c. Discipline supervisor.

d. Operations Superintendent.

ANSWER: c

Question Topic: Tag Removal

REFERENCE: NC.NA.AP.ZZ-0015, Page 6, Section 5.1.11.

Learning Objective: LP-113, ELO-46.

KA: G.2.2.13 [3.6/3.8] Memory

Material Required for Examination: No Reference

Question Source: HC requal bank

SENIOR REACTOR OPERATOR

QUESTION: #73 (1.00)

IAW NAP-13, Control of Temporary Modifications, WHICH ONE of the following modifications requires a 10 CFR 50.59 Safety Review prior to implementation?

a. Installation of a temporary space heater to prevent freezing of a safety related system component during inclement weather.

b. Connection of a sample tube to a sampling connection to obtain an RHR system sample.

c. Installation of a pressure gauge on an instrument tap during the conduct of a system pressure test.

d. Hookup of an air supply hose to a station air manifold during maintenance.

ANSWER: a.

Question Topic: Temporary Modification

REFERENCE: NC.NA-AP.ZZ-0013, Section 5.1.2.

Learning Objective: LP-113, ELO-43.

KA: G.2.2.11 [2.5/3.4] Memory

Material Required for Examination: No Reference

Question Source: HC requal bank

SENIOR REACTOR OPERATOR

QUESTION: #74 (1.00)

A RWCU Backwash Receiver Tank drain line has cracked during a transfer to Radwaste and is spilling into the Reactor Building. Reactor Building Area Radiation conditions are as follows:

Reactor Building Area	Beginning of Shift Area Radiation	Current Area Radiation
- RWCU Pump Room	2 mr/hr	2400 mr/hr
- RWCU Heat Exchanger Room	3 mr/hr	1100 mr/hr
- RWCU Backwash Tank Room	3.5 mr/hr	4500 mr/hr
- General Area Outside of RWCU Backwash Tank Room	1.2 mr/hr	1000 mr/hr
- Other Reactor Building Areas	2 to 5 mr/hr	Not in Alarm

WHICH ONE of the following is the required action that must be directed by the NSS?

a. Continue reactor operation and attempt to stop the tank leakage.

b. Commence a normal reactor shutdown to cold shutdown.

c. Scram the reactor and commence a normal cooldown.

d. Scram the reactor and commence an emergency depressurization.

ANSWER: b

Question Topic:

REFERENCE: EOP 103, Step RB/R-90.

Learning Objective: LP-127, LO-1.

KA: G2.3.10 [2.9/3.3] Higher Order

Material Required for Examination: EOPs.

Question Source: NRC Exam Bank

SENIOR REACTOR OPERATOR

QUESTION: #75 (1.00)

Plant conditions are as follows:

- All control rods have fully inserted.
- Reactor water level is -240 inches and decreasing.
- Suppression pool level is 25 inches.
- Containment radiation monitors indicate 20 R/hr and increasing.
- Only one SRV can be opened.

WHICH ONE of the following states the alternate methods of rapidly depressurizing the reactor that would MINIMIZE the radioactive release to the environment?

a. Turbine bypass valves, RCIC, HPCI, and RFPTs.

b. Head spray, RFPTs, main steam line drains, and SJAEs.

c. HPCI, RCIC, and head vent.

d. SJAEs, main steam line drains, and head vent.

ANSWER: d.

REFERENCE: EOP-202, Step ED-12.

Learning Objective: LP-130, LO-3

KA: G2.3.11 [2.7/3.2] Higher Order

Material Required for Examination: EOPs

Question Source: NRC Exam Bank

SENIOR REACTOR OPERATOR

QUESTION: #76 (1.0)

Emergency diesel generator "A" fails to start during a Loss of Offsite Power (LOP) and cannot be started manually. Emergency diesel generator "C" starts and loads and then trips. Emergency diesel generators "B" and "D" start and load as designed.

At this point, the emergency instrument air compressor:

a. Will start automatically on low air header pressure.

b. Will not automatically start on low air header pressure, but can be manually started by the operator.

c. Will not start due to a loss of RACS.

d. Will not start due to loss of power to the compressor.

ANSWER: d

Question Topic: loss of electrical power for compressor.

REFERENCE: LP-68, Pages 12 & 42, L.O. ELO-5c

KA: 300000K2.02 [3.0/3.0] Higher Order

Material Required for Examination: No Reference

Question Source: New

SENIOR REACTOR OPERATOR

QUESTION: #77 (1.00)

The reactor is operating at 12% rated power with the Reactor Mode Switch in STARTUP/HOT STANDBY. The APRMs have the following unbypassed LPRM inputs.

	APRM 'A'	APRM 'B'	APRM 'C'	APRM 'D'	APRM 'E'	APRM 'F'
Level D	4	4	4	4	4	4
Level C	4	5	2	5	4	4
Level B	4	3	3	1	5	3
Level A	5	3	2	5	2	3
Average Pwr	16%	11%	12%	11%	13%	10%

No APRMs are bypassed for these conditions. What is the expected plant response?

a. A full reactor scram will occur immediately due to APRM C and D INOP signals in RPS A and B respectively.

b. A full reactor scram will occur immediately due to the APRM A UPSCALE and the APRM D INOP signals in RPS A and B respectively.

c. A full reactor scram will occur immediately due to the APRM A UPSCALE and APRM C INOP signals in RPS A and the APRM D INOP signal in RPS B.

d. A half scram due to the APRM A UPSCALE and APRM C INOP will be present in the RPS A logic.

ANSWER: d

REFERENCE: LP-16, Table 1, 2, Pages 36, 17, 20; LP-22, Page 30, ELO-4

KA: 21200A3.01 [4.4/4.4] Higher Order

Material Required for Examination: No Reference

Question Source: HC requal bank

SENIOR REACTOR OPERATOR

QUESTION: #78 (1.00)

An earthquake was felt at the plant, and the Seismic Trigger SMA-3 Event Indicator (flag) was confirmed "WHITE".

The SNSS shall declare:

a. No ECG level event.

b. An Unusual Event.

c. An Alert.

d. A Site Area Emergency.

ANSWER: b

REFERENCE: LP-97, ECG Section 9.5.2

Learning Objective: R6

KA: G2.4.41 [2.3/4.1] Higher Order

Material Required for Examination: ECG EALs only.

Question Source: HC requal bank

SENIOR REACTOR OPERATOR

QUESTION: #79 (1.00)

Severe flooding is forecast and the Delaware River level is at 94' and is rising steadily. As CRS, WHICH ONE of the following actions are required?

a. Monitor tide level at least once an hour and record levels.

b. Place the plant in Hot Shutdown within 12 hours if tide level is expected to reach 95'.

c. Close all watertight perimeter flood doors within one hour if tide level is expected to reach 95'.

d. Close all watertight perimeter flood doors within four hours if tide level is expected to reach 95'.

ANSWER: c

Question Topic: severe flooding

REFERENCE: AB-139, Page 2.

Learning Objective: LP-114, ELO-3

KA: G.2.4.47 [3.4/3.7] memory

Material Required for Examination: No Reference

Question Source: New

SENIOR REACTOR OPERATOR

QUESTION: #80 (1.00)

During a reactor startup, the following data was obtained with no control rod motion.

Time	SRM A	SRM B	SRM C	SRM D
8:16:00	390	410	400	400
8:16:20	600	600	550	650
8:16:40	1200	1200	1100	1300
8:17:00	2400	2400	2300	2500
8:17:20	4500	4600	4500	4700

Determine the period and whether rod withdrawal may continue.

a. 20 seconds; rod withdrawal may continue.

b. 28.8 seconds; rod withdrawal may not continue.

c. 86.4 seconds; rod withdrawal may not continue.

d. 120 seconds; rod withdrawal may continue.

ANSWER: b.

REFERENCE: HC.OP-IO.ZZ-003, Section 3.1.8 and 5.2.16.

Learning Objective: LP-13, LO-R10

KA: 2150004A1.02[3.6/3.7] Higher Order

Material Required for Examination: No Reference

Question Source: New

SENIOR REACTOR OPERATOR

QUESTION: #81 (1.00)

The reactor was operating at 55% power on the 90% rod pattern line with Reactor Recirculation Pump B idle and available. A controller failure causes Reactor Recirculation Pump A to runback, and core flow stabilizes at 42%. The operators shall:

a. Place the Reactor Mode Switch in SHUTDOWN.

b. Exit the region by inserting control rods or by increasing recirculation flow on the operating pump.

c. Exit the region by starting the idle recirculation pump.

d. Within four hours, reduce the MCPR safety limit, MAPLHGR limit, and APRM scram and rod block setpoints.

ANSWER: b

REFERENCE: AB-0300 Immediate Operator Actions.

Learning Objective: LP-20, R6

KA: 202002K3.02 [4.0/4.0] Memory

Material Required for Examination: Power to Flow map.

Question Source: HC requal bank.

SENIOR REACTOR OPERATOR

QUESTION: #82 (1.00)

The plant is in OPCON 1. Core spray pumps AP-206 and CP-206 are operating in the full flow test mode.

During the test, the position indication light switch for Core Spray Suction Valve BE-HV-F001C indication fails, causing a signal corresponding to intermediate position to be produced.

Choose the set of responses below, which describes the actual response(s) and/or status of the system(s).

a. CP-206 will continue running. Automatic start of CP-206 is inhibited but manual start is available.

b. CP-206 will trip. "CORE SPRAY LOGIC C OUT OF SVCE" annunciator will illuminate. Automatic and manual starts of CP-206 are inhibited.

c. CP-206 will continue running. Manual and automatic starts of CP-206 are not affected.

d. CP-206 will trip. "CORE SPRAY LOGIC C OUT OF SVCE" annunciator will illuminate. CP-206 automatic start is inhibited, but manual start is available.

ANSWER: c

JUSTIFICATION: There are no interlocks between the Core Spray Pumps and their suction valves. The pumps will run if the valve closes and will start on either a manual or automatic start signal.

REFERENCE: LP-27, Pages 16-17, 26, 30, L.O. R12

KA: 209002A3.01 [3.6/3.6] Higher Order

Material Required for Examination: No Reference.

Question Source: HC requal Bank

SENIOR REACTOR OPERATOR

QUESTION: #83 (1.00)

The FRVS Vent System is in operation with RPV level at -40 inches. FRVS vent fan AV206 is in AUTO LEAD (running) and vent fan BV206 is in AUTO (idle). The FRVS Unit BV206 substation normal/emergency transfer switch has been placed in the emergency position.

WHICH ONE of the following set of conditions will start the idle fan automatically?

a. Low flow on AV206 for 30 seconds.

b. Low flow on AV206 for greater than 2 minutes.

c. LOCA signal reset and low flow on AV206 for 30 seconds.

d. BV206 will not auto start.

ANSWER: d

REFERENCE: LP-42, Pages 33-34, L.O. ELO-7, AB-115

KA: 261000K4.01 [3.7/3.8] Higher Order

Material Required for Examination: No Reference.

Question Source: New

SENIOR REACTOR OPERATOR

QUESTION: 84 (1.00)

The reactor building has isolated due to a valid 1.68 psig high drywell pressure condition. Subsequently drywell pressure drops to 0.7 psig. What actions must the operator take to reset the isolation, to reopen the reactor building isolation dampers and to prepare the RBVS fan units for restart.

a. Must reset PCIS isolation and then depress the open push button on panel 10C651E to reopen the dampers and reclose the non-1E breakers for the RBVS fans locally.

b. Must reset PCIS isolation and then depress the open push button on panel 10C651E to reopen the dampers and reclose the 1E breakers for the RBVS fans locally.

c. Must reset NSSSS isolation and then depress the open push button on panel 10C651E to reopen the dampers and reclose the 1E breakers for the RBVS fans locally.

d. Must reset NSSSS isolation and then depress the open push button on panel 10C651E to reopen the dampers and reclose the non-1E breakers for the RBVS fans locally.

ANSWER: b.

REFERENCE: LP-42, pg 16-17.

LO: R5, 18.

KA: 290001A4.11[3.4/3.4] Higher Order

MATERIAL REQUIRED FOR THE EXAM: none

Question Source: New (modified HC bank)

SENIOR REACTOR OPERATOR

QUESTION: #85 (1.00)

During accident conditions, which of the below describes why the post accident level indicators (PAMS) are the preferred instruments to use?

a. They are electronically compensated for the higher accident temperatures in the drywell.

b. The reference legs runs in the drywell are shorter, thus the effect of higher drywell temperatures are reduced.

c. The condensing pots are large, thus the effect of "chugging" is reduced.

d. They are electronically compensated to reduce the effect of rapid depressurization transients.

ANSWER: b

REFERENCE: LP-002, Page 25, R15a

KA: 259002K1.09 [2.9/3.0] Memory

Material Required for Examination: No Reference.

Question Source: HC Requal Bank

SENIOR REACTOR OPERATOR

QUESTION: #86 (1.00)

WHICH ONE of the following would be indicated by flashing of the Channel A, Amber, Containment Isolation Manual Initiation, TRIPPED, light?

a. Half trip of PCIS Channel A from Core Spray logic.

b. PCIS Channel A isolation from Level 2 logic.

c. Half trip of A inboard and outboard MSIVs.

d. Isolation of A inboard MSIVs.

ANSWER: a

JUSTIFICATION: -- The lite will be on solid with a full isolation signal also PCIS does not effect MSIV isolation.

REFERENCE: LP-44, Pages 16-17, fig 5, L.O. ELO-2

KA: 223001K1.01 [3.7/3.9] Memory

Material Required for Examination: No Reference.

Question Source: HC Requal Bank

SENIOR REACTOR OPERATOR

QUESTION: #87 (1.00)

Given the following conditions:

- A LOCA has occurred.
- Drywell temperature is 175 degrees F.
- Suppression Chamber pressure is 9 psig.

Suppression chamber sprays are required to be initiated at this pressure instead of drywell sprays to prevent:

a. Exceeding the negative design pressure of the primary containment.

b. Causing a stress failure of downcomer and vent header junction due to cyclic condensation.

c. Excessive accumulation of non-condensibles in the suppression chamber.

d. Drywell depressurization that exceeds the capacity of the suppression chamber to drywell vacuum breakers.

ANSWER: b

REFERENCE: LP-126B, Page 13, Step DW/P-3, L.O. ELO-R5 and R6

KA: Z260011G.03 [2.9/3.2] Memory

Material Required for Examination: No Reference.

Question Source: HC Requal Bank

SENIOR REACTOR OPERATOR

QUESTION: #88 (1.00)

During a valid high reactor pressure condition, the Recirculation Pumps did NOT automatically trip as designed.

WHICH ONE the following actions must be taken to open the Recirculation Pump Trip (RPT) Breakers.

a. Manually initiate both channels of the Redundant Reactivity Control System (RRCS).

b. Verify the RPT Breakers trip when the Recirculation Pump MG Set Drive Motor Breakers are opened.

c. Direct the local tripping of the RPT Breakers.

d. Trip the RPT Breakers from the control room.

ANSWER: c

REFERENCE: LP-19, Pages 35 and 65; TS Bases 3/4.3.3.

Learning Objective: R9.

KA: 295007AA2.02[4.1/4.1] memory

Material Required for Examination: No Reference.

Question Source: New

SENIOR REACTOR OPERATOR

QUESTION: #89 (1.00)

Given the following conditions:

- Reactor power is 30%.
- The 1DG400 diesel is paralleled with the bus for surveillance testing.
- The 1DG400 load is currently 2200KW.

An operator in the control room inadvertently arms and depresses the "D" Core Spray manual initiation pushbutton. WHICH ONE of the below describes the effect this error would have on the 1DG400 evolution in progress?

a. The diesel generator remains in parallel operation.

b. The normal bus supply breaker trips open and the diesel generator supplies the 10A404 bus.

c. The generator output breaker will trip and the diesel will shutdown and must be manually restarted.

d. The generator output breaker will trip open and the diesel remains running.

ANSWER: d

REFERENCE: LP-68, Page 65, L.O. R7

KA: 26400K6.08 [3.6/3.7] Higher Order

Material Required for Examination: No Reference.

Question Source: HC Requal Bank

SENIOR REACTOR OPERATOR

QUESTION: #90 (1.00)

The following conditions exist:

- The plant is operating at 75% power.
- At 0800, one Safety Relief Valve opened.
- At 0802, EOP-102 has been entered due to suppression pool water temperature reaching 95 degrees F.

At what point should the reactor mode switch be placed in the shutdown position?

a. Immediately.

b. At 0810.

c. When suppression pool water temperature reaches 120 degrees F.

d. When the "unsafe" region of the Heat Capacity Temperature Limit curve is entered.

ANSWER: a

REFERENCE: AB-121, Step 3.5

Learning Objective: LP-114, ELO-1

KA: 295013AA1.02[3.9/3.9] Memory

Material Required for Examination: No Reference.

Question Source: New

SENIOR REACTOR OPERATOR

QUESTION: #91 (1.00)

WHICH ONE of the following is the reason for closing the MSIVs prior to evacuating the Control Room?

a. To prevent uncontrolled reactor inventory loss and depressurization through the operating turbine driven feedwater pumps.

b. To provide positive reactor pressure and level control without reliance on automatic operation of the turbine bypass valves.

c. To quickly reduce the main turbine speed after it trips by reducing condenser vacuum.

d. To reduce radiation levels in areas that fire fighters and plant operators may require access.

ANSWER: b

REFERENCE: AB-130, Page 3.

Learning Objective: LP-114, ELO-3

KA: 295016K2.01 [4.4/4.5] Memory

Material Required for Examination: No Reference.

Question Source: NRC Bank

SENIOR REACTOR OPERATOR

QUESTION: #92 (1.00)

The Unit has been shutdown for refueling following 100 days of power operation upon determining that several fuel assemblies have sustained cladding damage.

WHICH ONE of the following describes the effect of the damaged fuel assemblies on the plant during the refueling outage?

a. Only gamma radiation streaming.

b. Only increased radiation levels in the fuel pool cooling system piping.

c. Gamma radiation streaming and increased radiation levels in the shutdown cooling piping.

d. Increased radiation levels in the fuel pool cooling system piping and the shutdown cooling piping.

ANSWER: d

REFERENCE: AB-101, Page 2.

Learning Objective: LP-114, ELO-3

KA: 295023AA1.02[2.9/3.1] higher order

Material Required for Examination: No Reference.

Question Source: NRC Bank

SENIOR REACTOR OPERATOR

QUESTION: #93 (1.00)

In EOP-101, RPV Control, if SRVs are cycling, the operator is directed to manually open SRVs until RPV pressure drops to 935 psig.

WHICH ONE of the following is the reason for stopping the reactor pressure reduction at 935 psig?

a. To ensure the turbine bypass valves do not have the opportunity to stick closed.

b. To prevent MSIVs from closing on low main steam line pressure.

c. To minimize the amount of steam that is sent to the suppression pool.

d. To prevent excessive loss of reactor coolant inventory.

ANSWER: c

REFERENCE: EOP-101, Step RC/P-7.

Learning Objective: LP-124C, Page 19, L.O. ELO-8

KA: 295025EA1.03[4.4/4.4] Higher order

Material Required for Examination: No Reference.

Question Source: NRC Bank

SENIOR REACTOR OPERATOR

QUESTION: 94 (1.00)

A complete loss of "A" feedwater heating train has occurred due to a system malfunction. Reactor power is increasing. WHICH ONE of the following is the REQUIRED immediate operator action.

a. Immediately reduce reactor power to its pretransient value.

b. Immediately reduce reactor power to 25% below its pretransient value.

c. Immediately reduce reactor power until power stabilizes.

d. Immediately reduce reactor power to 20% below its pretransient value.

ANSWER: d.

REFERENCE: AB-118, immediate operator action 3.3.

Learning Objective: LP-114, ELO-1.

KA: 295014A1.02 [3.6/3.8] Memory

Material Required for Examination: no reference.

Question Source: new

SENIOR REACTOR OPERATOR

QUESTION: #95 (1.00)

The following conditions exist:

- A failure to scram has occurred.
- No boron has been injected.
- Reactor power is 30%.
- The Main Turbine is tripped.
- The Main Condenser is available.
- Suppression pool water level is normal.
- Due to difficulty in establishing suppression pool cooling, the Heat Capacity Temperature Limit (HCTL) was exceeded.

WHICH ONE of the following states the required operator action?

a. Emergency depressurize using the SRVs.

b. Reduce reactor pressure at normal cooldown rate using the SRVs.

c. Emergency depressurize using the main turbine bypass valves.

d. Reduce reactor pressure at normal cooldown rate using the main turbine bypass valves

ANSWER: a.

REFERENCE: EOP-102A, Steps SP/T-8 and 9

Learning Objective: LP-125A, Page 21, ELO-R9

KA: 295013AK3.02 [3.6/3.8] Higher Order

Material Required for Examination: EOPs.

Question Source: New

SENIOR REACTOR OPERATOR

QUESTION: #96 (1.00)

WHICH ONE of the following actions allow the operator to disregard NPSH limits?

a. After a successful reactor scram, Core Spray is being used to maintain level above -161 inches.

b. After a successful reactor scram, RCIC is being used to maintain level above +12.5 inches.

c. During an ATWS, feedwater is being used to maintain level between +12.5 to +35 inches.

d. During an ATWS, following Emergency Depressurization, condensate is being used for injection.

ANSWER: a

REFERENCE: EOP-201, Step ALC-2

Learning Objective: LP-135, ELO-7.

KA: 295031A1.01 [4.4/4.4] Higher Order

Material Required for Examination: EOPs.

Question Source: New

SENIOR REACTOR OPERATOR

QUESTION: #97 (1.00)

The following conditions exist:

- A manual scram was inserted from 20% power.
- No other scram signals exist.
- Reactor power is on intermediate range 5 and decreasing.
- Three control rods are at position 06. All other rods are fully inserted.
- EOP-100 has been entered.

WHICH ONE of the following is the required action?

a. No other EOP entry is required.

b. Enter EOP-101, then exit EOP-101 and enter EOP-207.

c. Exit EOP-100, and then enter EOP-101.

d. Enter EOP-101, and execute concurrently with EOP-100.

ANSWER: d

REFERENCE: EOP-100, Step S-1; EOP-101, Step RC/Q-16

Learning Objective: LP-124B, Pages 21-26, ELO-R8; LP-123, Page 8, ELO-3

KA: 295015AK2.01 [3.8/3.9]Higher Order

Material Required for Examination: EOPs.

Question Source: New

SENIOR REACTOR OPERATOR

QUESTION: #98 (1.00)

While operating at 100% power, a recirculation pump seal failure causes EOP-102 entry on high drywell pressure and high drywell temperature. Following initiation of suppression chamber spray, drywell pressure stabilizes at 2.5 psig, suppression chamber pressure stabilizes at 2.0 psig, and drywell temperature stabilizes at 175 degrees F.

WHICH ONE of the following actions is REQUIRED?

a. Declare an Unusual Event and initiate drywell spray.

b. Declare an Alert and initiate drywell spray.

c. Declare an Unusual Event. Do not initiate drywell spray.

d. Declare an Alert. Do not initiate drywell spray.

ANSWER: d

REFERENCE: EOP-102A, Curve DWT-P-1; ECG Table 3, Section 3.2.4

Learning Objective: LP-0215-008.00B-000800,LO 2.0

KA: 295010AK3.05 [3.5/3.4] higher order

Material Required for Examination: EOPs and EPG's EPs.

Question Source: New

SENIOR REACTOR OPERATOR

QUESTION: #99 (1.00)

The following conditions exist:

- A successful automatic reactor scram occurred on high reactor pressure.
- MSIVs are closed but the main condenser is available.
- The operator is attempting to stabilize pressure between 900-1037 psig using SRVs.

Re-establishing the main condenser as a heat sink:

a. Is allowed only if no valid MSIV isolations exist.

b. Is not allowed.

c. Is required immediately after valid MSIV isolation signals are overridden.

d. Is only allowed if the SRVs become unavailable.

ANSWER: a.

REFERENCE: EOP-101, Steps RC/P ~~9 and 10~~ II

Learning Objective: LP-124C, Page 23, ELO R8

KA: 295025EA2.03 [3.9/4.1] Higher Order

Material Required for Examination: EOPs.

Question Source: New

SENIOR REACTOR OPERATOR

QUESTION: #100 (1.00)

The reactor was operating at 100% power when a reactor scram occurred. Only about one-third of the control rods fully inserted due to an undetected water level in the Scram Discharge Volume. Reactor power as indicated on the APRMs is 9%. Which one of the following actions, would you expect to be most effective in inserting control rods?

a. Manually initiate ARI.

b. De-energize scram solenoids.

c. Manually insert control rods.

d. Manually isolate and vent scram air header.

ANSWER: c

REFERENCE: EOP-101, Step RC/Q-16

Learning Objective: LP-124B, Pages 22-24, ELO R8

KA: 295037EK2.05 [4.0/4.1] Higher Order

Material Required for Examination: EOPs.

Question Source: New

Question Source: NRC exam bank

Attachment 2

SIMULATION FACILITY REPORT

Facility Licensee: Hope Creek

Facility Docket No: 50-354

Operating Tests Administered from: August 11-12, 1998

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

A half core ATWS was planned for one scenario, but did not occur. After the exam it was determined that inserting the malfunction CD20 (SDV drain valves fail to close on scram) canceled malfunction RP06 (half core ATWS). The licensee evaluated this modeling issue and found a computer code problem which was corrected.