U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-454/OL-90-02

Docket Nos. 50-454; 50-455 Licenses No. NPF-37; NPF-77

Licensee: Commonwealth Edison Company
Opus West III
1400 Opus Place
Downers Grove, IL 60515

Facility Name: Byron

Examination Administered At: Byron Nuclear Power Station

Examination Conducted: PTC Braidwood/Byron

Chief Examiner: _____ 1/3/91
John Walker Date

Approved By: _____ 1/3/91
Doug Shepard, Acting Chief Date

Examination Summary

Examination administered on December 3-7, 1990
(Report No. 50-454/OL-90-02)
The written examination was administered on December 5, 1990 at the Byron training center. Operational examinations were administered at PTC Braidwood on December 3 and 4, 1990. Walkthrough examinations were administered at Byron on December 6 and 7, 1990, with an exit meeting with plant management taking place on December 7, 1990. Participating in the examination were five Reactor Operator Candidates and four Senior Reactor Operator Candidates.

One Requalification retake was also administered. The only portion of the requalification examination administered was the JPM portion. Simulator JPMs were administered at PTC Braidwood on December 4, 1990, with the inplant portion being administered at Byron on December 5, 1990.

Results: The requalification retake operator passed. All nine initial candidates passed the written examination. Four Reactor Operator candidates passed the Operational portion of the initial examination. Four of the Senior Reactor Operator Candidates passed the Operational portion of the initial examination. One Senior Reactor Operator Candidate failed the simulator portion of the initial examination.

REPORT DETAILS

1. Examiners

*J. Walker, NRC
T. Burdick, NRC
D. Damon, NRC
R. Bailey NRC
K. Parkinson Sonalyst
*Chief Examiner

2. Examiner Observations

a. Examination Development

The reference material that the licensee sent to the NRC for examination preparation was all properly bound and labeled, and for the most part, the NRC examiners were able to extract the needed information.

The pre-examination review conducted by the licensee on the written examinations was very productive. The licensee's input to the examination ensured that the terminology used on the examination was plant specific, thus avoiding confusion on the part of the candidates during the examination. In addition, the review process insured that the examinations were technically correct and appropriate for each license type as specified by the licensee's job description.

b. Operating Examination Administration

During the administration of the examinations, the examiners observed both deficiencies and strengths on the part of the Senior Reactor Operator and Reactor Operator candidates.

The following deficiency in the candidates' performance were observed in the majority of the candidates that were examined:

Operators stated that they would climb over operating equipment to manipulate controls. This demonstrates a lack of personal safety on the part of the candidates.

The following strengths in the candidates' performance were observed in the majority of the candidates that were examined:

(1) The candidates had a good knowledge of the information contained in the plant operating procedures, Off normal procedures, and

(2) The candidates did a good job of keeping personnel outside the control room informed of plant events as they were happening.

(3) The candidates showed a thorough knowledge of the layout and operation of the main control board.

(4) The teamwork and communications demonstrated by the operating crews was good and showed that the crews had trained and worked together well.

c. Written Examination Administration

The post-exam review identified the following deficiencies in the candidates' knowledge as evidenced by the majority of the candidates failing to provide the correct response for each particular knowledge area examined. This information is being provided as input to the licensee System Approach to Training (SAT) process. No response is required.

(1) Use of Technical Specifications with a Control Rod failure. SRO Question 4 and RO Question 4.

(2) Operation of Steam Dumps while in the Steam Pressure Mode during a plant startup. RO Question 54.

(3) Understanding operation of the Core Exit Thermocouple indication in the Control Room with a failure on the CETC panel. RO Question 63.

(4) Knowledge of necessary action to be taken when an explosive mixture of H2/O2 is present. SRO Question 57.

(5) Knowledge of when to use Emergency Procedures vice abnormal procedures and the hierarchy of procedures and their use. SRO Question 42.

3. Exit Meeting

An exit meeting was held to discuss the examiner's observations discussed in Section 2 of this report on July 27, 1990, with facility management and training staff representatives.

NRC representatives in attendance were:

J. Walker
R. Bailey
K. Shembarger
W. Kropp, Senior Resident Inspector

Facility representatives in attendance were:

L. Bunner, Lead Instructor
R. Brown, Instructor
R. Lloyd, Instructor
J. Heaton, Instructor
D. Popkins, Byron timulator
K. Gerling, PTC timulator
R. Pleniewkz, Byron Station Manager
J. Kudalls, Byron Servuces Director
G. Schwartz, Byron Production Superintendent
R. Ward, Byron Technical Superintendent
A. Chernick, Training Supervisor
J. Schrock, Adminstrator OE

The facility management acknowledged the examiner's observations.

ENCLOSURE 2

FACILITY COMMENTS AND NRC RESOLUTION OF COMMENTS

Written Examination Review

Facility representatives were allowed to review the written examinations prior to the administration as discussed in Section 2.a of this report, and any applicable comments from the review were incorporated into the examinations.

Following the conclusion of the written examinations, the facility was given a copy of the Senior Reactor Operator and Reactor Operator examinations and answer keys. The facility then had until the end of the examination administration week to provide any additional comments in writing to the NRC.

The following paragraphs contain the facility comments concerning the examinations followed by the NRC resolutions.

(1) RO Question 043 and SRO Question 051:

Per BAP 1450-1 access to containment, which one of the following describes the requirements for initial entry into containment?

a. There shall be a minimum of 3 personnel with radiological protective equipment.

b. There shall be a minimum of 2 personnel with respiratory protective equipment.

c. There shall be a minimum of 3 personnel one of which shall be a fire brigade member.

d. There shall be a minimum of 2 personnel one of which shall be a brigade member.

Answer: d.

Reference: Byron BRP 1000 A1 Pg. 9

Facility Comments:

The correct answer is b. There shall be a minimum of 2 personnel with respiratory equipment. This appears to be a typographical error. The procedure, BAP 1450-1 has been attached to substantiate this recommendation.

NRC Resolution:

Comment accepted. Answer key changed to reflect "b" as the correct answer.

(2) RO Question 053 and SRO Question 061:

During plant cooldown to Mode 5 on Unit One, RCS pressure indicated by PT-403 spiked high. Plant initial conditions were:

RCS temperature 320°F
RCS pressure 340 psig
RHR pump "B" is in service

Which one of the following statements describes the expected plant response?

a. Closure of RH-8702B resulting in loss of suction of RHR pump "B".

b. Closure of RH-8701A resulting in loss of suction of RHR pump "B".

c. High RCS pressure alarm "RC System Cold Press High"

d. High RHR pump discharge alarm and "B" RHR pump trip.

Answer: c.

Reference: Byron Systems Chapter 18, Residual Heat Removal System pg. 26-27

Facility Comment:

Modification M6-1-89-024 defeats the auto closure of the RH pump suction valves. This modification is still an open item on Unit One and is planned on being installed during the next outage. A similar modification is installed and in place on Unit 2. Therefore, answer a. is also correct. The station recommends deleting the question. This is based on telephone conversation on December 5, 1990, with T. Brad Johnson, Primary Group Leader.

NRC Resolution:

Comment partially accepted. Question not deleted, answer key changed to reflect "A" or "C" as a correct answer.

ENCLOSURE 2 (Cont'd)

(3) RO Question 054:

The following plant conditions exist:
Reactor Power.....12%
Steam Dumps.....Open
Tave.....561°F

While performing a plant startup per BGP 100-3, steam pressure detector PT-507 failed low. Which one of the following describes the expected plant response?

a. Steam dumps close with Tave increasing.

b. Steam dumps are opened with Tavg increasing.

c. Steam dumps are opened with Tavg decreasing.

d. Steam dumps close with Tavg decreasing.

Answer: d.

Reference:

1. Byron System Description 24, Steam Dumps, pg. 40
2. BGP 100-3, pg. 19

Facility Comment:

With the conditions given in the question, the contention is that due to RCP pump heat and decay heat, Tavg would be increasing. Therefore, we believe that the answer key has a typographical error in it, therefore answer a. should be considered correct.

NRC Resolution:

Comment not accepted. The point of the question is to determine whether or not the candidate is able to distinguish between proper steam dump operation (in progress) to reduce an overtemperature/overpressure condition from those of an initiation of steam dump operation to correct a potential overtemperature/overpressure condition. The expected response is based upon a snapshot of the plant within 60 secs after the failure of PT-507.

(4) RO Question 063:

The control room LED display for the CETC's and their acknowledge pushbuttons are flashing. Which one of the following describes the status of the CETC's?

The CETC temperature readings:

a. Can be taken, the flashing indicates the system is normal.

b. Cannot be taken without operator action to clear the malfunctioning CETC as indicated CETC readings will be incorrect.

c. Can be taken, the flashing indicates a system error exists.

d. Cannot be taken because the flashing indicates that the subcooled margin meter is out of service.

Answer: c.

References:

1. Byron System Description 34B, pg. 34B-21 through 34B-23

2. BOP RC-12

Facility Comment:

Answer c. is true, however per station Technical Staff Nuclear Group the CETC must fail to 2300°F. This was not specified in the question. Because this condition was not specified, answer b. is also correct per BOP RC-12 if the CETC failed at any value < 2300°F. The station recommends question removal from the exam.

NRC Resolution:

Comment not accepted. Per Byron System Description 34B, page 34B-21, an alarm condition will occur if a thermocouple is either shorted (< 35°F) or opened (> 2300°F). An alarm condition is defined as the LED display and the acknowledge pushbutton flashing. The point of the question was to determine whether or not the candidate was able to determine the above condition existed and how it affected the CETC operation overall.

(5) RO Question 079 and SRO Question 082:

Which of the following valves fails open on a loss of instrument air to containment?

a. CV-8389A, Regen HX Letdown shell side inlet isolation

b. CV-8324A, Regen HX tube side inlet isolation

c. CV-8141A, 1A RCP Seal leakoff isolation

d. CV-459, letdown line isolation

Answer: d.

References: Byron System Description 15A, pg. 15A-65 through 15A-65

Facility Comment:

Per station drawings the CV-8141A, 1A RCP seal leakoff isolation fails open and CV-459 fails closed. Therefore, the answer key shows a typographical error. The correct answer should be c. CV-8141A, 1A RCP seal leakoff isolation.

NRC Resolution:

Comment accepted. Answer key changed to reflect "c" as correct answer.

(6) RO Question 095:

The following plant conditions exist:

Unit 1 in ..... Mode 6 for 5 days
Unit 2 in ..... Mode 1 for 25 days
Fire detection on reserve power
Jockey pump OA cycling as required

Which one of the following fire pump combinations would be available to maintain fire protection header pressures and flow in order to combat a fire in the 4160V BUS 144?

a. Jockey pump OA, electric driven fire pump

b. Jockey pump OA, Diesel driven fire pump

c. Jockey pump OB, Electric driven fire pump

d. Jockey pump OB, Diesel driven fire pump

Answer: a.

References: Byron System Description 57, Fire Protection System, pg. 57-58

Facility Comments:

The power supply to the OA Jockey pump is MCC 134-U1 which is fed from Bus 144. Also, the electric driven fire pump is powered from Bus 144. Neither of these would be available. The correct answer should be d. We believe there is a typographical error on the answer key.

NRC Resolution:

Comment accepted. Answer key changed to reflect "d" as the correct answer.

SIMULATION FACILITY REPORT

Facility Licensee: Commonwealth Edison Company

Facility Licensee Docket No. 50-454

Operating Tests Administered On: 12/3/90 and 12/4/90

During the conduct of the simulator portion of the operating tests, the following items were observed. (If none, so state):

ITEM	DESCRIPTION
SER Computer	Not available

U. S. NUCLEAR REGULATORY COMMISSION
SENIOR REACTOR OPERATOR LICENSE EXAMINATION
REGION 3

FACILITY: Byron 1

REACTOR TYPE: PWR-WEC4

DATE ADMINISTERED: 90/12/03

CANDIDATE: _____

INSTRUCTIONS TO CANDIDATE:

Points for each question are indicated in parentheses after the question. To pass this examination, you must achieve an overall grade of at least 80%. Examination papers will be picked up four and one half (4 1/2) hours after the examination starts.

NUMBER QUESTIONS	TOTAL POINTS	CANDIDATE'S POINTS	CANDIDATE'S OVERALL GRADE (%)
100	100.00		

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

_____
Candidate's Signature

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 candidate at a time may leave. You must avoid all contacts with anyone outside the examination room to avoid even the appearance or possibility of cheating.

4. Use black ink or dark pencil only to facilitate legible reproductions.

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

6. Fill in the date on the cover sheet of the examination (if necessary).

7. Write your answer only on the answer sheet provided.

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 and answer sheets. In addition, turn in all scrap paper.

10. To pass the examination, you must achieve an overall grade of 80% or greater.

11. There is a time limit of (4 1/2) hours for completion of the examination. (or some other time if less than the full examination is taken.)

12. When you are done and have turned in your examination, leave the examination area as defined by the examiner. If you are found in this area while the examination is still in progress, your license may be denied or revoked.

NUCLEAR REGULATORY COMMISSION - OPERATOR LICENSING EXAMINATION

FACILITY: Byron EXAM LEVEL: Senior Reactor Operator
DATE: December 5, 1990 NAME: _____

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

QUESTION: 001 (1.00)

Per step 6 of procedure 2BEP-1, LOSS OF REACTOR OR SECONDARY COOLANT UNIT 2, which ONE of the following is required to be verified prior to reducing SI flow?

a. RCS Subcooling, Secondary heat sink, Containment Pressure and PZR level.

b. Secondary heat sink, Containment Pressure, PZR Level and PZR Pressure.

c. RCS Subcooling, PZR Pressure, PZR level and Containment Radiation levels.

d. Secondary heat sink, PZR Pressure, RCS Subcooling and PZR level.

QUESTION: 002 (1.00)

During a LOCA, the following plant conditions exist:

Containment pressure-4.5 psig
RCS Wide range pressure-1425 psig
Average of ten highest Core exit thermocouples-560 F

Using 2BEP-0, REACTOR TRIP OR SAFETY INJECTION, figure 2BEP-0.1(attached), which ONE of the following describes the RCS subcooling for these conditions?

a. Adequate subcooling-30 F subcooled.

b. Inadequate subcooling-30 F subcooled.

c. Adequate subcooling-40 F subcooled.

d. Inadequate subcooling-40 F subcooled.

QUESTION: 003 (1.00)

The following plant conditions exist:

Rod D-8 bottom light ...	LIT
Rod D-4 bottom light ...	LIT
N-41 negative rate trip annunciator ...	LIT
Reactor Power...	95%
ROD CONTROL URGENT FAILURE annunciator	NOT LIT

PER BOA-4 DROPPED ROD RECOVERY, which one of the following describes the actions required for this event?

a. Reset rate trip and perform dropped rod recovery.

b. Trip the reactor and enter BEP-0.

c. Restore TAVG/TREF then calculate QPTR.

d. Place rod control in manual and stabilize plant conditions.

QUESTION: 004 (1.00)

The following plant conditions exist:

Control Bank D Rod H-8 dropped 15 minutes ago
Reactor Power.....90% and stable
QPTR 1.10
BOA ROD-4 DROPPED ROD RECOVERY in progress

Per Technical Specification 3.2.4 QPTR (attached), which ONE of the following describes the required plant actions if the rod has not been repaired after 3 hours?

a. Reactor in HOT STANDBY.

b. Reactor Power limited to 80%.

c. Reactor Power limited to 70%.

d. Reactor Power limited to 50%.

QUESTION: 005 (1.00)

Per 1BFR-S.1 RESPONSE TO NUCLEAR POWER GENERATION/ATWS, which ONE of the following is required to perform an Emergency Boration?

a. Start Cent Chg pumps, start boric acid transfer pumps in fast speed, open emergency boration valve (1CV-8104).

b. Start PD pump, start boric acid transfer pump, in fast speed, open emergency boration valve (1CV-8104).

c. Start Cent Chg pumps, open RWST to Cent Chg pumps suct iso valves (1CV-112D,E) close VCT valves (1CV-112B,C) open Chg pumps to cold leg isolation valves. (1SI-8801A,B)

d. Start PD pump, open RWST to CHG pump suction isolation valves (1CV-112D,E) close the VCT outlet isolation valves (1CV-112B,C) open CHG pump to cold leg injection valves. (1SI-8801A,B)

QUESTION: 006 (1.00)

The following conditions exist on unit 1:

AUCT TAVG HIGH.....LIT
DELTA I EXCEEDED.....LIT
OT DELTA T HIGH ROD STOP.....LIT
TAVG has increased 5 F in 20 minutes
Reactor Power.....90%
Rods in Manual and no rod motion has occurred

Per BOA PRI-12 UNCONTROLLED DILUTION which one of the following is the required action to take for the above parameters?

a. Trip the reactor and enter 1BEP-0.

b. Initiate emergency boration of RCS.

c. Obtain an activity sample of the RCS.

d. Perform a rapid shutdown and cooldown.

QUESTION: 007 (1.00)

The following plant conditions exist:

A-D MSIVs are closed
"A" SG pressure.....820 psig decreasing
"B" SG pressure.....830 psig decreasing
"C" SG pressure.....830 psig decreasing
"D" SG pressure.....520 psig decreasing
A-D SG Wide range levels.....decreasing

Which ONE of the following describes the event in progress?

a. Tube Rupture in "D" SG.

b. Fault in "D" SG.

c. Tube Rupture in "B" SG.

d. Fault in "B" SG.

QUESTION: 008 (1.00)

The following conditions exist following a LOCA on unit 2:

CTMT Pressure.....18 psig and stable.
RCS Pressure .....100 psig
Core Exit TCs .....1200 F
RCPs .....Tripped
SG pressures.....750 psig stable

Which ONE of the following describes the required actions per the Byron Status Trees?

a. Enter procedure 2BFR-H.1 RESPONSE TO LOSS OF SECONDARY HEAT SINK.

b. Enter procedure 2BFR-Z.1 RESPONSE TO HIGH CNMT PRESSURE.

c. Enter procedure 2BFR-C.2 RESPONSE TO DEGRADED CORE COOLING.

d. Enter procedure 2BFR-C.1 RESPONSE TO INADEQUATE CORE COOLING.

QUESTION: 009 (1.00)

An Equipment attendant reports smoke and flame coming out of the motor windings for the running circulating water pump. Which ONE of the following fire classifications would be present?

a. Class A and Class B.

b. Class B and Class D.

c. Class C and Class D.

d. Class C and Class A.

QUESTION: 010 (1.00)

A fire has occurred on Bus 141. Which ONE of the following would be affected by this fire?

a. 1A Reactor Coolant Pump.

b. 1 Station Air Compressor.

c. Group C Pressurizer Control Heaters.

d. 1A Essential Service Water pump.

QUESTION: 011 (1.00)

The following plant conditions exist:

Tube rupture in "B" SG
RCPs .....tripped
Reactor Power.....60%.

Per step 1 of BOA PRI-5 CONTROL ROOM INACCESSIBILITY
Which ONE of the following actions are required?

a. Go to Procedure BEP-0.

b. Go to procedure BFR-S.1.

c. Go to procedure BEP-0 while continuing with steps of 1BOA PRI-5.

d. Go to procedure BFR-S.1 while continuing with steps of 1BOA PRI-5.

QUESTION: 012 (1.00)

When locally controlling the SG PORVs, at the valve which ONE of the following describes the actions required prior to going from the full open to the full close position on the PORV?

a. Equalize hydraulic pressure on hydraulic line.

b. Increase hydraulic pressure on hydraulic line using the hand pump.

c. Isolate the affected SG PORV block valve.

d. Place the control switch to the MANUAL position.

QUESTION: 013 (1.00)

The following plant condition exist:

Rod control.....Automatic
Reactor power.....95%
VCT pressure.....20 psig

A leak in which ONE of the following would cause Control rods to step in?

a. RCP thermal barrier heat exchanger.

b. Spent fuel pit heat exchanger.

c. Letdown heat exchanger.

d. Seal water heat exchanger.

QUESTION: 014 (1.00)

Which ONE of the following flow instruments have indication on the Main Control Board?

a. RCP Thermal Barrier heat exchanger outlet.

b. Seal water heat exchanger component cooling outlet.

c. RHR pump component cooling outlet.

d. Excess letdown heat exchanger combined return flow.

QUESTION: 015 (1.00)

The following plant conditions exist:

RCP SEAL LEAKOFF FLOW HIGH.....LIT
RCP SEAL DELTA P LOW.....LIT
SER1661 RCP 1A SEAL #2 LEAKOFF FLOW HIGH...printed

Per BOA RCP-1 RCP SEAL FAILURE, which ONE of the following describes the event in progress?

a. Reactor Coolant Pump seal failure.

b. Loss of Seal Injection.

c. Loss of CCW to RCP motor.

d. Loss of Thermal Barrier heat exchanger cooling.

QUESTION: 016 (1.00)

The following plant conditions exist:

Reactor power 85%
CC PUMP DSCH PRES LOW.....LIT
CC HX OUTLET TEMP HIGH.....LIT
"A" RCP upper motor bearing .....192 F
"A" RCP lower motor bearing .....205 F

Per BOA PRI-6 CC MALFUNCTION, which ONE of the following actions are required for the this event?

a. Trip the "A" RCP, then manually trip the turbine.

b. Reduce reactor power to less than 35% power then trip the "A" RCP.

c. Reduce reactor power until in mode 3, the trip the RCP.

d. Manually trip the reactor, then trip the "A" RCP.

QUESTION: 017 (1.00)

The following plant conditions exist:

Rod D-8 .....200 steps
All other rods in Control Bank D.....220 steps
Power at.....60%

Per BOA ROD-3 STUCK OR MISALIGNED ROD which ONE of the following actions is required for this event?

a. Reduce power to less than 50% then realign rod to bank.

b. Reduce power to less than 50% then realign bank to rod.

c. Maintain stable plant conditions, then realign rod to bank.

d. Maintain stable plant conditions, then realign bank to rod.

QUESTION: 018 (1.00)

The following plant conditions exist:

Control Bank D rods will not move in AUTO
Turbine Power.....20%
IR HIGH FLUX ROD STOP C-1 permissive light...NOT LIT
PWR RNG FLUX HIGH ROD STOP C-2 permissive light...NOT LIT
OP DELTA T HIGH ROD STOP C-4 permissive light...NOT LIT
OT DELTA T HIGH ROD STOP C-3 permissive light...NOT LIT
TURBINE LOW POWER INTERLOCK C-5 permissive light...LIT
CONTROL BANK D ROD STOP C-11 permissive light...NOT LIT
ROD CONTROL URGENT FAILURE annunciator.....NOT LIT

PER BOA ROD-2 FAILURE OF RODS TO MOVE which ONE of the following actions are required to control TAVG?

a. Adjust rods as necessary in BANK SELECT.

b. Block the Turbine Low Power Interlock rod stop.

c. Adjust rods as necessary in MANUAL.

d. Block the IR HIGH FLUX rod stop.

QUESTION: 019 (1.00)

Which ONE of the following is the basis for verifying a Reactor Trip during an ATWS condition?

a. To ensure that the only heat being added to the RCS is from decay heat and RCP heat.

b. To verify that there is enough temperature difference to ensure auto rod motion.

c. To prevent an uncontrolled cooldown of the RCS due to excessive steam flow.

d. To ensure adequate feed flow to maintain an adequate Secondary Heat Sink.

QUESTION: 020 (1.00)

The following plant conditions exist:

RCS WR pressure.....50 psig.
CETC.....557 F
CTMT pressure .....10 psig
Secondary radiation.....normal
ECCS Equipment.....operating

Which ONE of the following events is in progress?

a. Small break LOCA.

b. Steam Generator tube rupture.

c. Faulted Steam Generator.

d. Large break LOCA.

QUESTION: 021 (1.00)

The following plant conditions exist:

Pressurizer pressure.....1900 psig-decreasing
Steam line pressure.....800 psig-decreasing
Containment pressure.....1.5 psig-increasing
Pressurizer level.....4%-decreasing

Which ONE of the following describes the actions expected for this event?

a. Manually start all ECCS equipment.

b. Manual actuate SI.

c. Manually trip the reactor and Manually actuate Safety Injection.

d. Allow automatic initiation of Reactor Trip and Safety Injection.

QUESTION: 022 (1.00)

Per BOA PRI-4 HIGH REACTOR COOLANT ACTIVITY, which ONE of the following is the criteria used to determine if the standby mixed bed demineralizer should be placed in service?

a. Dose equivalent I-131 greater than 1 microcurie/gram.

b. Gross radioactivity greater than 100/Ebar.

c. Chloride levels greater than 1.0 ppm.

d. Decontamination factor less than 10.

QUESTION: 023 (1.00)

The failed fuel monitor 1RT-PR006 uses which ONE of the following types of detectors?

a. Fixed Geiger-Mueller (G-M) tube detector.

b. NaI crystal scintillation detector.

c. Compensated Ion Chamber detector.

d. Boron Trifluoride neutron detector.

QUESTION: 024 (1.00)

The following plant conditions exist:

Rod Control.....Manual
Generator Output.....870 MWe
2 Heater Drain Pumps.....running
3 CD/CB Pumps.....running
1A Main Feedwater Pump.....OOS
1B Main Feedwater Pump.....running
1C Main Feedwater Pump.....Just TRIPPED

Which ONE of the following shows the required actions for this event?

a. Reduce generator load to 800 MWe and place rod control in AUTO.

b. Reduce generator load to 779 MWe.

c. Reduce generator load to 800 MWe.

d. Reduce generator load to 779 MWe and place rod control in AUTO.

QUESTION: 025 (1.00)

Which ONE of the following describes the basis for throttling total auxiliary feedwater to maintain 500 gpm after a Reactor trip?

a. Provide adequate SG inventory with level readings on span; prevent AFW pump runout.

b. Prevent AFW pump runout; allow enough AFW flow in case of a main feed line break.

c. Allow enough AFW flow in case of a main feed line break, prevent overcooling of the RCS.

d. Prevent overcooling of the RCS; provide adequate SG inventory with level readings on span.

QUESTION: 026 (1.00)

The following conditions exist:

1A SG NR level.....22% and stable
1B SG NR level.....25% and stable
1C SG NR level.....26% and stable
1D SG NR level.....35% and increasing
SG blowdown liquid Rad monitor PR08J....RED
Auxiliary feedwater pumps .....running
Main Steam Penetration 1A and 1B MSIV room Rad monitor 1RT-1R025 RED

Which ONE of the following events is in progress?

a. SG 1A is faulted.

b. SG 1B is faulted.

C. SG 1C has a tube rupture.

d. SG 1D has a tube rupture.

QUESTION: 027 (1.00)

Which ONE of the following components is isolated and remains isolated for a Faulted Steam Generator, but NOT necessarily for a Steam Generator Tube Rupture?

a. Main Steam isolation valve.(MS001)

b. Main Feedwater isolation valve.(FW009)

c. Auxiliary Feedwater isolation valve.(AF013)

d. Main Feedwater Preheater Bypass Isolation valve. (FW039)

QUESTION: 028 (1.00)

PER BFR-S.1 RESPONSE TO NUCLEAR POWER GENERATION/ATWS which ONE of the following describes the order of actions to shutdown or trip the reactor?

a. Allow rods to insert in automatic, emergency borate, insert rods in manual.

b. Manually trip the reactor, emergency borate, allow the rods to insert in automatic.

c. Emergency borate, allow rods to insert in automatic, insert the rods in manual.

d. Manually trip the reactor, allow rods to insert in automatic, insert rods in manual.

QUESTION: 029 (1.00)

The plant is at 5% reactor power following a startup when a pressurizer spray valve fails open depressurizing the Reactor Coolant system. Which ONE of the following would be the FIRST to trip the reactor?

a. Over Pressure Delta T reactor trip.

b. Pressurizer high water level reactor trip.

c. Pressurizer Pressure low reactor trip.

d. Pressurizer Pressure Low Safety Injection.

QUESTION: 030 (1.00)

Per 1BOA PRI-10 LOSS OF RH COOLING, which ONE of the following is NOT a consideration for determining if the RCS is adverse?

a. RCS integrity.

b. CTMT pressure.

c. RCS hot side vent path.

d. RCS loop status.

QUESTION: 031 (1.00)

The following readings were noted on the power range and intermediate range nuclear instrumentation channels:

N-35 5X10E-6
N-36 5X10E-5
N-41 8.5%
N-42 9%
N-43 8.5%
N-44 9%

Which ONE of the following describes the problem that is indicated by these readings?

a. N-35 is reading LOW for current conditions.

b. N-36 is reading HIGH for current conditions.

c. N-41 and N-43 were adjusted improperly during the last calometric.

d. N-42 and N-44 were adjusted improperly during the last calometric.

QUESTION: 032 (1.00)

Per BOA PRI-10 LOSS OF RH COOLING TABLE A, which ONE of the following is a criteria to determine the cooling method for a loss of RHR in MODE 6, but NOT in Mode 5?

a. RCS is adverse.

b. Hot side vent established.

c. Normal configuration of system.

d. Refueling cavity flooded.

QUESTION: 033 (1.00)

With the plant at 50% power, DC Bus 111 is lost. Assuming no operator action which ONE of the following would occur?

a. Reactor trip from low-low SG level.

b. Loss of field flashing for 1B diesel generator.

c. Turbine trip due to loss of backup seal oil pump.

d. PMG output breaker fails open.

QUESTION: 034 (1.00)

The plant had received annunciator 125 VDC PANEL 111/113 VOLT LOW. Which ONE of the following is used to determine if a only Bus 113 is deenergized?

a. Normal DC volts on main control board.

b. No DC volts on Main Control Board.

c. Fuses inside ground detection cabinet blown.

d. Annunciator 125 VDC BUS TIE BREAKER TO BUS 211/111 CLOSE/TRIP LIT.

QUESTION: 035 (1.00)

Per Step 26 of BEP-0 REACTOR TRIP OR SAFETY INJECTION, which ONE of the following is the MAXIMUM Pressurizer pressure at which the PORV isolation valves should be closed if the PORV is still open?

a. 2400 psig.

b. 2300 psig.

c. 2200 psig.

d. 2100 psig.

QUESTION: 036 (1.00)

With the unit in Mode 1, both pressurizer PORVs are found inoperable due to causes other than excessive seat leakage. Which ONE of the following demonstrates the actions required to be taken?

a. Restore both PORVs to operable within 15 minutes or close the block valves and remove power and be in HOT STANDBY within 6 hours.

b. Restore at least one PORV to operable within 15 minutes or close the block valve and by in HOT STANDBY within 6 hours.

c. Restore at least one PORV to operable within 1 hour or close the block valve and be in HOT STANDBY within 6 hours.

d. Restore both PORVs to operable within 1 hour or close the block valves and remove power and be in HOT STANDBY within 6 hours.

QUESTION: 037 (1.00)

The following plant conditions exist:

Reactor power.....100%
Loop A NR RTD channel TE-511.....OOS
Bistables for TE-411 .....tripped

Pressurizer pressure channel PT-456 fails high, which ONE of the following describes the actions required to be taken for this failure?

a. Trip the bistables associated with PT-456.

b. Manually trip the reactor and go to BEP-0 RX TRIP OR SI.

c. Restore at least one channel within 1 hr or be in HOT STANDBY within 6 hours.

d. Reduce reactor power to less than 50% within 3 hours.

QUESTION: 038 (1.00)

The following plant conditions exist:

Pressurizer pressure control selected to Channel PT-455
Spray valves closed
PORV PCV-455 closed
PORV PCV-456 cycling

Which ONE of the following pressurizer pressure channels has failed?

a. PT-455 failed low.

b. PT-457 failed low.

c. PT-457 failed high.

d. PT-455 failed high.

QUESTION: 039 (1.00)

The following conditions exist:

Reactor.....tripped
Instrument air pressure.....0 psig
Normal on/off site power.....available
Prior to trip, plant was at 70% power

A loss of air to which ONE of the following components resulted in the Reactor Trip?

a. Main Feedwater recirc valve. (FW012)

b. MSIV bypass valve.(MS101)

c. Main Feedwater reg valves. (FW 510, 520, 530, 540)

d. Steam dump spray valves. (CB039)

QUESTION: 040 (1.00)

With the plant at 50% power the pressurizer master level CONTROLLER fails low. Which ONE of the following events would occur?

a. Reactor trip on Pressurizer low pressure.

b. Continuous makeup to the VCT.

c. Letdown temperature decreases.

d. Reactor trip on pressurizer high level.

QUESTION: 041 (1.00)

The following conditions exist:

MODE 6
Fuel assembly with excessive gas bubbling in SFP
Fuel handling in progress in CNMT
0RT-PR024 FUEL HANDLING BLD VENT EXHAUST.....RED
ORE-AR037 FUEL HANDLING BLD.....RED

Which ONE of the following describes the required actions for this event?

a. Evacuate all unnecessary personnel from the area.

b. Immediately borate the SFP.

c. Place any fuel assembly in the transfer device into the change fixture.

d. Isolate SFP from reactor cavity.

QUESTION: 042 (1.00)

You are recovering from a reactor trip 24 hours ago. The following plant conditions exist:

MODE 3
S/D Banks pulled full out
Control banks fully inserted

A Loss of Off-site power occurs. Which ONE of the following is the primary procedure governing the initial response to this event?

a. 1BEP-0 REACTOR TRIP OR SAFETY INJECTION.

b. 1BOA ELEC-4 LOSS OF OFF-SITE POWER FOR MODES 3 OR 4.

c. 1BEP ECA-0.0 LOSS OF ALL AC POWER.

d. 1BOA ELEC-5 LOCAL EMERGENCY CONTROL OF SAFE SHUTDOWN EQUIPMENT.

QUESTION: 043 (1.00)

Which ONE of the following describes the actions to be taken when leaving a radiologically controlled area due to an assembly siren alarming?

a. As a minimum, a hand and shoe survey shall be performed when exiting the controlled area.

b. All protective clothing shall be removed upon exiting the controlled area.

c. Any protective clothing removal and survey requirements are waived while personnel proceed to their assembly area.

d. As a minimum, gloves and protective footwear shall be removed when exiting the controlled area.

QUESTION: 044 (1.00)

Which ONE of the following methods of performing an Independent Verification of system alignment would be acceptable?

a. Use a second qualified individual to witness the alignment and sign for verification.

b. Perform a functional check on selected portions of the system affected.

c. Use a second qualified individual to perform a separate alignment check on the system.

d. Perform a functional check on the affected system as the preferred method of verification.

QUESTION: 045 (1.00)

Which ONE of the following describes the usage of the "#" symbol in the left hand margin of an operation procedure?

a. Manipulation of the valve or equipment requires manual ESD input.

b. The step must be performed prior to continuing with the procedure.

c. If the step is not satisfactorily performed, entry into a Technical Specification LCO action may result.

d. The step to be performed is a Byron station commitment to the NRC.

QUESTION: 046 (1.00)

Per BAP 1450-7 CONFINED SPACE ENTRY AND WORK, which ONE of the following is correct concerning controls and into confined spaces?

a. Whenever a person is working in a confined space, a Cardiopulmonary Resuscitation (CPR) trained attendant must be available to summon help.

b. Atmospheric retesting frequency of the confined space shall not exceed 6 hours.

c. The acceptable air quality for confined spaces is an oxygen concentration of 25%.

d. Only a CPR qualified fire brigade member may act as a confined spaces rescue person.

QUESTION: 047 (1.00)

Per BAP 330-5 LOCK AND KEY CONTROL, which ONE of the following describes how keys are controlled?

a. New fuel vault keys will be distributed by the shift engineers office with authorization from the Rad Supervisor.

b. The "R" Key may be transferred from person to person to facilate continuing work effort if prior approval had been given by the Shift Engineer and Rad supervisor.

c. If an "R" Key is overdue the Operating Engineer must locate the "R" key.

d. The shift engineer or designee must give authorization before requestor is issued a key.

QUESTION: 048 (1.00)

While performing a plant heatup per BGP 100-1, step 43 RCS Pressure Increase the pressure in the discharge piping of the Safety Injection system may also increase. The SI pressure increase must be monitored closely because of which ONE of the following?

a. "Auto" Actuation of Safety Injection system is possible.

b. The SI Accumulators could be rendered inoperable.

c. Reverse flow through the check valves could overfill the RWST.

d. The piping could be pressurized beyond it's design pressure of 1750 psig.

QUESTION: 049 (1.00)

Which ONE of the following describes the operators responsibilities in the control room during dual unit operation under an emergency situation?

a. The unaffected unit NSO may leave his "AT the Controls Area" unattended for up to 15 minutes in order to help the other unit.

b. The unaffected unit NSO must obtain SCRE approval before leaving his "At The Controls Area" to provide assistance on the other unit.

c. The replacement NSO for the stable and under control unit must review that unit status every 20 minutes.

d. The SCRE must assume the stable and under control unit responsibilities during the absence of the unit NSO.

QUESTION: 050 (1.00)

Per BAP 331-2 INSTALLATION OF GROUND TEST DEVICES (GTD), which ONE of the following describes the correct actions?

a. Requestor should get verbal concurrence from all individuals, with OOS cards for the affected equipment.

b. The GTD can be installed by any available operator.

c. Keep all persons having OOS cards on the equipment being grounded informed of any change in the GTD status.

d. If a second requestor desires installation of same GTD, then utilize the original BAP 331-2T2 GTD INSTALLATION/REMOVAL RECORD.

QUESTION: 051 (1.00)

Per BAP 1450-1 ACCESS TO CNMT, which ONE of the following describes the requirements for an Initial Entry into CNMT?

a. There shall be a Minimum of 3 personnel with radiological protective equipment.

b. There shall be a Minimum of 2 personnel with SCBA respiratory protective equipment.

c. There shall be a Minimum of 3 personnel one of which shall be a fire brigade member.

d. There shall be a Minimum of 2 personnel one of which shall be a brigade member.

QUESTION: 052 (1.00)

Which ONE of the following statements best describes the proper action when verbally directing an equipment attendant to perform a system lineup involving several valves?

a. Equipment attendant should give a complete repeat back of the instructions prior to proceeding to the task, therefore confirming the orders given.

b. Equipment attendant should proceed to perform the task even though he had doubts about some of the specifics.

c. Equipment attendant should proceed to perform the task and give a partial repeat back upon its completion.

d. Equipment attendant reports the task in progress, after a reasonable period of time you are allowed to assume the task is completed without notification.

QUESTION: 053 (1.00)

Which ONE of the following describes the actions to be taken following the discovery of a fellow worker lying unconscious at the bottom of an open tank? No Confined Space Permit or other individuals are in sight.

a. Yell for help, attach a rope to your waist and enter for rescue purposes.

b. Obtain and don a POSITIVE pressure SCBA prior to entry for rescue purposes.

c. Yell for help, take a deep breath and enter for rescue purposes.

d. Obtain and don a NEGATIVE pressure SCBA prior to entry for rescue purposes.

QUESTION: 054 (1.00)

Which ONE of the following describes the safety precautions utilized when adding Hydrazine to the Reactor Coolant System?

a. Fill the chemical addition tank rapidly to minimize any splashing of chemicals out of the funnel.

b. Vent the chemical addition tank to ensure proper siphoning during chemical addition.

c. Fill the chemical addition tank very slowly to prevent splashing of chemicals out of the funnel.

d. Completely fill the chemical addition tank to allow proper siphoning of chemicals during drain process.

QUESTION: 055 (1.00)

In MODE 1, while performing BOP CV-22 SWITCHING INSERVICE LETDOWN HEAT EXCHANGERS, which ONE of the following would be required if Letdown HX temperature Control Valve (TCV-130) failed closed?

a. Continue the procedure to restore CCW flow.

b. Stop the procedure and stabilize the plant

c. Inform the SCRE and continue with the procedure.

d. Stop the procedure and increase charging flow.

QUESTION: 056 (1.00)

Which ONE of the following features of the Fire Protection System will enable the system to perform it's intended function if Control power is lost?

a. Diesel driven fire pump can be started manually within four (4) minutes.

b. Deluge and foam systems have AUTO actuation available after AC control power loss.

c. CO2 and halon systems have AUTO actuation available after AC control power loss.

d. Diesel driven fire pump will start up Automatically after four (4) minutes.

QUESTION: 057 (1.00)

Per BOA PRI-9 O2/H2 EXPLOSIVE MIXTURE, which ONE of the following actions should be taken if Rad/Chem indicates an explosive mixture due to hydrogen level existing in the diesel oil storage room?

a. Start the room ventilation fans and resample.

b. Evacuate the Diesel oil storage room area and contact the fire brigade.

c. Contact security to have personnel investigate the cause.

d. Step the room ventilation fans and contact the fire brigade.

QUESTION: 058 (1.00)

Per BAP 330-1 STATION EQUIPMENT OUT OF SERVICE, which ONE of the following describes administrative requirements regarding an OOS?

a. Selected devices/equipment may be operated under specified circumstances while OOS cards are attached.

b. Driven equipment is taken OOS before driving equipment.

c. Master OOS cards are hung first and removed last.

d. Requestor completes his portion of OOS form, including equipment needed to be placed OOS and duration of OOS.

QUESTION: 059 (1.00)

Which ONE of the following individuals are required to approve an extension of external exposure above 100 mrem/day or 300 mrem/week?

a. Health physicist.

b. Rad Protection technician.

c. Shift Foreman.

d. Shift Engineer.

QUESTION: 060 (1.00)

During the performance of throttle valve testing, all turbine throttle valves simultaneously close. The following initial conditions existed:

Turbine load .....330 Mwe

Which ONE of the following describes the expected plant response?

a. Turbine trip signal sent to initiate Reactor trip since power is above P-8 setpoint.

b. Turbine intercept valves close and extraction steam dump valves open to control steam demand and RCS temperature.

c. Turbine trip signal generated but no reactor trip since power is below P-8 setpoint.

d. Steam dumps and non-return check valves open to control steam demand and RCS temperatures.

QUESTION: 061 (1.00)

During plant cooldown to Mode 5 on Unit One RCS pressure indicated by PT-403 spiked high. Plant initial conditions were:

RCS temperature 320 F
RCS pressure 340 psig
RHR pump "B" in service

Which ONE of the following statements describes the expected plant response?

a. Closure of RH-8702B resulting in loss of suction to RHR pump "B".

b. Closure of RH-8701A resulting in loss of suction to RHR pump "B".

c. High RCS pressure alarm "RC SYSTEM COLD PRESS HIGH.

d. High RHR pump discharge pressure Alarm and "B" RHR pump trip.

QUESTION: 062 (1.00)

Which ONE of the following valves will OPEN and STAY OPEN upon a loss of instruments air to containment?

a. Pressurizer spray (RY 455).

b. Regen HX Tube Side Inlet (CV8324).

c. RC Cold Loop 1 Charging Inlet (CV 8147).

d. Letdown Orifice Isolation (CV 8149).

QUESTION: 063 (1.00)

The proper method of controlling the RCS cooldown rate while performing a cooldown using the RHR system is by regulating the _____ _____ flow on the _____ side of the RHR heat exchanger.

a. Reactor Coolant, tube.

b. Reactor Coolant, shell.

c. Component Cooling Water, tube.

d. Component cooling water, shell.

QUESTION: 064 (1.00)

Which ONE of the following conditions will automatically OPEN the SX Supply Valves (AF006, 017) to the suction of the AF pumps? coincident with _____.

a. Safety Injection signal with Low-Low steam generator level in any one Steam Generator.

b. Safety Injection signal with Low level in condensate storage tank.

c. Reactor Coolant pump bus undervoltage (2/4) with low level in condensate storage tank.

d. Reactor Coolant pump bus undervoltage (2/4) with low Auxiliary feedwater pump suction pressure.

QUESTION: 065 (1.00)

During a Reactor Startup, the source range high _____ is _____ Blocked once one of the two intermediate range channels reach the _____ setpoint.

a. Neutron flux trip; Manually; P-10.

b. Neutron Flux Trip, Manually; P-6.

c. Voltage, Automatically; P-10.

d. Voltage; Automatically; P-6.

QUESTION: 066 (1.00)

Following a LOCA, individual Core Exit Thermocouple temperatures may vary due to ____(1)_____ and/or _____(2)_____.

a. 1. Vessel upper head voiding.
   2. Large increase in RCS pressure.

b. 1. Large increase in RCS pressure.
   2. Core outlet mixing problems.

c. 1. Irregular core flow patterns.
   2. Core outlet mixing problems.

d. 1. Containment atmospheric pressure high.
   2. Irregular core flow problems.

QUESTION: 067 (1.00)

Per BEP-1 LOSS OF RX OR SECONDARY COOLANT, operator action summary, which ONE of the following actions should be taken with a CST level of < 3%?

a. Isolate ONE SG secondary side and allow AUTO AF Suction swapover to SX.

b. Isolate THREE SG secondary sides and allow AUTO AF Suction Swapover to SX.

c. Isolate ONE SG secondary side and MANUALLY align SX to the AF suction.

d. Isolate THREE SG secondary sides and MANUALLY align SX to the AF suction.

QUESTION: 068 (1.00)

The following plant conditions exist:

ROD CONTROL URGENT FAILURE annunciator.....LIT
Control Bank D Group 2 movable gripper coil fuse...BLOWN

Which ONE of the following caused the Rod Control Urgent failure alarm?

a. Logic error in power cabinet (1BD).

b. Phase failure in power cabinet (1BD).

c. Logic error in power cabinet (2BD).

d. Phase failure in power cabinet (2BD).

QUESTION: 069 (1.00)

Which ONE of the following does NOT explain the need for the Rod Insertion limit computer to accurately calculate the Rod Insertion limit?

a. To limit Rod Motion and wear.

b. To maintain acceptable power distribution limits.

c. To limit potential effects of Rod Misalignments.

d. To maintain minimum Shutdown Margin.

QUESTION: 070 (1.00)

With the Rods in auto, the Rods will step in at _____ steps/min due to a _____ degree difference in Tave-Tref and this will continue until the difference in Tave-Tref reaches _____ degrees. (Disregard Power Mismatch Input).

a. 8; 2; 1.5

b. 8; 3; 1.0

c. 32; 4; 1.5

d. 32; 5; 1.0

QUESTION: 071 (1.00)

During the performance or BGP 100-5 PLANT SHUTDOWN AND COOLDOWN, the operator is required to reduce charging flow to approximately 25 gpm Greater than the _____ to maintain a slow and controllable fill of the Pressurizer and eliminate _____ stresses.

a. Seal injection flow; thermal.

b. Seal injection flow; pressure.

c. Letdown flow; thermal.

d. Letdown flow; pressure.

QUESTION: 072 (1.00)

During a plant shutdown per BGP 100-5, the rods were being inserted when the operator noted N-35 reading 3 X 10 (-9) amps and N-36 reading 2 X 10(-11) amps. The operator immediately went to RESET on the manual block switches for source ranges. Resulting in a SR HIGH FLUX reactor trip this occurred due to N-35 being _____ and N-36 being _____.

a. Properly compensated, overcompensated.

b. Overcompensated, properly compensated.

c. Properly compensated, undercompensated.

d. Undercompensated, properly compensated.

QUESTION: 073 (1.00)

Which ONE of the following MCB alarms does NOT annunciate upon taking NI-44 Operation Selector to DET A and B (test)?

a. POWER RANGE HIGH SETPOINT REACTOR TRIP ALERT.

b. POWER RANGE LOW SETPOINT REACTOR TRIP ALERT.

c. POWER RANGE HIGH VOLT FAILURE.

d. POWER RANGE HIGH FLUX ROD STOP.

QUESTION: 074 (1.00)

Which ONE of the following describes the method of Steam Generator level control following an Auxiliary Feedwater System (AFW) automatic start?

a. The AFW discharge MOV's (AF013) will remain in current position and then automatically throttle closed after normal level is restored.

b. The AFW discharge MOV's (AF013) will remain in current position and the operator must throttle AFW discharge AOVs (AF005) closed after normal level is restored.

c. THE AFW discharge MOV's (AF013) will immediately travel full open and then automatically throttle closed after normal level is restored.

d. The AFW discharge MOV's (AF013) will immediately travel full open and the operator must throttle AFW discharge AOVs (AF005) closed after normal level is restored.

QUESTION: 075 (1.00)

Which ONE of the following would cause a TRIP of the Motor Driven Main Feed pump but NOT the turbine Driven Main Feed Pump?

a. Safety Injection.

b. Loss of ALL condensate pumps.

c. Low lube oil pressure.

d. Steam Generator High-2 level.

QUESTION: 076 (1.00)

Which ONE of the following is NOT a requirement to open No. 1 RCP seal bypass valve (CV 8142) when No. 1 seal leakoff temperature approaches 184 F?

a. RCS pressure is 980 psig.

b. Seal injection flow is 6 gpm per pump.

c. No. 1 Seal Leakoff isolation valves (CV 8141 A-D) are open.

d. No.1 Seal leakoff flow is 0.7 gpm

QUESTION: 077 (1.00)

During full power operations on unit 1, a spurious Phase A isolation signal is received. Which ONE of the following describes the effect upon RCP seal operation?

a. No. 1 Seal leakoff flow increases due to loss of normal injection flow.

b. No. 2 Seal leakoff flow increases due to higher pressure in No. 1 Seal leakoff line.

c. No. 3 Seal Leakoff flow increases due to failure of No.1. Seal.

d. No effect upon seal flow leakoffs will be noted.

QUESTION: 078 (1.00)

Which ONE of the following is started FIRST by the Safe Shutdown Sequencer timer?

a. Centrifugal Charging Pump.

b. Containment Spray Pumps.

c. Component Cooling pumps.

d. Auxiliary feedwater pumps.

QUESTION: 079 (1.00)

After a loss of power to Inst Bus 111, which ONE of the following describes the ESF equipment response when a Safety Injection signal is received?

a. All equipment required to start would sequence on.

b. Only Train A equipment would sequence on.

c. Only Train B equipment would sequence on.

d. Neither Train (A/B) would sequence on.

QUESTION: 080 (1.00)

Which ONE of the following signals uses P-4 as an input to initiate an ESF actuation signal?

a. Feedwater isolation.

b. Steamline isolation.

c. Aux Feedwater actuation.

d. Containment Spray actuation.

QUESTION: 081 (1.00)

Which ONE of the following actions will result in an automatic start of the Motor driven Auxiliary Feedwater pump and NOT the Diesel Driven Auxiliary Feedwater pump?

a. Safety Injection Signal.

b. Undervoltage on two/four RCP buses.

c. S/G Low-Low signal in one/four SGs.

d. Under voltage on ESF bus 141.

QUESTION: 082 (1.00)

Which ONE of the following valves fails OPEN on a loss of instrument air to containment?

a. CV-8389A, Regen Hx Letdown Shell side inlet isolation.

b. CV-8324A, Regen Hx Tube side inlet isolation.

c. CV-8141A, 1A RCP Seal Leakoff Isolation.

d. CV-459, Letdown Line Isolation.

QUESTION: 083 (1.00)

Which ONE of the following would occur if the Automatic closure of the charging pump suction valves (112B and C) from the VCT failed upon receiving a Safety Injection signal? (Assume NO operator action).

a. Hydrogen entrapment in the charging pumps due to the VCT being drained.

b. Higher than expected boron Concentration of water being injected into the reactor vessel.

c. Letdown would NOT automatically isolate, thus reducing the inventory in the RCS.

d. Backflow of the RWST inventory into the VCT, thus reducing the available inventory injected into the Reactor vessel.

QUESTION: 084 (1.00)

During Natural Circulation flow conditions the Narrow Range temperature instruments are not utilized for indication. Which ONE of the following describes the reason for not using Narrow range?

a. Use Wide Range hot leg temperature, due to insufficient flow through the Narrow Range instrument manifold.

b. Use Wide Range Cold leg temperature due to loss of RCP Flow.

c. Use average of ten highest CETCs due to inaccuracies of Narrow Range instruments in two phase flow.

d. Use Saturation temperature for SG pressure due to insufficient flow through the Narrow Range instrument manifold.

QUESTION: 085 (1.00)

Which ONE of the following will occur on a Large insurge of cooler RCS Water into the pressurizer while at 100% power?

a. Pressurizer pressure will increase causing the pressurizer spray valves to close.

b. Pressurizer pressure will decrease causing the pressurizer backup heaters to energize.

c. Pressurizer level will increase causing the pressurizer spray valves to close.

d. Pressurizer level will increase causing the pressurizer backup heaters to energize.

QUESTION: 086 (1.00)

The following plant conditions exist:

TAVG.....550 F decreasing
Main Turbine.....NOT TRIPPED
Feedwater Isolation....did not occur
Steam Dumps.....armed
Reactor tripped from.....51% power
Cause of Reactor trip....Loss of "B" RCP

The above mentioned plant response to the Reactor trip suggests that a failure has occurred in permissive circuit _____.

a. P-13.

b. P-10.

c. P-8.

d. P-4.

QUESTION: 087 (1.00)

Which ONE of the following is correct concerning the Emergency Diesel Generator system when placed in the AUTO MODE?

a. An emergency start will enable all trips to shutdown the diesels in order to prevent damage.

b. A manual start will enable all trips and control functions with the exception of manual emergency trips.

c. An emergency START will disable all trips and control functions with the exception of generator differential, mechanical overspeed and manual emergency trips.

d. A Manual START will enable normal speed and voltage control and governor droop for parallel operation is Automatically removed.

QUESTION: 088 (1.00)

While performing BEP ES-1.3 TRANSFER TO COLD LEG RECIRC, which ONE of the following manual actions is NOT required by the operator?

a. Open the Charging pumps flow control valve (FCV-121).

b. Open the Component Cooling Water valves for the RHR heat exchanger (CC 9412).

c. Close the RWST to RHR pump suction valves from the RWST (SI 8812).

d. Close the RHR heat Exchanger discharge X-tie valves (RH 8716).

QUESTION: 089 (1.00)

A DRPI for Control Bank D rod M-12 has been declared inoperable per Technical Specifications. Which ONE of the following actions is required?

a. Use incore detectors to perform a flux map of the core.

b. Perform current measurement of coils on CRDMs.

c. Maintain Rod position through boration/dilution as power changes.

d. Use excore detectors to monitor changes in QPTR.

QUESTION: 090 (1.00)

Which ONE of the following describes the coincidence necessary for a containment Spray Actuation to occur with containment pressure transmitter PT-937 inoperable?

a. Locally trip Bistable (PB-937A) by placing it in the TEST position for 1/3 coincidence.

b. Locally bypass Bistable (PB-937A) by placing it in the TEST position for 1/3 coincidence.

c. Locally trip Bistable (PB-937A) by placing it in the TEST position for 2/4 coincidence.

d. Locally bypass Bistable (PB-937A) by placing it in the TEST position for 2/4 coincidence.

QUESTION: 091 (1.00)

The following plant conditions exist:

Reactor Power..... 98% Steady State
Rods In .....Auto

If "C" Steam Generator Atmospheric Relief Valve was to open, which ONE of the following statements describes the reactivity effect seen (Assume NO operator action):

a. Positive reactivity is added as a result of TAVG decrease.

b. Negative reactivity is added as a result of TAVG increase.

c. Positive reactivity is added as a result of TAVG increase.

d. Negative reactivity is added as a result of TAVG decrease.

QUESTION: 092 (1.00)

With Reactor power at 90%, which ONE of the following would occur after a Loss of Bus 143? (Assume NO operator action)

a. Reactor trip due to decreasing pressurizer pressure.

b. Turbine trip due to decreasing vacuum.

c. Loss of indication on all channel III instruments.

d. Reactor trip due to generator trip.

QUESTION: 093 (1.00)

With Reactor power at 98%, which ONE of the following describes the plant response to a loss of 125 VDC bus 114? (Assume NO operator action)

a. Decreasing Steam Generator Level due to the closure of all feedwater regulating valves.

b. Loss of DC control power to bus 141 components.

c. Loss of DC control power to the PMG breaker.

d. Increasing pressurizer level due to the loss of letdown.

QUESTION: 094 (1.00)

The following initial conditions exist:

- 1A Diesel Generator started on UV, feeding bus 141.
- Emergency mode speed-voltage control switch in MANUAL EMERGENCY.
- SAT feed breaker is closed.

After closing SAT feeder breaker (1412), which ONE of the following describes the 1A Diesel Generator response if the emergency mode speed-voltage control switch were place in AUTO?

a. Diesel Generator would pick up load due to being in the isochronous mode.

b. Diesel Generator would shed load due to being in the isochronous mode.

c. Diesel Generator would pick up load due to being in the droop mode.

d. Diesel Generator would shed load due to being in the droop mode.

QUESTION: 095 (1.00)

Per Technical Specifications 3.3.3.9, which ONE of the following describes the action upon placing the Station Blowdown Monitor (ORE-PR010) out-of-service?

a. Continue discharges for seven days while performing grab samples of circulating water blowdown every 12 hours.

b. Discontinue any discharging until returned to service and perform a grab sample of station blowdown.

c. Continue discharges for thirty days while performing grab samples of circulating water blowdown every 12 hours.

d. Discontinue blowdown for twelve hours, then continuous grab samples performed during each discharge.

QUESTION: 096 (1.00)

The following initial conditions exist:

- Instrument Air Pressure ..... 72 psig.
- SAC-1 is ..... tripped
- SAC-0 is ..... OOS
- SAC-2 is ..... OFF

Which ONE of the following actions is required to restore instrument air pressure:

a. Defeat the SAC trips, then attempt to start U-2 SAC.

b. Connect nitrogen bottle to SAC-2 cabinet and raise control air pressure to 100 psig before SAC.

c. Connect compressed air bottle to SAC-2 cabinet and raise air pressure to 100 psig before SAC.

d. Attempt to restart SAC-1 after restoring power, while hooking up temporary air compressor to SAC cabinet.

QUESTION: 097 (1.00)

The following initial conditions exist:

Reactor Power..... 99%.
Pressurizer Level ..... 58%.
Letdown Flow ..... 75 gpm
FCV CV 121..... Manual

Which ONE of the following describes the plant response to a 20 gpm charging line leak outside containment? (Assume NO operator action)

a. Decreasing pressurizer to 17%, letdown isolates and heaters turn off leading to OT Delta T Reactor trip.

b. Increasing pressurizer level due to isolation of letdown leading to a High Pressurizer Level Reactor Trip.

c. Decreasing pressurizer level to 17%, letdown isolates and heaters turn off leading to Low Pressure Reactor Trip.

d. Decreasing pressurizer level to 17%, letdown isolates and pressurizer level increases leading to High Level Reactor trip.

QUESTION: 098 (1.00)

Which ONE of the following does NOT prevent draining of the Spent Fuel Pit (SFP)?

a. SFP cooling pump suction from SFP location.

b. SFP sluice gate interlock.

c. Anti-siphon hole on SFP cooling pump discharge.

d. SFP cooling pump discharge to SFP location.

QUESTION: 099 (1.00)

The following initial conditions exist:

Pressurizer Pressure.....1800 psig and decreasing
Containment pressure.....3.5 psig
All RCPS are tripped
All SG pressure.....940 psig and decreasing

Which ONE of the following statements describes the reason for all FOUR MSIVs going shut with NO operator action?

a. Ramp decrease in Pressurizer pressure resulted in Safety Injection Signal.

b. Ramp Increase in Containment pressure resulted in Steamline Isolation Signal.

c. Step decrease in SG resulted in Steamline Isolation Signal.

d. Step decrease in Pressurizer pressure resulted in Safety Injection Signal.

QUESTION: 100 (1.00)

Which ONE of the following sets protective functions (reactor trip) protects against DNB?

a. Low Pzr Pressure, High Pzr Level.

b. Overtemperature Delta T, High Pzr Level.

c. Overtemperature Delta-T, Low Pzr Pressure.

d. High Pzr pressure, High Pzr level.

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

3/4.2.4 QUADRANT POWER TILT RATIO

LIMITING CONDITION FOR OPERATION

3.2.4 The QUADRANT POWER TILT RATIO shall not exceed 1.02 above 50% of RATED THERMAL POWER.

APPLICABILITY: MODE 1*.

ACTION:

a. With the QUADRANT POWER TILT RATIO determined to exceed 1.02 but less than or equal to 1.09:

1. Calculate the QUADRANT POWER TILT RATIO at least once per hour until either:

a) The QUADRANT POWER TILT RATIO is reduced to within its limit, or

b) THERMAL POWER is reduced to less than 50% of RATED THERMAL POWER.

2. Within 2 hours either:

a) Reduce the QUADRANT POWER TILT RATIO to within its limit, or

b) Reduce THERMAL POWER at least 3% from RATED THERMAL POWER for each 1% of indicated QUADRANT POWER TILT RATIO in excess of 1 and similarly reduce the Power Range Neutron Flux-High Trip Setpoints within the next 4 hours.

3. Verify that the QUADRANT POWER TILT RATIO is within its limit within 24 hours after exceeding the limit or reduce THERMAL POWER to less than 50% of RATED THERMAL POWER within the next 2 hours and reduce the Power Range Neutron Flux-High Trip Setpoints to less than or equal to 55% of RATED THERMAL POWER within the next 4 hours, and

4. Identify and correct the cause of the out-of-limit condition prior to increasing THERMAL POWER; subsequent POWER OPERATION above 50% of RATED THERMAL POWER may proceed provided that the QUADRANT POWER TILT RATIO is verified within its limit at least once per hour for 12 hours or until verified acceptable at 95% or greater RATED THERMAL POWER.

*See Special Test Exceptions Specification 3.10.2.

ACTION (Continued)

b. With the QUADRANT POWER TILT RATIO determined to exceed 1.09 due to misalignment of either a shutdown or control rod:

1. Calculate the QUADRANT POWER TILT RATIO at least once per hour until either:

a) The QUADRANT POWER TILT RATIO is reduced to within its limit, or

b) THERMAL POWER is reduced to less than 50% of RATED THERMAL POWER.

2. Reduce THERMAL POWER at least 3% from RATED THERMAL POWER for each 1% of indicated QUADRANT POWER TILT RATIO in excess of 1, within 30 minutes;

3. Verify that the QUADRANT POWER TILT RATIO is within its limit within 2 hours after exceeding the limit or reduce THERMAL POWER to less than 50% of RATED THERMAL POWER within the next 2 hours and reduce the Power Range Neutron Flux-High Trip Setpoints to less than or equal to 55% of RATED THERMAL POWER within the next 4 hours; and

4. Identify and correct the cause of the out-of-limit condition prior to increasing THERMAL POWER; subsequent POWER OPERATION above 50% of RATED THERMAL POWER may proceed provided that the QUADRANT POWER TILT RATIO is verified within its limit at least once per hour for 12 hours or until verified acceptable at 95% or greater RATED THERMAL POWER.

c. With the QUADRANT POWER TILT RATIO determined to exceed 1.09 due to causes other than the misalignment of either a shutdown or control rod:

1. Calculate the QUADRANT POWER TILT RATIO at least once per hour until either:

a) The QUADRANT POWER TILT RATIO is reduced to within its limit, or

b) THERMAL POWER is reduced to less than 50% of RATED THERMAL POWER.

LIMITING CONDITION FOR OPERATION

ACTION (Continued)

2. Reduce THERMAL POWER to less than 50% of RATED THERMAL POWER within 2 hours and reduce the Power Range Neutron Flux-High Trip Setpoints to less than or equal to 55% of RATED THERMAL POWER within the next 4 hours; and

3. Identify and correct the cause of the out-of-limit condition prior to increasing THERMAL POWER; subsequent POWER OPERATION above 50% of RATED THERMAL POWER may proceed provided that the QUADRANT POWER TILT RATIO is verified within its limit at least once per hour for 12 hours or until verified at 95% or greater RATED THERMAL POWER.

d. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.2.4.1 The QUADRANT POWER TILT RATIO shall be determined to be within the limit above 50% of RATED THERMAL POWER by:

a. Calculating the ratio at least once per 7 days when the alarm is OPERABLE, and

b. Calculating the ratio at least once per 12 hours during steady-state operation when the alarm is inoperable.

4.2.4.2 The QUADRANT POWER TILT RATIO shall be determined to be within the limit when above 75% of RATED THERMAL POWER with one Power Range channel inoperable by using the movable incore detectors to confirm that the normalized symmetric power distribution, obtained from two sets of four symmetric thimble locations or a full-core flux map, is consistent with the indicated QUADRANT POWER TILT RATIO at least once per 12 hours.

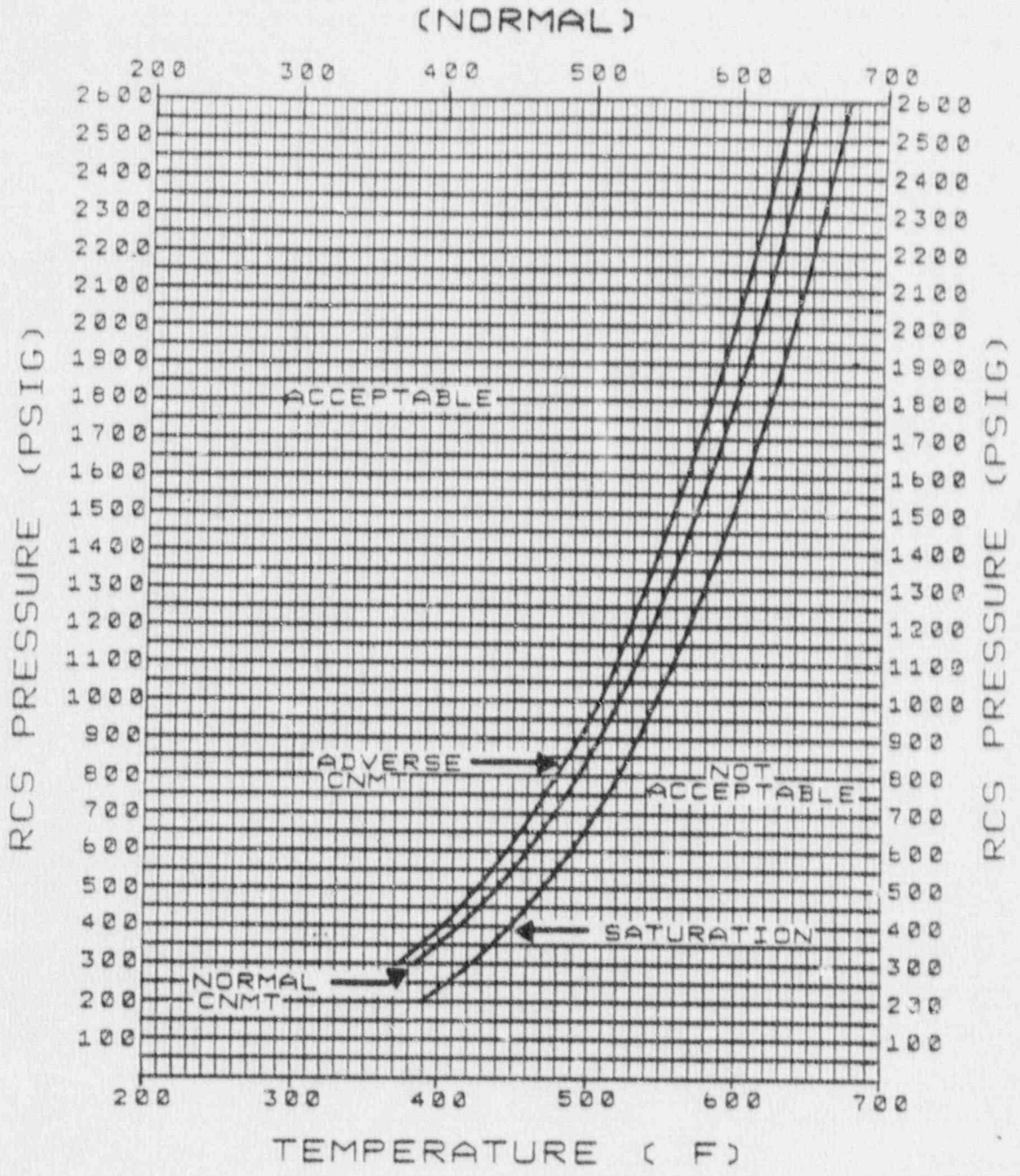

FIGURE 2BEP 0-1
RCS SUBCOOLING MARGIN

(0331E/0027E/121989)

APPROVED
FEB 2 1 1990
B.O.S.R.

ANSWER: 001 (1.00)

d

REFERENCE:

2BEP-1 Step 6 pg 7 of 24
000040K304 ..(KA's)

ANSWER: 002 (1.00)

a

REFERENCE:

2BEP-0, Foldout page, Attachment A and definition of ADVERSE CONTAINMENT
000074A201 ..(KA's)

ANSWER: 003 (1.00)

b

REFERENCE:

BOA ROD-4
BEP-0
000003G011 ..(KA's)

ANSWER: 004 (1.00)

d

REFERENCE:

BOA ROD-4
Tech Spec 3.2.4
000003G008 ..(KA's)

ANSWER: 005 (1.00)

c

REFERENCE:

1BFR-S.1 Step 4
000024G010 ..(KA's)

ANSWER: 006 (1.00)

b

REFERENCE:

1BOA PRI-12 step 1.
000024G011 ..(KA's)

ANSWER: 007 (1.00)

b

REFERENCE:

1BEP-2 Step 3.
000040A201 ..(KA's)

ANSWER: 008 (1.00)

d

REFERENCE:

1. Red path summary on foldout page EP-0.
2. 2BST-2 CORE COOLING STATUS TREE.
000074K311 ..(KA's)

ANSWER: 009 (1.00)

d

REFERENCE:

1. IFSTA Basics of Fire Fighting.
2. Bryon Fire Fighting Manual.
   000067K101 ..(KA's)

ANSWER: 010 (1.00)

d

REFERENCE:

Bryon Drawing 6E-1-4001A
   000067A217 ..(KA's)

ANSWER: 011 (1.00)

d

REFERENCE:

1BOA PRI-5 step 1.
   000068G011 ..(KA's)

ANSWER: 012 (1.00)

a

REFERENCE:

1BOA PRI-5 Note associated with step 21 on page 25 of 98.
   000068A101 ..(KA's)

ANSWER: 013 (1.00)

d

REFERENCE:

1. Lesson Plan chapter 19: Component cooling system pgs 19-12 and 19-24.
   000026A201 ..(KA's)

ANSWER: 014 (1.00)

b

REFERENCE:

1. System Description Chapter 19: COMPONENT COOLING WATER, Table III page 19-31.
000026A102 ..(KA's)

ANSWER: 015 (1.00)

a

REFERENCE:

1BOA RCP-1, Symptoms or Entry Conditions
000015A122 ..(KA's)

ANSWER: 016 (1.00)

*ANSWER
d

REFERENCE:

*REFERENCE
1BOA PRI-6
000015A208 ..(KA's)

ANSWER: 017 (1.00)

d

REFERENCE:

1BOA ROD-3 attachment A.
000005G012 ..(KA's)

ANSWER: 018 (1.00)

c

REFERENCE:

1BOA ROD-2 step 3b.5 RNO.
000005G005 ..(KA's)

ANSWER: 019 (1.00)

a

REFERENCE:

1. BFR-S.1 Step 1.
2. Background document FR-S.1 pg 75 basis.
000029K301 ..(KA's)

ANSWER: 020 (1.00)

*ANSWER
d

REFERENCE:

*REFERENCE
1. 1BEP-0 steps 28-30.
2. 1BEP ES-0.0 steps 1-3.
000011A213 ..(KA's)

ANSWER: 021 (1.00)

c

REFERENCE:

1BEP-0 Foldout page.
1BOA PRI-1
BAP 300-1
000011A104 ..(KA's)

ANSWER: 022 (1.00)

*ANSWER
d

REFERENCE:

*REFERENCE
1. Tech Spec 3.4.8
2. 1BOA PRI-4 step 3.
000076A202 ..(KA's)

ANSWER: 023 (1.00)

b

REFERENCE:

1. System Description Chapter 49:RADIATION MONITORS pgs 49-13 thru 49-20.
000076K201 ..(KA's)

ANSWER: 024 (1.00)

d

REFERENCE:

1BOA SEC step 1, Temporary Procedure.
000054G010 ..(KA's)

ANSWER: 025 (1.00)

d

REFERENCE:

ERG Background ES-0.1 pages 10 and 18
ES-0.1 step 3, 4, 18.
000054K303 ..(KA's)

ANSWER: 026 (1.00)

*ANSWER
d

REFERENCE:

*REFERENCE
1BEP-3 step 2.
000038A203 ..(KA's)

ANSWER: 027 (1.00)

c

REFERENCE:

BEP-2 step 4.
BEP-3 steps 3-4.
000038A132 ..(KA's)

ANSWER: 028 (1.00)

d

REFERENCE:

1BFR-S.1 Steps 1 thru 4.
000007A202 ..(KA's)

ANSWER: 029 (1.00)

d

REFERENCE:

2BEP-0 Symptoms of entry conditions
P-7 inputs.
000007A205 ..(KA's)

ANSWER: 030 (1.00)

*ANSWER
b

REFERENCE:

*REFERENCE
1BOA PRI-10 Table A note 4.
1BEP-0 Note adverse CTMT.
000025K101 ..(KA's)

ANSWER: 031 (1.00)

a

REFERENCE:

1. Lesson plan chapter 32:INTERMEDIATE RANGE NUCLEAR INSTRUMENTATION SYSTEM figure 31-1.
000033A201 ..(KA's)

ANSWER: 032 (1.00)

d

REFERENCE:

1BOA PRI-10 table A.
000025K301 ..(KA's)

ANSWER: 033 (1.00)

a

REFERENCE:

1BOA ELEC-1 LOSS OF DC BUS
000058A203 ..(KA's)

ANSWER: 034 (1.00)

a

REFERENCE:

1BOA ELEC-1 step 1. RNO column.
000058G009 ..(KA's)

ANSWER: 035 (1.00)

*ANSWER
b

REFERENCE:

*REFERENCE
1BEP-0 RNO column step 26.
000008A107 ..(KA's)

ANSWER: 036 (1.00)

d

REFERENCE:

Tech Spec 3.4.4
000008G003 ..(KA's)

ANSWER: 037 (1.00)

c

REFERENCE:

Tech Spec 3.3.1
000027A206 ..(KA's)

ANSWER: 038 (1.00)

a

REFERENCE:

System description chapter 14.
000027A216 ..(KA's)

ANSWER: 039 (1.00)

*ANSWER
c

REFERENCE:

*REFERENCE
1BOA SEC-4 attachment C and note prior to step 1.
000065A206 ..(KA's)

ANSWER: 040 (1.00)

*ANSWER
d

REFERENCE:

*REFERENCE
System description 14 pg 14-63.
000028A101 ..(KA's)

ANSWER: 041 (1.00)

*ANSWER
a

REFERENCE:

*REFERENCE
1BOA REFUEL 1
000036G010 ..(KA's)

ANSWER: 042 (1.00)

a

REFERENCE:

1. 1BOA ELEC-4.
2. 1BEP-0.
3. ERG Executive volume users guide pg 20-21.
000056G011 ..(KA's)

ANSWER: 043 (1.00)

d

REFERENCE:

BRP 1000 A1, pg 9.
194001K103 ..(KA's)

ANSWER: 044 (1.00)

*ANSWER
c

REFERENCE:

*REFERENCE
Bap 300-1, CONDUCT OF OPERATIONS, pg 16 and lesson plan BAP pg 19-20 of 87.
194001K101 ..(KA's)

ANSWER: 045 (1.00)

a

REFERENCE:

BAP 340-1, USE OF PROCEDURES FOR OPERATING DEPARTMENT, pg 3. and lesson plan BAP pg 34 of 87.
194001A103 ..(KA's)

ANSWER: 046 (1.00)

*ANSWER
a

REFERENCE:

*REFERENCE
BAP 1450-7, p 2-4
194001K114 ..(KA's)

ANSWER: 047 (1.00)

d

REFERENCE:

BAP 330-5, pg 2.
194001K105 ..(KA's)

ANSWER: 048 (1.00)

d

REFERENCE:

BGP 100-1, Plant Heatup, pg 20.
194001K109 ..(KA's)

ANSWER: 049 (1.00)

b

REFERENCE:

BAP 300-1, CONDUCT OF OPERATION, pg12-13.
194001A111 ..(KA's)

ANSWER: 050 (1.00)

c

REFERENCE:

BAP 331-2 INSTALLATION AND REMOVAL OF GROUND TEST DEVICES, pg 1-2.
194001K107 ..(KA's)

ANSWER: 051 (1.00)

d

REFERENCE:

BAP 1450-1 ACCESS TO CONTAINMENT pg 4.
194001K105 ..(KA's)

ANSWER: 052 (1.00)

a

REFERENCE:

BAP 300-1 CONDUCT OF OPERATIONS pg 15-16.
194001A105 ..(KA's)

ANSWER: 053 (1.00)

b

REFERENCE:

BAP 1450-7 CONFINED SPACE ENTRY AND WORK pg 3.
194001K113 ..(KA's)

ANSWER: 054 (1.00)

c

REFERENCE:

BAP CV-11 CHEMICAL ADDITION TO THE REACTOR COOLANT SYSTEM pg.2.
194001K110 ..(KA's)

ANSWER: 055 (1.00)

*ANSWER
b

REFERENCE:

*REFERENCE
BAP lesson plan, pg 32-33 of 87
194001A102 ..(KA's)

ANSWER: 056 (1.00)

d

REFERENCE:

FIRE PROTECTION SYSTEM LESSON PLAN, pg 29.
194001K116 ..(KA's)

ANSWER: 057 (1.00)

a

REFERENCE:

BOA PRI-9 O2/H2 EXPLOSIVE MIXTURE, pg 1 of 4.
194001K115 ..(KA's)

ANSWER: 058 (1.00)

d

REFERENCE:

BAP Lesson PLan, pg 24-25 of 87.
194001K102 ..(KA's)

ANSWER: 059 (1.00)

*ANSWER
a

REFERENCE:

*REFERENCE
BRP 1210-2 EXPOSURE REVIEW AND AUTHORIZATION, pg 2.
194001K104 ..(KA's)

ANSWER: 060 (1.00)

c

REFERENCE:

System 35, pg 35-50 thru 35-52.
045010K423 ..(KA's)

ANSWER: 061 (1.00)

c

REFERENCE:

Chapter 18, RESIDUAL HEAT REMOVAL SYSTEM, pg 26-27.
005000K401 ..(KA's)

ANSWER: 062 (1.00)

c

REFERENCE:

System Description 53, SERVICE AND INSTRUMENT AIR SYSTEM, pg 53-50.
078000K302 ..(KA's)

ANSWER: 063 (1.00)

*ANSWER
a

REFERENCE:

*REFERENCE
System Description 18, RESIDUAL HEAT REMOVAL SYSTEM, pg 18-9
005000A101 ..(KA's)

ANSWER: 064 (1.00)

*ANSWER
d

REFERENCE:

*REFERENCE
System Description 26, AUXILIARY FEEDWATER SYSTEM, pg 26-72.
061000K107 ..(KA's)

ANSWER: 065 (1.00)

*ANSWER
b

REFERENCE:

*REFERENCE
System Description 31, SOURCE RANGE NUCLEAR INSTRUMENTATION, pg 31-42.
015000K401 ..(KA's)

ANSWER: 066 (1.00)

*ANSWER
c

REFERENCE:

*REFERENCE
System Description 34b, INADEQUATE CORE COOLING SYSTEM, pg 34b-22 thru 34b-24.
017020K102 ..(KA's)

ANSWER: 067 (1.00)

*ANSWER
d

REFERENCE:

*REFERENCE
System Description 26, AUXILIARY FEEDWATER SYSTEM, pg 26-10.
061000K401 ..(KA's)

ANSWER: 068 (1.00)

*ANSWER
d

REFERENCE:

*REFERENCE
System Description 28, ROD CONTROL SYSTEM, pg 28-65 thru 28-69.
001050K401 ..(KA's)

ANSWER: 069 (1.00)

*ANSWER
a

REFERENCE:

*REFERENCE
System Description 28, pgs 28-49 thru 28-50.
001000K504 ..(KA's)

ANSWER: 070 (1.00)

*ANSWER
b

REFERENCE:

*REFERENCE
System Description 28, ROD CONTROL SYSTEM, pg 28-25 thru 28-26.
001050K501 ..(KA's)

ANSWER: 071 (1.00)

c

REFERENCE:

1BGP 100-5, pg 22.
004000K117 ..(KA's)

ANSWER: 072 (1.00)

a

REFERENCE:

System Description 32 pgs 9-10.
BGP 100-5 pg 8.
015000A202 ..(KA's)

ANSWER: 073 (1.00)

*ANSWER
c

REFERENCE:

*REFERENCE
BAR 1-10-00.
015000A302 ..(KA's)

ANSWER: 074 (1.00)

b

REFERENCE:

System Description 26, pg 26-58 thru 26-59.
061000A303 ..(KA's)

ANSWER: 075 (1.00)

*ANSWER
b

REFERENCE:

*REFERENCE
System Description 25, pg 25-48 thru 25-52.
BAR 1-16-A1, 1-16-B1.
059000K416 ..(KA's)

ANSWER: 076 (1.00)

b

REFERENCE:

System Description 13, pg 53.
1BOA RCP-1, pg 3
003000K103 ..(KA's)

ANSWER: 077 (1.00)

b

REFERENCE:

System Description 13, pgs 13-34 thru 13-35.
003000A201 ..(KA's)

ANSWER: 078 (1.00)

a

REFERENCE:

System Description 61, Figure 61-8 and page 49.
013000A403 ..(KA's)

ANSWER: 079 (1.00)

c

REFERENCE:

System Description 61, pg 48.
013000A401 ..(KA's)

ANSWER: 080 (1.00)

a

REFERENCE:

System Description, pg 61-28 thru 61-29.
013000A301 ..(KA's)

ANSWER: 081 (1.00)

*ANSWER
d

REFERENCE:

*REFERENCE
System Description 61, pg 61-30.
System Description 26, pg 26-66.
013000K107 ..(KA's)

ANSWER: 082 (1.00)

d

REFERENCE:

System Description 15a, pgs 15a-64 thru 15a-65.
004010A204 ..(KA's)

ANSWER: 083 (1.00)

a

REFERENCE:

Lesson plan System Description 58, pg 58-57.
006000K108 ..(KA's)

ANSWER: 084 (1.00)

a

REFERENCE:

System Description, pg 12-24.
002000A103 ..(KA's)

ANSWER: 085 (1.00)

d

REFERENCE:

System Description 14, pg 14-15.
010000K108 ..(KA's)

ANSWER: 086 (1.00)

d

REFERENCE:

System Description 60b, pg 60b-22.
012000K610 .(KA's)

ANSWER: 087 (1.00)

c

REFERENCE:

System description 9, pg 9-45 thru 9-46.
064000K402 ..(KA's)

ANSWER: 088 (1.00)

*ANSWER
a

REFERENCE:

*REFERENCE
BEP ES 1.3
System Description 58, pg 59-55 thru 58-56.
006020A402 ..(KA's)

ANSWER: 089 (1.00)

a

REFERENCE:

System Description 29, pg 29-24.
Tech Spec 3.1.3.2.
014000A102 ..(KA's)

ANSWER: 090 (1.00)

d

REFERENCE:

System description 59, pg 59-41.
BOA INST-2
026000A203 ..(KA's)

ANSWER: 091 (1.00)

*ANSWER
a.

REFERENCE:

*REFERENCE
System 23, Main Steam System, pg. 23.
035010K501 ..(KA's)

ANSWER: 092 (1.00)

b.

REFERENCE:

System 4, AC Electrical Power System, pg. 45 and 46.
062000A204 ..(KA's)

ANSWER: 093 (1.00)

d.

REFERENCE:

System 8a, 48 and 125 VDC Power System, pg. 18-29.
063000K302 ..(KA's)

ANSWER: 094 (1.00)

a.

REFERENCE:

System 9, Diesel Generator and Aux. Systems, pg. 83 and 84.
BOP DG-11, Diesel Generator Startup, pg. 6.
BOP AP-49, Backfeeding Main Transformers To Supply Power to ESF Buses, pg. 4
064000A405 ..(KA's)

ANSWER: 095 (1.00)

c.

REFERENCE:

BRP 1280-1, Response to Radiation Monitor Out-Of-Service.
Tech Spec 3.3.3.9, Radioactive Liquid Effluent Monitoring, Table 3.3-12, Action 32.
073000K301 ..(KA's)

ANSWER: 096 (1.00)

b.

REFERENCE:

System 53, Service and Instrument Air, pg. 48 and 49.
1BOA Sec-4, Loss Of Instrument Air, pg. 17.
079000K101 ..(KA's)

ANSWER: 097 (1.00)

d.

REFERENCE:

System 14, Pressurizer System, pg. 44 and 45.
1BOA PRI-3, Charging or Letdown Line Break.
011000A303 ..(KA's)

ANSWER: 098 (1.00)

b

REFERENCE:

System Description 51, pg 51-29.
Bryon FSAR table 9.1-1
033000A203 ..(KA's)

ANSWER: 099 (1.00)

c

REFERENCE:

System Description 23, pg 23-16 and 23-72.
039000A302 ..(KA's)

ANSWER: 100 (1.00)

c

REFERENCE:

System Description 60b, pg 60B-21.

end
012000K501 ..(KA's)
000003G008 ..(KA's)

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

U. S. NUCLEAR REGULATORY COMMISSION
REACTOR OPERATOR LICENSE EXAMINATION
REGION 3

FACILITY: Byron 1

REACTOR TYPE: PWR-WEC4

DATE ADMINISTERED: 90/12/03

CANDIDATE:

INSTRUCTIONS TO CANDIDATE:

Points for each question are indicated in parentheses after the question. To pass this examination, you must achieve an overall grade of at least 80%. Examination papers will be picked up four and one half (4 1/2) hours after the examination starts.

NUMBER QUESTIONS	TOTAL POINTS	CANDIDATE'S POINTS	CANDIDATE'S OVERALL GRADE (%)
100	100.00		

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

Candidate's Signature

NUCLEAR REGULATORY COMMISSION - OPERATOR LICENSING EXAMINATION

FACILITY: Byron EXAM LEVEL: Reactor Operator
DATE: December 5, 1990 NAME: _____

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

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 candidate at a time may leave. You must avoid all contacts with anyone outside the examination room to avoid even the appearance or possibility of cheating.

4. Use black ink or dark pencil only to facilitate legible reproductions.

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

6. Fill in the date on the cover sheet of the examination (if necessary).

7. Write your answer only on the answer sheet provided.

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 and answer sheets. In addition, turn in all scrap paper.

10. To pass the examination, you must achieve an overall grade of 80% or greater.

11. There is a time limit of (4 1/2) hours for completion of the examination. (or some other time if less than the full examination is taken.)

12. When you are done and have turned in your examination, leave the examination area as defined by the examiner. If you are found in this area while the examination is still in progress, your license may be denied or revoked.

QUESTION: 001 (1.00)

Per step 6 of procedure 2BEP-1, LOSS OF REACTOR OR SECONDARY COOLANT UNIT 2, which ONE of the following is required to be verified prior to reducing SI flow?

a. RCS Subcooling, Secondary heat sink, Containment Pressure and PZR level.

b. Secondary heat sink, Containment Pressure, PZR Level and PZR Pressure.

c. RCS Subcooling, PZR Pressure, PZR level and Containment Radiation levels.

d. Secondary heat sink, PZR Pressure, RCS Subcooling and PZR level.

QUESTION: 002 (1.00)

During a LOCA, the following plant conditions exist:

Containment pressure-4.5 psig
RCS wide range pressure-1425 psig
Average of ten highest Core exit thermocouples-560 F

Using 2BEP-0, REACTOR TRIP OR SAFETY INJECTION, figure 2BEP-0.1(attached), which ONE of the following describes the RCS subcooling for these conditions?

a. Adequate subcooling-30 F subcooled.

b. Inadequate subcooling-30 F subcooled.

c. Adequate subcooling-40 F subcooled.

d. Inadequate subcooling-40 F subcooled.

QUESTION: 003 (1.00)

The following plant conditions exist:

Rod D-8 bottom light ...	LIT
Rod D-4 bottom light ...	LIT
N-41 negative rate trip annunciator ...	LIT
Reactor Power...	95%
ROD CONTROL URGENT FAILURE annunciator	NOT LIT

PER BOA-4 DROPPED ROD RECOVERY, which one of the following describes the actions required for this event?

a. Reset rate trip and perform dropped rod recovery.

b. Trip the reactor and enter BEP-0.

c. Restore TAVG/TREF then calculate QPTR.

d. Place rod control in manual and stabilize plant conditions.

QUESTION: 004 (1.00)

The following plant conditions exist:

Control Bank D Rod H-8 dropped 15 minutes ago
Reactor Power.....90% and stable
QPTR 1.10
BOA ROD-4 DROPPED ROD RECOVERY in progress

Per Technical Specification 3.2.4 QPTR (attached), which ONE of the following describes the required plant actions if the rod has not been repaired after 3 hours?

a. Reactor in HOT STANDBY.

b. Reactor Power limited to 80%.

c. Reactor Power limited to 70%.

d. Reactor Power limited to 50%.

QUESTION: 005 (1.00)

Per 1BFR-S.1 RESPONSE TO NUCLEAR POWER GENERATION/ATWS, which ONE of the following is required to perform an Emergency Boration?

a. Start Cent Chg pumps, start boric acid transfer pumps in fast speed, open emergency boration valve (1CV-8104).

b. Start PD pump, start boric acid transfer pump, in fast speed, open emergency boration valve (1CV-8104).

c. Start Cent Chg pumps, open RWST to Cent Chg pumps suct iso valves (1CV-112D,E) close VCT valves (1CV-112B,C) open Chg pumps to cold leg isolation valves. (1SI-8801A,B)

d. Start PD pump, open RWST to CHG pump suction isolation valves (1CV-112D,E) close the VCT outlet isolation valves (1CV-112B,C) open CHG pump to cold leg injection valves. (1SI-8801A,B)

QUESTION: 006 (1.00)

The following conditions exist on unit 1:

AUCT TAVE HIGH.....LIT
DELTA I EXCEEDED.....LIT
OT DELTA T HIGH ROD STOP.....LIT
TAVG has increased 5 F in 20 minutes
Reactor Power.....90%
Rods in Manual and no rod motion has occurred

Per BOA PRI-12 UNCONTROLLED DILUTION which one of the following is the required action to take for the above parameters?

a. Trip the reactor and enter 1BEP-0.

b. Initiate emergency boration of RCS.

c. Obtain an activity sample of the RCS.

d. Perform a rapid shutdown and cooldown.

QUESTION: 007 (1.00)

The following plant conditions exist:

A-D MSIVs are closed
"A" SG pressure.....820 psig decreasing
"B" SG pressure.....830 psig decreasing
"C" SG pressure.....830 psig decreasing
"D" SG pressure.....520 psig decreasing
A-D SG Wide range levels.....decreasing

Which ONE of the following describes the event in progress?

a. Tube Rupture in "D" SG.

b. Fault in "D" SG.

c. Tube Rupture in "B" SG.

d. Fault in "B" SG.

QUESTION: 008 (1.00)

The following conditions exist following a LOCA on unit 2:

CTMT Pressure.....18 psig and stable.
RCS Pressure .....100 psig
Core Exit TCs .....1200 F
RCPs .....Tripped
SG pressures.....750 psig stable

Which ONE of the following describes the required actions per the Byron Status Trees?

a. Enter procedure 2BFR-H.1 RESPONSE TO LOSS OF SECONDARY HEAT SINK.

b. Enter procedure 2BFR-Z.1 RESPONSE TO HIGH CNMT PRESSURE.

c. Enter procedure 2BFR-C.2 RESPONSE TO DEGRADED CORE COOLING.

d. Enter procedure 2BFR-C.1 RESPONSE TO INADEQUATE CORE COOLING.

QUESTION: 009 (1.00)

An Equipment attendant reports smoke and flame coming out of the motor windings for the running circulating water pump. Which ONE of the following fire classifications would be present?

a. Class A and Class B.

b. Class B and Class D.

c. Class C and Class D.

d. Class C and Class A.

QUESTION: 010 (1.00)

A fire has occurred on Bus 141. Which ONE of the following would be affected by this fire?

a. 1A Reactor Coolant Pump.

b. 1 Station Air Compressor.

c. Group C Pressurizer Control Heaters.

d. 1A Essential Service Water pump.

QUESTION: 011 (1.00)

The following plant conditions exist:

Tube rupture in "B" SG
RCPs .....tripped
Reactor Power.....60%.

Per step 1 of BOA PRI-5 CONTROL ROOM INACCESSIBILITY
Which ONE of the following actions are required?

a. Go to Procedure BEP-0.

b. Go to procedure BFR-S.1.

c. Go to procedure BEP-0 while continuing with steps of 1BOA PRI-5.

d. Go to procedure BFR-S.1 while continuing with steps of 1BOA PRI-5.

QUESTION: 012 (1.00)

When locally controlling the SG PORVs, at the valve
which ONE of the following describes the actions required prior to going from the full open to the full close position on the PORV?

a. Equalize hydraulic pressure on hydraulic line.

b. Increase hydraulic pressure on hydraulic line using the hand pump.

c. Isolate the affected SG PORV block valve.

d. Place the control switch to the MANUAL position.

QUESTION: 013 (1.00)

The following plant condition exist:

Rod control.....Automatic
Reactor power.....95%
VCT pressure.....20 psig

A leak in which ONE of the following would cause Control rods to step in?

a. RCP thermal barrier heat exchanger.

b. Spent fuel pit heat exchanger.

c. Letdown heat exchanger.

d. Seal water heat exchanger.

QUESTION: 014 (1.00)

Which ONE of the following flow instruments have indication on the Main Control Board?

a. RCP Thermal Barrier heat exchanger outlet.

b. Seal water heat exchanger component cooling outlet.

c. RHR pump component cooling outlet.

d. Excess letdown heat exchanger combined return flow.

QUESTION: 015 (1.00)

The following plant conditions exist:

RCP SEAL LEAKOFF FLOW HIGH.....LIT
RCP SEAL DELTA P LOW.....LIT
SER1661 RCP 1A SEAL #2 LEAKOFF FLOW HIGH...printed

Per BOA RCP-1 RCP SEAL FAILURE, which ONE of the following describes the event in progress?

a. Reactor Coolant Pump seal failure.

b. Loss of Seal Injection.

c. Loss of CCW to RCP motor.

d. Loss of Thermal Barrier heat exchanger cooling.

QUESTION: 016 (1.00)

The following plant conditions exist:

Reactor power 85%
CC PUMP DSCH PRES LOW.....LIT
CC HX OUTLET TEMP HIGH.....LIT
"A" RCP upper motor bearing .....192 F
"A" RCP lower motor bearing .....205 F

Per BOA PRI-6 CC MALFUNCTION, which ONE of the following actions are required for the this event?

a. Trip the "A" RCP, then manually trip the turbine.

b. Reduce reactor power to less than 35% power then trip the "A" RCP.

c. Reduce reactor power until in mode 3, the trip the RCP.

d. Manually trip the reactor, then trip the "A" RCP.

QUESTION: 017 (1.00)

The following plant conditions exist:

Rod D-8 .....200 steps
All other rods in Control Bank D.....220 steps
Power at.....60%

Per BOA ROD-3 STUCK OR MISALIGNED ROD which ONE of the following actions is required for this event?

a. Reduce power to less than 50% then realign rod to bank.

b. Reduce power to less than 50% then realign bank to rod.

c. Maintain stable plant conditions, then realign rod to bank.

d. Maintain stable plant conditions, then realign bank to rod.

QUESTION: 018 (1.00)

The following plant conditions exist:

Control Bank D rods will not move in AUTO
Turbine Power.....20%
IR HIGH FLUX ROD STOP C-1 permissive light...NOT LIT
PWR RNG FLUX HIGH ROD STOP C-2 permissive light...NOT LIT
OP DELTA T HIGH ROD STOP C-4 permissive light...NOT LIT
OT DELTA T HIGH ROD STOP C-3 permissive light...NOT LIT
TURBINE LOW POWER INTERLOCK C-5 permissive light...LIT
CONTROL BANK D ROD STOP C-11 permissive light...NOT LIT
ROD CONTROL URGENT FAILURE annunciator.....NOT LIT

PER BOA ROD-2 FAILURE OF RODS TO MOVE which ONE of the following actions are required to control TAVG?

a. Adjust rods as necessary in BANK SELECT.

b. Block the Turbine Low Power Interlock rod stop.

c. Adjust rods as necessary in MANUAL.

d. Block the IR HIGH FLUX rod stop.

QUESTION: 019 (1.00)

Which ONE of the following is the basis for verifying a Reactor Trip during an ATWS condition?

a. To ensure that the only heat being added to the RCS is from decay heat and RCP heat.

b. To verify that there is enough temperature difference to ensure auto rod motion.

c. To prevent an uncontrolled cooldown of the RCS due to excessive steam flow.

d. To ensure adequate feed flow to maintain an adequate Secondary Heat Sink.

QUESTION: 020 (1.00)

The following plant conditions exist:

RCS WR pressure.....50 psig.
CETC.....557 F
CTMT pressure .....10 psig
Secondary radiation.....normal
ECCS Equipment.....operating

Which ONE of the following events is in progress?

a. Small break LOCA.

b. Steam Generator tube rupture.

c. Faulted Steam Generator.

d. Large break LOCA.

QUESTION: 021 (1.00)

The following plant conditions exist:

Pressurizer pressure.....1900 psig-decreasing
Steam line pressure.....800 psig-decreasing
Containment pressure.....1.5 psig-increasing
Pressurizer level.....4%-decreasing

Which ONE of the following describes the actions expected for this event?

a. Manually start all ECCS equipment.

b. Manual actuate SI.

c. Manually trip the reactor and Manually actuate Safety Injection.

d. Allow automatic initiation of Reactor Trip and Safety Injection.

QUESTION: 022 (1.00)

The following plant conditions exist:

Rod Control.....Manual
Generator Output.....870 MWe
2 Heater Drain Pumps.....running
3 CD/CB Pumps.....running
1A Main Feedwater Pump.....OOS
1B Main Feedwater Pump.....running
1C Main Feedwater Pump.....Just TRIPPED

Which ONE of the following shows the required actions for this event?

a. Reduce generator load to 800 MWe and place rod control in AUTO.

b. Reduce generator load to 779 Mwe.

c. Reduce generator load to 800 MWe.

d. Reduce generator load to 779 MWe and place rod control in AUTO.

QUESTION: 023 (1.00)

Which ONE of the following describes the basis for throttling total auxiliary feedwater to maintain 500 gpm after a Reactor trip?

a. Provide adequate SG inventory with level readings on span; prevent AFW pump runout.

b. Prevent AFW pump runout; allow enough AFW flow in case of a main feed line break.

c. Allow enough AFW flow in case of a main feed line break, prevent overcooling of the RCS.

d. Prevent overcooling of the RCS; provide adequate SG inventory with level readings on span.

QUESTION: 024 (1.00)

The following conditions exist:

1A SG NR level.....22% and stable
1B SG NR level.....25% and stable
1C SG NR level.....26% and stable
1D SG NR level.....35% and increasing
SG blowdown liquid Rad monitor PR08J....RED
Auxiliary feedwater pumps .....running
Main Steam Penetration 1A and 1B MSIV room Rad monitor 1RT-1R025 RED

Which ONE of the following events is in progress?

a. SG 1A is faulted.

b. SG 1B is faulted.

C. SG 1C has a tube rupture.

d. SG 1D has a tube rupture.

QUESTION: 025 (1.00)

Which ONE of the following components is isolated and remains isolated for a Faulted Steam Generator, but NOT necessarily for a Steam Generator Tube Rupture?

a. Main Steam isolation valve.(MS001)

b. Main Feedwater isolation valve.(FW009)

c. Auxiliary Feedwater isolation valve.(AF013)

d. Main Feedwater Preheater Bypass Isolation valve. (FW039)

QUESTION: 026 (1.00)

PER BFR-S.1 RESPONSE TO NUCLEAR POWER GENERATION/ATWS which ONE of the following describes the order of actions to shutdown or trip the reactor?

a. Allow rods to insert in automatic, emergency borate, insert rods in manual.

b. Manually trip the reactor, emergency borate, allow the rods to insert in automatic.

c. Emergency borate, allow rods to insert in automatic, insert the rods in manual.

d. Manually trip the reactor, allow rods to insert in automatic, insert rods in manual.

QUESTION: 027 (1.00)

The plant is at 5% reactor power following a startup when a pressurizer spray valve fails open depressurizing the Reactor Coolant system. Which ONE of the following would be the FIRST to trip the reactor?

a. Over Pressure Delta T reactor trip.

b. Pressurizer high water level reactor trip.

c. Pressurizer Pressure low reactor trip.

d. Pressurizer Pressure Low Safety Injection.

QUESTION: 028 (1.00)

Per 1BOA PRI-10 LOSS OF RH COOLING, which ONE of the following is NOT a consideration for determining if the RCS is adverse?

a. RCS integrity.

b. CTMT pressure.

c. RCS hot side vent path.

d. RCS loop status.

QUESTION: 029 (1.00)

The following readings were noted on the power range and intermediate range nuclear instrument channels:

N-35 5X10E-6
N-36 5X10E-5
N-41 8.5%
N-42 9%
N-43 8.5%
N-44 9%

Which ONE of the following describes the problem that is indicated by these readings?

a. N-35 is reading LOW for current conditions.

b. N-36 is reading HIGH for current conditions.

c. N-41 and N-43 were adjusted improperly during the last calometric.

d. N-42 and N-44 were adjusted improperly during the last calometric.

QUESTION: 030 (1.00)

Per BOA PRI-10 LOSS OF RH COOLING TABLE A, which ONE of the following is a criteria to determine the cooling method for a loss of RHR in MODE 6, but NOT in Mode 5?

a. RCS is adverse.

b. Hot side vent established.

c. Normal configuration of system.

d. Refueling cavity flooded.

QUESTION: 031 (1.00)

With the plant at 50% power, DC Bus 111 is lost. Assuming no operator action which ONE of the following would occur?

a. Reactor trip from low-low SG level.

b. Loss of field flashing for 1B diesel generator.

c. Turbine trip due to loss of backup seal oil pump.

d. PMG output breaker fails open.

QUESTION: 032 (1.00)

The plant had received annunciator 125VDC PANEL 111/113 VOLT LOW. Which ONE of the following is used to determine if a only Bus 113 is deenergized?

a. Normal DC volts on main control board.

b. No DC volts on Main Control Board.

c. Fuses inside ground detection cabinet blown.

d. Annunciator 125 VDC BUS TIE BREAKER TO BUS 211/111 CLOSE/TRIP LIT.

QUESTION: 033 (1.00)

Per Step 26 of BEP-0 REACTOR TRIP OR SAFETY INJECTION, which ONE of the following is the MAXIMUM Pressurizer pressure at which the PORV isolation valves should be closed if the PORV is still open?

a. 2400 psig.

b. 2300 psig.

c. 2200 psig.

d. 2100 psig.

QUESTION: 034 (1.00)

The following conditions exist:

Reactor.....tripped
Instrument air pressure..... .0 psig
Normal on/off site power.....available
Prior to trip, plant was at 70% power

A loss of air to which ONE of the following components resulted in the Reactor Trip?

a. Main Feedwater recirc valve. (FW012)

b. MSIV bypass valve.(MS101)

c. Main Feedwater reg valves. (FW 510, 520, 530, 540)

d. Steam dump spray valves. (CB039)

QUESTION: 035 (1.00)

With the plant at 50% power the pressurizer master level CONTROLLER fails low. Which ONE of the following events would occur?

a. Reactor trip on Pressurizer low pressure.

b. Continuous makeup to the VCT.

c. Letdown temperature decreases.

d. Reactor trip on pressurizer high level.

QUESTION: 036 (1.00)

The following conditions exist:

MODE 6
Fuel assembly with excessive gas bubbling in SFP
Fuel handling in progress in CNMT
ORT-PR024 FUEL HANDLING BLD VENT EXHAUST.....RED
ORE-AR037 FUEL HANDLING BLD.....RED

Which ONE of the following describes the required actions for this event?

a. Evacuate all unnecessary personnel from the area.

b. Immediately borate the SFP.

c. Place any fuel assembly in the transfer device into the change fixture.

d. Isolate SFP from reactor cavity.

QUESTION: 037 (1.00)

Which ONE of the following describes the actions to be taken when leaving a radiologically controlled area due to an assembly siren alarming?

a. As a minimum, a hand and shoe survey shall be performed when exiting the controlled area.

b. All protective clothing shall be removed upon exiting the controlled area.

c. Any protective clothing removal and survey requirements are waived while personnel proceed to their assembly area.

d. As a minimum, gloves and protective footwear shall be removed when exiting the controlled area.

QUESTION: 038 (1.00)

Which ONE of the following methods of performing an Independent Verification of system alignment would be acceptable?

a. Use a second qualified individual to witness the alignment and sign for verification.

b. Perform a functional check on selected portions of the system affected.

c. Use a second qualified individual to perform a separate alignment check on the system.

d. Perform a functional check on the affected system as the preferred method of verification.

QUESTION: 039 (1.00)

Which One of the following is correct concerning controls and entries into a confined spaces per BAP 1450-7 CONFINED SPACE ENTRY AND WORK?

a. The confined space attendant may enter the Confined Space only to perform a rescue of a fallen worker.

b. The Confined Space Attendant may order personnel out of space only if Rad Protection Department has found samples to be out of specification.

c. The Confined Space attendant shall be trained in Adult CPR and be available before the confined space entry is made.

d. One Confined Space attendant may only supervise one work group at the confined space.

QUESTION: 040 (1.00)

Per BAP 330-5 LOCK AND KEY CONTROL which ONE of the following describes how keys are controlled for issuance to locked areas?

a. A key that was checked out by an NSO and is needed for the nest shift may be transferred to a cognizant NSO.

b. The Unit NSO must authorize "R" keys used on his unit to ensure proper key control.

c. A Key may be issued by verbal authorization without filling out the Key Control Log (BAP 330-ST1).

d. Individuals requesting an "R" key shall present a completed dose card to the shift engineer or assigned shift foreman.

QUESTION: 041 (1.00)

While performing a plant heatup per BGP 100-1, step 43 RCS Pressure Increase the pressure in the discharge piping of the Safety Injection system may also increase. The SI pressure increase must be monitored closely because of which ONE of the following?

a. "Auto" Actuation of Safety Injection system is possible.

b. The SI Accumulators could be rendered inoperable.

c. Reverse flow through the check valves could overfill the RWST.

d. The piping could be pressurized beyond it's design pressure of 1750 psig.

QUESTION: 042 (1.00)

Per BAP 331-2 ADMINISTRATIVE AND TAGGING REQUIREMENTS FOR INSTALLATION AND REMOVAL OF GROUND AND TEST DEVICES, which ONE of the following describes actions involving the installation of a Ground Test Device (GTD)?

a. Caution cards shall be hung on the device racking screw only, OOS cards remain on the cubicle door.

b. Caution cards shall be hung on the equipment main control point along with any local control points and the cubicle door.

c. Caution cards shall be hung on the equipment main control point along with all local control points and device racking screw.

d. All Out Of Service cards shall be placed in the GTD installation package after caution cards are hung on appropriate locations.

QUESTION: 043 (1.00)

Per BAP 1450-1 ACCESS TO CNMT, which ONE of the following describes the requirements for an Initial Entry into CNMT?

a. There shall be a Minimum of 3 personnel with radiological protective equipment.

b. There shall be a Minimum of 2 personnel with SCBA respiratory protective equipment.

c. There shall be a Minimum of 3 personnel ore of which shall be a fire brigade member.

d. There shall be a Minimum of 2 personnel one of which shall be a brigade member.

QUESTION: 044 (1.00)

Which ONE of the following statements best describes the proper action when verbally directing an equipment attendant to perform a system lineup involving several valves?

a. Equipment attendant should give a complete repeat back of the instructions prior to proceeding to the task, therefore confirming the orders given.

b. Equipment attendant should proceed to perform the task even though he had doubts about some of the specifics.

c. Equipment attendant should proceed to perform the task and give a partial repeat back upon its completion.

d. Equipment attendant reports the task in progress, after a reasonable period of time you are allowed to assume the task is completed without notification.

QUESTION: 045 (1.00)

Which ONE of the following describes the actions to be taken following the discovery of a fellow worker lying unconscious at the bottom of an open tank? No Confined Space Permit or other individuals are in sight.

a. Yell for help, attach a rope to your waist and enter for rescue purposes.

b. Obtain and don a POSITIVE pressure SCBA prior to entry for rescue purposes.

c. Yell for help, take a deep breath and enter for rescue purposes.

d. Obtain and don a NEGATIVE pressure SCBA prior to entry for rescue purposes.

QUESTION: 046 (1.00)

Which ONE of the following describes the safety precautions utilized when adding Hydrazine to the Reactor Coolant System?

a. Fill the chemical addition tank rapidly to minimize any splashing of chemicals out of the funnel.

b. Vent the chemical addition tank to ensure proper siphoning during chemical addition.

c. Fill the chemical addition tank very slowly to prevent splashing of chemicals out of the funnel.

d. Completely fill the chemical addition tank to allow proper siphoning of chemicals during drain process.

QUESTION: 047 (1.00)

In MODE 1, while performing BOP CV-22 SWITCHING INSERVICE LETDOWN HEAT EXCHANGERS, which ONE of the following would be required if Letdown HX temperature Control Valve (TCV-130) failed closed?

a. Continue the procedure to restore CCW flow.

b. Stop the procedure and stabilize the plant

c. Inform the SCRE and continue with the procedure.

d. Stop the procedure and increase charging flow.

QUESTION: 048 (1.00)

Which ONE of the following features of the Fire Protection System will enable the system to perform it's intended function if Control power is lost?

a. Diesel driven fire pump can be started manually within four (4) minutes.

b. Deluge and foam systems have AUTO actuation available after AC control power loss.

c. CO2 and halon systems have AUTO actuation available after AC control power loss.

d. Diesel driven fire pump will start up Automatically after four (4) minutes.

QUESTION: 049 (1.00)

Per BOA PRI-9 O2/H2 EXPLOSIVE MIXTURE, which ONE of the following actions should be taken if Rad/Chem indicates an explosive mixture due to hydrogen level existing in the diesel oil storage room?

a. Start the room ventilation fans and resample.

b. Evacuate the Diesel oil storage room area and contact the fire brigade.

c. Contact security to have personnel investigate the cause.

d. Step the room ventilation fans and contact the fire brigade.

QUESTION: 050 (1.00)

Which ONE of the following is NOT an indication of a leaking Pzr Safety valve?

a. PRT temperature and pressure increase.

b. Pzr temperature and pressure decrease with decreasing level.

c. Pzr safety open indicating light LIT.

d. PSR SAFETY RELIEF DISCHARGE TEMPERATURE HIGH annunciator LIT.

QUESTION: 051 (1.00)

While operating Unit 1 at 98% power, Train-A unit 1 containment chiller compressor breaker tripped on ground overcurrent with train B Unit 1 Containment chiller OOS for major rebuild. Which ONE of the following describes plant status after seven (7) days. No repairs made during this period. (Assume CNMT temperature was steadily increasing over this period and is presently at 120 F)

a. No LCO action statements required to be met, power operation at 98% continuing.

b. No LCO action required, reduced power operation may be required due to CNMT temperature and pressure.

c. Specific LCO action requiring restoration of one train operable or verifying essential Service water flow, Mode 1 at 98% power.

d. Specific LCO action required for High Temperature and/or pressure in CNMT, Mode 5-Cold Shutdown.

QUESTION: 052 (1.00)

During the performance of throttle valve testing, all turbine throttle valves simultaneously close. The following initial conditions existed:

Turbine load .....330 MWe

Which ONE of the following describes the expected plant response?

a. Turbine trip signal sent to initiate Reactor trip since power is above P-8 setpoint.

b. Turbine intercept valves close and extraction steam dump valves open to control steam demand and RCS temperature.

c. Turbine trip signal generated but no reactor trip since power is below P-8 setpoint.

d. Steam dumps and non-return check valves open to control steam demand and RCS temperatures.

QUESTION: 053 (1.00)

During plant cooldown to Mode 5 on Unit One RCS pressure indicated by PT-403 spiked high. Plant initial conditions were:

RCS temperature 320 F
RCS pressure 340 psig
RHR pump "B" in service

Which ONE of the following statements describes the expected plant response?

a. Closure of RH-8702B resulting in loss of suction to RHR pump "B".

b. Closure of RH-8701A resulting in loss of suction to RHR pump "B".

c. High RCS pressure alarm "RC SYSTEM COLD PRESS HIGH.

d. High RHR pump discharge pressure Alarm and "B" RHR pump trip.

QUESTION: 054 (1.00)

The following plant conditions exist:

Reactor power.....12%
Steam dumps.....OPEN
TAVG.....561 F

While performing a plant startup per BGP 100-3, steam pressure detector PT-507 failed low. Which ONE of the following describes the expected plant response?

a. Steam dumps close with TAVG increasing.

b. Steam dumps are opened with TAVG increasing.

c. Steam dumps are opened with TAVG decreasing.

d. Steam dumps close with TAVG decreasing.

QUESTION: 055 (1.00)

Which ONE of the following valves will OPEN and STAY OPEN upon a loss of instruments air to containment?

a. Pressurizer spray (RY 455).

b. Regen HX Tube Side Inlet (CV8324).

c. RC Cold Loop 1 Charging Inlet (CV 8147).

d. Letdown Orifice Isolation (CV 8149).

QUESTION: 056 (1.00)

The following plant conditions exist:

Reactor Power.....50%
Tavg/Treg mismatch.....0 F.
Steam Dumps.....Tavg mode.

During a turbine load rejection of 20% power,the Nso reports that Loop D cold leg RTD (Narrow Range) failed high.
Which ONE of the following describes the response of the steam dump system to this event?

a. All steam dump valves would open until Tavg decreased to 550 degrees F.

b. Six of the twelve steam dump valves would open until TAVG reached 550 F.

c. Cooldown valves would open until RCS Temperature reached 550 F.

d. All steam dump valves would open and remain open due to failed temperature instrument, beyond the 550 F.

QUESTION: 057 (1.00)

The proper method of controlling the RCS cooldown rate while performing a cooldown using the RHR system is by regulating the _____ flow on the _____ side of the RHR heat exchanger.

a. Reactor Coolant, tube.

b. Reactor Coolant, shell.

c. Component Cooling Water, tube.

d. Component cooling water, shell.

QUESTION: 058 (1.00)

Which ONE of the following conditions will automatically OPEN the SX Supply Valves (AF006, 017) to the suction of the AF pumps? coincident with _____.

a. Safety Injection signal with Low-Low steam generator level in any one Steam Generator.

b. Safety Injection signal with Low level in condensate storage tank.

c. Reactor Coolant pump bus undervoltage (2/4) with low level in condensate storage tank.

d. Reactor Coolant pump bus undervoltage (2/4) with low Auxiliary feedwater pump suction pressure.

QUESTION: 059 (1.00)

The Volume Control Tank (VCT) is at 44% and automatic makeup is in progress. A leak develops in the reference leg associated with LT-112. Without any operator action specify which ONE of the following is correct concerning the Initial system response?

a. CV-112A Divert valve will fail to the VCT position.

b. Automatic makeup to the VCT will stop.

c. Indicated VCT level on LT-112 will decrease.

d. Charging pumps suction will automatically shift to the RWST.

QUESTION: 060 (1.00)

During a Reactor Startup, the source range high _____ is _____ Blocked once one of the two intermediate range channels reach the _____ setpoint.

a. Neutron flux trip; Manually; P-10.

b. Neutron Flux Trip, Manually; P-6.

c. Voltage, Automatically; P-10.

d. Voltage; Automatically; P-6.

QUESTION: 061 (1.00)

Following a LOCA, individual Core Exit Thermocouple temperatures may vary due to ____(1)_____ and/or _____(2)_____.

a. 1. Vessel upper head voiding.
   2. Large increase in RCS pressure.

b. 1. Large increase in RCS pressure.
   2. Core outlet mixing problems.

c. 1. Irregular core flow patterns.
   2. Core outlet mixing problems.

d. 1. Containment atmospheric pressure high.
   2. Irregular core flow problems.

QUESTION: 062 (1.00)

Per BEP-1 LOSS OF RX OR SECONDARY COOLANT, operator action summary, which ONE of the following actions should be taken with a CST level of < 3%?

a. Isolate ONE SG secondary side and allow AUTO AF Suction swapover to SX.

b. Isolate THREE SG secondary sides and allow AUTO AF Suction Swapover to SX.

c. Isolate ONE SG secondary side and MANUALLY align SX to the AF suction.

d. Isolate THREE SG secondary sides and MANUALLY align SX to the AF suction.

QUESTION: 063 (1.00)

The Control Room LED display for the CETCs and their Acknowledge pushbuttons are flashing. Which ONE of the following describes the status of the CETCs?

The CETC temperature readings:

a. can be taken, the flashing indicates that the system is normal.

b. cannot be taken without operator action to clear the malfunctioning CETC as indicated CETC readings will be incorrect.

c. can be taken, the flashing indicates a system error exists.

d. Cannot be taken because the flashing indicates that the subcooled margin monitor is Out of service.

QUESTION: 064 (1.00)

The following plant conditions exist:

ROD CONTROL URGENT FAILURE annunciator.....LIT
Control Bank D Group 2 movable gripper coil fuse...BLOWN

Which ONE of the following caused the Rod Control Urgent failure alarm?

a. Logic error in power cabinet (1BD).

b. Phase failure in power cabinet (1BD).

c. Logic error in power cabinet (2BD).

d. Phase failure in power cabinet (2BD).

QUESTION: 065 (1.00)

Which ONE of the following does NOT explain the need for the Rod Insertion limit computer to accurately calculate the Rod Insertion limit?

a. To limit Rod Motion and wear.

b. To maintain acceptable power distribution limits.

c. To limit potential effects of Rod Misalignments.

d. To maintain minimum Shutdown Margin.

QUESTION: 066 (1.00)

With the Rods in auto, the Rods will step in at _____ steps/min due to a _____ degree difference in Tave-Tref and this will continue until the difference in Tave-Tref reaches _____ degrees. (Disregard Power Mismatch Input).

a. 8; 2; 1.5

b. 8; 3; 1.0

c. 32; 4; 1.5

d. 32; 5; 1.0

QUESTION: 067 (1.00)

During the performance or BGP 100-5 PLANT SHUTDOWN AND COOLDOWN, the operator is required to reduce charging flow to approximately 25 gpm Greater than the _____ to maintain a slow and controllable fill of the Pressurizer and eliminate _____ stresses.

a. Seal injection flow; thermal.

b. Seal injection flow; pressure.

c. Letdown flow; thermal.

d. Letdown flow; pressure.

QUESTION: 068 (1.00)

During a plant shutdown per BGP 100-5, the rods were being inserted when the operator noted N-35 reading 3 X 10 (-9) amps and N-36 reading 2 X 10(-11) amps. The operator immediately went to RESET on the manual block switches for source ranges. Resulting in a SR HIGH FLUX reactor trip this occurred due to N-35 being _____ and N-36 being _____.

a. Properly compensated, overcompensated.

b. Overcompensated, properly compensated.

c. Properly compensated, undercompensated.

d. Undercompensated, properly compensated.

QUESTION: 069 (1.00)

Which ONE of the following MCB alarms does NOT annunciate upon taking NI-44 Operation Selector to DET A and B (test)?

a. POWER RANGE HIGH SETPOINT REACTOR TRIP ALERT.

b. POWER RANGE LOW SETPOINT REACTOR TRIP ALERT.

c. POWER RANGE HIGH VOLT FAILURE.

d. POWER RANGE HIGH FLUX ROD STOP.

QUESTION: 070 (1.00)

During normal operation at 100% power, the Reactor operator notes a 5 F drop in the subcooled margin monitor indication. Which ONE of the following identifies the probable cause?

a. Failure of one or more (NR) pressurizer pressure channels 1700 psig.

b. Failure of one or more of the selected Core Exit Thermocouples to 100 F.

c. Failure of one or more Reactor Coolant loop pressure channels (WR) to 2700 psig.

d. Failure of one or more of the selected Core Exit TCs to 1200 F.

QUESTION: 071 (1.00)

Which ONE of the following describes the method of Steam Generator level control following an Auxiliary Feedwater System (AFW) automatic start?

a. The AFW discharge MOV's (AF013) will remain in current position and then automatically throttle closed after normal level is restored.

b. The AFW discharge MOV's (AF013) will remain in current position and the operator must throttle AFW discharge AOVs (AF005) closed after normal level is restored.

c. THE AFW discharge MOV's (AF013) will immediately travel full open and then automatically throttle closed after normal level is restored.

d. The AFW discharge MOV's (AF013) will immediately travel full open and the operator must throttle AFW discharge AOVs (AF005) closed after normal level is restored.

QUESTION: 072 (1.00)

Which ONE of the following would cause a TRIP of the Motor Driven Main Feed pump but NOT the turbine Driven Main Feed Pump?

a. Safety Injection.

b. Loss of ALL condensate pumps.

c. Low lube oil pressure.

d. Steam Generator High-2 level.

QUESTION: 073 (1.00)

The following plant conditions exist:

700 MWe generator output with Load ramp increase inprogress
Rods in AUTO
Feed Reg Valves in AUTO
Both Turbine Driven Main Feed Pumps Running in AUTO

Which ONE of the following actions would occur if the 1B Turbine Feed Pump trips?

a. Feed Reg valves throttle open to maintain programmed level and running main feedwater pump increase speed.

b. Feed Reg valves Throttle closed due to high steam pressure delta-p and running Main Feedwater pump increases speed.

c. Running Main Feedwater pump decreases speed due to shrink in SG levels caused by increases steam pressure.

d. Running Main Feedwater pump maintains constant speed as feed Reg valves open to maintain programmed level.

QUESTION: 074 (1.00)

Which ONE of the following is NOT a requirement to open No. 1 RCP seal bypass valve (CV 8142) when No. 1 seal leakoff temperature approaches 184 F?

a. RCS pressure is 980 psig.

b. Seal injection flow is 6 gpm per pump.

c. No. 1 Seal Leakoff isolatior valves (CV 8141 A-D) are open.

d. No.1 Seal leakoff flow is 0.7 gpm

QUESTION: 075 (1.00)

During full power operations on unit 1, a spurious Phase A isolation signal is received. Which ONE of the following describes the effect upon RCP seal operation?

a. No. 1 Seal leakoff flow increases due to loss of normal injection flow.

b. No. 2 Seal leakoff flow increases due to higher pressure in No. 1 Seal leakoff line.

c. No. 3 Seal Leakoff flow increases due to failure of No.1. Seal.

d. No effect upon seal flow leakoffs will be noted.

QUESTION: 076 (1.00)

Which ONE of the following is started FIRST by the Safe Shutdown Sequencer timer?

a. Centrifugal Charging Pump.

b. Containment Spray Pumps.

c. Component Cooling pumps.

d. Auxiliary feedwater pumps.

QUESTION: 077 (1.00)

After a loss of power to Inst Bus 111, which ONE of the following describes the ESF equipment response when a Safety Injection signal is received?

a. All equipment required to start would sequence on.

b. Only Train A equipment would sequence on.

c. Only Train B equipment would sequence on.

d. Neither Train (A/B) would sequence on.

QUESTION: 078 (1.00)

Which ONE of the following signals uses P-4 as an input to initiate an ESF actuation signal?

a. Feedwater isolation.

b. Steamline isolation.

c. Aux Feedwater actuation.

d. Containment Spray actuation.

QUESTION: 079 (1.00)

Which ONE of the following valves fails OPEN on a loss of instrument air to containment?

a. CV-8389A, Regen Hx Letdown Shell side inlet isolation.

b. CV-8324A, Regen Hx Tube side inlet isolation.

c. CV-8141A, 1A RCP Seal Leakoff Isolation.

d. CV-459, Letdown Line Isolation.

QUESTION: 080 (1.00)

Which ONE of the following conditions or events will cause the Over Power Delta-Temperature setpoint to decrease? (Plant is at 60% power).

a. Pressurizer spray valve sticks upon for 15 seconds (Assume no reactor trip).

b. A Reactor boration is initiated.

c. Delta flux increases from +4 to +6 from a xenon transient.

d. A power ascension to 100% power is in progress.

QUESTION: 081 (1.00)

Which ONE of the following would occur if the Automatic closure of the charging pump suction valves (112B and C) from the VCT failed upon receiving a Safety Injection signal? (Assume NO operator action).

a. Hydrogen entrapment in the charging pumps due to the VCT being drained.

b. Higher than expected boron Concentration of water being injected into the reactor vessel.

c. Letdown would NOT automatically isolate, thus reducing the inventory in the RCS.

d. Backflow of the RWST inventory into the VCT, thus reducing the available inventory injected into the Reactor vessel.

QUESTION: 082 (1.00)

Which ONE of the following will occur on a Large insurge of cooler RCS Water into the pressurizer while at 100% power?

a. Pressurizer pressure will increase causing the pressurizer spray valves to close.

b. Pressurizer pressure will decrease causing the pressurizer backup heaters to energize.

c. Pressurizer level will increase causing the pressurizer spray valves to close.

d. Pressurizer level will increase causing the pressurizer backup heaters to energize.

QUESTION: 083 (1.00)

The following plant conditions exist:

TAVG.....550 F decreasing
Main Turbine.....NOT TRIPPED
Feedwater Isolation....did not occour
Steam Dumps.....armed
Reactor tripped from.....51% power
Cause of Reactor trip....Loss of "B" RCP

The above mentioned plant response to the Reactor trip suggests that a failure has occurred in permissive circuit _____.

a. P-13.

b. P-10.

c. P-8.

d. P-4.

QUESTION: 084 (1.00)

Which ONE of the following is correct concerning the Emergency Diesel Generator system when placed in the AUTO MODE?

a. An emergency start will enable all trips to shutdown the diesels in order to prevent damage.

b. A manual start will enable all trips and control functions with the exception of manual emergency trips.

c. An emergency START will disable all trips and control functions with the exception of generator differential, mechanical overspeed and manual emergency trips.

d. A Manual START will enable normal speed and voltage control and governor droop for parallel operation is Automatically removed.

QUESTION: 085 (1.00)

With the unit in Mode 6 and with preparations being made to drain the RCS, BOP RC-4a UNIT ONE RCS DRAIN requires two methods of RCS level indication. Which ONE of the follow indicators is NOT acceptable as one of those methods?

a. LI-RY049 Reactor Vessel Level indicator.

b. RVLIS.

c. Tygon tube.

d. LI-RY046 Reactor Vessel Level indicator.

QUESTION: 086 (1.00)

While performing BEP ES-1.3 TRANSFER TO COLD LEG RECIRC, which ONE of the following manual actions is NOT required by the operator?

a. Open the Charging pumps flow control valve (FCV-121).

b. Open the Component Cooling Water valves for the RHR heat exchanger (CC 9412).

c. Close the RWST to RHR pump suction valves from the RWST (SI 8812).

d. Close the RHR heat Exchanger discharge X-tie valves (RH 8716).

QUESTION: 087 (1.00)

Which ONE of the following describes the response of the Pressurizer Pressure Control System if PT-455 failed low?

a. RCS pressure will decrease until the low pressure reactor trip due to failed open PORV-455.

b. RCS pressure will be maintained below 2310 psig due to operation of the spray valves.

c. RCS pressure will oscillate between 2220-2250 psig due to cycling of proportional heaters.

d. RCS pressure will oscillate between 2315-2335 psig due to cycling of PORV-456.

QUESTION: 088 (1.00)

A DRPI for Control Bank D rod M-12 has been declared inoperable per Technical Specifications. Which ONE of the following actions is required?

a. Use incore detectors to perform a flux map of the core.

b. Perform current measurement of coils on CRDMs.

c. Maintain Rod position through boration/dilution as power changes.

d. Use excore detectors to monitor changes in QPTR.

QUESTION: 089 (1.00)

The following plant conditions exist:

Rod Control Non-urgent failure alarm .....LIT
General Warning LED for rod F-6.....LIT
Rod Bottom LED for rod F-6 .....LIT
Rods in .....MANUAL

Which ONE of the following confirms the existence of a dropped rod?

a. The power range NI's increased to 101% from 99%.power.

b. The QPTR is 1.004 as compared to the last calculation of 1.005.

c. The TAVG chart recorder shows a decreasing trend from 588 F.

d. The TAVG chart recorder shows an increasing trend for 588 F.

QUESTION: 090 (1.00)

The following plant conditions exist:

Reactor Power..... 98%
Rods ..... AUTO
SG water level control in AUTO
Tavg ..... 589 F

Which ONE of the following conditions describes the effect on plant operation with a failure of steam pressure transmitter (PT-514) low? (NO operator action).

a. Increased steam flow input with increased feed flow output results in P-14 permissive actuation in High SG level.

b. Decreased steam flow input with decreased feed flow output results in Reactor trip on LO-LO SG level.

c. Increased steam flow input with a decreased feed flow input results in SG swell.

d. Decreased steam flow input with increased feed flow output results in SG shrine.

QUESTION: 091 (1.00)

The following plant conditions exist:

Reactor Power..... 98% Steady State
Rods In .....Auto

If "C" Steam Generator Atmospheric Relief Valve was to open, which ONE of the following statements describes the reactivity effect seen (Assume NO operator action):

a. Positive reactivity is added as a result of TAVG decrease.

b. Negative reactivity is added as a result of TAVG increase.

c. Positive reactivity is added as a result of TAVG increase.

d. Negative reactivity is added as a result of TAVG decrease.

QUESTION: 092 (1.00)

Which ONE of the following statements describes the action(s) necessary to restore power to Instrument Bus 111 after a complete loss of instrument inverter 111? (Assume Instrument Bus 111 transformer input breaker is ON)

a. Close MCC131X1 feed breaker, then open inverter AC output breaker to Instrument Bus 111.

b. Place AC feed breaker on 120V Instrument panel to MAIN position then open inverter feed breaker on MCC131X1.

c. Place A.C. feed breaker on Instrument Panel to RESERVE position then open inverter AC output breaker.

d. Close MCC131X2 feed breaker to CVT, then open inverter feed breaker to MCC131X1.

QUESTION: 093 (1.00)

With Reactor Power at 98%, which ONE of the following describes the plant response to a loss of 125 VDC bus 114? (Assume NO operator action)

a. Decreasing Steam Generator Level due to the closure of all feedwater regulating valves.

b. Loss of DC control power to bus 141 components.

c. Loss of DC control power to the PMG breaker.

d. Increasing pressurizer level due to the loss of letdown.

QUESTION: 094 (1.00)

The following initial conditions exist:

- Instrument Air Pressure ..... 72 psig.
- SAC-1 is ..... tripped
- SAC-0 is ..... OOS
- SAC-2 is ..... OFF

Which ONE of the following actions is required to restore instrument air pressure:

a. Defeat the SAC trips, then attempt to start U-2 SAC.

b. Connect nitrogen bottle to SAC-2 cabinet and raise control air pressure to 100 psig before SAC.

c. Connect compressed air bottle to SAC-2 cabinet and raise air pressure to 100 psig before SAC.

d. Attempt to restart SAC-1 after restoring power, while hooking up temporary air compressor to SAC cabinet.

QUESTION: 095 (1.00)

The following plant conditions exist:

Unit 1 in .....Mode 6 for 5 days
Unit 2 in.....Mode 1 for 25 days
Fire Detection system on Reserve Power
Jockey Pump 0A cycling as required

Which ONE of the following Fire pump combinations would be available to maintain Fire Protection header pressure and flow in order to combat a fine in the 4160 v Bus 144?

a. Jockey pump 0A, Electric driven fire pump.

b. Jockey pump 0A, Diesel driven fire pump.

c. Jockey pump 0B, Electric driven fire pump.

d. Jockey pump 0B, Diesel driven fire pump.

QUESTION: 096 (1.00)

The following initial conditions exist:

Reactor Power..... 99%.
Pressurizer Level ..... 58%.
Letdown Flow ..... 75 gpm
FCV CV 121..... Manual

Which ONE of the following describes the plant response to a 20 gpm charging line leak outside containment? (Assume NO operator action)

a. Decreasing pressurizer to 17%, letdown isolates and heaters turn off leading to OT Delta T Reactor trip.

b. Increasing pressurizer level due to isolation of letdown leading to a High Pressurizer Level Reactor Trip.

c. Decreasing pressurizer level to 17%, letdown isolates and heaters turn off leading to Low Pressure Reactor Trip.

d. Decreasing pressurizer level to 17%, letdown isolates and pressurizer level increases leading to High Level Reactor trip.

QUESTION: 097 (1.00)

Which ONE of the following does NOT prevent draining of the Spent Fuel Pit (SFP)?

a. SFP cooling pump suction from SFP location.

b. SFP sluice gate interlock.

c. Anti-siphon hole on SFP cooling pump discharge.

d. SFP cooling pump discharge to SFP location.

QUESTION: 098 (1.00)

The following initial conditions exist:

Pressurizer Pressure.....1800 psig and decreasing
Containment pressure.....3.5 psig
All RCPS are tripped
All SG pressure.....940 psig and decreasing

Which ONE of the following statements describes the reason for all FOUR MSIVs going shut with NO operator action?

a. Ramp decrease in Pressurizer pressure resulted in Safety Injection Signal.

b. Ramp Increase in Containment pressure resulted in Steamline Isolation Signal.

c. Step decrease in SG resulted in Steamline Isolation Signal.

d. Step decrease in Pressurizer pressure resulted in Safety Injection Signal.

QUESTION: 099 (1.00)

The following plant conditions exist:

Reactor trip from 100% power
"B" Reactor trip breaker is open
"A" Reactor trip breaker is closed
Steam Dumps in the Tavg Mode

Which ONE of the following demonstrates the status of the Steam Dumps as a result of this transient?

a. Steam dumps will only open on High-2 and throttle closed.

b. Steam dumps will open on the Plant Trip controller.

c. Steam dumps will open as a result of high steam pressure.

d. Steam dumps will remain closed until Steam pressure Mode.

QUESTION: 100 (1.00)

Which ONE of the following sets protective functions (reactor trip) protects against DNB?

a. Low Pzr Pressure, High Pzr Level.

b. Overtemperature Delta T, High Pzr Level.

c. Overtemperature Delta-T, Low Pzr Pressure.

d. High Pzr pressure, High Pzr level.

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

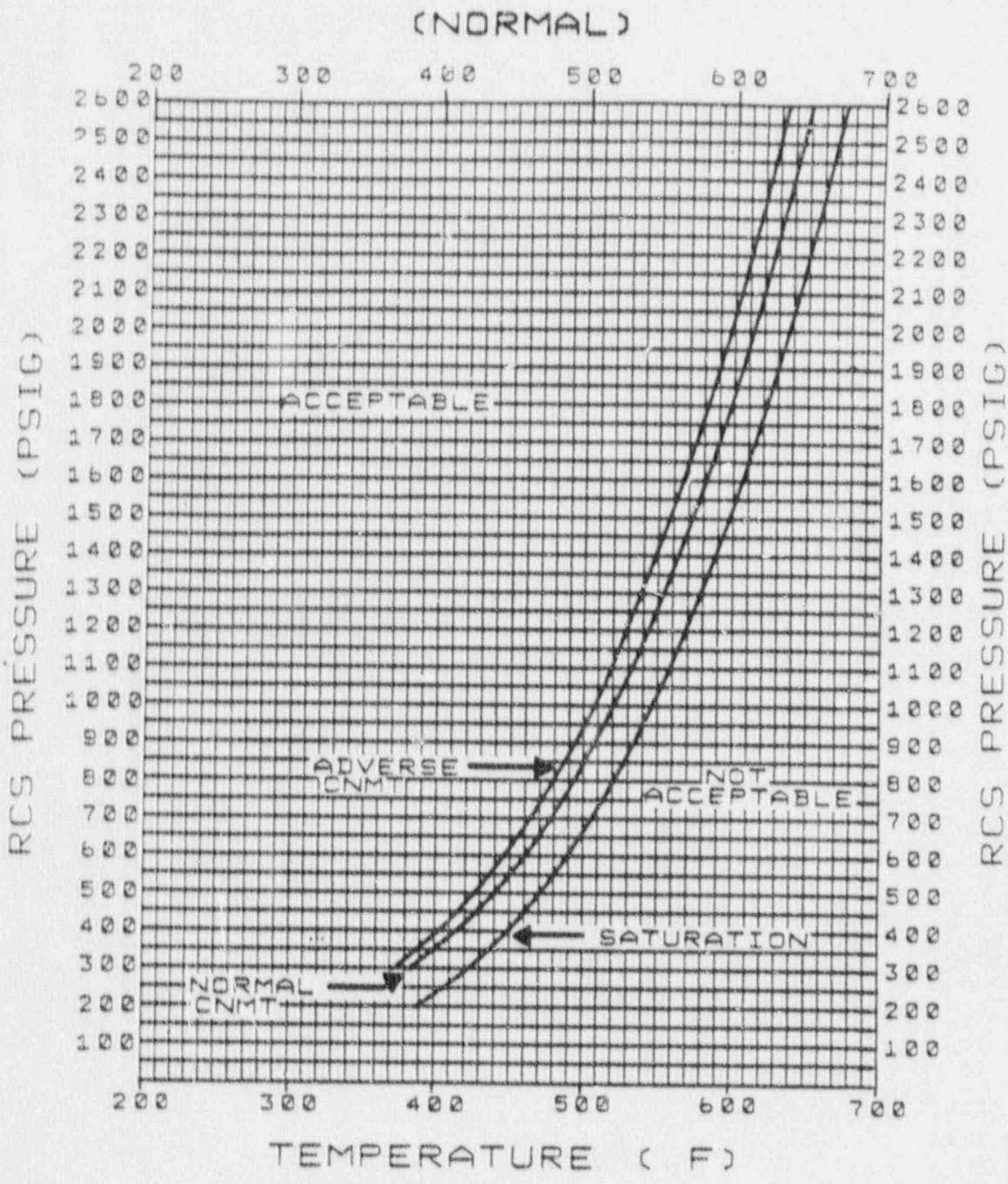

FIGURE 2BEP 0-1
RCS SUBCOOLING MARGIN

(0331E/0027E/121989)

APPROVED
FEB 2 1 1990
B.O.S.R.

3/4.2.4 QUADRANT POWER TILT RATIO

LIMITING CONDITION FOR OPERATION

3.2.4 The QUADRANT POWER TILT RATIO shall not exceed 1.02 above 50% of RATED THERMAL POWER.

APPLICABILITY: MODE 1*.

ACTION:

a. With the QUADRANT POWER TILT RATIO determined to exceed 1.02 but less than or equal to 1.09:

1. Calculate the QUADRANT POWER TILT RATIO at least once per hour until either:

a) The QUADRANT POWER TILT RATIO is reduced to within its limit, or

b) THERMAL POWER is reduced to less than 50% of RATED THERMAL POWER.

2. Within 2 hours either:

a) Reduce the QUADRANT POWER TILT RATIO to within its limit, or

b) Reduce THERMAL POWER at least 3% from RATED THERMAL POWER for each 1% of indicated QUADRANT POWER TILT RATIO in excess of 1 and similarly reduce the Power Range Neutron Flux-High Trip Setpoints within the next 4 hours.

3. Verify that the QUADRANT POWER TILT RATIO is within its limit within 24 hours after exceeding the limit or reduce THERMAL POWER to less than 50% of RATED THERMAL POWER within the next 2 hours and reduce the Power Range Neutron Flux-High Trip Setpoints to less than or equal to 55% of RATED THERMAL POWER within the next 4 hours, and

4. Identify and correct the cause of the out-of-limit condition prior to increasing THERMAL POWER; subsequent POWER OPERATION above 50% of RATED THERMAL POWER may proceed provided that the QUADRANT POWER TILT RATIO is verified within its limit at least once per hour for 12 hours or until verified acceptable at 95% or greater RATED THERMAL POWER.

*See Special Test Exceptions Specification 3.10.2.

ACTION (Continued)

b. With the QUADRANT POWER TILT RATIO determined to exceed 1.09 due to misalignment of either a shutdown or control rod:

1. Calculate the QUADRANT POWER TILT RATIO at least once per hour until either:

a) The QUADRANT POWER TILT RATIO is reduced to within its limit, or

b) THERMAL POWER is reduced to less than 50% of RATED THERMAL POWER.

2. Reduce THERMAL POWER at least 3% from RATED THERMAL POWER for each 1% of indicated QUADRANT POWER TILT RATIO in excess of 1, within 30 minutes;

3. Verify that the QUADRANT POWER TILT RATIO is within its limit within 2 hours after exceeding the limit or reduce THERMAL POWER to less than 50% of RATED THERMAL POWER within the next 2 hours and reduce the Power Range Neutron Flux-High Trip Setpoints to less than or equal to 55% of RATED THERMAL POWER within the next 4 hours; and

4. Identify and correct the cause of the out-of-limit condition prior to increasing THERMAL POWER; subsequent POWER OPERATION above 50% of RATED THERMAL POWER may proceed provided that the QUADRANT POWER TILT RATIO is verified within its limit at least once per hour for 12 hours or until verified acceptable at 95% or greater RATED THERMAL POWER.

c. With the QUADRANT POWER TILT RATIO determined to exceed 1.09 due to causes other than the misalignment of either a shutdown or control rod:

1. Calculate the QUADRANT POWER TILT RATIO at least once per hour until either:

a) The QUADRANT POWER TILT RATIO is reduced to within its limit, or

b) THERMAL POWER is reduced to less than 50% of RATED THERMAL POWER.

LIMITING CONDITION FOR OPERATION

ACTION (Continued)

2. Reduce THERMAL POWER to less than 50% of RATED THERMAL POWER within 2 hours and reduce the Power Range Neutron Flux-High Trip Setpoints to less than or equal to 55% of RATED THERMAL POWER within the next 4 hours; and

3. Identify and correct the cause of the out-of-limit condition prior to increasing THERMAL POWER; subsequent POWER OPERATION above 50% of RATED THERMAL POWER may proceed provided that the QUADRANT POWER TILT RATIO is verified within its limit at least once per hour for 12 hours or until verified at 95% or greater RATED THERMAL POWER.

d. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.2.4.1 The QUADRANT POWER TILT RATIO shall be determined to be within the limit above 50% of RATED THERMAL POWER by:

a. Calculating the ratio at least once per 7 days when the alarm is OPERABLE, and

b. Calculating the ratio at least once per 12 hours during steady-state operation when the alarm is inoperable.

4.2.4.2 The QUADRANT POWER TILT RATIO shall be determined to be within the limit when above 75% of RATED THERMAL POWER with one Power Range channel inoperable by using the movable incore detectors to confirm that the normalized symmetric power distribution, obtained from two sets of four symmetric thimble locations or a full-core flux map, is consistent with the indicated QUADRANT POWER TILT RATIO at least once per 12 hours.

ANSWER: 001 (1.00)

d

REFERENCE:

2BEP-1 Step 6 pg 7 of 24
000040K304 ..(KA's)

ANSWER: 002 (1.00)

a

REFERENCE:

2BEP-0, Foldout page, Attachment A and definition of ADVERSE CONTAINMENT
000074A201 ..(KA's)

ANSWER: 003 (1.00)

b

REFERENCE:

BOA ROD-4
BEP-0
000003G011 ..(KA's)

ANSWER: 004 (1.00)

d

REFERENCE:

BOA ROD-4
Tech Spec 3.2.4
000003G008 ..(KA's)

ANSWER: 005 (1.00)

c

REFERENCE:

1BFR-S.1 Step 4
000024G010 ..(KA's)

ANSWER: 006 (1.00)

b

REFERENCE:

1BOA PRI-12 Step 1.
000024G011 ..(KA's)

ANSWER: 007 (1.00)

b

REFERENCE:

1BEP-2 Step 3.
000040A201 ..(KA's)

ANSWER: 008 (1.00)

d

REFERENCE:

1. Red path summary on foldout page EP-0.
2. 2BST-2 CORE COOLING STATUS TREE.
000074K311 ..(KA's)

ANSWER: 009 (1.00)

d

REFERENCE:

1. IFSTA Basics of Fire Fighting.
2. Bryon Fire Fighting Manual.
   000067K101 ..(KA's)

ANSWER: 010 (1.00)

d

REFERENCE:

Bryon Drawing 6E-1-4001A
   000067A217 ..(KA's)

ANSWER: 011 (1.00)

d

REFERENCE:

1BOA PRI-5 step 1.
   000068G011 ..(KA's)

ANSWER: 012 (1.00)

a

REFERENCE:

1BOA PRI-5 Note associated with step 21 on page 25 of 98.
   000068A101 ..(KA's)

ANSWER: 013 (1.00)

d

REFERENCE:

1. Lesson Plan chapter 19: Component cooling system pgs 19-12 and 19-24.
   000026A201 ..(KA's)

ANSWER: 014 (1.00)

b

REFERENCE:

1. System Description Chapter 19: COMPONENT COOLING WATER, Table III page 19-31.
000026A102 ..(KA's)

ANSWER: 015 (1.00)

a

REFERENCE:

1BOA RCP-1, Symptoms or Entry Conditions
000015A122 ..(KA's)

ANSWER: 016 (1.00)

*ANSWER
d

REFERENCE:

*REFERENCE
1BOA PRI-6
000015A208 ..(KA's)

ANSWER: 017 (1.00)

d

REFERENCE:

1BOA ROD-3 attachment A.
000005G012 ..(KA's)

ANSWER: 018 (1.00)

c

REFERENCE:

1BOA ROD-2 step 3b.5 RNO.
000005G005 ..(KA's)

ANSWER: 019 (1.00)

a

REFERENCE:

1. BFR-S.1 Step 1.
2. Background document FR-S.1 pg 75 basis.
000029K301 ..(KA's)

ANSWER: 020 (1.00)

*ANSWER
d

REFERENCE:

*REFERENCE
1. 1BEP-0 steps 28-30.
2. 1BEP ES-0.0 steps 1-3.
000011A213 ..(KA's)

ANSWER: 021 (1.00)

c

REFERENCE:

1BEP-0 Foldout page.
1BOA PRI-1
BAP 300-1
000011A104 ..(KA's)

ANSWER: 022 (1.00)

d

REFERENCE:

1BOA SEC step 1, Temporary Procedure.
000054G010 ..(KA's)

ANSWER: 023 (1.00)

d

REFERENCE:

ERG Background ES-0.1 pages 10 and 18
ES-0.1 step 3, 4, 18.
000054K303 ..(KA's)

ANSWER: 024 (1.00)

*ANSWER
d

REFERENCE:

*REFERENCE
1BEP-3 step 2.
000038A203 ..(KA's)

ANSWER: 025 (1.00)

c

REFERENCE:

BEP-2 step 4.
BEP-3 steps 3-4.
000038A132 ..(KA's)

ANSWER: 026 (1.00)

d

REFERENCE:

1BFR-S.1 Steps 1 thru 4.
000007A202 ..(KA's)

ANSWER: 027 (1.00)

d

REFERENCE:

2BEP-0 Symptoms of entry conditions
P-7 inputs.
000007A205 ..(KA's)

ANSWER: 028 (1.00)

*ANSWER
b

REFERENCE:

*REFERENCE
1BOA PRI-10 Table A note 4.
1BEP-0 Note adverse CTMT.
000025K101 ..(KA's)

ANSWER: 029 (1.00)

a

REFERENCE:

1. Lesson plan chapter 32:INTERMEDIATE RANGE NUCLEAR
INSTRUMENTATION SYSTEM figure 31-1.
000033A201 ..(KA's)

ANSWER: 030 (1.00)

d

REFERENCE:

1B0A PRI-10 table A.
000025K301 ..(KA's)

ANSWER: 031 (1.00)

a

REFERENCE:

1B0A ELEC-1 LOSS OF DC BUS
000058A203 ..(KA's)

ANSWER: 032 (1.00)

a

REFERENCE:

1B0A ELEC-1 step 1. RNO column.
0000583009 ..(KA's)

ANSWER: 033 (1.00)

*ANSWER
b

REFERENCE:

*REFERENCE
1BEP-0 RNO column step 26.
000008A107 ..(KA's)

ANSWER: 034 (1.00)

*ANSWER
c

REFERENCE:

*REFERENCE
1BOA SEC-4 attachment C and note prior to step 1.
000065A206 ..(KA's)

ANSWER: 035 (1.00)

*ANSWER
d

REFERENCE:

*REFERENCE
System description 14 pg 14-63.
000028A101 ..(KA's)

ANSWER: 036 (1.00)

*ANSWER
a

REFERENCE:

*REFERENCE
1BOA REFUEL 1
000036G010 ..(KA's)

ANSWER: 037 (1.00)

d

REFERENCE:

BRP 1000 A1, pg 9.
194001K103 ..(KA's)

ANSWER: 038 (1.00)

*ANSWER
c

REFERENCE:

*REFERENCE
Bap 300-1, CONDUCT OF OPERATIONS, pg 16 and lesson plan BAP pg 19-20 of 87.
194001K101 ..(KA's)

ANSWER: 039 (1.00)

*ANSWER
c

REFERENCE:

*REFERENCE
BAP 1450-7, p 2-4
194001K114 ..(KA's)

ANSWER: 040 (1.00)

d

REFERENCE:

BAP 330-5, pg 2.
194001K105 ..(KA's)

ANSWER: 041 (1.00)

d

REFERENCE:

BGP 100-1, Plant Heatup, pg 20.
194001K109 ..(KA's)

ANSWER: 042 (1.00)

b

REFERENCE:

BAP 331-2 INSTALLATION AND REMOVAL OF GROUND "EST DEVICES, pg 1-2.
194001K107 ..(KA's)

ANSWER: 043 (1.00)

d

REFERENCE:

BAP 1450-1 ACCESS TO CONTAINMENT pg 4.
194001K105 ..(KA's)

ANSWER: 044 (1.00)

a

REFERENCE:

BAP 300-1 CONDUCT OF OPERATIONS pg 15-16.
194001A105 ..(KA's)

ANSWER: 045 (1.00)

b

REFERENCE:

BAP 1450-7 CONFINED SPACE ENTRY AND WORK pg 3.
194001K113 ..(KA's)

ANSWER: 046 (1.00)

c

REFERENCE:

BAP CV-11 CHEMICAL ADDITION TO THE REACTOR COOLANT SYSTEM pg.2.
194001K110 ..(KA's)

ANSWER: 047 (1.00)

*ANSWER
b

REFERENCE:

*REFERENCE
BAP lesson plan, pg 32-33 of 87
194001A102 ..(KA's)

ANSWER: 048 (1.00)

d

REFERENCE:

FIRE PROTECTION SYSTEM LESSON PLAN, pg 29.
194001K116 ..(KA's)

ANSWER: 049 (1.00)

a

REFERENCE:

BOA PRI-9 O2/H2 EXPLOSIVE MIXTURE, pg 1 of 4.
194001K115 ..(KA's)

ANSWER: 050 (1.00)

b

REFERENCE:

System description 14, pg 14, 23, 24.
007000A410 ..(KA's)

ANSWER: 051 (1.00)

*ANSWER
d

REFERENCE:

*REFERENCE
1. LER 90-008 Bryn, Unit 1.
2. System description 40, pg 40-10.
3. Tech SPec 3.6.1.5.
103000A101 ..(KA's)

ANSWER: 052 (1.00)

c

REFERENCE:

System 35, pg 35-50 thru 35-52.
045010K423 ..(KA's)

ANSWER: 053 (1.00)

c

REFERENCE:

Chapter 18, RESIDUAL HEAT REMOVAL SYSTEM, pg 26-27.
005000K401 ..(KA's)

ANSWER: 054 (1.00)

d

REFERENCE:

1. System description 24, STEAM DUMP, pg 40.
2. BGP 100-3 pg19
041020K302 ..(KA's)

ANSWER: 055 (1.00)

c

REFERENCE:

System Description 53, SERVICE AND INSTRUMENT AIR SYSTEM, pg 53-50.
078000K302 ..(KA's)

ANSWER: 056 (1.00)

a

REFERENCE:

System description 12 pg 12-59
System description 24, pg 24-21, 26, 33
041020A408 ..(KA's)

ANSWER: 057 (1.00)

*ANSWER
a

REFERENCE:

*REFERENCE
System Description 18, RESIDUAL HEAT REMOVAL SYSTEM, pg 18-9
005000A101 ..(KA's)

ANSWER: 058 (1.00)

*ANSWER
d

REFERENCE:

*REFERENCE
System Description 26, AUXILIARY FEEDWATER SYSTEM, pg 26-72.
061000K107 ..(KA's)

ANSWER: 059 (1.00)

b

REFERENCE:

System Description, CHEMICAL AND VOLUME CONTROL, pg 15a-30.
004000K106 ..(KA's)

ANSWER: 060 (1.00)

*ANSWER
b

REFERENCE:

*REFERENCE
System Description 31, SOURCE RANGE NUCLEAR INSTRUMENTATION, pg 31-42.
015000K401 ..(KA's)

ANSWER: 061 (1.00)

*ANSWER
c

REFERENCE:

*REFERENCE
System Description 34b, INADEQUATE CORE COOLING SYSTEM, pg 34b-22 thru 34b-24.
017020K102 ..(KA's)

ANSWER: 062 (1.00)

*ANSWER
d

REFERENCE:

*REFERENCE
System Description 26, AUXILIARY FEEDWATER SYSTEM, pg 26-10.
061000K401 ..(KA's)

ANSWER: 063 (1.00)

c

REFERENCE:

System Description 34B pg 34b-21 thru 34b-23.
017020A201 ..(KA's)

ANSWER: 064 (1.00)

*ANSWER
d

REFERENCE:

*REFERENCE
System Description 28, ROD CONTROL SYSTEM, pg 28-65 thru 28-69.
001050K401 ..(KA's)

ANSWER: 065 (1.00)

*ANSWER
a

REFERENCE:

*REFERENCE
System Description 28, pgs 28-47 thru 28-50.
001000K504 ..(KA's)

ANSWER: 066 (1.00)

*ANSWER
b

REFERENCE:

*REFERENCE
System Description 28, ROD CONTROL SYSTEM, pg 28-25 thru 28-26.
001050K501 ..(KA's)

ANSWER: 067 (1.00)

c

REFERENCE:

1BGP 100-5, pg 22.
004000K117 ..(KA's)

ANSWER: 068 (1.00)

a

REFERENCE:

System Description 32 pgs 9-10.
BGP 100-5 pg 8.
015000A202 ..(KA's)

ANSWER: 069 (1.00)

*ANSWER
c

REFERENCE:

*REFERENCE
BAR 1-10-00.
015000A302 ..(KA's)

ANSWER: 070 (1.00)

d

REFERENCE:

Systen Description 34b, pg 23 and 24.
017020K401 ..(KA's)

ANSWER: 071 (1.00)

b

REFERENCE:

System Description 26, pg 26-58 thru 26-59.
061000A303 ..(KA's)

ANSWER: 072 (1.00)

*ANSWER
b

REFERENCE:

*REFERENCE
System Description 25, pg 25-48 thru 25-52.
BAR 1-16-A1, 1-16-B1.
059000K416 ..(KA's)

ANSWER: 073 (1.00)

*ANSWER
a

REFERENCE:

*REFERENCE
System Description 25, pg 128.
1BOA SEC-1 pg2.
1BGP 100-3, pgs 27 thru 28.
059000K104 ..(KA's)

ANSWER: 074 (1.00)

b

REFERENCE:

System Description 13, pg 53.
1BOA RCP-1, pg 3
003000K103 ..(KA's)

ANSWER: 075 (1.00)

b

REFERENCE:

System Description 13, pgs 13-34 thru 13-35.
003000A201 ..(KA's)

ANSWER: 076 (1.00)

a

REFERENCE:

System Description 61, Figure 61-3 and page 49.
013000A403 ..(KA's)

ANSWER: 077 (1.00)

c

REFERENCE:

System Description 61, pg 48.
013000A401 ..(KA's)

ANSWER: 078 (1.00)

a

REFERENCE:

System Description, pg 61-28 thru 61-29.
013000A301 ..(KA's)

ANSWER: 079 (1.00)

d

REFERENCE:

System Description 15a, pgs 15a-64 thru 15a-65.
004010A204 ..(KA's)

ANSWER: 080 (1.00)

d

REFERENCE:

System Description 12, pg 12-37.

012000K611 ..(KA's)

ANSWER: 081 (1.00)

a

REFERENCE:

Lesson plan System Description 58, pg 58-57.
006000K108 ..(KA's)

ANSWER: 082 (1.00)

d

REFERENCE:

System Description 14, pg 14-15.
010000K108 ..(KA's)

ANSWER: 083 (1.00)

d

REFERENCE:

System Description 60b, pg 60b-22.
012000K610 ..(KA's)

ANSWER: 084 (1.00)

c

REFERENCE:

System description 9, pg 9-45 thru 9-46.
064000K402 ..(KA's)

ANSWER: 085 (1.00)

b

REFERENCE:

1BGP 100-6 pg 6.
1BOP RC-4a, pg 9.
1BOP RC-4a2.

002000K402 ..(KA's)

ANSWER: 086 (1.00)

*ANSWER
a

REFERENCE:

*REFERENCE
BEP ES 1.3
System Description 58, pg 59-55 thru 58-56.
006020A402 ..(KA's)

ANSWER: 087 (1.00)

d

REFERENCE:

System 14, pg 14-55 thru 14-56.
System 4, pg 4-52 thru 4-53.
010000A302 ..(KA's)

ANSWER: 088 (1.00)

a

REFERENCE:

System Description 29, pg 29-24.
Tech Spec 3.1.3.2.
014000A102 ..(KA's)

ANSWER: 089 (1.00)

c

REFERENCE:

System Description 29, pg 29-15 thru 29-16.
1BOA ROD-4, pg 2.

014000A203 ..(KA's)

ANSWER: 090 (1.00)

b

REFERENCE:

System Description 27, pg 27-8 thru 27-9.

035010A301 ..(KA's)

ANSWER: 091 (1.00)

*ANSWER
a.

REFERENCE:

*REFERENCE
System 23, Main Steam System, pg. 23.
035010K501 ..(KA's)

ANSWER: 092 (1.00)

c.

REFERENCE:

System 4, AC Electrical Power System, pg. 51.
BOP IP-2, Transferring An Instrument Bus Power, pg. 2.

062000K410 ..(KA's)

ANSWER: 093 (1.00)

d.

REFERENCE:

System 8a, 48 and 125 VDC Power System, pg. 18-29.
063000K302 ..(KA's)

ANSWER: 094 (1.00)

b.

REFERENCE:

System 53, Service and Instrument Air, pg. 48 and 49.
1BOA Sec-4, Loss Of Instrument Air, pg. 17.
C79000K101 ..(KA's)

ANSWER: 095 (1.00)

a.

REFERENCE:

System 57, Fire Protection System, pg. 57-58.
086000A402 ..(KA's)

ANSWER: 096 (1.00)

d.

REFERENCE:

System 14, Pressurizer System, pg. 44 and 45.
1BOA PRI-3, Charging or Letdown Line Break.
011000A303 ..(KA's)

ANSWER: 097 (1.00)

b

REFERENCE:

System Description 51, pg 51-29.
Bryon FSAR table 9.1-1
033000A203 ..(KA's)

ANSWER: 098 (1.00)

c

REFERENCE:

System Description 23, pg 23-16 and 23-72.
039000A302 ..(KA's)

ANSWER: 099 (1.00)

b

REFERENCE:

System Description 24: Steam Dumps, pg 24-22.

041020K417 ..(KA's)

ANSWER: 100 (1.00)

c

REFERENCE:

System Description 60b, pg 60B-21.

end

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