

Draft Submittal

(Pink Paper)

CRYSTAL RIVER AUGUST EXAM 50-302/2003-301

AUGUST 25 - 29, 2003

1. Senior Reactor Operator Written Exam

QUESTIONS REPORT

for all draft ques

1. 003AA2.03 001

The following *initial* plant conditions exist at 100 EFPD:

NI-5	100%	Imbalance at 0
NI-6	100%	Rod Index of 292%
NI-7	100%	
NI-8	100%	

Fifteen minutes after an event the following conditions are observed:

NI-5	54%	Imbalance at -10
NI-6	50%	Rod Index of 250%
NI-7	50%	
NI-8	50%	

Which of the following is the most likely condition to cause these indications?

- A. ✓ Stuck rod.
- B. Dropped rod.
- C. Boration event in progress.
- D. Loss of one reactor coolant pump.

Reasons:

- A. Correct. The stuck rod is near NI-5.
- B. Dependent on rod position in the core a single NI could indicate lower than the other three, but not higher.
- C. & D. All NIs should indicate the same for these events.

OPS 5-68 Section 1-4.0.I; OPS 4-28 Section 1-8.0.C.2.d)4)

NRCN99

SRO - Modified [Newops 5-068-004]

References provided: None

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9

Answer: A A A B B D D A B D

Scramble Range: A - D

QUESTIONS REPORT

for all draft ques

Category 1: 1
Category 3: SRO #83
Category 5: M
Category 7: S

Category 2: 2
Category 4: C/A 3.6/3.8
Category 6: CR303301
Category 8: ATK

QUESTIONS REPORT

for all draft ques

2. 004A2.09 001

Following a power increase RCS dose equivalent Iodine-131 increased to 1.6 $\mu\text{Ci/gm}$ with the sample taken at 0100 on 3-3-03. Additional sample results are as follows:

0500	1.5 $\mu\text{Ci/gm}$	3-3-03
0900	1.4 $\mu\text{Ci/gm}$	3-3-03
1300	1.3 $\mu\text{Ci/gm}$	3-3-03
1700	1.2 $\mu\text{Ci/gm}$	3-3-03
2100	1.1 $\mu\text{Ci/gm}$	3-3-03
0100	1.0 $\mu\text{Ci/gm}$	3-4-03
0500	0.9 $\mu\text{Ci/gm}$	3-4-03

How will this impact the plant and what actions, if any, should be/have been taken?

- A. No additional actions are required other than to request additional sampling of the secondary plant due to the possibility of increased radiation levels. The 48 hour TS requirement for RCS activity has been met.
- B. Secondary plant radiation levels will increase within a few hours. A plant shutdown to Mode 3 with Tave < 500° F is required within 54 hours of the initial sample.
- C. ✓ A significant increase in radiation levels could occur in the area of the condensate demins. A plant shutdown should have been started no later than 0100 on 3-4-03 unless VP approval for continued operation was obtained.
- D. A significant increase in radiation levels could occur in the area of the condensate demins. SR 3.4.15.2 is required within 4 hours of the initial sample and shutdown to Mode 3 with Tave < 500° F is required within 6 hours of the initial sample.

Reasons:

- A. The requirements of TS 3.4.15 are met however CP-155 is not met.
- B. If activity had not decreased below 1.0 $\mu\text{Ci/gm}$ then this would be the correct action to take.
- C. Correct. Per CP-155, Step 4.5.6, the administrative limit has been exceeded and continued operation greater than 24 hours must have VP approval.
- D. These are the required actions for RCS gross specific activity, not dose equivalent Iodine-131.

QUESTIONS REPORT

for all draft ques

CP-155 Step 4.5.6; TS 3.4.15

SRO - New

References provided: CP-155 & TS 3.4.15

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9

Answer: C C C C C C C C C C Items Not Scrambled

Category 1: 2

Category 2: 1

Category 3: SRO #88

Category 4: C/A 3.0/3.9

Category 5: N

Category 6: CR303301

Category 7: S

Category 8: ATK

QUESTIONS REPORT

for all draft ques

3. 009EK3.06 001

While operating at power RM-A6 is observed to be trending up. MUV-31 is taken to manual and the following data is gathered for evaluation.

Time 0900 Pzr Lvl - 220" MUT Lvl - 80"

Time 0902 Pzr Lvl - 216" MUT Lvl - 81"

The following data is provided:

Pressurizer level = 12.2 gal/inch MUT level = 30.8 gal/inch

Based on these indications, which of the following describes current RCS leakage and procedural/TS requirements? (disregard controlled bleedoff flow)

Conditions indicate RCS leakage:

- A. is less than 1 gpm; CP-152, Primary to Secondary Leakage Operating Guideline, will apply.
- B. is less than 1 gpm; SP-317, RCS Water Inventory Balance, will apply.
- C. ✓ is greater than 5 gpm but less than 10 gpm; TS entry is required because unidentified leakage is greater than 1 gpm.
- D. is greater than 5 gpm but less than 10 gpm; TS entry is *not* required because identified leakage is less than 10 gpm.

Reasons:

Over a two minute period: PZR lost 48.8 gallons, MUT gained 30.8 gallons. Total leakage equals 9 gpm.

- A. Leakage is greater than 1 gpm and Primary to Secondary leakage is not indicated.
- B. Leakage is greater than 1 gpm.
- C. Correct. Leakage is 9.0 gpm. Since the leakage has not yet been located the TS for unidentified leakage must be entered.
- D. Since the leakage has not yet been located the TS for unidentified leakage must be entered.

QUESTIONS REPORT
for all draft ques

AP-520 Step 3.15; TS 3.4.12

NRC00

SRO - Direct [Newops 5-114-2]

References provided: None

Rev. 0 to NRC on 4-22-03

MCS Time: 1 Points: 1.00

Version: 0 1 2 3 4 5 6 7 8 9

Answer: C C A B C B A D B D

Scramble Range: A - D

Category 1: 1

Category 2: 1

Category 3: SRO #76

Category 4: C/A 3.7/4.0

Category 5: B

Category 6: CR303301

Category 7: S

Category 8: ATK

QUESTIONS REPORT

for all draft ques

4. 011G2.4.46 001

While the unit is operating at 100% the following sequence of events occurs:

- "SASS MISMATCH" annunciator alarms and does not clear.
- Investigation reveals the amber "MISMATCH" lamp to be lit on the PRESSURIZER LEVEL channel. All other lamps in that channel and all other "MISMATCH" lamps are off.
- Control board readings for PZR level are as follows:

LT1 222"

LT2 160"

LT3 227"

- All readings are stable.

Which of the following statements is correct concerning these conditions?

- A. The alarm is valid. SASS has functioned properly. No operator action is required.
- B. The alarm is valid, however, SASS should have transferred to LT1. The operator should select LT1 and issue a work request on LT3.
- C. The alarm is NOT valid. The operator should depress the "AUTO" pushbutton to return the channel to normal operation.
- D. ✓ The alarm is NOT valid. The operator should issue a work request on the SASS channel.

Reasons:

- A. Mismatch alarm is 3% of scale (9.6") between LT1 and LT3. Alarm is not valid and SASS has malfunctioned.
- B. The alarm is not valid and no transfer should occur.
- C. Per OP-501 a work request should be written.
- D. Correct. A work request should be written.

OPS 4-09 Obj. 6; OPS 4-09 Section 1-4.0.B; OP-501 Enclosure 3, Page 3; OP-501 Step 4.7.2

SRO - Direct [Opsbank ROT-4-09 060]

References provided: None

Rev. 0 to NRC on 4-22-03

QUESTIONS REPORT

for all draft ques

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9

Answer: D A B C D A B C D A Scramble Range: A - D

Category 1: 2

Category 2: 2

Category 3: SRO #92

Category 4: C/A 3.5/3.6

Category 5: B

Category 6: CR303301

Category 7: S

Category 8: ATK

QUESTIONS REPORT

for all draft ques

5. 012G2.2.24 001

At 80% power maintenance testing determines that two channels of the control oil pressure for loss of MFW Pumps actuation are set at 52 psig. Which of the following Technical Specification actions are required?

Place:

- A. both channels in bypass in one hour.
- B. ✓ one channel in bypass in one hour and place the second channel in trip in one hour.
- C. one channel in bypass in one hour and restore one channel to operable status in 24 hours.
- D. one channel in trip in one hour and restore one channel to operable status in 72 hours.

Reasons:

- A. An electrical interlock prevents this.
- B. Correct. TS 3.3.1 Condition B and Table 3.3.1-1. Table specifies a setpoint of ≥ 55 psig.
- C. TS requires one channel to bypass and one channel to trip for these conditions.
- D. TS requires one channel to bypass and one channel to trip for these conditions.

TS 3.3.1 & Table 3.3.1-1

SRO - Direct [Opsbank ROT 5-01 050]

References provided: TS 3.3.1

Rev. 0 to NRC on 4-11-03

MCS Time: 1 Points: 1.00

Version: 0 1 2 3 4 5 6 7 8 9

Answer: B C D A B C D A B C

Scramble Range: A - D

Category 1: 2

Category 2: 1

Category 3: SRO #89

Category 4: C/A 2.6/3.8

Category 5: B

Category 6: CR303301

Category 7: S

Category 8: ATK

QUESTIONS REPORT

for all draft ques

6. 025AK1.01 001

The following plant conditions exist:

- TS required plant shutdown in progress.
- RCS temperature is 285°F.
- Two RCPs are running.
- DHP-1A is OOS due to a broken shaft.

While checking DHP-1B for start the PPO reports an oil spill around the motor and the oil bubbler empty.

Which of the following describes the most appropriate action(s)?

- A. Be in Mode 5 within 24 hours.
- B. Restore either train to operable status within 72 hours.
- C. Be in Mode 4 within 14 hours and Mode 5 within 24 hours.
- D. ✓ Be in Mode 4 within 14 hours and remain in this mode until DHR capability exists.

Reasons:

- A. The plant is in Mode 3 and this action is per TS 3.5.3, Condition C (Mode 4). However, with both DHR/LPI trains unavailable the bases recommends staying in Mode 4 until one train is operable. TS 3.0.3 should be entered.
- B. This action is per TS 3.5.2, Condition A. The stem statement does not meet the second part of this condition. TS 3.0.3 should be entered.
- C. These are the correct actions per TS 3.0.3 however the bases for TS 3.5.3 recommends staying in Mode 4.
- D. Correct. TS 3.0.3 requires Mode 4 within 14 hours and the bases for TS 3.5.3 recommends staying in Mode 4 until at least one train is restored.

TS 3.0.3, 3.5.2, 3.5.3 & Bases

SRO - New

References provided: TS 3.0.3, 3.5.2, 3.5.3 & Bases

Rev. 0 to NRC on 4-22-03

MCS Time: 1 Points: 1.00

Version: 0 1 2 3 4 5 6 7 8 9

Answer: D D D D D D D D D D

Items Not Scrambled

QUESTIONS REPORT

for all draft ques

Category 1: 1
Category 3: SRO #77
Category 5: N
Category 7: S

Category 2: 1
Category 4: C/A 3.9/4.3
Category 6: CR303301
Category 8: ATK

QUESTIONS REPORT

for all draft ques

7. 026G2.4.47 001

The following plant conditions exist:

- SW surge tank, SWT-1, is at 9 ft and lowering.
- "A" DC surge tank, DCT-1A, is at 9 ft and steady.
- "B" DC surge tank, DCT-1B, is at 9 ft and steady.
- Auxuliary Building sump is steady.
- Turbine Building sump is rising.

Which of the following could be the cause of the lowering level in SWT-1?

- A. A tube leak in the "B" letdown cooler, MUHE-1B.
- B. A crack in the SW supply piping near the CRDM filters.
- C. ✓ A crack in the suction header near the normal duty SW pump, SWP-1C.
- D. Improper valve alignment for cooling water to the "C" Makeup pump, MUP-1C.

Reasons:

- A. A tube leak in MUHE-1B would cause SWT-1 level to rise.
- B. If the leak was near the CRDM filters the AB sump would be increasing, not the TB sump.
- C. Correct. A leak in this area would first be drained to the Nuclear Services sump and then be pumped directly to the TB sump.
- D. If the SW and DC cooling water valves to MUP-1C were not in their proper alignment, SW could be flowing into the DC system, raising the level of DCT-1B.

OPS 4-83 Section 1-4.0.E

SRO - Modified [Newops 4-56-001]

References provided: None

MCS Time: 1 Points: 1.00

Version: 0 1 2 3 4 5 6 7 8 9

Answer: C D D D B B B B C D

Scramble Range: A - D

Category 1: 1

Category 2: 1

Category 3: SRO #78

Category 4: C/A 3.4/3.7

Category 5: M

Category 6: CR303301

Category 7: S

Category 8: ATK

QUESTIONS REPORT

for all draft ques

8. 029EA2.09 001

Rev. 1

The following plant conditions exist:

- The plant is at 55% reactor power.
- The ICS +24 volt DC bus has degraded to +18 volts.
- RPS high reactor coolant system pressure setpoint has been exceeded.

Assuming no operator actions what would be the plant's response to this situation?

- A. ATWS removes power from the safety rods and initiates EFIC.
- B. ✓ AMSAC trips the main turbine and initiates EFIC.
- C. DSS opens the "E" and "F" contacts to the safety rods.
- D. RPS trips the reactor due to the trip of both MFW pumps.

Reasons:

- A. The ATWS subsystem (DSS) removes power from the regulating rods, not the safety rods, if conditions are met. The other sub-system of ATWS (AMSAC) will initiate EFIC under these conditions (>50% power and <17% MFW flow).
- B. Correct. This failure will cause the MFW pumps to decrease to minimum speed, which will immediately stop all feedwater flow. This will actuate both channels of AMSAC (<17% flow and > 50% power) and trip the turbine and actuate EFIC.
- C. DSS will remove power (by opening the "E" & "F" contacts, gating power) from the regulating rods if RCS pressure exceeds 2450#.
- D. This failure will cause both MFW pumps to decrease to minimum speed (the S1 and S2 breakers open at <22 VDC) but will not cause the pumps to trip.

QUESTIONS REPORT

for all draft ques

OPS 4-12 Section 2-2.0.D; OPS 4-14 Section 1-8.0.F.3

NRCN99

SRO - Direct [Newops 4-012-002]

References provided: None

Rev. 0 to NRC on 4-11-03

Rev. 1 to NRC on 4-22-03

MCS Time: 1 Points: 1.00

Version: 0 1 2 3 4 5 6 7 8 9

Answer: B C D A B C D A B C

Scramble Range: A - D

Category 1: 1

Category 2: 1

Category 3: SRO #79

Category 4: C/A 4.4/4.5

Category 5: B

Category 6: CR303301

Category 7: S

Category 8: ATK

QUESTIONS REPORT

for all draft ques

9. 034G2.3.10 001

The plant is operating at 100% power. Fuel shuffle is in progress in the Spent Fuel Pool. Water level in the spent fuel pool is normal at 158.5 ft. The suction line to SFP-1A ruptures and cannot be isolated. Movement of spent fuel in the spent fuel pool:

- A. Must stop due to insufficient volume for cooling to maintain pool temperature less than 190° F.
- B. Must stop due to insufficient level for shielding required to reduce radiation levels on the Spent Fuel floor to within limits.
- C. ✓ Must stop due to insufficient volume for iodine retention if a fuel handling accident were to occur.
- D. May continue because level will not drop below the minimum Technical Specification value.

Reasons:

- A. Cooling may be affected but this is not why a minimum volume is required in the spent fuel pool.
- B. Radiation levels might increase slightly but this is not why a minimum volume is required in the spent fuel pool.
- C. Correct. The minimum volume of 23 feet above the pool is based on a fuel handling accident and the pools ability to retain iodine from a ruptured spent fuel assembly.
- D. Level will drop to approximately 154.5 ft which is below the minimum level required for movement of irradiated fuel assemblies in the spent fuel pool.

OPS 4-29 Section 1-4.0A.3; TS 3.7.13 LCO and Bases

SRO - Direct [Newops 4-29-001]

References provided: TS 3.7.13 & Bases

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9

Answer: C D A B C D A B C D

Scramble Range: A - D

Category 1: 2

Category 2: 2

Category 3: SRO #93

Category 4: MEM 3.1/3.3

Category 5: B

Category 6: CR303301

Category 7: S

Category 8: ATK

QUESTIONS REPORT

for all draft ques

10. 038EA2.13 001

The "A" OTSG has a tube leak. RM-A12 , Main Condenser Off Gas Radiation Monitor, has slowly increased to a stable reading of 188 cpm. Which of the following sections of CP-152, Primary to Secondary Leakage, is now applicable?

- A. ✓ Increased Monitoring
- B. Action Level 1
- C. Action Level 2
- D. Action Level 3

Reasons:

A., B., C., & D. 188 cpm = 5.7 gpd
 ≥ 5 gpd and < 30 gpd is in the 'Increased Monitoring'
 sections of CP-152.

CP-152 and RM-A12 Conversion Table (Simulator Verison)

SRO - Direct

References provided: CP-152 and RM-A12 conversion table

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9

Answer: A B C D A B C D A B Scramble Range: A - D

Category 1: 1

Category 2: 1

Category 3: SRO #80

Category 4: C/A 3.1/3.7

Category 5: B

Category 6: CR303301

Category 7: S

Category 8: ATK

QUESTIONS REPORT

for all draft ques

11. 040AK3.2 001

A step in EOP-5, Excessive Heat Transfer, states:

IF at any time, ES systems have,
OR should have actuated,
THEN ensure ES equipment is properly aligned.

- Details 1. Ensure applicable ES actuations:
- HPI (1625 psig RCS PRESS)
 - LPI (500 psig RCS PRESS)
 - RBIC (4 psig RB PRESS)
 - RB Spray (30 psig RB PRESS)
2. Bypass or reset ES actuations:
- Auto
 - Manual
3. Control ES systems as required.
- [Rule 2, HPI Control]
 - [Rule 5, EDG Control]
4. IF RBIC has actuated, AND adequate SCM exists,
THEN stop all RCPs: RCP-1A, 1B, 1C & 1D

What is the purpose of Detail #4?

Because it is not reasonable to expect the operating crews to be able to adequately evaluate the safety implications of: bypassing the ES actuation and

- A. restoring seal injection within 5 minutes.
- B. ✓ reopening the CBO valves within 5 minutes.
- C. reopening the SW cooling valves within 5 minutes.
- D. the effect on OTSG tube stresses in the isolated OTSG within 5 minutes.

Reasons:

- A. Restoring seal injection is not a concern. RCS water will adequately supply the seals if seal injection is terminated.
- B. Correct. If the CBO valves are closed for more than 5 minutes on a running RCP the seals would have to be inspected/replaced.
- C. An RBIC actuation does not normally isolate the SW cooling valves to the RCPs.
- D. This is the reason for minimizing RCS temperature changes.

QUESTIONS REPORT
for all draft ques

OPS 5-94 Section 1-4.0.D

SRO - New

References provided: None

MCS Time: 1 Points: 1.00

Version: 0 1 2 3 4 5 6 7 8 9

Answer: B B B B B B B B B Items Not Scrambled

Category 1: 1

Category 2: 1

Category 3: SRO #81

Category 4: MEM 4.4/4.4

Category 5: N

Category 6: CR303301

Category 7: S

Category 8: ATK

QUESTIONS REPORT

for all draft ques

12. 055EG2.4.07 001

A step in EOP-12, Station Blackout, states the following:

"Stop DC motors."

Partial details of this step have the Reactor Operator:

- Select MUP backup lube oil pumps (MUP-3A, B, C) to "Pull To Lock."
- Select MUP backup gear oil pumps (MUP-5A, B, C) to "Stop."

Which of the following describes why the DC motors should be stopped?

This is necessary for the 1E batteries to meet their:

- A. 2 hour coping requirement.
- B. ✓ 4 hour coping requirement.
- C. 8 hour coping requirement.
- D. 16 hour coping requirement.

Reasons:

- A. The required time is 4 hours. This answer could be chosen if assuming a per battery basis.
- B. Correct. The required time is 4 hours for the SBO coping studies.
- C. The required time is 4 hours. This answer could be chosen if assuming a 4 hours per battery basis.
- D. The required time is 4 hours. This answer could be chosen if assuming a 8 hours per battery basis.

EOP-12 Step 3.7; OPS 5-100 Section 1-4.0.H; OPS 4-64 Obj. 7, Section 1-4.0.A.2; FSAR Section 14.1.2.9.5.2

SRO - Direct [Newops 5-100-005]

References provided: None

Rev. 0 to NRC on 4-22-03

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9

Answer: B C D A B C D A B C

Scramble Range: A - D

QUESTIONS REPORT

for all draft ques

Category 1: 3

Category 3: SRO #82

Category 5: B

Category 7: S

Category 2:

Category 4: MEM 3.1/3.8

Category 6: CR303301

Category 8: ATK

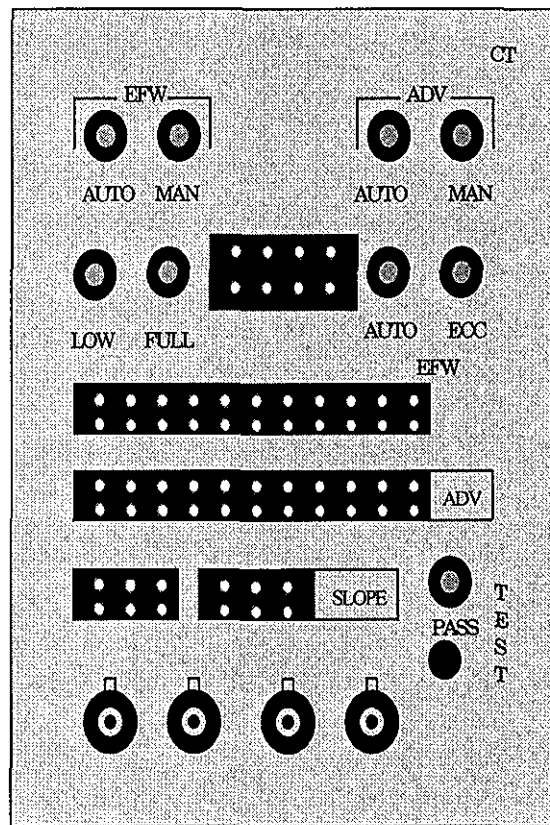
QUESTIONS REPORT

for all draft ques

13. 061A2.05 001

Rev. 1

With the plant at 35% power you notice the "EFW MAN" light flashing on the Emergency Feedwater Initiation and Control (EFIC) module shown. A few seconds later the "FULL" light starts to flash. Select the statement below which describes these indications and required action(s), if any, which should be taken.



- A. These indications are expected during low power operation. No additional actions are required.
- B. These lights are memory lights only. They will normally stay flashing until the test pushbutton in the lower right corner of this module is depressed. Maintenance should be contacted
- C. An EFIC actuation has occurred due to the loss of both MFWPs. Since the "EFW MAN" light was on prior to the actuation it should continue to flash. EOP-2, Vital System Status Verification, and EOP-13, Rule 3, EFW/AFW Control, should be entered.
- D. ✓ An EFIC actuation has occurred due to the loss of all RCPs. The "EFW MAN" light should have stopped flashing and the "EFW AUTO" should have started flashing. EOP-2, Vital System Status Verification, and EOP-13, Rule 3, EFW/AFW Control, should be entered.

QUESTIONS REPORT

for all draft ques

Reasons:

- A. The only lights that should be flashing are the three "AUTO" lights.
- B. The lights are not memory lights. They indicate current plant conditions.
- C. The "EFW MAN" light indicates the EFW control valve is in manual. The valve should revert to automatic when EFIC actuates. A loss of MFWPs will cause the "LOW" light to flash, not the "FULL" light.
- D. Correct. The "FULL" light will only come on if an EFIC actuation has occurred due to a loss of all RCPs and the "EFW AUTO" light should flash when the control valve swaps to automatic control. The reactor should trip and EOP-2 and Rule 3 should be entered.

OPS 4-31 Section 1-4.0.P.6

SRO - New

References provided: None

Rev. 0 to NRC on 4-11-03

Rev. 1 to NRC on 4-22-03

MCS Time: 1 Points: 1.00

Version: 0 1 2 3 4 5 6 7 8 9

Answer: D A A C A C D A B A

Scramble Range: A - D

Category 1: 2

Category 2: 1

Category 3: SRO #90

Category 4: C/A 3.1/3.4

Category 5: N

Category 6: CR303301

Category 7: S

Category 8: ATK

QUESTIONS REPORT

for all draft ques

14. 061G2.1.14 001

Which of the following describes a condition that requires notification of *all* plant personnel?

- A. RM-A2 particulate monitor goes into high alarm.
- B. RM-A2 iodine monitor goes into high alarm.
- C. RM-A5 particulate monitor goes into high alarm.
- D. ✓ RM-A5 iodine monitor goes into high alarm.

Reasons:

- A. Only RM-A2 gas requires entry into AP-250 and notification of all plant personnel.
- B. Only RM-A2 gas requires entry into AP-250 and notification of all plant personnel.
- C. RM-A5 gas and iodine monitors in high alarm require entry into AP-250, not RM-A5 particulate.
- D. Correct. RM-A5 iodine high alarm requires entry in AP-250 and the notification of all plant personnel.

AP-250 Section 1.0

SRO - New

References provided: None

MCS Time: 1 Points: 1.00

Version: 0 1 2 3 4 5 6 7 8 9

Answer: DDDDDDDDDD

Items Not Scrambled

Category 1: 1

Category 2: 2

Category 3: SRO #84

Category 4: MEM 2.5/3.3

Category 5: N

Category 6: CR303301

Category 7: S

Category 8: ATK

QUESTIONS REPORT

for all draft ques

15. 064A1.03 001

Assume the "B" EDG is the sole power supply available to the "B" ES 4160V bus. Which of the following activities would produce the lowest diesel load that would cause the EDG's elapsed time meter (MCB) to start? (disregard starting currents)

AHF-17A/B	51 kW	DCP-1A/B	79 kW
AHF-18A/B	50 kW	EFP-1	698 kW
AHF-19A/B	18 kW	MUP-1A/B/C	694 kW
BSP-1A/B	222 kW	RWP-2A/B	554 kW
CHP-1A/B	19 kW	RWP-3A/B	198 kW
CHHE-1A/B	196 kW	SWP-1A/B	497 kW

- A. ✓ Initial EDG loading of 2440 kW. MUP-1C and its associated cooling water pumps are started.
- B. Initial EDG loading of 2850 kW. BSP-1B and its associated cooling water pumps are started.
- C. Initial EDG loading of 1800 kW. EFP-1 and its associated cooling water pumps are started.
- D. Initial EDG loading of 2920 kW. "B" train normal control complex cooling fans and chiller are started.

Reasons:

- A. Correct. $2440 \text{ kW} + 694 \text{ kW (MUP-1C)} + 198 \text{ kW (RWP-3B)} + 79 \text{ kW (DCP-1B)} = 3411 \text{ kW}$. Meter starts recording at 3376 kW. Actual setpoint is 3401 kW - 25 kW for instrument error.
- B. $2850 \text{ kW} + 222 \text{ kW (BSP-1B)} + 198 \text{ kW (RWP-3B)} + 79 \text{ kW (DCP-1B)} = 3349 \text{ kW}$.
- C. EFP-1 loading will have no effect on the EDG-1B.
- D. $2920 \text{ kW} + 51 \text{ kW (AHF-17B)} + 18 \text{ kW (AHF-19B)} + 196 \text{ kW (CHHE-1B)} + 19 \text{ kW (CHP-1B)} = 3201 \text{ kW}$.

OPS 4-06 Section 1-2.0.E.1.d)

SRO - Direct [Newops 4-06-010]

References provided: None

Rev. 0 to NRC on 4-11-03

QUESTIONS REPORT

for all draft ques

MCS	Time: 1	Points: 1.00	Version: 0 1 2 3 4 5 6 7 8 9	
			Answer: A B C D A B C D A B	Scramble Range: A - D
Category 1:	2		Category 2:	1
Category 3:	SRO #91		Category 4:	C/A 3.2/3.3
Category 5:	B		Category 6:	CR303301
Category 7:	S		Category 8:	ATK

QUESTIONS REPORT

for all draft ques

16. 074EA2.03 001

The following plant conditions exist:

- EOP-3, Inadequate Subcooling Margin, was entered following a LOCA.
- Reactor Coolant (RCS) pressure was 850 psig.
- EFP-2 is the only operating and the only available EFW/AFW pump.

Tincore temperature is currently 900° F and RCS pressure is 1000 psig. Which of the following methods would be used to maintain the OTSGs as a heat sink?

- A. Lower OTSG pressure to 200 psig using the Turbine Bypass valves (TBVs).
- B. ✓ Lower OTSG pressure to 380 psig using the Turbine Bypass valves (TBVs).
- C. Lower OTSG pressure to 200 psig using the Atmospheric Dump valves (ADVs).
- D. Lower OTSG pressure to 380 psig using the Atmospheric Dump valves (ADVs).

Reasons:

- A. OTSG pressure should be lowered to the highest of the pressure choices, 380 or 200 psig.
- B. Correct. TBVs are the preferred method. OTSG pressure should be lowered to the highest of the pressure choices, 380 psig.
- C. OTSG pressure should be lowered to the highest of the pressure choices, 380 or 200 psig. TBVs are preferred.
- D. The ADVs could be used but the TBVs are preferred.

EOP-3 Step 3.15; EOP-07 Step 3.11 & Figure 2

SRO - Direct [Newops 3-025-002]

References provided: EOP-3 & EOP-7

Rev. 0 to NRC on 4-22-03

MCS Time: 1 Points: 1.00

Version: 0 1 2 3 4 5 6 7 8 9

Answer: B A C D B C B C B D

Scramble Range: A - D

Category 1: 1

Category 2: 2

Category 3: SRO #85

Category 4: C/A 3.8/4.1

Category 5: B

Category 6: CR303301

Category 7: S

Category 8: ATK

QUESTIONS REPORT

for all draft ques

17. BWA02AA1.1 001

The plant has experienced a loss of NNI-X power which causes a spurious closure of MUV-49, letdown isolation valve. Pressurizer level is increasing due to the loss of letdown. Which of the following directions would you give to decrease seal injection flow in order to slow down the increase in PZR level?

Direct the:

- A. PPO to manually reduce flow by throttling MUV-16, seal injection control valve.
- B. RO to reduce MUV-16 valve demand using the setpoint knob with the hand/auto station in auto.
- C. ✓ RO to reduce MUV-16 valve demand using the toggle switch with the hand/auto station in manual.
- D. PPO to isolate MUV-16 and use the manual bypass valve to allow continued seal injection.

Reasons:

- A. While this action would work it is definitely not the preferred method.
- B. MUV-16 will not work in automatic with a loss of NNI-X.
- C. Correct. On a loss of NNI-X a backup power supply (powered from VBDP-3) will enable operation of MUV-16 in the manual mode only.
- D. OP-402 has direction for manually throttling the bypass valve however manual control from the MCB is preferable.

AP-581 Step 3.14 & 3.21; OPS 4-9 Section 1-8.B.4; OPS 4-52 Section 1-4.Z

NRCM98

SRO - Direct [Newops 4-52-011]

References provided: None

MCS Time: 1 Points: 1.00

Version: 0 1 2 3 4 5 6 7 8 9

Answer: C D A B C D A B C D

Scramble Range: A - D

Category 1: 1

Category 2: 2

Category 3: SRO #86

Category 4: MEM 4.0/3.8

Category 5: B

Category 6: CR303301

Category 7: S

Category 8: ATK

QUESTIONS REPORT

for all draft ques

18. BWA05G2.2.20 001

A fault on the Unit #2 Startup transformer has caused a voltage imbalance in the 230 KV switchyard resulting in a loss of offsite power to Unit #3. The "A" EDG energized the "A" ES bus as designed but the "B" EDG did not start. As the CRS what instructions would you give to the RO?

- A. Write a Work Request and have maintenance scheduled.
- B. ✓ Ensure Enclosure 2, Failed EDG Recovery, is performed per AP-770.
- C. Ensure Enclosure 1, Recovery of a Faulted ES Bus, is performed per AP-770.
- D. Start the EDG and utilize OP-703, Plant Distribution System, and try a one time closure of breaker 3210, "B" EDG output breaker.

Reasons:

- A. Actions in AP-770 should restore the bus.
- B. Correct. Since the bus is not faulted Enclosure 2 should be used.
- C. Enclosure 2 should be used.
- D. Step 3.2.12 allows a one time reclosure if a breaker trips and no fault indications are apparent but the actions in AP-770 take priority.

AP-770 Step 3.40

SRO - New

References provided: None

MCS Time: 1 Points: 1.00

Version: 0 1 2 3 4 5 6 7 8 9

Answer: B B B B B B B B B B Items Not Scrambled

Category 1: 1

Category 2: 2

Category 3: SRO #87

Category 4: MEM 2.2/3.3

Category 5: N

Category 6: CR303301

Category 7: S

Category 8: ATK

QUESTIONS REPORT

for all draft ques

19. G2.1.04 001

The following plant conditions exist:

- The plant is in a refueling outage and the reactor is defueled.
- One of the two available PPOs assigned to the Auxiliary Building slips and severely sprains his ankle while performing a walkdown of the Reactor Building.
- The PPO is contaminated and is escorted to the hospital by both available Health Physics technicians.

Which of the following describes the required minimum staffing for this situation?

- A. ✓ No action is required. Minimum staffing levels are still met.
- B. If it is two hours or less until shift turnover is scheduled to occur no action is required.
- C. Another PPO should be called in immediately and should arrive within two hours.
- D. Another HP technician should be called in immediately and should arrive within two hours.

Reasons:

- A. Correct. An HP technician is not required if the reactor is defueled.
- B. No action is required at any time when the plant is defueled.
- C. Only one PPO is required to meet staffing levels.
- D. HP is not required when the plant is defueled.

TS 5.2.2; AI-500 Section 4.6

NRCM98; NRCN99

SRO - Modified [Newops 5-001-007]

References provided: TS 5.2

MCS Time: 1 Points: 1.00

Version: 0 1 2 3 4 5 6 7 8 9

Answer: A D D D C B D D B A

Scramble Range: A - D

Category 1: 3

Category 2:

Category 3: SRO #94

Category 4: MEM 2.3/3.4

Category 5: M

Category 6: CR303301

Category 7: S

Category 8: ATK

QUESTIONS REPORT

for all draft ques

20. G2.1.12 001

The following plant conditions exist:

- Plant is at 100% power.
- RWP-2A tagged out for shaft alignment 12 hours ago.
- TS 3.7.9 was entered when RWP-2A was tagged out.
- The PPO has just reported the trip mechanism for the "B" EDG is broken.

Which of the following actions should be performed when "B" EDG is declared inoperable?

- A. Perform SR 3.8.1.1 within 1 hour, declare "A" EDG inoperable within 4 hours.
- B. Immediately declare both RWP-2A and 2B inoperable, enter LCO 3.0.3, be in Mode 3 within 7 hours, Mode 4 within 13 hours and Mode 5 within 37 hours.
- C. ✓ Perform SR 3.8.1.1 within 1 hour, declare RWP-2B inoperable within 4 hours, and determine the "A" EDG is not inoperable due to a common cause failure within 24 hours
- D. Perform SR 3.8.1.1 within 1 hour, declare all "B" train ES components inoperable within 4 hours, and determine the "A" EDG is not inoperable due to a common cause failure within 24 hours

Reasons:

- A. "A" EDG is not inoperable after 4 hours, only the redundant features supported by the "B" EDG.
- B. RWP-2B does not have to be declared inoperable for four hours.
- C. Correct. These are the requirement per TS 3.8.1, Condition B.
- D. All "B" train components are not required to be declared inoperable per TS 3.0.6.

TS 3.7.9, 3.8.1 & 3.0.6

SRO - Direct [Newops ROT 5-01 127]

References provided: TS 3.7.9, 3.8.1 & 3.0.6

Rev. 0 to NRC on 4-11-03

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9

Answer: C D B A A D C D C D

Scramble Range: A - D

QUESTIONS REPORT

for all draft ques

Category 1: 3
Category 3: SRO #95
Category 5: B
Category 7: S

Category 2:
Category 4: C/A 2.9/4.0
Category 6: CR303301
Category 8: ATK

QUESTIONS REPORT

for all draft ques

21. G2.2.22 001

During three RCP operation (RCP-1D secured) the following readings are recorded:

- RCS total flow	105 x 10 ⁶ lbm/hr			
- RCS T _{hot}	"A" loop	603° F	"B" Loop	603° F
- RCS pressure	"A" loop	2055 psig	"B" Loop	2090 psig

Based on the above conditions what action(s), if any, are required to be taken?

- A. No action required. All parameters are within limits for three RCP operation.
- B. The DNBR Safety Limit has been exceeded. Be in Mode 3 within one hour.
- C. ✓ One DNB parameter is not within limits. Restore the parameter to within limits in two hours.
- D. Two DNB parameters are not within limits. Restore the parameters to within limits in two hours.

Reasons:

- A. & D. One DNB parameter is not within limits.
- B. The DNBR safety limit has not been exceeded per 2.1.1-1.
- C. Correct. Total flow is required to be $\geq 99.7 \text{ E6 lbm/hr}$ with 3 RCPs and RCS pressure, in the loop with 2 RCPs running, is required to be $\geq 2064 \text{ psig}$.

TS 3.4.1; TS Figure 2.1.1-1; OPS 4-60 Section 1-10.A, OPS 5-01 Obj. 9

NRCM98; NRCN99

SRO - Modified [Newops 4-060-013]

References provided: TS 3.4.1, Figure 2.1.1-1 and COLR

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9

Answer: C D C B A C D B B B

Scramble Range: A - D

Category 1: 3

Category 2:

Category 3: SRO #96

Category 4: C/A 3.4/4.1

Category 5: M

Category 6: CR303301

Category 7: S

Category 8: ATK

QUESTIONS REPORT

for all draft ques

22. G2.2.27 001

Refueling is in progress with eight (8) fuel assemblies in the core. As the ninth assembly is being placed in the core the following NI readings are observed:

- NI-1 increases from a base count of 203 to 430 cps.
- NI-14 increases from a base count of 9.3×10^{-7} to $2.3 \times 10^{-6}\%$.
- NI-2 and NI-15 are out-of-service.

Which of the following actions, if any, should be taken by the refueling supervisor?

- A. No action is required. This is an expected NI response.
- B. Once the assembly is placed in the core, reactor engineering should be contacted to perform a subcritical multiplication calculation.
- C. Cease insertion of the fuel assembly and submit a sample request for boron concentration of the reactor coolant system.
- D. ✓ Withdraw the fuel assembly, stop any other core alterations in progress, perform Co/Ci calculations, and obtain a boron analysis.

Reasons:

- A. An action is required, count rate has increased by more than 1.5 times. The required action for an NI increase of this type is to withdraw the fuel assembly in question, immediately cease all other core alterations, perform a subcritical multiplication and obtain a boron analysis of the RCS.
- B. The assembly should not be placed into the core.
- C. The fuel assembly being inserted should be removed, not just cease insertion.
- D. Correct. The fuel assembly should be removed, core alterations suspended and an engineering evaluation performed.

FP-203 Step 3.2.1.1.1

SRO - Direct [Newops 4-26-002]

References provided: FP-203

MCS Time: 1 Points: 1.00

Version: 0 1 2 3 4 5 6 7 8 9

Answer: D A B C D A B C D A

Scramble Range: A - D

Category 1: 3

Category 2:

Category 3: SRO #97

Category 4: C/A 2.6/3.5

Category 5: B

Category 6: CR303301

Category 7: S

Category 8: ATK

QUESTIONS REPORT

for all draft ques

23. G2.3.06 001

The following plant conditions exist:

- Plant is in Mode 4.
- A waste gas tank release has been in progress for 1.5 hours.
- Notified by Chemistry that the RM-A2 particulate sampler is non-functional.
- RM-A4 indicates a slow, increasing trend.

Which of the following actions should be taken?

The release:

- A. must be secured until the sampler is declared operable.
- B. may continue until completion since RM-A2 Gas will secure the release if its high setpoint is reached.
- C. may continue for up to one hour with no additional actions.
- D. ✓ may continue for more than one hour as long as samples are continuously taken with auxiliary sampling equipment.

Reasons:

- A. The release can continue if additional actions are taken.
- B. While RM-A2 Gas will secure the release if the high setpoint is reached the ODCM requires additional actions.
- C. The release could continue for up to one hour if RM-A4 did not indicate an increasing trend.
- D. Correct. As long as continuous sampling is in progress the release may continue.

ODCM Section 2.2, Table 2-3 Action 25

NRCN99

SRO - Direct [Newops 4-025-015]

References provided: ODCM

Rev. 0 to NRC on 4-22-03

MCS Time: 1 Points: 1.00

Version: 0 1 2 3 4 5 6 7 8 9

Answer: D A B C D A B C D A

Scramble Range: A - D

QUESTIONS REPORT

for all draft ques

Category 1: 3

Category 3: SRO #98

Category 5: B

Category 7: S

Category 2:

Category 4: C/A 2.1/3.1

Category 6: CR303301

Category 8: ATK

QUESTIONS REPORT

for all draft ques

24. G2.4.06 001

The plant has experienced a Rx trip and now no source of main, emergency or auxiliary feedwater is available. The crew has entered EOP-04, Inadequate Heat Transfer. Step 3.12 of EOP-04 states:

WHEN any of the following exist:

RCS pressure approaches the NDT limit
PORV opens automatically
RCS press > 2400 psig

THEN continue in this procedure.

Why are we required to wait to initiate HPI / PORV cooling when the RCS is in an Inadequate Heat Transfer condition?

- A. To allow the crew to wait for the appropriate amount of time to determine if Natural Circulation will develop.
- B. To prevent the plant from entering into a Pressurized Thermal Shock condition.
- C. ✓ To ensure the highest RCS level is being maintained once RCS inventory starts being lost.
- D. To allow for the natural decrease in the post trip decay heat level.

Reasons:

- A. If forced flow was not effective in heat removal then natural circ would be even worse. Also with no source of feedwater natural circ will not develop.
- B. Pressurized Thermal Shock is not a concern on a plant heatup.
- C. Correct. Up to this point the inventory in the RCS has not been lost. When any of these conditions occur the inventory in the RCS is being lost and now must be replaced by HPI. Since no hole in the RCS exists then the PORV is opened after HPI flow is verified.
- D. By the time the OTSGs have dried out and the RCS is heating up the decay heat level of the core has already dropped significantly and further decreases are very slow to occur.

QUESTIONS REPORT
for all draft ques

OPS 5-102 Step 3.12

SRO - Direct [Newops 5-102-003]

References provided: None

MCS	Time: 1	Points: 1.00	Version: 0 1 2 3 4 5 6 7 8 9	
			Answer: C D A B C D A B C D	Scramble Range: A - D
Category 1:	3		Category 2:	
Category 3:	SRO #99		Category 4:	MEM 3.1/4.0
Category 5:	B		Category 6:	CR303301
Category 7:	S		Category 8:	ATK

QUESTIONS REPORT

for all draft ques

25. G2.4.41 001

The following plant conditions exist:

- Rx tripped on low RCS pressure from 100% power.
- OTSG tube rupture on the 'A' OTSG (estimated at 250 gpm).
- HPI actuation on low RCS pressure.
- Main Steam Safety Valve on 'A' OTSG will not close.

Use only the above information to classify the event. (Do NOT use EC judgement)

- A. Unusual Event
- B. Alert
- C. ✓ Site Area Emergency
- D. General Emergency

Reasons:

- A. Using the Fission Product Barrier matrix a total of 5 points is determined which places the emergency at the Site Area Emergency level. An Unusual Event would have to be less than or equal to 2 points.
- B. Using the Fission Product Barrier matrix a total of 5 points is determined which places the emergency at the Site Area Emergency level. An Alert would have to be less than or equal to 4 points.
- C. Correct. A stuck open safety valve is an unisolable steam leak outside the RB with an OTSG leak > 10 gpm. (2 points) ES actuation on low RCS pressure. (3 points) Total equals 5 points -- Site Area Emergency
- D. Using the Fission Product Barrier matrix a total of 5 points is determined which places the emergency at the Site Area Emergency level. A General Emergency would have to be greater than 8.5 points.

EM-202 Enclosure 1

SRO - Direct [Newops 5-034-006]

References provided: EM-202

MCS Time: 1 Points: 1.00

Version: 0 1 2 3 4 5 6 7 8 9

Answer: C D A B C D A B C D

Scramble Range: A - D

QUESTIONS REPORT

for all draft ques

Category 1: 3

Category 3: SRO #100

Category 5: B

Category 7: S

Category 2:

Category 4: C/A 2.3/4.1

Category 6: CR303301

Category 8: ATK