

# Draft Submittal

(Pink Paper)

**CRYSTAL RIVER OCTOBER 2005 EXAM**

**05000302/2005301**

**SEPTEMBER 12 - 16, 2005**  
**SEPTEMBER 19, 2005 (WRITTEN)**

Senior Reactor Operator Written Exam

**QUESTIONS REPORT**  
for SRO - NRC 2K5 BANK

1. 001G2.1.33 001/1/2/SRO #1/C/A 3.4/4.0/NEW/S/CR03501/

The plant was initially at 47% power due to complications following a Loss of RCP runback. The following sequence of events have since occurred.

- A Continuous Control Rod Motion event.
- AP-525 was entered and control rod motion was stopped.
- Power increased to 52% and the plant was stabilized.
- The malfunction is now fixed and all ICS stations are in automatic.
- A deboration was started to return rod index to its previous value.

Final plant conditions are 52% power with a rod index of 125%.

Based on the above conditions determine which of the following actions should be initiated?

- A. Rods are in the "Restricted Operation" region. Initiate boration to restore SDM to  $\geq 1\%$  within 15 minutes and restore regulating rod groups to within the "Acceptable Operation" region in 2 hours.
- B. Rods are in the "Restricted Operation" region. Verify  $F_Q$  and  $F^N \Delta H$  are within limits once every 2 hours and restore regulating rod groups to within the "Acceptable Operation" region in 24 hours.
- C. ✓ Rods are in the "Unacceptable Operation" region. Initiate boration to restore SDM to  $\geq 1\% \Delta k/k$  within 15 minutes and restore regulating rod groups to within the "Restricted Operation" region in 2 hours.
- D. Rods are in the "Unacceptable Operation" region. Verify  $F_Q$  and  $F^N \Delta H$  are within limits once every 2 hours and restore regulating rod groups to within the "Acceptable Operation" region in 24 hours.

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for SRO - NRC 2K5 BANK

Reasons:

- A. Using the 4 RCP curve of the COLR will put you in the Restricted Region but this action would be incorrect. Also stem conditions indicate only 3 RCPs in operation.
- B. Using the 4 RCP curve of the COLR will put you in the Restricted Region and this action would be correct if 4 RCPs were operating.
- C. Correct. Using the 3 RCP curve of the COLR will put you in the Unacceptable Region. Initiating boration to restore shutdown margin is required per TS 3.2.1.
- D. If the rods were in the Restricted Operation region then this would be the correct action to take.

OPS 5-01, Obj. 5; TS 3.2.1; COLR, 3 RCP Reg Rod Group Insertion Limits Curve;  
10 CFR 55.43.b.1

SRO - New

Reference(s) provided: COLR (Rod Insertion Limit curves only)

**QUESTIONS REPORT**  
for SRO - NRC 2K5 BANK

2. 003A2.01 001/2/1/SRO #2/C/A 3.5/3.9/MOD/S/CR03501/4-060-001-OPS

The plant is operating at 90% power with the following RCP data:

**RCP SEAL STAGE PRESSURE (psig)**

Time	RCP-1A		RCP-1B		RCP-1C		RCP-1D	
	2nd Stage	3rd Stage	2nd Stage	3rd Stage	2nd Stage	3rd Stage	2nd Stage	3rd Stage
0100	1300	700	1400	800	1550	900	1425	725
0110	1325	725	1375	825	1575	925	1425	775
0120	1300	700	1400	800	1550	950	1400	775
0130	1325	725	1400	800	1575	1000	1550	1300
0140	1350	725	1400	800	1575	1025	2155	2125

Dumpster clicks per minute at 0140.

	3		2		2		2
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Based on the above data which of the following describes the actions you would direct the control board operators to take?

- A. Immediately stop RCP-1C and go to AP-545, Plant Runback.
- B. ✓ Immediately stop RCP-1D and go to AP-545, Plant Runback.
- C. Reduce power to < 72% per AP-510, Rapid Power Reduction, and stop RCP-1C.
- D. Reduce power to < 72% per AP-510, Rapid Power Reduction, and stop RCP-1D.

**QUESTIONS REPORT**  
for SRO - NRC 2K5 BANK

Reasons:

- A. If OP-302 is provided using Enclosures 3 & 4 of OP-302, RCP Operation, RCP-1C total seal leakage is 2.3 gpm. No requirement to stop RCP-1C until >2.5 gpm.
- B. Correct. An SRO should be able to make the decision to immediately trip RCP-1D due to the loss of 2 seals. If OP-302 is provided then using Enclosures 3 & 4 of OP-302, RCP Operation, RCP-1D total seal leakage is 3.15 gpm. This would require decreasing power to < 72% and stopping the pump. However, with >2100 psig differential across the 3rd stage of RCP-1D step 4.7.1.2 requires the immediate stopping of the pump.
- C. If total seal flow was > 2.5 gpm this would be the required action.
- D. This is the correct action if there was no large pressure drop across the 3rd stage seal.

OPS 4-60, Obj. 7 & 9; OP-302 Step 4.7.1.2 & Enclosures 3 & 4; 10 CFR 55.43.b.5

SRO - Modified

Reference(s) provided: None

**QUESTIONS REPORT**  
for SRO - NRC 2K5 BANK

3. 005G2.2.18 001/2/1/SRO #3/MEM 2.3/3.6/BANK/S/CR03501/ROT-5-038-020

The following plant conditions exist:

- The plant is in Mode 5.
- The "A" Decay Heat Pump, DHP-1A, is running.

You are the Control Room Supervisor. The load dispatcher has informed the control room that breaker work *must* be performed in both switchyards on this shift. No power interruption is anticipated for CR #3 but the potential does exist.

What is required to be completed prior to performing the breaker work?

Discuss with the SSO and:

- A. ✓ power "A" DH train components from the "A" EDG.
- B. power "B" DH train components from the "B" EDG.
- C. power "A" and "B" DH train components from their respective EDGs.
- D. establish a backfeed from the 500 KV yard to supply power to the "B" ES bus.

Reasons:

- A. Correct. Per AI-500, Appendix 7, the operating DH train must be powered from its EDG.
- B. Only the operating DH train must be powered from an EDG.
- C. Only the operating DH train must be powered from an EDG.
- D. While this may be a good idea it is not required.

OPS 5-38, Obj. 21; AI-500, Appendix 7, Step 1.9.2; PRA - Loss of SDC; 10 CFR 55.43.b.5

SRO - Bank

Reference(s) provided: None

**QUESTIONS REPORT**  
for SRO - NRC 2K5 BANK

4. 009EA2.34 001/1/1/SRO #4/C/A 3.6/4.2/BANK/S/CR03501/5-116-006

The following plant conditions exist:

- A small break LOCA has occurred.
- EOP-3, Inadequate Subcooling Margin, and Rule 1, Loss of SCM, were performed.
- Current RCS pressure is 1300 psig.
- Current RCS temperature is 400° F.

Based on these conditions which of the following describes the appropriate method for HPI control?

**HPI must:**

- A. *not* be throttled per Rule 1.
- B. *not* be throttled per Rule 4.
- C. be throttled per Rule 1.
- D. ✓ be throttled per Rule 4.

Reasons:

- A. & C. Adequate SCM now exists. Rule 1 is no longer applicable.
- B. HPI must be throttled because a PTS event has occurred and Rule 4, PTS, is in effect.
- D. Correct. Since the stem states that Rule 1 has been performed then RCPs would have been secured and HPI actuated. This meets the criteria for a PTS event and Rule 4 must be followed now that SCM has been established.

OPS 5-116; EOP-13, Rules 1, 2 & 4; 10CFR 55.43.b.5

History: NRCM98

SRO - Bank

Reference(s) provided: Steam Tables

**QUESTIONS REPORT**  
for SRO - NRC 2K5 BANK

5. 012A2.05 001/2/1/SRO #5/C/A 3.1/3.2/NEW/S/CR03501/

The plant is currently at 80% power with the "D" RPS Channel in the tripped condition. Which of the following describes the action(s) that should be taken based on the current plant conditions and the failures below?

- A. RCPM-1 output for the "C" RCP rapidly fails to 0 mA; Enter AP-545, Plant Runback, and ensure plant runback to 75% power.
- B. RCPM-1 output for the "C" RCP rapidly fails to 0 mA; Enter EOP-2, Vital Systems Status Verification, and perform required actions.
- C. ✓ The selected narrow range RCS pressure transmitter rapidly fails high; Enter EOP-2, Vital Systems Status Verification, and perform required actions.
- D. The selected narrow range RCS pressure transmitter rapidly fails high; Using "Prompt and Prudent" guidance in AI-505, Conduct of Operations During Abnormal and Emergency Events, take manual control of PZR heaters, spray and PORV.

Reasons:

- A. This failure will cause all the RPS channels to sense a failure of 1 RCP only. Other than an alarm and lights on the status panel RPS will not generate a reactor trip signal for this failure. This loss of RCP signal only goes to RPS and EFIC. ICS uses pump breaker contacts to generate a runback signal, in which case AP-545 would be the correct procedure to enter.
- B. Loss of a single RCP will not generate a reactor trip signal even when another RPS channel is already tripped.
- C. Correct. The selected narrow range transmitter comes from either the "A" or "B" RPS channels. With this information either the "A" or "B" RPS channel will trip, along with the "D" RPS channel that is already tripped, RPS will generate a reactor trip signal. EOP-2 should then be entered.
- D. Since the transmitter rapidly fails high SASS should transfer to the good instrument. In this case no "Prompt and Prudent" actions are required.



**QUESTIONS REPORT**  
for SRO - NRC 2K5 BANK

OPS 4-12, Obj. 6; OPS 4-09, Obj. 7; OPS 4-12, Figure 9; OPS 4-9, Figure 5; 10  
CFR 55.43.b.5

SRO - New

Reference(s) provided: None

**QUESTIONS REPORT**  
for SRO - NRC 2K5 BANK

6. 015A2.01 001/2/2/SR0 #6/C/A 3.5/3.9/NEW/S/CR03501/

The following conditions exist during a plant startup:

- The plant is at 40% power.
- NI-7/8 selected for control.
- Power is lost to the "C" RPS cabinet.

Based on these conditions determine how the plant will respond and the procedure that should be used/entered.

- A. ✓ Since only one RPS channel lost power the plant should be stable. Enter TS and use OP-507, Operation of the ES, RPS and ATWAS Systems, to perform required actions.
- B. Place the Reactor Diamond and Reactor Demand stations in Hand and stabilize the plant. Use OP-504, Integrated Control System, to return these stations to automatic after power is restored to the RPS channel.
- C. The reactor will trip due to high RCS pressure. Enter EOP-2, Vital Systems Status Verification, and perform required actions.
- D. The reactor will trip due to low RCS pressure. Enter EOP-2, Vital Systems Status Verification, and perform required actions.

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for SRO - NRC 2K5 BANK

Reasons:

- A. Correct. The high power auctioneer for NI-7/8 (Rx power signal to ICS) is located in and powered from the "C" RPS cabinet. On a loss of power this signal will go to 0 and SASS should select the output of NI-5/6 for control. The plant should remain stable and OP-507 used to re-power the RPS channel.
- B. This would be correct if the NI power signal failed high but, with a loss of power to the high auctioneer located in the "C" RPS cabinet, the NI power signal will be failed low. If SASS transfers correctly the plant will remain stable.
- C. This would be correct if SASS did not transfer the NI power signal to ICS. The signal to ICS would be 0 power and would cause both cross-limits to occur, but only one can function. MFW would decrease to 0 flow and RCS pressure would increase and trip the reactor within 12 seconds.
- D. The reactor would trip on high RCS pressure if SASS did not transfer.

OPS 4-14, Obj. 3; OPS 4-14 Section 1-4.0.H.9.d.4; OPS 4-09, Figure 27; 10 CFR 55.43.b.5

SRO - New

Reference(s) provided: None

**QUESTIONS REPORT**  
for SRO - NRC 2K5 BANK

7. 022AA2.01 001/1/1/SRO #7/C/A 3.2/3.8/BANK/S/CR03501/4-052-009

The following plant conditions exist:

- Reactor operating at 100%.
- RCS pressure is 2155 psig and stable.
- RCS Tave is 579° F and stable.
- PZR level is 220 inches and stable.
- MU tank level is 78 inches and decreasing slowly.
- Total RCP Seal Injection flow has decreased to 30 gpm but is now recovering.

Which of the following describes a reason that could result in these plant conditions and the procedure that would be used to correct the problem?

- A. RCP seal failure; AP-520, Loss of RCS Coolant or Pressure.
- B. MUV-31 failed open; OP-402, Makeup and Purification System.
- C. ✓ Makeup line leak; AP-520, Loss of RCS Coolant or Pressure.
- D. Seal Injection filter clogged; OP-402, Makeup and Purification System.

Reasons:

- A. RCP seal failure will not cause RCP Seal Injection flow to decrease.
- B. MUV-31 failing open will cause PZR level to increase.
- C. Correct. A makeup line leak will cause MUT level to drop with no cooldown of the RCS. This also will divert flow from the RCP seal injection flowpath resulting in reduced RCP seal injection flow until MUV-16 can compensate. AP-520 would be entered to locate and isolate the leak.
- D. A clogged RCP Seal injection filter will not cause MUT level to decrease.

OPS 4-52, Obj. 2 & 7; 10 CFR 55.43.b.5

SRO - Slightly modified. Count as bank question.

Reference(s) provided: None

**QUESTIONS REPORT**  
for SRO - NRC 2K5 BANK

8. 026G2.2.23 001/2/1/SRO #8/C/A 2.6/3.8/BANK/S/CR03501/5-001-006

With the Reactor at 100% thermal power the following sequence of events occurs:

<u>DATE</u>	<u>TIME</u>	<u>EVENT</u>
12 June	0500	BSP-1A is tagged out.
14 June	0800	BSP-1B is declared inoperable.
14 June	1000	BSP-1A is returned to operable status.

When must BSP-1B be returned to OPERABLE status?

- A. ✓ Within 45 hours from the time it was declared inoperable.
- B. Within 21 hours from the time it was declared inoperable to comply with the initial completion time of BSP-1A due to concurrent inoperability.
- C. Within 24 hours from the time it was declared inoperable to comply with the extension time allowed in TS 1.3.
- D. 10 days from the time BSP-1A was tagged out for maintenance.

**QUESTIONS REPORT**  
for SRO - NRC 2K5 BANK

Reasons:

- A. Correct. TS 1.3 states that LCOs that do not allow separate entry will be "tracked" when subsequent components expressed in the condition are inoperable. Also TS 1.3 defines length of extension time allowed. This situation will be allowed the extension time due to concurrent inoperability and second inoperable component (BSP-1B) remains inoperable after the first (BSP-1A) is returned. Since BSP-1B was declared inoperable 51 hours after BSP-1A the extension time allowed is 24 hours from the initial entry into TS 3.6.6 Condition "A" for BSP-1A since it is more restrictive than 72 hours from when BSP-1B was declared inoperable.
- B. This was the initial completion time for BSP-1A. This situation allows extension time as explained in reason "A".
- C. TS 1.3 allows a 24 hour extension time in addition to the 21 hours left from the initial time BSP-1A was declared inoperable.
- D. The 10 day completion time is used to limit the time that the LCO can not be met when going from one Condition to another Condition in the LCO. The first completion time listed for each Condition must still be met in order to comply with the LCO. In this case, the first completion time listed for the subject Condition is 72 hours. Barring any extensions this would be the time when the BSP must be returned to Operable status. However, if another Condition (e.g. Containment Cooling Train) were entered concurrent with the BSP then the 10 day completion time could become applicable for the subsequent Condition (e.g. Containment Cooling Train). This 10 day completion time prevents companies from cycling from one component to another and potentially never meeting the LCO.

OPS 5-01, Obj. 6; TS 3.6.6 and 1.3; 10 CFR 55.43.b.1

SRO - Bank

Reference(s) provided: TS 3.6.6 and 1.3

**QUESTIONS REPORT**  
for SRO - NRC 2K5 BANK

9. 036AA2.02 001/1/2/SRO #9/MEM 3.4/4.1/NEW/S/CR03501/

Fuel movement activities are in progress. Determine which of the following conditions meet the criteria for a "Significant Fuel Handling Event".

- A. ✓ Movesheet error discovered that would have resulted in setting one fuel assembly on top of another.
- B. Refueling Supervisor stops all fuel movement activities to allow transfer of cut incores to the Spent Fuel pool.
- C. The standby decay heat removal train was placed in service resulting in bubbles emerging from the core.
- D. RM-A1 increase to its "Warning" setpoint. Investigation reveals that work on the reactor vessel head caused the increase.

Reasons:

**Significant fuel handling event** – fuel handling events are events that have, or could have, resulted in fission product gas release, loss of required shutdown margin, personnel injury, damage to fuel, control components or fuel handling equipment, violation of Tech Specs associated with fuel movement, or loss of SNM.

- A. Correct. Example provided in FP-203, Step 4.4.1.
- B. See above definition.
- C. See above definition.
- D. This would be correct if fuel handling activities caused this alarm.

OPS 4-26, Obj. 6; FP-203, Section 4.4; 10 CFR 55.43.b.6 & 7

SRO - New

Reference(s) provided: None

**QUESTIONS REPORT**  
**for SRO - NRC 2K5 BANK**

10. 037AA2.10 001/1/2/SRO #10/MEM 3.2/4.1/NEWS/CR03501/

Primary-to-secondary leakage is determined to be 125 gpd.

This is     (1)     the TS limit.

The basis for this leakage limit is     (2)    .

- A.       (1)       above  
          (2)       because **the leak** is from a known source that does not interfere with the **detection** of unidentified leakage, and is well within the capability of the RCS makeup system.
- B.       (1)       above  
          (2)       to ensure **that** tubes initially leaking during normal operation do not **contribute** excessively to total leakage during an accident **condition**.
- C.       (1)       below  
          (2)       because **the leak** is from a known source that does not interfere with the **detection** of unidentified leakage, and is well within the capability of the RCS makeup system.
- D. ✓      (1)       below  
          (2)       to ensure **that** tubes initially leaking during normal operation do not **contribute** excessively to total leakage during an accident **condition**.

Reasons:

- A.       Leakage is below the **TS** limit of 150 gpd and this is the basis for Identified leakage, not tube leakage.
- B.       Leakage is below the **TS** limit of 150 gpd.
- C.       This is the basis for Identified leakage, not tube leakage.
- D.       Correct. The limit is 150 gpd and this is the correct reason for this limit.



**QUESTIONS REPORT**  
for SRO - NRC 2K5 BANK

OPS 5-01, Obj. 12; TS 3.4.12; 10 CFR 55.43.b.2

SRO - New

Reference(s) provided: None

**QUESTIONS REPORT**  
for SRO - NRC 2K5 BANK

11. 041A2.02 001/2/2/SRO #11/C/A 3.6/3.9/NEWS/CR03501/

A symptom scan is being performed two minutes after a reactor trip from 100% power. Only the Immediate Actions of EOP-2, Vital System Status Verification, have been performed. The following plant conditions currently exist:

- Tave is 541° F and stable.
- Both OTSGs are at 935 psig and stable.
- Adequate SCM does exist.

Which of the following describes the most probable reason for these indications and what procedure should be used once the symptom scan is complete?

- A. TBVs have failed open; enter EOP-5, Excessive Heat Transfer.
- B. TBVs have failed open; remain in EOP-2, Vital System Status Verification.
- C. The correct TBV bias was not applied following the reactor trip; enter EOP-5, Excessive Heat Transfer.
- D. ✓ The correct TBV bias was not applied following the reactor trip; remain in EOP-2, Vital System Status Verification.

Reasons:

- A. If the TBVs had failed open then OTSG pressure and RCS temperature would have continued to decrease.
- B. If the TBVs had failed open then OTSG pressure and RCS temperature would have continued to decrease. In this case EOP-5 should be entered.
- C. Since OTSG pressure and RCS temperature are now steady EOP-5 should not be entered.
- D. Correct. At 100% power a 50# bias is applied to the TBVs (935#). Following a reactor trip a 125# bias should be applied. Since the OTSGs steadied out at 935# one should be able to determine that the wrong bias is now applied. Also, now that the plant is stable, even though at a lower Tave than expected, EOP-5 entry would not be preferred.

**QUESTIONS REPORT**  
for SRO - NRC 2K5 BANK

OPS 4-14 Obj. 5; OPS 4-14 Section 1-4.0.G.5.e; 10 CFR 55.43.b.5

SRO - New

Reference(s) provided: None

**QUESTIONS REPORT**  
for SRO - NRC 2K5 BANK

12. 054AA2.03 001/1/1/SRO #12/C/A 4.1/4.2/NEW/S/CR03501/

The following plant conditions exist:

- A LOOP has occurred.
- EFP-2 and EFP-3 will not start.

Which of the following is the preferred EFW/AFW source for these conditions and why?

- A. EFP-1 since automatic flow control is provided by EFIC.
- B. EFP-1 since this will not be a heat input source to EFT-2.
- C. ✓ FWP-7 since EDG load management is not a concern.
- D. FWP-7 since this will not be a heat input source to EFT-2.

Reasons:

- A. If EDG load management was not the priority then this would be the reason why EFP-1 is preferred.
- B. EFP-1 is a heat input source to EFT-2.
- C. Correct. "A" EDG load management is the reason FWP-7 is preferred over EFP-1.
- D. While this is a true statement it is not the reason that FWP-7 is the preferred source following a LOOP.

OPS 5-116, Obj. 2; EOP-14 Cross Step Document, Step 7.1

SRO - New

Reference(s) provided: None

**QUESTIONS REPORT**  
for SRO - NRC 2K5 BANK

13. 055G2.4.41 001/1/1/SRO #13/C/A 2.3/4.1/NEW/S/CR03501/

The following events occur with the plant initially in Mode 1:

- A plane has crashed into the switchyards.
- Major damage has occurred to the OPT, Plant Line 4 (feed to the BEST) and MOS 1873 (500 kV line motor operated switch).
- Both EDGs started as required and then seized (probable sabotage).
- Armed intruders have taken control of the Remote Shutdown Panel.
- Tincore is currently 715° F.

Determine the Emergency Classification for this event. Do not use EC judgement.

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

Reasons:

- A. This is correct if only the occurrence of sabotage is used for the classification.
- B. This is correct if at least 1 of the EDGs or at least 1 of the off-site power supplies was available.
- C. This is correct if both ES buses are de-energized for > 15 minutes but with the expectation that at least 1 bus will be available within 4 hours.
- D. Correct. An SRO should be able to determine that with a Station Blackout and no real hope of recovering an ES bus prior to station battery depletion that a General Emergency should be declared, without using EC judgement. Due to MOS 1873 damage, establishing a 500 KV backfeed is also not an option. Also, as Tincore increases above 700° F the probability of losing a fission product barrier increases.

**QUESTIONS REPORT**  
for SRO - NRC 2K5 BANK

OPS 5-34, Obj. 5; EM-202, EAL 2.18 and 4.4; 10 CFR 55.43.b.1

SRO - New

Reference(s) provided: None

**QUESTIONS REPORT**  
for SRO - NRC 2K5 BANK

14. 057G2.4.32 001/1/1/SR0 #14/MEM 3.3/3.5/BANK/S/CR03501/5-111-001

The following plant conditions exist:

- The plant is at 75% power.
- Maintenance is trouble shooting a governor control problem on the "A" MFWP (FWP-2A).
- A breaker fails open on VBDBP-5 resulting in a loss of power to all MCB annunciator windows.
- The Primary Plant Operator informs the Control Room that SWP-1B has a large gearbox oil leak.

No other activities are ongoing at this time. Which of the following actions are required?

- A. ✓ Stop the troubleshooting of FWP-2A and enter the TS for SWP-1B.
- B. Stop the troubleshooting of FWP-2A and enter the TS for "Loss of MCB Annunciator Windows".
- C. Enter the TS for SWP-1B and reduce power to 52% in case FWP-2A trips.
- D. Enter the TS for "Loss of MCB Annunciator Windows" and reduce power to 52% in case FWP-2A trips.

Reasons:

- A. Correct. Per AP-430 all activities that could cause a plant transient should be stopped and TS 3.7.7 should be entered for SWP-1B.
- B. There is no TS for "Loss of MCB Annunciator Windows".
- C. Troubleshooting of FWP-2A should stop; there is no requirement to reduce power.
- D. There is no TS for "Loss of MCB Annunciator Windows" and no requirement to reduce power.

**QUESTIONS REPORT**  
for SRO - NRC 2K5 BANK

OPS 5-111, Obj. 1; AP-430, Step 3.12; 10 CFR 55.43.b.1 & 5

SRO - Bank

Reference(s) provided: None



**QUESTIONS REPORT**  
for SRO - NRC 2K5 BANK

15. 061G2.1.12 001/2/1/SRO #15/MEM 2.9/4.0/NEW/S/CR03501/

The following plant conditions exist:

- The plant is in Mode 2.
- EFP-3 is tagged out for pump shaft replacement.
- The PPO has just reported an oil leak on EFP-2 due to a large crack in the bearing housing.

Which of the following describes the action(s) that should be taken?

- A. Be in Mode 3 within 6 hours and Mode 4 within 12 hours.
- B. ✓ Immediately restore EFP-2 *or* EFP-3 to operable status.
- C. Restore EFP-2 *or* EFP-3 to operable status within 72 hours.
- D. Trip the reactor and use main feedwater to maintain OTSG levels.

Reasons:

- A. This is the required action if a single EFP was out of service for > 72 hours.
- B. Correct. With both safety related EFPs out of service the safest thing to do is to keep the plant stable and immediately fix at least one pump.
- C. This is correct if only one safety related pump was inoperable.
- D. Reactor is not required to be tripped.

OPS 5-01, Obj. 12; TS 3.7.5, Condition D; 10 CFR 55.43.b.2

SRO - New

Reference(s) provided: None

**QUESTIONS REPORT**  
**for SRO - NRC 2K5 BANK**

16. 071A2.02 001/2/2/SRO #16/MEM 3.3/3.6/BANK/S/CR03501/4-025-015

The following plant conditions exist:

- WGDT-1A release was started at 0100.
- RM-A4 has indicated a slow, steady, upward trend since 0115.
- At 0130 Chemistry reports that the iodine sampler for RM-A2 has broken.

Based on these conditions determine if the release may continue and any compensatory actions required.

The WGDT release:

- A. must be terminated immediately.
- B. may continue for 1 hour then must be terminated.
- C. ✓ may continue provided that continuous samples are taken with auxiliary sampling equipment.
- D. may continue provided that grab samples are collected and analyzed at least once per 12 hours.

Reasons:

- A. The release does not have to be terminated immediately if auxiliary sampling is implemented.
- B. With RM-A4 increasing the release must be terminated immediately or auxiliary sampling implemented.
- C. Correct. ODCM allows continued operation if continuous samples are taken with auxiliary sampling equipment.
- D. Continuous sampling is required.

**QUESTIONS REPORT**  
for SRO - NRC 2K5 BANK

OPS 4-61, Obj. 9; ODCM 2.2, Table 2-3, Action 25; 10 CFR 55.43.b.4

History: NRCN99

SRO - Slightly modified - count as Bank

Reference(s) provided: ODCM

**QUESTIONS REPORT**  
**for SRO - NRC 2K5 BANK**

17. BW/A04AA2.2 001/1/2/SRO #17/C/A 3.7/3.7/NEW/S/CR03501/

A spurious turbine trip has occurred from 25% reactor power. During performance of AP-660, Turbine Trip, the RO states that the output breakers are still closed after selecting the MCB switches to the 'TRIP' position. Which of the following actions would you direct the RO to take and what is the reason for this action?

- A. ✓ Select the 'Backup' trip coils and trip the output breakers to prevent turbine damage due to overheating.
- B. Select the 'Backup' trip coils and trip the output breakers to prevent turbine damage due to overspeed.
- C. Open the generator Exciter breaker to prevent generator damage due to overheating.
- D. Open the generator Exciter breaker to prevent generator damage due to overspeed.

Reasons:

- A. Correct. This is the first step to take. If this does not work then the dispatcher will have to open additional breakers. With the generator motoring turbine speed will be held constant at 1800 rpm, however the turbine will soon overheat because there is no steam flow to carry away the heat being generated by the rotating blades.
- B. Turbine speed is held at grid frequency for this condition.
- C. The exciter breaker should never be opened with the output breakers closed. Excessive stresses will be placed on the generator.
- D. The exciter breaker should never be opened with the output breakers closed. Excessive stresses will be placed on the generator. The generator also cannot overspeed with the output breakers still closed.

**QUESTIONS REPORT**  
for SRO - NRC 2K5 BANK

OPS 4-70, Obj. 1; OPS 5-96, Obj. 3; OPS 4-70 Section 1-4.0.G.4; ECD-EOP-2 Step 3.13, NPTS97-0275; AP-660 Step 3.7; 10 CFR 55.43.b.5

SRO - New

Reference(s) provided: None

**QUESTIONS REPORT**  
for SRO - NRC 2K5 BANK

18. BW/E02EA2.1 001/1/1/SRO #18/C/A 2.5/4.0/NEW/S/CR03501/

The following plant conditions exist following a reactor trip and HPI actuation:

- HPI has been throttled to 80 gpm.
- RCS pressure is stable at 1900 psig.
- Reactor building pressure is stable at 0.3 psig.
- OTSG pressures are at their normal post trip values.
- OTSG levels are stable at LLL.
- RM-A2, Auxiliary Building Exhaust Duct Rad Monitor, has increased to its "Warning" alarm setpoint.

After performing the symptom scan in EOP-2, Vital System Status Verification, which of the following action(s) should be taken?

- A. Transition to EOP-3, Inadequate SCM.
- B. Transition to EOP-8, LOCA Cooldown.
- C. Remain in EOP-2 and concurrently perform AP-250, Radiation Monitor Actuation, when directed.
- D. ✓ Remain in EOP-2 and concurrently perform AP-520, Loss of RCS Coolant or Pressure, when directed.

Reasons:

- A. Since OTSG pressure is normal there will still be ASCM with RCS pressure at 1900 psig. Conditions for EOP-3 entry are not met.
- B. Transfer to EOP-8 may be required later on but we would not transition there at this point.
- C. Performance of AP-250 is not required until RM-A2 reaches its high alarm setpoint.
- D. Correct. With HPI actuated and RCS pressure remaining stable then an RCS leak is in progress. Stable OTSG levels rule out an OTSG tube leak. RM-A2 in alarm indicates an RCS leak in the Auxiliary Building. Performance of AP-520 will isolate/locate the leak.

**QUESTIONS REPORT**  
for SRO - NRC 2K5 BANK

OPS 5-114, Obj. 4; EOP-2, AP-520; 10CFR 55.43.b.5

SRO - New

Reference(s) provided: None

**QUESTIONS REPORT**  
for SRO - NRC 2K5 BANK

19. G2.1.22 001/GENERIC/1/SRO #19/MEM 2.8/3.3/BANK/S/CR03501/5-001-001

The following plant conditions exist:

- A reactor trip has occurred.
- All rods have NOT fully inserted into the core.
- NI-3 and NI-4 indicate  $1 \times 10^{-5}$  amps and steady.

What Mode is the plant in for these conditions?

- A. ✓ Mode 1
- B. Mode 2
- C. Mode 3
- D. Mode 4

Reasons:

A MODE shall correspond to any one inclusive combination of core reactivity condition, power level, average reactor coolant temperature, and reactor vessel head closure bolt tensioning specified in Table 1.1-1.

- A. Correct.  $1 \times 10^{-5}$  amps is approximately 14% power. If amps are steady then a  $K_{\text{eff}}$  of  $> 0.99$  is indicated.
- B. Mode 2 is less than 5% power.
- C. With amps steady a  $K_{\text{eff}}$  of  $> 0.99$  is indicated. There is no power level associated with Mode 3.
- D. With amps steady a  $K_{\text{eff}}$  of  $> 0.99$  is indicated.



**QUESTIONS REPORT**  
for SRO - NRC 2K5 BANK

OPS 5-01 Obj. 4; TS Table 1.1-1; 10 CFR 55.43.b.1

History: NRCN99

SRO - Bank

Reference(s) provided: None

**QUESTIONS REPORT**  
for SRO - NRC 2K5 BANK

20. G2.1.34 001/GENERIC/1/SRO #20/MEM 2.3/2.9/NEW/S/CR03501/

Chemistry has determined that RCS Dose Equivalent I-131 is 1.3  $\mu\text{Ci/gm}$ . The RCS was resampled and this value verified.

This is \_\_\_\_\_ (1) \_\_\_\_\_ the TS limit for RCS activity.

The basis for this limit is to ensure the resulting doses are within limits during \_\_\_\_\_ (2) \_\_\_\_\_.

- A.       (1)       above  
          (2)       normal plant operations (10 CFR 20.1201, Occupational Dose Limits for Adults).
  
- B. ✓      (1)       above  
          (2)       analyzed transients and accidents (10 CFR 50.67, Accident Source Term Limits)
  
- C.       (1)       below  
          (2)       normal plant operations (10 CFR 20.1201, Occupational Dose Limits for Adults).
  
- D.       (1)       below  
          (2)       analyzed transients and accidents (10 CFR 50.67, Accident Source Term Limits).

Reasons:

- A.    RCS activity limit is based on 10CFR 50.67.
  
- B.    Correct. The TS limit for I-131 is 1.0  $\mu\text{Ci/gm}$ . This limit is based on 10 CFR 50.67.
  
- C.    This is above the TS I-131 limit. RCS activity limit is based on 10CFR 50.67.
  
- D.    This is above the TS I-131 limit.

OPS 5-01 Obj. 12; TS 3.4.15; 10 CFR 55.43.b.2

SRO - New

Reference(s) provided: None

**QUESTIONS REPORT**  
for SRO - NRC 2K5 BANK

21. G2.2.22 001/GENERIC/2/SRO #21/MEM 3.4/4.1/NEW/S/CR03501/

The following plant conditions exist:

- Plant is in Mode 3.
- A transient has occurred that raised RCS pressure to 2775 psig.

Which of the following describes the required action(s) to be taken?

Reduce RCS pressure to  $\leq 2750$  psig:

- A. within 1 hour.
- B. ✓ within 5 minutes.
- C. and be in Hot Shutdown within 1 hour.
- D. enter TS 3.0.3 and be in Hot Shutdown within 13 hours.

Reasons:

- A. The requirement is 5 minutes.
- B. Correct. Violating TS 2.1.2, RCS Pressure Safety Limit, requires a reduction in pressure within 5 minutes.
- C. The requirement is to be in Hot Standby, not Hot Shutdown, within 1 hour.
- D. TS 3.0.3 is not required to be entered.

OPS 5-01, Obj. 9; TS 2.1.2; 10 CFR 55.43.b.1

SRO - New

Reference(s) provided: None

**QUESTIONS REPORT**  
for SRO - NRC 2K5 BANK

22. G2.2.24 001/GENERIC/2/SRO #22/C/A 2.6/3.8/BANK/S/CR03501/5-001-027

The plant is in Mode 1. After performance of SP-354A (fast start) on the "A" EDG the following data is submitted to the CRS: 10 seconds after start EDG voltage was 4240 volts and frequency was 57.4 Hz.

An NRC required modification is required on both SWP-1A and SWP-1B. Both pumps are scheduled to be worked consecutively after the satisfactory completion of the "A" EDG surveillance.

Which of the following describes the action that should be taken?

The "A" EDG is:

- A. operable and work may begin on SWP-1A. The SWP must be returned to operable status within 72 hours.
- B. operable and work may begin on SWP-1B. The SWP must be returned to operable status within 72 hours.
- C. NOT operable. If work is started on SWP-1A then SWP-1B must be declared inoperable within 4 hours.
- D. ✓ NOT operable. If work is started on SWP-1B then SWP-1A must be declared inoperable within 4 hours.

Reasons:

- A. & B. EDG-1A is not operable per SR 3.8.1.6. An SRO should be able to determine that frequency is too low without requiring the use of TS.
- C. An SRO should know that these pumps have normal 72 hour LCO time periods.
- D. Correct. Since EDG-1A is inoperable an SRO should know that working on opposite train equipment will result in a shorter LCO time period. (TS 3.8.1, Action B.2)

**QUESTIONS REPORT**  
for SRO - NRC 2K5 BANK

OPS 5-01, Obj. 8; TS 3.8.1; 10 CFR 55.43.b.1

SRO - Bank

Reference(s) provided: None

**QUESTIONS REPORT**  
for SRO - NRC 2K5 BANK

23. G2.3.2 001/GENERIC/3/SRO #23/MEM 2.5/2.9/NEW/S/CR03501/

The following plant conditions exist:

- A valve lineup is being performed on the Building Spray system.
- The first positioner picked up 20 mrem in five minutes checking open three valves located in the same general area.
- These valves are now ready to be Independently Verified.

As the CRS which of the following actions would be preferred?

- A. Have the most experienced operator perform the verification so that less time will be spent on the verification.
- B. Have the operator that has received the least dose during the outage perform the verification to keep individual exposure as low as possible.
- C. ✓ Waive the independent verification requirement for these valves to reduce personnel exposure.
- D. Waive the independent verification requirement for these valves since this is not a Class 1E, Safety Related system.

Reasons:

- A. While this is a good idea this is not the preferred action per AI-500, Appendix 10.
- B. The goal is to minimize exposure to all personnel. AI-500, Appendix 10 states the preferred action.
- C. Correct. AI-500, Appendix 10 states conditions that Independent Verification requirements may be waived. This is one of the conditions.
- D. The Building Spray system is a Class 1E, Safety Related system.

OPS 5-38, Obj. 32; AI-500, Appendix 10, Step 3.3.3; 10 CFR 55.43.b.4

SRO - New

Reference(s) provided: None

**QUESTIONS REPORT**  
for SRO - NRC 2K5 BANK

24. G2.4.23 001/GENERIC/4/SRO #24/MEM 2.8/3.8/NEW/S/CR03501/

Which of the following describes the higher priority symptom and the basis for performing the actions directed?

- A. Inadequate Heat Transfer; to ensure PTS concerns are addressed.
- B. ✓ Inadequate Heat Transfer; to ensure sufficient heat transfer from the core will occur.
- C. Steam Generator Tube Rupture; to ensure all three fission product barriers are intact.
- D. Steam Generator Tube Rupture; to ensure radiation releases will be rapidly minimized.

Reasons:

- A. PTS may/may not be a concern at this time but actions required when a PTS event has occurred are addressed in EOP-13, Rule 4.
- B. Correct. IHT is a higher priority symptom than SGTR and the actions within this procedure act to restore sufficient heat transfer.
- C. SGTR is a lower priority symptom and since the tube has already ruptured then one of the three barriers has already broken.
- D. SGTR is a lower priority symptom.

OPS 5-14, Obj. 9; EOP-2 Step 3.1; TBD Vol. 3, II.A-3; 10 CFR 55.43.b.5

SRO - New

Reference(s) provided: None

**QUESTIONS REPORT**  
for SRO - NRC 2K5 BANK

25. G2.4.30 001/GENERIC/4/SRO #25/MEM 2.2/3.6/NEW/S/CR03501/

*Required* shutdown to Mode 3 was not completed within TS time limits. Which of the following is the *maximum* time allowed to notify the NRC of this condition?

- A. 30 minutes
- B. ✓ 1 hour
- C. 4 hours for verbal notification. Seven days to file a written report.
- D. 24 hours for verbal notification. Seven days to file a written report.

Reasons:

- A. Maximum of 1 hour is allowed.
- B. Correct. This requires entry into an Unusual Event. Notification to the NRC must be made within 1 hour.
- C. Maximum of 1 hour is allowed.
- D. Maximum of 1 hour is allowed.

OPS 5-42 Obj. 18; EM-202, EAL 3.5; 10 CFR 55.43.b.1

SRO - New

Reference(s) provided: None