Final Submittal

CRYSTAL RIVER AUGUST EXAM 50-302/2003-301

AUGUST 25 - 29, 2003

1. Combined RO/SRO Written Exam with KAs, Answers, References, and Analysis

QUESTIONS REPORT
for NRC Reviewed RO BANK

1. 001K5.28 002

The following plant conditions exist:

- The reactor has been at 100% power for 12 days.
- Rod index is 290%.
- 300 EFPD.
- 1100 ppm boron.

Due to erratic indications in the CRD system engineering has requested a rod index of 260% to perform trouble shooting activities. Determine the final boron concentration required to reach this rod index while maintaining 100% reactor power. (disregard Xenon)

A. 1034 ppm boron

B. 1040 ppm boron

C.✓ 1052 ppm boron

D. 1056 ppm boron

Reasons:

Using Curve 14, CRG 5-7 Integral Reactivity Worth (equilibrium Xenon), +0.314% Δk/k reactivity must be added. Using Curve 4, Inverse Boron Worth vs Cycle Lifetime at HFP, the value is 152.5 ppmb/ %Δk/k.

A. If Curve 8A, CRG 5-7 Integral Reactivity Worth (peak Xenon), was used then this answer would be arrived at.

B. If Curve 8A, CRG 5-7 Integral Reactivity Worth (peak Xenon), was used, and Curve 4 at HZP instead of HFP, then a boron reduction of 60 ppmb would be required.

C. Correct. A boron dilution of 48 ppmb is required.

D. If Curve 4 at HZP instead of HFP was used then a boron reduction of 44 ppmb would be required.

QUESTIONS REPORT
for NRC Reviewed RO BANK

OP-103C, Curves 4 & 14

RO - NEW

References provided: OP-103C

Rev. 0 to NRC on 5-9-03
Rev. 1 to NRC on 6-17-03

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

Tier:	2	Group:	2
Keyword:	RO #56	Cog Level:	C/A 3.5/3.8
Source:	N	Exam:	CR03301
Test:	R	Misc:	ATK

2. 002K1.09 001
Which of the following describes the effect on PZR conditions during a large reactor coolant insurge?

A. Actual liquid temperature will decrease; T_{sat} of the surface liquid will decrease.

B. ✓ Actual liquid temperature will decrease; T_{sat} of the surface liquid will increase.

C. Actual liquid temperature will decrease; T_{sat} of the surface liquid will remain the same.

D. Actual liquid temperature will remain the same; T_{sat} of the surface liquid will increase.

Reasons:

A., C. & D. For these plant conditions the following should occur:

1. RCS pressure should increase because the insurge will squeeze the PZR steam bubble.

2. PZR level should increase because MUV-31 does not have the capacity or time response needed to maintain level at setpoint.

3. PZR fluid temperature should decrease due to the insurge of colder water from the RCS.

B. Correct. Liquid temperature will decrease due to the approximately 600° F water mixing with the 648° F water. While the insurge is in progress RCS pressure will increase which will cause Tsat of the liquid to increase.

NRCM98

RO - Direct [Newops ROT-4-60-158]

References provided: None

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		
Tier:	2			Group:	2		
Keyword:	RO #57			Cog Level:	C/A 4.1/4.1		
Source:	B			Exam:	CR03301		
Test:	R			Misc:	ATK		

3. 003AK3.07 001

A reactor startup is in progress with the reactor critical. Control rod 5-4 drops into the core and the following parameters are noted:

- The reactor is still critical.
- Tave is 524° F.

Which of the following describes the actions that should be taken and the reasons for these actions?

A. ✓ Increase Tave to ≥ 525° F, using secondary parameters, to maintain instrumentation on scale.

B. Increase Tave to ≥ 525° F, using small control rod withdrawals, to maintain the plant within analyzed accident ranges.

C. Fully insert all control rods to establish and maintain Mode 3 reactivity conditions since criticality is prohibited at < 525° F.

D. Fully insert control rod groups 5-7 to establish and maintain Mode 2 reactivity conditions since criticality is prohibited at < 525° F.

Reasons:

A. Correct. If the reactor is critical then Tave must be restored immediately using secondary parameters.

B. Control rods should not be used to restore Tave.

C. Only required to insert the regulating rods, not safety rods, if unable to restore Tave.

D. The plant is required to be in Mode 3, not Mode 2, if unable to restore Tave.

OP-203 Step 3.2.7, OP-210 Step 3.2.2, OI-01 Step 4.5

RO - New

References provided: None

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: A A A A A A A A A A Items Not Scrambled

QUESTIONS REPORT
for NRC Reviewed RO BANK

Tier:	1	Group:	2
Keyword:	RO #19	Cog Level:	MEM 3.8/3.9
Source:	N	Exam:	CR03301
Test:	R	Misc:	ATK

4. *003K1.03 001*

The following conditions are observed for the "A" Reactor Coolant Pump.

- Reactor Coolant System pressure	2150 psig
- Second stage seal cavity pressure	2100 psig
- Third stage seal cavity pressure	1055 psig
- Controlled bleedoff flow	increased
- Seal leakage flow	no change

Which of the following failures would cause the above indications?

A.✓ The first stage seal.

B. The second stage seal.

C. The third stage seal.

D. The restriction bushing.

Reasons:

A. Correct. When the first stage seal fails, the second stage seal will reflect RCS pressure and the third stage seal should reflect approximately 1/2 of the RCS pressure.

B. If the second stage seal had failed the second stage seal cavity pressure would be closer to 1/2 of the RCS pressure.

C. If the third stage seal had failed, seal leakage would have increased and the cavity pressure would be closer to atmospheric pressure.

D. With all the pressures being normal (except the second stage seal cavity) and the bleedoff and seal leakage flows normal for a first stage seal failure, no restriction bushing failure is indicated.

OPS 4-60 Section 1-4.0.J.7

RO - Direct

References provided: None

Rev. 0 to NRC on 4-11-03

QUESTIONS REPORT
for NRC Reviewed RO BANK

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

Tier:	1	Group:	1
Keyword:	RO #5	Cog Level:	C/A 2.9/2.9
Source:	B	Exam:	CR03301
Test:	R	Misc:	ATK

5. 003K3.05 001

The following plant conditions exist at 100% power:

'A' OTSG Level	80%	'B' OTSG Level	80%
'A' MFW Flow	5.4 E6 lbm/hr	'B' MFW Flow	5.4 E6 lbm/hr

Core ΔT 45° F

A problem develops with RCP-1C and the decision is made to run the plant back and secure the pump. At 80% power RCP-1C trips and an ICS runback occurs to 75% power. Which of the following describes the approximate expected plant parameters, as compared to the above values, after the plant stabilizes at 75% power?

A.✓	'A' OTSG Level	unchanged
	'B' OTSG Level	50% of original
	'A' MFW Flow	unchanged
	'B' MFW Flow	50% of original
	Core ΔT	45° F
B.	'A' OTSG Level	unchanged
	'B' OTSG Level	50% of original
	'A' MFW Flow	unchanged
	'B' MFW Flow	50% of original
	Core ΔT	34° F
C.	'A' OTSG Level	75% of original
	'B' OTSG Level	50% of original
	'A' MFW Flow	75% of original
	'B' MFW Flow	50% of original
	Core ΔT	45° F
D.	'A' OTSG Level	75% of original
	'B' OTSG Level	50% of original
	'A' MFW Flow	75% of original
	'B' MFW Flow	50% of original
	Core ΔT	34° F

Reasons:

B. Core ΔT will remain at 45° F for these conditions.

C. The 'A' OTSG is still removing the same amount of energy therefore level and flow will remain at the same value.

D. The 'A' OTSG is still removing the same amount of energy therefore level and flow will remain at the same value. Core ΔT will remain at 45° F.

OPS 4-14 Section 1-7.0.C.3.b)2); OP-103A Curve 6

NRCN99

RO - Direct

References provided: None

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:	A	A	A	A	A	A	A	A	A	A

Items Not Scrambled

Tier:	2	Group:	1
Keyword:	RO #28	Cog Level:	C/A 3.6/3.7
Source:	B	Exam:	CR03301
Test:	R	Misc:	ATK

6. 003K6.04 001

The plant is operating at 100% power when the SW Return valve from RCP-1C (SWV-86) closes. Attempts to reopen the valve have failed.

Which of the following describe the action required to be taken with respect to RCP-1C?

RCP-1C:

A.✓ must be shutdown within 5 minutes due to loss of motor cooling.

B. must be shutdown within 5 minutes due to loss of RCP seal cooling.

C. may continue operation as long as RCP Seal Injection is maintained.

D. may continue operation because cooling is maintained by internally circulating RCS.

Reasons:

A. Correct. Loss of SW alone only affects the RCP motor cooling.

B. RCP seal cooling is still available as long as Seal Injection is maintained.

C. This is true for a loss of Seal Injection, not loss of SW.

D. RCP must be stopped within 5 minutes to protect the motor from damage.

OP-302 Step 3.2.5

RO - Direct [4-060-003]

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: A A D C D D C A A D Scramble Range: A - D

Tier:	2	Group:	1
Keyword:	RO #29	Cog Level:	MEM 2.8/3.1
Source:	B	Exam:	CR03301
Test:	R	Misc:	ATK

7. 004A1.12 001

The following plant conditions exist:

- Plant is near EOC at 90% power.
- Deborating demins are in service.
- OP-304, Soluble Poison Concentration Control, calculation requires 60 gpm letdown flow for one hour.

Due to a malfunction with MUV-51, letdown flow control valve, actual letdown flow was 80 gpm.

Which of the following describes how the plant will respond?

A. Control rods will insert; reactor power will decrease.

B. ✓ Control rods will insert; reactor power will remain approximately the same.

C. Control rods will withdraw; reactor power will increase.

D. Control rods will withdraw; reactor power will remain approximately the same.

Reasons:

A. Reactor power will remain at about 90%.

B. Correct. Rods will insert due to the deboration and power should remain at 90%.

C. Control rods will insert and power should remain at 90%.

D. Control rods will insert.

OPS 4-59 Section 1-4.0.V, OPS 4-52 Sections 1-2.0.D & 1-3.0.C, OPS 4-52 Obj 2,

RO - 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	
Tier:	2		Group:	1		
Keyword:	RO #30		Cog Level:	C/A 2.8/3.2		
Source:	N		Exam:	CR03301		
Test:	R		Misc:	ATK		

8. 005K4.08 002

The following plant conditions exist:

- A LOCA is in progress.
- RCS pressure is 400 psig.
- Two High Pressure Injection Pumps are operating.
- Two Low Pressure Injection Pumps are operating.

Which of the following is the correct flow path for core heat removal?

A.✓ Manual alignment of piggy-back flow through the Makeup Pumps with the Decay Heat pumps taking a suction from the Reactor Building Sump prior to BWST level decreasing to < 7 feet.

B. Automatic alignment of piggy-back flow through the Makeup Pumps with the Decay Heat pumps taking a suction from the Reactor Building Sump prior to BWST level decreasing to < 7 feet.

C. Manual alignment of piggy-back flow through the Makeup Pumps with the Decay Heat pumps taking a suction from the Reactor Building Sump prior to BWST level reaching 15 feet.

D. Automatic alignment of piggy-back flow through the Makeup Pumps with the Decay Heat pumps taking a suction from the Reactor Building Sump prior to BWST level reaching 15 feet.

Reasons:

A. Correct. Manual alignment of piggy-back flow from the RB Sump must be completed prior to BWST level reaching < 7 feet.

B. Alignment to this mode is a manual, not automatic, evolution.

C. The action for this alignment starts at 15 feet in the BWST. This is also the level that Building Spray is aligned to the RB Sump.

D. This is a manual evolution and suction transfer starts at 15 feet. Does not have to be completed until 7 feet.

OPS 4-54 Secion 1-3.0.C; EOP-14, Enclosure 19, ECCS Suction Transfer

NRC 96

RO - Direct [Opsbank ROT 4-054-052]

References provided: None

Rev. 0 to NRC on 4-22-03
Rev. 1 to NRC on 6-17-03

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				

Tier:	2	Group:	1
Keyword:	RO #31	Cog Level:	MEM 3.1/3.5
Source:	B	Exam:	CR03301
Test:	R	Misc:	ATK

9. 006G2.1.28 002

Which of the following describes the purpose and operation of the HPI Throttle valves (MUV-590, 591, 592 & 593)?

To limit:

A. MUP flow to the MUT. These valves may be throttled from the Control Room.

B. MUP flow to the RB sump in the case of a high MUT level. These valves are fixed in position.

C. EDG loading and balance HPI flow. These valves may be throttled from the Control Room.

D. ✓ *EDG loading and balance HPI flow. These valves are fixed in position.*

Reasons:

A. The HPI Throttle valves do not control flow back to the MUT.

B. This describes the HPI recirc to sump valves, not the throttle valves.

C. The valves cannot be throttled from the control room.

D. Correct. These valves were added to limit EDG loading and to balance HPI flow. The valves are tack welded in position.

OPS 4-52 Section 1-4.0.EE

RO - NEW

References provided: None

Rev. 0 to NRC on 4-22-03
Rev. 1 to NRC on 6-17-03

MCS	Time: 1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9		
				Answer:	D A B C A A C B D D	Scramble Range: A - D	
Tier:	2			Group:	1		
Keyword:	RO #33			Cog Level:	MEM 3.2/3.3		
Source:	N			Exam:	CR03301		
Test:	R			Misc:	ATK		

10. 006K4.05 001

The plant is conducting a shutdown and cooldown with Reactor Coolant System (RCS) pressure at 1200 psig and temperature at 400° F. The High Pressure Injection (HPI) portion of the Engineered Safeguards (ES) actuation system has been bypassed per procedure. An RCS pressure transient occurs which raises RCS pressure to 1820 psig. How does the ES system react to this condition?

A. The actuation and bypass bistables will automatically reset. There will be no actuation of the HPI systems.

B. The actuation and bypass bistables will NOT automatically reset. There will be a full actuation of the HPI systems.

C. The actuation bistable will automatically reset, but the bypass bistable will NOT automatically reset. There will be no actuation of the HPI systems.

D.✓ The actuation bistable will NOT automatically reset, but the bypass bistable will automatically reset. There will be a full actuation of the HPI systems.

Reasons:

A. The actuation bistable will not auto reset and there will be an actuation.

B. The bypass bistable will auto reset.

C. The actuation bistable will not auto reset and the bypass bistable will auto reset.

D. Correct. The bypass bistable will automatically reset at 1800 psig and because the actuation bistable is still tripped a full HPI actuation will occur.

OPS 4-13 Section 1-2.0.D

NRCCP97

RO - Direct

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: D C D A C C A D C A Scramble Range: A - D

QUESTIONS REPORT

for NRC Reviewed RO BANK

Tier:	2	Group:	1
Keyword:	RO #32	Cog Level:	C/A 4.3/4.4
Source:	B	Exam:	CR03301
Test:	R	Misc:	ATK

11. 007A4.10 001

The following plant conditions exist:

- Reactor coolant average temperature is 579° F.
- Reactor coolant pressure is 2100 psig and decreasing at 100 psig/min.
- Pressurizer temperature is 643° F and decreasing at 6° F/min.
- Makeup flow is 8-10 gpm higher than normal.
- The Reactor Coolant Drain Tank level and pressure are stable.
- PZR level is stable.
- Reactor power is 40%.

Which of the following is the most probable cause for the above indications?

A. RCS pressure transmitter tubing rupture.

B. Partially stuck open PORV.

C. ✓ Code safety valve flange leak.

D. MUV-567, letdown isolation valve, bonnet leak.

Reasons:

A. & D. Loss of RCS pressure without a loss of level is an indication of steam space leak.

B. An open PORV would cause RCDT level and/or pressure to increase.

C. Correct. Other than the PORV this is the only leak path that will lower pressure this fast with little change in makeup.

NRCN99

RO - Direct [Newops 4-60-018]

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		
Tier:	2			Group:	1		
Keyword:	RO #34			Cog Level:	C/A 3.6/3.8		
Source:	B			Exam:	CR03301		
Test:	R			Misc:	ATK		

12. 007EA2.02 002

The following sequence of events have occurred:

- The plant was in Mode 3 with Group 1 withdrawn and RCS pressure at 2155 psig.
- The PORV failed open and the RO closed the PORV block valve.
- RCS pressure is currently 1875 psig and increasing slowly.
- Currently Group 1 is still withdrawn.

Which of the following describes the *immediate* action(s) that should be taken for these conditions?

A. Enter AP-490, RCS Boration, and start emergency boration.

B. Enter AP-520, Loss of RCS Coolant or Pressure, to recover RCS pressure.

C. ✓ Depress the Rx trip pushbutton, enter EOP-2, Vital System Status Verification and, if Group 1 is still withdrawn, open breakers 3305 and 3312.

D. Depress the Rx trip pushbutton, enter EOP-2, Vital System Status Verification and, if Group 1 is still withdrawn, depress the 'HPI MAN ACT' pushbuttons for Trains A and B to initiate emergency boration.

Reasons:

A. Entry conditions for AP-490 are not met.

B. Entry conditions for AP-520 were met but the RO took prompt and prudent action to mitigate the PORV failure and the immediate concern is taking actions to ensure the reactor is tripped.

C. Correct. Group 1 should have tripped when RCS pressure decreased below 1900 psig. If Group 1 is still withdrawn then the immediate action is to remove power.

D. Depressing the 'HPI MAN ACT' pushbuttons for Trains A and B is only done if NIs indicate the reactor is not shutdown after breakers 3305 and 3312 are opened.

EOP-2 Step 3.3; OPS 5-96 Section 1-4.0.C

RO - 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:	C	A	C	A	B	A	A	C	A	A

Scramble Range: A - D

Tier:	1	Group:	1
Keyword:	RO #1	Cog Level:	C/A 4.3/4.6
Source:	N	Exam:	CR03301
Test:	R	Misc:	ATK

13. 008A4.07 001

Which of the following describes the normal method for maintaining/controlling the level in the Nuclear Services Closed Cycle Cooling System Surge Tank (SWT-1)?

A. Manual control by the Primary Plant Operator.

B. Automatic valve control set to maintain level between two setpoints.

C. ✓ Manual operation of the control switch for the fill valve on the Main Control Board.

D. Manual operation of the Demin Water transfer pumps on the Main Control Board.

Reasons:

A. The Primary Plant Operator can locally fill the SW surge tank but this is not the normal method.

B. The DC surge tanks have automatic control but the SW surge tank does not.

C. Correct. SWV-277 is the manual valve used for normal fill of the SW surge tank.

D. Starting a DW transfer pump will increase flow to the SW surge tank but only if the fill valve is opened manually.

OPS 4-56 Section 1-4.0.I.2.c

RO - Direct

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 B C D D B C D D	Scramble Range: A - D	
Tier:	2			Group:	1	
Keyword:	RO #35			Cog Level:	MEM 2.9/2.9	
Source:	B			Exam:	CR03301	
Test:	R			Misc:	ATK	

14. 008AK1.01 001

The following plant conditions exist:

- Reactor Coolant (RCS) pressure 2220 psia.
- Reactor Coolant Drain Tank (RCDT) pressure is 50 psia.
- The PORV is stuck partially open.

What is the approximate temperature and phase of the fluid downstream of the PORV?

A. 649°F and Superheated

B. 298°F and Superheated

C.✓ 281°F and Saturated

D. 259°F and Saturated

Reasons:

A. This temperature is saturation for current pressurizer pressure but, since the PORV flow is a constant enthalpy process, the downstream temperature would not be at saturation for the pressurizer. It would more closely approximate saturation temperature of the downstream RCDT and be saturated, not superheated.

B. Downstream conditions should be saturated, not superheated. This temperature can be obtained if the student adds 15 psi to the stem value of RCDT pressure (50 psia).

C. Correct. Using the Mollier, conditions are saturated and the temperature is 281°F

D. Downstream conditions should be saturated, not superheated. This temperature can be obtained if the student subtracts 15 psi from the stem value of RCDT pressure (50 psia).

Steam table with Mollier diagram

RO - Direct

References provided: Steam table with Mollier diagram

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

Tier:	1	Group:	1
Keyword:	RO #2	Cog Level:	C/A 3.2/3.7
Source:	B	Exam:	CR03301
Test:	R	Misc:	ATK

15. 009EK2.03 001

The following plant conditions exist:

- A small break LOCA (SBLOCA) event is in progress.
- RCS pressure is 1500 psig.

Which of the following describes the reason for maintaining the OTSGs available as a heat sink?

A. To ensure RCS heat removal while RCPs are operating.

B. To provide an alternate means of RCS pressure control.

C. ✓ RCS pressure may remain too high for adequate HPI cooling.

D. Boiler-condenser cooling is the primary method for heat removal during a SBLOCA event.

Reasons:

A. The RCPs will probably already be secured but, if not, their heat input to the RCS is minimal.

B. While the cooldown may be controlled with the OTSGs RCS pressure is not.

C. Correct. Certain size SBLOCAs rely on the OTSGs for adequate heat removal.

D. Reflux boiling may occur in certain size SBLOCAs but this is not the primary method of heat removal.

OPS 3-21 Section 1-2.0.B.5.b) 2)

RO - New

References provided: None

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 C C C C C C C C C	Items Not Scrambled	
Tier:	1			Group:	1		
Keyword:	RO #3			Cog Level:	MEM 3.0/3.3		
Source:	N			Exam:	CR03301		
Test:	R			Misc:	ATK		

16. 010K5.01 001

While at power, a feedwater transient caused a rapid out-surge of the pressurizer followed by a rapid in-surge. Due to a pressurizer heater control problem all heaters are in manual and off. The following conditions exist:

- Pressurizer temperature is 630° F.
- T_{hot} is 600° F.
- T_{cold} is 555° F.
- Pressurizer level is at 240 inches and slowly returning to normal.

With no operator action RCS pressure will stabilize at approximately:

A. 1100 psig.

B. 1550 psig.

C.✓ 1900 psig.

D. 2155 psig.

Reasons:

A. Psat for T cold temp of 555° F

B. Psat for T hot temp of 600° F.

C. Correct. Psat for this current PZR temp of 630 ° F.

D. Psat for normal PZR temp of 648° F.

OPS 4-60 Section 1-4.0.E; OPS 4-12 Section 1-3.0.C.2.h & i

RO - New

References provided: Steam tables

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9						
					Answer:	C A C D D B A A B D						Scramble Range: A - D
Tier:	2						Group:	1				
Keyword:	RO #36						Cog Level:	C/A 3.5/4.0				
Source:	N						Exam:	CR03301				
Test:	R						Misc:	ATK				

17. 011EG2.4.20 001

A note in EOP-8, LOCA Cooldown, states the following:

"Do not open PORV or use high pressure Aux spray to depressurize RCS if ICC Region 3 was previously entered."

Which of the following describes the reason for this note?

A.✓ The RCS may contain large amounts of non-condensable gasses and opening the PORV could result in additional gas bubbles forming in the hot legs.

B. Due to documented PORV failures in the industry, the risk of losing excess additional RCS inventory if the core had previously entered Region 3 has been determined to be unacceptable.

C. Engineering calculations have determined that the effectiveness of high pressure Aux spray is greatly diminished if the core had previously entered Region 3 and does not create a success path for this condition.

D. A commitment to the NRC to justify not installing the RV head vent requires the use of the hot leg high point vents only for RCS depressurization.

Reasons:

A. Correct. Due to the rapid depressurization of the RCS if the PORV was opened additional gas bubbles may form faster than the HPVs can remove the gasses.

B. While there have been PORV failures in the industry this is not the reason the PORV is not used.

C. Use of high pressure Aux spray has not been analyzed for use if the core has previously entered Region 3.

D. The commitment requires using the PZR vent only.

OPS 5-95 Section 3.24

RO - NEW

References provided: None

Rev. 0 to NRC on 4-22-03

QUESTIONS REPORT

for NRC Reviewed RO BANK

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

Items Not Scrambled

Tier:	1	Group:	1
Keyword:	RO #4	Cog Level:	MEM 3.3/4.0
Source:	N	Exam:	CR03301
Test:	R	Misc:	ATK

18. 012K1.03 001

While in a plant cooldown the following conditions exist:

- Reactor Coolant Pressure is 400 psig.
- RCS temperature is 350° F.
- Control Rod Group 1 is withdrawn.
- The "D" Reactor Protection System channel is tripped.

The "C" RPS channel is bypassed for trouble shooting activites. The I & C technician asks permission to pull the RCS flow module in the "C" RPS channel. If permission is granted what will be the condition of the Control Rod Drive (CRD) breakers?

A. All CRD breakers are open.

B. ✓ All CRD breakers are closed.

C. The "C" breaker is open; all other CRD breakers remain closed.

D. The "C" and "D" breakers are open; all other CRD breakers remain closed.

Reasons:

A. With the "C" channel in bypass the RPS is placed in a 2 out of 3 trip logic. Pulling the module would have resulted in 2 channels being tripped if the "C" channel was not bypassed.

B. Correct. Two channels of RPS are not tripped.

C. Since the "C" channel was bypassed prior to pulling the module this channel will not trip.

D. Since the "C" channel was bypassed prior to pulling the module this channel will not trip and no CRD breakers will open.

OPS 4-12 Section 1-4.0.A.4 & 2-14.0 Table 2

RO - Direct [Newops 4-012-011]

References provided: None

Rev. 0 to NRC on 4-22-03

QUESTIONS REPORT

for NRC Reviewed RO BANK

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

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

Tier:	2	Group:	1
Keyword:	RO #37	Cog Level:	C/A 3.7/3.8
Source:	B	Exam:	CR03301
Test:	R	Misc:	ATK

19. *013K1.13 001*

The following plant conditions exist:

- AHF-1A is ES selected for "A" ES Train operation.
- AHF-1B is ES selected for "B" ES Train operation.
- AHF-1C is tagged out due to a motor ground.
- HPI actuation on 1625 psig has occurred on both trains.

Which of the following statements describes AHF-1A and AHF-1B operation one minute after the actuation?

A. AHF-1A and AHF-1B should be running in slow speed.

B. AHF-1A and AHF-1B should be running in fast speed.

C.✓ AHF-1A should be running in slow speed and AHF-1B should be off.

D. AHF-1B should be running in fast speed and AHF-1A should be off.

Reasons:

A. Following an ES actuation only one fan will be running.

B. HPI Block 1 should trip the fast speed coils on all running fans.

C. Correct. Only one fan will be running and the "A" train fan, if available, will start.

D. "A" train fan logic is biased to start first and AHF-1B, if running, should be in slow speed.

OPS 4-13 Section 1-14.0 Table 2

RO - Direct

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

QUESTIONS REPORT
for NRC Reviewed RO BANK

Tier:	2	Group:	1
Keyword:	RO #39	Cog Level:	MEM 2.8/3.1
Source:	B	Exam:	CR03301
Test:	R	Misc:	ATK

20. 013K6.01 001

The following plant conditions exist:

- An RBIC actuation has occurred.
- One 4 psig pressure switch in the "A" train has failed in the non-actuated position.
- Two 4 psig pressure switches in the "B" train are failed in the non-actuated position.

Assuming no input to any isolation valves from diverse isolation (HPI), which of the following statements describes the status of the RBIC actuation and the RB isolation safety function for these conditions?

A. Both "A" and "B" trains of RBIC would actuate. The safety function would be met.

B. ✓ "A" train of RBIC would actuate, "B" train would not actuate. The safety function would be met.

C. "A" train of RBIC would actuate, "B" train would not actuate. The safety function would not be met.

D. Neither train of RBIC would actuate. The safety function would not be met.

Reasons:

A. "B" train would not actuate due to two failed switches.

B. Correct. "A" train would actuate due to two tripped channels, "B" train would not actuate due to two failed switches. Either train will meet the safety function.

C. "A" train would actuate due to two tripped channels, "B" train would not actuate due to two failed switches. Either train will meet the safety function.

D. "A" train would actuate due to two tripped channels.

OPS 4-13 Section 1-2.0.B1.e

RO - Direct

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	

Tier:	2	Group:	1
Keyword:	RO #38	Cog Level:	C/A 2.7/3.1
Source:	B	Exam:	CR03301
Test:	R	Misc:	ATK

21. *014K4.05 001*
In the Control Rod Drive system which of the following will cause an OUT INHIBIT when the diamond panel is in automatic control?

A. Asymmetric fault with reactor power less than 60%.

B. ✓ Loss of safety rods out limit with reactor power greater than 60%.

C. Loss of motor power supply with reactor power less than 60%.

D. A sequence inhibit with reactor power greater than 60%.

Reasons:

A. Reactor power would have to be > 60% for an asymmetric fault to generate an out inhibit.

B. Correct. Loss of the safety rod out limit at > 60% reactor power will generate an out inhibit.

C. Motor power has no input to the out inhibit circuitry.

D. Sequence inhibit will not give an out inhibit but it will require the rods to be moved in manual.

OPS 4-28 1-4.0.M.1.r) & Figure 16

RO - Direct [Opsbank ROT-4-28-010]

References provided: None

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	
Tier:	2				Group:	2	
Keyword:	RO #58				Cog Level:	MEM 3.1/3.3	
Source:	B				Exam:	CR03301	
Test:	R				Misc:	ATK	

22. 015A1.04 002

During a power increase the RO notices the following NI indications. The power increase is stopped and the plant is stabilized. The following indications are recorded.

- NI-5 upper chamber	42.0%	NI-7 upper chamber	42.4%
- NI-5 lower chamber	43.3%	NI-7 lower chamber	44.4%
- NI-6 upper chamber	43.3%	NI-8 upper chamber	48.0%
- NI-6 lower chamber	44.6%	NI-8 lower chamber	49.4%

Which of the following describes the required actions, if any, for the above indications?

A.✓ Reduce thermal power to < 60% of the allowable thermal power within two hours AND reduce the nuclear overpower trip setpoint to ≤ 65.5% of the allowable thermal power within 10 hours.

B. Reduce thermal power ≥ 2% RTP from the allowable thermal power for each 1% of QPT greater than the steady state limit within 30 minutes AND restore QPT to less than or equal to the transient limit within two hours.

C. No TS actions are required. These indications are expected due to the increased shielding from Tcold at lower power levels.

D. No TS actions are required. These indications are expected due to the decreased shielding from Tcold at lower power levels.

Reasons:

A. Correct. With power > 60% and QPT greater than the Transient Limit this is the correct action to take.

B. The QPT calculation equals 9. This is greater than the transient but less than the maximum and there is no misaligned rod. TS 3.2.4 condition D applies.

C. TS 3.2.4 is required to be entered due to QPT. Shielding is decreased due to a hotter Tcold at lower power.

D. TS 3.2.4 is requried to be entered due to QPT.

TS 3.2.4; COLR

RO - Direct [Newops 4-10-007]

References provided: COLR & TS 3.2.4

Rev. 0 to NRC on 5-9-03
Rev. 1 to NRC on 6-17-03

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

Tier:	2	Group:	2
Keyword:	RO #59	Cog Level:	C/A 3.5/3.7
Source:	B	Exam:	CR03301
Test:	R	Misc:	ATK

23. 016A3.01 001

The following plant conditions exist:

- The plant is at 40% power with turbine control in ICS/Auto.
- Turbine is selected to "A" header pressure for control.
- The header pressure setpoint is currently set at 46 for maintenance trouble shooting activities of the turbine header pressure control circuit.

Which of the following describes the plant response if the selected "A" header pressure transmitter failed rapidly to mid-scale?

A.✓ SASS will swap to the unaffected transmitter. Turbine and TBV control will not be affected.

B. SASS will swap to the unaffected transmitter. Turbine control will not be affected but the TBV associated with the failed transmitter must be controlled in manual.

C. SASS will *not* swap to the unaffected transmitter. The turbine and TBVs must be controlled in manual.

D. SASS will *not* swap to the unaffected transmitter. Turbine control will not be affected but the TBV associated with the failed transmitter must be controlled in manual.

Reasons:

With HP setpoint @ 46 the controlling HP signal is 876# vs the normal 885#. A failure mid-scale of the transmitter will result in a 900# signal. A delta of 24#. SASS requires a 3% scale change to transfer. This equates to 18# of the 600# to 1200# scale. If HP setpoint was at its normal setpoint of 47.5 then the SASS transfer would not occur.

A. Correct. SASS will automatically swap and there will be no affect on the turbine or TBVs.

B. TBV control is unaffected.

C. SASS will swap. Turbine and TBVs can remain in automatic.

D. SASS will swap. TBV control is not affected.

OPS 4-09 Section 1-14.0

RO - New

References provided: None

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

Items Not Scrambled

Tier:	2	Group:	2
Keyword:	RO #60	Cog Level:	C/A 2.9/2.9
Source:	N	Exam:	CR03301
Test:	R	Misc:	ATK

24. 022A2.04 001

Ten minutes after an RBIC actuation occurred a malfunction results in the closure of SWV-36, AHF-1A Cooling Water Inlet isolation valve. Which of the following describes the affected component(s) and required operator action(s)?

A. Only AHF-1A's cooling coils will lose SW cooling water; cooling water supply should be swapped to Industrial Cooling (CI) within 5 minutes.

B. AHF-1A's cooling coils and motor cooler will lose SW cooling water; cooling water supply should be swapped to Industrial Cooling (CI) within 5 minutes.

C. Only AHF-1A's cooling coils will lose SW cooling water; AHF-1B should be started in slow speed and AHF-1A should be secured.

D.✓ AHF-1A's cooling coils and motor cooler will lose SW cooling water; AHF-1B should be started in slow speed and AHF-1A should be secured.

Reasons:

A. Motor coolers are also cooled by SW. CI is isolated on an RBIC actuation and even if actions were taken to restore CI cooling to the RB flow could not be restored to this fan because both SW and CI use the same cooling valves inside the RB.

B. CI is isolated on an RBIC actuation and even if actions were taken to restore CI cooling to the RB flow could not be restored to this fan because both SW and CI use the same cooling valves inside the RB.

C. Motor cooler will also lose cooling water.

D. Correct. Both the cooling coils and motor cooler will lose cooling. The alternate ES fan should be started in slow speed and AHF-1A should be secured.

OPS 4-56 Section 1-3.0.C

RO - New

References provided: None

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 NRC Reviewed RO BANK

Tier:	2	Group:	1
Keyword:	RO #40	Cog Level:	MEM 2.9/3.2
Source:	N	Exam:	CR03301
Test:	R	Misc:	ATK

25. 022AA2.04 002

The following plant conditions exist:

- Turbine is ready to sync on line.
- PZR level normal.
- Letdown flow is 75 gpm.
- Seal injection flow is 40 gpm.
- MUV-31 has failed closed.
- MUV-31 bypass flow indicates 20 gpm.

PZR level ≈ 12 gal/inch

Assuming no operator action approximately how long would it take for the PZR Low level alarm to annunciate? (disregard CBO flow)

A. 8 minutes

B. 12 minutes

C.✓ 16 minutes

D. 20 minutes

Reasons:

With the turbine ready to synch the operator knows the RCS is at normal temperature and PZR level should be at 220".

A., B., C., & D.

220" (PZR normal) - 200" (PZR Low alarm) = 20" 20" X 12 gal/inch = 240 gal.
20 gpm (makeup) + 40 gpm (seal injection) - 75 gpm (letdown) = -15 gpm
240 gallons divided by 15 gpm = 16 minutes

OPS 4-09 Section 1-4.0.B.6

RO - New

References provided: None

Rev. 0 to NRC on 4-11-03
Rev. 1 to NRC on 4-22-03

QUESTIONS REPORT

for NRC Reviewed RO BANK

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

Tier:	1	Group:	1
Keyword:	RO #6	Cog Level:	C/A 2.9/3.8
Source:	N	Exam:	CR03301
Test:	R	Misc:	ATK

26. *025AK2.05 001*

When aligning the DHR system for boron precipitation, EOP-14, Enclosure 20, Boron Precipitation Control, directs that the seal-in circuits for DHV-42 and 43 be defeated. Enclosure 20 also directs that the valve control switch be held in the open position for 6 seconds before the DH drop-line valves are opened.

Which of the following describes a possible consequence if DHV-42 or 43 were fully open when drop-line flow commenced?

The resulting drop-line flow could cause:

A. vortexes in the core region.

B. ✓ RB sump screen damage and loss of the running DHR/LPI pump.

C. voiding in the core region from the rapid pressure drop that would occur.

D. inadequate mixing of the RB sump water with the trisodium phosphate (TSP) resulting in a higher than calculated pH required for adequate iodine removal.

Reasons:

A. Drop line flow cannot cause vortexing in the Rx vessel due to the flowpaths in the Rx vessel.

B. Correct. Reduced flow limits challenges to the operating DHR/LPI train and the ECCS sump screen.

C. Voiding in the core region will not occur due to the flowpath from the core to the hotleg and then out the drop line to the RB sump.

D. The TSP baskets are located near the sump, but not in the drop-line flow path.

EOP-14, Enclosure 20, OPS 5-116 Sections 20.9 & 10

RO - Direct [Newops 5-116-010]

References provided: None

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 NRC Reviewed RO BANK

Tier:	1	Group:	1
Keyword:	RO #7	Cog Level:	MEM 2.6/2.6
Source:	B	Exam:	CR03301
Test:	R	Misc:	ATK

27. 026A3.01 001

The following plant conditions exist:

- Breakers 4900 & 4902 have opened (feeders to the OPT).
- A LOCA in containment is in progress.
- RB pressure is 34 psig.
- RCS pressure is 725 psig.

Based on the above conditions which of the following describes the status of DHP-1A, BSP-1A, DHV-110 and BSV-3? (assume sufficient time has elapsed for all automatic actions to occur)

A.	DHP-1A	Off
	BSP-1A	Running
	DHV-110	Open
	BSV-3	Throttled
B.✓	DHP-1A	Off
	BSP-1A	Running
	DHV-110	Throttled
	BSV-3	Throttled
C.	DHP-1A	Running
	BSP-1A	Running
	DHV-110	Throttled
	BSV-3	Open
D.	DHP-1A	Running
	BSP-1A	Off
	DHV-110	Open
	BSV-3	Closed

Reasons:

A. DHV-110 is throttled in its ES standby position. The valve must first see its respective DHP start then, after a 30 second time delay, the valve will control flow at 3000 gpm.

B. Correct. LOOP conditions exist for the "A" ES bus. The RBIC cascade start of DHP-1A is defeated on a LOOP. If RCS pressure decreases below 500 psig the LPI actuation signal will start the pump. BSP-1A is running due to the HPI actuation accompanied by RB pressure > 30 psig. DHV-110 is still in its ES standby position because DHP-1A has not started. BSV-3 is throttled to control flow at 1500 gpm.

C. DHP-1A is not running due to LOOP conditions. BSV-3 should be throttled controlling flow.

D. DHP-1A is not running due to LOOP conditions. BSP-1A should be running. If DHP-1A were running then DHV-110 would be full open attempting to achieve 3000 gpm flow. BSV-3 will be full open due to the RBIC but should now be throttled due to the 30# signal.

OPS 4-13 Tables 2, 4, 5 & 6, OPS 4-62 Sections 1-4.0.B & C, OPS 4-54 Sections 1-4.0.C.7.b & 1-4.0.G.3.e

RO - 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		
Tier:	2			Group:	1		
Keyword:	RO #41			Cog Level:	C/A 4.3/4.5		
Source:	N			Exam:	CR03301		
Test:	R			Misc:	ATK		

28. 026AA1.04 001

Multiple CRDM high stator temperature alarms are in. Which of the following conditions could cause these indications?

A.✓ Standby SW booster pump auto-start and CRD filter delta P > 30 psid.

B. SWV-763, CRD Temperature control valve, fails to its maximum closed position.

C. The low SW flow interlock to the SW booster pumps fails and sends a low flow signal to the pumps.

D. During performance of SP-344A, RWP-2A, SWP-1A and Valve Surveillance, RWV-150, recirc to RW pit valve, fails full open.

Reasons:

A. Correct. The filter is clogged and reducing flow to the stators.

B. This valve has a mechanical gag that prevents overheating the stators by ensuring a minimum supply flow.

C. A failure of this interlocklow will send a start signal to the standby pump.

D. With RWP-2A running this failure will not effect RW flow to the SW heat exchangers.

OPS 4-56 Section 1-4.0.6.F

RO - New

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:	A A A A A A A A A A	Items Not Scrambled		
Tier:	1			Group:	1		
Keyword:	RO #8			Cog Level:	MEM 2.7/2.8		
Source:	N			Exam:	CR03301		
Test:	R			Misc:	ATK		

29. 027AA1.05 001

With the plant operating at 65% power a 'Sudden Pressure' relay actuates on the Startup Transformer.

Based on the above conditions which of the following electrical line-ups could be used to supply power to the 'A' Train PZR heaters?

A. MTDG-1; 4160V Rx Aux Bus 3; 480V Rx Aux Bus 3A.

B.✓ EDG-1A; ES 4160V Bus 3A; ES 480V Bus 3A; 480V Rx Aux Bus 3A.

C. BEST; ES 4160V Bus 3A; ES 480V Bus 3A; 480V Rx Aux Bus 3A.

D. EDG-1B; ES 4160V Bus 3B; 480V Plant Aux Bus; 480V Rx Aux Bus 3A.

Reasons:

A. 4160V Rx Aux Bus 3 cannot feed 480V Rx Aux Bus 3A.

C. The BEST has been lost due to the relay actuation associated with the Startup Transformer.

D. This used to be a viable option until the removal of the feed to 480V Rx Aux Bus 3A.

OPS 4-89 Figure 1; OPS 4-88 Sections 1-2.0-C.3.f, 1-2.0-I.3.b; AP-770

NRCN99

RO - Direct

Reverences provided: None

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	
Tier:	1			Group:	1		
Keyword:	RO #9			Cog Level:	C/A 3.3/3.0		
Source:	B			Exam:	CR03301		
Test:	R			Misc:	ATK		

30. 028AK2.02 002

The following plant conditions exist:

- Plant is at 100% power.
- The selected PZR level transmitter rapidly fails low.

Which of the following describes what effect, if any, this malfunction will have on MUV-31 (PZR level control valve) operation?

MUV-31:

A. will throttle closed in an attempt to restore PZR level.

B. will throttle open in an attempt to restore PZR level.

C. is interlocked to freeze in position without a valid PZR level signal.

D.✓ operation will be unaffected because SASS will transfer to the alternate level control signal.

Reasons:

A. & B. For a *rapid* failure SASS will automatically swap control to the alternate level transmitter.

C. This interlock does not exist on this valve but does on other similar air operated valves.

D. Correct. Since the level transmitter failure was fast SASS will transfer to the good signal.

OPS 4-09 Section 1-4.0.A.5.a

RO - Direct [Newops 4-009-007]

References provided: None

Rev. 0 to NRC on 4-22-03
Rev. 1 to NRC on 6-17-03
MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: D C A C C A D D A C Scramble Range: A - D

QUESTIONS REPORT
for NRC Reviewed RO BANK

Tier:	1	Group:	2
Keyword:	RO #20	Cog Level:	MEM 2.6/2.7
Source:	B	Exam:	CR03301
Test:	R	Misc:	ATK

31. *029EK3.11 001*

The following plant conditions exist:

- Reactor power is 50%.
- RCS pressure is 1950 psig.
- RCS Thot is 604° F.
- FW flow is 2.6 E6 lbm/hr in each loop.

Based on the above conditions determine if an ATWS event has/has not occurred and which of the following actions should be taken?

A. An ATWS event has occurred. Immediate actions of EOP-2 should be performed and a manual turbine trip is required if reactor power remains at 50%.

B.✓ An ATWS event has occurred. Immediate actions of EOP-2 should be performed and RCS boration is required if reactor power remains at 50%.

C. An ATWS event has *not* occurred. Excessive FW has caused the RCS pressure decrease and FW flow should be lowered.

D. An ATWS event has *not* occurred. A steam leak has caused the RCS pressure decrease and the reactor should be tripped if the leak cannot be isolated.

Reasons:

A. The third immediate action of EOP-2 requires the operator to remain at that step and borate until the reactor is shut down. The next step requires the turbine trip actions.

B. Correct. RCS pressure is too low for current RCS Thot. The variable low pressure trip setpoint is exceeded and the reactor should have automatically tripped. Boration is required if the reactor does not indicate shutdown.

C. An ATWS event has occurred and FW flow is normal for this power level.

D. An ATWS event has occurred. A steam leak would cause RCS pressure to decrease but would not cause Thot to increase.

OPS 5-96 Section 1-2.0.C; OPS 4-12 Obj. 4 Section 1-3.0.C.2.h; EOP-2 Step 3.3

RO - New

References provided: None

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 B B B B B B B B B		Items Not Scrambled
Tier:	1			Group:	1	
Keyword:	RO #10			Cog Level:	C/A 4.2/4.3	
Source:	N			Exam:	CR03301	
Test:	R			Misc:	ATK	

32. 029K4.03 008

The plant is in Mode 5 with an RB purge in progress. High radiation in the containment atmosphere has now resulted in RM-A1 gas and RM-A6 gas channels going into high alarm.

Which of the following describes the expected automatic actions for these conditions?

A. Both RB purge exhaust fans will be tripped by RM-A1 interlocks.

B.✓ AHV-1A, 1B, 1C, and 1D will be closed by RM-A1 interlocks.

C. Both RB purge exhaust fans will be tripped by RM-A6 interlocks.

D. AHV-1A, 1B, 1C, and 1D will be closed by RM-A6 interlocks.

Reasons:

A. No automatic trip is supplied to these fans from radiation monitors.

B. Correct. An interlock for RM-A1 gas channel in high alarm is the closure of AHV-1A, 1B, 1C and 1D.

C. RM-A6 has no interlocks which reposition equipment.

D. RM-A6 has no interlocks which reposition equipment.

OPS 4-25 Section 1-4.0.F.4.g

References provided: None

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	
Tier:	2			Group:	2		
Keyword:	RO #52			Cog Level:	MEM 3.2/3.5		
Source:	B			Exam:	CR303301		
Test:	R			Misc:	ATK		

33. 033AA2.04 001

A plant startup is in progress with the indications below. If the "C" RPS cabinet were to lose power which of the following sets of conditions would have met overlap requirements and allow continued power ascension?

A.	NI-3	1×10^{-5}
	NI-4	1×10^{-5}
	NI-5, 6, 7 & 8	3%
B.✓	NI-3	1×10^{-5}
	NI-4	1×10^{-5}
	NI-5, 6, 7 & 8	12%
C.	NI-1	9×10^{5}
	NI-2	9×10^{5}
	NI-3	3×10^{-10}
	NI-4	3×10^{-10}
D.	NI-1	9×10^{5}
	NI-2	9×10^{5}
	NI-3	3×10^{-11}
	NI-4	3×10^{-11}

Reasons:

A. Overlap requirements have not been met.

B. Correct. Overlap requirements have been met and since the plant was in Mode 1 prior to losing NI-3 power ascension may continue.

C. Overlap requirements have been met but since the plant is in Mode 2 power ascension may not continue until NI-3 is declared operable.

D. Overlap requirements have not been met.

TS 3.3.1, 3.3.9 & 3.3.10; OPS 4-10 Figure 1

RO - New

References provided: TS 3.3.10

Rev. 0 to NRC on 5-9-03

MCS	Time: 1	Points: 1.00	Version:	0 1 2 3 4 5 6 7 8 9			
			Answer:	B D D B C B A A C D		Scramble Range: A - D	
Tier:	1			Group:	2		
Keyword:	RO #21			Cog Level:	C/A 3.2/3.6		
Source:	N			Exam:	CR03301		
Test:	R			Misc:	ATK		

34. 035K4.01 001

RCP-1B has been secured due to an oil leak. A plant shutdown is in progress to repair the leak. Which of the following describes how OTSG levels are controlled once Low Level Limits are reached on the "A" OTSG?

A. The ΔTc circuit ensures additional flow will be maintained to the "B" OTSG to maintain ΔTc at 0° F.

B. The RCS Flow Ratio circuit ensures additional flow will be maintained to the "B" OTSG to maintain ΔTc at 0° F.

C.✓ The Total FW Flow Control circuit ensures additional flow will be maintained to the "B" OTSG to maintain LLL in the "A" OTSG.

D. The FW Temperature Compensation circuit ensures additional flow will be maintained to the "B" OTSG to maintain LLL in the "A" OTSG.

Reasons:

A. The ΔTc circuit is blocked when either OTSG reaches LLL.

B. The RCS Flow Ratio circuit still attempts to control FW but is overridden when the conditions for the Total FW Flow Control circuit are met.

C. Correct. The Total FW Flow Control circuit conditions are met and this circuit will override FW flow input from all the other circuits.

D. This circuit is upstream of the Total FW Flow Control circuit and any input it may have is overridden.

OPS 4-14 Section 1-4.0.H.5.c)

RO - New

References provided: None

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

Tier:	2	Group:	2
Keyword:	RO #61	Cog Level:	MEM 3.6/3.8
Source:	N	Exam:	CR03301
Test:	R	Misc:	ATK

35. 037AK3.05 001

The crew has entered EOP-6, Steam Generator Tube Rupture, and minimized subcooling margin by RCS depressurization as required.

Which of the following describes the reason for minimizing subcooling margin?

Minimizes:

A.✓ RCS leakage through the leaking OTSG tube.

B. time required for cooldown of the RCS.

C. potential of lifting Main Steam Safety Valves.

D. tensile stresses on affected OTSG tubes.

Reasons:

A. Correct. The reduction of subcooling margin minimizes the delta pressure across the OTSG tube and therefore minimizes the leak rate.

B. Minimizing RCS pressure has no affect on the time required for RCS cooldown.

C. Even though RCS pressure is minimized it still will initially be greater than MSSV setpoints.

D. RCS pressure reduction does not minimize tensile stresses on the OTSG tubes.

EOP-6 Step 3.17; OPS 5-101 Section 1-4.0-O

RO - Direct [Newops 5-101-005]

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

QUESTIONS REPORT
for NRC Reviewed RO BANK

Tier:	1	Group:	2
Keyword:	RO #22	Cog Level:	MEM 3.7/4.0
Source:	B	Exam:	CR03301
Test:	R	Misc:	ATK

36. 038EA2.08 002

The following plant conditions exist:

- A 150 gpm OTSG tube rupture has occurred on the "A" OTSG.
- A Loss of Off-site Power (LOOP) and Reactor trip have occurred.
- "B" OTSG has been isolated because of an unisolable steam leak.
- A plant cooldown and depressurization is in progress in accordance with EOP-6.
- The Reactor Coolant System (RCS) is presently at 491°F (Tincore) and 1225 psig.
- "A" OTSG is being maintained at its natural circulation level by EFP-3.
- Initial Dose Equivalent (DE) I-131 was 1.35 µci/g.
- Borated Water Storage Tank (BWST) level is 38.5 feet.

Based on these conditions, which of the following describes the action which should be taken?

A. The "A" OTSG should be isolated because TRACC limits are being exceeded.

B. ✓ The "A" OTSG should be steamed to atmosphere and cooldown rates maintained within normal limits.

C. Cooldown rate should be increased to 240°F/hr until "B" OTSG is recovered or Off-site power is available.

D. Cooldown must be stopped until the "B" OTSG or Off-site power can be recovered.

Reasons:

A. EOP-6, Step 3.33. Do not have secondary side integrity on both OTSGs. Will not isolate (TRACC) only available OTSG due to DE I-131 > limit..

B. Correct. With the conditions given, normal cooldown rates should be used; TRACC limits do not apply.

C. The RCS is below 500 degrees. The emergency cooldown rates should not be used.

D. Cooldown should not be stopped. Continued cooldown and depressurization will minimize the leak rate into the OTSG, maximize makeup capabilities and maximize the time that BWST inventory will last.

EOP-6, Step 3.33

RO - Direct

References provided: EOP-6

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		

Tier:	1	Group:	1
Keyword:	RO #11	Cog Level:	C/A 3.8/4.4
Source:	B	Exam:	CR03301
Test:	R	Misc:	ATK

37. 039A2.05 002

The reactor has just been taken critical when an atmospheric dump valve fails open.

Which of the following describes what will happen to T_{ave} and nuclear power and what operator actions should be taken?

A. Tave will rise; final power will be at the point of adding heat (POAH). The ADV should be closed and rods inserted to restore Tave.

B. Tave will rise; final power will exceed the POAH. The ADV should be closed and secondary parameters used to restore Tave.

C. Tave will lower; final power will be at the POAH. The ADV should be closed and rods withdrawn to restore Tave.

D.✓ Tave will lower; final power will exceed the POAH. The ADV should be closed and secondary parameters used to restore Tave.

Reasons:

A. The steam leak will cause RCS temperature to decrease; the size of the steam leak should approximate the final power level.

B. The steam leak will cause RCS temperature to decrease.

C. The size of the steam leak should approximate the final power level. Rods should not be withdrawn to restore Tave.

D. Correct. Tave will lower and the positive reactivity addition will increase reactor power to approximately the size of the steam leak.

OPS 3-22 Section 3-2.0.C and 3-5.0.G

NRC 6-97

RO - Direct

References provided: None

Rev. 0 to NRC on 4-11-03
Rev. 1 to NRC on 6-17-03

QUESTIONS REPORT

for NRC Reviewed RO BANK

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

Tier:	2	Group:	1
Keyword:	RO #43	Cog Level:	MEM 3.3/3.6
Source:	B	Exam:	CR03301
Test:	R	Misc:	ATK

38. 039K3.04 002

The plant is currently at 95% power and decreasing power due to an unisolable steam leak two feet downstream of MSV-53, MN STM to FWP & TURB BP, STM GEN A ISOL. What effect, if any, will closing this valve have on the "A" MFWP?

When reactor power decreases to ≈ 80% the:

A. swap to reheat steam can occur as normal.

B. ✓ swap to auxiliary steam can occur as normal.

C. MFWP will trip since the swap to main steam cannot occur.

D. MFWP will trip since the swap to auxiliary steam cannot occur.

Reasons:

A. The MFWPs use reheat steam from about 80% to 100% power.

B. Correct. At about 80% power the auxiliary steam supply will come from MSV-179, not MSV-53.

C. & D. The normal steam supply from 80% down is auxiliary steam supplied by main steam. The transfer can occur as it normally does.

OPS 4-66 Section 1-2.0.B.2, OPS 4-67 Section 2-3.0

RO - New

References provided: None

Rev. 0 to NRC on 4-22-03
Rev. 1 to NRC on 6-17-03

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
Tier:	2				Group:	1	
Keyword:	RO #42				Cog Level:	MEM 2.5/2.6	
Source:	N				Exam:	CR03301	
Test:	R				Misc:	ATK	

39. 041A2.02 001

With the plant at full power the following conditions exist:

- The AULD is OOS.
- Tave has decreased about 2° F.
- Reactor power has increased about 3%.

Which of the following failures could have caused these conditions and what would be the appropriate action to take?

A. A MSSV has failed open. The associated MSIV should be closed.

B. A MSSV has failed open. The associated isolation valve should be closed.

C. A TBV has failed open. The associated MSIV should be closed.

D.✓ A TBV has failed open. The associated isolation valve should be closed.

Reasons:

A. The MSIVs are downstream of the MSSVs.

B. There are no individual isolation valves on the MSSVs.

C. While closing the MSIV will isolate the TBV this is not the appropriate action to take, especially at full power.

D. Correct. The TBVs have individual isolation valves that can be closed.

AI-505 Step 4.14.1.b

RO - New

References provided: None

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	
Tier:	2				Group:	2	
Keyword:	RO #62				Cog Level:	C/A 3.6/3.9	
Source:	N				Exam:	CR03301	
Test:	R				Misc:	ATK	

40. 045K3.01 002

The following plant conditions exist:

- A reactor/turbine trip has occurred.
- The turbine governor valves indicate "CLOSED".
- The turbine throttle valves indicate "OPEN".
- "B" OTSG has developed a small steam leak and pressure is steady at approximately 800 psig.

The "A" OTSG pressure should *stabilize* at approximately:

A.✓ 800 psig.

B. 885 psig.

C. 1010 psig.

D. 1025 psig.

Reasons:

A. Correct. With the TVs open there is a direct path from one OTSG, through the turbine, to the other OTSG.

B. Normal header pressure. With the OTSGs cross-connected both OTSG's pressure should be approximately equal.

C. This is the normal post trip pressure if the TBVs are controlling pressure.

D. This is the normal post trip pressure if the ADVs are controlling pressure.

OPS 4-66 Section 1-8.0.C; OPS 5-96 Section 1-2.0.E

RO - Direct [Newops ROT 4-66 032]

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

QUESTIONS REPORT
for NRC Reviewed RO BANK

Tier:	2	Group:	2
Keyword:	RO #63	Cog Level:	C/A 2.9/3.2
Source:	B	Exam:	CR03301
Test:	R	Misc:	ATK

41. 054AA1.02 001

The following plant conditions exist:

- A LOOP has occurred with the plant previously at 40% power.
- EFP-2 did not start.
- EFP-3 has a red light on the control handle but no flow is indicated.

Which of the following "prompt and prudent" actions should be taken?

Attempt to:

A. start EFP-1.

B. start FWP-7.

C. open MSV-55 and/or MSV-56 (EFP-2 steam isolation valves).

D.✓ open ASV-5 and/or ASV-204 (EFP-2 steam control valves).

Reasons:

A. & B. These actions would not be taken without prodedural guidance.

C. MSV-55 & 56 are normally open valves. There is no automatic closure signal to these valves.

D. Correct. Prompt and prudent actions may be taken for failure of an automatic system to respond correctly. If ASV-5 didn't open automatically then it or its sister valve, ASV-204, should be manually selected to open.

AI-505 Step 4.1.4.b; OPS 4-31 Section 1-2.0.D.2.a)

RO - New

References provided: None

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	
Tier:	1				Group:	1	
Keyword:	RO #13				Cog Level:	MEM 4.4/4.4	
Source:	N				Exam:	CR03301	
Test:	R				Misc:	ATK	

42. 055EK3.02 001

Step 3.4 of EOP-12 Station Blackout directs the operator to:

"Actuate MSLI on both OTSGs."

Which of the following describes the reason for this step?

A.✓ Limit cooldown to aid in maintaining RCS inventory.

B. To prevent OTSG dryout due to the loss of Main Feedwater.

C. To ensure OTSGs are isolated due to the loss of power to automatic Main Steam Line Isolation logic.

D. To maintain greater than 100 psig in the OTSGs due to the loss of turbine bypass valve control.

Reasons:

A. Correct. This step aids in reducing or limiting the RCS cooldown thereby maintaining RCS inventory since no RCS makeup is available.

B. OTSGs will not dryout due to feeding from EFP-2 or 3

C. Power is still available from EFIC for MSLI

D. Turbine bypass valves are not used due to the loss of all circulating water pumps and isolating the OTSGs, in this case, has nothing to due with maintaining OTSG pressure.

EOP-12 Step 3.4; OPS 5-100 Section 1-4.0.F

RO - Direct [Newops 5-100-004]

References provided: None

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	
Tier:	1			Group:	1	
Keyword:	RO #14			Cog Level:	MEM 4.3/4.6	
Source:	B			Exam:	CR03301	
Test:	R			Misc:	ATK	

43. 056AG2.1.02 001

The following plant conditions exist:

- A LOOP has occurred.
- 'A' EDG did not start due to an electrical lockout.
- 'B' EDG initially started and loaded on the bus and then the output breaker tripped open for no apparent reason. The EDG engine remained at 900 rpm.

Which of the following describes the electrical lockouts, at a minimum, which must be reset if *both* EDGs are to be loaded on the ES buses?

A.✓ 'A' EDG - 86DG, generator differential current lockout relay
'B' EDG - 86B, lockout relay

B. 'A' EDG - 4160V undervoltage lockout relay
'B' EDG - 4160V undervoltage lockout relay

C. 'A' EDG - 86B, lockout relay
'B' EDG - 86DG, generator differential current lockout relay

D. 'A' EDG - 86DG, generator differential current lockout relay
'B' EDG - 86DG, generator differential current lockout relay

Reasons:

B. The 'A' EDG undervoltage lockout will not prevent the engine from starting. The 'B' EDG undervoltage lockout will not open breaker 3210.

C. The 'A' EDG 86B lockout will not prevent the engine from starting. The 'B' EDG engine would have shutdown if this lockout actuated.

D. The 'B' EDG engine would have shutdown if this lockout actuated.

OPS 4-06 Section 1-4.0.M; OPS 4-90 Section 1-4.0-F; AP-770

NRCN99

RO - Direct [Newops 4-90-001]

References provided: None

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

QUESTIONS REPORT
for NRC Reviewed RO BANK

Tier:	1	Group:	1
Keyword:	RO #15	Cog Level:	C/A 3.0/4.0
Source:	B	Exam:	CR03301
Test:	R	Misc:	ATK

44. 056K1.03 001
Which of the following describes the direct signal that decreases condensate flow demand on a loss of one MFW pump at 80% power?

A. A signal from the DFT high level interlock.

B. A runback signal from the ULD sub-section of the ICS.

C. A signal that compares existing CD flow with FW flow and HW level.

D.✓ A signal that compares existing CD flow with FW flow and DFT level.

Reasons:

A. This interlock will trip all running CDPs, not lower CD demand.

B. A runback will be in effect however there is no direct signal to condensate to lower demand.

C. FW flow and CD flow are compared to modifiy condensate demand. Hotwell level will increase but this will only modify the position of CDV-88, not actual CD demand.

D. Correct. CD demand is directly modified by actual FW flow and DFT level.

OPS 4-69 Section 1-4.0.B.5.f

NRCN99

RO - Direct

References provided: None

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:	D	A	B	C	D	A	B	C D A

Scramble Range: A - D

Tier:	2	Group:	1
Keyword:	RO #44	Cog Level:	MEM 2.6/2.6
Source:	B	Exam:	CR03301
Test:	R	Misc:	ATK

45. 058AA2.02 002

The plant has been in a Station Blackout for approximately three hours when Annunciator P-4-1, Inverter A Failure, comes into alarm. Which of the following is the reason for this alarm?

A. The inverter has lost its AC power supply due to failure of the static transfer switch and its DC power supply due to battery depletion.

B. The inverter has lost its AC power supply due to the Station Blackout and its DC power supply when the static transfer switch failed.

C. ✓ The inverter has lost its AC power supply due to the Station Blackout and its DC power supply due to battery depletion.

D. The inverter has lost its AC power supply and DC power supply due to a static transfer switch failure.

Reasons:

A. The static transfer switch is located on the output of the inverter to the VBDPs. There is no static switch for the supply to the inverter.

B. There is a single DC power supply to the inverter. The static switch is on the inverter output.

C. Correct. The SBO has de-energized the AC input to the inverter. Battery depletion has lowered the battery output to < 105 VDC.

D. Static transfer switches are only on the output of the inverters, not the inputs.

OPS 4-64 Section 1-4.0.C.3; AR-701 EP 0159

NRC 96

RO - Direct [Opsbank ROT 4-64-018]

References provided: None

Rev. 0 to NRC on 5-9-03
Rev. 1 to NRC on 6-17-03

QUESTIONS REPORT

for NRC Reviewed RO BANK

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

Tier:	1	Group:	1
Keyword:	RO #16	Cog Level:	MEM 3.3/3.6
Source:	B	Exam:	CR03301
Test:	R	Misc:	ATK

46. 059A4.10 001

The following plant conditions exist:

- Plant is operating ≈ 20% power.
- SUCV position ≈ 95% open.
- LLCV position ≈ 5% open.

I & C technicians have requested that the 'B' train SUCV and LLCV H/A stations be taken to hand in order to record some data on the proportional/integral module supplying the input to these stations. Permission is received and these stations are placed in manual. After the technicians are finished, with no problems noted, preparations are made to return these stations to automatic.

Which of the following describes the appropriate actions to return these stations to automatic?

A. Place the SUCV in auto first, then place the LLCV in auto.

B. ✓ Place the LLCV in auto first, then place the SUCV in auto.

C. Open the SUCV to 100% to allow the LLCV full control. Place the LLCV in auto first and then the SUCV.

D. Close the LLCV to allow the SUCV full control. Place the SUCV in auto first and then the LLCV.

Reasons:

A. The LLBV must be open at this point. The SUCV cannot be placed in automatic first if the LLBV is open.

C. The SUCV and LLCV are operating as designed. The operator should not manipulate control valve position unnecessarily.

D. The SUCV and LLCV are operating as designed. The operator should not manipulate control valve position unnecessarily. The SUCV cannot be placed in automatic first if the LLBV is open.

OP-504 Section 4.4; OPS 4-14 Section 1-4.0.H.13.d.2

NRCN99

RO - Direct [Newops 4-014-010]

References provided: None

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	
Tier:	2				Group:	1	
Keyword:	RO #45				Cog Level:	C/A 3.9/3.8	
Source:	B				Exam:	CR03301	
Test:	R				Misc:	ATK	

47. 059G2.1.22 001

Based on the following plant conditions:

- FWV-28 (Feedwater Cross Connect) - OPEN
- "B" Main Feedwater Pump (FWP-2B) - TRIPPED
- "A" Startup Control Valve's Differential Pressure - 85 psig
- "B" Startup Control Valve's Differential Pressure - 75 psig

Which of the following statements describes the "A" Main Feedwater Pump (FWP-2A) control mode?

A. Lowest loop FW flow error.

B. Individual loop FW flow error.

C. Delta Pressure across the "A" loop control valves.

D.✓ Delta Pressure across the "B" loop control valves.

Reasons:

A., B., C., & D. With FWV-28 open the MBVs are closed. Both FWPs shift to delta P control when the MBVs are closed. If a MFWP is tripped then the logic shifts to lowest loop delta pressure control.

OPS 4-14 Section 1-4.0.H.13

RO - Direct

References provided: None

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

Tier:	2	Group:	1
Keyword:	RO #46	Cog Level:	MEM 2.8/3.3
Source:	B	Exam:	CR03301
Test:	R	Misc:	ATK

48. 061K2.01 001

A maintenance worker inadvertently hits the power supply wiring for EFV-57, EFP-3 to 'B' OTSG control valve, pulling the wire out of the valve body. The control room is immediately notified and a decision is made to isolate this EFW line and ensure it cannot feed if an EFIC actuation were to occur.

Which of the following action(s), if any, could be taken to ensure this line is isolated?

A. No action is necessary. EFV-57 has failed closed due to the loss of power.

B. Select manual and closed at EFV-57's control station and select closed EFV-33, block valve for EFV-57, on the main control board.

C. Select closed EFV-33, block valve for EFV-57, at the control board and de-energize its power supply at DPDP-8C.

D.✓ Select closed EFV-33, block valve for EFV-57, at the control board and de-energize its power supply at DPDP-8D.

Reasons:

A. EFV-57 fails open on a loss of power.

B. EFV-57 fails open on a loss of power. EFV-33 will get an open signal if an EFIC actuation occurs.

C. EFV-33 is powered from DPDP-8D ("B" train power supply), not DPDP-8C.

D. Correct. EFV-33 is powered from DPDP-8D.

OPS 4-37 Obj. 3; OPS 4-31 Section 1-4.D.1.c, OPS 4-37 Sections 1-4.H.1,2,3,4 and 1-4.I.1,2

NRCM98

RO - Direct

References provided: None

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

QUESTIONS REPORT
for NRC Reviewed RO BANK

Tier:	2	Group:	1
Keyword:	RO #47	Cog Level:	C/A 3.2/3.3
Source:	B	Exam:	CR03301
Test:	R	Misc:	ATK

49. 062AK3.02 001

The following plant conditions exist:

- RWP-1 is in operation.
- SP-354B, Monthly Test of EDG-1B, is in progress with the diesel paralleled to the bus.
- A steam leak occurs in the RB and pressure increases to 5 psig.

Which of the following describes the response of the RW system?

A. RWP-1 trips due to an ES trip command.

B. RWP-2A starts on low RW pressure due to the loss of RWP-1.

C. RWP-2B starts on low RW pressure due to the loss of RWP-1.

D.✓ RWP-3A starts due to an ES start command.

Reasons:

A. RWP-1 will trip after an ES signal is generated but not from an ES trip command.

B. RWP-2A will receive an ES start signal but does not start because of the low pressure.

C. RWP-2B will start on low pressure except when EDG breaker 3210 is closed. RWP-2B will receive an ES start signal.

D. Correct. RWP-3A will start when it receives an ES start command.

OPS 4-57 Sections 1-4.0.B & C

RO - New

References provided: None

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
Tier:	1				Group:	1	
Keyword:	RO #17				Cog Level:	C/A 3.6/3.9	
Source:	N				Exam:	CR03301	
Test:	R				Misc:	ATK	

50. 062G2.1.33 001
With RCS temperature at 190° F which of the following conditions would require entry into a Technical Specification?

A. VBDP-7 is aligned to its alternate AC power supply.

B. ✓ Total stored EDG lube oil inventory of 260 gallons.

C. The Offsite Power Transformer is OOS due to an oil leak.

D. "A" EDG is OOS due to a turbo charger failure.

Reasons:

A. VBDP-7 is a non-safety related vital bus.

B. Correct. Per TS 3.8.3 > 280 gallons is required.

C. At 190° F the plant is in Mode 5 and only one offsite circuit is required.

D. At 190° F the plant is in Mode 5 and only one EDG is required to be operable.

TS 3.8.2 and 3.8.3

RO - 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		
Tier:	2			Group:	1		
Keyword:	RO #49			Cog Level:	C/A 3.4/4.0		
Source:	N			Exam:	CR03301		
Test:	R			Misc:	ATK		

51. 062K3.01 001

The following plant conditions exist:

- A Loss of Offsite Power has occurred.
- RB pressure is 32 psig.
- RCS pressure 900 psig.
- Adequate subcooling margin does exist.
- A 480V overcurrent lockout has occurred on breaker 3310 (feeder breaker for the 'B' ES bus).

Which of the following describes all running equipment that must be secured because of these conditions? (assume all components have sequenced on as designed)

A.✓ BSP-1B, MUP-1C and RWP-3B.

B. RWP-2B and RWP-3B.

C. BSP-1B, MUP-1B and RWP-3B.

D. DHP-1B, MUP-1C, BSP-1B and RWP-3B.

Reasons:

A. Correct. The overcurrent lockout on the "B" bus will keep the EDG from powering up the bus and all "B" train 480 volt loads will be lost. However this does not stop the "B" train 4160 volt loads from starting. DCP-1B is a 480 volt load and should provide cooling water for BSP-1B, MUP-1C and RWP-3B.

B. RWP-2B is cooled by SW and should be left running.

C. MUP-1B is cooled by SW and should be left running.

D. DHP-1B will not be running for these conditions.

OPS 4-55 Figure 1, OPS 4-13 Table II, OPS 4-90 Section 1-4.0.I.5.b; OP-700A Enclosure 9

NRCN99

RO - Direct

References provided: None

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:	A	B	C	D	A	B	C	D	A	B

Scramble Range: A - D

Tier:	2	Group:	1
Keyword:	RO #48	Cog Level:	C/A 3.5/3.9
Source:	B	Exam:	CR03301
Test:	R	Misc:	ATK

52. 063A3.01 001

The following readings were taken on the "A" battery charger following a BATTERY A DISCHARGE HIGH alarm in the control room:

- 120 volts
- 75 amps

Shortly after these readings were taken the amp meter increases to 360 amps.

Which of the following action(s) will occur following this increase?

A. The "A" and "C" inverter will trip.

B.✓ The "A" battery charger will trip and the battery will supply bus loads.

C. The "A" and "C" inverter will not trip but will swap to the AC input.

D. The "A" battery charger will trip and the "C" battery charger will automatically be placed in service.

Reasons:

A. There may be problems with the inverters but they should not trip.

B. Correct. The battery charger will trip at 350 amps.

C. There may be problems with the inverters but they should not trip. The inverter is normally supplied from its AC source.

D. The "A" charger will trip but the "C" charger does not have any automatic closing feature.

OPS 4-64 Section 1-4.0.B; AR-701 EP 169 & 1945; OP-705 Step 3.1.7

NRCCP97; NRCM98

RO - Direct [Newops ROT-4-64-024]

References provided: None

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 NRC Reviewed RO BANK

Tier:	2	Group:	1
Keyword:	RO #50	Cog Level:	C/A 2.7/3.1
Source:	B	Exam:	CR03301
Test:	R	Misc:	ATK

53. 064A2.08 002

SP-354A, Monthly Functional Test of EDG-1A, is in progress.

"A" ES 4160 V Bus	"A" EDG
4160 volts 60 hz	4190 volts 60 hz

Based on these conditions which of the following indications are expected when the EDG-1A output breaker is closed and what action should be taken?

There will be:

A.✓ VARS out. Excitation voltage should be decreased.

B. VARS out. Excitation voltage should be increased.

C. VARS in. Excitation voltage should be decreased.

D. VARS in. Excitation voltage should be increased.

Reasons:

A. Correct. With the EDG voltage higher than the bus voltage the EDG will pick up reactive load (VARS out). Excitation voltage should be decreased to lower VARS out.

B. Excitation voltage should be decreased.

C. VARS will be out.

D. VARS will be out and voltage should be decreased.

OPS 4-06 Sections 1-4.0.L.6 & 1-4.0.B.2.d

RO - NEW

References provided: None

Rev. 0 to NRC on 4-22-03
Rev. 1 - KFO fixed

QUESTIONS REPORT
for NRC Reviewed RO BANK

MCS	Time:	1	Points:	1.00	Version:	0 1 2 3 4 5 6 7 8 9	
					Answer:	A A A A A A A A A A	Items Not Scrambled
Tier:	2				Group:	1	
Keyword:	RO #51				Cog Level:	C/A 2.7/3.1	
Source:	N				Exam:	CR03301	
Test:	R				Misc:	ATK	

54. 069G2.1.33 001
With the plant at full power which of the following conditions would require entry into a Technical Specification LCO?

A. EFP-1 has excessive packing leakage. EFP-2 & 3 are operable.

B. AHF-1C motor bearing has seized. AHF-1A & 1B are operable.

C. MUP-1A has a large oil cooler leak. MUP-1B & 1C are operable.

D.✓ AHV-1A leakage is outside its limit. AHV-1B, 1C & 1D are operable.

Answers:

A. EFP-1 is not required to be operable for TS.

B. Only two of the three fans are required to be operable per TS.

C. Only two of the three MUPs are required to be operable per TS.

D. Correct. All four valves are required to be operable.

TS 3.6.3

RO - New

References provided: None

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		
Tier:	1			Group:	2		
Keyword:	RO #23			Cog Level:	MEM 3.4/4.0		
Source:	N			Exam:	CR03301		
Test:	R			Misc:	ATK		

55. 071K3.04 001

A small leak has just occurred in the Waste Gas Decay Tank area. Which of the following describes the *first* radiation monitor that should detect this leak and the automatic actuations that should occur?

A. RM-A4; trips AHF-10

B.✓ RM-A3; trips AHF-11A/B and closes AHD-29 & 36.

C. RM-A3; trips AHF-11A/B, closes WDV-393, 394, & 395 (recycle isolation valves) and closes WDV-439 (common waste gas isolation).

D. RM-A11; closes WDV-393, 394, & 395 (recycle isolation valves) and closes WDV-439 (common waste gas isolation).

Reasons:

A. If RM-A4 trips then this action would occur. However RM-A3 will detect the gas leak first.

B. Correct. RM-A3 monitors the WGDT area. This monitor should detect a leak first and initiate automatic actions.

C. If RM-A3 trips it will not close the recycle valves or the common waste gas isolation valve.

D. If RM-A11 trips then these actions would occur. RM-A11 is not in service unless a waste gas release is in progress and will only trip if the preset release values are exceeded.

OPS 4-25 1-4.0.F.5.d)

RO - Direct [Newops ROT-4-25-063]

References provided: None

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	
Tier:	2				Group:	2	
Keyword:	RO #64				Cog Level:	MEM 2.7/2.9	
Source:	B				Exam:	CR03301	
Test:	R				Misc:	ATK	

56. 076A2.02 001

The following plant conditions exist:

- SWP-1A, RWP-2A and MUP-1B are running.
- Computer points for three CRDM stators have reached their "Hi Warning" setpoint of 113°F and are slowly trending up.
- MUP-1B lube oil temperature is slowly trending up.
- RWP-2A discharge is currently 56 psig and has increased 4 psig over the last four hours.
- Spent Fuel pool level has increased 1 inch over the last four hours.

Which of the following could cause these indications and what actions should be taken?

A. Enter AP-330, Loss of Nuclear Service Cooling, ensure both SW Booster pumps are running and place the spare CRDM filter in service. The on-line CRDM filter is clogged.

B. Use OP-408, Nuclear Services Cooling System, and isolate SW flow to the Spent Fuel coolers. The leak has caused decreased SW flow to other components.

C.✓ Enter AP-330, Loss of Nuclear Service Cooling, place the standby SWHE in service and remove the fouled one. At least one of the in service SWHEs is excessively fouled.

D. Use OP-408, Nuclear Services Cooling System, and close the discharge valves on RWP-1 and RWP-2B. Backflow through the standby RWPs has decreased RW flow.

Reasons:

A. This action is only taken when the CRDMs are the only components exhibiting increased temperatures.

B. An SW leak could cause the SF pool level increase but would not cause RWP discharge pressure decrease. Entry conditions for AP-330 are met.

C. Correct. This is the only failure that could cause all of the conditions given in the stem.

D. Conditions are met for entering AP-330. The AP does not have the operator check for back flow unless RWP discharge pressure decreases to 48 psig.

AP-330 Step 3.10

RO - New

References provided: AP-330

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

Tier:	2	Group:	1
Keyword:	RO #53	Cog Level:	C/A 2.7/3.1
Source:	N	Exam:	CR03301
Test:	R	Misc:	ATK

57. 078K2.01 001

With IAP-3C running as the Lead compressor, IAP-3B running as the First Lag and IAP-3A running as the Second Lag compressor the power supply to the compressor motors should be as follows:

A. IAP-3A powered from 480V Rx Aux Bus 3A
IAP-3B powered from 480V Rx Aux Bus 3B
IAP-3C powered from the 12kV line

B.✓ IAP-3A powered from 480V Rx Aux Bus 3A
IAP-3B powered from the 12kV line
IAP-3C powered from 480V Rx Aux Bus 3B

C. IAP-3A powered from the 12kV line
IAP-3B powered from 480V Rx Aux Bus 3A
IAP-3C powered from 480V Rx Aux Bus 3B

D. IAP-3A powered from 480V Rx Aux Bus 3B
IAP-3B powered from 480V Rx Aux Bus 3A
IAP-3C powered from the 12kV line

Reasons:

When IAP-3B or IAP-3C are selected as the Lead compressor OP-411 recommends that they be powered from the 480V Rx Aux Bus 3B. Since both cannot be powered from the same source, due to the MTSW-5 dual transfer switch characteristics, the remaining compressor will be powered from the 12kV line. Also IAP-3B and IAP-3C cannot be powered from 480V Rx Aux Bus 3A.

A. IAP-1C should be powered from Rx Aux Bus 3B.

B. Correct. Lineup is as recommened in OP-411.

C. IAP-3B cannot be powered from Rx Aux Bus 3A.

D. With IAP-3C being the lead compressor it should be powered from Rx Aux Bus 3B.

OP-411 Steps 4.2.1.3 and 4.2.3

RO - Direct [Newops 4-081-001]

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

Tier:	2	Group:	1
Keyword:	RO #54	Cog Level:	MEM 2.7/2.9
Source:	B	Exam:	CR03301
Test:	R	Misc:	ATK

58. 086A4.06 001

The Halon system has actuated. Multiple cable spreading room smoke detectors still detect smoke. What operator actions must be taken, if any, to ensure both banks of Halon have discharged?

A.✓ The operator must select the alternate Halon bank.

B. The operator must select the alternate Halon bank and actuate the pull station located in the control room.

C. No additional operator actions are required. Both banks will automatically discharge to ensure a Halon concentration of at least 5%.

D. No additional operator actions are required. After the selected bank discharges a preset timer will start. Once this time has elapsed, and smoke is still detected by at least one detector in each zone, the other bank will automatically discharge.

Reasons:

A. Correct. Since multiple detectors still sense smoke the only required action by the operator is to select the alternate bank.

B. Actuation of the pull station is not required.

C. Only the selected bank will discharge.

D. Only the selected bank will discharge.

OPS 4-07 Section 1-4.0.P

RO - New

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:	A	A	A	A	A	A	A	A A Items Not Scrambled

Tier:	2	Group:	2
Keyword:	RO #65	Cog Level:	MEM 3.2/3.2
Source:	N	Exam:	CR03301
Test:	R	Misc:	ATK

59. 103A3.01 001

The following plant conditions exist:

- A small break LOCA has occurred in the RB.
- RB pressure is 4.6 psig.
- ES status lights are as indicated.

Component	*Light*	*Component*	*Light*
AHV-1A	AMBER	SWV-79	GREEN
AHV-1B	AMBER	SWV-80	GREEN
AHV-1C	AMBER	SWV-81	GREEN
AHV-1D	AMBER	SWV-82	GREEN
LRV-70	GREEN	SWV-83	GREEN
LRV-71	GREEN	SWV-84	GREEN
LRV-72	GREEN	SWV-85	GREEN
LRV-73	GREEN	SWV-86	GREEN

Based on the above conditions which of the following describes the status of these containment isolation valves?

The AH valves are indicating:

A. open and should be closed; all other components are in their expected position.

B. closed and should be open; all other components are in their expected position.

C. ✓ open and should be closed; the SW valves are indicating closed and they should be open.

D. closed and should be open; the SW valves are indicating open and they should be closed.

Reasons:

A. The SW valves should be open.

B. The AH valves are indicating open and should be closed and the SW valves are indicating closed and should be open.

C. Correct. RBIC should close all the AHVs but not the SWVs unless there is also a low SW surge tank level.

D. The AH valves are indicating open and should be closed and the SW valves are indicating closed and should be open.

OPS 4-13 Section 1-4.E.8.e & Table 6

RO - New

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

Tier:	2	Group:	1
Keyword:	RO #55	Cog Level:	C/A 3.9/4.2
Source:	N	Exam:	CR03301
Test:	R	Misc:	ATK

60. BWA01AA2.02 001

The following plant conditions exist:

- Plant is at 70% power.
- MFW Booster pump 1A suction valve receives a false signal and strokes 10% in the closed direction and then stops.

Which of the following describes the required operator actions for this condition?

A.✓ Ensure plant runback to 52% power.

B. Manually trip one MFWP and ensure plant runback to 52% power.

C. Reduce power to 45% and manually trip MFW Booster pump 1A.

D. There will be sufficient flow through the valve since it is still 90% open. Troubleshooting efforts should be initiated immediately.

Reasons:

A. Correct. The "A" MFWBP trips when its suction valve leaves its open seat.

B. The plant must be above 75% power before the requirement to trip a MFWP is in effect.

C. For this combination of pumps the plant may remain at 52%. The MFWBP would have automatically tripped as soon as the suction valve left its full open position.

D. The MFWBP would have automatically tripped as soon as the suction valve left its full open position.

OPS 4-14 Section 1-4.0.F.4.e; OPS 4-14 Obj 3; AP-545 Step 3.20; OPS 4-68 Section 1-4.0.B

NRCN99

RO - Direct

References provided: None

Rev. 0 to NRC on 4-11-03

QUESTIONS REPORT

for NRC Reviewed RO BANK

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

Tier:	1	Group:	2
Keyword:	RO #24	Cog Level:	C/A 3.5/3.8
Source:	B	Exam:	CR03301
Test:	R	Misc:	ATK

61. BWA04AA1.01 002

The following plant conditions exist:

- The plant is at 15% power.
- The turbine is latched.
- The "A" MFWP is on turning gear.
- Condenser vacuum has just decreased to 5 in/HgA coincident with a loss of the "B" MFWP.

Which of the following describes the operator's immediate actions and the expected plant response?

A.✓ Ensure the turbine is tripped. TBVs will control steam pressure at 885 psig.

B. Ensure the reactor and turbine are tripped. TBVs will control steam pressure at 885 psig.

C. Ensure the turbine is tripped. Due to the low condenser vacuum the ADVs will control steam pressure at 1025 psig.

D. Ensure the reactor and turbine are tripped. Due to the low condenser vacuum the ADVs will control steam pressure at 1025 psig.

Reasons:

A. Correct. Below 20% power the reactor should not be tripped due to the loss of both MFWPs. Since the reactor is not tripped the 125# bias is not applied and pressure should be maintained at 885# by the TBVs.

B. The reactor should not be tripped.

C. The vacuum setpoint for auto-closure of the TBVs 5 in/Hg vacuum.

D. The reactor should not be tripped and the vacuum setpoint for auto-closure of the TBVs 5 in/Hg vacuum.

OPS 4-22 Sections 1-4.0.S.4 & 1-4.0.S.7.c).3)

RO - New

References provided: None

Rev. 1 to NRC on 7-29-03

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

Items Not Scrambled

Tier:	1	Group:	2
Keyword:	RO #25	Cog Level:	C/A 3.5/3.3
Source:	N	Exam:	CR03301
Test:	R	Misc:	ATK

62. BWA07AK1.02 002

The plant is at 70% power with the following maintenance activities in progress:

- "B" SCHE shoot and clean activities.
- "B" CWP breaker investigation (breaker tripped open for no apparent reason).

The "Cond. Pump Pit Sump Level High" alarm has just annunciated in conjunction with the SPO reporting water coming out of the SCHE and that CWV-5, "B" SCHE inlet valve from CWP-1D, has failed partially open. Water level in the CDP pit is about 1' and rising slowly.

Based on these conditions which of the following actions are required?

A. Trip the reactor and transition to EOP-02; then stop all CWPs.

B. Trip the reactor and transition to EOP-02; then stop CWP-1D.

C. ✓ Concurrently perform AP-510; when reactor power is < 60% stop CWP-1D.

D. Concurrently perform AP-510; when reactor power is < 45% trip the turbine; stop CWP-1D and transition to AP-660.

Reasons:

A. The reactor does not need to be tripped and only the affectected CWP should be stopped.

B. The reactor does not need to be tripped.

C. Correct. Since the affected CWP is in a hotwell that has another CWP running then power only needs to be reduced to < 60% and the pump stopped.

D. If the affected CWP was in a hotwell with only 1 CWP running then power would have to be reduced to <45% and the turbine tripped.

AP-1050 Step 3.7

RO - New

References provided: AP-1050

Rev. 0 to NRC on 4-11-03
Rev. 1 to NRC on 7-29-03

MCS	Time:	1	Points:	1.00	Version:	0	1	2	3	4	5	6	7	8	9
					Answer:	C	A	D	B	B	D	C	B	B	D	Scramble Range: A - D

Tier:	1	Group:	2
Keyword:	RO #26	Cog Level:	C/A 3.3/3.7
Source:	N	Exam:	CR03301
Test:	R	Misc:	ATK

63. BWE04EK1.03 001

The following plant conditions exist:

- An Inadequate Heat Transfer event is in progress due to a loss of Main and Emergency Feedwater.
- HPI/PORV cooling has been established in accordance with EOP-4, Inadequate Heat Transfer.
- The Subcooling Margin Monitor now indicates -7 SC.
- AFW restoration is expected.
- OTSG integrity does exist.

Based on these conditions which of the following describes the actions that should be taken?

A. ✓ Remain in EOP-4, Inadequate Heat Transfer.

B. Transition to EOP-3, Inadequate Subcooling Margin.

C. Transition to EOP-7, Inadequate Core Cooling.

D. Transition to EOP-8, LOCA Cooldown.

Reasons:

A. Correct. If SCM is lost as a result of HPI/PORV cooling then you should remain in EOP-4.

B. Normally you would transition to EOP-3 on a loss of SCM except for this particular condition that requires remaining in EOP-4.

C. If superheat conditions were indicated then transition to EOP-7 would be correct.

D. If OTSG heat transfer restoration was not expected then transition to EOP-8 would be correct.

EOP-4 Step 3.19

RO - New

References provided: None

MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: A A B D A A C D B B Scramble Range: A - D

QUESTIONS REPORT
for NRC Reviewed RO BANK

Tier:	1	Group:	1
Keyword:	RO #18	Cog Level:	C/A 4.0/4.0
Source:	N	Exam:	CR03301
Test:	R	Misc:	ATK

64. BWE05EA1.02 002

The plant has just experienced a spurious reactor trip from 100% full power. Due to control signal interference the output voltage signal from the high select module associated with NI-5/6 remains at 100% reactor power. Select the statement below which describes the operator's actions with the above conditions.

Perform EOP-2, Vital System Status Verification, Immediate Actions and:

A. continue with the followup actions in EOP-2. No adverse conditions were created with the above failure.

B. due to the above failure transitioning to EOP-3, Inadequate Subcooling Margin, would be necessary.

C. due to the above failure transitioning to EOP-4, Inadequate Heat Transfer, would be necessary.

D.✓ due to of the above failure transitioning to EOP-5, Excessive Heat Transfer, would be necessary.

Reasons:

A. With these malfunctions the plant will overcool and EOP-5 will have to be entered.

B. The plant will overcool with these failures, not lose SCM.

C. The plant will have excessive heat transfer, not inadequate heat transfer, with these failures.

D. Correct. With the output of either high select remaining at 100% SASS will transfer to this signal. This will defeat RFR and send a cross-limit to FW keeping total FW flow within 5% of this signal resulting in a major overfeed to each OTSG. TS cooldown limits will be exceeded and EOP-5 must be entered.

OPS 4-14 Section 1-4.0.H.10; OPS 5-94 Obj. 1; OPS 4-9 Obj. 3

RO - New

References provided: None

Rev. 0 to NRC on 5-9-03
Rev. 1 to NRC on 6-17-03

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

Scramble Range: A - D

Tier:	1	Group:	1
Keyword:	RO #12	Cog Level:	C/A 3.6/3.6
Source:	N	Exam:	CR03301
Test:	R	Misc:	ATK

65. BWE13EK2.01 001

The following plant conditions exist:

- The RCS has suffered a Small Break LOCA and a reactor trip has occurred.
- RCS pressure has stablilized at 1450 psig.
- RB pressure is 20 psig and increasing slowly.
- The Operator has carried out actions of EOP-13, Rule #2, HPI Control, for Bypassing/Resetting ES actuations for the "A" train of ES but has NOT done "B" train.

Which of the following statements correctly describes the response of BSP-1A & 1B when RB pressure reaches 30 psig? (assume no other operator actions taken)

A. BSP-1A & 1B will NOT auto start.

B.✓ BSP-1A & 1B will auto start.

C. BSP-1A will auto start but not BSP-1B.

D. BSP-1B will auto start but not BSP-1A.

Reasons:

A. Both will auto start.

B. Correct. Rule 2 allows the operator to bypass/reset the HPI actuation. However, the HPI Seal-in Reset pushbutton is not depressed at this time. This keeps the HPI permit in place for the BSPs in case RB pressure does eventually reach 30 psig. If this seal-in was reset then the BSP would not automatically start at 30 psig RB pressure.

C. BSP-1B will start.

D. BSP-1A will start.

OPS 4-13 Section 1-2.0.F.3; EOP-13 Rule 2

RO - Direct [Opsbank ROT-4-13-009]

References provided: None

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 NRC Reviewed RO BANK

Tier:	1	Group:	2
Keyword:	RO #27	Cog Level:	MEM 3.6/3.4
Source:	B	Exam:	CR03301
Test:	R	Misc:	ATK

66. G2.1.07 001

The following plant conditions exist:

- RCS pressure is 1500 psig and slowly lowering.
- PZR level is slowly lowering.
- Feedwater flows and OTSG levels are normal.
- "RB Fan A Condensate High" alarm is in.

Based on the above conditions which of the following could cause these indications?

A. An OTSG tube leak.

B. A main steam leak inside containment.

C.✓ A loss of coolant accident inside containment.

D. A loss of coolant accident outside containment.

Reasons:

A. An OTSG tube leak should not cause the fan alarm.

B. A steam leak will cause RB pressure to increase and may have an effect on FW flow.

C. Correct. A SBLOCA inside containment could cause all of these conditions.

D. A SBLOCA outside of containment should not cause the fan alarm.

OPS 3-21 Section 1-2.0.B

RO - New

References provided: None

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 C C C C C C C C C	Items Not Scrambled	
Tier:	3		Group:			
Keyword:	RO #66		Cog Level:	C/A 3.7/4.4		
Source:	N		Exam:	CR03301		
Test:	R		Misc:	ATK		

67. G2.1.20 002

A LOOP, concurrent with a SBLOCA, has resulted in a loss of adequate subcooling margin. The "A" EDG has not started and the "A" 4160V ES bus is dead.

When the operator verifies proper HPI discharge flowpath the following is observed:

MUV-23 (HPI Injection valve to A RCP discharge) has no power and is closed.
MUV-24 (HPI Injection valve to B RCP discharge) has no power and is closed.
MUV-25 (HPI Injection valve to C RCP discharge) is open.
MUV-26 (HPI Injection valve to D RCP discharge) is partially open (amber light).
MUV-586 (HPI Crosstie valve) is open.
MUV-587 (HPI Crosstie valve) is open.

What of the following describes the appropriate operator actions per EOP-3?

A. ✓ Align alternate power to MUV-23 and 24 and open them.

B. Send the PPO to attempt to manually open MUV-26.

C. Send the PPO to attempt to manually open MUV-23 and 24.

D. Continue on; a proper HPI flowpath exists with the "B" Train.

Reasons:

A. Correct. Proper flowpath does not exist so the IF THEN statement is followed.

B. EOP actions require the power supplies to be swapped.

C. EOP actions require the power supplies to be swapped.

D. A proper flowpath does not exist.

EOP-3 Step 3.3

RO - Direct [Newops 5-85-003]

References provided: None

Rev. 0 to NRC on 5-9-03
Rev. 1 changed per telcom

QUESTIONS REPORT

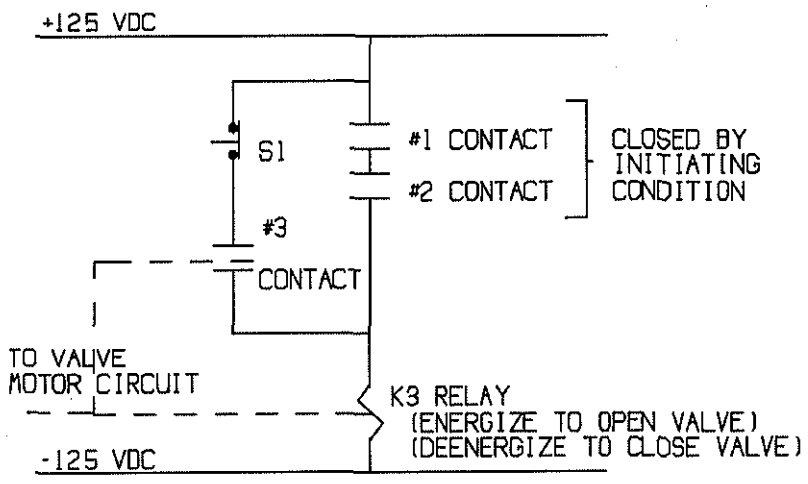
for NRC Reviewed RO BANK

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

Tier:	3	Group:	
Keyword:	RO #67	Cog Level:	MEM 4.3/4.2
Source:	B	Exam:	CR03301
Test:	R	Misc:	ATK

68. G2.1.24 001



TYPICAL VALVE CONTROL CIRCUIT

Using the above drawing which of the following will close the valve?
(initial valve position is open) (drawing shown in shelf state)

A.✓ Loss of 125 VDC.

B. Both #1 and #2 contacts open.

C. Either #1 or #2 contact opens.

D. Depressing the S1 pushbutton with the initiating condition present.

Reasons:

A. Correct. With the valve initially in the open position the K3 relay must be energized. This relay will seal-in contact #3. The only way to de-energize the relay is to depress the S1 pushbutton or lose DC power to the circuit.

B. Even with both contacts open the relay stays energized though the parallel path.

C. While this will break the path through the right side of the circuit the relay stays energized though the parallel path.

D. This would work if the initiating condition was not present.

OPS 2-20

NRC 96

RO - Direct

References provided: None

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	

Tier:	3	*Group:*	
Keyword:	RO #68	Cog Level:	MEM 2.8/3.1
Source:	B	Exam:	CR03301
Test:	R	Misc:	ATK

The following plant conditions exist:

- A plant heatup and pressurization are in progress.
- LPI ES actuation bistables are currently bypassed.

Which of the following describes a required operator action in regard to the LPI ES actuation bistables?

A.✓ Manually reset the LPI actuation bistables when RCS pressure is greater than 500 psig and increasing.

B. Manually reset the LPI actuation bistables when RCS pressure is greater than 900 psig and increasing.

C. Verify automatic reset of the LPI actuation bistables when RCS pressure is greater than 500 psig and increasing.

D. Verify automatic reset of the LPI actuation bistables when RCS pressure is greater than 900 psig and increasing.

Reasons:

A. Correct. The LPI actuation bistables must be manually reset once RCS pressure is greater than 500 psig and increasing.

B. This pressure is the LPI bypass permit pressure not the LPI actuation bistable pressure setpoint.

C. The LPI actuation bistables do not automatically reset.

D. The LPI actuation bistables do not automatically reset

OPS 4-13 Sections 1-5.0.F.14 and 1-7.0.B.2; OP-202 Step 4.5.8

RO - Direct

References provided: None

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

Keyword:	RO #69	Cog Level:	MEM 4.0/3.5
Source:	B	Exam:	CR03301
Test:	R	Misc:	ATK

The following plant conditions exist:

- Plant shutdown in progress.
- Reactor power at 2%.
- OTSG pressure is 885 psig.
- Shutdown Margin is -4.6% Δk/k from a calculation using -3.62% Δk/k reactivity from xenon.

Which of the following statements will apply? Assume that the xenon reactivity will decay to 0%Δk/k.

Section 6 of Enclosure 1 in SP-421:

A. must be completed. Sufficient shutdown margin will be preserved even when xenon decays to zero.

B. ✓ must be completed. Insufficient shutdown margin will result when xenon decays to zero. Boron must be increased to maintain adequate shutdown margin.

C. need not be completed. Sufficient shutdown margin will be preserved even when xenon decays to zero.

D. need not be completed. Insufficient shutdown margin will result when xenon decays. Boron must be increased to maintain adequate shutdown margin.

Reasons:

A. Shutdown margin will be less than the minimum 1% Δ k/k after xenon decays to zero.

B. Correct. Shutdown margin will be less than the required 1% Δ k/k.

C. Section 6 must be completed because xenon was used in Section 4. Shutdown margin will be less than the minimum 1% Δ k/k after xenon decays to zero.

D. Section 6 must be completed because xenon was used in Section 4.

SP-421 Step 4.1 and Enclosure 1

NRCM98

RO - Direct [Newops 5-010-002]

References provided: SP-421

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

Tier:	3	Group:	
Keyword:	RO #70	Cog Level:	C/A 3.0/3.4
Source:	B	Exam:	CR03301
Test:	R	Misc:	ATK

Which of the following defines a "VERY HIGH RADIATION AREA" and describes the control requirements for this type of area?

A. An area, accessible to individuals, in which radiation levels could result in an individual receiving an absorbed dose in excess of 500 rads in 1 hour at 1 foot from a radiation source or from any surface that the radiation penetrates and the area must be locked and controlled in such a manner that an individual cannot walk or climb into it.

B. An area, accessible to individuals, in which radiation levels could result in an individual receiving an absorbed dose in excess of 1000 rads in 1 hour at 1 foot from a radiation source or from any surface that the radiation penetrates and the area must be conspicously posted and contain a flashing light.

C. ✓ An area, accessible to individuals, in which radiation levels could result in an individual receiving an absorbed dose in excess of 500 rads in 1 hour at 1 meter from a radiation source or from any surface that the radiation penetrates and the area must be locked and controlled in such a manner that an individual cannot walk or climb into it.

D. An area, accessible to individuals, in which radiation levels could result in an individual receiving an absorbed dose in excess of 1000 rads in 1 hour at 1 meter from a radiation source or from any surface that the radiation penetrates and the area must be conspicously posted and contain a flashing light.

Reasons:

A. Distance is 1 meter, not 1 foot.

B. Dose is 500 Rads at 1 meter, not 1000 Rads at 1 foot. The area must also be controlled such that an individual cannot walk or climb into it.

C. Correct. Doses in excess of 500 Rads in 1 hour at 1 meter and the area controlled in such a manner that an individual cannot walk or climb into it.

D. Dose is 500 Rads, not 1000 Rads and the area must be controlled in such a manner that an individual cannot walk or climb into it.

OPS 2.32 Sections 1-12.0.BBB & 1-3.0.C

RO - Direct [Newops ROT 5-043-032]

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:	C	D	A	B	C	D	A	B	C	D

Scramble Range: A - D

Tier:	3	Group:	
Keyword:	RO #71	Cog Level:	MEM 2.6/3.0
Source:	B	Exam:	CR03301
Test:	R	Misc:	ATK

As a radiation worker you are expected to keep your radiation exposure as low as reasonably achievable. Which of the following shows a radiation exposure that is outside CR-3's administrative limits for a radiation worker with a current dose history (NRC form 5) on file? (Note: This is the first exposure of the year for each radiation worker).

A.✓ A 20 year old worker receives a TEDE exposure of 1 rem during work inside an OTSG which brings his total lifetime TEDE exposure to 22 rem.

B. A 40 year old worker receives a TEDE exposure of 1.8 rem during the week while completing a reactor vessel ISI. This brings his lifetime exposure to 25 rem.

C. A 45 year old worker receives a SDE-WB exposure of 25 rem after cutting open a reactor coolant system pipe to complete a maintenance work order.

D. A 35 year old chemist receives a LDE exposure of 5 rem while sampling the reactor coolant system for indication of failed fuel.

Reasons:

A. Correct. The annual TEDE administrative limit for a 20 year old is 2.0 Rem or 0.5 REM if lifetime dose > age.

B. The annual TEDE administrative limit is 2.0 Rem; 1.8 does not exceed that limit.

C. The annual SDE-WB administrative limit was 40 Rem; this is not currently an administrative limit.

D. The annual LDE administrative limit was 40 Rem; this is not currently an administrative limit.

OPS 5-43 Section 1-3.0.D

RO - Direct [Newops 5-043-001]

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

Keyword:	RO #72	Cog Level:	C/A 2.5/3.1
Source:	B	Exam:	CR03301
Test:	R	Misc:	ATK

The following plant conditions exist:

- The plant is at 30% power.
- Turbine vibration on bearing #7 is 10 mils.
- Hydrogen Cooler outlet temperature is 60° C.

Based on the above conditions which of the following action(s) should be taken?

A. Enter AP-510, Rapid Power Reduction, and perform a plant shutdown.

B. Enter OP-204, Power Operations, and perform a plant shutdown.

C. Enter EOP-02, Vital System Status Verification, and trip the reactor.

D.✓ Enter AP-660, Turbine Trip, and trip the turbine.

Reasons:

A., B. & C. Hydrogen Cooler outlet temperature is above the limit of 55°C per OP-203. The entry conditions for AP-660 are met.

D. Correct. If Hydrogen Cooler outlet temperature exceeds 55° C the turbine is required to be tripped.

OP-203 Step 3.2.11

NRCCP97; NRCM98

RO - Direct [Newops ROT-5-29-006]

References provided: None

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

Tier:	3	Group:	
Keyword:	RO #73	Cog Level:	MEM 4.3/4.6
Source:	B	Exam:	CR03301
Test:	R	Misc:	ATK

The following plant conditions exist:

- The plant is in Mode 3 with RCS pressure at 2150 psig.
- AP-990, Shutdown from Outside the Control Room, has been entered and transfer to the Remote Shutdown Panel is complete.
- MUV-31 has failed.
- The CRS directs that PZR level be maintained at an *indicated* ≈ 100 inches.

Which of the following actions should be taken and what would be the approximate *actual* PZR level for these conditions?

A. Open MUV-27 and direct the PPO to open MUV-30, bypass around MUV-31; ≈ 160 inches.

B.✓ Use an available HPI valve; ≈ 160 inches.

C. Open MUV-27 and direct the PPO to open MUV-30, bypass around MUV-31; ≈ 40 inches.

D. Use an available HPI valve; ≈ 40 inches.

Reasons:

A. Per step 3.52 an available HPI valve should be used.

B. Correct. HPI valves can be controlled from the RSP. PZR level indication on the RSP is not temperature compensated. Actual level for this pressure and temperature is approximately 60" higher than indicated.

C. Per step 3.52 an available HPI valve should be used. Actual level for these conditions should be ≈ 160 inches.

D. Actual level for these conditions should be ≈ 160 inches.

OPS 4-09 Obj. 4; AP-990 Step 3.52; OPS 4-16 Section 1-7.A.1.f

NRCM98

RO - Direct [Newops 5-031-002]

References provided: None

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

Tier:	3	Group:	
Keyword:	RO #74	Cog Level:	C/A 3.4/3.6
Source:	B	Exam:	CR03301
Test:	R	Misc:	ATK

AP-990, Shutdown from Outside the Control Room, has been entered. After control has been transferred to the RSP a followup step directs the RO to ensure BSP-1A is tripped by opening the DC knife switch and depressing the manual trip pushbutton.

Which of the following describes where this action is performed and its purpose?

A. ✓ The "A" ES 4160V switchgear room; to protect the pump from loss of essential support functions.

B. The "A" ES 480V switchgear room; to protect the pump from loss of essential support functions.

C. The "A" ES 4160V switchgear room; to ensure RCS inventory control problems are not created by component failures.

D. The "A" ES 480V switchgear room; to ensure RCS inventory control problems are not created by component failures.

Reasons:

A. Correct. The breaker is located in the "A" ES 4160V switchgear room and due to possible fire damage to the ES actuation circuits this action will ensure the pump cannot start.

B. This BSP is 4160V powered, not 480V.

C. This is the reason for securing the other ES pumps, not the BSP.

D. This BSP is 4160V powered, not 480V and this is the reason for securing the other ES pumps, not the BSP.

OPS 5-31 Section 1-4.0.T

RO - New

References provided: None

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

Items Not Scrambled

Tier:	3	Group:	
Keyword:	RO #75	Cog Level:	MEM 3.3/3.5
Source:	N	Exam:	CR03301
Test:	R	Misc:	ATK

QUESTIONS REPORT
for NRC Reviewed SRO BANK

1. 003AA2.03 002

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 later 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

Rev. 1 to NRC on 7-29-03

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

Tier:	1	Group:	2
Keywords:	SRO #83	Cog Level:	C/A 3.6/3.8
Source:	M	Exam:	CR303301
Test:	S	Misc:	ATK

2. 004A2.09 002

A crud burst has occurred. How could this impact the plant and what actions can be taken to help mitigate this problem?

A. The makeup pre-filters and post-filters will absorb most of the contaminants and their radiation levels will increase. A hydrogen peroxide flush per OP-403H, Hydrogen Peroxide Addition, will help reduce radiation levels.

B. The makeup pre-filters and post-filters will absorb most of the contaminants and their radiation levels will increase. Decreasing letdown flow will help lower radiation levels in the purification loop.

C. The makeup demins and post-filters will absorb most of the contaminants and their radiation levels will increase. A hydrogen peroxide flush per OP-403H, Hydrogen Peroxide Addition, will help reduce radiation levels.

D.✓ The makeup demins and post-filters will absorb most of the contaminants and their radiation levels will increase. Decreasing letdown flow will help lower radiation levels in the purification loop.

Reasons:

A. The pre-filters are not normally in service and the addition of hydrogen peroxide will initially increase the probability of additional crud bursts.

B. The pre-filters are not normally in service.

C. The addition of hydrogen peroxide will initially increase the probability of additional crud bursts.

D. Correct. Demins and post-filters will absorb most of the contaminants and decreasing letdown flow will initially decrease radiation levels.

CP-155 Step 4.5.1.2.b

SRO - New

References provided: None

Rev. 0 to NRC on 5-9-03
Rev. 1 to NRC on 7-18-03

QUESTIONS REPORT

for NRC Reviewed SRO BANK

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

Tier:	2	Group:	1
Keywords:	SRO #88	Cog Level:	C/A 3.0/3.9
Source:	N	Exam:	CR303301
Test:	S	Misc:	ATK

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.

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

Tier:	1	Group:	1
Keywords:	SRO #76	Cog Level:	C/A 3.7/4.0
Source:	B	Exam:	CR303301
Test:	S	Misc:	ATK

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

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		
Tier:	2			Group:	2		
Keywords:	SRO #92			Cog Level:	C/A 3.5/3.6		
Source:	B			Exam:	CR303301		
Test:	S			Misc:	ATK		

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 $\geq$ 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: None

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

QUESTIONS REPORT
for NRC Reviewed SRO BANK

Tier:	2	Group:	1
Keywords:	SRO #89	Cog Level:	C/A 2.6/3.8
Source:	B	Exam:	CR303301
Test:	S	Misc:	ATK

6. 025AK1.01 002

The following plant conditions exist:

- TS required plant shutdown to Mode 4 is in progress due to a broken shaft on DHP-1A.
- RCS temperature is 285°F.
- RCP-1A and 1B are running.

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 appropriate action(s) to be taken?

A. Remain in this mode until either DHP-1A or 1B are repaired.

B. Remain in this mode and declare an Unusual Event based on the "Inability to reach required mode within ITS time limits".

C.✓ Continue to Mode 4, invoke 10CFR 50.54 X & Y, and remain in Mode 4 until either DHP-1A or 1B are repaired.

D. Continue to Mode 5 since LCO 3.0.3 now applies due to the inoperability of both DH removal trains.

Reasons:

A. The plant should be taken as low in Mode 4 as possible while still allowing the OTSGs to remain the source of heat removal.

B. The plant should be taken as low in Mode 4 as possible while still allowing the OTSGs to remain the source of heat removal. An Unusual Event will be declared.

C. Correct. Since 3.0.3 now applies 10CFR 50.54 X & Y must be invoked to remain in a mode not specified by TS.

D. While LCO 3.0.3 does apply, and Mode 5 is required per this LCO, the plant cannot safely get there. With no DH removal train available the OTSGs are required for heat removal. This requires maintaining RCS temperature greater than Mode 5 values.

TS 3.0.3, 3.5.2, 3.5.3 & Bases

SRO - New

References provided: None

Rev. 0 to NRC on 4-22-03
Rev. 1 to NRC on 7-18-03

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

Tier:	1	Group:	1
Keywords:	SRO #77	Cog Level:	C/A 3.9/4.3
Source:	N	Exam:	CR303301
Test:	S	Misc:	ATK

7. 026AG2.4.47 001

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

QUESTIONS REPORT
for NRC Reviewed SRO BANK

Tier:	1	Group:	1
Keywords:	SRO #78	Cog Level:	C/A 3.4/3.7
Source:	M	Exam:	CR303301
Test:	S	Misc:	ATK

8. 029EA2.09 002

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.

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

Tier:	1	Group:	1
Keywords:	SRO #79	Cog Level:	C/A 4.4/4.5
Source:	B	Exam:	CR303301
Test:	S	Misc:	ATK

9. 034G2.3.10 002

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. May continue because adequate level will still be maintained for shielding requirements.

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 1-4.0.A.3; TS 3.7.13 LCO and Bases

SRO - Direct [Newops 4-29-001]

References provided: None

Rev. 1 to NRC on 7-29-03
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 NRC Reviewed SRO BANK

Tier:	2	Group:	2
Keywords:	SRO #93	Cog Level:	MEM 3.1/3.3
Source:	B	Exam:	CR303301
Test:	S	Misc:	ATK

10. 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.

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	B	Items Not Scrambled	

Tier:	1	Group:	1
Keywords:	SRO #81	Cog Level:	MEM 4.4/4.4
Source:	N	Exam:	CR303301
Test:	S	Misc:	ATK

11. 055G2.4.07 001

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

Tier:	3	Group:	
Keywords:	SRO #82	Cog Level:	MEM 3.1/3.8
Source:	B	Exam:	CR303301
Test:	S	Misc:	ATK

12. 057AK3.01 001

With the plant at 100% power a catastrophic failure of VBIT-1C rendered itself inoperable and caused both of the VBXSs that it feeds to fail "as is" .

Which of the following describes the EOP/AP action(s), if any, that should be taken?

A. AP-581, Loss of NNI-X, should be entered.

B. AP-582, Loss of NNI-Y, should be entered.

C.✓ AP-430, Loss of Control Room Alarms, should be entered.

D. Trip both MFW pumps and the reactor due to the loss of ICS power. EOP-2, Vital System Status Verification, and Rule 3, EFW Control, should be entered.

Reasons:

A. The ABT for NNI-X should transfer to VBDP-1 on a loss of VBDP-5.

B. Neither VBDP-5 or 9 feed NNI-Y therefore no loss of power should occur.

C. Correct, VBDP-5 powers the annunciator monitor and typer.

D. This is the correct response for a loss of ICS power however neither VBDP-5 or 9 feed ICS therefore no loss of power should occur.

OPS 4-91, Figure 1; OPS 4-9 Section 1-4.0.I

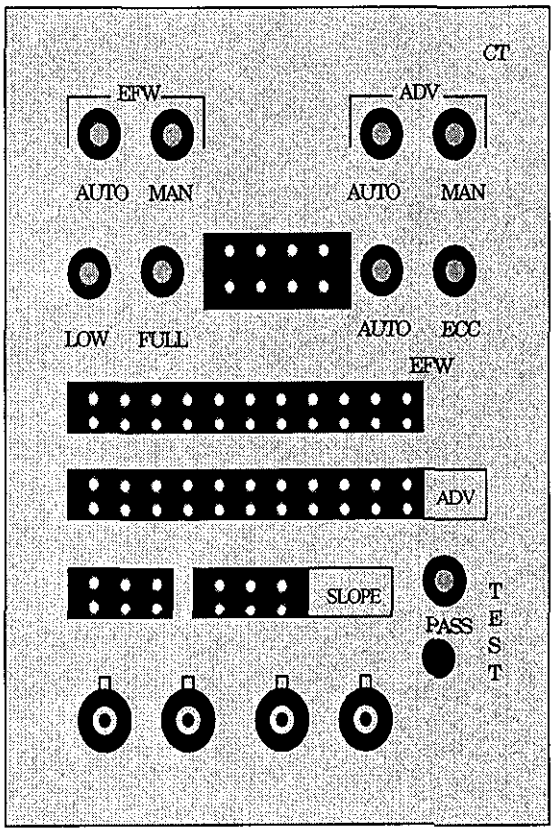
NRCM98

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		
Tier:	1			Group:	1		
Keywords:	SRO #80			Cog Level:	MEM 4.1/4.4		
Source:	B			Exam:	CR303301		
Test:	S			Misc:	ATK		

13. 061A2.05 002

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.

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	
Tier:	2					Group:	1					
Keywords:	SRO #90					Cog Level:	C/A 3.1/3.4					
Source:	N					Exam:	CR303301					
Test:	S					Misc:	ATK					

14. *061AG2.1.14 001*
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:	D D D D D D D D D D	Items Not Scrambled		
Tier:	1			Group:	2		
Keywords:	SRO #84			Cog Level:	MEM 2.5/3.3		
Source:	N			Exam:	CR303301		
Test:	S			Misc:	ATK		

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 kW + 694 kW (MUP-1C) + 198 kW (RWP-3B) + 79 kW (DCP-1B) = 3411 kW. Meter starts recording at 3376 kW. Actual setpoint is 3401 kW - 25 kW for instrument error.

B. 2850 kW + 222 kW (BSP-1B) + 198 kW (RWP-3B) + 79 kW (DCP-1B) = 3349 kW.

C. EFP-1 loading will have no effect on the EDG-1B.

D. 2920 kW + 51 kW (AHF-17B) + 18 kW (AHF-19B) + 196 kW (CHHE-1B + 19 kW (CHP-1B) = 3201 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

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

Tier:	2	Group:	1
Keywords:	SRO #91	Cog Level:	C/A 3.2/3.3
Source:	B	Exam:	CR303301
Test:	S	Misc:	ATK

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

QUESTIONS REPORT
for NRC Reviewed SRO BANK

Tier:	1	Group:	2
Keywords:	SRO #85	Cog Level:	C/A 3.8/4.1
Source:	B	Exam:	CR303301
Test:	S	Misc:	ATK

17. BWA02AA1.1 002

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 actions, by procedure, should be directed 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 3.13 & 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

Rev. 0 to NRC on 5-9-03
Rev. 1 to NRC on 6-17-03

QUESTIONS REPORT
for NRC Reviewed SRO BANK

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

Tier:	1	Group:	2
Keywords:	SRO #86	Cog Level:	MEM 4.0/3.8
Source:	B	Exam:	CR303301
Test:	S	Misc:	ATK

18. BWA05G2.2.20 002

After performance of a surveillance procedure on the "A" EDG the diesel is determined to be inoperable.

Which of the following actions should be taken to ensure troubleshooting activities will not render the redundant train inoperable?

A. Electronically lock the doors to the "B" EDG so that only personnel approved by the Superintendant of Shift Operations will have access.

B. Electronically lock the doors to the "B" ES 4160V switchgear room so that only personnel approved by the Superintendant of Shift Operations will have access.

C. Perform an EOOS evaluation, change the "Plant Condition" color to red and have flyers produced.

D.✓ Post protected train signs and conduct a field walkdown of the appropriate opposite train equipment.

Reasons:

A. & B. These doors are always electronically locked but additional restrictions on electronic access is not implemented.

C. An EOOS evaluation will be performed but the "Plant Condition" color will only increase to Yellow.

D. Correct. Protected train signs will be placed on the "B" Train equipment and a field walkdown should be performed.

OI-07 Form 7

SRO - New

References provided: None

Rev. 0 to NRC on 5-9-03
Rev. 1 to NRC on 6-17-03
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 NRC Reviewed SRO BANK

Tier:	1	Group:	2
Keywords:	SRO #87	Cog Level:	MEM 2.2/3.3
Source:	N	Exam:	CR303301
Test:	S	Misc:	ATK

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: None

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

QUESTIONS REPORT
for NRC Reviewed SRO BANK

Tier:	3	Group:	
Keywords:	SRO #94	Cog Level:	MEM 2.3/3.4
Source:	M	Exam:	CR303301
Test:	S	Misc:	ATK

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: None

Rev. 0 to NRC on 4-11-03

QUESTIONS REPORT
for NRC Reviewed SRO BANK

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

Tier:	3	Group:	
Keywords:	SRO #95	Cog Level:	C/A 2.9/4.0
Source:	B	Exam:	CR303301
Test:	S	Misc:	ATK

21. G2.2.22 002

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

- RCS total flow	1.14×10^8 lbm/hr			
- RCS T_{hot}	"A" loop	603° F	"B" Loop	603° F
- RCS pressure	"A" loop	2070 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. Correct. Total flow is required to be ≥ 99.7 E6 lbm/hr with 3 RCPs and RCS pressure, in the loop with 2 RCPs running, is required to be ≥ 2064 psig.

B. C. & D. Refer to Reason A.

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: None

Rev. 0 to NRC on 5-9-03
Rev. 1 to NRC on 7-18-03
MCS Time: 1 Points: 1.00 Version: 0 1 2 3 4 5 6 7 8 9
Answer: A D C B A D A C B C Scramble Range: A - D

QUESTIONS REPORT
for NRC Reviewed SRO BANK

Tier:	3	Group:	
Keywords:	SRO #96	Cog Level:	C/A 3.4/4.1
Source:	M	Exam:	CR303301
Test:	S	Misc:	ATK

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 2.3×10^{-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: None

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 NRC Reviewed SRO BANK

Tier:	3	Group:	
Keywords:	SRO #97	Cog Level:	C/A 2.6/3.5
Source:	B	Exam:	CR303301
Test:	S	Misc:	ATK

23. G2.3.06 002

The following plant conditions exist:

- Plant is in Mode 5.
- The "A" DHR train is in service.
- SDT-1, Secondary Drain Tank, recirc is complete and ready for release.
- RWP-1 is running.
- RWV-150 is closed.
- CWP-1A and 1D are running.
- RM-L2/7 "Bypass" switch is selected to "Bypass".
- Minimum RW dilution flow rate is 11,800 gpm per the release permit.

Which of the following action(s), if any, must be taken before the release can be started?

A. Adequate dilution flow exists. No further actions required.

B. Adequate dilution flow exists as long as a minimum of two (2) CWPs remain in operation.

C. ✓ Inadequate dilution flow exists. RWP-2A or 2B must be started prior to release.

D. Inadequate dilution flow exists. RWP-3A or 3B must be started prior to release.

Reasons:

A. Adequate dilution flow does not exist. RWP-1 is only rated at 10,800 gpm and the permit requires a dilution flow rate of 11,800 gpm.

B. Adequate dilution flow does not exist. RWP-1 is only rated at 10,800 gpm and the permit requires a dilution flow rate of 11,800 gpm. CWP dilution flow is not used in addition to RW dilution flow any more.

C. Correct. RWP-2A & 2B are rated at 14,100 gpm.

D. With RM-L2/7 "Bypass" switch selected to "Bypass" the dilution flow rate is based on SW Raw Water pumps. Starting a DC Raw Water pump will have no effect on dilution calculations.

OP-407N Section 4.3

SRO - NEW

References provided: None

Rev. 0 to NRC on 4-22-03
Rev. 1 to NRC on 7-18-03

MCS	Time:	1	Points:	1.00	Version:	0	1	2	3	4	5	6	7 8 9
					Answer:	C	C	D	C	A	B	A	A A C

Scramble Range: A - D

Tier:	3	Group:	
Keywords:	SRO #98	Cog Level:	C/A 2.1/3.1
Source:	N	Exam:	CR303301
Test:	S	Misc:	ATK

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 dryed 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.

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

Tier:	3	Group:	
Keywords:	SRO #99	Cog Level:	MEM 3.1/4.0
Source:	B	Exam:	CR303301
Test:	S	Misc:	ATK

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

QUESTIONS REPORT

for NRC Reviewed SRO BANK

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

Tier:	3	Group:	
Keywords:	SRO #100	Cog Level:	C/A 2.3/4.1
Source:	B	Exam:	CR303301
Test:	S	Misc:	ATK