

**Question 1**

Pressurizer safety valve 1-8010A has been slightly stuck open for the last 10 minutes. High-pressure safety injection is maintaining RCS pressure at 1910 psig, and the Pressurizer vapor space temperature is 630°F. SI and Phase A have been reset and PRT level and pressure have been stabilized at 80% and 35 psig IAW SOP-110A, "RCDT System". A Control Room operator notes that the tail pipe temperature detector for pressurizer safety valve 1-8010A is reading approximately 280°F.

Feedwater pumps should be controlled to maintain adequate core cooling via the Steam Generators because

- A. break flow is greater than ECCS flow.
- B. break flow heat removal is less than residual core heat.
- C. break flow heat removal is greater than residual core heat.
- D. break flow is less than ECCS flow.

**Answer**

"B" is the correct answer, break flow heat removal is less than residual core heat. Must recognize this description is for a vapor space accident.

**References**

REF: FRH-0.1A Background for step 1

KA: 008.AA1.04 (2.8)

OBJ: new question

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unclassified	

Examination Outline Cross-reference:

	<u>RO</u>	<u>SRO</u>
Level		
K/A #	00008.AA1.04	
Importance Rating	2.8	
Tier #	1	
Group #	1	
CFR References	41.7/45.5/45.6	

**Question 2**

A small break LOCA occurred 40 minutes ago. The operators have terminated SI and re-established charging and letdown in accordance with EOS-1.1A, "SI Termination". Which of the following conditions would **NOT** require the reinitiation of safety injection (SI) if containment pressure and radiation are below Adverse Containment values?

	<u>RCS PRESSURE</u>	<u>SUBCOOLING °F</u>	<u>PZRZ LEVEL (%)</u>
A.	DECREASING	30	10
B.	INCREASING	40	3
C.	DECREASING	23	15
D.	STABLE	35	5

**Answer:**

"A" is correct, DECREASING, 30, 10.

**References:**

REF: EOS-1.1

OBJ: EO1.XG3.OB408

Pulled from Bank but never used on NRC exam

Question Source:	Bank #	<u>  X  </u>
	Modified Bank #	<u>          </u>
	New	<u>          </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	<u>          </u>
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

## Examination Outline Cross-reference:

Level	<u>  RO  </u>
K/A #	0009EA2.15
Importance Rating	3.3
Tier #	1
Group #	1
CFR References	43.5 / 45.13

**Question 3**

Unit 1 is currently in procedure EOS-0.2A, "Natural Circulation Cooldown", step 13. The US expresses a need to cooldown at a faster rate than the rate being maintained. He announces a transition to a different procedure to increase the cooldown rate. What would be a major factor in deciding to go to a larger cooldown rate and subsequent procedure?

- A. CRDM fans not available for upper head cooling.
- B. Minimize risk of forming a void in the vessel.
- C. RVLIS is unavailable.
- D. Limited condensate storage.

**Answer:**

"D" is correct, Limited condensate storage.

"A" is incorrect because CRDM fans increase the cooldown rate but are not a decision factor for increasing it to the point of possible void formation. "B" is incorrect because a higher cooldown rate increases the risk of forming a void in the vessel (EOS-0.3 and 0.4 procedures are named accordingly). "C" is incorrect because the availability of RVLIS only determines which procedure (EOS-0.3A or EOS-0.4A) is used for the increased cooldown.

**References:**

REF: EOS-0.2A, bases, page 29.

OBJ: ERG transition bases (Could not find this objective)

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>RO</u>
K/A #	000015AK1.01
Importance Rating	4.4
Tier #	1
Group #	1
CFR References	41.8 / 41.10 / 45.3

**Question 4**

Unit 1 is at 100% power with all systems in their normal at-power lineup when the following annunciators and indications are received.

- \* PRZR LVL DEV LO
- \* REGEN HX LTDN OUT TEMP HI
- \* ANY CNTMT SMP PUMP RUN
  
- \* Pressurizer level is 56% and dropping slowly
- \* Letdown Demineralizer Bypass valve, TCV-129, is in the VCT position
- \* Charging Flow Control valve, FCV-121, is full open
- \* Charging flow meter, FI-121A, indicates 175 gpm and slowly increasing
- \* Letdown flow meter, FI-132, indicated 120 gpm
- \* All RCP seal injection flow meters indicate between 8.0 and 8.5 gpm
- \* All RCP seal return flow recorders indicate between 2.8 and 3.2 gpm

The location of the leak is on the.....

- A. in-service RCP seal injection filter inlet line.
- B. charging line between 1/1-8105 and the Regen Hx.
- C. pressurizer Aux. Spray Control valve, 1/1-8145, inlet line.
- D. letdown line between the Regen Hx and the Letdown Relief valve 1-8117.

**Answer:**

"B" is correct, charging line between 1/1-8105 and the Regen Hx.

**References:**

REF: ABN-103, ABN-105, M1-0255, sht 01, M1-0253, sht A

REV DATE: 10/5/00

OBJ: SYS.CS1.OB10

Question Source:	Bank #	<u>    X    </u>
	Modified Bank #	<u>          </u>
	New	<u>          </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	<u>          </u>
	Comprehension or Analysis	<u>    X    </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>    RO    </u>
K/A #	000022EK1.03
Importance Rating	3.0
Tier #	1
Group #	1
CFR References	41.8 / 41.10 / 45.3

**Question 5**

Given the following:

- Unit 1 was tripped from 100% power due to a loss of coolant accident (LOCA).
- Three hours have elapsed with RHR cold leg recirculation in progress.
- A loss of off-site power (LOOP) has also occurred.
- Containment pressure is 17 psig.
- Core Exit Thermocouples indicate 300 degrees F.
- RCS pressure is 150 psig.
- Emergency Diesel Generator #1 has failed to start.

No flow is indicated on FI-988 for hot leg injection because:

- A. HL Injection valve 8840 failed shut on loss of power from EDG#1.
- B. HL injection valve 8840 must be manually opened.
- C. CL Injection valve 8809A failed open on loss of power from EDG#1.
- D. RHR pump Containment Sump Suction valves have failed to auto-close during transfer to hot leg recirculation mode

**Answer:**

"B" is correct, HL injection valve 8840 must be manually opened.

**References:**

REF:EOS-1.4A-R7-P1

OBJ: SYS.SI1.OB900 (not verified)

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

Examination Outline Cross-reference:

Level	<u>  RO  </u>
K/A #	000025AK3.01
Importance Rating	3.1
Tier #	1
Group #	1
CFR References	41.5 / 41.10 / 45.6 / 45.13

**Question 6**

During Phase A isolation one realignment of CCW that does not occur is the isolation of CCW to RCP's because of the desire to use forced circulation cooling for this type of LOCA. For Phase B isolation, CCW is isolated because:

- A. Forced circulation cooling is not desirable, CCW is at higher pressure than the Phase B set point, and any leakage into containment prior to phase B isolation would be into containment.
- B. Forced circulation cooling is not desirable, CCW is at a lower pressure than the Phase B set point, and any leakage would not contribute to higher containment pressures.
- C. Forced circulation cooling is not desirable, CCW is at higher pressure than the Phase B set point, and any leakage prior to phase B isolation would be into other support systems such as SSW instead of containment.
- D. Forced circulation cooling is desirable, CCW is at a higher pressure than the Phase B set point, and any leakage into containment prior to phase B isolation would be into containment.

**Answer:**

"A" is correct, Forced circulation cooling is not desirable, CCW is at higher pressure than the Phase B set point, and any leakage into containment prior to phase B isolation would be into containment. Phase B isolation is designed for Large break LOCA where RCP's are not desirable.

**References:**

REF: TS Bases, OP51.SYS.CC1

OBJ: OP51.SYS.CC1.OB02/OB04

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>  RO  </u>
K/A #	000026.AK3.02
Importance Rating	3.6
Tier #	1
Group #	1
CFR References	41.5 / 41.10 / 45.6 / 45.13

**Question 7**

Given the following conditions on Unit 1:

- 70% Reactor Power.
- All systems and controls are in automatic.
- 1B Main Feed Pump trips.
- Auto runback does not occur.
- The OUTPUT of the PZR Master Pressure Controller is failed AS IS.
- The Unit 1 BOP operator manually initiates a turbine runback.

What is the INITIAL response of the Pressurizer Pressure Control System during this event?

- A. BACKUP Heaters turn ON to heat incoming surge volume.
- B. BACKUP Heaters turn OFF due to the pressure increase.
- C. BOTH PZR Spray valves THROTTLE OPEN to reduce pressure to normal.
- D. BOTH PZR PORVs OPEN to maintain pressure below the High reactor trip setpoint.

**Answer:**

"A" is correct, BACKUP Heaters turn ON to heat incoming surge volume.

**References:**

REF: OP51.SYS.PP1, ABN-705, IPO-003A/B

OBJ: OP51.SYS.PP1.OB14 and OB17

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

Examination Outline Cross-reference:

Level	<u>RO</u>
K/A #	000027EK1.02
Importance Rating	2.8
Tier #	1
Group #	1
CFR References	41.8 / 41.10 / 45.3

**Question 8**

Unit 1 is at 100% power when a turbine trip occurs with no Reactor trip. The operators enter FRS-0.1, "Response to Nuclear Power Generation/ATWS". With no SI generated and no requirement for use of the RWST, what is the preferred method of emergency boration?

1. Ensure at least one CCP running
  2. Verify charging flow greater than 30gpm
  3. Start all available BA transfer pumps
  - 4.
  - 5.
  - 6.
- A. Open borate valve 1/1-8104, verify boration flow, check PZR pressure less than 2235psig.
- B. Open borate valve 1/1-8104, verify boration flow, check PZR pressure less than PZR PORV set point.
- C. Open borate valve 1CS-8439, verify boration flow, check PZR pressure less than 2235psig.
- D. Open borate valve 1/1-FCV-110A, verify boration flow, check PZR pressure less than PZR PORV set point.

**Answer:**

"B" is correct, "Ensure at least one CCP running, verify charging flow greater than 30gpm, start all available BA transfer pumps, open emergency borate valve 1/1-8104, verify boration flow, check PZR pressure less than PZR PORV set point."

**References:**

REF: FRS-0.1A, page 7, Bases-pages 17-18

OBJ: SYS.CS1.OB21 (not verified)

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>  RO  </u>
K/A #	000029EK3.11
Importance Rating	4.2
Tier #	1
Group #	1
CFR References	41.5 / 41.10 / 45.6 / 45.13

**Question 9**

Unit 2 has experienced a SGTR and has entered EOP-3.0B. In step 3 of the procedure, it has the operators isolate the SG that has the ruptured tube(s). Isolating the bad Steam Generator minimizes the radioactivity release from the bad SG and:

- A. Establishes a DP between the ruptured and good steam generators in order to stop the primary to secondary leak and cool the RCS.
- B. Allows a faster cool down rate of the RCS, which further minimizes the radioactivity released into the steam plant equipment and ultimately the general public.
- C. Establishes a DP between the ruptured and good steam generators in order to stop the primary to secondary leak.
- D. Ensures RCS pressure can be matched to the bad SG and therefore stop the transfer of primary coolant across the ruptured tube(s).

**Answer:**

“A” is correct, Establishes a DP between the ruptured and good steam generators in order to stop the primary to secondary leak and cool the RCS.

**References:**

EOP-3.0B, bases, page 40.

OBJ:

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

Examination Outline Cross-reference:

Level	<u>RO</u>
K/A #	000038.EK1.02
Importance Rating	3.2
Tier #	1
Group #	1
CFR References	41.8 / 41.10 / 45.3

**Question 10**

A 10,000 lbm/hr steam leak has developed on the #4 S/G Main Steam Line at the exit of the S/G. The break is allowing steam to blow into the S/G compartment room. In the ERG's, S/G narrow range level on scale is 5% except when adverse containment conditions exists. Current Containment conditions are:

Containment pressure = 4.5 psig  
 Containment radiation = 100 R/hr  
 Containment humidity = 20%  
 Integrated Containment radiation dose = 0.5R  
 Containment temperature = 130<sup>0</sup>F

For these conditions the indicated narrow range level S/G #3 would be 1  
 and the corresponding value to be used in the ERG's would be 2.

- A. Higher due to reference leg heating, the indicated value since adverse conditions do not exist.
- B. Lower due to reference leg heating, the indicated value since adverse conditions do not exist.
- C. Higher due to reference leg heating, the value in brackets in the ERG's because adverse conditions do exist.
- D. Lower due to reference leg heating, the value in brackets in the ERG's because adverse conditions do exist.

**Answer:**

"A" is correct, Higher due to reference leg heating, the indicated value since adverse conditions do not exist.

**References:**

REF: ODA-407,  
 OBJ: ERG.XDB.OBO5 001 (not verified)

Question Source:	Bank #	<u>          </u>
	Modified Bank #	<u>          </u>
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	<u>          </u>
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>RO</u>
K/A #	000040.EK2.02
Importance Rating	2.6
Tier #	1
Group #	1
CFR References	41.7 / 45.7

**Question 11**

Unit 1 experienced a reactor trip due to loss of all Main feed water pumps and is currently in Mode 3. The MDAFW pumps are not available. The TDAFW pump tripped on overspeed and needs to be restarted in order to restore feedwater. The local operator is dispatched to the TDAFW pump in order to restart it. What actions are required to restart the pump?

1. turn hand wheel counter-clockwise until actuator is in full up position
2. turn hand wheel counter-clockwise until latch is engaged
3. engage the hand wheel then depress clutch lever
4. turn hand wheel clockwise until latch is engaged
5. depress clutch lever then engage the hand wheel
6. turn hand wheel clockwise until actuator is in full up position
7. manually reset the trip linkage
8. release clutch lever

- A. 5, 2, 6, 1
- B. 7, 5, 2, 6, 1
- C. 5, 4, 1, 8
- D. 7, 5, 4, 1, 8

**Answer:**

"D" is correct, 7, 5, 4, 1, 8

**References:**

REF: SOP-304A

OBJ: SYS.AF1.OB20

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>RO</u>
K/A #	00054. AA1.02
Importance Rating	4.4
Tier #	1
Group #	1
CFR References	41.7 / 45.5 / 45.6

**Question 12**

Which of the following signals will cause an auto start of Train B Safety Chilled Water Recirc Pump if Train A is in service?

- A. Blackout Signal
- B. Trip of Train A Recirc Pump
- C. Low Train A Recirc Pump discharge pressure
- D. High Train A Chiller outlet temperature

**Answer:**

"A" is correct, Blackout Signal.

**References:**

REF: MI-2311, Sh 1

REV DATE: 2/13/97

OBJ:

**Note: Must provide reference material on Exam !**

Question Source:	Bank #	<u>  X  </u>
	Modified Bank #	<u>          </u>
	New	<u>          </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	<u>          </u>
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

## Examination Outline Cross-reference:

Level	<u>  RO  </u>
K/A #	0055.G 2.1.24
Importance Rating	2.8
Tier #	1
Group #	1
CFR References	45.12 / 45.13

**Question 13**

Given the following:

Unit 1 has tripped from Loss of off-site power  
 An SI has occurred on both trains  
 Containment pressure is 0.5psig  
 Both EDG's started and are carrying their respective buses  
 Both MDAFW pumps failed to start

What is the status of the TDAFW flow control valve controls in the control room and how would control of these valves in the control room be restored IF valve control were lost?

- A. Both control and indications are lost, recovered by resetting the SI and depressing OPEN on HS-2452H, AFWPT T & T VLV control switch.
- B. Full control and indications in the control room, no actions required
- C. Both control and indications are lost, recovered by resetting the SI and depressing RESET on AFW FLO CTRL hand switch at the RSP.
- D. Both control and indications are lost, recovered by resetting the SI.

**Answer:**

"B" is correct, Full control and indications in the control room, no actions required. The turbine loses some indications and controls in CR for this event, but not the flow control valves.

**References:**

REF: OP51.SYS.AF1, page 36.

OBJ: OP51.SYS.AF1.OB07

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

Examination Outline Cross-reference:

Level	<u>RO</u>
K/A #	000056.AA1.30
Importance Rating	3.5
Tier #	1
Group #	1
CFR References	41.7 / 45.5 / 45.6

**Question 14**

Unit 1 is in the recovery actions of EOS-0.1, "Reactor Trip Response", following a Reactor Trip due to a loss of 1EC1. During the crew's response to the Reactor Trip, they notice that an 86-2 LOR is actuated on 1EA1. What is the status of 1EA1 assuming NO operator action?

- A. EA1-1 remains closed and 1EA1 is energized
- B. EA1-2 automatically closes and 1EA1 is energized.
- C. "A" DG will not start and 1EA1 is de-energized.
- D. "A" DG will start and 1EA1 is de-energized.

**Answer:**

"C" is correct; "A" DG will not start and 1EA1 is de-energized.

**References:**

REF: ABN-603, sect 3

REV DATE: 6/1/00

OBJ: SYS.ES4.OB07

Question Source:	Bank #	<u>  X  </u>
	Modified Bank #	<u>          </u>
	New	<u>          </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	<u>          </u>
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>  RO  </u>
K/A #	000057.AK3.01
Importance Rating	4.1
Tier #	1
Group #	1
CFR References	41.5, 41.10 / 45.6 / 45.13

**Question 15**

Unit 1 just completed a major outage on bus 1D1, its associated batteries, and battery chargers; the associated bus, batteries, and battery chargers are ready to be returned to service and support plant start-up. What component(s) could delay the batteries' return to full voltage?

- A. The input current limiters in the chargers are set conservatively too low.
- B. Turbine seal oil pumps draw a large amount of current from 1D1
- C. The output current limiters in the chargers are set conservatively too low.
- D. Battery room ambient temperature has reached 72<sup>0</sup>F.

**Answer:**

“C” is correct; The output current limiters in the chargers are set conservatively too low.

**References:**

REF: OB51.SYS.DC1.LN

REV DATE: 10/22/1996

OBJ: OP51.SYS.DC1.OB04

Question Source:	Bank #	<u>          </u>
	Modified Bank #	<u>    X    </u>
	New	<u>          </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	<u>          </u>
	Comprehension or Analysis	<u>    X    </u>
	LOD = unknown	

## Examination Outline Cross-reference:

Level	<u>    RO    </u>
K/A #	000058.AK1.01
Importance Rating	2.8
Tier #	1
Group #	1
CFR References	41.8 / 41.10 / 45.3

**Question 16**

The Unit 1 RO reports that SSW flow to CCP 1-01 lube oil cooler is 31 gpm, and has been slowly decreasing over the previous two shifts. He suspects the strainer is clogged, and requests that you blow down the affected strainer. Which procedure should he direct you to use in order to perform this task?

- A. ABN-501A, Station Service Water Malfunction
- B. SOP-501A, Station Service Water System
- C. ALM-0011A, Alarm Procedure 1-ALB-1
- D. ABN-105A, Chemical and Volume Control System Malfunctions

**Answer:**

“C” is correct, ALM-0011A, Alarm Procedure 1-ALB-1.

**References:**

REF: STA-202

REV DATE: 2/13/97

OBJ: ADM.XA3.OB101 (not verified)

Question Source:	Bank #	<u>    X    </u>
	Modified Bank #	<u>          </u>
	New	<u>          </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	<u>    X    </u>
	Comprehension or Analysis	<u>          </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>    RO    </u>
K/A #	0062.G2.1.8
Importance Rating	3.8
Tier #	1
Group #	1
CFR References	45.5 / 45.12 / 45.13

**Question 17**

Unit 1 is in Mode 3 following a reactor trip from 50% power, due to low pressurizer pressure. SI has actuated. Current plant conditions:

- (1) Containment parameters are normal
- (2) SI termination criteria cannot be met at this time.
- (3) The STA reports RHR area monitor (RHR-122) is in alert at  $1.5 \times 10^2$  mr/hr

Select the correct procedure path to take from the choices below.

- A. Transition to EOP-1.0A, Loss of Reactor or Secondary Coolant
- B. Complete every step of EOP-0.0A before transitioning to another procedure.
- C. Transition to ECA-1.2A, LOCA Outside Containment
- D. Transition to EOS-0.1A, Reactor Trip Response

**Answer:**

"C" is correct, Transition to ECA-1.2A, LOCA Outside Containment

**References:**

REF: EOP-0.0A, Step 31 RNO

REV DATE: 6/16/98

OBJ: OPD1.ECA.XG3.OB405 (not verified)

Question Source:	Bank #	<u>    X    </u>
	Modified Bank #	<u>          </u>
	New	<u>          </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	<u>          </u>
	Comprehension or Analysis	<u>    X    </u>
	LOD = unknown	

Examination Outline Cross-reference:

Level	<u>    RO    </u>
K/A #	W/E04.EA2.1
Importance Rating	3.4
Tier #	1
Group #	1
CFR References	43.5 / 45.13

**Question 18**

During a loss of heat sink, the wide range steam generator level in three steam generators decreases below 27% with RCS pressure starting to increase. The operators initiate bleed and feed, but only one PORV opens. If the plant remains in this condition without any additional operator actions taken, the most likely effect of having only one PORV open is that:

- A. No detrimental effect occurs; bleed and feed remains effective.
- B. Reactor vessel water level remains higher with the reduction in bleed.
- C. The Reactor Coolant depressurizes to a lower pressure with less of an inventory loss.
- D. Core uncover occurs because RCS repressurization decreases Emergency Core Cooling Systems flow.

**Answer:**

“D” is correct, core uncover occurs as a higher Reactor Coolant System repressurization decreases Emergency Core Cooling Systems flow.

**References:**

REV DATE: 12/08/2000

REF: FRH-0.1A bases

OBJ: MCO.MI4.OB102 (not verified)

Question Source:	Bank #	<u>    X    </u>
	Modified Bank #	<u>          </u>
	New	<u>          </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	<u>          </u>
	Comprehension or Analysis	<u>    X    </u>
	LOD = unknown	

## Examination Outline Cross-reference:

Level	<u>    RO    </u>
K/A #	WE05.EA1.3
Importance Rating	3.8
Tier #	1
Group #	1
CFR References	41.7 / 45.5 / 45.6

**Question 19**

Unit 1 was at 80% power and stable at EOL when a fault caused a continuous rod withdrawal until all rods were fully withdrawn. The reactor did not trip and the steam dumps did not operate.

What were the final effects of the fuel temperature coefficients (FTC) and moderator temperature coefficients (MTC) when the plant had stabilized?

- A. FTC added positive reactivity, MTC added positive reactivity.
- B. FTC added positive reactivity, MTC added negative reactivity.
- C. FTC added negative reactivity, MTC added positive reactivity.
- D. FTC added negative reactivity, MTC added negative reactivity.

**Answer:**

“D” is correct, FTC added negative reactivity, MTC added negative reactivity.

**References:**

INPO Bank, Cook 1, dated 5/21/2001

REF: OPD1.MCO.TAD (not verified)

Question Source:	Bank #	<u>    X    </u>
	Modified Bank #	<u>          </u>
	New	<u>          </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	<u>          </u>
	Comprehension or Analysis	<u>    X    </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>    RO    </u>
K/A #	00001.AK1.18
Importance Rating	3.4
Tier #	1
Group #	2
CFR References	41.8 / 41.10 / 45.3

**Question 20**

A Manual emergency boration is being initiated in accordance with ABN-107 "Emergency Boration" Attachment 3.

When the controller for the Blender Flow Control valve, 1/1-FCV-110A, was placed to OPEN, the switch failed. Which one of the following describes how the position of 1-FCV-110A can then be maintained to allow boric acid flow?

- A. The operator locally repositions the nitrogen accumulator's vent in the air line to the valve so that it fails open.
- B. The operator locally engages the manual handwheel for the valve and opens it.
- C. The operator locally isolates and vents the air line to the valve so that it fails open.
- D. The operator locally installs a temporary jumper that provides 120 V AC power to the open solenoid for the valve.

**Answer:**

"C" is correct, The operator locally isolates and vents the air line to the valve so that it fails open.

**References:**

REF:OP51.SYS.CS2

DATE: 3/6/98

OBJ: OP51.SYS.CS2.OB02

Question Source:	Bank #	<u>  X  </u>
	Modified Bank #	<u>          </u>
	New	<u>          </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	<u>  X  </u>
	Comprehension or Analysis	<u>          </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>  RO  </u>
K/A #	00024.AK2.03
Importance Rating	2.6
Tier #	1
Group #	2
CFR References	41.7 / 45.7

**Question 21**

Given the following for Unit 1:

- A reactor startup is in progress
- The operator just stopped moving rods
- Power slowly increases to 3E-10 amps on N-35 and N-36
- N-31 suddenly fails low
- The remaining power indications stabilize

Which one of the following is required?

- A. Trip the reactor per ABN-701 and enter EOP-0.0A for "Reactor Trip or Safety Injection."
- B. Block NI-31 and NI-32 because they are not required at this power level or plant conditions.
- C. Enter Mode 3 within one (1) hour and ensure both NI-31 and NI-32 channels are operable before the next startup.
- D. Suspend all operations involving positive reactivity changes until both NI-31 and NI-32 channels are operable.

**Answer:**

"B" is correct, Block NI-31 and NI-32 because they are not required at this power level or plant conditions.

**References:**

REF: IPO-002A, ABN-701

OBJ: SYS.EC1.OB025

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

Examination Outline Cross-reference:

Level	<u>RO</u>
K/A #	000032.AK3.01
Importance Rating	3.2
Tier #	1
Group #	2
CFR References	41.5, 41.10 / 45.6 / 45.13

**Question 22**

Unit 2 is currently in FRS-0.2B for “Response to Loss of Core Shutdown” with containment pressure at 5psig. NI-35 and NI-36 failed low. You should read the flux trace and:

- A. Determine if NI-35 and NI-36 are over-compensated, and if SO, initiate boration until flux is below 10E-10 amps.
- B. Determine if NI-35 and NI-36 are under-compensated, and if NOT, initiate boration until flux is below 10E-10 amps.
- C. Determine if both Neutron Flux Wide Range instruments are decreasing, and if SO, then ensure boration continues and return to the procedure in effect.
- D. Determine if NI-35 and NI-36 are under-compensated, and if SO, manually energize the source range detectors.

**Answer:**

“C” is correct, Determine if both Neutron Flux Wide Range instruments are decreasing, and if SO, then ensure boration continues and return to the procedure in effect.

**References:**

REF: FRS-0.2A

OBJ: SK4.XH2.OB104 (not verified)

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>RO</u>
K/A #	000033.AK3.02
Importance Rating	3.6
Tier #	1
Group #	2
CFR References	41.5, 41.10 / 45.6 / 45.13

**Question 23**

Unit 1 was in an outage when a major flooding event occurred and the spent fuel pool was flooded with water. The subsequent boron concentration in the pool was diluted to effectively zero. Using the local RM-80's and the criticality alarm box, you would expect:

- A. SOME high radiation alarms, SOME fuel assemblies would approach criticality, and the criticality alarm box would alarm.
- B. SOME high radiation alarms, NO MORE THAN ONE fuel assembly would approach criticality (by design), and the criticality alarm box would alarm.
- C. NO high radiation alarms, NO fuel assemblies would approach criticality, and the criticality alarm box would NOT alarm.
- D. SOME high radiation alarms, NO fuel assemblies would approach criticality, and the criticality alarm box would NOT alarm.

**Answer:**

"D" is correct, SOME high radiation alarms, NO fuel assemblies would approach criticality, and the criticality alarm box would NOT alarm.

**References:**

REF: FSAR 4.3-29, ABN-908, TSB 3.7.1

OBJ: RFO.FH1.OB101 (not verified)

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>  RO  </u>
K/A #	000036.AK1.03
Importance Rating	4.0
Tier #	1
Group #	2
CFR References	41.8 / 41.10 / 45.3

**Question 24**

The Containment Integrity Air Lock Technical Specification 3.6.2 LCO at CPSES must be entered when \_\_\_\_\_ 1 \_\_\_\_\_ and within 1 hour \_\_\_\_\_ 2 \_\_\_\_\_:

- A. The electrical interlocks for the Emergency Air lock have failed, close the operable door in the affected air lock.
- B. The mechanical interlocks for the Emergency Air lock have failed, lock the operable door in the affected air lock.
- C. The electrical interlocks for the Personnel Air lock have failed, close the operable door in the affected air lock.
- D. The mechanical interlocks for the Personnel Air lock have failed, lock the operable door in the affected air lock.

**Answer:**

“C” is correct, The electrical interlocks for the Personnel Air lock have failed, close the operable door in the affected air lock.

**References:**

REF: TS 3.6.2, OP51.SYS.CY1

OBJ: OP51.SYS.CY1.OB07 and OB32

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	<u>  X  </u>
	Comprehension or Analysis	_____
	LOD = unknown	_____

**Examination Outline Cross-reference:**

Level	<u>  RO  </u>
K/A #	00069.AK2.03
Importance Rating	2.8
Tier #	1
Group #	2
CFR References	41.7 / 45.7

**Question 25**

During a crud burst operation the Liquid Waste Processing System (LWPS) Effluent Monitor High Rad (2.6) alarm was received at the LWPS panel. The location was determined to be on X-RE-5251A (ABP074) for “LVW/EVAP POND VNT and DRN HDR” Radiation detector. Select the manual or automatic action(s) expected as a result of this alarm:

- A. Auto-realignment of sump discharge from LVW to COW systems.
- B. Auto-Closure of X-RV-5253, Liquid Waste Discharge Isolation Valve.
- C. Operator performs realignment of sump discharge from LVW to COW systems.
- D. Operator ensures closure of X-RV-5253, Liquid Waste Discharge Isolation Valve.

**Answer:**

“A” is correct, Auto-realignment of sump discharge from LVW to COW systems.

**References:**

REF: ABN-903.

OBJ: OP51.SYS.RM1 (no objective numbers listed here)

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>RO</u>
K/A #	00076.A2.04
Importance Rating	2.6
Tier #	1
Group #	2
CFR References	43.5 / 45.13

**Question 26**

A large break LOCA has occurred on Unit 1. The crew is currently performing steps in EOP-2.0A, "Loss of Reactor or Secondary Coolant". The following conditions existed when the STA made his initial scan of the Status Trees:

- Pressurizer level was 0%
- Containment floor water level indicated 816 feet.
- Containment spray had automatically actuated.
- Containment pressure was 12 psig and decreasing.
- Several Containment radiation monitors were in ALARM at 25R/HR.
- RVLIS is 50 inches above flange
- CET's are 500F

Which of the following procedures must be entered to address the above conditions?

- A. FRZ-0.2A      Response to Containment Flooding
- B. FRZ-0.1A      Response to High Containment Pressure
- C. FRI-0.2A      Response to Low Pressurizer Level
- D. FRZ-0.3A      Response to High Containment Radiation Level

**Answer:**

"A" is correct, FRZ-0.2A      Response to Containment Flooding.

**References:**

REF: CSFSTS, FRZ-0.2A

OBJ: (waiting on lesson notes on ERG's to get objective list)

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

Examination Outline Cross-reference:

Level	<u>    RO    </u>
K/A #	E15.EA2.2
Importance Rating	2.9
Tier #	1
Group #	2
CFR References	43.5 / 45.13

**Question 27**

Unit 1 has tripped from 100% power with subcooling approaching 210°F. Procedure FRP-0.1A "Response to Imminent PTS Condition" has been entered. The reason for the caution statement for maintaining steam supply to the AFW pump in this event is:

- A. The cooldown rate contribution of the AFW pump steam supply piping would not be noticeable.
- B. The MD AFW pumps are not available and this would potentially require a transfer to a higher priority ERG.
- C. The cooldown rate could not be stabilized without a small steam load for precision control.
- D. The steam supply would not be maintained open to the TDAFW pump because the event initiator could be a steam break inside containment.

**Answer:**

"B" is correct, The MD AFW pumps are not available and this would potentially require a transfer to a higher priority ERG.

**References:**

REF: FRP-0.1A, FRH-0.1A

OBJ: (waiting on lesson notes on ERG's to get objective list)

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

Examination Outline Cross-reference:

Level	<u>  RO  </u>
K/A #	WE08.G 2.1.32
Importance Rating	3.4
Tier #	1
Group #	2
CFR References	41.10 / 43.2 / 45.12

**Question 28**

During an RCS heatup in Mode 3 the Nitrogen overpressure regulator for the VCT has failed shut. The control room alarm for "VCT PRESS HI/LO" comes in.

What is the impact on RCP # 2 seals during the heatup and what procedure should be used to mitigate the malfunction?

- A. The RCP #2 seal flow rates are dropping because the VCT pressure has dropped below 15psig, ALM-0061A for VCT PRESS HI/LO alarm.
- B. The RCP #2 seal flow rates are increasing because the VCT pressure has increased above 65psig, ALM-0061A for VCT PRESS HI/LO alarm.
- C. The RCP #2 seal flow rates are dropping because the VCT pressure has dropped below 15psig, SOP-108A for RCP Operations.
- D. The RCP #2 seal flow rates are increasing because the VCT pressure has increased above 65psig, SOP-108A for RCP Operations.

**Answer:**

"A" is correct, The RCP #2 seal flow rates are dropping because the VCT pressure has dropped below 15psig, ALM-0061A for VCT PRESS HI/LO alarm.

**References:**

REF: ALM-0061A, SOP-108A, ALM-0051A

OBJ: OP51.SYS.CS1 (no specific objectives listed for entire CVCS system)

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>RO</u>
K/A #	0003.A2.05
Importance Rating	2.5
Tier #	2
Group #	1
CFR References	41.5 / 43.5 / 45.3 / 45.13

**Question 29**

The purpose of the CVCS mixed bed demineralizers is to \_\_\_\_\_1\_\_\_\_\_, and during the process of shifting these demineralizers, one effect or malfunction that the operator should be alert for is the possibility of \_\_\_\_\_2\_\_\_\_\_.

- A. Remove corrosion products from the RCS, the insertion of positive reactivity from the removal of boron from the RCS.
- B. Remove boron from the RCS, the insertion of positive reactivity from the removal of boron from the demineralizer beds.
- C. Remove corrosion products from the RCS, the insertion of positive reactivity from the removal of boron from the demineralizer beds.
- D. Remove boron from the RCS, the insertion of positive reactivity from the removal of boron from the RCS.

**Answer:**

"A" is correct, Remove corrosion products from the RCS, the insertion of positive reactivity from the removal of boron from the RCS.

**References:**

REF: SOP-103A, OP51.SYS.CS2

OBJ: OP51.SYS.CS2 (no specific objectives listed for entire CVCS system)

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>  RO  </u>
K/A #	0004.K6.20
Importance Rating	2.5
Tier #	2
Group #	1
CFR References	41.7 / 45.7

**Question 30**

A fire has required evacuation of the control room and the plant is being controlled from the Remote Shutdown Panel (RSP). Prior to evacuation, the Emergency Boration Procedure ABN-107 was entered and the preferred path was lined up and minimum flow was established. When the RO gets to the RSP, valves 1-8104 and 1-FCV-110A have no position indication. In order to verify that emergency boration is still occurring, the RO would need to:

- A. Have a PEO reset the breaker at MCC 1EB4-1 and verify at least 30gpm.
- B. Have a PEO reset the breaker at MCC 1EB1-1 and verify at least 30gpm.
- C. Read the RSP flow indication for FI-183 and verify at least 30gpm.
- D. Read the RSP flow indication for FI-110 and verify at least 30gpm.

**Answer:**

“C” is correct, Read the RSP flow indication for FI-183 and verify at least 30gpm.

**References:**

REF: ABN-107, OP51.SYS.CS2

OBJ: OP51.SYS.CS2 (no specific objectives listed for entire CVCS system)

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>RO</u>
K/A #	0004.A3.16
Importance Rating	3.8
Tier #	2
Group #	1
CFR References	41.7 / 45.5

**Question 31**

One set of RCS Pressure boundary valve pairs from the RHR system is the RHR Hot Leg Recirculation Valves 2-8701A and 2-8701B. Their normal and alternate power supplies are:

	Normal	Alternate
A. 2-8701A	2-EB3-2	None
2-8701B	2-EB4-2	None
B. 2-8701A	2-EB3-2	None
2-8701B	2-EB3-2	2-EB4-2
C. 2-8701A	2-EB3-2	2-EB4-2
2-8701B	2-EB4-2	None
D. 2-8701A	2-EB3-2	2-EB4-2
2-8701B	2-EB4-2	2-EB3-2

**Answer:**

"B" is correct, 2-8701A 2-EB3-2 None  
2-8701B 2-EB3-2 2-EB4-2

**References:**

REF: OP51.SYS.RH1.LN  
OBJ: OP51.SYS.RH1.OB05

Question Source: Bank # \_\_\_\_\_  
Modified Bank # \_\_\_\_\_  
New     X    

Question Cognitive Level: Memory or Fundamental Knowledge     X      
Comprehension or Analysis \_\_\_\_\_  
LOD = unknown

**Examination Outline Cross-reference:**

Level	<u>    RO    </u>
K/A #	0005.K2.03
Importance Rating	2.7
Tier #	2
Group #	1
CFR References	41.7

**Question 32**

The RHR system has just been placed in service IAW IPO 005, "Plant Cool down from Hot Standby to Cold Shutdown," in order to cool down the plant from 320 °F to 200 °F. The Reactor Operator discovers Pressurizer level is decreasing uncontrollably. Under these conditions the Unit Supervisor would:

- A. Order a Manual SI actuation and enter EOP-0.0, "Reactor Trip or Safety Injection".
- B. Enter ABN-103, "Excessive Reactor Coolant System Leakage" and attempt to isolate the leak.
- C. Enter ABN-104, "Residual Heat Removal System Malfunction" and attempt to isolate the leak.
- D. Enter ABN-108, "Shutdown Loss of Coolant" and attempt to isolate the leak.

**Answer:**

"D" is correct, Enter ABN-108, "Shutdown Loss of Coolant" and attempt to isolate the leak.

**References:**

REF: ABN-108, IPO-005

OBJ: ERG.XD2.OB111 001 (not verified)

Bank: Last used 1997

Question Source:	Bank #	<u>          </u>
	Modified Bank #	<u>    X    </u>
	New	<u>          </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	<u>          </u>
	Comprehension or Analysis	<u>    X    </u>
	LOD = unknown	

## Examination Outline Cross-reference:

Level	<u>    RO    </u>
K/A #	0006.A2.03
Importance Rating	3.3
Tier #	2
Group #	1
CFR References	41.5 / 45.5

**Question 33**

Given the following conditions at Unit 2:

Time:	1000 hrs	1100 hrs
PRT level	72%	78%
PRT temperature	96 F	96 F
Pressurizer level	45%	43%
Tavg	570 F	569 F
Containment temperature	102 F	106 F

Why did the PRT level increase during this time frame?

- A. Seal return relief valve (inside containment) leakage.
- B. Expansion due to containment heatup.
- C. Pressurizer PORV leakage.
- D. Letdown relief valve (inside containment) leakage.

**Answer:**

"A" is correct, Seal return relief valve (inside containment) leakage.

**References:**

REF: OP51.SYS.RC1, M1-0251, ALM-0052A

OBJ: SYS.RC1.OB11

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

Examination Outline Cross-reference:

Level	<u>RO</u>
K/A #	0007.A3.01
Importance Rating	2.7
Tier #	2
Group #	1
CFR References	41.5 / 43.5 / 45.3 / 45.13

**Question 34**

Due to maintenance, the Unit 1 RHR pump 1-02 seal cooler CCW supply and return valves are clearance tagged closed. If the plant receives an SI signal, which of the following statements addresses this situation?

- A. Place RHR pump 1-02 in Pull-out as operation may not continue with no CCW flow to the seal cooler.
- B. Align fire protection water to the RHR pump 1-02 seal cooler per ABN-501.
- C. Align demin water to the RHR pump 1-02 seal cooler per ABN-501.
- D. No action required at this time. If suction is aligned to CNTMT Sump, then seal cooler CCW flow may be required.

**Answer:**

“D” is correct, No action required at this time. If suction is aligned to CNTMT Sump, then seal cooler CCW flow may be required.

**References:**

REF: ABN-502, Sect 3.3, step 8 NOTE

REV DATE: 10/17/97

OBJ: S01.NC1.OB102 (not verified)

Question Source:	Bank #	<u>    X    </u>
	Modified Bank #	<u>          </u>
	New	<u>          </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	<u>    X    </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>    RO    </u>
K/A #	0008.K1.02
Importance Rating	3.3
Tier #	2
Group #	1
CFR References	41.2 to 41.9 / 45.7 to 45.9

**Question 35**

In Mode 2, while conducting a reactor startup, pressurizer pressure channel PT-455 fails to 1700 psig. The pressurizer pressure controlling channel selector switch is in the 455/456 position. With all pressurizer controls in automatic, and assuming no operator actions, this will result in:

- A. A high pressure reactor trip.
- B. PCV-456 opening.
- C. PCV-455 opening.
- D. A low pressure SI.

**Answer:**

"B" is correct, PCV-456 opening.

**References:**

REF: OP51.SYS.PP1, ABN-705

REV DATE: 8/15/97

OBJ: OP51.SYS.PP1.OB14

Question Source:	Bank #	<u>  X  </u>
	Modified Bank #	<u>          </u>
	New	<u>          </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	<u>          </u>
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>  RO  </u>
K/A #	0010.A3.02
Importance Rating	3.6
Tier #	2
Group #	1
CFR References	41.7 / 45.5

**Question 36**

Operators have selected the 457/456 position on the Przr pressure selector switch with the unit operating in Mode 1 at 7% power. If PRZR pressure channel PT-457 subsequently fails low, which of the below is expected to occur? (Assume no operator actions) Heaters will energize and .....

- A. PCV 456 and PCV 455A will not open; Reactor trip on high PRZR pressure.
- B. PCV-456 will cycle open and closed at the lift setpoint.
- C. PCV-456 will open and not reclose; Reactor will trip on 1820 psig SI actuation.
- D. PCV-456 will open and not reclose; Reactor trip on low PRZR pressure (1880 psig).

**Answer:**

"A" is correct, neither PCV 455A or 456 will open; Reactor trip on high PRZR pressure.

**References:**

REF: LO21.MCO.TA3.LP, (W) 7247D05

REV DATE: 8/15/97

OBJ: LO29.L10.E12; LO29.L11.E10, LO29.L12.EE5, LO29.L13.PE1 (not verified)

Question Source:	Bank #	<u>    X    </u>
	Modified Bank #	<u>          </u>
	New	<u>          </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	<u>          </u>
	Comprehension or Analysis	<u>    X    </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>    RO    </u>
K/A #	0010.G 2.1.7
Importance Rating	3.7
Tier #	2
Group #	1
CFR References	43.5 / 45.12 / 45.13

**Question 37**

The exact power level at which an OTN16 reactor trip occurs is not a discrete value and is dependent on several plant parameters. Which of the following choices lists the conditions or parameters which would have the effect of decreasing the trip setpoint of this feature given the below plant conditions? Assume no operator response, and auto controls systems (except rod control which is in MANUAL) have stabilized the plant.

- 80% RTP
  - 895 MWe
1. Inadvertent 40 MWe turbine load rejection.
  2. Decreasing PRZR pressure.
  3. Step increase in turbine load to 920 MWe.
  4. Isolating a string of HP FW Heaters.
- A. 1, 2.
- B. 2, 3.
- C. 1, 2, 4.
- D. 2, 3, 4.

**Answer:**

"A" is correct, 1, 2.

**References:**

REF:OP51.SYS.RC1

REV DATE: 8/11/97

OBJ: OP51.SYS.RC1.OB413 (incorrect in bank, should be in OP51.SYS.ES1, no objectives listed in this material, however). Changed distractors B and C.

Question Source:	Bank #	_____
	Modified Bank #	<u>  X  </u>
	New	_____

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>                    </u>
K/A #	0012.A1.01
Importance Rating	2.9
Tier #	2
Group #	1
CFR References	41.5 / 45.5

**Question 38**

While testing Power Range Channel IV the High Flux Trip set point was found to be failed high to 120% RTP and I&C can not correct the source of the failure within six hours. The Unit is at 100% power. Select the correct statement that describes what impact this would have on the SSPS system, and based on this, what action, if any, is required.

- A. No actions are required provided the other channels are operable and shutdown margin is maintained at  $\geq 1.3\% \Delta k/k$ .
- B. Ensure other channels are operable, have associated bistables tripped within 6 hours, then either reduce thermal power within 4 hours, OR monitor QPTR once per 12 hours.
- C. Ensure other channels are operable, have associated bistables tripped within 1 hour, monitor QPTR once per 6 hours OR reduce thermal power within 12 hours.
- D. Ensure at least two other channels are operable, have associated bistables place in the bypassed position and monitor QPTR within 6 hours, OR reduce thermal power to  $<75\%$  within the next 6 hours.

**Answer:**

"B" is correct, Ensure other channels are operable, have associated bistables tripped within 6 hours, then either reduce thermal power within 4 hours, OR monitor QPTR once per 12 hours.

**References:**

REF: TS 3.3.1, ABN-703, OP51.SYS.RP1

REV DATE: 8/27/01

OBJ: LO41.RSY.EC1.OB107 (not verified)

Question Source:	Bank #	<u>          </u>
	Modified Bank #	<u>  X  </u>
	New	<u>          </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	<u>          </u>
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>RO</u>
K/A #	0012.A2.01
Importance Rating	3.1
Tier #	2
Group #	1
CFR References	41.5 / 43.5 / 45.3 / 45.5

**Question 39**

For Unit 1, the purpose of the SSPS actuation logic for Main Steam Line Isolation (MSLI) is to prevent an uncontrolled blowdown of more than one steam generator. The logic design for the MSLI initiated from low steam line pressure would be 2 of 3 pressure transmitters on \_\_\_\_\_1\_\_\_\_\_ and \_\_\_\_\_2\_\_\_\_\_.

- A. 1 of 4 main steam lines at 605psig and decreasing, is blockable below P-14.
- B. 2 of 4 main steam lines at 605psig and decreasing, is blockable below P-14.
- C. 1 of 4 main steam lines at 605psig and decreasing, is blockable below P-11.
- D. 2 of 4 main steam lines at 605psig and decreasing, is blockable below P-11.

**Answer:**

“C” is correct, 1 of 4 main steam lines at 605psig and decreasing, is blockable below P-11.

**References:**

REF: OP51.SYS.ES1, page 60.

OBJ: None provided in this material

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	<u>  X  </u>
	Comprehension or Analysis	_____
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>  RO  </u>
K/A #	0013.K5.02
Importance Rating	2.9
Tier #	2
Group #	1
CFR References	41.5 / 45.7

**Question 40**

During attempts to re-establish a feedwater flow path following an SI and FWI reset, which of the following will be required if the Reactor trip breakers are unable to be cycled?

- A. Place FIV hand switches to the closed position to allow a FWI reset.
- B. Remove control power from the Reactor trip breakers.
- C. Pull universal logic card A213 from both trains of SSPS, then replace both cards.
- D. Reset both trains of SI Sequencer, then reset the FWI signal.

**Answer:**

“C” is correct, Pull universal logic card A213 from both trains of SSPS, then replace both cards.

**References:**

REF: OP51.SYS.MF1

REV DATE: 12/5/96

OBJ: OP51.SYS.MF1.OB26 and OB27

Question Source:	Bank #	<u>    X    </u>
	Modified Bank #	<u>          </u>
	New	<u>          </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	<u>          </u>
	Comprehension or Analysis	<u>    X    </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>    RO    </u>
K/A #	00013.A4.02
Importance Rating	4.3
Tier #	2
Group #	1
CFR References	41.7 / 45.5 to 45.8

**Question 41**

During a particular accident scenario, the containment environment is observed to degrade to adverse conditions due to high containment pressure. What is the impact on the PRZR level indication in this situation?

- A. Hot calibrated PRZR level channels will indicate greater than actual level; cold calibrated level will decrease.
- B. Both hot calibrated and cold calibrated PRZR level channels will read lower than actual in the pressurizer.
- C. Cold calibrated PRZR level will increase; hot calibrated level channels will indicate lower than actual level.
- D. Both hot calibrated and cold calibrated PRZR level channels will read higher than actual in the pressurizer.

**Answer:**

“B” is correct, Both hot calibrated and cold calibrated PRZR level channels will read lower than actual in the pressurizer.

**References:**

REF: LO21.MCO.MI7.LN

REV DATE: 6/19/03

OBJ: LO21.MCO.MI7.OB10 (not verified)

Question Source:	Bank #	<u>    X    </u>
	Modified Bank #	<u>          </u>
	New	<u>          </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	<u>          </u>
	Comprehension or Analysis	<u>    X    </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>    RO    </u>
K/A #	00022.K3.02
Importance Rating	3.0
Tier #	2
Group #	1
CFR References	41.7 / 45.6

**Question 42**

While responding to a Reactor Trip and Safety Injection in EOP-0.0B, the operator verifies Containment Spray is not required (Containment pressure is approximately 14.0 psig and 2-ALB-2B windows 1-8 and 4-11 are not illuminated). AS the crew continues in EOP-0.0B and begins the performance of checking SI alignment, annunciator 2-ALB-2B 1-8, CS ACT and 4-11, CNTMT ISOL PHASE B ACT annunciate. The operator verifies Containment pressure is approximately 18.5 psig.

What are the appropriate actions?

- A. Continue EOP-0.0B and implement FRZ-0.1B, "Response to High Containment Pressure" when directed by the Rules of Usage to monitor CSFSTs.
- B. Transition to FRZ-0.1B, "Response to High Containment Pressure" and implement actions to respond to the Containment Spray actuation signal.
- C. Perform continuous action step of EOP-0.0B again to implement actions to respond to the Containment Spray actuation signal.
- D. Continue EOP-0.0B recovery actions and perform FRZ-0.1B "Response to High Containment Pressure" in parallel.

**Answer:**

"C" is correct, Perform continuous action step of EOP-0.0B again to implement actions to respond to the Containment Spray actuation signal.

**References:**

REF: LO21.ERG.XD2

REV DATE: 8/1/00

OBJ: LO21.ERG.XD2.109 (not verified)

Question Source:	Bank #	<u>  X  </u>
	Modified Bank #	<u>          </u>
	New	<u>          </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

Examination Outline Cross-reference:

Level	<u>          </u>
K/A #	0026.G 2.4.17
Importance Rating	3.1
Tier #	2
Group #	1
CFR References	41.10 / 45.13

**Question 43**

Unit 2 is operating in EOP-0.0B, REACTOR TRIP OR SAFETY INJECTION. The Reactor is tripped and safety injection has actuated. The following plant indications and responses are observed;

- Containment pressure is 8 psig and rising.
- RCS subcooling is 57°F.
- Both CCPs and SIPs are running.
- Both CCWPs are running.
- Pressurizer level is 13%.
- Pressurizer pressure is 1815 psig.
- Two banks of steam dumps are open.
- Tave is 563 and rising.

Based on the above information, from the list below SELECT the required action.

- A. Take manual control of SG ARVs and throttle to control temperature.
- B. Take manual control of steam dumps and throttle to control temperature.
- C. Increase auxiliary feedwater flow to the steam generators.
- D. Allow SG ARVs to automatically control temperature.

**Answer:**

"A" is correct, Take manual control of SG ARVs and throttle to control temperature.

**References:**

REF: EOP-0.0B, Rev 0

REV DATE: 2/2/95

OBJ: OPD1.E00.XG2.OB402 (not verified)

Question Source:	Bank #	<u>  X  </u>
	Modified Bank #	<u>          </u>
	New	<u>          </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

Examination Outline Cross-reference:

Level	<u>  RO  </u>
K/A #	0039.K1.04
Importance Rating	3.1
Tier #	2
Group #	1
CFR References	41.2 to 41.9 / 45.7 to 45.8

**Question 44**

Given the following conditions at Unit 1:

- 33% Reactor power.
- Main Feed Pump "B" is operating.
- Steam Generator Water Level Controls are in AUTOMATIC.

Which ONE of the following failures will cause RCS Tave to INITIALLY INCREASE?

- A. Selected Steam Pressure Channel 1PT-514 fails HIGH.
- B. Selected Level Channel 1LT-519 fails LOW
- C. Feed Reg Bypass Valve, LV-2162 fails OPEN.
- D. Feed Header Pressure Transmitter 1PT-508 fails HIGH

**Answer:**

"D" is correct, Feed Header Pressure Transmitter 1PT-508 fails HIGH. This failure causes a decrease in feed pump speed for both feed pumps and hence an increase in Tave. "A" is incorrect because this causes feed pump speed to increase initially, which would decrease Tave. "B" is incorrect because selected level failing low causes the feed water control valve to open, which would decrease Tave initially; similar discussion for "C" being incorrect.

**References:**

REF: OP51.SYS.MF1, OP51.SYS.SN1, ABN-709, ABN-710

OBJ: OP51.SYS.MF1.OB17

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

Examination Outline Cross-reference:

Level	<u>RO</u>
K/A #	0059.K3.04
Importance Rating	3.6
Tier #	2
Group #	1
CFR References	41.7 / 45.6

**Question 45**

At Unit 1 of CPSES, reactor power is at 100% when MFW pump "A" starts losing suction pressure as seen on 1-FI-2289 in the control room. As suction pressure continues to decrease other visual indications in the control room occur for the plant components that realign as a result of the decreasing suction pressure prior to a trip of the corresponding feed pump. Place the component realignment indications that you would see from the control room in chronological order from highest to lowest suction pressure as pressure decreases.

1. FWPT A TRIP alarm
2. CNDS POL FILT BYP PRESS CTRL VLV 1-PV-2242 opens
3. LP FW HTR BYP VLV 1-PV-2286 opens
4. CNDS REJECT VLV 1-HS-2211/12 closes
5. CNDS PMP RECIRC VLV 1-ZL-2239 closes

	<u>First</u>	<u>Second</u>	<u>Last</u>
A.	2	1, 3	4, 5.
B.	4, 5	2, 3	1
C.	2	3, 4, 5	1
D.	2	1	3, 4, 5

**Answer:**

"C" is correct, 2 occurs at 320psig, then all three items 3, 4, 5 at 290psig, then pump trip occurs at 220psig.

**References:**

REF: ABN-302, page 10.

OBJ: OP51.SYS.MF1.OB11 / OB09

Question Source:                      Bank #                      \_\_\_\_\_  
                                                  Modified Bank #                      \_\_\_\_\_  
                                                  New                                                X  

Question Cognitive Level:    Memory or Fundamental Knowledge                      \_\_\_\_\_  
                                                  Comprehension or Analysis                                                X    
                                                  LOD = unknown

Examination Outline Cross-reference:

Level	<u>RO</u>
K/A #	0059.A4.01
Importance Rating	3.1
Tier #	2
Group #	1
CFR References	41.7 / 45.5 to 45.8

**Question 46**

At 100% power, a turbine trip occurs from a loss of condenser vacuum. A Reactor trip did not occur, and the operators have been unable to initiate a Reactor trip. All Main Feedwater pumps have tripped. Both MDAFW pumps are operating; however, the TDAFW pump has tripped and cannot be reset. With no additional operator actions, the decreased AFW flow will cause the plant to:

- A. reach a LOWER RCS peak pressure because less steam is being drawn from the S/Gs.
- B. reach a HIGHER RCS peak temperature because Steam Generator dryout does not occur with no steam being drawn for the TDAFW pump.
- C. reach a LOWER RCS peak temperature because S/G Atmospheric and safeties pass more steam.
- D. reach a HIGHER RCS peak pressure because less heat removal capability exists.

**Answer:**

"D" is correct, reach a HIGHER RCS peak pressure because less heat removal capability exists.

**References:**

REF: LO21.MCO.MI5

REV DATE: 3/9/98

OBJ: MCO.MI5.OB102 (not verified)

Question Source:	Bank #	<u>    X    </u>
	Modified Bank #	<u>          </u>
	New	<u>          </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	<u>          </u>
	Comprehension or Analysis	<u>    X    </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>    RO    </u>
K/A #	0061.K3.01
Importance Rating	4.4
Tier #	2
Group #	1
CFR References	41.7 / 45.6

**Question 47**

Select the MINIMUM AFW pump and Steam Generator (SG) configuration designed to remove 100% of the reactor decay heat load following a reactor trip 102% power:

- A. Two SG's fed by two motor driven AFW pumps or one turbine driven AFW pump.
- B. One SG fed by two motor driven AFW pumps or one turbine driven AFW pump.
- C. Two SG's fed by one motor driven AFW pump.
- D. One SG fed by one motor driven AFW pump.

**Answer:**

"C" is correct, Two SG's fed by one motor driven AFW pump.

**References:**

REF: DBD-ME-0206, TS Bases

REV DATE: 4/3/00

OBJ: SYS.AF1.OB21

Question Source:	Bank #	<u>  X  </u>
	Modified Bank #	<u>          </u>
	New	<u>          </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	<u>  X  </u>
	Comprehension or Analysis	<u>          </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>  RO  </u>
K/A #	0061.K5.02
Importance Rating	3.2
Tier #	2
Group #	1
CFR References	41.5 / 45.7

**Question 48**

A requirement for a fast bus transfer to occur on a 6.9 KV bus is that the:

- A. time between the UT transformer breaker opening and the ST transformer breaker closing must be less than setpoint.
- B. time between the ST transformer breaker opening and the UT transformer breaker closing must be less than setpoint.
- C. UT transformer lockout time must be less than setpoint following the undervoltage condition.
- D. XST transformer voltage must be greater than setpoint.

**Answer:**

"A" is correct, time between the UT transformer breaker opening and the ST transformer breaker closing must be less than setpoint.

**References:**

REF: E1-0032 Sh 07, OP51.SYS.AC2.LN

REV DATE: 1/11/00

OBJ: OP51.SYS.AC2.OB09

Question Source:	Bank #	<u>    X    </u>
	Modified Bank #	<u>          </u>
	New	<u>          </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	<u>          </u>
	Comprehension or Analysis	<u>    X    </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>    RO    </u>
K/A #	0062.K4.03
Importance Rating	2.8
Tier #	2
Group #	1
CFR References	41.7

**Question 49**

A system wide blackout has occurred and the TU Electric dispatcher has activated the TU Electric "Black Start Plan". The Control room has started Attachment 20 of ABN-601 for "Alignment of the Black Start Corridor". The breaker CS-E1, DECOR 1 FDR BKR 8060 is \_\_\_\_\_ from the control room in order to \_\_\_\_\_.

- A. Closed; expedite the recovery of 138KV switchyard in order to restore XST2 power first.
- B. Opened; prevent overloading the DECORDOVA combustion turbine generators in the first 30 minutes of grid restoration.
- C. Closed; expedite the recovery of 138KV switchyard with the DECORDOVA combustion turbines.
- D. Opened; ensure isolation prior to closing breaker 138KV CB 7020 DECORDOVA from the switchyard in order to control re-energization from the control room.

**Answer:**

"C" is correct, Closed; expedite the recovery of 138KV switchyard with the DECORDOVA combustion turbines. Direct from procedure to close, with several notes as to why DECORDOVA is first to recover its combustion turbines (within 30 minutes) and hence CPSES utilizes this grid characteristic to establish its recovery emphasis (ie 138KV switchyard)

**References:**

REF: ABN-601, ATT 20.

OBJ: SL2.XFC.OB101 006, SYS.YD1.OB10

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>  RO  </u>
K/A #	0062.A4.01
Importance Rating	3.3
Tier #	2
Group #	1
CFR References	41.7 / 45.5 / 45.8

**Question 50**

All of the breakers associated with the DC distribution panels have the following types of trips and/or protective isolation:

- A. Overcurrent, Ground fault, and Undervoltage .
- B. Ground fault only
- C. Overcurrent and Undervoltage .
- D. Overcurrent only

**Answer:**

"D" is correct, Overcurrent only. The protective relays for grounds, under and over voltage provide indication ONLY with no trip features.

**References:**

REF: SYS.DC1.LN, page 32.

OBJ: SYS.DC1.OB06

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	<u>  X  </u>
	Comprehension or Analysis	_____
	LOD = unknown	_____

## Examination Outline Cross-reference:

Level	<u>  RO  </u>
K/A #	0063K4.04
Importance Rating	2.6
Tier #	2
Group #	1
CFR References	41.7

**Question 51**

In SOP-609A for the “Diesel Generator System”, the precautions specifically warn against exceeding the continuous overload ratings (not a two hour rating or transient rating) for power and reactive loading. These two ratings are:

	Power	Reactive
A.	7000 KW	8750 KVAR
B.	6400 KW	5000 KVAR
C.	7000 KW	5000 KVAR
D.	6400 KW	8750 KVAR

**Answer:**

“C” is correct, 7000 KW and 5000 KVAR. The KVA overload is 8750 while the reactive overload rating is 5000 KVAR. The full power (KW) load specified for surveillance runs is 6400 KW but the overload power (KW) rating is 7000 KW.

**References:**

REF: SOP-609A- page 7.

OBJ: none listed in lesson plans for this item in OP51.SYS.ED1.LN

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	<u>  X  </u>
	Comprehension or Analysis	_____
	LOD = unknown	_____

**Examination Outline Cross-reference:**

Level	<u>  RO  </u>
K/A #	0064.K4.04
Importance Rating	3.1
Tier #	2
Group #	1
CFR References	41.7

**Question 52**

DG 1-01 starting air receiver 1-01 outlet isolation valve is closed to support an air compressor load test. The isolated air receiver pressure is 150 psig. Before the load test can be initiated, the DG starts in response to a Safety Injection actuation. If the remaining air receiver depressurizes to 0 psig after the DG started, which of the following describes the effect on the DG overspeed trip capability?

- A. Overspeed trip is not affected, air is vented when the overspeed trip occurs to reposition the shutdown cylinder.
- B. Overspeed trip is disabled, air is not available when the overspeed trip occurs to reposition the shutdown cylinder.
- C. Overspeed trip is not affected, the remaining air receiver will supply air to the shutdown cylinder.
- D. Overspeed trip is disabled, an Emergency Start prevents air from being supplied to the shutdown cylinder.

**Answer:**

"B" is correct, Overspeed trip is disabled, air is not available when the overspeed trip occurs to reposition the shutdown cylinder.

**References:**

REF: OP51.SYS.DG1

REV DATE: 8/15/97

OBJ: AO69.D96.EE3, PO19.F00.EE5, AO19.F00.EE5, AO69.F00.EE3, LO29.L13.E11, LO29.U13.EE5 (not verified)

Question Source:	Bank #	<u>    X    </u>
	Modified Bank #	<u>          </u>
	New	<u>          </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	<u>          </u>
	Comprehension or Analysis	<u>    X    </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>    RO    </u>
K/A #	0064.K6.07
Importance Rating	2.7
Tier #	2
Group #	1
CFR References	41.7 /45.7

**Question 53**

Which of the following conditions would cause the Wide Range Gas Monitor (WRGM) mid/high range sample pump to start?

- A. High filter DP on low range sample line
- B. Safety Injection Actuation
- C. Increasing radiation signal
- D. Containment Spray Actuation

**Answer:**

"C" is correct, Increasing radiation signal.

**References:**

REF: REF: ALM-3200, page 30.

REV DATE: 9/11/97

OBJ: OP51.SYS.RM1.OB09

Question Source:	Bank #	<u>  X  </u>
	Modified Bank #	<u>          </u>
	New	<u>          </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	<u>  X  </u>
	Comprehension or Analysis	<u>          </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>  RO  </u>
K/A #	0073.A1.01
Importance Rating	3.2
Tier #	2
Group #	1
CFR References	41.5 / 45.7

**Question 54**

Unit 1 receives several alarms in the control room, but the RO focuses on the alarm “DG 1/2 SSW RET FLO LO” because DG 1-01 is two hours into a surveillance test run. The RO requests a PEO to check the breaker for the running SSW pump 1-01 off of bus \_\_\_\_\_ and to check the breaker for DG 1-01 JKT WTR CLR SSW OUT THROT VLV, 1-SW-350, off of bus \_\_\_\_\_ in order to restore SSW flow to DG 1-01.

- A. 1EA1, 1EB3.
- B. 1EB1, N/A (local manual control only).
- C. 1EA1, N/A (local manual control only).
- D. 1EB1, 1EB3.

**Answer:**

“C” is correct, 1EA1, N/A (local manual control only).

SSW pump “A” is off of 1EA1 and 1SW-350 is locally controlled. 1-HV-4393 is powered from 1EB1 and is the SSW outlet valve that auto opens on DG start.

**References:**

REF: OP51.SYS.SW1, page 9., M1-0234.

OBJ: No objectives labeled in training documents

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	<u>  X  </u>
	Comprehension or Analysis	_____
	LOD = unknown	_____

**Examination Outline Cross-reference:**

Level	<u>  RO  </u>
K/A #	0076.K2.01
Importance Rating	2.7
Tier #	2
Group #	1
CFR References	41.7

**Question 55**

A Valve Lineup on 1-8145-AS1 is to be done. It is located in the Letdown Orifice Valve Room inside of Containment. Radiation Protection has done surveys. The Shift Manager may waive the Independent Verification requirement if the dose rate in the area is:

- A. > 10 rem/hr.
- B. > 1000 mrem/hr.
- C. > 100 mrem/hr.
- D. > 1 rem/hr.

**Answer:**

"C" is correct, > 100 mrem/hr.

**References:**

REF: STA-694 Sect 6.3.1

REV DATE: 3/17/97

OBJ: OPD1.ADM.XAD.OB106 (not verified)

Question Source:	Bank #	<u>  X  </u>
	Modified Bank #	<u>          </u>
	New	<u>          </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	<u>  X  </u>
	Comprehension or Analysis	<u>          </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>  RO  </u>
K/A #	103.G 2.3.10
Importance Rating	2.9
Tier #	2
Group #	1
CFR References	43.4 / 45.10

**Question 56**

In order to drop control rods into the core for an ATWT, one method is to remove power from the Reactor Trip Breakers (RTB). The power path to the RTB's is:

- A. 1B3/1B4 – Motor Breaker – Generator Breaker-260vac - RTB
- B. 1B3/1B4 – Motor Breaker – Generator Breaker-208vac - RTB
- C. 1B1/1B2 – Motor Breaker – Generator Breaker-260vac - RTB
- D. 1B1/1B2 – Motor Breaker – Generator Breaker-208vac - RTB

**Answer:**

“A” is correct, 1B3/1B4 – Motor Breaker – Generator Breaker-260vac – RTB.

“B” and “D” are incorrect because generator output is 260vac not 208vac. “C” and “D” are incorrect because the power supply each motor is 1B3-MG #1 and 1B4-MG # 2.

**References:**

REF: E1-0034, sheet 39-42, OP51.SYS.CR1.LN

OBJ: OP51.SYS.CR1.OB03

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>RO</u>
K/A #	0001.K2.02
Importance Rating	3.6
Tier #	2
Group #	2
CFR References	41.7

**Question 57**

For RCS leak detection, the CNTMT SMP 1 FILL RATE INCREASE alarm window detects a change in sump level of more than 5/8 of an inch over an adjustable period of time. The \_\_\_\_\_ is \_\_\_\_\_ as the known leakage rate DECREASES in order to remain effective at reflecting known leakage into the sump.

- A. Fill rate setpoint; decreased
- B. Timer setpoint; decreased
- C. Fill rate setpoint; increased
- D. Timer setpoint; increased

**Answer:**

“D” is correct, Timer setpoint; increased.

“A” and “C” are incorrect because the timer is what is adjusted, Fill rate setpoint is a made up setpoint for the question. “B” is incorrect because for a decrease in known leakage rate, the value “added” to this alarm would need to be less, so time would need to be increased (converse is documented in training notes).

**References:**

REF: OP51.SYS.CY1, page 30

OBJ: OP51.SYS.CY1.OB17

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>  RO  </u>
K/A #	0002.A3.01
Importance Rating	3.7
Tier #	2
Group #	2
CFR References	41.7 / 45.5

**Question 58**

The plant is operating under steady-state conditions at 100% power with all control systems in their normal/automatic lineup. PRZR level transmitter LT-459 fails low, then PRZR level transmitter LT-461 is immediately selected for control.

Which statement describes the expected plant conditions 3 to 5 minutes after LT-461 is selected for control, assuming no other operator action?

- A. Charging flow increasing, letdown flow constant, and Group C heaters energized
- B. Charging flow increasing, letdown flow constant, and Group C heaters de-energized
- C. Charging flow decreasing, letdown flow isolated, and Group C heaters energized
- D. Charging flow decreasing, letdown flow isolated, and Group C heaters de-energized

**Answer:**

“D” is correct, Charging flow decreasing, letdown flow isolated, and Group C heaters de-energized.

**References:**

REF: ABN-706A

REV DATE: bank, but never used

OBJ: OP51.SYS.PP1.OB14

Question Source:	Bank #	<u>    X    </u>
	Modified Bank #	<u>          </u>
	New	<u>          </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	
	Comprehension or Analysis	<u>    X    </u>
	LOD = unknown	

Examination Outline Cross-reference:

Level	<u>    RO    </u>
K/A #	0011.A1.02
Importance Rating	3.3
Tier #	2
Group #	2
CFR References	41.5 / 45.5

**Question 59**

During a normal plant shutdown of Unit 1, the operator observes the following:

- N35 indicates 2 E -11 amps
- N36 indicates 1 E -10 amps
- N31 indicates 5 E+4 cps
- N32 indicates 6 E+4 cps

How is compensation affecting the Nuclear Instruments?

- A. N35 is over-compensated and P-6 will energize much later than normal
- B. N35 is under-compensated and P-6 will energize much sooner than normal
- C. N36 is overcompensated and P-6 will energize much later than normal
- D. N36 is overcompensated and P-6 will energize much sooner than normal

**Answer:**

“A” is correct, N35 is over-compensated and P-6 will energize much later than normal.

For these values, N35 is the deviant detector because it is much lower than the rest, and so it is over-compensated. Because the unit is shutting down, P-6 would be reached later than normal.

**References:**

REF: OP51.SYS.EC1

OBJ: OP51.SYS.EC1.OB006, 7, 8

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

Examination Outline Cross-reference:

Level	<u>RO</u>
K/A #	0015.K6.02
Importance Rating	2.6
Tier #	2
Group #	2
CFR References	41.5 / 45.7

**Question 60**

Unit 1 is in Mode 6 with loops not filled and the transfer of water from the RWST to the refueling cavity is in progress IAW SOP-102A. The operator notices RCS level on the Mansell Level Monitor system is fluctuating and appears erroneous when compared to other vessel level indications. What could be causing this level fluctuation?

- A. Considered normal when filling refueling cavity via the hot leg injection valve.
- B. Mansell reference leg level is valved improperly to SDC RHR train.
- C. High Flow rate on "A" RHR pump.
- D. High Flow rate on "B" RHR pump.

**Answer:**

"D" is correct, High Flow rate on "B" RHR pump.

There are no connections to valve the instrument's reference leg off of the "A" train of RHR, so "B" is incorrect. "C" is incorrect because Mansell level taps off of the loop 4 cross-over leg, which would only be affected by "B" RHR pump high flow if other level indications did not show the same results. "A" is incorrect because this is not normal if flow rates are set within 2k-4k gpm range as specified in the SOP.

**References:**

REF: OP51.SYS.RH1, and SOP-102A (note page 63, section 5)

OBJ: OP51.SYS.RH1.OB01, OB18

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>RO</u>
K/A #	0034.K1.02
Importance Rating	2.5
Tier #	2
Group #	2
CFR References	41.2 to 41.9 / 45.7 to 45.8

**Question 61**

Unit 1 is at full power, control rods are in Auto, and the Turbine load starts to vary in an unexpected manner. Several OM 690 Alarms (ASD) are alarming. Using procedure \_\_\_\_\_, placing the EHC to \_\_\_\_\_ will not result in a load swing but will allow some troubleshooting techniques to be used to determine the problem.

- A. ABN-401, Main Turbine Malfunction ; MHC
- B. ABN-401, Main Turbine Malfunction ; Speed Control
- C. ABN-405, EHC Malfunction ; MHC
- D. ABN-405, EHC Malfunction ; Speed Control

**Answer:**

“B” is correct, ABN-401, Main Turbine Malfunction ; Speed Control

“C” and “D” are incorrect because the ABN-405 “EHC Malfunction” is fictitious for CPSES, and “A” is incorrect because MHC does cause a load swing during the change.

**References:**

REF: ABN-401, section 7, note at step 3

OBJ: OP51.SYS.MT1.OB56

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>RO</u>
K/A #	0045.A2.17
Importance Rating	2.7
Tier #	2
Group #	2
CFR References	41.5 / 43.5 / 45.3 / 45.5

**Question 62**

Which one of the following is the MAXIMUM permitted Technical Requirement interval to take corrective action if the quantity of radioactive material contained in an outdoor unprotected Liquid Holdup Tank exceeds Technical Requirements?

- A. 48 hours
- B. 24 hours
- C. 12 hours
- D. 6 hours

**Answer:**

"A" is correct, 48 hours.

**References:**

REF: TR 13.10.33, OP51.SYS.WP1

REV DATE: 7/31/97

OBJ: OP51.SYS.WP1.OB10 and OB20

Question Source:	Bank #	<u>  X  </u>
	Modified Bank #	<u>      </u>
	New	<u>      </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	<u>  X  </u>
	Comprehension or Analysis	<u>      </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>  RO  </u>
K/A #	0068.K4.01
Importance Rating	3.4
Tier #	2
Group #	2
CFR References	41.7

**Question 63**

Unit 2 is in refuel and fuel handling is being conducted over Spent Fuel Pool # 2 in order to offload spent fuel to the pool. The Control room has received a verbal report of a damaged fuel assembly by fuel handling personnel. A few moments later, an alarm sounded on the PC-11 (DRMS) for the following:

- SFP-002 LRAM SFP 2 N. WALL (X-RE-6273)
- SFP-001 LRAM SFP 2 E. WALL (X-RE-6272)

ABN-908, "Fuel Handling Accident" has been entered and all automatic and operator actions have been completed. What ventilation alignment is in place in the fuel building?

- A. All ventilation is automatically stopped.
- B. All ventilation is manually stopped by operators.
- C. One supply fan in SFP area #2 is running.
- D. One exhaust fan in SFP area #2 is running.

**Answer:**

"D" is correct, One exhaust fan in SFP area #2 is running.

"A" is incorrect because there are no automatic signals to isolate ventilation for high radiation in the fuel building. No instruction is given for operators to manually stop all ventilation in the ABN, hence "B" is incorrect. "C" is incorrect because the ABN instructs the exhaust fan to be kept running.

**References:**

REF: ABN-908, section 3, step 3.

OBJ: Not found in source materials

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

Examination Outline Cross-reference:

Level	<u>  RO  </u>
K/A #	0072.K1.01
Importance Rating	3.1
Tier #	2
Group #	2
CFR References	41.2 to 41.9 / 45.7 to 45.8

**Question 64**

A low suction pressure alarm could be received for which of the following pumps?

- A. Screen Wash Pump.
- B. Lube Water Pump.
- C. Unit 1 Circ Water Booster Pump.
- D. Unit 2 Circ Water Booster Pump.

**Answer:**

"D" is correct, Unit 2 Circ Water Booster Pump.

**References:**

REF: DBD-ME-0210, OP51.SYS.CW1

REV DATE: 7/7/97

OBJ: No Objective labels in source materials (bank objective is OP51.SYS.CW1.OB28)

Question Source:	Bank #	<u>  X  </u>
	Modified Bank #	<u>          </u>
	New	<u>          </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	<u>  X  </u>
	Comprehension or Analysis	<u>          </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>  RO  </u>
K/A #	075.G 2.1.30
Importance Rating	3.9
Tier #	2
Group #	2
CFR References	41.7 / 45.7

**Question 65**

You are on watch in the control room at CPSES and alarm annunciates on the Fire Detection Main Control Panel Alarm (CPX-ECPRCV-06). You go over to this panel and at the Containment Building panel observe a solid rectangle on the alarming module on the middle right side and some text "CPI-28A" on the middle left side. These items indicate what?

- A. The alarm is from a strip thermal detector and is in detection zone CPI-28A.
- B. The alarm is from a strip thermal detector and is from local panel CPI-28A.
- C. The alarm is from a thermal detector and is in detection zone CPI-28A.
- D. The alarm is from a thermal detector and is from local panel CPI-28A.

**Answer:**

"B" is correct, The alarm is from a strip thermal detector and is from local panel CPI-28A.

The square rectangle indicates a strip thermal detector, making "C" and "D" incorrect. The CPI-28A is a local panel nomenclature, so "A" is incorrect.

**References:**

REF: ABN-901, page 11, 12, and 34.

OBJ: OP51.SYS.FP1.OB03

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	<u>  X  </u>
	Comprehension or Analysis	_____
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>  RO  </u>
K/A #	0086.A4.02
Importance Rating	3.5
Tier #	2
Group #	2
CFR References	41.7 / 45.5 to 45.8

**Question 66**

The Responsible Engineer (RE) is completing his walk down of all accessible active Temporary Modifications in accordance with STA-602. While in the control room, he notices a tag on the main control board that has faded so much that the information is not legible on the tag. He returns with a replacement tag. Who should replace the tag and how often is this walk down performed and documented (form STA-602-22)?

- A. RE, monthly
- B. Operations, monthly
- C. RE, quarterly
- D. Operations, quarterly

**Answer:**

"D" is correct, Operations, quarterly.

IAW STA-602, page 23 and page 34, done quarterly and tags to be placed on control boards/panels and switches should be replaced by Operations personnel.

**References:**

REF: STA-602, page 23, 31, rev16.

OBJ: ADM.XA1.Obxx (not provided in source material)

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	<u>  X  </u>
	Comprehension or Analysis	_____
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>  RO  </u>
K/A #	G 2.1.2
Importance Rating	3.0
Tier #	G
Group #	G
CFR References	41.10 / 45.13

**Question 67**

How long may the In-Progress LCOAR Log be used to track an Action Statement before a LCOAR should be initiated?

- A. No more than one shift turnover.
- B. No longer than 72 hrs.
- C. No longer than one week.
- D. No more than twice the time allowed to complete the Action Statement.

**Answer:**

"A" is correct, No more than one shift turnover.

**References:**

REF: OWI-107, ODA-102

REV DATE: 4/22/00

OBJ: ADM.XA5.OB12 (not verified)

Question Source:	Bank #	<u>          </u>
	Modified Bank #	<u>  X  </u>
	New	<u>          </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	<u>  X  </u>
	Comprehension or Analysis	<u>          </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>          </u>
K/A #	G 2.1.3
Importance Rating	3.0
Tier #	G
Group #	G
CFR References	41.10 / 45.13

**Question 68**

Unit 1 is being cooled down to COLD SHUTDOWN, Reactor Coolant Pumps 1-01, 1-02 & 1-03 have been stopped, and the Unit Reactor Operator is preparing to stop Reactor Coolant Pump 1-04. Which of the below precautions applies to the last running Reactor Coolant Pump (RCP)?

- A. Do not stop the RCP unless boron dilution paths are isolated.
- B. Stop the RCP when RHR flow is established.
- C. Stop the RCP when RCS temperature is < 200°F.
- D. Do not stop the RCP until after MODE 4 is entered.

**Answer:**

"A" is correct, Do not stop the RCP unless boron dilution paths are isolated.

**References:**

REF: IPO-00, 4.16

REV DATE: 11/11/97

OBJ: IPO.XO4.OB900 (not verified)

Question Source:	Bank #	<u>  X  </u>
	Modified Bank #	<u>          </u>
	New	<u>          </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	<u>          </u>
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>  RO  </u>
K/A #	G 2.1.32
Importance Rating	3.4
Tier #	G
Group #	G
CFR References	41.10 / 43.2 / 45.12

**Question 69**

The Unit 2 feed pump speed control program has a \_\_\_\_\_ delta pressure program than Unit 1 because \_\_\_\_\_.

- A. Higher ; better range control for feed regulating valve 2-FCV-0520.
- B. Lower ; better range control for feed regulating valve 1-FCV-0520.
- C. Higher ; better range control for feed regulating valve 2-FCV-0519.
- D. Lower ; better range control for feed regulating valve 1-FCV-0519.

**Answer:**

"A" is correct, Higher ; better range control for feed regulating valve 2-FCV-0520.

The Unit 2 feed pump speed control program has a delta pressure program of 182 psid. The Unit 1 feed pump speed control program has a delta pressure program of 170 psid. This change was made to better control range for feed regulating valve 2-FCV-0520

**References:**

REF: Unit differences document, entry 6, 2002-00004, FW system by D. Mills.

OBJ: SYS.MF1.OB31

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	<u>  X  </u>
	Comprehension or Analysis	_____
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>  RO  </u>
K/A #	G 2.2.3
Importance Rating	3.1
Tier #	G
Group #	G
CFR References	41 / 43 / 45

**Question 70**

During a surveillance review of several valves, you are asked to review the package to flag all of the valves that are prohibited from being preconditioned prior to the surveillance. Select the items below which are PROHIBITED from preconditioning prior to their respective surveillance:

1. A Type C tested valve
2. A Safety or Relief valve
3. A valve with a closed and open safety function

- A. 2.
- B. 1, 2.
- C. 2, 3.
- D. 1, 2, 3.

**Answer:**

“B” is correct, 1, 2 A Type C tested valve and a Safety/Relief valve.

A valve that must be opened and closed would be preconditioned by default and as such is not included as a prohibited valve. All others are prohibited from preconditioning IAW 10CFR 50 and STA-702

**References:**

REF: STA-702, page 19, 20

OBJ: No training documents sent on admin topics.

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>  RO  </u>
K/A #	G 2.2.12
Importance Rating	3.0
Tier #	2
Group #	2
CFR References	41.10 / 45.13

**Question 71**

Regarding the clearance process, the difference between a partial release and a temporary lift is that:

- A. A partial release allows removal of tags for testing.
- B. A temporary lift must be restored within one shift period.
- C. A temporary lift allows removal of tags for testing.
- D. A partial release must be restored within one shift period.

**Answer:**

"B" is correct, A temporary lift must be restored within one shift period.

**References:**

REF: STA-605, Sect 6.12.D

REV DATE: 12/31/97

OBJ: OPD1.ADM.XAA.OB101/301/601/702 (not verified)

Question Source:	Bank #	<u>  X  </u>
	Modified Bank #	<u>          </u>
	New	<u>          </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	<u>  X  </u>
	Comprehension or Analysis	<u>          </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>  RO  </u>
K/A #	G 2.2.13
Importance Rating	3.6
Tier #	G
Group #	G
CFR References	41.10 / 45.13

**Question 72**

What would be the required posting for an area that has an airborne concentration of 1 DAC (stochastic limited airborne contamination with Cesium or Cobalt) and a general area dose rate of 90mrem/hr?

- A. Radiation Area.
- B. High Radiation Area.
- C. Very High Radiation Area.
- D. Locked High Radiation Area.

**Answer:**

"A" is correct, Radiation Area.

1 DAC is 2.5mrem/hr dose equivalent for any stochastic limited nuclide. Add this to the general area dose rate of 90mrem/hr to get answer of 92.5mrem/hr. Therefore, the posting requirement would be a Radiation Area.

**References:**

REF: 10 CFR Part 20

OBJ: (not verified)

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	RO _____
K/A #	G 2.3.1
Importance Rating	2.6
Tier #	G
Group #	G
CFR References	41.12 / 43.4 45.9 / 45.10

**Question 73**

FRC-0.1, RESPONSE TO INADEQUATE CORE COOLING, was developed to address the symptoms for inadequate core cooling. Select the symptoms and connective words for each symptom below that define inadequate core cooling:

1. Core exit TC temperatures greater than 1200\_F
2. Core exit TC temperatures greater than 670\_F plus adverse containment errors or 700\_F, whichever is greater
3. RVLIS full range indication less than 3-1/2 feet above the bottom of the active fuel.

- A. (1 AND 3) OR (2 AND 3).  
 B. (1 OR 2) AND ( 3 ).  
 C. ( 1 ) OR (2 AND 3).  
 D. ( 2 ) OR (1 AND 3).

**Answer:**

"C" is correct, ( 1 ) OR (2 AND 3).

FRC-0.1, RESPONSE TO INADEQUATE CORE COOLING, has been developed to address the symptoms for inadequate core cooling. These symptoms are: 1) core exit TC temperatures greater than 1200\_F, or 2) core exit TC temperatures greater than 670\_F plus adverse containment errors or 700\_F, whichever is greater, and a RVLIS full range indication less than 3-1/2 feet above the bottom of the active fuel.

**References:**

REF:FR-C1 guidelines, page 1, introduction  
 OBJ: LO21.ERG.XD2.OB021 (not verified)

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>  RO  </u>
K/A #	G 2.4.1
Importance Rating	4.3
Tier #	G
Group #	G
CFR References	41.10 / 43.5 / 45.13

**Question 74**

Control Room instrumentation qualified for Post Accident Monitoring IAW RG 1.97 is identified by \_\_\_\_\_ and \_\_\_\_\_ of these instruments are required for TS 3.3.3 for "Post Accident Monitoring (PAM) Instrumentation:"

- A. Black labels with white lettering; All
- B. White labels with red lettering; All
- C. Black labels with white lettering; Most
- D. White labels with red lettering; Most

**Answer:**

"C" is correct, black labels with white lettering, Most.

All RG 1.97 instruments have black labels with white lettering but not all instruments with black labels are required by TS 3.3.3 [page 9 of reference].

**References:**

REF OP51.SYS.PA1.LN, page 9.

OBJ:ERG.XDB.OB102 (not verified)

Question Source:	Bank #	_____
	Modified Bank #	<u>  X  </u>
	New	_____

Question Cognitive Level:	Memory or Fundamental Knowledge	<u>  X  </u>
	Comprehension or Analysis	_____
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>  RO  </u>
K/A #	G 2.4.3
Importance Rating	3.5
Tier #	G
Group #	G
CFR References	41.6 / 45.4

**Question 75**

A reactor trip has occurred on Unit 1 with no SI actuation. You have entered EOP-0.0A and completed the first three immediate actions. The fourth immediate action step is to "Check SI Actuated", so you enter the RNO column. Given the following conditions:

Containment Pressure = 2.6 psig  
 Pressurizer Level = 6%  
 Pressurizer Pressure = 1830 psig  
 Steam line Pressure = 605psig

Select the reason why SI is required (parameter that necessitates an SI), and based on your answer what emergency procedure should you be in once you complete this step?

- A. Low Pressurizer Level, FRI-0.2A, "Response to Low Pressurizer Level".
- B. High Containment Pressure, FRZ-0.1A, "Response to High Containment Pressure".
- C. Low Steam line Pressure, EOP-0.0A, "Reactor Trip or Safety Injection."
- D. Low Pressurizer Level, EOP-0.0A, "Reactor Trip or Safety Injection."

**Answer:**

"C" is correct, Low Steam line Pressure, EOP-0.0A, "Reactor Trip or Safety Injection."

"A" and "D" are incorrect because Low PZR level does not directly require SI from EOP0.0A. "B" is incorrect because Containment pressure has to reach 3.2psig for the SI actuation setpoint (ie required).

**References:**

REF: EOP-0.0A, page 5, rev 7.

OBJ: ADM.XAF.OB100 (not verified)

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>  RO  </u>
K/A #	G 2.4.49
Importance Rating	4.0
Tier #	G
Group #	G
CFR References	41.10 / 43.2 / 45.6

**Question 76**

A Large break LOCA has occurred on Unit 1 and operators are currently in recirculation mode and SI has been reset. During this time a station blackout occurs. With no operator action, recirculation flow will:

- A. Be interrupted for approximately 2 minutes because the charging pumps receive a lockout signal from the blackout sequencer for 109 seconds, then auto restarts to restore flow.
- B. Be interrupted for approximately 2 minutes because all ECCS pumps receive a lockout signal from the blackout sequencer for 109 seconds, then flow is restored as each pump restarts in sequence.
- C. Be entirely lost because certain equipment must be manually controlled to re-establish a suction path for the charging pumps.
- D. Be entirely lost because no ECCS pumps receive an auto start signal with SI reset.

**Answer:**

“C” is correct, “Be entirely lost because certain equipment must be manually controlled to re-establish a suction path for the charging pumps.”

**References:**

REF: OP51.SYS.RH1, EOS-1.2 and EOS-1.3

OBJ: (not provided in material)

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>  SRO  </u>
K/A #	0011.EA2.05
Importance Rating	3.7
Tier #	1
Group #	1
CFR References	43.5 / 45.13

**Question 77**

During operation at 100% power, the controlling pressurizer pressure channel (PT-455A) fails low. Assuming no operator action, which of the below would be the PROGRESSION of events in the primary system (including pressurizer pressure control system response), following the instrument failure?

1. LOOP 1 Spray valve (PCV-455B) Opens
2. BOTH Spray valves Open (PCV-455B and 455C)
3. ALL Heaters energize
4. BOTH PORVs Open (PCV-455A and 456)
5. PORV Closes (PCV-455A)
6. PORV PCV-456 Closes
7. BOTH PORVs Close (PCV-455A and 456)
8. PORV PCV-456 Opens
9. Reactor TRIP on HI PRZR Pressure
10. Reactor TRIP on LO PRZR Pressure
11. ALL Heaters Off
12. Both Spray valves Close (PCV-455B and 455C)

- A. 3, 8, 6, 9
- B. 3, 12, 6, 10
- C. 3, 8, 6.
- D. 3, 12, 6.

**Answer:**

"C" is correct, All heaters energize, then PORV PCV-456 OPENS, then PORV PCV-456 CLOSES and the cycle repeats with no trip.

**References:**

REF: OP51.SYS.PP1

OBJ: OP51.SYS.PP1.OB14

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>  SRO  </u>
K/A #	0027.AA2.16
Importance Rating	3.9
Tier #	1
Group #	1
CFR References	43.5 / 45.13

**Question 78**

Unit 1 is currently in procedure FRS-0.2A for ATWT. Which one of the following provides the necessary nuclear instrumentation values necessary to verify the reactor is subcritical in order to exit this procedure?

	Level SUR NI 35	Level SUR NI 36	F = Failed			
			NI41	NI42	N143	NI44
A.	4E-5 -0.1	4E-5 -0.1	31%	32%	33%	31%
B.	1E-6 -0.1	1E-6 -0.1	F	F	F	F
C.	7E-6 0.0	7E-6 0.0	3%	4%	2%	4%
D.	1E-9 +0.1	1E-9 +0.1	<0%	<0%	<0%	<0%

**Answer:**

"B" is correct,	1E-6 -0.1	1E-6 -0.1.	F	F	F	F
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**References:**

REF: FRS-0.1A, ODA-407  
 OBJ: (not provided in material)

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

Examination Outline Cross-reference:

Level	SRO _____
K/A #	0029.EA2.01
Importance Rating	4.7
Tier #	1
Group #	1
CFR References	43.5 / 45.13

**Question 79**

Unit 2 is in a refueling outage and the reactor vessel head is removed when the following annunciators alarm in the control room:

“118V INV IV2EC2 TRBL”

“118V INV IV2EC2/4 TRBL”

with additional annunciators alarming from 2EC2 via IV2EC2.

The Unit Supervisor should:

- A. Suspend the boron addition currently in progress and enter procedure ABN-603 for loss of an instrument bus.
- B. Suspend fuel movement in the reactor building and enter procedure ABN-606 for loss of containment radiation monitors.
- C. Verify SDM and enter TS 3.8.2 for loss of EDG #1 start sequencer.
- D. Suspend all Core Alterations and fuel movements.

**Answer:**

“D” is correct, Suspend all Core Alterations and fuel movements.

**References:**

REF: ABN-603

OBJ: LO41.RSY.AC1.OB106 (not verified)

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

Examination Outline Cross-reference:

Level	SRO _____
K/A #	G2.2.29
Importance Rating	3.8
Tier #	1
Group #	1
CFR References	43.6 / 45.12

**Question 80**

During a loss of all AC power the BOP operator reports Train B Safeguards DC voltage is at 105 VDC. The CRS has implemented load shedding in accordance with Attachment 1 of ECA0.0A in order to conserve the associated battery's power. If Train B were the most probable bus to be restored, then load shed would commence on \_\_\_\_\_ and with a shed of the associated vital instrument AC bus would cause feed water flow to \_\_\_\_\_.

- A. 1ED1, increase to SG 1 and SG 4.
- B. 1ED2, increase to SG 2 and SG 3.
- C. 1ED1, increase to SG 1 and SG 4.
- D. 1ED2, increase to SG 2 and SG 3.

**Answer:**

"D" is correct, 1ED2, increase to SG 2 and SG 3.

**References**

REF: ECA-0.0A, ABN-603

OBJ: (not provided in material)

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>  SRO  </u>
K/A #	058.AA2.03
Importance Rating	3.9
Tier #	1
Group #	1
CFR references	43.5 / 45.13

**Question 81**

During at power operation (Mode 1), the below listed alarms are received:

- INSTR AIR HDR PRESS LO (1-3.3)
- CNTMT INSTR AIR HDR PRESS LO (1-2.4)

According to procedure ABN-301 for these plant conditions, when is the reactor required to be tripped?

- A. When instrument air pressure decreases to 35psig AND control of system(s) is lost.
- B. When instrument air pressure decreases to 35psig OR control of system(s) is lost.
- C. When instrument air pressure decreases to 45psig AND control of system(s) is lost.
- D. When instrument air pressure decreases to 45psig OR control of system(s) is lost.

**Answer:**

"B" is correct, When instrument air pressure decreases to 35psig OR control of system(s) is lost.

**References:**

REF: ABN-301

OBJ: (not provided in material)

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	<u>  X  </u>
	Comprehension or Analysis	_____
	LOD = unknown	_____

Examination Outline Cross-reference:

Level	<u>  SRO  </u>
K/A #	065.A2.06
Importance Rating	4.2
Tier #	1
Group #	1
CFR References	43.5 / 45.13

**Question 82**

Unit 2 is operating at 85% power and responding to a pressurizer level instrument failure. Level transmitter 2-LT-0460 has failed low. From the list below SELECT the Technical Specifications that apply to the failed level transmitter.

- A. Reactor Trip System Instrumentation, Engineered Safety Features Actuation System Instrumentation and Accident Monitoring Instrumentation.
- B. Engineered Safety Features Actuation System Instrumentation, Remote Shutdown Monitoring Instrumentation and Accident Monitoring Instrumentation.
- C. Reactor Trip System Instrumentation, Remote Shutdown Monitoring Instrumentation and Accident Monitoring Instrumentation.
- D. Reactor Trip System Instrumentation, Engineered Safety Features Actuation System Instrumentation and Remote Shutdown Monitoring Instrumentation.

**Answer:**

"C" is correct, Reactor Trip System Instrumentation, Remote Shutdown Monitoring Instrumentation and Accident Monitoring Instrumentation.

**References**

REF: ABN-706, TS 3.3

REV DATE: 2/2/95

OBJ: OP51.SYS.PP1.OB15

Question Source:	Bank #	<u>  X  </u>
	Modified Bank #	<u>          </u>
	New	<u>          </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	<u>          </u>
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>  SRO  </u>
K/A #	G2.1.12
Importance Rating	4.0
Tier #	1
Group #	2
CFR references	43.2 / 43.5 / 45.3

**Question 83**

Given the following for Unit 2:

Reactor startup is in progress  
 Reactor power is 1E-9 amps  
 NIS channel NI-36 has failed low

Which one of the following actions is required per Technical Specification 3.3.1, "Reactor Trip Instrumentation?"

- A. Restore inoperable channel prior to exceeding 10E-9 amps or reduce power below P-6 within 24 hours.
- B. Restore inoperable channel prior to exceeding P-6 or raise power above 10% within 24 hours.
- C. Restore inoperable channel prior to resuming operations involving positive reactivity additions suspended from the failure.
- D. Restore inoperable channel prior to exceeding P-6 or reduce power below P-6 within 2 hours.

**Answer:**

"B" is correct, Restore inoperable channel prior to exceeding P-6 or raise power above 10% within 24 hours.

**References**

REF: TS 3.3.1, PAGE 3.3.4

OBJ:

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

Examination Outline Cross-reference:

Level	<u>SRO</u>
K/A #	033.A2.08
Importance Rating	3.4
Tier #	1
Group #	2
CFR references	43.5 / 45.13

**Question 84**

Given the following:

- Unit 1 is at 100% power.
- A security compromise has necessitated a Control Room evacuation.
- The Reactor and Turbine have been tripped IAW ABN-803A.

Which of the following should be performed BY the Shift Manager/Unit Supervisor once the control room is evacuated IAW ABN-803A?

1. Close RWST to RHRP suction valves
  2. Close XS Letdown Isolation Valve
  3. Verify Reactor trip and bypass Breakers are open
  4. De-energize both Rod Drive Motor-Generator sets
- A. 2, 3, and 4
- B. 2 and 4
- C. 1, 2, and 4
- D. 3 and 4

**Answer:**

“D” is correct, 3 and 4.

**References**

REF: ABN-803A

OBJ: (not provided in material)

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	<u>  X  </u>
	Comprehension or Analysis	_____
	LOD = unknown	_____

Examination Outline Cross-reference:

Level	<u>SRO</u>
K/A #	0067.AA2.16
Importance Rating	4.0
Tier #	1
Group #	2
CFR references	43.5 / 45.13

**Question 85**

Given the following:

The operators are in FRH-0.1B for Loss of Secondary Heat Sink. Feed and Bleed methods of core cooling have been established. A heat sink has been restored to SG#1 (step 26 of the procedure). RCS Temperatures have been decreasing (step 27 of procedure). Containment Pressure is 6psig. RVLIS is 12" above core plate. RCS Subcooling is 110F

A decision to secure Safety Injection (step 29) and eventually transition to EOS-1.1B, SI Termination, can be done when what conditions below are met?

1. SG1 wide range level is 10%
2. SG1 wide range level is 18%
3. SG1 wide range level is 26%
4. Pressurizer level is 18"

- A. 1
- B. 2
- C. 3
- D. 3, and 4

**Answer:**

"B" is correct, SG1 wide range level is 18%. Adverse containment for U2 is 18%.

**References**

REF: FRH-0.1B

OBJ: (not provided in material)

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

Examination Outline Cross-reference:

Level	<u>SRO</u>
K/A #	E02.EA2.1
Importance Rating	4.2
Tier #	1
Group #	2
CFR references	43.5 / 45.13

**Question 86**

CPSES Unit 1's RCP #1 has an increasing trend for its Motor upper radial bearing temperature. Several days ago it started increasing from its normal value up to 190F, when the computer point alarm (T0413A) reached its high alarm set point. What procedure would be used to mitigate this malfunction and what would the impact on the plant be if the temperature point (T0413A) exceeded the RCP operating limit value of 195F?

- A. ABN-101 for RCP Trip/Malfunction, a violation of RCP operating limits would require a plant trip and trip of RCP #1.
- B. ALM-0051A for "RCP HI BRNG TEMP", a violation of RCP operating limits would require a plant trip and trip of RCP #1.
- C. ABN-101 for RCP Trip/Malfunction, IAW IPO-003A "Power Operations"- reduce power to below 48% and increase CCW flow to heat exchanger.
- D. ALM-0051A for "RCP HI BRNG TEMP", IAW IPO-003A "Power Operations"- reduce power to below 48% and increase CCW flow to heat exchanger.

**Answer:**

"A" is correct, ABN-101 for RCP Trip/Malfunction, a violation of RCP operating limits would require a plant trip and trip of RCP #1.

**References**

REF: ABN-101

OBJ: (not provided in material)

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>SRO</u>
K/A #	0003.A2.02
Importance Rating	3.9
Tier #	2
Group #	1
CFR references	41.5 / 43.5 / 45.3 / 45.13

**Question 87**

A Reactor trip and a Safety Injection has occurred on Unit 1. After the crew has transition from EOP-0.0 and attachment 2 of EOP-0.0 has been completed, the following conditions are observed.

- \* NI-41 through NI-44 are all less than 1% (Wide Range Neutron Flux, NI-50A-1 and NI-50B-1, are tracking the same as NI-41 through NI-44)
- \* Intermediate range startup rate is equal to +0.2 DPM.
- \* Core exit TCs read 715°F.
- \* RCS subcooling is 0°F.
- \* RVLIS - No lights lit.
- \* All steam generator narrow-range levels are < 1%
- \* Main feedwater pumps are tripped.
- \* Auxiliary feedwater flows: (maximum available)
  - S/G #1: 118 GPM
  - S/G #2: 124 GPM
  - S/G #3: 90 GPM
  - S/G #4: 60 GPM
- \* Pressure in all S/Gs indicates less than 1185 psig.
- \* All AC buses are powered from offsite.
- \* Containment Pressure is 18.5 psig

Which of the following actions should be taken?

- A. Immediately go to FRZ-0.1.
- B. Immediately go to FRS-0.1.
- C. Immediately go to FRC-0.2.
- D. Immediately go to FRH-0.1.

**Answer:**

"D" is correct, immediately go to FRH-0.1.

**References**

REF: FRH-0.1, FRS-0.1, FRZ-0.1, FRC-0.1

REV DATE: 7/26/01

OBJ: LO49.G01.EEB/EEE, LO49.CA1.EE2, LO69.CA1.EE1, LO69.CA1.EE3, LO49.C02.EE2 (not verified)

Question Source:	Bank #	<u>    X    </u>
	Modified Bank #	<u>          </u>
	New	<u>          </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	<u>          </u>
	Comprehension or Analysis	<u>    X    </u>

LOD = unknown

Examination Outline Cross-reference:

Level	<u>SRO</u>
K/A #	G2.4.16
Importance Rating	4.0
Tier #	2
Group #	1
CFR references	41.10 / 43.5 / 45.13

**Question 88**

Unit one is at 86% power due to one Main steam safety valve (MSSV) MS-021 failing its IST program. The Control Room Supervisor reviews the Technical Specification section 3.7.1 for the MSSV's and notes that there are two required action steps for this condition and both must be performed:

- 1) a power reduction and
- 2) a high power reactor trip reduction.

The basis for both actions is:

- A. When MTC is positive, there is insufficient remaining steam flow capacity to prevent overpressurizing the steam system during an uncontrolled bank RCCA withdrawal.
- B. When MTC is negative, there is insufficient remaining steam flow capacity to prevent overpressurizing the steam system during a turbine trip.
- C. When MTC is positive, there is insufficient heat removal capacity to protect the RCS pressure boundary from an RCS heating event.
- D. When MTC is negative, there is insufficient remaining steam flow capacity to prevent overpressurizing the steam system during a turbine trip.

**Answer:**

"A" is correct, When MTC is positive, there is insufficient remaining steam flow capacity to prevent overpressurizing the steam system during an uncontrolled bank RCCA withdrawal.

**References**

REF: TS Bases, 3.7.1

OBJ:

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

Examination Outline Cross-reference:

Level	<u>SRO</u>
K/A #	G2.1.12
Importance Rating	4.0
Tier #	2
Group #	1
CFR references	43.2 / 43.5 / 45.3

**Question 89**

Unit 1 has experienced a loss of all AC power and has entered ECA-0.0. At step 16 the DC bus voltage is evaluated at greater than 110vdc with several notes in Attachment 1 for load shedding because if it is less than 110vdc:

- A. Further load shedding would be required in order to ensure air supply valves to MSIV hydraulic pumps remain open in order to ensure the MSIV's remain closed during the event.
- B. Initial load shedding would be required because the 125vdc system minimum voltage required for vital instrument operation is 110vdc.
- C. Further load shedding would be required in order to ensure battery room exhaust dampers will close.
- D. Initial load shedding would be required in order to conserve the ability to realign AC breakers once power is restored.

**Answer:**

"D" is correct, Initial load shedding would be required in order to conserve the ability to realign AC breakers once power is restored.

**References**

REF: ECA-0.0, OP51.SYS.DC1

OBJ: OP51.SYS.DC1.OB16, (waiting on ERG objectives)

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>SRO</u>
K/A #	G2.4.20
Importance Rating	4.0
Tier #	2
Group #	1
CFR references	41.10/ 45.13

**Question 90**

Unit 1 is at full power and all systems in AUTO when the PEO calls the control room to inform the SRO that the instrument air dryer switching procedure has failed. She was informing the SRO of the switch failure light on the dryer when a loud bang occurred near the air dryer assemblies. The annunciators "INST AIR HDR PRESS LO" and "COMM INSTR AIR DRYR PNL TRBL" alarm in the control room. While the operators are responding to these alarms the following annunciators alarm in rapid succession:

SG1           STM & FW FLOW MISMATCH  
 SG2           STM & FW FLOW MISMATCH  
 SG3           STM & FW FLOW MISMATCH  
 SG4           STM & FW FLOW MISMATCH

SG1           LVL DEV  
 SG2           LVL DEV  
 SG3           LVL DEV  
 SG4           LVL DEV

The RO places the feedwater FCV's in MANUAL and attempts to increase feedwater flow. The attempt is unsuccessful and all SG levels continue to drop with MFWP DP at program level for full power. What procedure should the U1 SRO be in at this point?

- A. ABN-301, "Instrument Air System Malfunction"
- B. EOP-0.0A, "Reactor Trip or Safety Injection"
- C. FRH-0.5A, "Response to Steam Generator Low Level"
- D. ECA2.2A, "Loss of Level Control for All Steam Generators"

**Answer:**

"B" is correct, EOP-0.0A, "Reactor Trip or Safety Injection".

**References**

ABN-301, OP51.SYS.IA1, SOP-509A, EOP-0.0A.

OBJ: OP51.SYS.IA1.OB14, (ERG objectives not provided in material)

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>

**Examination Outline Cross-reference:**

Level	<u>SRO</u>
K/A #	0078.A2.01
Importance Rating	2.9
Tier #	2
Group #	1
CFR references	41.5 / 43.5 / 45.3 / 45.13

**Question 91**

Unit 1 Core Exit Thermocouples (CET) are currently reading 1300 degrees F. Loop's 1 and 2 have RCP's running. The in-progress procedure step for depressurizing all intact SG's to atmospheric pressure has just been completed and the CET temperatures are decreasing. What procedure should you be implementing to mitigate/prevent core damage?

- A. FRC-0.1A, "Response to Inadequate Core Cooling."
- B. SACRG-1, "Severe Accident Control Room Guideline Initial Response."
- C. EOP-1.0A, "Loss of Reactor or Secondary Coolant."
- D. EPP-312-1, "Core Damage Assessment and Prevention."

**Answer:**

"A" is correct, FRC-0.1A, "Response to Inadequate Core Cooling."

With 2 RCP's running and CET temps decreasing and recognizing that the current procedure is FRC-0.1A, staying in FRC-0.1A is correct. If CET's were still increasing after the depressurization then an exit of this procedure and entry to SACRG-1 would be required (why "B" is incorrect). "C" is incorrect because CET's are greater than 1200 deg F, 1 of 3 requirements needed to exit FRC-0.1A and enter EOP-1.0A. "D" is incorrect because no prevention steps are provided in this document (title is partially fictitious).

**References**

REF: FRC-0.1A, page 16, 18, EPP-312-1

OBJ: FRC.XH2.OB404 004 (not verified)

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

Examination Outline Cross-reference:

Level	<u>SRO</u>
K/A #	0017.A2.02
Importance Rating	4.1
Tier #	2
Group #	2
CFR references	41.5 / 43.5 / 45.3 / 45.5

**Question 92**

During refueling operations, a fuel assembly is dropped in Containment several feet from the core opening. Containment ventilation was automatically isolated and Containment was evacuated properly. Containment activity is greater than the allowed levels as stated in ABN-908, "Fuel Handling Accident". In order to initiate a Containment Purge IAW step 13 of ABN-908, the \_\_\_\_\_ and the \_\_\_\_\_ will be used to perform the purge.

- A. Approved release permit per STA-603 "Control of Station Radioactive Effluents," Hydrogen Purge System per SOP-205.
- B. Approved release permit per STA-603 "Control of Station Radioactive Effluents," Containment Purge System per SOP-801A.
- C. Approved release permit per STA-605 "Containment Effluent Release Management," Hydrogen Purge System per SOP-205.
- D. Approved release permit per STA-605 "Containment Effluent Release Management," Containment Purge System per SOP-801A.

**Answer:**

"A" is correct, Approved release permit per STA-603 "Control of Station Radioactive Effluents," Hydrogen Purge System per SOP-205.

"B" and "D" are incorrect because the activity is above allowed levels (as stated in the ABN-908 procedure and in the question stem) so Hydrogen purge system must be used. Answer "C" is incorrect because STA-605 is not the title mentioned (fictitious title name).

**References**

Ref: ABN-908, page 6, and STA-603.

OBJ: (not provided in material)

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

Examination Outline Cross-reference:

Level	<u>SRO</u>
K/A #	0034.A2.01
Importance Rating	4.4
Tier #	2
Group #	2
CFR references	41.5 / 43.5 / 43.7 / 45.3 / 45.13

**Question 93**

Unit 2 is at 100% power with normal “at power” flows thru the SG Blowdown system. An I & C technician inadvertently isolates the system while performing maintenance on the associated radiation monitor. With no operator action:

- A. Reactor Power goes down 3%, conductivity goes up for several days until STA-612 action levels require a plant shutdown.
- B. Reactor Power goes down 1%, conductivity goes down for several days until STA-610 action levels require a plant shutdown.
- C. Reactor Power goes down 3%, conductivity goes up for several days until STA-610 action levels require a plant shutdown.
- D. Reactor Power goes down 1%, conductivity goes up for several days until STA-610 action levels require a plant shutdown.

**Answer:**

“D” is correct, Reactor Power goes down 1%, conductivity goes up for several days until STA-610 action levels require a plant shutdown.

**References**

REF: ECA-0.0, OP51.SYS.SB1

OBJ: (not verified)

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

Examination Outline Cross-reference:

Level	<u>SRO</u>
K/A #	G2.1.34
Importance Rating	2.9
Tier #	2
Group #	2
CFR references	41.10/ 43.5 / 45.12

**Question 94**

With regards to Technical Specification 3.3.3 for PAM instrumentation, the Core Exit Thermocouples (TC) have 3 LCO requirements. Of these three requirements, one is that the minimum number of TC's that are operable cannot include the \_\_\_\_\_ row(s) because \_\_\_\_\_.

- A. Outer three, they are cooled from SG drainage due to refluxing.
- B. Outer two, they are cooled from SG drainage due to refluxing.
- C. Outer three, they are cooled from radiation heat transfer to the vessel wall.
- D. Outer two, they are cooled from radiation heat transfer to the vessel wall.

**Answer:**

"B" is correct, Outer two, they are cooled from SG drainage due to refluxing.

Answers "A" and "C" are incorrect because it is only the outer two rows that are excluded. TSB states that the reason the outer two rows are not used is because of cooling from SG drainage due to refluxing.

**References**

REF: TSB 3.3.3, page B3.3-134.

OBJ:

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

Examination Outline Cross-reference:

Level	<u>SRO</u>
K/A #	G2.1.32
Importance Rating	3.8
Tier #	G
Group #	G
CFR references	41.10/ 43.2 / 45.12

**Question 95**

You are the US for Unit 1. Containment Spray initiates while you are performing step 6 of EOP-0.0A. Containment Pressure has reached 18psig. What Procedure should you been in?

- A. EOP-0.0A and FRZ-0.1A in parallel.
- B. EOP-0.0A until step 16 for CSF status evaluation.
- C. FRZ-0.1A since a Critical parameter (Containment Pressure) has reached a Red condition on CSF status trees.
- D. FRZ-0.2A since a Critical parameter (Containment Pressure) has reached an Orange condition on CSF status trees.

**Answer:**

"B" is correct, EOP-0.0A until step 16 for CSF status evaluation.

**References**

REF: ODA-407, page 18.

OBJ: (not provided in material)

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

**Examination Outline Cross-reference:**

Level	<u>SRO</u>
K/A #	G2.1.7
Importance Rating	4.4
Tier #	G
Group #	G
CFR references	43.5 / 45.12 / 45.13

**Question 96**

Unit 2 is at 100% power and the plant calorimetric is due in accordance with TRM 13.3.34 and SR 3.3.1.2 of Technical Specifications. I and C has reported that the leading edge flow meter (LEFM) is out of service because it failed the self-diagnostics test required prior to the calorimetric surveillance and won't be functional for 48 hours. The required actions for this are:

- A. Perform calorimetric using feedwater venturis with RTP <98.6%, then restore power to 100% RTP after calorimetric surveillance is completed.
- B. Restore LEFM to service within 24 hrs or reduce power in accordance with TS 3.3.1.2.
- C. Perform calorimetric using feedwater venturis with RTP <98.6%, then maintain power at 98.6% RTP after calorimetric surveillance is completed.
- D. Perform calorimetric using feedwater venturis with RTP at 100%, and adjust Power as required after the calorimetric is completed.

**Answer:**

"C" is correct, Perform calorimetric using feedwater venturis with RTP <98.6%, then maintain power at 98.6% RTP after calorimetric surveillance is completed.

Only unit 2 has the LEFM, and only it is required to link the TRM SR 13.3.34 with the TS SR 3.3.1.2 in order to complete the calorimetric.

**References**

REF: TRM 13.3.34, page 61, TS 3.3.1.2

OBJ:

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	_____
	Comprehension or Analysis	<u>  X  </u>
	LOD = unknown	

Examination Outline Cross-reference:

Level	<u>SRO</u>
K/A #	G2.2.3
Importance Rating	3.3
Tier #	G
Group #	G
CFR references	41 / 43 / 45

**Question 97**

If the RCS Pressure boundary is violated when the reactor is in Mode 1, the requirement is to restore compliance and be in Mode 3 within 1 hour. If the RCS Pressure boundary is violated while the reactor is in Mode 3, the requirement is \_\_\_\_\_.

- A. Restore pressure within 1 hour and be in Mode 4 within 1 hour.
- B. Restore pressure within 1 hour and stay in Mode 3.
- C. Restore pressure within 5 minutes and be in Mode 4 within 1 hour.
- D. Restore pressure within 5 minutes and stay in Mode 3.

**Answer:**

“D” is correct, Restore pressure within 5 minutes and stay in Mode 3.

“A” and “C” are incorrect because no mode change is allowed during this occurrence because lower mode implies lower temperature, which exacerbates the problem of high pressure and low temperature ductility effects on the vessel. “B” is incorrect because of the time requirement.

**References**

REF: TS 2.1.2 and bases

OBJ:

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	<u>  X  </u>
	Comprehension or Analysis	_____
	LOD = unknown	_____

Examination Outline Cross-reference:

Level	<u>SRO</u>
K/A #	G2.2.22
Importance Rating	4.1
Tier #	G
Group #	G
CFR references	43.2 / 45.2

**Question 98**

The basis for maintaining Containment Integrity during power operations is to limit post-accident releases to the 10CFR100 limits. Exclusion Areas (EA) and Low Population Zones (LPZ) define these limits. Select the reference limits for whole body dose rates specified in 10CFR100 for these two areas below.

- A. EA is 25 rem in first 2 hours, LPZ is 30 rem for event duration.
- B. EA is 25 rem for event duration, LPZ is 30 rem for event duration.
- C. EA is 25 rem for event duration, LPZ is 25 rem for event duration.
- D. EA is 25 rem in first 2 hours, LPZ is 25 rem for event duration.

**Answer:**

“D” is correct, EA is 25 rem in first 2 hours, LPZ is 25 rem for event duration.

Answers “A” and “B” are incorrect because the value is 25 rem (same as the maximum emergency allowed dose of 25 rem). Answer “C” is incorrect because the limit for a person in the EA during the first two hours of the event is 25 rem, not the duration of the event.

**References**

REF: 10CFR part 100, TS definitions, LCOAR-26.

OBJ: (not provided in material)

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u>  X  </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	<u>  X  </u>
	Comprehension or Analysis	_____
	LOD = unknown	

Examination Outline Cross-reference:

Level	<u>SRO</u>
K/A #	G2.3.4
Importance Rating	3.1
Tier #	G
Group #	G
CFR references	43.4 / 45.10

**Question 99**

EOP-0.0A, "Reactor Trip or Safety Injection", Step 24, "Check if RCS is intact", is being performed when the operator observes the following indications:

- RCS Pressure 1850 psig
- SG Narrow range levels
  - 1 <5% (INCREASING)
  - 2 OFF SCALE LOW
  - 3 30%
  - 4 OFF SCALE LOW
- PCV-455A/456 CLOSING
- PRZR Safety Valves CLOSING
- BOTH PRZR Spray Valves CLOSING
- CNTMT Pressure 2.0 psig
- AFW Flows
  - 1 130 gpm
  - 2 150 gpm
  - 3 50 gpm
  - 4 100 gpm
- All SG Pressures INCREASING

Which of the below actions is correct in this situation?

- A. Proceed to FRH-0.1A, "Response to Loss of Secondary Heat Sink".
- B. Proceed to EOP-1.0A "Loss of Reactor or Secondary Coolant".
- C. Proceed to EOP-0.0A, Step 26, "Check if ECCS Flow Should Be Reduced".
- D. Proceed to EOP-2.0A, "Faulted Steam Generator Isolation".

**Answer:**

"B" is correct, Proceed to EOP-1.0A "Loss of Reactor or Secondary Coolant".

**References**

REF: EOP-0.0A(B)

USED: LO29.L13.E15

OBJ: SJ1.XG1.OB107 (not verified)

Question Source:	Bank #	<u>    X    </u>
	Modified Bank #	<u>          </u>
	New	<u>          </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	<u>          </u>
	Comprehension or Analysis	<u>    X    </u>
	LOD = unknown	

## Examination Outline Cross-reference:

Level	<u>SRO</u>
K/A #	G2.4.6
Importance Rating	4.0
Tier #	G
Group #	G
CFR references	41.10/ 43.5 / 45.13

**Question 100**

Which one of the following actions SHALL NOT be delegated by the Emergency Coordinator?

- A. Directing requests for corporate support to the Executive Vice President, Nuclear Operations.
- B. Making the initial off-site notifications
- C. Making protective action recommendations to the state and local authorities.
- D. Verifying that requisite plant safety related systems and engineering safety features are functioning properly.

**Answer:**

“C” is correct, Making protective action recommendations to the state and local authorities.

**References**

REF: EPP-109, Rev. 912 page 5.

Used: 3/6/98

OBJ: EP21.ERB.EP1.OB01 (not provided in material)

Question Source:	Bank #	<u>    X    </u>
	Modified Bank #	<u>          </u>
	New	<u>          </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	<u>    X    </u>
	Comprehension or Analysis	<u>          </u>
	LOD = unknown	

Examination Outline Cross-reference:

Level	<u>    SRO    </u>
K/A #	G2.4.44
Importance Rating	4.0
Tier #	G
Group #	G
CFR references	43.5 / 45.11