

## WRITTEN EXAM AS PRESENTED AND REVIEWED BY FACILITY

EXAM DIVDED INTO RO QUESTIONS ONLY, SRO QUESTIONS ONLY, AND COMMON (RO/SRO) QUESTIONS. EACH GROUP INCLUDES REVIEW COMMENT SHEETS.

### D.C. Cook RO Written Exam Comments

Question Number	Comment
General Comment	There were several editorial comments
61	Rewrite the answer and distracters as follows: a. immediately after the reactor trip signal. b. when the RWST valves, IMO-910 or IMO-911 start to open. c. immediately after the SI signal. d. when the RWST valves, IMO-910 or IMO-911 are fully open.
63	Change 'RCS loop 4' to 'RCS loop 1'
68	Change 'switchyard' to '345kV and 765 kV'
74	Add '02-OHP.4021.055.003.RV.8' to references
79	Change 'cps' to 'amps'
81	Add 'AMSAC has not been reset' to the stem
85	Add 'The turbine will not manually trip from the Control Room' to the stem
87	Change 'CRID is energized' to 'Unit 2 CRID is de-energized'
88	Add '02-OHP.4024.212.Drop 17' to references
89	Change answer and distracters as follows: a. 125 psig CAS wet receiver pressure CAC shuts off 110 psig at PPS-10 (11) standby PAC starts 100 psig at PPS-11 (21) plant air header isolates b. 115 psig CAS wet receiver pressure CAC shuts off 100 psig at PPS-10 (11) standby PAC starts 95 psig at PPS-11 (21) plant air header isolates c. 105 psig CAS wet receiver pressure CAC shuts off 98 psig at PPS-10 (11) standby PAC starts 88 psig at PPS-11 (21) plant air header isolates d. 100 psig CAS wet receiver pressure CAC shuts off 95 psig at PPS-10 (11) standby PAC starts 88 psig at PPS-11 (21) plant air header isolates
91	Add 'The following plant conditions exist:' to the stem
93	Change 'turbine impulse pressure' to 'T <sub>REF</sub> '

MASTER CHANGES

FOR

QUESTION: # 60

POINT VALUE: 1.0

<sup>THE</sup> After initial notification c... Emergency, or General Emergency, how often must the Shift Manager or his designee make updates to the Michigan State Police?

- a. 15
- b. 20
- c. 25
- d. 30

ANSWER: # 60	TYPE: NEW	REV: 1	DATE: 01/23/01
REVIEW DATE:	POINT VALUE: 1.0	KA: G.2.4.29 2.6/4.0	
LESSON PLAN: RO-C-ADM06 OBJ.#3			
REFERENCES: PMP-2080.EPP.106			LEVEL: Mem

- a. 15

QUESTION: # 61	TYPE: RO	POINT VALUE: 1.0
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The plant has experienced a large break LOCA. The reactor has tripped and an SI signal is present. Which of the following best describes the automatic actions of the VCT outlet valves, QMO-451 & QMO-452. The valves will close.....

- REACTOR TRIP SIGNAL*
- a. immediately after the ~~SI~~ signal.
  - b. ~~within~~ *WHEN THE RWST VALVES* 10 seconds after the RWST valves, IMO-910 and IMO-911 open. *OR* *START TO*
  - c. ~~within~~ *IMMEDIATELY* 10 seconds after the SI signal.
  - d. ~~immediately~~ *WHEN* after the RWST valves, IMO-910 and IMO-911 open. *OR* *ARE FULLY*

ANSWER: # 61	TYPE: NEW	REV: 1	DATE: 11/21/00
REVIEW DATE:	POINT VALUE: 1.0	KA: 000011 EA1.05 4.3/3.9	
LESSON PLAN:			
REFERENCES: Overview Drawing SOD-00300-001			LEVEL: Mem

- a. ~~The valves will close 10 seconds after the SI signal.~~ *WITHIN*
- d. *WHEN THE RWST VALVES, IMO-910 OR IMO911 ARE FULLY OPEN*

<b>QUESTION: # 62</b>	<b>TYPE: RO</b>	<b>POINT VALUE: 1.0</b>
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Which ONE of the following statements is a function of the effluent discharge valve, RRV-285?

- a. The valve is located upstream of the effluent discharge monitor, RRS-100, to insure isolation of liquid discharge prior to the water entering the Circulating Water System piping.
- b. On a loss of electrical power to the valve motor, the valve must be immediately manually isolated.
- c. The valve fails closed on a loss of air, as a fail-safe measure.
- d. This fail-open, manually adjusted, air-operated valve in the liquid waste discharge line regulates flow through the effluent discharge monitor, RRS-1000.

<b>ANSWER: # 62</b>	<b>TYPE: Bank</b>	<b>REV: 1</b>	<b>DATE: 12/05/00</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: 000076 AK2.01 2.6/3.0</b>	
<b>LESSON PLAN:</b>			
<b>REFERENCES: Tech Spec 3.4.8 Bases</b>			<b>LEVEL: Mem</b>

- c. The valve fails closed on a loss of air, as a fail-safe measure.

QUESTION: # 63	TYPE: RO	POINT VALUE: 1.0
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The saturation meter is selected to read  $T_{sat}$  RTD. RCS loop 3 wide range pressure is selected for input into the saturation meter. If the wide range pressure instrument fails low the indication on the meter is no longer a valid reading.

How is this problem corrected?

- Pressure*  
*Pressure*
- RCS loop 4 wide range instrument is automatically selected by the system
  - RCS loop 2 wide range instrument is automatically selected by the system
  - Select RCS loop 2 wide range pressure instrument in RPC III Cabinet 11
  - Select RCS loop 4 wide range pressure instrument in RPC III Cabinet 11

ANSWER: # 63	TYPE: NEW	REV: 1	DATE: 02/15/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 000009 EA1.16 4.2/4.2	
LESSON PLAN:			
REFERENCES: SD-01301			LEVEL: Cog

- RCS Loop 4*
- Select ~~the other~~ wide range instrument in RPC III Cabinet 11  
*Pressure*

QUESTION: # 64	TYPE: RO	POINT VALUE: 1.0
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The following Unit 1 plant conditions exist:

- ▶ Mode 5
- ▶ Irradiated fuel in the vessel.
- ▶ Vessel level drained to 4 ft. below vessel flange (~~624'-1.5"~~).
- ▶ The Pressurizer manway has been removed.
- ▶ RCS level begins to decrease. *low & R*

Which ONE of the following is the required flow path for water into the RCS?

- a. One RHR pump and one CCP with both Cold Leg and Hot leg injection paths.
- b. RWST gravity feed capability through either RHR suction flow path or SI flow path, one SI pump that is also capable of injecting to both Hot and Cold legs.
- c. Two CCPs capable of injecting using the normal charging path and one SI pump with cold leg injection capability.
- d. RWST gravity feed capability via both the RHR suction flow path and charging flow path.

ANSWER: # 64	TYPE: MODIFIED	REV: 1	DATE: 01/12/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 002 K4.01 2.7/3.0	
LESSON PLAN:			
REFERENCES: PMP-4100.SDR.001.RV.4			LEVEL: Mem

- b. RWST gravity feed capability through either RHR suction flow path or SI flow path, one SI pump that is also capable of injecting to both Hot and Cold legs.

QUESTION: # 65	TYPE: RO	POINT VALUE: 1.0
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You have been told to close WMO-734, ESW outlet valve for CCW HX 2 East.

The following plant conditions exist:

RCS pressure is 1600 psig and decreasing *lowering*

Pressurizer is empty

Containment pressure is 1.5 psig

Steam generator NR levels are 6% and increasing *rising*

What actions must be taken to close the valve?

- The valve position switch must be put in pull to lock and must be closed manually.
- The valve must be closed using the position switch immediately.
- When the valve reaches its preset position you can close the valve using the position switch.
- No action is necessary, the valve has already been closed by an automatic signal.

ANSWER: # 65	TYPE: NEW	REV: 1	DATE: 12/01/00
REVIEW DATE:	POINT VALUE: 1.0	KA: 000026	AK3.01 3.2/3.5
LESSON PLAN: RO-C-01900.RV.1			
REFERENCES: Drawing OP-2-98416-26, SD-01900			LEVEL: Cog

- When the valve reaches its preset position you can closed the valve using the control switch.

<b>QUESTION: # 66</b>	<b>TYPE: RO</b>	<b>POINT VALUE: 1.0</b>
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Offsite power was lost without SI actuation. Unit One control room operators verified a reactor trip and a turbine trip. They determined that the D/Gs have energized the AC emergency busses. All appropriate loads have sequenced on. While ensuring that the RCS stabilizes at no-load conditions, an operator observed that RCS temperature stabilized at 541<sup>0</sup> F and that PZR Pressure is 2060 psig and slowly lowering. He checks the PZR PORV's and spray valves. They are closed. PZR level is stable at 40%.

What corrective action, if any, should be taken to stabilize the plant until offsite power is restored?

- a. No operator action is necessary. Pressure will stabilize at approximately 1837 psig.
- b. Manually actuate SI and return to EOP E-0, Reactor Trip or Safety Injection.
- c. Initiate a rapid depressurization to minimize RCS inventory loss through the RCP seals.
- d. Manually load the PZR heaters on energized AC emergency buses.

<b>ANSWER: # 66</b>	<b>TYPE: BANK</b>	<b>REV: 1</b>	<b>DATE: 02/07/01</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: 000027 AK3.03 3.7/4.1</b>	
<b>LESSON PLAN:</b>			
<b>REFERENCES: 01-OHP.4023.ES-01</b>			<b>LEVEL: Cog</b>

- d. Manually load the PZR heaters on energized AC emergency buses.

QUESTION: # 67	TYPE: RO	POINT VALUE: 1.0
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The following plant conditions exist:

- ▶ Reactor trip, Safety Injection, and Main Steam Line Isolation have occurred
- ▶ RCS pressure: decreasing rapidly (1820 psig) *IS 1820 PSIG AND*
- ▶ RCS temperature: decreasing rapidly (525° F) *LOWERING*
- ▶ Containment humidity: increasing *INCREASING*
- ▶ Secondary radiation: normal
- ▶ Containment pressure: increasing (2.1 psig) *INCREASING*
- ▶ Containment radiation: normal

IS 525° F

These conditions are indicative of...

- a. A small break LOCA.
- b. A large break LOCA.
- c. A faulted steam generator.
- d. A steam generator tube rupture.

ANSWER: # 67	TYPE: BANK	REV: 1	DATE: 02/07/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 000040 AK2.02	2.6/2.6
LESSON PLAN: RO-C-EOP07			
REFERENCES:			LEVEL: Cog

- c. A faulted steam generator.

QUESTION: # 68	TYPE: RO	POINT VALUE: 1.0
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SWITCHYARD

The site had a station blackout. During the recovery phase it was discovered that the 125V DC distribution system lost power.

How will this affect the restoration of power to the plant?

345 kV and 765 kV

- a. The ~~switchyard~~ circuit breakers CAN NOT be opened or closed
- b. The 4 kV circuit breakers CAN NOT be operated in auto or manual
- c. The 345kV and 765kV circuit breaker <sup>for</sup> air compressors have lost power
- d. Heat tracing and cooling is lost for TR4 and TR5, this reduces their load carrying capacity

ANSWER: # 68	TYPE: NEW	REV: 1	DATE: 02/07/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 000055 EA2.03	3.9/4.7
LESSON PLAN: RO-C-08200			
REFERENCES:			LEVEL: Mem

- a. The ~~switchyard~~ circuit breakers CAN NOT be opened or closed

345 kV AND  
765 kV

<b>QUESTION: # 69</b>	<b>TYPE: RO</b>	<b>POINT VALUE: 1.0</b>
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An evacuation of the Control Room is in progress. As part of the evacuation the operator attempted to trip the Unit 2 turbine. The turbine stop valve closed status lights did not energize.

Which ONE of the following is the correct method for tripping the turbine locally?

- a. Deenergize the solenoid trip device
- b. Deenergize the emergency oil circuit
- c. Place both overspeed trip devices in the trip position
- d. Place the manual-mechanical trip device in push to trip

<b>ANSWER: # 69</b>	<b>TYPE: NEW</b>	<b>REV: 1</b>	<b>DATE: 02/07/01</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: 000068 AA1.15 3.7/3.7</b>	
<b>LESSON PLAN: RO-C-05002.RV.0</b>			
<b>REFERENCES: 02-OHP.4025.LTI-1</b>			<b>LEVEL: Mem</b>

- d. Place the manual-mechanical trip device in push to trip

QUESTION: # 70	TYPE: RO	POINT VALUE: 1.0
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The following plant parameters exist:

RCS pressure is 1600 psig and ~~decreasing~~ LOWERING

Pressurizer level is slowly ~~decreasing~~ LOWERING

PORVs and spray valves are closed

*ALL* Steam generator pressures and levels are normal

Auxiliary building radiation levels are ~~increasing~~ ~~ANSWER~~ RISING

Plant vent radiation monitors are ~~increasing~~ ~~ANSWER~~ RISING

Containment pressure and sump levels are normal

Which ONE of the following is the correct plant condition?

- a. LOCA inside containment
- b. LOCA outside containment
- c. Faulted steam generator
- d. Ruptured steam generator

ANSWER: # 70	TYPE: NEW	REV: 1	DATE: 02/07/01
REVIEW DATE:	POINT VALUE: 1.0	KA: E04 2.1.7	3.7/4.4
LESSON PLAN:			
REFERENCES: 01-OHP.4023.E-0			LEVEL: Cog

- b. LOCA outside containment

QUESTION: # 71	TYPE: RO	POINT VALUE: 1.0
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A reactor trip and safety injection occurred due to a LOCA. There are several ECCS system failures. The following plant conditions exist:

Containment pressure is 7.2 psig and increasing *rising*  
 Containment hydrogen concentration is increasing *rising*

Which ONE of the following describes the correct mitigating strategy for hydrogen control?

- a. Both hydrogen recombiners should be started when containment hydrogen reaches 4.0%.
- b. A hydrogen recombiner should have been started when containment pressure reached 2.9 psig
- c. Both hydrogen recombiners should be started more than 30 minutes after the LOCA and within 2 hours after the LOCA
- d. A hydrogen recombiner should be placed in service 6 hours after the LOCA if hydrogen concentrations are less than 4%

ANSWER: # 71	TYPE: BANK	REV: 1	DATE: 02/07/01
REVIEW DATE:	POINT VALUE: 1.0	KA: E03 EA1.3 3.7/4.1	
LESSON PLAN:			
REFERENCES: 02-OHP.4023.E-1			LEVEL: Mem

- d. A hydrogen recombiner should be placed in service 6 hours after the LOCA if hydrogen concentrations are less than 4%

<b>QUESTION: # 72</b>	<b>TYPE: RO</b>	<b>POINT VALUE: 1.0</b>
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Unit 2 has been drained to midloop for repairs to RCP #21 seals. Following indications of cavitation the RO noted RCS level at 612'8" and stopped the West RHR pump.

The crew's strategy for mitigation of the Loss of RHR will include which ONE of the following:

- a. Initiation of Safety Injection.
- b. Isolation of RCS Vent Paths.
- c. Isolate letdown and know drain paths.  
^
- d. Immediate start of the East RHR Pump.

<b>ANSWER: # 72</b>	<b>TYPE: MODIFIED</b>	<b>REV: 1</b>	<b>DATE: 02/07/01</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: E11 K3.2 3.5/4.0</b>	
<b>LESSON PLAN:</b>			
<b>REFERENCES: 01-OHP.4022.017.001</b>			<b>LEVEL: Cog</b>

- c. Isolate letdown and know drain paths.  
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<b>QUESTION: # 73</b>	<b>TYPE: RO</b>	<b>POINT VALUE: 1.0</b>
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The loss of reactor coolant pumps during a steam generator tube rupture increases the risk of voiding in the upper head region during the subsequent cooldown and depressurization.

Why?

- a. More ECCS flow is injected into the ruptured loop cold leg due to the reduced pressure bypassing the core and not removing enough heat
- b. The isolation of the steam generator in the affected loop causes that loop to stagnate therefore insufficient heat removal capacity is available to cool the RCS
- c. The RCS reaches saturation temperature during the rapid depressurization due to the tube rupture and the injection of cold ECCS fluid causing the RCS to flash
- d. The upper head region becomes inactive and the fluid temperature in that region will significantly lag the temperatures in the RCS loop

<b>ANSWER: # 73</b>	<b>TYPE: NEW</b>	<b>REV: 1</b>	<b>DATE: 02/08/01</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: 000038 EK1.03 3.9/4.2</b>	
<b>LESSON PLAN: RO-C-EOP08</b>			
<b>REFERENCES:</b>			<b>LEVEL: Cog</b>

- d. The upper head region becomes inactive and the fluid temperature in that region will significantly lag the temperatures in the RCS loop

QUESTION: # 74	TYPE: RO	POINT VALUE: 1.0
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Which ONE of the following conditions will DIRECTLY cause both Unit 2 main feedwater pumps to trip?

- a. Reactor trip
- b. Turbine trip
- c. Narrow range S/G level at 65%
- d. Lube oil pressure less than 6 psig

ANSWER: # 74	TYPE: MODIFIED	REV: 1	DATE: 02/08/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 000054 AA2.01 4.3/4.4	
LESSON PLAN: RO-C-05500.RV.1			
REFERENCES: 02-OHP.4021, 00SS.003 REV. 8			LEVEL: Mem

- a. Reactor trip

<b>QUESTION: # 75</b>	<b>TYPE: RO</b>	<b>POINT VALUE: 1.0</b>
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The magnitude of a potential release is limited during a fuel handling accident by limiting the maximum load to less than ~~1000~~ pounds from traveling over the fuel assemblies in the spent fuel pool.

- a. 1000
- b. 1500
- c. 2000
- d. 2500

<b>ANSWER: # 75</b>	<b>TYPE: NEW</b>	<b>REV: 1</b>	<b>DATE: 02/08/01</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: 000036 AA2.03 3.4/4.1</b>	
<b>LESSON PLAN: RO-C-ADM13.RV0 OBJ #13.3</b>			
<b>REFERENCES: Fuel handling accident bases and tech spec entry condition 3/4.9.7</b>			<b>LEVEL: Mem</b>

- d. 2500

QUESTION: # 76	TYPE: RO	POINT VALUE: 1.0
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The following breaker alignment exists:

CLOSED	OPEN
21AC	T21A10
21A11	21BD
T21D2	21D1
21C1	21B11
T21C4	T21B3

Which ONE of the following statements about the MG sets is correct?

*(REFER TO ATTACHED ELECTRICAL DRAWING)*

- a. Both have power available
- b. 2N has power, 2S does not
- c. 2S has power, 2N does not
- d. Neither has power available

ANSWER: # 76	TYPE: NEW	REV: 1	DATE: 02/08/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 0001 K2.05 3.1/3.5	
LESSON PLAN:			
REFERENCES: SD-01200, SOD-08201-001, OP-2-12001-29, OP-2-12002-26			LEVEL: Cog

- c. 2S has power, 2N does not

<b>QUESTION: # 77</b>	<b>TYPE: RO</b>	<b>POINT VALUE: 1.0</b>
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During normal plant operation, what is the primary parameter used to monitor containment ventilation system performance?

- a. Pressure
- b. Humidity
- c. Temperature
- d. Sump level

<b>ANSWER: # 77</b>	<b>TYPE: BANK</b>	<b>REV: 1</b>	<b>DATE: 02/09/01</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: 022 A1.01 3.6/3.7</b>	
<b>LESSON PLAN: RO-C-02800</b>			
<b>REFERENCES: SD-02800</b>			<b>LEVEL: Mem</b>

- c. Temperature

QUESTION: # 78	TYPE: RO	POINT VALUE: 1.0
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Given the following plant conditions:

A plant trip occurred due to the loss of offsite power  
 RCS temperature is 537<sup>0</sup> F and ~~decreasing~~ *LOWERING*  
 RCS pressure is 1750 psig and steady  
 Steam generator pressure is 750 psig and ~~decreasing~~ *LOWERING*  
 ECCS is providing water to the RCS  
 Pressurizer level is 17% and ~~increasing~~ *RISING*  
 Thermocouple temperatures are 617<sup>0</sup> F and steady

Which ONE of the following describes the condition in the upper head region?

- a. The head region is subcooled
- b. The head region is superheated *SPACE*
- c. The head region is at saturation with voids
- d. The head region is at saturation with no voids

ANSWER: # 78	TYPE: NEW	REV: 1	DATE: 02/09/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 017 A1.01 3.7/3.9	
LESSON PLAN: RO-C-01301.RV.1			
REFERENCES:			LEVEL: Cog

- c. The head region is at saturation with voids  
*SPACE*

QUESTION: # 79	TYPE: RO	POINT VALUE: 1.0
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Reactor power is  $4 \times 10^{-6}$  <sup>Am/s</sup> cps and SUR is 0.17 dpm.

How long will it take before a reactor trip occurs if no operator action is taken?

- a. 0.58 minutes
- b. 3.52 minutes
- c. 6.47 minutes
- d. the reactor should have tripped at  $10^{-6}$  <sup>Am/s</sup> cps

ANSWER: # 79	TYPE: NEW	REV: 1	DATE: 02/09/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 015 K4.05 4.3/4.5	
LESSON PLAN: RO-C-01300.RV.1			
REFERENCES:			LEVEL: Cog

- b. 3.52 minutes

<b>QUESTION: # 80</b>	<b>TYPE: RO</b>	<b>POINT VALUE: 1.0</b>
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*SPACE* → You are touring the Unit 2 Turbine Building. Both Motor Driven Auxiliary Feedwater Pumps have been running for the past 3 hours in preparation for a unit start-up. You notice the outboard bearing on the east pump is very warm to the touch and obtain a pyrometer. Contact readings with the pyrometer indicate bearing temperature is 145°F. Assuming that no local operations have taken place at the pump, which ONE of the following describes the actions you are required to take, if any?

- a. Continue to monitor temperature. If temperature exceeds 150°F notify the Unit Supervisor to stop the pump.
- b. Notify the US immediately to stop the pump before bearing damage occurs.
- c. Continue to monitor temperature. When the temperature exceeds 160°F throttle open the NESW cooling supply to the bearing.
- d. Throttle open the NESW cooling supply to the bearing to maintain temperature less than 160°F.

<b>ANSWER: # 80</b>	<b>TYPE: BANK</b>	<b>REV: 1</b>	<b>DATE: 02/09/01</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: 061 A2.04 3.4/3.8</b>	
<b>LESSON PLAN:</b>			
<b>REFERENCES: 02-OHP.4021.056.002 Rev.11</b>			<b>LEVEL: Mem</b>

- d. Throttle open the NESW cooling supply to the bearing to maintain temperature less than 160°F.

QUESTION: # 81	TYPE: RO	POINT VALUE: 1.0
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Unit 1 tripped from 100% power. Narrow range steam generator levels are now 25%.

*PSM002  
SPACE →*

The TDAFP had auto started but has been secured and reset.

*AMSAC HAS NOT BEEN RESET*

Which one of the following statements correctly describes its auto start capability now?

- a. It will not auto start.
- b. It will auto start when an SI occurs.
- c. It will auto start when reserve power is lost.
- d. It will auto start when all steam generator levels decrease below lo-lo level.

ANSWER: # 81	TYPE: BANK	REV: 1	DATE: 02/09/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 061 K4.06 4.0/4.2	
LESSON PLAN: RO-C-05600.RV.1			
REFERENCES:			LEVEL: Cog

- a. It will not auto start.

QUESTION: # 82	TYPE: RO	POINT VALUE: 1.0
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Unit 1 is at 100% power with circulating water pump 11 shutdown because of high bearing temperature. Generator megawatts are decreasing. Main feedwater pump speed is *LOWERING* decreasing. Circulating water pump 12 has tripped and condenser vacuum has *LOWERED* decreased to 21" Hg.

Which ONE of the following is the correct response?

- a. Begin turbine load reduction per 01-OHP.4021.001.003 "Power Reduction"
- b. Begin turbine load reduction per 01-OHP.4022.001.006 "Rapid Power Reduction"
- c. Trip the turbine and then the reactor and go to 1-OHP-4023.E-0 "Reactor Trip or Safety Injection"
- d. Trip the reactor and then the turbine and go to 1-OHP-4023.E-0 "Reactor Trip or Safety Injection"

ANSWER: # 82	TYPE: NEW	REV: 1	DATE: 02/12/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 056	G.2.1.23 3.9/40
LESSON PLAN:			
REFERENCES: 01-OHP.4024.118, Drop 71			LEVEL: Cog

- d. Trip the reactor and then the turbine and go to 1-OHP-4023.E-0 "Reactor Trip or Safety Injection"

<b>QUESTION: # 83</b>	<b>TYPE: RO</b>	<b>POINT VALUE: 1.0</b>
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Which ONE of the following precautions MUST be satisfied to start the FIRST RCP in Mode 4?

- a. RCS cold leg temperature is greater than 152<sup>0</sup> F
- b. Seal injection flow is greater than 13 gpm
- c. Associated pressurizer spray valve is partially open
- d. Differential pressure across No. 1 seal is greater than 215 psid

<b>ANSWER: # 83</b>	<b>TYPE: BANK</b>	<b>REV: 1</b>	<b>DATE: 02/12/01</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: 003 2.1.27 2.8/2.9</b>	
<b>LESSON PLAN: RO-C-00201</b>			
<b>REFERENCES: OHP.4021.002.003</b>			<b>LEVEL: Mem</b>

- d. Differential pressure across No. 1 seal is greater than 215 psid

<b>QUESTION: # 84</b>	<b>TYPE: RO</b>	<b>POINT VALUE: 1.0</b>
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Which ONE of the following Reactor Coolant Pump parameters has an indicating meter on the Reactor Coolant Pump panel in the Control Room?

- a. RCP CCW Supply/Return Flow (CFA-450)
- b. RCP Thermal Barrier CCW Outlet Temperature (CTA-451)
- c. RCP Thermal Barrier CCW Differential Pressure (CDA-451)
- d. RCP Lower Guide Bearing Oil Cooler CCW Outlet Flow (CFA-451)

<b>ANSWER: # 84</b>	<b>TYPE: NEW</b>	<b>REV: 1</b>	<b>DATE: 02/12/01</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: 003 A4.08 3.2/2.9</b>	
<b>LESSON PLAN:</b>			
<b>REFERENCES: SD-00201.RV.0, RCP Panel Picture</b>			<b>LEVEL: Mem</b>

- d. RCP Lower Guide Bearing Oil Cooler CCW Outlet Flow (CFA-451)

QUESTION: # 85	TYPE: RO	POINT VALUE: 1.0
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The Unit 2 reactor has failed to trip following a rupture of the suction line for both main feedwater pumps. The reactor operator is manually inserting control rods. The balance of plant operator, following manual actuation of AMSAC, notes that the turbine steam stop valves status lights are NOT lit. *THE TURBINE WILL NOT MANUALLY TRIP FROM THE CONTROL ROOM.*

Which ONE of the following is the next required action to mitigate the event?

- a. Trip all control fluid pumps.
- b. Manually reduce the turbine load.
- c. Manually depress the unit trip pushbutton.
- d. Trip closed all steam generator stop valves.

ANSWER: # 85	TYPE: BANK	REV: 1	DATE: 02/12/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 059 A2.05 3.1/3.4	
LESSON PLAN:			
REFERENCES: 2-OHP 4023.FR-S.1			LEVEL: Cog

- b. Manually reduce the turbine load.

<b>QUESTION: # 86</b>	<b>TYPE: RO</b>	<b>POINT VALUE: 1.0</b>
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During a liquid radwaste discharge from the monitoring tanks, Annunciator #127, Drop 5 "WASTE LIQUID MONIT RAD LEVEL HIGH" alarms and the auto actions do not occur.

What operator immediate actions are required?

- a. Trip RRV-285 "Radiation Waste Discharge Isolation Valve" closed and switch the monitor tanks to recirculation
- b. Trip RRV-285 "Radiation Waste Discharge Isolation Valve" closed and trip the selected Monitor Tank Pumps
- c. Place the radiation monitoring tanks on recirculation, flush the discharge line and the radiation monitor and start the discharge again
- d. Secure the radiation waste discharge lineup per 12-OHP.4012.006.004 "Transferring Distillate From Monitoring Tanks" and report the release to chemistry

<b>ANSWER: # 86</b>	<b>TYPE: NEW</b>	<b>REV: 1</b>	<b>DATE: 02/12/01</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: 068 A2.04 3.3/3.3</b>	
<b>LESSON PLAN:</b>			
<b>REFERENCES: 12-OHP.4024.127 Drop 5</b>			<b>LEVEL: Cog</b>

- b. Trip RRV-285 "Radiation Waste Discharge Isolation Valve" closed and trip the selected Monitor Tank Pumps

QUESTION: # 87	TYPE: RO	POINT VALUE: 1.0
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An auto-start signal is generated for the Unit 1 West ESW Pump when which ONE of the following CRIDs is energized?

*UNIT 2 de*

- a. CRID 1
- b. CRID 2
- c. CRID 3
- d. CRID 4

ANSWER: # 87	TYPE: NEW	REV: 1	DATE: 02/12/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 000057 A1.01 3.7/3.7	
LESSON PLAN:			
REFERENCES: 02-OHP.4021.082.008			LEVEL: Mem

- a. CRID 1

QUESTION: # 88	TYPE: RO	POINT VALUE: 1.0
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*UNIT 2*

Power range channel N44 failed high and during the subsequent shutdown N43 failed as is at 12% power. The other power range channels N41 and N42 read 6% power. The turbine impulse pressure transmitters are reading equivalent to 6% power. A turbine high thrust bearing position alarms at +34 mils.

What is the status of the plant?

- a. Only the turbine trips
- b. Only the reactor trips
- c. The turbine trips resulting in a reactor trip
- d. Nothing happens the thrust bearing position is below the turbine trip setpoint

ANSWER: # 88	TYPE: NEW	REV: 1	DATE: 02/13/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 045 K3.01	2.9/3.2
LESSON PLAN: RO-C-05002.RV.0			
REFERENCES: 02-OHP 4024, 212, DRO P17			LEVEL: Cog

- c. The turbine trips resulting in a reactor trip

QUESTION: # 89	TYPE: RO	POINT VALUE: 1.0
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Which ONE of the following is the correct pressure sequence of events that happen in the control and plant air systems during pressure changes?

*LOWERS*

- a. 125 psig CAS wet receiver pressure CAC ~~shuts off UNLOADS~~  
*100* → ~~115~~ psig at PPS-11 (21) plant air header ~~unisolates ISOLATE~~  
*110* → ~~90~~ psig at PPS-10 (20) standby PAC starts
- b. 115 psig CAS wet receiver pressure CAC ~~shuts off UNLOADS~~  
*95* → ~~110~~ psig at PPS-11 (21) plant air header ~~unisolates ISOLATES~~  
 100 psig at PPS-10 (20) standby PAC starts
- c. 105 psig CAS wet receiver pressure CAC ~~shuts off UNLOADS~~  
*88* → ~~100~~ psig at PPS-11 (21) plant air header ~~unisolates ISOLATES~~  
 98 psig at PPS-10 (20) standby PAC starts
- d. 100 psig CAS wet receiver pressure CAC ~~shuts off UNLOADS~~  
~~98 psig at PPS-11 (21) plant air header unisolates~~  
 95 psig at PPS-10 (20) standby PAC starts  
 85 psig at PPS-11 (21) PLANT AIR HEADER ISOLATES

ANSWER: # 89	TYPE: NEW	REV: 1	DATE: 02/13/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 079 K1.01 3.0/3.1	
LESSON PLAN:			
REFERENCES: SOD-06/01-002			LEVEL: Mem

- d. 100 psig CAS wet receiver pressure CAC shuts off  
*85* → 98 psig at PPS-11 (21) plant air header ~~unisolates ISOLATES~~  
 95 psig at PPS-10 (20) standby PAC starts

<b>QUESTION: # 90</b>	<b>TYPE: RO</b>	<b>POINT VALUE: 1.0</b>
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Which ONE of the following will cause the Fire Protection to Auxiliary Building shutoff valves, ZMO-10 and ZMO-20, to open automatically?

- a. Reactor Coolant Pump fire protection deluge for #21 RCP is activated
- b. An AEO locally depresses the push button for an Auxiliary Building fire hose station
- c. An AEO locally depresses the push button for an Auxiliary Building fire CO<sub>2</sub> hose station
- d. Fire Protection or the Technical Support Center charcoal filter is actuated

<b>ANSWER: # 90</b>	<b>TYPE: BANK</b>	<b>REV: 1</b>	<b>DATE: 02/13/01</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: 086 A3.02 2.9/3.3</b>	
<b>LESSON PLAN: RO-C-AS17</b>			
<b>REFERENCES:</b>			<b>LEVEL: Mem</b>

- b. An AEO locally depresses the push button for an Auxiliary Building fire hose station

QUESTION: # 91	TYPE: RO	POINT VALUE: 1.0
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*THE FOLLOWING PLANT CONDITIONS EXIST:*

Initial pressurizer pressure was 2235 psig  
 Pressurizer PORV NRV-153 has just opened  
 The operator closed the block valve NMO-153  
 Current pressurizer pressure is 2190 psig

Pressurizer relief tank parameters:

Level 75%  
 Pressure 6.5 psig  
 Temperature 123° F

What is the expected temperature indication for NTA-154 PORV outlet temperature?  
 (Reference the steam tables)

- a. 125° F
- b. 175° F
- c. 230° F
- d. 350° F

ANSWER: # 91	TYPE: BANK	REV: 1	DATE: 01/13/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 010 K5.02 2.6/3.0	
LESSON PLAN: RO-C-002 OBJ#33			
REFERENCES: SD-00202.RV.1			LEVEL: Cog

- c. 230° F

<b>QUESTION: # 92</b>	<b>TYPE: RO</b>	<b>POINT VALUE: 1.0</b>
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The Unit 1 containment hydrogen is 2.7%. The hydrogen recombiner can be verified to be operating properly by which one of the following operating characteristics?

Indications of a ramp increase in hydrogen temperature....

- a. will occur when the recombination temperature of 1225<sup>0</sup> F is reached
- b. will occur when the recombination temperature of 1200<sup>0</sup> F is reached
- c. will be too small to detect when the recombination temperature of 1225<sup>0</sup> F is reached, so therefore temperature of the recombiner thermocouples should be maintained above 1225<sup>0</sup> F to assure proper operation
- d. will be too small to detect when the recombination temperature of 1200<sup>0</sup> F is reached, so therefore temperature of the recombiner thermocouples should be maintained above 1200<sup>0</sup> F to assure proper operation

<b>ANSWER: # 92</b>	<b>TYPE: NEW</b>	<b>REV: 1</b>	<b>DATE: 01/13/01</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: 028 K6.01 2.6/3.1</b>	
<b>LESSON PLAN:</b>			
<b>REFERENCES: 01-OHP.4023.SUP.005 page 4 of 6</b>			<b>LEVEL: Mem</b>

- a. will occur when the recombination temperature of 1225<sup>0</sup> F is reached

QUESTION: # 93	TYPE: RO	POINT VALUE: 1.0
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A turbine runback just occurred in the plant. The plant parameters are as follows:

Auctioneered high  $T_{AVE}$  is  $590^{\circ}$  F and the turbine impulse pressure is  $582^{\circ}$  F.

*TREF*

The status of the steam dumps are as follows:

- a. No steam dump control valves are open
- b. Group 1 control dump valves are open
- c. Group 1 and 2 control dump valves are open
- d. Group 1, 2, and 3 control dump valves are open

ANSWER: # 93	TYPE: NEW	REV: 1	DATE: 02/13/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 041 K1.05 3.5/3.6	
LESSON PLAN: RO-C-05200			
REFERENCES:			LEVEL: Cog

- c. Group 1 and 2 control dump valves are open

<b>QUESTION: # 94</b>	<b>TYPE: RO</b>	<b>POINT VALUE: 1.0</b>
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Which ONE of the following is the purpose of a STRIPPED TAG?

- a. Denote that the status of the tagged equipment is not to be changed in any manner until after the clearance permit is released and the tag removed
- b. Denote that the equipment is not to be operated or its status changed in any manner except by request of the permit holder
- c. Provide tracking of plant equipment that has been removed for testing or repairs
- d. Provide special instructions regarding the status of plant equipment

<b>ANSWER: # 94</b>	<b>TYPE: BANK</b>	<b>REV: 1</b>	<b>DATE: 02/13/01</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: G.2.2.13 3.6/3.8</b>	
<b>LESSON PLAN: RO-C-ADM09</b>			
<b>REFERENCES:</b>			<b>LEVEL: Mem</b>

- b. Denote that the equipment is not to be operated or its status changed in any manner except by request of the permit holder

<b>QUESTION: # 95</b>	<b>TYPE: RO</b>	<b>POINT VALUE: 1.0</b>
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The Code of Federal Regulations, 10CFR50.36, Technical Specifications, defines a Limiting Condition for Operation as:

- a. The most limiting reactivity addition resulting from an accident.
- b. Operation in a condition not included in the Final Safety Analysis Report.
- c. The lowest functional capability or performance levels of equipment required for safe operation of the facility.
- d. The minimum required redundant equipment to meet the design bases for a Loss of Coolant Accident.

<b>ANSWER: # 95</b>	<b>TYPE: BANK</b>	<b>REV: 1</b>	<b>DATE: 02/13/01</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: G.2.2.25 2.5/3.7</b>	
<b>LESSON PLAN: RO-C-TS01 OBJ#11</b>			
<b>REFERENCES:</b>			<b>LEVEL: Mem</b>

- c. The lowest functional capability or performance levels of equipment required for safe operation of the facility.

<b>QUESTION: # 96</b>	<b>TYPE: RO</b>	<b>POINT VALUE: 1.0</b>
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All of the following are the responsibility of the Reactor Operator in the control room during fuel handling EXCEPT:

- a. Directs the refueling activities during core alteration
- b. Clears, tags, and returns equipment to service as directed
- c. Directs the performance of routine and special tests of plant equipment
- d. Monitors plant operation parameters and equipment status and maintains these within Technical Specification limits

<b>ANSWER: # 96</b>	<b>TYPE: NEW</b>	<b>REV: 1</b>	<b>DATE: 02/13/01</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: G.2.2.30 3.5/3.3</b>	
<b>LESSON PLAN:</b>			
<b>REFERENCES: OHI-4011, OHI-4013</b>			<b>LEVEL: Mem</b>

- a. Directs the refueling activities during core alteration

<b>QUESTION: # 97</b>	<b>TYPE: RO</b>	<b>POINT VALUE: 1.0</b>
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The control room operators are responding to a SGTR. In order to cool down the RCS and establish required subcooling margin, the operators dump steam to the condenser using intact SG's.

This method of RCS cooldown is preferred over dumping steam through the PORV's of intact SG's because it minimizes:

- a. RCS subcooling requirements.
- b. shrink experienced by the RCS.
- c. thermal shock to the reactor vessel.
- d. radiological releases and conserves feedwater supply.

<b>ANSWER: # 97</b>	<b>TYPE: BANK</b>	<b>REV: 1</b>	<b>DATE: 02/13/01</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: G.2.3.11 2.7/3.2</b>	
<b>LESSON PLAN: RO-C-EOP08</b>			
<b>REFERENCES:</b>			<b>LEVEL: Mem</b>

- d. radiological releases and conserves feedwater supply.

<b>QUESTION: # 98</b>	<b>TYPE: RO</b>	<b>POINT VALUE: 1.0</b>
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**Who may grant an extension to administrative exposure limits?**

- a. Unit Supervisor
- b. RP Superintendent
- c. Senior RP Tech on site
- d. Work Group Supervisor

<b>ANSWER: # 98</b>	<b>TYPE: BANK</b>	<b>REV: 1</b>	<b>DATE: 02/13/01</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: G.2.3.4 2.5/3.1</b>	
<b>LESSON PLAN:</b>			
<b>REFERENCES: THP 6010 RPP.101</b>			<b>LEVEL: Mem</b>

- b. RP Superintendent

<b>QUESTION: # 99</b>	<b>TYPE: RO</b>	<b>POINT VALUE: 1.0</b>
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2-OHP.4023.E-3 "Steam Generator Tube Rupture", contains the following CAUTION,  
 "If any ruptured SG is faulted, AFW flow to that SG should remain isolated during subsequent recovery actions unless needed for RCS cooldown."

Which ONE of the following would be the consequence of not following this caution?

Continued AFW flow may....

- a. extend the time required for a ruptured/faulted SG depressurization
- b. cooldown the ruptured/faulted SG, thus extending the time required to refill the pressurizer
- c. aggravate an uncontrolled cooldown of the RCS and increase the possibility of SG overfill
- d. dilute the RCS and lead to a loss of shutdown margin

<b>ANSWER: # 99</b>	<b>TYPE: BANK</b>	<b>REV: 1</b>	<b>DATE: 02/13/01</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: G.2.4.20 3.3/4.0</b>	
<b>LESSON PLAN: RO-C-EOP08</b>			
<b>REFERENCES: OHP 4023.E-3</b>			<b>LEVEL: Cog</b>

- c. aggravate an uncontrolled cooldown of the RCS and increase the possibility of SG overfill

<b>QUESTION: # 100</b>	<b>TYPE: RO</b>	<b>POINT VALUE: 1.0</b>
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What are the (3) three plant and related plant locations were it is possible to notify the NRC operations center using the preferred means other than the Control Room?

- a. Operational Staging Center, Plant Managers Office, NRC Resident Inspectors Office
- b. Technical Support Center, Operational Staging Center, Emergency Operations Facility
- c. Technical Support Center, Emergency Operations Facility, NRC Resident Inspectors Office
- d. Technical Support Center, Operational Staging Center, NRC Resident Inspectors Office

<b>ANSWER: # 100</b>	<b>TYPE: NEW</b>	<b>REV: 1</b>	<b>DATE: 02/14/01</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: G.2.4.43 2.8/3.5</b>	
<b>LESSON PLAN:</b>			
<b>REFERENCES: E-Plan, Rev. 15, Section 12.3.7.3</b>			<b>LEVEL: Mem</b>

- c. Technical Support Center, Emergency Operations Facility, NRC Resident Inspectors Office

**D.C. Cook Common Written Exam Comments**

Question Number	Comment
General Comment	There were several editorial comments
3	Add '1' after RCP and Seal
5	Change 'Turbine Power' to 'Turbine Load'
6	Change 'EWS' to 'ESW'; add 'if WMO-702 fails to open' to the question; Remove 'MCC 2-PS has been deenergized because of an overcurrent condition on breaker MCC 2-PS-A.'
10	Change 'CRID'-2 to 'NPS-121' in statement; change 'open' to 'closed' in answer b. and d.
13	Change 'emergency' to 'essential'
14	Add 'deviation' after $T_{AVE} - T_{REF}$
19	Change 'PS-934A' to '2-PPP-301' and 'PS-937A' to '2-PPP-303'; add 'present' after 'trip signal'
21	Add "Pressure isolation valve leakage is determined to be 0.1 gpm" to the initial conditions; change distracter c. to 'pressure isolation valve leakage'; and add Reference ATR 1-RCS-3
23	Add 'A Unit 1 startup is in progress after 100 days of continuous operation' to the initial conditions, remove 'and the operators are taking critical data'
25	Change ' Only ¾' to 'None' in distracter d.
29	Change 'to heating up the containment atmosphere' to ' rising temperature in containment'
30	Change 'is the correct plant condition?' to 'plant conditions will exist?'
32	<p>Rewrite question:            On receipt of an SI signal, which of the following represents a complete feedwater system isolation from the steam generators?</p> <ul style="list-style-type: none"> <li>a. main feedwater pump trips, main feedwater isolation valves close, main steam stop valves close, high pressure inlet isolation valves close</li> <li>b. main feedwater pump discharge valves close, main feedwater pump trips, main feedwater isolation valves close, main feedwater regulating valves close</li> <li>c. main feedwater pump discharge valves close, main feedwater isolation valves close, main feedwater pump trips, mains steam stop valves close</li> <li>d. main feedwater pump trips, main feedwater pump discharge valves close, main feedwater isolation valves close, main feedwater regulating valves close</li> </ul>
36	Change 'the area radiation monitor begins to alarm' to 'high radiation alarm sounds on the manipulator crane'
38	Change 'NRV-16' to 'NRV-163'
39	Change 'PT-506' to 'MPC-253'

Question Number	Comment
40	Change 'Both MDAFWP's' to 'One MDAFWP' in distracter a.
45	Change 'PT-506' to 'MPC-254'
46	<p>Rewrite question:</p> <p>Unit 1 is operating at 100% power with all SJAEs in service (with both elements in service). A small leak was identified on the #1 SJAE and the SJAE was removed from service. The operator who removed the #1 SJAE out-of-service closed LPD-150-1 (#1 element inter-condenser drain), but left LPD-149-1 (the second #1 element inter-condenser drain) open.</p> <p>What effect (if any) will this valve configuration have on the plant?</p> <ul style="list-style-type: none"> <li>a. No effect.</li> <li>b. Will cause a loss of condenser vacuum.</li> <li>c. Will cause an increase in vent stack condensation.</li> <li>d. Will cause the after condenser loop seal to blowout and spray water on the condensate booster pumps.</li> </ul>
50	Change 'can be performed' to valves can be opened' and remove 'can be opened' from the answers
51	Change '45%' to '5%'
52	Add 'west CCW pump was running prior to the event' and '(Use the attached bus diagram)' to the initial conditions; add 'and 'CMO-410,420' to distracters c. and d.
54	Add 'Turnover' after 'Supervisor' in distracter c.
58	Add Lesson Plan 'GE-C-1000 Obj. E.7'

<b>QUESTION: #1</b>	<b>TYPE: RO/SRO</b>	<b>POINT VALUE: 1.0</b>
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The plant was at 80% power and stable at EOL. 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 and moderator temperature coefficients when the plant had stabilized?

- a. The fuel temperature and moderator temperature coefficients have added positive reactivity.
- b. The fuel temperature and moderator temperature coefficients have added negative reactivity.
- c. The fuel temperature coefficient added negative reactivity and moderator temperature coefficient added positive reactivity.
- d. The fuel temperature coefficient added positive reactivity and moderator temperature coefficient added negative reactivity.

<b>ANSWER: # 1</b>	<b>TYPE: BANK</b>	<b>REV: 1</b>	<b>DATE: 11/21/00</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: 000001 K1.18 3.4/3.8</b>	
<b>LESSON PLAN: RO-C-AOP-7</b>			
<b>REFERENCES:</b>			<b>LEVEL: Cog</b>

- b. The fuel temperature and moderator temperature coefficients have added negative reactivity.

<b>QUESTION: #2</b>	<b>TYPE: RO/SRO</b>	<b>POINT VALUE: 1.0</b>
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A stuck rod is discovered in Control Bank "C". The rod selector switch is selected to "CBC".

Which of the following flow paths allows the rod to receive a signal to move?

- a. Rod control switch – Motion Control Relays – Pulsar/Oscillator – Supervisory – Bank Overlap Unit
- b. Rod control switch – Motion Control Relays – Supervisory – Pulsar/Oscillator – Master Cyclor
- c. Rod control switch – Motion Control Relays – Supervisory – Master Cyclor
- d. Rod control switch – Motion Control Relays – Pulsar/Oscillator – Bank Overlap Unit

<b>ANSWER: # 2</b>	<b>TYPE: NEW</b>	<b>REV: 1</b>	<b>DATE: 11/21/00</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: 000005 A1.02</b>	<b>3.7/3.5</b>
<b>LESSON PLAN:</b>			
<b>REFERENCES: SD01200.RV1, SOD-01200-002</b>			<b>LEVEL: Mem</b>

- b. Rod control switch – Motion Control Relays – Supervisory – Pulsar/Oscillator – Master Cyclor

QUESTION: # 3	TYPE: RO/SRO	POINT VALUE: 1.0
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The reactor is at the point of adding heat and the following alarms have come in:

Panel 207

- Drop 14 "RCP Seal 1 Outlet Temp High"
- Drop 13 "RCP Seal Leak Off Flow Low"

Based on the plant conditions, which one of the following is the appropriate action?

- a. Manually trip the reactor, go to 02-OHP 4023.E-0 "REACTOR TRIP AND SAFETY INJECTION", trip the affected RCP.
- b. Trip the affected RCP, manually trip the reactor, go to 02-OHP 4023.E-0 "REACTOR TRIP AND SAFETY INJECTION".
- c. Trip the affected RCP, the reactor will automatically trip, go to 02-OHP 4023.E-0 "REACTOR TRIP AND SAFETY INJECTION".
- d. Manually trip the reactor, go to 02-OHP 4023.E-0 "REACTOR TRIP AND SAFETY INJECTION", close the No. 1 seal leakoff valve, trip the affected RCP.

ANSWER: # 3	TYPE: NEW	REV: 1	DATE: 11/22/00
REVIEW DATE:	POINT VALUE: 1.0	KA: 000015	AA1.07 3.5/3.4
LESSON PLAN:			
REFERENCES: 02-OHP 4022.002.001			LEVEL: Cog

- a. Manually trip the reactor, go to 02-OHP 4023.E-0, REACTOR TRIP AND SAFETY INJECTION, trip the affected RCP.

QUESTION: # 5	TYPE: RO/SRO	POINT VALUE: 1.0
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*degrading  
Lowering*

The plant is at 20% power. Turbine <sup>load</sup> power is dropping off and condenser vacuum is decreasing. Condenser vacuum is 20.3 inches of mercury vacuum and Annunciator 212 Drop 8, "Condenser A Vacuum Trip" has illuminated.

What are your immediate actions:

- a. Trip the reactor and turbine and investigate probable causes.
- b. Begin a power reduction and then investigate probable causes.
- c. Begin investigations of probable causes a power reduction may not be required.
- d. Trip the turbine, reduce reactor power and investigate probable causes.

ANSWER: # 5	TYPE: NEW	REV: 1	DATE: 12/04/00
REVIEW DATE:	POINT VALUE: 1.0	KA: 000051 G.2.1.2 3.0/4.0	
LESSON PLAN:			
REFERENCES: 02-OHP 4024, Annunciator Panel Number 212 Drop 8			LEVEL: Mem

- a. Trip the reactor and turbine and investigate probable causes.

QUESTION: # 6	TYPE: RO/SRO	POINT VALUE: 1.0
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Unit 1 and 2 East ESW pumps are in run and the West ESW pumps are in "Auto". ~~MCC 2-PS has been deenergized because of an over current condition on breaker MCC 2-PS-A.~~  
Unit 2 East ESW pressure, WPA-708, indicates 35 psig and decreasing.

What is the final condition of the <sup>ESW</sup> EWS system <sup>ESW</sup> if <sup>LOWERING</sup> WMO - 702 <sup>RISE</sup> FAILS TO OPEN?

- a. The Unit 1 West <sup>ESW</sup> EWS pump will start and ESW pressure will <sup>RISE</sup> increase to normal.
- b. The Unit 2 West <sup>ESW</sup> EWS pump will start and <sup>ESW</sup> EWS pressure will <sup>RISE</sup> increase to normal.
- c. The Unit 1 West <sup>ESW</sup> EWS pump will start and ESW pressure will continue to <sup>LOWER</sup> decrease.
- d. The Unit 2 West <sup>ESW</sup> EWS pump will start and ESW pressure will continue to <sup>LOWER</sup> decrease.

ANSWER: # 6	TYPE: NEW	REV: 1	DATE: 12/04/00
REVIEW DATE:	POINT VALUE: 1.0	KA: 000062 AA1.02 3.2/3.3	
LESSON PLAN: RO-C-01900 Page 16 -18			
REFERENCES: SOD-01900-001			LEVEL: Cog

- c. The Unit 1 West <sup>ESW</sup> EWS pump will start and ESW pressure will continue to <sup>LOWER</sup> decrease.

QUESTION: # 7	TYPE: RO/SRO	POINT VALUE: 1.0
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The following core conditions exist:  
RCS pressure is 405 psig  
Core exit thermocouples read 500° F  
RVLIS 52% with no RCP's running

Using a copy of the steam table, what is the condition of the fluid at the top of the core?

- a. superheated by 50.6° F
- b. superheated by ~~61.6~~° F *57.9° F OK*
- c. saturated at 449.4° F
- d. saturated at 442.1° F

ANSWER: # 7	TYPE: NEW	REV: 1	DATE: 12/05/00
REVIEW DATE:	POINT VALUE: 1.0	KA: 000074 EK1.06 2.8/3.2	
LESSON PLAN: RO-C-RVLS			
REFERENCES: Steam Tables			LEVEL: Cog

- a. superheated by 50.6° F

QUESTION: # 8	TYPE: RO/SRO	POINT VALUE: 1.0
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A safety injection has occurred and RCS pressure is 1500 psig and still ~~decreasing~~ <sup>LOWERING</sup>. Pressurizer level initially dropped and is now ~~increasing~~ <sup>LOWERING</sup>. All of the reactor coolant pumps are in operations.

Which one of the following is the correct leak location? A weld failure on the:

- a. accumulator #4 check valve
- b. pressurizer post accident vent valve
- c. pressurizer liquid space sample isolation valve
- d. loop #3 cold leg temperature instrument isolation valve

ANSWER: # 8	TYPE: NEW	REV: 1	DATE: 12/06/00
REVIEW DATE:	POINT VALUE: 1.0	KA: 000008 AK2.01 2.7/2.7	
LESSON PLAN: RO-C-EOP09			
REFERENCES: Drawing No. OP-1-5128A-37			LEVEL: Cog

- b. pressurizer post accident vent valve ~~NO 462~~

<b>QUESTION: # 9</b>	<b>TYPE: RO/SRO</b>	<b>POINT VALUE: 1.0</b>
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While performing FR-P.1 (Response to Imminent Pressurized Thermal Shock Conditions), you are told to start reactor coolant pump 4 using SUP. 10. CCW cooling had been lost to the reactor cooling pumps. Thermal barrier cooling water temperature peaked at 134<sup>0</sup> F and is now 97<sup>0</sup> F and #1 seal outlet temperature peaked at 197<sup>0</sup> F and is now 153<sup>0</sup> F

Based on the plant conditions, which one of the following is correct?

- a. You can establish CCW flow and start the RCP
- b. You can establish seal injection and start the RCP
- c. You can establish CCW flow and seal injection and start the RCP
- d. You can not start the RCP

<b>ANSWER: # 9</b>	<b>TYPE: NEW</b>	<b>REV: 1</b>	<b>DATE: 12/06/00</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: 000022 AK1.01 2.8/3.2</b>	
<b>LESSON PLAN:</b>			
<b>REFERENCES: 02-OHP 4023 FR-P.1, Sup. 010, and Sup. 007</b>			<b>LEVEL: Cog</b>

- d. You can not start the RCP

QUESTION: # 10	TYPE: RO/SRO	POINT VALUE: 1.0
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*NPS-127*

The plant is in Mode 4 on RHR. ~~CRIB-2~~ is de-energized for maintenance. During a control board walkdown you discovered that Panel 206 Drop 36 "RHR OPEN TO HI RCS HOT LEG PRESSURE" was illuminated.

What would cause this condition?

- a. RHR valve 2-IMO-128 (RHR pump suction from Loop 2 hot leg) is open, reactor coolant system pressure is 491.25 psig and increasing *OK*
- b. RHR valve 2-IMO-128 (RHR pump suction from Loop 2 hot leg) is ~~open~~, reactor coolant system pressure is 491.25 psig and decreasing *CLOSED*
- c. RHR valve 2-ICM-129 (RHR pump suction from Loop 2 hot leg) is open, reactor coolant system pressure is 491.25 psig and ~~increasing~~ *decreasing*
- d. RHR valve 2-ICM-129 (RHR pump suction from Loop 2 hot leg) is ~~open~~, reactor coolant system pressure is 491.25 psig and increasing *CLOSED*

ANSWER: # 10	TYPE: NEW	REV: 1	DATE: 12/27/00
REVIEW DATE:	POINT VALUE: 1.0	KA: 000025 G.2.4.31 3.3/3.4	
LESSON PLAN: RO-C-01700 RV.1 Residual Heat Removal System			
REFERENCES: 02-OHP 4024.206, SOD-01700-002			LEVEL: Cog

- a. RHR valve 2-IMO-128 (RHR pump suction from Loop 2 hot leg) is open, reactor coolant system pressure is 491.25 psig and increasing

<b>QUESTION: # 11</b>	<b>TYPE: RO/SRO</b>	<b>POINT VALUE: 1.0</b>
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The plant has experienced a loss of 250 VDC bus AB and CD. You have been instructed to start diesel generator AB. Which one of the following valve manipulations is necessary to start the diesel?

- a. Manually operate MSAV-AB (manual starting air valve) to provide air through SV-1, 2, & 3 (3 – way solenoid-operated valves) in the normal position
- b. Manually operate MSAV-AB (manual starting air valve) to provide air through SV-1, 2, & 3 (3 – way solenoid-operated valves) in the failed position
- c. Manually operate POV-1, 2, & 3 (pressure-operated valves) to provide air through SV-1, 2, & 3 (3 – way solenoid-operated valves) in the failed position
- d. Manually operate POV-1, 2, & 3 (pressure-operated valves) to provide air through SV-1, 2, & 3 (3 – way solenoid-operated valves) in the normal position

<b>ANSWER: # 11</b>	<b>TYPE: NEW</b>	<b>REV: 1</b>	<b>DATE: 12/28/00</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: 000058 AK3.01</b>	<b>3.4/3.7</b>
<b>LESSON PLAN: RO-C-03200 RV.1</b>			
<b>REFERENCES: SD-03200</b>			<b>LEVEL: Cog</b>

- b. Manually operate MSAV-AB (manual starting air valve) to provide air through SV-1, 2, & 3 (3 – way solenoid-operated valves) in the failed position

<b>QUESTION: # 12</b>	<b>TYPE: RO/SRO</b>	<b>POINT VALUE: 1.0</b>
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The plant is at 100% power. As you are walking down the control boards you notice that PZR level instrument NLP-153 is indicating higher than NLP-151 and NLP-152.

The reason for the higher indication is that there is a break on the:

- a. wet reference leg and the DP cell  $\Delta P$  is higher
- b. wet reference leg and the DP cell  $\Delta P$  is lower
- c. variable leg and the DP cell  $\Delta P$  is higher
- d. variable leg and the DP cell  $\Delta P$  is lower

<b>ANSWER: # 12</b>	<b>TYPE: NEW</b>	<b>REV: 1</b>	<b>DATE: 12/29/00</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: 000028 K1.01</b>	<b>2.8/3.1</b>
<b>LESSON PLAN: RO-C-00202 RV.1</b>			
<b>REFERENCES: SD-00202-003, 02-OHP 4022.013.010</b>			<b>LEVEL: Cog</b>

- b. wet reference leg and the DP cell  $\Delta P$  is lower

QUESTION: # 13	TYPE: RO/SRO	POINT VALUE: 1.0
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The plant has experienced a loss of off site power with no SI signal. When the emergency diesel generators start and load, which of the following loads are sequenced on?

- a. <sup>ESSENTIAL</sup> Component cooling water, ~~emergency~~ service water, charging pumps, 600 VAC
- b. <sup>ESSENTIAL</sup> ~~Emergency~~ service water, charging pumps, auxiliary feedwater pumps, 480 VAC
- c. <sup>ESSENTIAL</sup> Component cooling water, ~~emergency~~ service water, auxiliary feedwater pumps, 600 VAC
- d. <sup>ESSENTIAL</sup> Component cooling water, ~~emergency~~ service water, auxiliary feedwater pumps, 480 VAC

ANSWER: # 13	TYPE: NEW	REV: 1	DATE: 12/29/00
REVIEW DATE:	POINT VALUE: 1.0	KA: 000056 AA2.47 3.8/3.9	
LESSON PLAN:			
REFERENCES: SD-08201.RV.1			LEVEL: Mem

- c. Component cooling water, emergency service water, auxiliary feedwater pumps, 600 VAC

QUESTION: # 14	TYPE: RO/SRO	POINT VALUE: 1.0
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Which ONE of the following actions are taken while recovering a dropped rod while at 50% power if another rod drops?

- a. Manually trip the reactor if an automatic reactor trip did not occur.
- b. Perform a flux map to verify the dropped rod's position, then declare the rods inoperable.
- c. Position control rods as necessary to maintain  $T_{AVE} - T_{REF}$  less than  $1^{\circ}$  F.   
*MISMATCH DEVIATION*
- d. Perform a shutdown margin calculation every 12 hours from the time the rod dropped until the rod is declared operable.

ANSWER: # 14	TYPE: BANK	REV: 1	DATE: 01/02/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 000003 AK3.04	3.8/4.1
LESSON PLAN: RO-C-01200.RV1			
REFERENCES: OPH 4022.012.005			LEVEL: Cog

- a. Manually trip the reactor if an automatic reactor trip did not occur.

QUESTION: # 15	TYPE: RO/SRO	POINT VALUE: 1.0
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A steamline break has occurred on Unit 2. After the break is isolated the following plant conditions exist:

Pressurizer pressure = 1800 psig and stable  
 RCS temperature ( $T_{AVE}$ ) = 538°F and stable  
 S/G levels (NR) 32%(A), 23%(B), 30%(C), 30%(D)  
 S/G pressures (psig) 970(A), 885(B), 960(C), 960(D) and stable

( Pressurizer level = 24% and stable  
 Containment pressure = 0.1 psig

Which ONE of the following is the correct ECCS lineup for plant recovery?

- a. All RHR, SI, and Charging pumps running
- b. Stop both RHR pumps and one charging pump, but keep both SI pumps running
- c. Stop both RHR pumps, but keep both charging pumps and both SI pumps running
- d. Stop one charging pump, both SI pumps, and both RHR pumps

ANSWER: # 15	TYPE: MODIFIED	REV: 1	DATE: 12/05/00
REVIEW DATE:	POINT VALUE: 1.0	KA: E02	EK2.2 3.5/3.9
LESSON PLAN: RO-C-EOP05.RV.0			
REFERENCES: OHP 4023 ES-1.1			LEVEL: Cog

- d. Stop one charging pump, both SI pumps, and both RHR pumps

<b>QUESTION: # 16</b>	<b>TYPE: RO/SRO</b>	<b>POINT VALUE: 1.0</b>
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A plant trip has just occurred and 2 control rods are stuck out of the core. An emergency boration has been initiated by the reactor operator in accordance with 01-OHP 4023 ES-0.1 (Reactor Trip Recovery).

Which ONE of the following is the minimum amount of boric acid required to be added?

- a. 150 ppm
- b. 200 ppm
- c. 300 ppm
- d. 400 ppm

<b>ANSWER: # 16</b>	<b>TYPE: BANK</b>	<b>REV: 1</b>	<b>DATE: 01/03/01</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: 000024 AA2.05 3.3/3.9</b>	
<b>LESSON PLAN: RO-C-EOP03.RV0</b>			
<b>REFERENCES: OHP 4023 ES-0.1</b>			<b>LEVEL: Cog</b>

- c. 300 ppm

<b>QUESTION: # 17</b>	<b>TYPE: RO/SRO</b>	<b>POINT VALUE: 1.0</b>
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Unit 2 was operating at full power when it experienced a main steamline break. Because of difficulties in closing the MSIV's, the two affected SG's have blown dry. The following plant conditions exist:

- ▶ RCS T<sub>HOT</sub> is 282°F and lowering.
- ▶ RCS T<sub>COLDS</sub> are 267°and lowering.
- ▶ Step 3 of 2-OHP.4023.E-2, Faulted Steam Generator Isolation, is in progress.
- ▶ SI flow is still being supplied to the RCS
- ▶ AFW is being supplied to the intact SG's at 180K PPH apiece.
- ▶ All RCP's have been stopped.
- ▶ Indicated subcooling is 285°F and rising.

Which ONE of the following is correct?

- a. The loss of thermal driving head in the SG's will stop natural circulation flow due to stagnation of the coolant loops.
- b. A loss of heat sink has occurred due to two SG's being dry.
- c. Injection of ECCS accumulator nitrogen into the RCS will occur and cause a loss of heat sink.
- d. Pressurized thermal shock has occurred and RCS pressure is to be minimized.

<b>ANSWER: # 17</b>	<b>TYPE: MODIFIED</b>	<b>REV: 1</b>	<b>DATE: 01/03/01</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: W/E08 EA1.02 3.6/3.9</b>	
<b>LESSON PLAN:</b>			
<b>REFERENCES: : ERG-HP Background, FR-P.1, Response to Imminent Pressurized Thermal Shock Condition, Step 2</b>			<b>LEVEL: Cog</b>

- d. Pressurized thermal shock has occurred and RSC pressure is to be minimized.

<b>QUESTION: # 18</b>	<b>TYPE: RO/SRO</b>	<b>POINT VALUE: 1.0</b>
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A fast spreading fire exists in the Unit 1 turbine lube oil system reservoir. Which one of the following automatic fire suppression system will deploy?

- a. Halon system
- b. Pressurized fire retardant fluid
- c. Deluge sprinkler system
- d. CO<sub>2</sub> fire suppression system

<b>ANSWER: # 18</b>	<b>TYPE: BANK</b>	<b>REV: 1</b>	<b>DATE: 01/04/01</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: 000067 AK1.02 3/1/3.9</b>	
<b>LESSON PLAN:</b>			
<b>REFERENCES: SD-05001.RV.1, SD-05002.RV.0</b>			<b>LEVEL: Mem</b>

- d. CO<sub>2</sub> fire suppression system

QUESTION: # 19	TYPE: RO/SRO	POINT VALUE: 1.0
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Pressure switch <sup>2-PPP-301</sup> ~~PS-934A~~ (Lower Containment Pressure Hi-Hi) is in test with a trip signal <sup>PRESENT</sup> when a second signal is generated on ~~PS-937A~~ (Lower Containment Pressure Hi-Hi) by electrical noise. <sub>2-PPP-303</sub>

Which ONE of the following will be the plant status?

- a. A Containment Phase B and SI will occur
- b. A Containment Phase B and containment vent isolation will occur
- c. A Containment Phase B will occur and the steam line isolation valves will close
- d. All valves will remain in their current position because the logic is 2/3 when one channel is in test

ANSWER: # 19	TYPE: BANK	REV: 1	DATE: 01/04/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 000069 AA1.01 3.5/3.7	
LESSON PLAN:			
REFERENCES: SD-01100.RV.1, SOD-01100-002			LEVEL: Cog

- c. A Containment Phase B will occur and the steam line isolation valves will close

<b>QUESTION: # 20</b>	<b>TYPE: RO/SRO</b>	<b>POINT VALUE: 1.0</b>
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A liquid radwaste discharge is in progress from monitor tank #3. The south monitor tank pump is running. The alarm for the effluent discharge monitor (RRS-1000) sounds in Unit 1 Control Room.

Which ONE of the following actions will automatically occur?

- a. RRV-284 (Effluent Discharge Regulating Valve) closes and the south monitor tank pump stops
- b. RRV-285 (Effluent Discharge Valve) closes and the south monitor tank pump stops
- c. RRV-284 (Effluent Discharge Regulating Valve) closes and the south monitor tank pump continues to run on recirculation
- d. RRV-285 (Effluent Discharge Valve) closes and the south monitor tank pump continues to run on recirculation

<b>ANSWER: # 20</b>	<b>TYPE: NEW</b>	<b>REV: 1</b>	<b>DATE: 01/04/01</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: 000059 AA2.05 3.6/3.9</b>	
<b>LESSON PLAN:</b>			
<b>REFERENCES: SD-02200.RV.0, SOD-02200-001</b>			<b>LEVEL: Mem</b>

- b. RRV-285 (Effluent Discharge Valve) closes and the south monitor tank pump stops

QUESTION: # 21	TYPE: RO/SRO	POINT VALUE: 1.0
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Given the following conditions on Unit 1:

Leakage into #13 steam generator is determined to be 0.5 gpm

No leakage is detectable into the other steam generators

Other leakage whose source can not be identified is determined to be 0.7 gpm

Leakage from known sources other than steam generator leakage is determined to be 4.0 gpm

*PRESSURE ISOLATION VALUE LEAKAGE IS DETERMINED TO BE 0.1 gpm*

Which ONE of the operational limitations has been exceeded?

- a. steam generator leakage
- b. unidentified leakage
- c. ~~pressure boundary leakage~~ *PRESSURE ISOLATION VALUE LEAKAGE*
- d. identified leakage

ANSWER: # 21	TYPE: BANK	REV: 1	DATE: 01/04/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 000037 G.2.2.22 3.4/4.1	
LESSON PLAN:			
REFERENCES: Technical Specifications 3.4.6.2 , <i>ATR 1-RCS-3</i>			LEVEL: Cog

- a. steam generator leakage

QUESTION: # 22	TYPE: RO/SRO	POINT VALUE: 1.0
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Unit 2 is operating at 100% power when the Power Range channel N42 rapidly fails HIGH. Rod Control is in automatic.

Which ONE of the following describes the expected response of the rod control system?

- a. Rods will move IN due to a power mismatch, then STOP when the power mismatch signal decays away
- b. Rods will move IN due to a power mismatch, the move back OUT as the temperature error develops and power mismatch decays away
- c. Rods will move OUT due to a power mismatch, then STOP when the power mismatch signal decays away
- d. Rods will move OUT due to a power mismatch, the move back OUT as the temperature error develops and power mismatch decays away

ANSWER: # 22	TYPE: BANK	REV: 1	DATE: 01/08/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 001 K1.05 4.5/4.4	
LESSON PLAN: RO-C-01200.RV.1			
REFERENCES: SD-01200.RV.0, SOD-01200-003			LEVEL: Cog

- a. Rods will move IN due to a power mismatch, then STOP when the power mismatch signal decays away

QUESTION: # 23	TYPE: RO/SRO	POINT VALUE: 1.0
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A UNIT 1 STARTUP IS IN PROGRESS AFTER 100 DAYS OF CONTINUOUS OPERATION

The following plant conditions exist:

~~A startup is being performed during MOL~~

Reactor power is 2% power and steady

Steam dumps are in steam pressure control

Charging and letdown are steady MATCHED

Rod control is in manual ~~and the operators are taking critical data~~

Letdown temperature control valve CRV-470 (CCW to letdown heat exchanger), cycles full OPEN from 30% throttled OPEN.

Which ONE of the following describes the plant response to this event?

- a. SUR is negative and reactor power <sup>LOWERS</sup> decreases
- b. SUR is positive and reactor power <sup>RISES</sup> increases
- c. SUR is 0 and reactor power remains constant
- d. SUR is negative and reactor power <sup>RISES</sup> increases

ANSWER: # 23	TYPE: MODIFIED	REV: 1	DATE: 01/08/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 004 K5.07 2.8/3.2	
LESSON PLAN: RC-O-00300.RV.2			
REFERENCES: OHP 4021.003.001 Attachment 13 Caution, SD-00300			LEVEL: Cog

- b. SUR is positive and reactor power <sup>RISES</sup> increases

QUESTION: # 24	TYPE: RO/SRO	POINT VALUE: 1.0
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25 minutes ago a turbine runback resulted in rod insertion with control rods in AUTOMATIC and annunciator "ROD BANK LOW-LOW" (Panel 110, Drop 39) energized

The plant stabilized at 85% power

A boration was started and pressurizer backup heaters are energized

The above conditions ensure that:

- a. pressurizer boron concentration is equalized with RCS by <sup>RAISING</sup> ~~increasing~~ normal spray flow
- b. pressurizer cooldown due to the level <sup>RISE</sup> ~~increase~~ caused by the change in power level is counteracted
- c. loss of pressurizer level is prevented by <sup>RAISING</sup> ~~increasing~~ the volume of fluid maintained in the pressurizer
- d. adequate subcooling margin is guaranteed by raising the saturation temperature of the pressurizer

ANSWER: # 24	TYPE: MODIFIED	REV: 1	DATE: 01/08/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 004 K6.01 3.1/3.3	
LESSON PLAN:			
REFERENCES: SD-01200, 01-OHP 4024.210 Drop 39, 01-OHP 4021.001.003			LEVEL: Cog

- a. pressurizer boron concentration equalization with RCS by increasing normal spray flow

QUESTION: # 25	TYPE: RO/SRO	POINT VALUE: 1.0
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The following plant conditions exist:

Steam generator #2 level is 10% and ~~decreasing~~ LOWERING  
 Steam generator #2 pressure is 350 psig AND LOWERING  
 Containment pressure is 2.1# PSI AND LOWERING  
 CRID-1 had lost power.

What is the status of the ECCS equipment?

- a. All ECCS equipment is operating
- b. Only train "A" ECCS equipment is operating
- c. Only train "B" ECCS equipment is operating
- d. ~~Only~~ NONE of the ECCS equipment is operating

NOT ON TEST

ANSWER: # 25	TYPE: NEW	REV: 1	DATE: 01/08/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 013 K2.01 3.6/3.8	
LESSON PLAN:			
REFERENCES: 01-OHP 4021.082.008			LEVEL: Cog

- c. Only train "B" ECCS equipment is operating

<b>QUESTION: # 26</b>	<b>TYPE: RO/SRO</b>	<b>POINT VALUE: 1.0</b>
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You are in procedure 02-OHP 4023 FR-P.1 with 4 RCPs running.

Which ONE of the following actions is correct in order to avoid, or limit, thermal shock or pressurized thermal shock to the reactor pressure vessel?

- a. Isolate the accumulators
- b. Stop all 4 reactor coolant pumps
- c. Cooldown at maximum rate using the steam generators
- d. Depressurize the RCS and maintain ECCS flow to provide core cooling

<b>ANSWER: # 26</b>	<b>TYPE: NEW</b>	<b>REV: 1</b>	<b>DATE: 01/08/01</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: 013 K4.16 3.8/4.2</b>	
<b>LESSON PLAN:</b>			
<b>REFERENCES: 02-OHP 4023 FR-P.1</b>			<b>LEVEL: Mem</b>

- a. Isolate the accumulators

QUESTION: # 27	TYPE: RO/SRO	POINT VALUE: 1.0
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Which ONE of the following is used as the reactor power input to the rod insertion limit (RIL) computer?

- FIRST*
- a. ~~1<sup>st</sup>~~ stage impulse pressure
  - b. Calculated Thermal Power
  - c. Auctioneered High  $\Delta T$
  - d. Calculated Steam Flow

ANSWER: # 27	TYPE: BANK	REV: 1	DATE: 01/08/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 014 A1.03	3.6/3.8
LESSON PLAN:			
REFERENCES: 02-OHP 4024.210 Drop 39			LEVEL: Mem

- c. Auctioneered High  $\Delta T$

<b>QUESTION: # 28</b>	<b>TYPE: RO/SRO</b>	<b>POINT VALUE: 1.0</b>
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During the performance of an NIS power range heat balance at 100% power, an operator uses a feedwater temperature 30° F lower than actual. Would the calculated value of power be HIGHER or LOWER than actual power, and would an adjustment of the NIS power range channels, based on this value, be CONSERVATIVE or NON-CONSERVATIVE with respect to protection setpoints?

- a. Higher/conservative
- b. Higher/non-conservative
- c. Lower/conservative
- d. Lower/non-conservative

<b>ANSWER: # 28</b>	<b>TYPE: BANK</b>	<b>REV: 1</b>	<b>DATE: 01/08/01</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: 015 A1.01 3.5/3.8</b>	
<b>LESSON PLAN: RO-C-NS09</b>			
<b>REFERENCES:</b>			<b>LEVEL: Cog</b>

- a. Higher/conservative

QUESTION: # 29	TYPE: RO/SRO	POINT VALUE: 1.0
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Loss of which ventilation system <sup>↑ RISING TEMPERATURES IN</sup> ~~may~~ <sup>WILL</sup> result in a Phase 'B' isolation signal in about 15 minutes due to heating up the containment atmosphere? ~~TEMPERATURE INCREASE~~

- a. Upper containment ventilation
- b. Lower containment ventilation
- c. CRDM ventilation
- d. Pressurizer compartment ventilation

ANSWER: # 29	TYPE: NEW	REV: 1	DATE: 01/10/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 022 G.2.1.32 3.4/3.8	
LESSON PLAN:			
REFERENCES: 02-OHP 4021.028.001 Precautions			LEVEL: Mem

- b. Lower containment ventilation

QUESTION: # 30	TYPE: RO/SRO	POINT VALUE: 1.0
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The following plant conditions exist:

Pressurizer level is 25% and ~~decreasing~~ LOWERING  
 Containment pressure is 2.0 psi ~~AND RISING~~  
 RCS pressure is 2000 psig and ~~decreasing~~ LOWERING  
 Steam generator level and pressure are normal

Which ONE of the following ~~is the correct plant condition~~ WILL EXIST?

- a. Reactor trip, NESW standby pump starts, main glycol recirculation containment isolation valves close, feedwater isolation valves close
- b. Containment vent isolation occurs, ESW standby pumps start, main glycol recirculation valves open, feedwater isolation valves close
- c. Reactor trip, main steam isolation valves are closed, main glycol recirculation containment isolation valves close, feedwater isolation valves close
- d. Containment phase 'B' occurs, main steam isolation valves are closed, main glycol recirculation containment isolation valves close, feedwater isolation valves close

ANSWER: # 30	TYPE: NEW	REV: 1	DATE: 01/10/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 025 A2.04 3.0/3.2	
LESSON PLAN: RO-C-01000, RO-C-01100			
REFERENCES: SD-01100, SOD-01000-001			LEVEL: Cog

- a. Reactor trip, NESW standby pump starts, main glycol recirculation containment isolation valves close, feedwater isolation valves close

<b>QUESTION: # 31</b>	<b>TYPE: RO/SRO</b>	<b>POINT VALUE: 1.0</b>
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After a LOCA in which containment pressure reached 9 psig, the operator noted the following indications:

- ▶ Containment pressure, 6 psig and lowering slowly
- ▶ Spray Additive Tank level LOW - LOW alarm actuated
- ▶ Refueling Water Storage Tank (RWST) level, 35 percent and lowering slowly

WHAT containment spray system status should the operator observe?

	IMO 215/225 CTS Pump Suction Valve	IMO-212/222 Educator Supply Valve	IMO-202/204 Spray Additive Tank Valve	CTS Pumps
a.	Closed	Closed	Open	Tripped
b.	Open	Open	Open	Running
c.	Closed	Open	Closed	Tripped
d.	Open	Closed	Closed	Running

<b>ANSWER: # 31</b>	<b>TYPE: BANK</b>	<b>REV: 1</b>	<b>DATE: 01/10/01</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: 026 G.2.1.31 4.2/3.9</b>	
<b>LESSON PLAN: RO-C-00900.RV.1</b>			
<b>REFERENCES: OHP 4024.205 Drop 3, 23, and 24</b>			<b>LEVEL: Cog</b>

d.	Open	Closed	Closed	Running
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QUESTION: # 32	TYPE: RO/SRO	POINT VALUE: 1.0
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On receipt of an ~~ESFAS~~ <sup>Represents a complete</sup> SI signal, ~~in~~ which of the following ~~manner~~s will the feedwater system isolate from the steam generators ~~after the feed regulating valves close?~~

- a. main feedwater pump trips, main feedwater isolation valves close, ~~main feedwater pump discharge valves close~~ <sup>high pressure heater inlet isolation valves, FEED REGULATING VALVES CLOSE, MAIN STEAM STOP</sup>
- b. main feedwater pump discharge valves close, ~~main feedwater pump trips, main feedwater isolation valves close~~ <sup>FEED REGULATING VALVES CLOSE, High pressure heater bypass valve close</sup>
- c. main feedwater pump discharge valves close, main feedwater isolation valves close, main feedwater pump trips, <sup>MAIN STEAM STOP VALVES CLOSE</sup>
- d. main feedwater pump trips, main feedwater pump discharge valves close, main feedwater isolation valves close, <sup>FEED REGULATING VALVES CLOSE</sup>

ANSWER: # 32	TYPE: NEW	REV: 1	DATE: 01/10/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 059 A3.06	3.2/3.3
LESSON PLAN:			
REFERENCES: SD-05500			LEVEL: Mem

- d. main feedwater pump trips, main feedwater pump discharge valves close, main feedwater isolation valves close, <sup>FEED REGULATING VALVES CLOSE</sup>

QUESTION: # 33	TYPE: RO/SRO	POINT VALUE: 1.0
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Given the following conditions on Unit 1:

- SJET* (C)
- ▶ Reactor trip
  - ▶ Turbine trip
  - ▶ RCP 12 and 13 are tripped
  - ▶ RCP 11 and 14 have no breaker position indication
  - ▶ ~~At~~ Train B containment isolation valves position indication has been lost
  - ▶ ~~At~~ MFW regulating valves position indication has been lost
  - ▶ Pressurizer PORVs NRV-151/152 position has been lost
  - ▶ Train A ECCS has actuated
  - ▶ Containment Isolation Phase A has actuated

Which ONE of the following failures is the cause?

- a. RCP #1A bus de-energized.
- b. 600V AC Bus 11A de-energized.
- c. Loss of ALL power to 250V DC Bus 1AB.
- d. ABT 5 failed to transfer.

ANSWER: # 33	TYPE: BANK	REV: 1	DATE: 01/11/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 063	A3.01 2.8/3.1
LESSON PLAN: RO-C-08204			
REFERENCES: SD-08204, 01-OHP 4022.082.002AB			LEVEL: Cog

- c. Loss of ALL power to 250V DC Bus 1AB.

QUESTION: # 34	TYPE: RO/SRO	POINT VALUE: 1.0
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*Energy*

What are the principal fission products that would be in the liquid waste disposal system?

- a. Xenon and cobalt
- b. Iodine and cobalt
- c. Xenon and cesium
- d. Iodine and cesium

ANSWER: # 34	TYPE: NEW	REV: 1	DATE: 01/12/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 068 K5.04 3.2/3.5	
LESSON PLAN:			
REFERENCES: SD-02200			LEVEL: Mem

- d. Iodine and cesium

<b>QUESTION: # 35</b>	<b>TYPE: RO/SRO</b>	<b>POINT VALUE: 1.0</b>
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The inservice gas decay tank is being switched to another tank. In the control room you receive the following alarm, Panel 128 Drop 28 "AUTO GAS ANALYZER ALARM" a few minutes later you receive the following 2 alarms:  
 Panel 128 Drop 10 "WASTE GAS ANALYZER OXYGEN HIGH"  
 Panel 128 Drop 15 "WASTE GAS ANALYZER O2 EXT HIGH"

Why have these alarms occurred in this order?

- a. Drop 28 occurred during the GDT tank transfer and Drop 15 & Drop 10, the O2 alarms, occurred because there is high O2 in the inservice tank
- b. Drop 28 occurred because the analyzer is removed from service before the tanks are switched and Drop 15 & Drop 10, the O2 alarms, occurred when the analyzer was placed back in service
- c. Drop 28 occurred during the GDT tank transfer and Drop 15 & Drop 10, the O2 alarms, occurred when the analyzer was placed back in service
- d. Drop 28 occurred because the analyzer is removed from service before the tanks are switched Drop 15 & Drop 10, the O2 alarms, occurred because there is high O2 in the inservice tank

<b>ANSWER: # 35</b>	<b>TYPE: NEW</b>	<b>REV: 1</b>	<b>DATE: 01/12/01</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: 071 A4.29 3.0/3.6</b>	
<b>LESSON PLAN:</b>			
<b>REFERENCES: 01-OHP 4024.128, SD-02300</b>			<b>LEVEL: Cog</b>

- a. Drop 28 occurred during the GDT tank transfer and Drop 15 & Drop 10, the O2 alarms, occurred because there is high O2 in the inservice tank

QUESTION: # 36	TYPE: RO/SRO	POINT VALUE: 1.0
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*high radiation ALARM SOUNDS ON*  
*MANIPULATOR CRANE*

Unit 1 is in mode 6 and the fuel is being moved to the spent fuel pool. You are on the manipulator crane when the area radiation monitor ~~begins to alarm.~~

Which is the correct list of initial actions to be taken?

- a. Notify the Control Room, verify ~~that~~ the monitor alarm, <sup>and then</sup> evacuate containment and the spent fuel pool area, ~~and~~ close both upper and lower airlock doors
- b. Notify the Control Room, visually verify ~~that~~ there is fuel damage, evacuate ~~upper~~ containment, secure spent fuel pool side fuel handling operations, ~~and~~ close both upper and lower airlock doors
- c. Notify the Control Room, evacuate non-essential personnel from containment, secure spent fuel pool side fuel handling operations, ~~and~~ close both upper and lower airlock doors
- d. Notify the Control Room, secure spent fuel pool side fuel handling operations, evacuate all personnel from containment, ~~and~~ close both upper and lower airlock doors

ANSWER: # 36	TYPE: NEW	REV: 1	DATE: 01/12/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 072 K3.02 3.1/3.5	
LESSON PLAN:			
REFERENCES: 12-OHP 4022.018.003			LEVEL: Mem

- c. Notify the Control Room, evacuate non-essential personnel from containment, secure spent fuel pool side fuel handling operations, ~~and~~ close both upper and lower airlock doors

QUESTION: # 37	TYPE: RO/SRO	POINT VALUE: 1.0
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The following plant conditions exist:

RCS pressure 1950 psig

PZR level 12%

Containment pressure 0.5 psig

Steam generator pressures 1 = 1005 psig, 2 = 1000 psig, 3 = 400 psig, 4 = 1005 psig

Steam generator water levels 1 = 4%, 2 = 8%, 3 = 18%, 4 = 6%

VCC 1-AVZ-A is de-energized *PRIOR TO SI SIGNAL*  
(Using the attached bus diagram)

Which ONE of the following is the correct valve line-up for this condition?

Valve	Name
IMO-910 & IMO-911	RWST supply to CCP suction
IMO-250 & IMO-251	BIT outlet
IMO-255 & IMO-256	BIT inlet
QMO-200 & QMO-201	CCP To Regenerator Heat Exchange

- a. IMO-910, 911, 255 and 256, ICM-250 and 251 are OPEN and QMO-200 and 201 are CLOSED
- b. IMO-910, 911, 255 and 256, ICM-250 and 251 are CLOSED and QMO-200 and 201 are OPEN
- c. IMO-910, 255, ICM-250 and QMO-201 are OPEN and IMO-911, 256, ICM-251, QMO-200 are CLOSED
- d. IMO-910, 255, ICM-250 and QMO-201 are CLOSED and IMO-911, 256, ICM-251 and QMO-200 are OPEN

ANSWER: # 37	TYPE: NEW	REV: 1	DATE: 01/12/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 006 K2.04 3.6/3.8	
LESSON PLAN:			
REFERENCES: SOD-00800-001, OP-1-12012-13			LEVEL: Cog

- c. IMO-910, 255, ICM-250 and QMO-201 are OPEN and IMO-911, 256, ICM-251 and QMO-200 are CLOSED

QUESTION: # 38	TYPE: RO/SRO	POINT VALUE: 1.0
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RCS pressure is 1975 psig and <sup>lowering</sup> decreasing. You notice that NRV-16<sup>3</sup> (PZR spray) is partially OPEN. When placed in manual the valve will NOT close.

What is the proper course of action to stop the pressure <sup>from lowering</sup> decrease?

- a. Allow the reactor to automatically trip; go to 02-OHP 4023.E-0 "REACTOR TRIP AND SAFETY INJECTION"; trip RCP 3 in accordance with E-0.
- b. Trip RCP 3; the reactor will automatically trip; go to 02-OHP 4023.E-0 "REACTOR TRIP AND SAFETY INJECTION".
- c. Manually trip the reactor; go to 02-OHP 4023.E-0 "REACTOR TRIP AND SAFETY INJECTION"; cooldown and depressurize until RHR can be started.
- d. Manually trip the reactor; go to 02-OHP 4023.E-0 "REACTOR TRIP AND SAFETY INJECTION"; trip RCP 3.

ANSWER: # 38	TYPE: NEW	REV: 1	DATE: 01/15/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 011 A2.06 3.7/3.9	
LESSON PLAN:			
REFERENCES: OHI-4000.RV.2, 01-OHP.4024.108 Drop 8 and 9			LEVEL: Cog

- d. Manually trip the reactor; go to 02-OHP 4023.E-0 "REACTOR TRIP AND SAFETY INJECTION"; trip RCP 3.

QUESTION: # 39	TYPE: RO/SRO	POINT VALUE: 1.0
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Unit 2 is performing a reactor shutdown. During the shutdown <sup>MPC-253</sup>~~PT-506~~ (turbine first stage pressure channel) sticks at 57 psig.

Which ONE of the following is a concern during the shutdown?

- a. Loss of 2 reactor coolant pumps are required to cause a reactor trip
- b. Removing the main turbine from service will cause a reactor trip
- c. Source range nuclear instruments will have to be manually unblocked
- d. Power range channel low setpoint high neutron flux level will not unblock

ANSWER: # 39	TYPE: NEW	REV: 1	DATE: 01/15/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 012 K6.04 3.3/3.6	
LESSON PLAN:			
REFERENCES: SD-01100, 02-OHP 4022.013.016			LEVEL: Cog

- b. Removing the main turbine from service will cause a reactor trip

QUESTION: # 40	TYPE: RO/SRO	POINT VALUE: 1.0
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An operator in Unit 2 notes the following conditions:

- (NR)
- ▶ Reactor Power is 24%.
  - ▶ Level in S/Gs 1, 2, 3, are 27%, 25% 29% respectively, and stable.
  - ▶ Level in S/G 4 is ~~17%~~ <sup>21%</sup> and lowering slowly.
  - ▶ Power escalation in progress.
  - ▶ One main feedwater pump in service with speed and DP controllers in auto.

Based on current plant conditions, WHAT automatic response would occur?

- <sup>ONE</sup>
- a. ~~Both~~ MDAFP's would automatically start
  - b. TDAFP would automatically start
  - c. Both MDAFP's would be running and Feedwater Conservation <sup>WOULD ACTIVATE</sup> ~~is active.~~
  - d. TDAFP would be running but Feedwater Conservation <sup>WOULD</sup> ~~is NOT active.~~ <sup>ACTIVATE</sup>

ANSWER: # 40	TYPE: BANK	REV: 1	DATE: 01/15/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 016 K1.06 3.6/3.5	
LESSON PLAN: RO-C-05600.RV.1			
REFERENCES:			LEVEL: Cog

- c. Both MDAFP's would be running and Feedwater Conservation <sup>WOULD ACTIVATE</sup> ~~is active.~~

QUESTION: # 41	TYPE: RO/SRO	POINT VALUE: 1.0
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During refueling operations, the divider barrier and missile blocks between the reactor well and refueling canal are removed.

As a result of this removal, higher flow rates in the containment purge exhaust system will

- a. allow shutdown of the containment pressure relief system.
- b. prevent the formation of vapor clouds on the water.
- c. <sup>CLEAR</sup> ~~release~~ the interlock for containment purge supply fan operation.
- d. minimize the formation of stagnant air pockets that may contain hydrogen.

ANSWER: # 41	TYPE: BANK	REV: 1	DATE: 01/15/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 029 A1.03 3.0/3.3	
LESSON PLAN: RO-C-02800.RV.1			
REFERENCES: SOD-02800-002			LEVEL: Mem

- b. prevent the formation of vapor clouds on the water

QUESTION: # 42	TYPE: RO/SRO	POINT VALUE: 1.0
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Unit 2 north spent fuel pool cooling pump was removed from service for a mechanical seal replacement that will take 24 hours. A leak developed on the south heat exchanger (HE-16S) and the heat exchanger ~~has~~<sup>had</sup> to be isolated and will require 20 hours to repair.

Which ONE of the following ~~statements~~<sup>statements</sup> is correct?

- a. Cross-tying<sup>ox</sup> the south pump to the north heat exchanger will provide sufficient cooling until the repairs are complete
- b. Cross-tying<sup>ox</sup> the south pump to the north heat exchanger will not provide sufficient cooling without makeup water flow
- c. Sufficient cooling will be provided by the evaporation and makeup water flow maintaining level; the cooling system will not be required until repaired
- d. Spent fuel pool cooling can be provided by makeup water flow and spilling into the building floor drains; the cooling system will not be required until repairs are completed

ANSWER: # 42	TYPE: NEW	REV: 1	DATE: 01/15/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 033 K3.03 3.0/3.3	
LESSON PLAN:			
REFERENCES: 12-OHP 4022.018.001			LEVEL: Mem

- b. Cross-tying<sup>ox</sup> the south pump to the north heat exchanger will not provide sufficient cooling without makeup water flow

<b>QUESTION: # 43</b>	<b>TYPE: RO/SRO</b>	<b>POINT VALUE: 1.0</b>
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Unit 2 is being ramped to full power following a refueling outage. During core on-load, a new fuel element that did not have a required burnable poison rod inserted was inadvertently loaded into the core.

Which ONE of the following parameters would be an indicator of the problem?

- a. Actual boron less than calculate
- b. Core AFD will be positive
- c. Quadrant power tilt ratio calculation will indicate high tilt condition
- d. Incore flux map with a power peak

<b>ANSWER: # 43</b>	<b>TYPE: MODIFIED</b>	<b>REV: 1</b>	<b>DATE: 01/16/01</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: 034 A2.03 3.3/4.0</b>	
<b>LESSON PLAN: RO-C-01301.RV.1</b>			
<b>REFERENCES:</b>			<b>LEVEL: Cog</b>

- d. Incore flux map with a power peak

<b>QUESTION: # 44</b>	<b>TYPE: RO/SRO</b>	<b>POINT VALUE: 1.0</b>
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Which ONE of the following describes the location of the radiation monitor used to detect Unit 1 Main Steam System contamination?

- a. On the safety valve outlets.
- b. On the line downstream of the PORV.
- c. On the line downstream of the MSIV.
- d. On the main steam equalizing header.

<b>ANSWER: # 44</b>	<b>TYPE: BANK</b>	<b>REV: 1</b>	<b>DATE: 01/16/01</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: 035 K1.11 3.7/3.9</b>	
<b>LESSON PLAN: RO-C-05103.RV.1, RO-C-01350.RV.1</b>			
<b>REFERENCES: SD—5103</b>			<b>LEVEL: Mem</b>

- b. On the line downstream of the PORV

Unit 1 ~~the plant~~ is at 100% power with all SJAEs in service (with both Elements in service). A small leak was identified on the #1 SJAE and the SJAE was removed from service. The operator who removed the #1 SJAE out-of-service closed LPD-150-1 (#1 Element Inter-Condenser Drain), but ~~failed to close~~ left open LPD-149-1 (~~#1~~ the second #1 Element Inter-Condenser Drain).

What ~~effect~~ effect (if any) will this ~~effect~~ ~~effect~~ valve configuration have on the plant?

a) No effect.

b) Will cause a loss of condenser vacuum.

c) Will cause an increase in vent stack condensation.

d) Will cause the after condenser loop seal to blowout and spray water on the condensate booster pumps.

SD-12-CAR-100

01-OHP-4021, 053.002 Rev 11

01-OHP-4021, 053.003 Rev 2

QUESTION: # 46	TYPE: RO/SRO	POINT VALUE: 1.0
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UNIT 2

The unit is operating at 100% power. Over the summer the lake temperature has ~~increased~~ <sup>RISEN</sup>. The dissolved O<sub>2</sub> level in the condensate has ~~increased~~ <sup>FAISED RISEN</sup>.

What effect will closing the main condenser air off-take header crosstie valves have on the O<sub>2</sub>?

- a. decrease ~~by about 2 ppb~~ <sup>SLIGHTLY</sup>
- b. increase ~~by about 2 ppb~~ <sup>SLIGHTLY</sup>
- c. remain the same because there is no effect on the air ejectors
- d. increase rapidly due to loss of part of the air ejectors

ANSWER: # 46	TYPE: NEW	REV: 1	DATE: 01/16/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 055 K3.01 2.5/2.7	
LESSON PLAN:			
REFERENCES: 02-OHP 4021.053.002 Background			LEVEL: Mem

- a. decrease ~~by about 2 ppb~~

QUESTION: # 47	TYPE: RO/SRO	POINT VALUE: 1.0
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The following plant conditions exist:

- ▶ 100% power.
- ▶ No equipment out of service.
- ▶ The Unit Auxiliary Transformers are supplying all plant equipment.

An operator noted that the closed light for 1A7, Normal Feed Breaker to Bus 1A, was NOT lit. The lamp was verified as good.

*LIGHT BULB*

Which ONE of the following statements describes the condition for this breaker?

- a. An overload condition will cause breaker 1A7 to trip open.
- b. A generator trip will cause breaker 1A7 to trip open.
- c. Breaker 1A7 cannot be remotely opened with the control switch.
- d. Breaker 1A7 cannot be locally tripped.

ANSWER: # 47	TYPE: BANK	REV: 1	DATE: 01/16/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 062 G.2.1.28 3.2/3.3	
LESSON PLAN: RO-C-08201.RV.1			
REFERENCES:			LEVEL: Cog

- c. Breaker 1A7 cannot be remotely opened with the control switch

<b>QUESTION: # 48</b>	<b>TYPE: RO/SRO</b>	<b>POINT VALUE: 1.0</b>
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The following plant conditions exist in Unit-1:

Reactor power is 75%

Letdown flow is 120 gpm

'W' CCP is running

The operator acknowledges R17B, WEST CCW HEADER electro-alarm (CRA-425).

Which ONE of the following valve closures should be verified?

- a. CCR-460, CCW to excess Letdown HX outlet valve
- b. CCM-454, CCW to RCP Cooler return valve
- c. CRV-470, CCW to letdown HX outlet valve
- d. CRV-412, CCW Surge Tank vent valve

<b>ANSWER: # 48</b>	<b>TYPE: BANK</b>	<b>REV: 1</b>	<b>DATE: 01/16/01</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: 073 K1.01 3.6/3.9</b>	
<b>LESSON PLAN:</b>			
<b>REFERENCES: SOD-01350-001, SD-01600.RV.1</b>			<b>LEVEL: Mem</b>

- d. CRV-412, CCW Surge Tank vent valve

<b>QUESTION: # 49</b>	<b>TYPE: RO/SRO</b>	<b>POINT VALUE: 1.0</b>
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Which one of the following describes the signals that will directly cause an automatic start of the ESW pumps in Auto?

- a. Low Header Flow at 1700 gpm, Safety Injection, High Strainer Delta-P on operating pump.
- b. Low Header Flow at 1700 gpm, Opposite Unit Safety Injection, Containment Spray Signal ~~Response.~~
- c. Low Header Pressure at 40 psig, Opposite Unit Safety Injection, Blackout Sequence.
- d. Low Header Pressure at 40 psig, Blackout Sequence, Containment Spray Signal ~~Response.~~

<b>ANSWER: # 49</b>	<b>TYPE: MODIFIED</b>	<b>REV: 1</b>	<b>DATE: 01/16/01</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: 075 A4.01 3.2/3.2</b>	
<b>LESSON PLAN: RO-C-01900.RV.1</b>			
<b>REFERENCES: SOD-01900-001</b>			<b>LEVEL: Mem</b>

- c. Low Header Pressure at 40 psig, Opposite Unit Safety Injection, Blackout Sequence.

QUESTION: # 50	TYPE: RO/SRO	POINT VALUE: 1.0
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The following plant conditions exist:

RCS pressure is 500 psig

ICM-305 "East RHR pump containment sump supply" is closed

IMO-330 "East RHR pump discharge to containment spray" is closed

IMO-340 "East RHR pump discharge to CCP" is closed

IMO-310 "East RHR pump suction" is closed

IMO-340 "East heat exchanger to centrifugal charging pump suction" is closed

IMO-215 "East CTS pump Suction" is open

IMO-129 "RHR pump suction from Loop 2 hot leg" is closed

*ICM*  
Which ONE of the following <sup>is OPENED</sup> can be performed?

- a. <sup>ICM</sup> IMO-305 ~~can be opened~~
- b. IMO-310 ~~can be opened~~
- c. <sup>ICM</sup> IMO-129 ~~can be opened~~
- d. IMO-340 ~~can be opened~~

ANSWER: # 50	TYPE: NEW	REV: 1	DATE: 01/17/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 005 K4.07 3.2/3.5	
LESSON PLAN: RO-C-01700.RV.1			
REFERENCES: SD-01700.RV.1, SOD-01700-002			LEVEL: Mem

- b. IMO-310 ~~can be opened~~ ✓

<b>QUESTION: # 51</b>	<b>TYPE: RO/SRO</b>	<b>POINT VALUE: 1.0</b>
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Unit 2 was in cold shutdown with the RCS drained to mid-loop. Filling and venting is in progress. Pressurizer level is 100% and the RCS is aligned to vent via the PRT to the instrument purge exhaust or lower containment purge exhaust. A nitrogen blanket is on the PRT and level is at 45%. The gaseous waste disposal system is aligned to support a bubble. The PZR heaters are energized.

Prior to drawing a bubble in the pressurizer which ONE of the following must be accomplished?

- a. Bumping the RCPs to remove entrapped gases
- b. Filling the PRT to 80-85%
- c. Establishing 50% in the pressurizer
- d. Pressurize the RCS to 325-350 psig

<b>ANSWER: # 51</b>	<b>TYPE: NEW</b>	<b>REV: 1</b>	<b>DATE: 01/17/01</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: 007 K5.02 3.1/3.4</b>	
<b>LESSON PLAN:</b>			
<b>REFERENCES: 02-OHP 4021.002.001</b>			<b>LEVEL: Mem</b>

- b. Filling the PRT to 80-85%

QUESTION: # 52	TYPE: RO/SRO	POINT VALUE: 1.0
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The following plant conditions exist on Unit 1:

RCS pressure is 1000 psig

Pressurizer level is *empty*

Containment pressure is 3.2 psig

Steam generator pressures and levels are equal and stable

Bus 11A is de-energized

All plant valve line-ups were normal prior to the incident

*WEST CCW PUMP WAS RUNNING PRIOR TO THE EVENT*

Which ONE of the following valve lineups is correct for the given conditions?

*(USE THE ATTACHED BUS DIAGRAM)*

CMO-410, 420 'CCW Hx outlet valve'

CCR-460, 462 'CCW Excess letdown Hx isolation valve'

CCM-451, 452, 453, 454 'CCW Return from RCP valve'

a. CCM-453, 454, CCR-460, 462 closed; all other valves open

b. CCM-452, 454, CCR-460, 462 closed; all other valves open

c. CCM-453, 454 closed, all other valves open

d. CCM-452, 454 closed, all other valves open

*AND CMO-410, 420 CLOSED*

ANSWER: # 52	TYPE: NEW	REV: 1	DATE: 01/17/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 008 A3.05 3.0/3.1	
LESSON PLAN:			
REFERENCES: SD-01600.RV.1, SOD-01600-001, SOD-01600-002, SOD-00901-001, SOD-00800-002			LEVEL: Cog

a. CCM-453, 454, CCR-460, 462 closed, all other valves open

QUESTION: # 53	TYPE: RO/SRO	POINT VALUE: 1.0
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Which ONE of the following describes operation of the NESW pumps during and following a LOOP?

- a. The pumps trip <sup>on</sup> in a LOOP. After the EDGs start, the NESW pumps must be manually started.
- b. The pumps do not trip <sup>on</sup> in a LOOP. The NESW pumps regain power upon re-energization of the 600V AC busses.
- c. The pumps trip <sup>on</sup> in a LOOP. After the EDGs start, the NESW pumps are automatically started as part of load sequencing process.
- d. The pumps trip <sup>on</sup> in a LOOP. The NESW pumps are not re-started until normal AC is regained.

ANSWER: # 53	TYPE: BANK	REV: 1	DATE: 01/17/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 076 A4.01	2.9/2.9
LESSON PLAN: RO-C-02000.RV.1			
REFERENCES: <del>SD-02000</del> , SD-02000.RV.1			LEVEL: Mem

- c. The pumps trip <sup>on</sup> in a LOOP. After the EDGs start, the NESW pumps are automatically started as part of load sequencing process.

QUESTION: # 54	TYPE: RO/SRO	POINT VALUE: 1.0
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Which ONE of the following is NOT on the Control Room Operator Turnover Checklist?

- a. Open Item Log and Blocked Alarm Log
- b. Control Room Log and Plan of the Day
- c. Unit Supervisor Checklist and Temp Mod Log
- d. SRO-CA Turnover and SM Narrative Log

ANSWER: # 54	TYPE: NEW	REV: 1	DATE: 01/18/01
REVIEW DATE:	POINT VALUE: 1.0	KA: G.2.1.3 3.0/3.4	
LESSON PLAN:			
REFERENCES: OHI-4012 Data Sheets			LEVEL: Mem

- d. SRO-CA Turnover and SM Narrative Log

<b>QUESTION: # 55</b>	<b>TYPE: RO/SRO</b>	<b>POINT VALUE: 1.0</b>
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As the RO you are about to perform the surveillance for ECCS Valve Operability Testing, 02-OHP 4030.STP.053A.

Which ONE of the following procedures are you directed to use to obtain the IST program limits for the valve timing?

- a. IST Program Description Document.
- b. Tech Data Book.
- c. A copy of the last surveillance test.
- d. Technical Specification.

<b>ANSWER: # 55</b>	<b>TYPE: BANK</b>	<b>REV: 1</b>	<b>DATE: 01/18/01</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: G.2.1.20 4.3/4.2</b>	
<b>LESSON PLAN: RO-C-ADM02</b>			
<b>REFERENCES:</b>			<b>LEVEL: Mem</b>

- b. Tech Data Book

<b>QUESTION: # 56</b>	<b>TYPE: RO/SRO</b>	<b>POINT VALUE: 1.0</b>
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During an independent verification a valve is found out of position.

Which of the following is the way the component out of position shall be handled?

The component shall be repositioned...

- a. and the supervisor notified of the discrepancy
- b. and verified by the person performing the verification
- c. after the supervisor gives the approval
- d. by the person who did the initial lineup and then verified

<b>ANSWER: # 56</b>	<b>TYPE: NEW</b>	<b>REV: 1</b>	<b>DATE: 01/19/01</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: G.2.1.29 3.4/3.3</b>	
<b>LESSON PLAN:</b>			
<b>REFERENCES: PMP-4043.ICV.001</b>			<b>LEVEL: Mem</b>

- c. only after the supervisor gives the approval

<b>QUESTION: # 57</b>	<b>TYPE: RO/SRO</b>	<b>POINT VALUE: 1.0</b>
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Which ONE of the following is the same for Unit 1 and Unit 2?

- a. Fuel burnup conversion factor (EFPH)
- b. Steam generator pressure vs. plant power level
- c. Feedwater pressure differential pressure program
- d. MVAR vs. MW output operating curve

<b>ANSWER: # 57</b>	<b>TYPE: NEW</b>	<b>REV: 1</b>	<b>DATE: 01/19/01</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: G.2.2.3 3.1/3.3</b>	
<b>LESSON PLAN: RO-C-08001, TP-29, OBJ.11, RO-C-08002, TP-35, OBJ.12, RO-C-05500, TP-40 &amp;41, OBJ.3</b>			
<b>REFERENCES: Unit Tech Data Books</b>			<b>LEVEL: Mem</b>

- c. Feedwater pressure differential pressure program

QUESTION: # 58	TYPE: RO/SRO	POINT VALUE: 1.0
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A job must be performed in a room containing a point source that has a dose rate of 250 mRem/hour at 1 foot. The general area radiation levels are 10 mRem/hour throughout the room. Two (2) operators are working 20 feet from the point source for 4 hours.

Which ONE of the following results in the TOTAL exposure received while performing the job?

- a. 40 mRem
- b. 50 mRem
- c. 85 mRem
- d. 180 mRem

ANSWER: # 58	TYPE: BANK MODIFIED	REV: 1	DATE: 01/22/01
REVIEW DATE:	POINT VALUE: 1.0	KA: G.2.3.2	2.5/2.9
LESSON PLAN: GE-C-1000 OBS E.7			
REFERENCES:			LEVEL: Cog

- c. 85 mRem

<b>QUESTION: # 59</b>	<b>TYPE: RO/SRO</b>	<b>POINT VALUE: 1.0</b>
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One of the air receivers for 1CD diesel generator is tagged for maintenance. 2 hours ago the diesel was started to verify operability.

What is the minimum number of starts available on the 1CD diesel generator?

- a. 1
- b. 2
- c. 3
- d. 4

<b>ANSWER: # 59</b>	<b>TYPE: NEW</b>	<b>REV: 1</b>	<b>DATE: 01/16/01</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: 064 A3.04 3.1/3.5</b>	
<b>LESSON PLAN:</b>			
<b>REFERENCES: SD-03201.RV.1</b>			<b>LEVEL: Mem</b>

- b. 2

**D.C. Cook SRO Written Exam Comments**

Question Number	Comment
General Comment	There were several editorial comments
61	Add reference 01-OHP.4024.208.DROP4 &5
62	Add reference 02-OHP.4022.016.001; add 'Upper bearing cooler CCW flow return is 90 gpm and lowering' to the stem.
64	<p>Rewrite question as follows:            Unit 1 is in mode 1 and the RCS sample indicates that gross activity is &gt;100/E <math>\mu</math>Ci/gram.            The reason for the Technical Specification limit on the gross activity and the reduction of T<sub>AVE</sub> is to prevent the _____ dose at the site boundary from exceeding Part 100 limits and release of activity should a steam generator tube rupture.</p> <p>a. 1 hour            b. 2 hour            c. 3 hour            d. 4 hour</p>
66	Add 'ECCS valve alignment is in the proper emergency lineup.' to the stem. Remove 'ECCS Monitor Light status' row from the table. Change the > and < values to discrete values.
70	Add '02-OHP.4024.210.Drop 8 to the reference; add Panel 210 Drop 8 to the stem.
71	Change 'a potential release' to 'possible core damage' in distracter b.
77	Add the instrument designators (NPP, NLP, MPP,& NTA) to the instrument numbers in the stem.
81	Change the stem to 'Which ONE of the following conditions will increase the difficulty of diagnosing a small steam generator tube rupture event following a reactor trip?'; add 'actuation' to distracter a.
83	Add 'Which one of the following?' to the question.
90	Change '1T-A9' to 'T11A9 "T11A Feed from RCP Bus"' and '1T-A11' to 'T11A11 "T11A feed from EDGAB"'.
92	<p>Add 'Technical Specification definitions' and 'PMP 4030.EXE.001' to the reference. Change the answers and distracters as follows:</p> <p>a. If an item is capable of performing its intended function on a scheduled surveillance test, and most of the support systems remain operable, then it is operable.            b. If the applicable surveillance testing has been completed but not reviewed, and all support systems to the equipment are functional, then it is operable.            c. If an item is able to perform its intended function and a surveillance test was only used to satisfy Post Maintenance Testing requirements, then it is inoperable.            d. If the applicable surveillance testing has been completed and reviewed, all support systems to the equipment are functional, then it is operable.</p>
95	Change b. to 'Shift Manager' and d. to ' Unit Supervisor'.

MASTER  
CHANGES

SRO

TYPE: SRO	POINT VALUE: 1.0
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Chemistry Technician and Radiation Protection Technician  
NONE of the following documents?

Emergency Organization)

Biological Protection Job Coverage

ANSWER: # 60	TYPE: NEW	REV: 1	DATE: 01/23/01
REVIEW DATE:	POINT VALUE: 1.0	KA: G.2.4.29 2.6/4.0	
LESSON PLAN:			
REFERENCES: Emergency Plan, Tech Specs, OHI-2080, OHI-4011			LEVEL: Mem

b. Emergency Plan

QUESTION: # 61	TYPE: SRO	POINT VALUE: 1.0
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Unit 1

The plant is at 325° F and 400 psig with both RHR pumps running following a normal shutdown. The following alarms are actuated:

- Panel 208      Drop 4 "PRESSURIZER LEVEL LOW DEVIATION"  
                   Drop 5 "PRESSURIZER LEVEL LOW ALL HTRS OFF"

The following plant conditions exist:

- Pressurizer level is 17% and decreasing
- Charging flow is at 170 gpm with two pumps running
- One RHR pump motor current is oscillating
- Letdown is isolated

You are in procedure 01-OHP 4022.002.020 "EXCESSIVE REACTOR COOLANT LEAKAGE," based on the conditions, which is the appropriate procedure transition?

- a. 01-OHP 4022.002.015 "MODE 4 LOCA"
- b. 01-OHP 4022.017.001 "LOSS OF RHR COOLING"
- c. 01-OHP 4023.E-0 "REACTOR TRIP OR SAFETY INJECTION"
- d. 01-OHP 4022.002.009 "LEAKING PRESSURIZER POWER OPERATED RELIEF VALVE"

ANSWER: # 61	TYPE: NEW	REV: 1	DATE: 11/21/00
REVIEW DATE:	POINT VALUE: 1.0	KA: 000011 G.2.4.50 3.3/3.3	
LESSON PLAN:			
REFERENCES: 01-OHP 4022.002.020, 01-OHP 4022.017.001, 01-OHP 4022.002.015, 01-OHP 4024.208 Drop 4 & 5			LEVEL: Cog

- a. 01-OHP 4022.002.015 "MODE 4 LOCA"

QUESTION: # 62	TYPE: SRO	POINT VALUE: 1.0
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The following plant conditions exist on Unit 2:

RCS pressure is 2250 psia

Pressurizer level is 55%

ALL Steam generator (NR) levels are 44%

Reactor Coolant Pump No.1 motor bearing temperature is 230° F

Reactor Coolant Pump No. 2 motor bearing temperature is 215° F

Reactor Coolant Pump No.3 motor bearing temperature is 210° F

Reactor Coolant Pump No.4 motor bearing temperature is 225° F

UPPER BEARING COOLER CCW FLOW RETURN IS 90 gpm AND LOWERING

What actions must be taken?

- Trip the reactor and all 4 RCPs and cooldown to less than 541° F.
- Trip the reactor and RCPs NO. 1 & 4 and cooldown to less than 541° F.
- Begin a rapid shutdown and increase CCW flow to the RCP motors.
- Begin a rapid shutdown before the motor bearing temperatures reaches 235° F.

ANSWER: # 62	TYPE: NEW	REV: 1	DATE: 12/01/00
REVIEW DATE:	POINT VALUE: 1.0	KA: 000026 G.2.4.2 3.9/4.1	
LESSON PLAN: RO-C-01900.RV.1			
REFERENCES: Drawing OP-2-98416-26, SD-01900, 02-OHP 4022.016.001			LEVEL: Cog

- Trip the reactor and all 4 RCPs and cooldown to less than 541° F.

QUESTION: # 63	TYPE: SRO	POINT VALUE: 1.0
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You have entered ECA-2.1, "Uncontrolled Depressurization of All Steam Generators" and are performing SI Termination. Steam generator #4 pressure suddenly begins to rise in an uncontrolled manner.

Which ONE of the following <sup>HEART ACTIONS</sup> is correct?

- a. Stop performing SI Termination and go to E-2 because the pressure boundary has been established in steam generator #4.
- b. Continue performing SI Termination and complete ECA-2.1, the RCS is now cooled to a point that the steam generators are beginning to fill.
- c. Once the SI termination is complete, ECA-2.1 is complete and you are returned to procedure step in effect.
- d. Continue performing SI Termination and then go to E-2 because the pressure boundary has been established in steam generator #4.

ANSWER: # 63	TYPE: NEW	REV: 1	DATE: 12/04/00
REVIEW DATE:	POINT VALUE: 1.0	KA: 000040 G.2.4.1 4.3/4.6	
LESSON PLAN:			
REFERENCES: 02-OHP 4023-ECA-2.1 page 84 of the background document.			LEVEL: Cog

- d. Continue performing SI Termination and then go to E-2 because the pressure boundary has been established in steam generator #4.

QUESTION: # 64	TYPE: SRO	POINT VALUE: 1.0
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Unit 1 is in mode 1 and the RCS sample indicates that gross activity is  $>100/\bar{E}$   $\mu\text{Ci}/\text{gram}$ .

The reason for the Technical Specification limit on the gross activity and the reduction of  $T_{\text{AVE}}$  is to:

*PREVENT THE \_\_\_\_\_ DOSE FROM SITE BOUNDARY FROM EXCEEDING PART 100 LIMITS AND RELEASE OF ACTIVITY SHOULD A STEAM GENERATOR TUBE RUPTURE*

- a. ~~prevent the 1 hour dose from site boundary from exceeding Part 100 limits and release of activity should a steam generator tube rupture~~
- b. ~~prevent the 2 hour dose from site boundary from exceeding Part 100 limits and release of activity should a steam generator tube rupture~~
- c. ~~prevent the 3 hour dose from site boundary from exceeding Part 100 limits and release of activity should a steam generator tube rupture~~
- d. ~~prevent the 4 hour dose from site boundary from exceeding Part 100 limits and release of activity should a steam generator tube rupture~~

ANSWER: # 64	TYPE: NEW	REV: 1	DATE: 12/05/00
REVIEW DATE:	POINT VALUE: 1.0	KA: 000076 AK2.01 2.6/3.0	
LESSON PLAN:			
REFERENCES: Tech Spec 3.4.8 Bases			LEVEL: Mem

- b. ~~prevent the 2 hour dose from site boundary from exceeding Part 100 limits and release of activity should a steam generator tube rupture~~



<b>QUESTION: # 65</b>	<b>TYPE: SRO</b>	<b>POINT VALUE: 1.0</b>
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The Control Room has to be evacuated, the operator tripped the reactor and the turbine.

Which ONE of the following actions can be performed prior to leaving the Control Room?

- a. Place all transfer switches in the hot shutdown position
- b. Initiate emergency boration, check normal letdown isolated
- c. Initiate emergency boration, align the 2-LSI-4 Unit 2 power switch to off
- d. Align hot shutdown control switches to match current operating conditions

<b>ANSWER: # 65</b>	<b>TYPE: NEW</b>	<b>REV: 1</b>	<b>DATE: 12/04/00</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: 000068 AK3.12 4.1/4.5</b>	
<b>LESSON PLAN:</b>			
<b>REFERENCES: 02-OHP 4025.001.001</b>			<b>LEVEL: Mem</b>

- b. Initiate emergency boration, check normal letdown isolated

QUESTION: # 66	TYPE: SRO	POINT VALUE: 1.0
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During performance of FR-C.1 "Inadequate Core Cooling", an RCS cooldown via steam dump is in progress. RCS pressure is 150 psig and RWST level is 74%. *ECCS IS IN THE PROPER LINE UP EMERGENCY*

Which ONE of the following sets of conditions would permit transition to E-1 "Loss of Reactor or Secondary Coolant"?

*VALVE ALIGNMENT*

	A	B	C	D
ECCS Monitor Light Status	<del>12A Lit</del> <del>12B Lit</del> 12C Not Lit	<del>11A Lit</del> <del>11B Lit</del> <del>11C Not Lit</del>	<del>11A Not Lit</del> <del>11B Lit</del> 11C Lit	<del>12A Not Lit</del> <del>12B Lit</del> 12C Lit
ECCS Flow Indication	RHR Pumps Red Light On	SI Pumps Red Light On	SI Pumps Red Light On	RHR Pumps Red Light On
Core Exit TCs	<del>1200°</del> 1200° F	<del>1100°</del> 1200° F	<del>1200°</del> 750° F	On <del>1100°</del> 750° F
RCS Hot Leg Temp.	<del>500°</del> 500° F	<del>325°</del> 350° F	500° F	<del>375°</del> 350° F
RVLIS Narrow Range	<del>70%</del> 67%	<del>67%</del> 70%	67%	<del>70%</del> 70%

ANSWER: # 66	TYPE: NEW	REV: 1	DATE: 12/05/00
REVIEW DATE:	POINT VALUE: 1.0	KA: 000074	G.2.4.21 3.7/4.3
LESSON PLAN:			
REFERENCES: 02-OHP 4023 FR-C.1, ERG HP Background, FR-C.1			LEVEL: Cog

B
<del>11A Lit</del>
<del>11B Lit</del>
<del>11C Not Lit</del>
SI Pumps Red Light On
<del>1200°</del> 1100
<del>350°</del> 325
<del>67%</del> 70%

<b>QUESTION: # 67</b>	<b>TYPE: SRO</b>	<b>POINT VALUE: 1.0</b>
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The plant has experienced a small break LOCA and you are in EOP ES-1.2, Post LOCA Cooldown and Depressurization. All of the reactor coolant pumps have been stopped. The RCS was being depressurized to re-establish the PZR level. During the depressurization minimum required subcooling was lost.

Which ONE of the following is the expected response?

- a. Continue the depressurization, subcooling will be reestablished after the depressurization
- b. Continue the depressurization and initiate a cooldown during the depressurization to recover the subcooling
- c. Stop the depressurization, cooldown the RCS and then continue depressurization after subcooling is recovered
- d. Stop the depressurization, start a reactor coolant pump to remove possible voids and then continue the depressurization

<b>ANSWER: # 67</b>	<b>TYPE: NEW</b>	<b>REV: 1</b>	<b>DATE: 12/06/00</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: E03 EA.2.2</b>	<b>3.5/4.1</b>
<b>LESSON PLAN:</b>			
<b>REFERENCES: PSBD 02-OHP 4023.ES-1.2 Step 13 N2 Background</b>			<b>LEVEL: Mem</b>

- a. Continue the depressurization, subcooling will be reestablished after the depressurization

<b>QUESTION: # 68</b>	<b>TYPE: SRO</b>	<b>POINT VALUE: 1.0</b>
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A LOCA is in progress on Unit-2. RWST level has reached 25% and the RHR and CTS pumps have been stopped. During the performance of EOP ES-1.3 valve 2-IMO-310 (east RHR pump suction) would not fully close. Valves 2-IMO-320 (west RHR pump suction), 2-IMO-215 (east CTS pump suction from RWST), and 2-IMO-225 (west CTS pump suction from the RWST) are fully closed.

What plant conditions are necessary to provide core cooling?

- a. Open 2-ICM-305 (recirc sump to east RHR/CTS pumps) and start the East RHR pump
- b. Open 2-ICM-306 (recirc sump to west RHR/CTS pumps) and start the West RHR pump
- c. Initiate Appendix A, Splitting CCW Trains, while continuing with this procedure
- d. Since no RHR pumps are running transition to ECA-1.1, Loss of Emergency Coolant Recirculation

<b>ANSWER: # 68</b>	<b>TYPE: NEW</b>	<b>REV: 1</b>	<b>DATE: 12/06/00</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: E11 G.2.4.7 3.1/3.8</b>	
<b>LESSON PLAN: RO-C-01700 RV.1 Residual Heat Removal System</b>			
<b>REFERENCES: 02-OHP 4023 ES-1.3</b>			<b>LEVEL: Cog</b>

- b. Open 2-ICM-306 (recirc sump to west RHR/CTS pumps) and start the West RHR pump

<b>QUESTION: # 69</b>	<b>TYPE: SRO</b>	<b>POINT VALUE: 1.0</b>
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You are in ES-0.1 'Reactor Trip Response' and RCS pressure is 2250 psig and increasing. Normal PZR spray has been initiated with no effect. The ES-0.1 RNO column requires you to close the PZR spray valves.

What is the basis for closing the spray valves?

Closing the spray valves prevents:

- a. auxiliary spray from bypassing the PZR
- b. thermal shock of the spray lines from auxiliary spray
- c. the PZR from depressurizing in an uncontrolled manner
- d. the PZR from filling in an uncontrolled manner

<b>ANSWER: # 69</b>	<b>TYPE: NEW</b>	<b>REV: 1</b>	<b>DATE: 12/27/00</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: 000027 AA.1.01 4.0/3.9</b>	
<b>LESSON PLAN:</b>			
<b>REFERENCES: 02-OHP 4023 ES-0.1 Background</b>			<b>LEVEL: Mem</b>

- a. auxiliary spray from bypassing the PZR

QUESTION: # 70	TYPE: SRO	POINT VALUE: 1.0
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*Unit 2*  
 The plant is performing a shutdown. Power was 3% when *Panel 210 Day 8,* Intermediate Range Compensate Volt Failure ~~Drop 8~~, illuminated.

Which ONE of the following statements is correct concerning the source range instrumentation?

- a. The source range instrument will energize at the proper power level
- b. Manually unblock the source range instruments when at the proper power level
- c. Manually trip the reactor to prevent an automatic trip because the source range instruments will energize
- d. Immediately unblock the source range instrument so that there is overlap with the power range instruments

ANSWER: # 70	TYPE: NEW	REV: 1	DATE: 12/27/00
REVIEW DATE:	POINT VALUE: 1.0	KA: 000033 K1.01 2.7/3.0	
LESSON PLAN: RO-C-01300			
REFERENCES: SD-01300 RV.1, SOD-01300-003 <i>02 -04A 4024, 210 Day 8</i>			LEVEL: Cog

- b. Manually unblock the source range instruments when at the proper power level

QUESTION: # 71	TYPE: SRO	POINT VALUE: 1.0
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Annunciator Panel #139 (Response: Eberline Radiation) Drops 20, 21, 37, and 38 (Gland Steam Condenser Vent), and Drops 22 and 39 (Steam Jet Air Ejector) threshold for referring to 01-OHP 4022.002.021 (SG Tube Leak) has been changed from "60 gpd" to "greater than 30 gpd but less than 75 gpd."

What is the reason for this change?

- a. The transition to the SG Tube Leak procedure at this threshold requires Operation and Management to determine whether a shutdown is prudent
- b. The transition to the SG Tube Leak procedure at this threshold requires Operations to shutdown to minimize the effects of ~~a potential release~~ *POSSIBLE CORE DAMAGE.*
- c. The transition to the SG Tube Leak procedure at this threshold requires Operation and Management to begin a shutdown sooner
- d. The transition to the SG Tube Leak procedure at this threshold requires Operations to begin dose rate calculations

ANSWER: # 71	TYPE: NEW	REV: 1	DATE: 12/28/00
REVIEW DATE:	POINT VALUE: 1.0	KA: 000061 AK3.02 3.4/3.6	
LESSON PLAN:			
REFERENCES: 12-OHP 4024.139 Revision Summary			LEVEL: Mem

- a. The transition to the SG Tube Leak procedure at this threshold requires Operation and Management to determine whether a shutdown is prudent

<b>QUESTION: # 72</b>	<b>TYPE: SRO</b>	<b>POINT VALUE: 1.0</b>
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You have been instructed to lineup and start the backup air compressor. When you initially closed 1-11CMC-2 (Compressor Supply Breaker) all of the fault indicators energized.

What is the correct response to the indications?

- a. Open 1-11CMC-2 and contact the Maintenance Department
- b. Complete the valve lineup, the realignment of valves will clear the faults
- c. Complete the valve lineup and press backup plant air compressor reset/start pushbutton
- d. Check the backup plant air compressor parameters to determine what has caused the faults

<b>ANSWER: # 72</b>	<b>TYPE: NEW</b>	<b>REV: 1</b>	<b>DATE: 12/29/00</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: 000065 AA1.04 3.5/3.4</b>	
<b>LESSON PLAN: RO-C-06401, TP.25</b>			
<b>REFERENCES: 12-OHP 4021.064.006, SD-06401</b>			<b>LEVEL: Mem</b>

- c. Complete the valve lineup and press backup plant air compressor reset/start pushbutton

<b>QUESTION: # 73</b>	<b>TYPE: SRO</b>	<b>POINT VALUE: 1.0</b>
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**02-OHP 4023 FR-Z.2 (Response to Containment Flooding) Step #1 state: "Try to identify unexpected source of water to containment."**

**This is based on a water level greater than the design basis flood level as provided by water from the RWST, RCS and what other sources?**

- a. Icebed melt and SI accumulators
- b. Primary water and SI accumulators
- c. Component cooling water and SI accumulators
- d. Ice condenser refrigeration glycol and SI accumulators

<b>ANSWER: # 73</b>	<b>TYPE: NEW</b>	<b>REV: 1</b>	<b>DATE: 12/29/00</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: W/E15 EA2.01 2.7/3.2</b>	
<b>LESSON PLAN:</b>			
<b>REFERENCES: 02-OHP 4023.FR-Z.2 Background</b>			<b>LEVEL: Mem</b>

- a. Icebed melt and SI accumulators

QUESTION: # 74	TYPE: SRO	POINT VALUE: 1.0
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Unit 1 was at 75% power and a plant transient resulted in a reactor trip and a safety injection initiation. The operator noted the following conditions while performing 01-OHP 4023.E-0 "Reactor Trip response":

RCS pressure is 1400 psig and decreasing  
 Pressurizer level is slowly decreasing  
 PORVs and spray valves are closed  
 Steam generator pressures and levels are normal ~~OK~~  
 Plant vent radiation monitors are increasing  
 Containment pressure and sump levels are normal  
 Auxiliary building radiation levels are increasing

If the above conditions are not changed, which one of the following procedure transitions is correct?

- a. 01-OHP 4023.E-1 "Loss of Reactor or Secondary Coolant"
- b. 01-OHP 4023.ES-1.1 "SI Termination"
- c. 01-OHP 4023.ECA-1.2 "LOCA Outside of Containment"
- d. 01-OHP 4023.ES-1.2 "Post LOCA Cooldown and Depressurization"

ANSWER: # 74	TYPE: NEW	REV: 1	DATE: 01/02/01
REVIEW DATE:	POINT VALUE: 1.0	KA: W/E04 EA2.02 3.6/4.2	
LESSON PLAN:			
REFERENCES: 01-OHP 4023.E-0, 01-OHP 4023.ECA-1.2			LEVEL: Cog

- c. 01-OHP 4023.ECA-1.2 "LOCA Outside of Containment"

QUESTION: # 75	TYPE: SRO	POINT VALUE: 1.0
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During the performance of 02-OHP 4023 ES-0.2 "Natural Circulation Cooldown"

The following conditions exist:

RCS cool down is 25° F/hour

RCS temperature is 450°F

RCS pressure is 2000 psig

Both MDAFW pumps are running

Steam generator levels are 46% and slowly decreasing

Condensate storage tank level is 12%

Pressurizer level is 24% and slowly decreasing

(NR)

ALL

Which ONE of the following describes the appropriate operator actions?

- Transition to ES-0.3 "Natural Circulation Cooldown With Steam Voids in Vessel" and increase the cooldown rate
- Stop the cooldown rate and remain in ES-0.2
- Maintain the same cooldown rate and remain in ES-0.2
- Swap AFW suction to the alternate supply, increase the cooldown rate and remain in ES-0.2

ANSWER: # 75	TYPE: BANK	REV: 1	DATE: 01/03/01
REVIEW DATE:	POINT VALUE: 1.0	KA: W/E09 EA2.1	3.1/3.8
LESSON PLAN: RO-C-EOP03.RV.0			
REFERENCES: 02-OHP 4023 ES-0.2			LEVEL: Cog

- Maintain the same cooldown rate and remain in ES-0.2

Post exam NEC  
 (d) also correct  
 AFW swap is  
 at < 14% EST lvl.

QUESTION: # 76	TYPE: SRO	POINT VALUE: 1.0
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Unit 2 has experienced a loss of all AC power and is operating in accordance with 02-OHP 4023 ECA-0.0 "Loss of All AC Power". The following conditions exist:

- RCS temperature is 547° F and decreasing
- Pressurizer level is 19% and decreasing
- All* Steam generator (NR) levels are 6% and increasing
- All steam generator pressures are slowly decreasing
- AFW flow is  $510 \times 10^3$  pph *MAKE EXPONENT*

Which ONE of the following statements is correct?

- a. TDAFW pumps <sup>15</sup> ~~are~~ in runout
- b. A steam generator tube rupture has occurred
- c. One of the steam generators is faulted
- d. The Unit is responding properly to the "Loss of All AC Power"

ANSWER: # 76	TYPE: NEW	REV: 1	DATE: 01/03/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 000055 EK3.02 4.3/4.6	
LESSON PLAN:			
REFERENCES: 02-OHP 4023 ECA-0.0 Background			LEVEL: Cog

- a. ~~63X-TDFPA (flow retention relay) did not actuate~~  
TDAFW PUMP IS IN RUNOUT

QUESTION: # 77	TYPE: SRO	POINT VALUE: 1.0
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Unit 2 has experienced a reactor trip. Plant conditions are as follows:

RCS pressure is 2240 psig and <sup>RISING</sup> increasing <sup>NPP & NLP</sup>  
 Pressurizer pressure and level channel 151 are failed low  
 Pressurizer pressure and level channel 153 are normal <sup>NPP & NLP</sup>  
 RCS loop flow channels 210, 220, 230, and 240 are failed low  
 Steam generator pressure <sup>110, 120, 130, and 140</sup> (channel 2) are reading normal  
 Spray line loop 4 temperature instrument 164 is failed low  
 U-1 West ESW pump has auto started <sup>NTA</sup>  
 Intermediate range N-35 is failed low  
 Source range N-32 is reading normal  
 Accumulator Tank 1 and 2 level and pressure instruments 110 and 120 are failed low

*Handwritten notes: NFP, mpp, NPP & NLP, NTA, Part 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200*

What will be your actions when you check pressurizer pressure control in accordance with 02-OHP 4023.E-0.1, "Pressure – Stable at or trending to 2235 psig"?

- Cycling heaters are failed "ON" and can be manually controlled with the breakers, spray valves are closed in "AUTO" and can be manually controlled with the individual controllers, backup heaters are "OFF" and can be manually operated
- Cycling heaters are failed "OFF" and can be manually controlled with the breakers, spray valves are open in "AUTO" and can be manually controlled with the individual controllers, backup heaters are "ON" and will operate in auto
- Cycling heaters are failed "ON" and can be manually controlled with the breakers, spray valves are open in "AUTO" and will control in auto with the master controller, backup heaters are "ON" and can be manually operated
- Cycling heaters are failed "OFF" and can be manually controlled with the breakers, spray valves are closed in "AUTO" and will control in auto with the master controller, backup heaters are "OFF" and can be manually operated

ANSWER: # 77	TYPE: NEW	REV: 1	DATE: 01/03/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 000057	K3.01 4.1/4.4
LESSON PLAN:			
REFERENCES: 02-OHP 4021.082.008 Table 1, 2, 3, & 4, SD-08203.RV.1			LEVEL: Cog

- Cycling heaters are failed "ON" and can be manually controlled with the breakers, spray valves are closed in "AUTO" and can be manually controlled with the individual controllers, backup heaters are "OFF" and can be manually operated

QUESTION: # 78	TYPE: SRO	POINT VALUE: 1.0
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~~Given the following conditions on Unit 1:~~

*UNIT 2*  
 The plant was operating at steady state full power when a loss of off-site power occurred. The following indications were observed during the performance of Step 1 of OHP 4023.E-0, "Reactor Trip or Safety Injection" 2

*Indent* }

- Neutron flux ~~was~~ less than 5% and ~~decreasing~~ *LOWERING*
- All rod bottom lights are NOT LIT, Rod H8 is at 50 steps
- RTB is closed
- RTA, BYA, and BYB are open
- The above indications remained constant when the operators actuated the manual reactor trip breaker switch

Which ONE of the following actions should the crew take?

- a. Go to FR-S.1, "Response to Nuclear Power Generation/ATWS"
- b. Continue in E-0, "Reactor Trip or Safety Injection"
- c. Go to FR-S.2, "Response to Loss of Core Shutdown"
- d. Go to ECA-0.0, "Loss of all AC Power"

ANSWER: # 78	TYPE: BANK	REV: 1	DATE: 01/04/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 000007 EA2.02	4.3/4.6
LESSON PLAN: RO-C-EOP03.RV.0			
REFERENCES: OHP 4023.E-0			LEVEL: Cog

- b. Continue in E-0, "Reactor Trip or Safety Injection"

<b>QUESTION: # 79</b>	<b>TYPE: SRO</b>	<b>POINT VALUE: 1.0</b>
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The following plant conditions exist:

A SBLOCA has occurred and operator actions have not been initiated

The reactor has tripped from 100% power with maximum decay heat

ECCS is operating as designed and the steam generators are available

Steam dumps are available

The RCS is saturated with RCS pressure above steam generator pressure

Which ONE of the following components is required for adequate long term core cooling?

- a. Accumulators
- b. Reactor coolant pumps running
- c. Steam generators
- d. Safety injection pumps

<b>ANSWER: # 79</b>	<b>TYPE: MODIFIED</b>	<b>REV: 1</b>	<b>DATE: 01/04/01</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: 000009 EK2.03 3.0/3.3</b>	
<b>LESSON PLAN: RO-C-EOP2</b>			
<b>REFERENCES:</b>			<b>LEVEL: Cog</b>

- c. Steam generators

<b>QUESTION: # 80</b>	<b>TYPE: SRO</b>	<b>POINT VALUE: 1.0</b>
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Unit 1 is in Mode 2 performing a reactor startup. Reactor power is  $5 \times 10^{-11}$  amps.

If both of the control power fuses on N-32 failed, which ONE of the following describes the actions to be taken by the crew?

- a. Discontinue the startup until N-32 has been repaired and returned to service
- b. Drive control rods in to ensure the reactor is subcritical until N-32 is repaired
- c. Increase power to P-6 and block the source range instruments
- d. Verify the reactor tripped and perform actions in EOP E-0

<b>ANSWER: # 80</b>	<b>TYPE: MODIFIED</b>	<b>REV: 1</b>	<b>DATE: 01/04/01</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: 000032 AA2.06 3.9/4.1</b>	
<b>LESSON PLAN: RO-C-01300</b>			
<b>REFERENCES: SOD-01300-004, T.S. 3/4.3.1 Table 3.3-1, SOD-01300-004</b>			<b>LEVEL: Cog</b>

- d. Verify the reactor tripped and perform actions in EOP E-0

QUESTION: # 81	TYPE: SRO	POINT VALUE: 1.0
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Which ONE of the following conditions <sup>will</sup> increase the difficulty <sup>of</sup> diagnosing ~~the affected~~ <sup>following</sup> steam generator during a small steam generator tube rupture event after a reactor trip?

- a. Safety injection *ACTUATION*
- b. S/G blowdown isolation
- c. Non-uniform auxiliary feedwater flow
- d. MSIVs closed  
*are*

ANSWER: # 81	TYPE: MODIFIED	REV: 1	DATE: 01/04/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 000038 EA2.03 4.4/4.6	
LESSON PLAN: RO-C-EOP08			
REFERENCES:			LEVEL: Cog

- c. Non-uniform auxiliary feedwater flow

<b>QUESTION: # 82</b>	<b>TYPE: SRO</b>	<b>POINT VALUE: 1.0</b>
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Which ONE of the following would allow exit from FR-H.1 "Loss of Heat Sink".

- a. AFW flow is delivered from the unit cross-tie before bleed and feed is initiated. The pump is delivering its maximum flow rate of 200k PPH. Core exit thermocouples are 550°F and stable. Two steam generator wide range levels are rising.
- b. Condensate booster pump flow is delivered at a flow rate of 150k PPH to one SG after bleed and feed is initiated. Core exit thermocouples are 550°F and lowering. All loop T-hots are 560°F and stable. All steam generator wide range levels are stable between 50 and 60%.
- c. AFW flow is delivered at a flowrate of 240k PPH each to steam generators 2 and 3. Their wide range steam generator levels are 35% and rising. T-hots are 550° and lowering.
- d. Bleed and feed was initiated. Operators are checking if ECCS flow can be terminated. The first PORV has been closed to raise subcooling. RCS pressure is stable and subcooling is stable at 87°F.

<b>ANSWER: # 82</b>	<b>TYPE: BANK</b>	<b>REV: 1</b>	<b>DATE: 01/04/01</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: 000054 AA2.04 4.2/4.3</b>	
<b>LESSON PLAN:</b>			
<b>REFERENCES: 02 OHP 4023.FR-H.1</b>			<b>LEVEL: Cog</b>

- c. AFW flow is delivered at a flowrate of 240k PPH each to steam generators 2 and 3. Their wide range steam generator levels are 35% and rising. T-hots are 550° and lowering.

QUESTION: # 83	TYPE: SRO	POINT VALUE: 1.0
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The following plant conditions exist:

RCS pressure is 1600 psig

Steam generator pressures are #1- 925, #2-937, #3-895, #4- 0

Pressurizer level is ~~empty~~

Containment pressure is 3.2 psig

*in psig*  
*Should be*  
 The Reactor coolant pumps ~~are~~ tripped because component cooling water (CCW) flow is isolated to the ~~the~~ WHICH ONE OF THE FOLLOWING?

- a. thermal barrier heat exchanger
- b. bearing oil coolers
- c. reactor support coolers
- d. labyrinth seal

ANSWER: # 83	TYPE: BANK	REV: 1	DATE: 01/08/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 003 K6.04 2.8/3.1	
LESSON PLAN: RO-C-00201.RV.1			
REFERENCES: OHP 4002.014.001			LEVEL: Cog

- b. bearing oil coolers

<b>QUESTION: # 84</b>	<b>TYPE: SRO</b>	<b>POINT VALUE: 1.0</b>
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To receive valid data from the core exit thermocouples, the reference junction temperatures are:

- a. held constant at the reference junction.
- b. mechanically compensated by variable resistor.
- c. electronically compensated at the thermocouple transmitter.
- d. electronically compensated at the plant process computer input.

<b>ANSWER: # 84</b>	<b>TYPE: BANK</b>	<b>REV: 1</b>	<b>DATE: 01/09/01</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: 017 K4.03 3.1/3.3</b>	
<b>LESSON PLAN: RO-C-01301.RV.1</b>			
<b>REFERENCES: SD-01301.RV.1</b>			<b>LEVEL: Mem</b>

- c. electronically compensated at the thermocouple transmitter.

QUESTION: # 85	TYPE: SRO	POINT VALUE: 1.0
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Unit 1 turbine driven auxiliary feedwater pump is 12 hours into a 24-hour maintenance window to repair a leak on the shaft seal. A blackout occurs on Unit 1. Unit 2 diesel generators are carrying vital loads and all AFW pumps are available. The Unit 1 and Unit 2 AFW systems are to be cross-tied for safe shutdown requirements. (Use the attached Technical Specification Bases)

What are the appendix R requirements per Technical Specifications?

- a. Fire watches do not have to be established unless a fire has occurred in the areas containing auxiliary feedwater system components
- b. Establish fire watches in Unit 1 areas requiring ~~for~~ use <sup>of</sup> on Unit 2 ~~for~~ auxiliary feedwater system in the event of a fire
- c. Establish fire watches in Unit 1 and Unit 2 areas requiring ~~for~~ use of auxiliary feedwater system in the event of a fire
- d. Establish fire watches in Unit 2 areas requiring use of Unit 1 auxiliary feedwater systems in the event of a fire

ANSWER: # 85	TYPE: NEW	REV: 1	DATE: 01/11/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 061 A2.09 TBD/TBD	
LESSON PLAN:			
REFERENCES: Technical Specification Bases 3/4.7.1.2			LEVEL: Cog

- d. Establish fire watches in Unit 2 areas requiring use of Unit 1 auxiliary feedwater systems in the event of a fire

<b>QUESTION: # 86</b>	<b>TYPE: SRO</b>	<b>POINT VALUE: 1.0</b>
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Unit 1 is operating at 100% power when Panel 123 Drop 26, "CONDENSER A NORTH WTR BOX DP HIGH" annunciator alarms. Maintenance has requested that the water box be isolated and drained for inspection, tube plugging and cleaning.

What is the **MAXIMUM** power level the Unit can be at to perform this evolution?

- a. 100%
- b. 80%
- c. 60%
- d. 50%

<b>ANSWER: # 86</b>	<b>TYPE: NEW</b>	<b>REV: 1</b>	<b>DATE: 01/11/01</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: 056 A2.05 2.1/2.5</b>	
<b>LESSON PLAN:</b>			
<b>REFERENCES: 01-OHP 4024.123 Drop 26, 01-OHP 4021.057.001, SD-05700</b>			<b>LEVEL: Mem</b>

- a. 100%

QUESTION: # 87	TYPE: SRO	POINT VALUE: 1.0
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The following Unit 1 plant conditions exist:

- ▶ Mode 5
- ▶ Irradiated fuel in the vessel.
- ▶ Vessel level drained to 4 ft. below vessel flange (~~621' 1.5"~~).
- ▶ The Pressurizer manway has been removed.

Which ONE of the following groups of components are required to be available per PMP 4100.SDR.001, "Plant Shutdown Safety and Risk Management?" Assume that associated flow paths are also available.

- a. One SI pump with both Cold Leg and Hot leg injection paths to pump from the RWST.
- b. RWST gravity feed capability through one SI pump which is also capable of injecting to both Hot and Cold legs.
- c. Two CCPs capable of injecting using the normal charging path and one SI pump with cold leg injection capability to pump from the RWST.
- d. RWST gravity feed capability via both the RHR suction flow path and safety injection flow path.

ANSWER: # 87	TYPE: BANK	REV: 1	DATE: 01/12/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 002 K4.01 2.7/3.0	
LESSON PLAN:			
REFERENCES: PMP-4100.SDR.001.RV.4			LEVEL: Cog

- b. RWST gravity feed capability through an SI pump which is also capable of injecting to both Hot and Cold legs.

QUESTION: # 88	TYPE: SRO	POINT VALUE: 1.0
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The following plant conditions exist on Unit 2:

Pressurizer pressure control is in automatic

Ch1 is selected as the controlling channel for pressure input

Based upon current plant conditions, which ONE of the following describes the pressurizer PORVs response if Ch1 ~~subsequently fails~~ full scale HIGH? Assume NO operator action.

*LEAD TO A INSTRUMENT FAILURE TO*

- a. NRV-151 OPENS and NRV-152 and 153 remain closed
- b. NRV-152 remains CLOSED and NRV-153 and 151 will OPEN
- c. NRV-151, 152 and 153 remain closed
- d. NRV-151, 152 and 153 will OPEN

ANSWER: # 88	TYPE: BANK	REV: 1	DATE: 01/15/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 010 A4.03 4.0/3.8	
LESSON PLAN: RO-00202.RV.1			
REFERENCES:			LEVEL: Mem

- c. NRV-151, 152 and 153 remain closed

QUESTION: # 89	TYPE: SRO	POINT VALUE: 1.0
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What is the Technical Specification basis for the ~~NaOH~~ minimum volume and concentration in the containment spray additive tank?

- a. Ensure that the iodine removal efficiency of the spray water is maintained and ~~increasing~~ <sup>↑ of NaOH</sup> the pH minimizes corrosive effects on components in containment
- b. <sup>↑ISING</sup> Ensure that the iodine removal efficiency of the spray water is maintained and ~~decreasing~~ the pH minimizes corrosive effects on components in containment
- c. <sup>LOWERING</sup> Ensure that the removal efficiency of the spray water of all the noble gases is maintained and ~~decreasing~~ the pH minimizes corrosive effects on components in containment <sup>LOWERING</sup>
- d. Ensure that the removal efficiency of the spray water of all the noble gases is maintained and ~~increasing~~ the pH minimizes corrosive effects on components in containment <sup>↑ISING</sup>

ANSWER: # 89	TYPE: NEW	REV: 1	DATE: 01/15/01
REVIEW DATE:	POINT VALUE: 1.0	KA: 027 G.2.1.27 2.8/2.9	
LESSON PLAN:			
REFERENCES: Technical Specification Bases 3/4.6.2.2			LEVEL: Mem

- a. Ensure that the iodine removal efficiency of the spray water is maintained and ~~increasing~~ the pH minimizes corrosive effects on components in containment <sup>↑ISING</sup>

QUESTION: # 90	TYPE: SRO	POINT VALUE: 1.0
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Unit 1 was in mode 4 shutdown when a loss of off-site power occurred. As part of power restoration, the operator closed breaker ~~1T-A9~~. During the transient, breaker ~~1T-A11~~ arced and shorted on the bus side. The diesel generator did not trip and continued to supply power to T11B. Prior to the event the North SI pump suction valve 'SI103N' was isolated for repairs and the East MDAFW pump suction strainer basket was isolated for leak repairs.

*T11A7 T11A FEED FROM REP BUS*  
*T11A11 T11A FEED FROM EDG AB*  
*BUS?*

Which ONE of the following is the ~~Technical Specification~~ Bases for the Technical Specification that was entered?

- a. The operability of two independent ECCS subsystems ensures that sufficient emergency core cooling capability will be available in the event of a LOCA assuming the loss of one subsystem through any single failure consideration.
- b. With RCS temperature below 350<sup>0</sup> F, one operable ECCS subsystem is acceptable without single failure consideration on the basis of the stable reactivity condition of the reactor and the limited core cooling requirements.
- c. The operability of the A.C. and D.C. power sources and associated distribution systems during operation ensures that sufficient power will be available to supply the safety related equipment required for safe shutdown and accident mitigation.
- d. The operability of the auxiliary feedwater system ensures that the reactor coolant system can be cooled down to less than 350<sup>0</sup>F from normal operating conditions in the event of a total loss of off-site power.

ANSWER: # 90	TYPE: NEW	REV: 1	DATE: 01/19/01
REVIEW DATE:	POINT VALUE: 1.0	KA: G.2.1.33 3.4/4.0	
LESSON PLAN:			
REFERENCES: Technical Specifications			LEVEL: Cog

- c. The operability of the A.C. and D.C. power sources and associated distribution systems during operation ensures that sufficient power will be available to supply the safety related equipment required for safe shutdown and accident mitigation

QUESTION: # 91	TYPE: SRO	POINT VALUE: 1.0
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Which ONE of the following statements is correct regarding Acceptors and the use of Partial Release has been started in the Nuclear Clearance Permit system?

- a. The Partial Release is VERIFIED by the SRO before there can be ~~no~~ <sup>ANY</sup> new Acceptors to the clearance
- b. The Partial Release is VERIFIED by the SRO after all other Acceptors must be ~~be~~ <sup>ARE</sup> removed from the clearance
- c. The SRO and all other Acceptors shall perform a walkdown of the equipment/system that are on the Partial Release
- d. The SRO <sup>AND</sup> all Acceptors must review and walkdown the Partial Release prior to being VERIFIED

ANSWER: # 91	TYPE: NEW	REV: 1	DATE: 01/22/01
REVIEW DATE:	POINT VALUE: 1.0	KA: G.2.2.13 3.6/3.8	
LESSON PLAN:			
REFERENCES: PMP 2110.CPS.001			LEVEL: Mem

- a. The Partial Release is VERIFIED by the SRO before there can be ~~no~~ <sup>ANY</sup> new Acceptors to the clearance

QUESTION: # 92	TYPE: SRO	POINT VALUE: 1.0
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Which ONE of the following identifies the process and the assumptions made regarding the determination that Technical Specifications required equipment is OPERABLE?

- a. If an item is <sup>15</sup> found to be capable of performing its intended function on a scheduled surveillance test, and as long as most of the support systems remain operable, then it is operable. ~~Otherwise, it is inoperable.~~ *FUNCTIONAL*
- b. If the applicable <sup>surveillance</sup> testing has been completed, <sup>STST</sup> but not reviewed, and all support systems to the equipment are functional, ~~then it is operable and Technical Specifications are satisfied.~~ *THEN IT IS OPERABLE*
- c. If an item is ~~discovered to be unable~~ <sup>able</sup> to perform its intended function <sup>AFTER MAINTENANCE</sup> during a ~~scheduled surveillance test~~ <sup>WITHOUT PERFORMING A</sup>, then it is ~~inoperable.~~ ~~Otherwise, it is operable.~~
- d. If the applicable <sup>surveillance</sup> testing has been ~~done~~ <sup>COMPLETED AND REVIEWED, AND</sup>, all support systems to the equipment are ~~operable, and no other indication exists that it is not able to perform its intended function, then it is operable and Technical Specifications are satisfied.~~ *FUNCTIONAL, THEN IT IS OPERABLE*

ANSWER: # 92	TYPE: BANK	REV: 1	DATE: 01/22/01
REVIEW DATE:	POINT VALUE: 1.0	KA: G.2.2.25	2.5/3.7
LESSON PLAN: RO-C-ADM05			
REFERENCES: <sup>PMP 4030, EXE, DOI</sup> TECHNICAL SPECIFICATION DEFINITIONS			LEVEL: Mem

- d. If the applicable <sup>SURVEILLANCE</sup> testing has been ~~done~~ <sup>COMPLETED AND REVIEWED, AND</sup>, all support systems to the equipment are ~~operable, and no other indication exists that it is not able to perform its intended function, then it is operable and Tech. Specs. are satisfied.~~ *FUNCTIONAL.*

C. IF AN ITEM IS ABLE TO PERFORM ITS INTENDED FUNCTION AFTER MAINTENANCE AND A SURVEILLANCE TEST WAS USED ONLY USED TO SATISFY POST MAINTENANCE TESTING REQUIREMENTS, THEN IT IS ~~CONSIDERED~~ OPERABLE.

<b>QUESTION: # 93</b>	<b>TYPE: SRO</b>	<b>POINT VALUE: 1.0</b>
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Unit 2 is in Mode 6 and fuel is being off-loaded from the core. The following conditions exist:

Refueling canal boron concentration is 2430 ppm

Both source range indications are in operation with 2 visual and 1 audio indication

The reactor has been subcritical for 186 hours

A maintenance worker is stationed at the air lock

The equipment door is closed and held in place with 4 bolts

2 air hoses are run through the airlock doors with quick disconnects at the airlock doors

The water level is 24 feet 6 inches above the top of the reactor pressure vessel flange

Which ONE of the following LCOs, if any, would pertain to the given plant conditions?

- a. LCO 3.9.1 (Boron Concentration) should be entered
- b. LCO 3.9.3 (Decay Time) should be entered
- c. LCO 3.9.4 (Containment Building Penetrations) should be entered
- d. No LCOs should be entered

<b>ANSWER: # 93</b>	<b>TYPE: NEW</b>	<b>REV: 1</b>	<b>DATE: 01/22/01</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: G.2.2.29 1.6/3.8</b>	
<b>LESSON PLAN:</b>			
<b>REFERENCES: Technical Specifications Section 3.9</b>			<b>LEVEL: Cog</b>

- d. No LCOs should be entered

QUESTION: # 94	TYPE: SRO	POINT VALUE: 1.0
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Technical Specification 3.11.1, which limits the curie content of outside tanks, assures that no uncontrolled release occurs that exceeds the limits established by:

- a. 10CFR20, Appendix B.
- b. 10CFR26, Appendix A.
- c. 10CFR50, Appendix E.
- d. 10CFR55, Subpart E.

ANSWER: # 94	TYPE: BANK	REV: 1	DATE: 01/22/01
REVIEW DATE:	POINT VALUE: 1.0	KA: G.2.3.11	2.7/3.2
LESSON PLAN:			
REFERENCES: Technical Specification Bases 3.11.1			LEVEL: Mem

- a. 10CFR20, Appendix B

QUESTION: # 95	TYPE: SRO	POINT VALUE: 1.0
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An ALERT was declared on Unit 2. <sup>NO</sup> ~~The~~ emergency response facilities are staffed. An operator must go into room requiring radiation exposure in excess of the limits prescribed in 10CFR20.

Assuming that that no authorizations have been delegated, who has the authorization to allow the operator to proceed?

- a. Senior RP Tech on shift
- b. ~~Operations Shift Supervisor~~ **SHIFT MANAGER**
- c. Radiological Assessment Coordinator
- d. ~~Shift Manager~~ **UNIT SUPERVISOR**

ANSWER: # 95	TYPE: NEW	REV: 1	DATE: 01/22/01
REVIEW DATE:	POINT VALUE: 1.0	KA: G.2.3.4	2.5/3.1
LESSON PLAN:			
REFERENCES: PMP 2080 EPP.10 <del>1</del> , PMP 2081 EPP.208			LEVEL: Mem

- b. **SHIFT MANAGER**  
~~Operations Shift Supervisor~~

QUESTION: # 96	TYPE: SRO	POINT VALUE: 1.0
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An RWP is needed to enter a very high radiation level area during a backshift to stop a leak. No personnel or equipment hazard exists.

Who is required to authorize the RWP?

- a. RP Superintendent
- b. Shift Manager <sup>PK</sup>
- c. Senior RP Tech ~~on-site~~
- d. RP Supervisor

ANSWER: # 96	TYPE: NEW	REV: 1	DATE: 01/22/01
REVIEW DATE:	POINT VALUE: 1.0	KA: G.2.3.7 2.0/3.3	
LESSON PLAN:			
REFERENCES: PMP-6101.RPP.006			LEVEL: Mem

- a. RP Superintendent

<b>QUESTION: # 97</b>	<b>TYPE: SRO</b>	<b>POINT VALUE: 1.0</b>
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While performing E-1, the following set of conditions existed:

- ▶ NI-41 through NI-44 are all approximately 1%.
- ▶ Intermediate range startup rate = -0.1 dpm.
- ▶ No RCP's are in service.
- ▶ Core exit TC's read 640°F.
- ▶ RCS pressures read 1755 psig.
- ▶ RVLIS narrow range indicates 35% level.
- ▶ All steam generator narrow-range levels are off-scale low.
- ▶ Main feedwater pumps are tripped.
- ▶ SG #11: FFI-210 reads 80,000 lbs/hr @ 1060 psig in SG
- ▶ SG #12: FFI-220 reads 90,000 lbs/hr @ 1050 psig in SG
- ▶ SG #13: FFI-230 reads 50,000 lbs/hr @ 1090 psig in SG
- ▶ SG #14: FFI-240 reads 100,000 lbs/hr @ 1070 psig in SG

Which ONE of the following procedures should be implemented?

- a. Continue to implement E-1.
- b. FR-S.2 "Response to Loss of Core Shutdown"
- c. FR-C.2 "Response to Degraded Core Cooling"
- d. FR-H.2 "Response to Steam Generator Overpressure"

<b>ANSWER: # 97</b>	<b>TYPE: BANK</b>	<b>REV: 1</b>	<b>DATE: 01/23/01</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: G.2.4.16 3.0/4.0</b>	
<b>LESSON PLAN: RO-C-EOP01.RV1</b>			
<b>REFERENCES: ERG-HP User's Guide, Section 4; 1-OHP.4023.F-0.1, Subcriticality Status Tree; 1-OHP.4023.F-0.2, Core Cooling Status Tree; 1-OHP.4023.F-0.3, Heat Sink Status Tree</b>			<b>LEVEL: Cog</b>

- c. FR-C.2 "Response to Degraded Core Cooling"

QUESTION: # 98	TYPE: SRO	POINT VALUE: 1.0
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At 0100 on Saturday morning Unit 2 entered the 73<sup>rd</sup> hour of a 72-hour Technical Specification. A report is due to the NRC within 1 hour.

Who will be involved in the initial reportability determination, who will make the report and who will be available to advise during the report?

GRAY TITLES →

ALIGNMENT ON TEST

	Initial Reportability Determination	Person Making report	Available to Advise During Report
a.	Shift Supervisor and Operations Superintendent	Licensing Personnel	STA and Engineering
b.	Shift Supervisor and Operations Superintendent	Shift Supervisor	STA and Licensing
c.	STA and Shift Supervisor	Shift Supervisor	STA and Operations Superintendent
d.	STA and Shift Supervisor	Licensing Personnel	STA and Plant Manager

ANSWER: # 98	TYPE: BANK	REV: 1	DATE: 01/23/01
REVIEW DATE:	POINT VALUE: 1.0	KA: G.2.4.30 2.2/3.6	
LESSON PLAN: RO-C-ADM06.RV1			
REFERENCES: PMP 7030.001.001			LEVEL: Mem

c.	STA and Shift Supervisor	Shift Supervisor	STA and Operations Superintendent
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<b>QUESTION: # 99</b>	<b>TYPE: SRO</b>	<b>POINT VALUE: 1.0</b>
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Which of the following is NOT a responsibility of the Contingency Director during an emergency?

- a. Perform accountability at the beginning of the event to ensure persons are accounted for and to quantify available resource
- b. Provide updates on the plant conditions to personnel dispatched out of the Control Room as appropriate
- c. Support the Control Room response organization by performing administrative duties as delegated by the SM/SEC
- d. Provide an independent assessment of conditions present and actions taken in the Control Room

<b>ANSWER: # 99</b>	<b>TYPE: NEW</b>	<b>REV: 1</b>	<b>DATE: 01/23/01</b>
<b>REVIEW DATE:</b>	<b>POINT VALUE: 1.0</b>	<b>KA: G.2.4.40 2.3/4.0</b>	
<b>LESSON PLAN:</b>			
<b>REFERENCES: OHI-2080.RV.3</b>			<b>LEVEL: Mem</b>

- d. Provide an independent assessment of conditions present and actions taken in the Control Room

QUESTION: # 100	TYPE: SRO	POINT VALUE: 1.0
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Which ONE of the following is the correct responsibility for off-site notification of plant staff after the declaration of a Site Area Emergency?

- a. The Shift Supervisor notifies the Site Vice President (or Alternate) and the Operations Manger and the Security Shift Supervisor initiates the emergency call list  
A
- b. The Shift Supervisor notifies the Site Vice President (or Alternate) and the Operations Manger and the Control Room Communicator initiates the emergency call list  
A
- c. The Control Room Communicator notifies the Site Vice President (or Alternate) and the Operations Manger and the Security Shift Supervisor initiates the emergency call list  
A
- d. The Shift Supervisor notifies the Security Shift Supervisor who notifies the Site Vice President (or Alternate) and the Operations Manger and initiates the emergency call list  
A

ANSWER: # 100	TYPE: NEW	REV: 1	DATE: 01/23/01
REVIEW DATE:	POINT VALUE: 1.0	KA: G.2.4.43	2.8/3.5
LESSON PLAN:			
REFERENCES: Emergency Plan Section 12.3.6.1			LEVEL: Mem

- a. The Shift Supervisor notifies the Site Vice President (or Alternate) and the Operations Manger and the Security Shift Supervisor initiates the emergency call list  
A