

The governing procedure for placing Residual Heat Removal (RHR) Loop B in SDC (CPS 3312.03, RHR Shutdown Cooling and Fuel Pool Cooling & Assist) requires RHR Pump 1B Minimum Flow Valve (1E12-F064B) be shut/verified shut and the associated breaker turned off.

What is the reason for performing these actions?

- A. To prevent thermal binding of 1E12-F064B.
- B. To prevent water hammer of the RHR Loop B.
- C. To ensure that Reactor Water inventory is NOT pumped to the suppression pool.
- D. To ensure the RHR Pump 1B discharge piping does NOT inadvertently drain down via 1E12-F064B.

Answer: C

Answer Justification

C is correct. While operating in the Shutdown Cooling mode, loop flow should be maintained above 1100 gpm. The minimum flow valves are electrically disabled to the closed position in this mode to prevent pumping vessel inventory to the suppression pool through the minimum flow lines. RH Minimum flow protection in shutdown cooling is assured by stopping an RH pump when loop flow drops below 1100 gpm.

A is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that thermal binding is likely to occur in any condition other than shutting 1E12-F064B when hot ($> 200^{\circ}\text{F}$).

B is incorrect but plausible. The candidate may select this response if he/she understands that system voids can cause water hammer but is unaware that water hammer is prevented by verifying the RHR loop full and pressurized before opening all suction valves between the RPV and the RHR pump.

D is incorrect but plausible. The candidate may select this response if he/she is unaware that 1E12-F064B is upstream of the discharge check valve and the discharge check valve will prevent drain down even if 1E12-F064B is open.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: MEMORY

Associated local objective(s):

203000.02	203000.02 DESCRIBE the major flow paths for the following modes of the RESIDUAL HEAT REMOVAL System operation. .1 Shutdown Cooling Mode (both returning to Feedwater and the Upper Containment Pools). .2 Suppression Pool Cooling Mode .3 Low Pressure Coolant Injection Mode .4 Containment Spray Mode .5 Fuel Pool Cooling Assist Mode .6 Water Leg Pump (Normal, Minimum Flow, Test). .7 RHR System SDC Flush
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
205000.K1.02	K1.02	3.6	3.6	2	1	1

System Name

Shutdown Cooling System (RHR Shutdown Cooling Mode)

Category Statement

Knowledge of the physical connections and/or cause-effect relationships between SHUTDOWN COOLING SYSTEM (RHR SHUTDOWN COOLING MODE) and the following: (CFR: 41.2 to 41.9 / 45.7 to 45.8)

KA Statement

Reactor water level

CFR Data**10CFR55-41 (RO) Data**

Para Num	Text
41.2	41.2
41.3	41.3
41.4	41.4
41.5	41.5
41.6	41.6
41.7	41.7
41.8	41.8
41.9	41.9

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 3312.03 Sect. 8.1.2.17</u>	<u>Revision #:</u> <u>6c</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-EO-6292</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Bank</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>Improved answer/distracter justifications, wdk 03/04/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 3312.03</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

The plant is at rated power with systems in their normal alignment.

Component Cooling Water (CCW) Pump Discharge pressure is 67 psig and lowering at 1 psig per minute, due to a leak in the CCW System.

Assuming NO OPERATOR ACTION, which of the following is the NEXT expected plant response?

- A. Scram Valves commence opening.
- B. Upper Pool Gate Seals begin to deflate.
- C. Control Building Air Ring Header isolates.
- D. Standby Service Air Compressor automatically starts.

Answer: D

Answer Justification

D is correct. Loss of CCW will eventually result in the running Service Air (SA) Compressor tripping on High Air or Oil Temperature. The STANDBY SA Compressor will automatically start at 80 psig and run until it also trips on High Air or Oil Temperature.

A, B and C are all plausible but incorrect. In the case of each distracter, the Instrument Air (IA) pressure for each action to occur is less than or equal to 70 psig. The candidate may select any of these responses if he/she understands that the running SA Compressor will trip on High Air or Oil Temperature, but incorrectly believes that any of these actions will take place prior to or instead of the STANDBY SA Compressor automatically starting.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

400001.09	400001.09 DISCUSS the effect: <ul style="list-style-type: none">a. A total loss or malfunction of the Component Cooling Water System has on the plant.b. A total loss or malfunction of various plant systems has on the Component Cooling Water System.
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
400000.K1.02	K1.02	3.2	3.4	2	1	1

System Name

Component Cooling Water System (CCWS)

Category Statement

Knowledge of the physical connections and / or cause-effect relationships between CCWS and the following: (CFR: 41.2 to 41.9 / 45.7 to 45.8)

KA Statement

Loads cooled by CCWS

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.2	41.2
41.3	41.3
41.4	41.4
41.5	41.5
41.6	41.6
41.7	41.7
41.8	41.8
41.9	41.9

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 5041.06 Sect. 5041-6C</u>	<u>Revision #:</u> <u>30b</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-LC-0729</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Bank</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>Improved stem/distracter justifications, wdk 03/04/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 5041.06</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>Yes</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

The High Pressure Core Spray (HPCS) System automatically initiated and injected to the Reactor Pressure Vessel (RPV). The HPCS System responded as expected when RPV water level reached Level 8.

Five minutes later, annunciator 5062-4A AUTO TRIP 480V TRANSFORMER BKR alarmed. The Amber light is ON at the handswitch for 480V TRANSFORMER 1C BKR. Attempts to correct the cause have been unsuccessful.

RPV water level subsequently lowers below -50 inches.

Which one of the following describes the EXPECTED change in position of the HPCS Injection Valve (1E22-F004) and HPCS Min Flow Valve (1E22-F012) in response to the above conditions?

- | | <u>1E22-F004</u> | <u>1E22-F012</u> |
|----|------------------|------------------|
| A. | Remains SHUT | Remains OPEN |
| B. | Remains SHUT | Goes SHUT |
| C. | Goes OPEN | Goes SHUT |
| D. | Goes OPEN | Remains OPEN |

Answer: A

Answer Justification

A is correct. The annunciator 5062-4A is indicative of a complete loss of Division III 480 VAC power including the HPCS MCC 1C (1E22-S002). The HPCS Injection Valve (1E22-F004) and HPCS Min Flow Valve (1E22-F012) are powered from the HPCS MCC 1C. Therefore, even though -45.5 inches RPV Level (Level 2) is a valid signal to OPEN the HPCS Injection Valve, it remains in the current SHUT position and concurrently, the HPCS Min Flow Valve remains in the current OPEN position.

B is plausible but incorrect. The candidate may select this response if he/she recognizes the loss of power will affect the HPCS Injection Valve (1E22-F004) but incorrectly believes that the HPCS Min Flow Valve (1E22-F012) will respond normally.

C is plausible but incorrect. The candidate may select this response if he/she incorrectly believes that HPCS Injection Valve (1E22-F004) and HPCS Min Flow Valve (1E22-F012) are not impacted by the loss of power and the system will operate as intended.

D is plausible but incorrect. The candidate may select this response if he/she recognizes the loss of power will affect the HPCS Min Flow Valve (1E22-F012) but incorrectly believes that the HPCS Injection Valve (1E22-F004) will respond normally.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

209002.03	209002.03 DESCRIBE the function, operation, interlocks, trips, physical location, and power supplies of the following HIGH PRESSURE CORE SPRAY System components. .1 RCIC Storage Tank .2 Suction Strainer .3 Pump Suction Valves .4 HPCS Pump .5 Water Leg Pump .6 Minimum Flow Valve .7 Test Return Valves .8 HPCS to Cntmt Otbd Isol Valve .9 Testable Check Valve .10 Reactor Vessel Spray Sparger .11 Relief Valves .12 HPCS HVAC System
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
209002.K2.02	K2.02	2.8	2.9	2	1	1

System Name

High Pressure Core Spray System (HPCS)

Category Statement

Knowledge of electrical power supplies to the following: (CFR: 41.7)

KA Statement

Valve electrical power: BWR-5,6

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.7	41.7

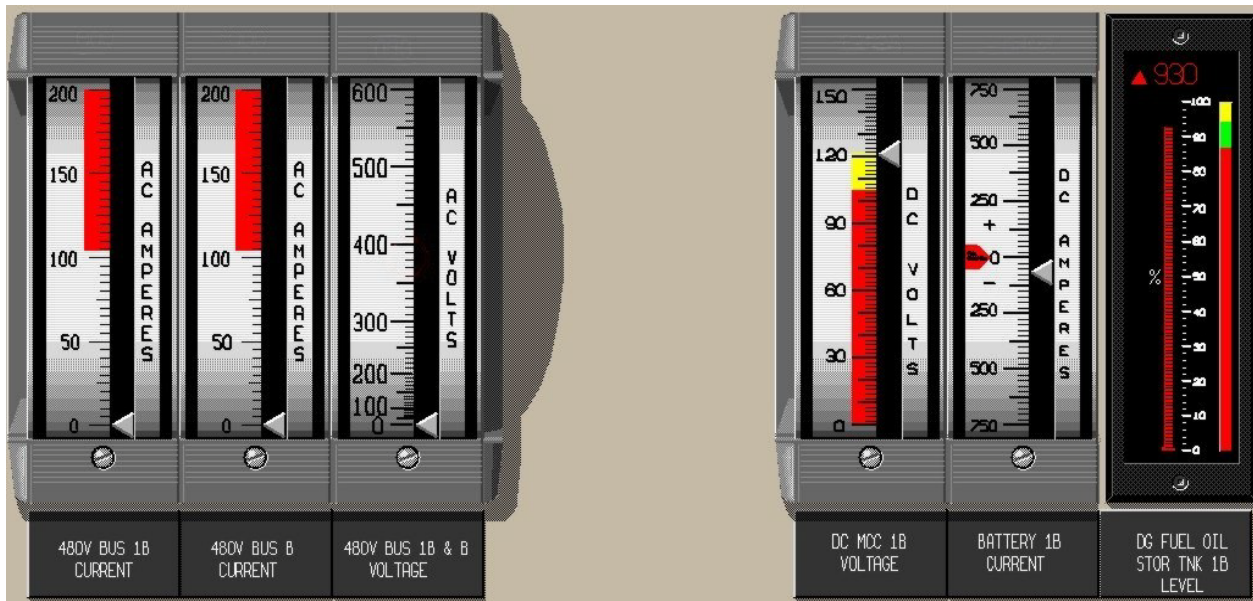
10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 5062.04 Sect. 5062-4A</u> <u>CPS 3309.01E001 Page 3 of 4</u>	<u>Revision #:</u> <u>27a</u> <u>7</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12000</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>New</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>New question, wdk 03/04/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 5062.04</u> <u>CPS 3309.01E001</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

Annunciator 5061-1B AUTO TRIP BREAKER (4160V Feeder Breaker) is received in the control room. You note the following indications:



The Div 2 Analog Trip System remains energized because:

- A. NSPS Solenoid (RPS) Inverter B continues to receive power from its NORMAL supply.
- B. Div 2 NSPS UPS Static Switch (SS) continues to receive power from its NORMAL supply.
- C. NSPS Solenoid (RPS) Inverter B has AUTOMATICALLY transferred to and is receiving power from its BACKUP supply.
- D. Div 2 NSPS UPS Static Switch (SS) has AUTOMATICALLY transferred to and is receiving power from its ALTERNATE supply.

Answer: B

Answer Justification

B is correct. The NSPS cabinets located in the Main Control Room (MCR) receive 120 VAC from NSPS UPS Power and 120VAC NSPS Solenoid (RPS) Power. Each NSPS cabinet contains two redundant power supply modules energized by NSPS UPS Power which in turn provide power to the Analog Trip System. The NORMAL supply to the Division 2 NSPS UPS is the Division 2 DC Bus (1DC14E). The ALTERNATE supply to the Division 2 NSPS UPS is the CB MCC F2 (0AP55EB) which is in turn supplied by the 480 V Bus B. The Static Switch (SS) will remain selected to and continue to receive power from its NORMAL supply.

A is plausible but incorrect. The candidate may select this response if he/she recognizes that neither NSPS Solenoid (RPS) UPS is affected by the malfunction but incorrectly believes that the Analog Trip System is energized via a NSPS Solenoid (RPS) UPS.

C is plausible but incorrect. The candidate may select this response if he/she incorrectly believes that that either NSPS Solenoid (RPS) UPS is affected by the malfunction and also believes that the Analog Trip System is energized via a NSPS Solenoid (RPS) UPS.

D is plausible but incorrect. The candidate may select this response if he/she recognizes that the Analog Trip System is energized via the Division 2 NSPS UPS but incorrectly believes that the NORMAL supply is the CB MCC F2 (0AP55EB) while the ALTERNATE supply is the Division 2 DC Bus (1DC14E).

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

700004.09

DISCUSS the effect:

- a. A total loss or malfunction of the NSPS System has on the plant.
- b. A total loss or malfunction of various plant systems has on the NSPS System.

KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
212000.K2.02	K2.02	2.7	2.9	2	1	1

System Name

[Reactor Protection System](#)

Category Statement

[Knowledge of electrical power supplies to the following: \(CFR: 41.7\)](#)

KA Statement

[Analog trip system logic cabinets](#)

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.7	41.7

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 3509.01</u> <u>CPS 5061.01 Sect. 5061-1B</u> <u>E02-1AP03 Sh 001</u>	<u>Revision #:</u> <u>20b</u> <u>28c</u> <u>AB</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12006</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>New</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>New question, wdk 03/08/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 3509.01</u> <u>CPS 5061.01</u> <u>E02-1RP99 Sh. 102</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

A DBA LOCA occurs from rated power.

LPCS fails to run.

What effect does the LPCS failure have on RPV water level and adequate core cooling?

	<u>RPV Water Level</u>	<u>Adequate Core Cooling</u>
A.	will remain < TAF	is NOT assured
B.	will remain < TAF	is assured
C.	will recover > TAF	is assured ONLY if LPCS restored
D.	will recover > TAF	is assured

Answer: D

Answer Justification

D is correct. The ECCS network is designed to have built in redundancy so that adequate (core) cooling can be provided, even in the event of specified failures. One such failure is that of the LPCS Emergency D/G which takes the LPCS and LPCI "A" systems out of service. With these conditions during a DBA LOCA, a short period of uncover is expected due to the relatively high capacity of the ECCS makeup systems.

A is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that the RPV water level will remain < TAF based on the given plant conditions nor will adequate core cooling be assured.

B is incorrect but plausible. For specific circumstances (such as RPV water level can not be restored and maintained > TAF following a blowdown in EOP-1A) the RPV water level could remain < TAF and adequate core cooling would be assured by Steam Cooling. This question asks about a situation where redundant systems would recover RPV water level > TAF. The candidate may select this response if he/she realizes that adequate core cooling will be assured but incorrectly believes that the conditions presented result on a reliance of Steam Cooling to assure adequate core cooling when in fact level will recover > TAF based on the loss of a single redundant system (LPCS).

C is incorrect but plausible. The candidate may select this response if he/she believes that RPV water level will recover > TAF ONLY if LPCS is restored. Since LPCS is one of the assumed single active failures, the ECCS network has the built-in redundancy to provide adequate core cooling (via submergence) in the event of a loss of the LPCS system. Therefore, RPV water level will recover to > TAF even if LPCS is not restored.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: MEMORY

Associated local objective(s):

209001.09	209001.09 DISCUSS the effect: <ol style="list-style-type: none"> 1. A total loss or malfunction of the LPCS System has on the plant. 2. A total loss or malfunction of various plant systems has on the LPCS System.
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
209001.K3.01	K3.01	3.8	3.9	2	1	1

System Name

Low Pressure Core Spray System

Category Statement

Knowledge of the effect that a loss or malfunction of the LOW PRESSURE CORE SPRAY SYSTEM will have on following: (CFR: 41.7 / 45.4)

KA Statement

Reactor water level

CFR Data**10CFR55-41 (RO) Data**

Para Num	Text
41.7	41.7

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>UFSAR Chapter 06</u> <u>TS Bases</u>	<u>Revision #:</u> <u>11</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12001</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>New</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>New question, wdk 03/07/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>UFSAR Chapter 06</u> <u>TS Bases</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>Yes</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

While operating at 90% power, a rupture of the TURBINE BUILDING INSTRUMENT AIR Header occurred. All automatic actions occurred as designed.

With NO OPERATOR ACTION, the INSTRUMENT AIR Header rupture in the TURBINE BUILDING will cause . . .

- A. multiple control rod drive drift alarms.
- B. automatic, continuous operation of the Screen Wash System on high ΔP .
- C. the Standby Liquid Control System storage tank level indication to fail high.
- D. the Turbine Oil Cooler Temperature Regulating Valve (1WS026) to fail closed.

Answer: A

Answer Justification

A is correct. The Turbine Building Instrument Air (IA) Header does not have automatic isolation valves. A leak in this header will result in a loss of air to the Containment and the RPS air headers. As the RPS air header depressurizes the scram pilot valves will randomly fail open depending on air header location and spring pressure.

B is incorrect. Screen wash bubblers will stop functioning. The automatic Traveling Screen start on high ΔP will not function. Upon a loss of air, the Screen Wash System must manually be placed into operation IAW CPS 3210.01, Screen Wash (SW). The candidate may select this response if he/she incorrectly believes that the loss of air pressure to the bubblers will initiate a high ΔP start of the Traveling Screens.

C is incorrect. The Standby Liquid Control System storage tank level indication will fail low until air pressure is restored. The candidate may select this response if he/she incorrectly believes that the loss of air pressure will cause tank level to indicate high.

D is incorrect. The Turbine Oil Cooler Temperature Regulating Valve (1WS026) fails open maximizing coolant flow through the Turbine oil cooler. The candidate may select this response if he/she incorrectly believes that the Regulating Valve (1WS026) fails close on loss of air such as WS079A (B, C) which are Plant Chilled Water System valves.

High Cognitive Level – Question meets the “High Cog” criteria because the multiple control rod drift alarms do not annunciate directly due to the rupture of the Turbine Building (TB) IA header but rather, it annunciates based on a chain of events caused by the loss of TB IA. The candidate must first recognize that Containment IA is directly affected by the loss of TB IA as the TB IA header supplies the Containment IA header and there is no isolation between them. Next, the candidate must then realize that the effect of this condition is to cause the RPS air header to depressurize as it is supplied by Containment IA. The candidate must then interpret the effect to the control rods themselves as random scram pilot valves begin to open as the pilot valve spring pressure overcomes the degrading RPS air header pressure. Finally, the candidate must recognize that the criteria to meet the ROD DRIFT annunciator to actuate (odd reed switch and no drive signal) can in fact be satisfied by the this set of conditions.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

300000.16	300000.16 EVALUATE the following Service and Instrument Air indications/responses and DETERMINE if the indication/ response is expected and normal. .1 Closure of Containment Instrument Air Header Isolation Valves
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
300000.K3.01	K3.01	2.7	2.9	2	1	1

System Name

Instrument Air System (IAS)

Category Statement

Knowledge of the effect that a loss or malfunction of the (INSTRUMENT AIR SYSTEM) will have on the following: (CFR: 41.7 / 45.6)

KA Statement

Containment air system

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.7	41.7

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 4004.01 Sect. 2.2.1</u>	<u>Revision #:</u> <u>9e</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-635471</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Bank</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>Improved distracter/distracter justifications, wdk 03/06/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 4004.01</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>Yes</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

The Standby Liquid Control (SLC) System Storage Tank Mixing Heater Switch (1C41A-S2) is currently in the AUTO position. In this position, the ____ (1) ____ heater cycles to maintain SLC Tank Temperature 75°F to 85°F to prevent ____ (2) ____.

- A. (1) Mixing
(2) precipitation of sodium pentaborate from solution
- B. (1) Mixing
(2) excessive loss of tank inventory due to evaporation
- C. (1) Operating
(2) precipitation of sodium pentaborate from solution
- D. (1) Operating
(2) excessive loss of tank inventory due to evaporation

Answer: C

Answer Justification

C is correct. The Operating Heater (D002) is rated at 10 kW and is used to maintain tank temperature between 75°F and 85°F during normal operation to prevent the chemical from precipitating (coming out of solution).

A is incorrect but plausible. The candidate may select this response if he/she realizes that the SLC Tank Temperature is maintained between 75°F and 85°F to prevent precipitation of sodium pentaborate from solution but incorrectly believe that the Mixing heater cycles to maintain SLC Tank Temperature when the SLC System Storage Tank Mixing Heater Switch (1C41A-S2) is in the AUTO position.

B is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that the Mixing heater cycles to maintain SLC Tank Temperature when the SLC System Storage Tank Mixing Heater Switch (1C41A-S2) is in the AUTO position and that the reason why the SLC Tank Temperature is maintained between 75°F and 85°F is to prevent inventory loss. Although the mechanism of evaporation is accelerated as temperature is elevated, this would not be a reason for raising the temperature of the tank above ambient.

D is incorrect but plausible. The candidate may select this response if he/she realizes that the Mixing heater cycles to maintain SLC Tank Temperature when the SLC System Storage Tank Mixing Heater Switch (1C41A-S2) is in the AUTO position but incorrectly believe that the reason why the SLC Tank Temperature is maintained between 75°F and 85°F is to prevent inventory loss. Although the mechanism of evaporation is accelerated as temperature is elevated, this would not be a reason for raising the temperature of the tank above ambient.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: MEMORY

Associated local objective(s):

211000.03	211000.03 DESCRIBE the function, operation, interlocks, trips, and power supplies of the following STANDBY LIQUID CONTROL System components. .1 SLC Storage Tank .2 SLC Storage Tank Heaters .3 SLC Pumps .4 Squib Valves .5 SLC Test Tank .6 Neutron Absorption Solution
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
211000.K4.03	K4.03	3.8	3.9	2	1	1

System Name

Standby Liquid Control System

Category Statement

Knowledge of STANDBY LIQUID CONTROL SYSTEM design feature(s) and/or interlocks which provide for the following: (CFR: 41.7)

KA Statement

Keeping sodium pentaborate in solution

CFR Data**10CFR55-41 (RO) Data**

Para Num	Text
41.7	41.7

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	N-CL-OPS-211000 Sect. IV.B N-CL-OPS-211000 Sect. VI.B CPS3314.01E001Page 3 of 5 E02-1SC99 Sheet 1, 3, 503	<u>Revision #:</u> 1 1 9a H, N, E
<u>Justification for Non SRO CFR Link:</u>	N/A	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	CL-ILT-120039	
<u>Question Source: (i.e. New, Bank, Modified)</u>	New	
<u>Low KA Justification (if required):</u>	N/A	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	New question, wdk 03/29/2011	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	None	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	N-CL-OPS-211000 CPS3314.01E001Page 3 of 5 E02-1SC99 Sheet 1, 3, 503	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	No	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	N/A	

A plant transient has occurred and current plant conditions are as follows:

- An automatic MSIV closure has occurred due to high main steam line flow.
- Reactor Water Level is –50 inches and rising at 3 inches per minute.
- Reactor pressure is 950 psig and being controlled by Safety Relief Valves (SRVs).
- Both ADS Instrument Air Header Pressure indicators on P601 read 148 psig and are slowly lowering.
- Annunciator 5040-6F, HIGH/LOW PRESS ADS IA SUPPLY DIV 1 OR 2 is alarming.

From these indications what could be the possible cause of the annunciator?

- A. Compressed Gas Outboard Isolation Valves (1IA012A & 13A) automatically closed on Group 1, and 1IA012B & 013B failed to open.
- B. Compressed Gas Outboard Isolation Valves (1IA012A & 13A) automatically closed on Group 8, and 1IA012B & 013B failed to open.
- C. ADS Supply Header Inboard Isolation Valves (1IA012B & 13B) automatically closed on Group 1, and 1IA012A & 013A failed to open.
- D. ADS Supply Header Inboard Isolation Valves (1IA012B & 13B) automatically closed on Group 8, and 1IA012A & 013A failed to open.

Answer: D

Answer Justification

D is correct. 1IA012B (Div 1) & 1IA013B (Div 2) supply the air amplifier output to the ADS and LLS SRVs. They automatically close on a Group 8 isolation signal (RPV Level Low -45.5"). 1IA012A (Div 1) & 1IA013A (Div 2) makes available an alternate source of air from either the ADS Backup Air Bottles or an outside air connection. With their respective hand switches in AUTO, 1IA012A/13A will automatically open when 1IA012B/13B is fully closed.

A is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that 1IA012A/13A supply the air amplifier output to the ADS and LLS SRVs, that they automatically close on a Group 1 isolation signal (MSL Flow High 279 psid) and 1IA012B/13B provide the alternate source of air.

B is incorrect but plausible. The candidate may select this response if he/she recognizes Group 8 isolation signal but incorrectly believes that 1IA012A/13A supply the air amplifier output to the ADS and LLS SRVs and 1IA012B/13B provides the alternate source of air.

C is incorrect but plausible. The candidate may select this response if he/she recognizes that 1IA012B/13B supply the air amplifier output to the ADS and LLS SRVs and 1IA012A/13A provide an alternate source of air but incorrectly believes that 1IA012B/13B automatically close on a Group 1 isolation signal.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

300000.06	300000.06 Given a Service and Instrument Air System Annunciator, DESCRIBE: a. The condition causing the annunciator b. Any automatic actions c. Any operational implications
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
218000.K4.04	K4.04	3.5	3.6	2	1	1

System Name

Automatic Depressurization System

Category Statement

Knowledge of AUTOMATIC DEPRESSURIZATION SYSTEM design feature(s) and/or interlocks which provide for the following: (CFR: 41.7)

KA Statement

Insures adequate air supply to ADS valves: Plant-Specific

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.7	41.7

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 4001.02 C001</u> <u>CPS 5040.06 Sect. 5040-6F</u>	<u>Revision #:</u> <u>15b</u> <u>28b</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-5898</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Bank</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>Improved explanation/distracter justification, wdk 03/06/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 4001.02 C001</u> <u>CPS 5040.06</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>Yes</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

PLANT CONDITIONS:

- The Reactor Mode Switch is in STARTUP/HOT STANDBY.
- All IRMs are selected to range 5.
- Reactor power is midscale on range 5 of the Intermediate Range Monitors (IRMs).
- Source Range Monitor (SRM) "B" is failed upscale and is bypassed.

From the following, choose the ONE statement that describes an operating condition that will cause the Rod Control and Information System (RC&IS) to generate a rod block.

- A. The SRM channel "A" indicates 7 E4 cps and its detector is fully inserted.
- B. The SRM channel "C" indicates 150 cps and its detector is partially withdrawn.
- C. The IRM channel "B" indicated 30/125 scale and its detector is fully inserted.
- D. The IRM channel "F" indicated 8/125 scale and its detector is partially withdrawn.

Answer: D

Answer Justification

D is correct. A Rod Withdrawal Block is generated if a non-bypassed IRM is upscale, inop, downscale and when a detector is not full in unless the Reactor Mode switch is in RUN. Based on the given plant conditions, the IRM Detector Not Full In will generate a Rod Withdrawal Block.

A is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that a Rod Withdrawal Block is generated based on the given plant conditions. The condition that the candidate may be considering is SRM Channel Upscale at 1 E5 cps. This condition is not met.

B is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that a Rod Withdrawal Block is generated based on the given plant conditions. The condition that the candidate may be considering is SRM Detector Not Full In and < 100 cps. This condition is not met.

C is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that a Rod Withdrawal Block is generated based on the given plant conditions. The condition that the candidate may be considering is IRM Channel Downscale at 5/125 full scale. This condition is not met.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

215003.05	215003.05 Discuss the IRM system automatic functions/interlocks including purpose, signals, set points, sensing points, when bypassed, how/when they are. .1 Scrams .2 Control Rod Withdrawal Blocks
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
215003.K5.03	K5.03	3.0	3.1	2	1	1

System Name

Intermediate Range Monitor (IRM) System

Category Statement

Knowledge of the operational implications of the following concepts as they apply to INTERMEDIATE RANGE MONITOR (IRM) SYSTEM : (CFR: 41.5 / 45.3)

KA Statement

Changing detector position

CFR Data**10CFR55-41 (RO) Data**

Para Num	Text
41.5	41.5

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 3304.02 Sect. 8.2.8</u>	<u>Revision #:</u> <u>18a</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-1461</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Bank</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>Improved stem/distracter justifications, wdk 03/07/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 3304.02</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

The plant has commenced a startup following a maintenance period in which an SRM detector was replaced.

Under which of the following conditions would that Source Range Monitor (SRM) REACTOR PERIOD indication be considered INVALID?

When the new SRM detector...

- A. Full IN light is lit.
- B. is being withdrawn from the core.
- C. Full OUT light is lit.
- D. has been partially inserted into the core.

Answer: B

Answer Justification

B is correct. Reactor period is the time rate of change of neutron flux. Each SRM detector is used to provide an indication of reactor period. The indication of reactor period is valid regardless of the detector's position in the core, but only as long as the SRM is NOT moving.

A, C and D are all plausible but incorrect. In the case of each distracter, the detector is stationary in some position. The 'IN' light is lit when the SRM detector is fully inserted into the core. The 'OUT' light is lit when the SRM detector is fully withdrawn from the core. The candidate may select any of these responses if he/she understands that the SRM detector is used to provide an indication of reactor period but incorrectly believes that a specific relative detector location will invalidate its output as opposed to the act of moving the detector. A stationary SRM detector (i.e. fully inserted) could be considered a valid/plausible response if that detector had been previously "burned out" by exposure to high power conditions for an extended period of time.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: MEMORY

Associated local objective(s):

215004.10	215004.10 EXPLAIN the reasons for given Source Range Monitor System operating limits and precautions
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
215004.K5.01	K5.01	2.6	2.6	2	1	1

System Name

[Source Range Monitor \(SRM\) System](#)

Category Statement

[Knowledge of the operational implications of the following concepts as they apply to SOURCE RANGE MONITOR \(SRM\) SYSTEM : \(CFR: 41.5 / 45.3\)](#)

KA Statement

[Detector operation](#)

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.5	41.5

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>N-CL-OPS-215004 pg 24</u> <u>CPS 5005.02 Sect. 5005-2K</u>	<u>Revision #:</u> <u>1</u> <u>29b</u>
<u>Justification for Non SRO CFR Link:</u>		
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-2403</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Bank</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>Improved stem/distracter justifications, wdk 05/24/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>N-CL-OPS-215004</u> <u>CPS 5005.02</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

Plant conditions are as follows:

- A Loss of Coolant Accident has occurred.
- Drywell pressure is 4.4 psig and rising at 0.1 psig / 10 min.
- Containment pressure is 2.8 psid and rising at 0.05 psid / 20 min.

With respect to CONTAINMENT PURGE MODE, Standby Gas Treatment Train (VG) train 'A' is:

- A. Available; currently in standby but the VG Exhaust Fan 'A' (0VG02CA) must be manually started and aligned to Containment Purge by opening the VG Train 'A' Drywell Purge Inlet Damper (1VG01YA).
- B. Available; currently running due to high Drywell pressure but must be manually aligned to Containment Purge by opening the VG Train 'A' Drywell Purge Inlet Damper (1VG01YA).
- C. Unavailable; currently running due to high Drywell pressure, but the VG Train 'A' Drywell Purge Inlet Damper (1VG01YA) will NOT open due to high Containment pressure.
- D. Unavailable; the VG Exhaust Fan 'A' (0VG02CA) tripped on high Containment pressure.

Answer: C

Answer Justification

C is correct. Both trains of VG automatically start on a Drywell Pressure High signal ≥ 1.68 psig. 1VG01YA/B will not open if Containment Pressure is ≥ 2.6 psid.

A is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that no initiation criteria for VG have been satisfied and that the current plant conditions will allow 1VG01YA to open.

B is incorrect but plausible. The candidate may select this response if he/she recognizes that both trains of VG automatically started on a Drywell Pressure High signal but incorrectly believes that the current plant conditions will allow 1VG01YA to open.

D is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that the VG Exhaust Fans trip on high Containment pressure.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

261000.03	261000.03 DESCRIBE the function, operation, interlocks, trips, and power supplies of the following VG SBTGT STANDBY GAS TREATMENT System components. .1 Normal Mode .2 Containment Purge .3 Cooling Fan Operation .4 System Initiation .5 Containment HVAC Isolation Valve Radiation Interlock Bypass Switches .6 System Initiation Reset .7 Containment Pressure High Interlock
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
261000.K6.09	K6.09	3.1	3.3	2	1	1

System Name

Standby Gas Treatment System

Category Statement

Knowledge of the effect that a loss or malfunction of the following will have on the STANDBY GAS TREATMENT SYSTEM : (CFR: 41.7 / 45.7)

KA Statement

Primary containment high pressure: Plant-Specific

CFR Data**10CFR55-41 (RO) Data**

Para Num	Text
41.7	41.7

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 3319.01 Sect. 8.2.5</u>	<u>Revision #:</u> <u>16</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-6305 / ILT 09-1NRC Exam</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Bank</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>Improved distracter "C"/distracter justifications, wdk 03/07/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 3319.01</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

Given the following plant conditions:

- Reactor startup is in progress
- Reactor Pressure is 917 psig
- Reactor Power is 4%

NS4 Main Steam Line Pressure Instrument B21-N676A is currently in a “tripped” status due to a surveillance in progress and Annunciator 5067-2D, MAIN STEAM LINE PRESSURE LOW is locked in.

Which of the following describes the plant response when the NS4 Main Steam Line Pressure Instrument B21-N676D fails low?

- A. A GROUP 1 isolation occurs.
- B. Outboard MSIVs (1B21-F028A-D) ONLY trip SHUT.
- C. All MSIVs remain OPEN; MSIV low main steam line pressure isolation signals are currently bypassed.
- D. All MSIVs remain OPEN; only the “A” solenoids for the Inboard MSIVs (1B21-F022A-D) and Outboard MSIVs (1B21-F028A-D) are deenergized.

Answer: C

Answer Justification

C is correct. The candidate must evaluate the plant conditions and recognize that the Mode Switch will be in STARTUP. With the Mode Switch in any position other than RUN, the trip logic to deenergize the ‘A’ and ‘B’ solenoids of either the Inboard or Outboard MSIVs is blocked. All solenoids remain energized and no MSIVs trip regardless of the instrument output.

A is incorrect but plausible. The candidate may select this response if he/she recognizes that the instrument channel logic (two-out-of-four trip signals) is met to initiate a Group 1 isolation but fails to recognize that with current plant conditions, the mode switch will be in startup. Group 1 isolation is bypassed when not in RUN.

B is incorrect but plausible. The candidate may select this response if he/she recognizes that the Outboard MSIVs are associated with Div 1 and Div 4 (i.e. Div 1 logic trips the A solenoid and Div 4 logic trips the B solenoids) and based on this information believes that only the Outboard MSIVs (1B21-F028A-D) isolate while again incorrectly believing that the position of the Mode Switch has no effect on the trip logic. A parallel exists here as the candidate may remember that depressing the A & D CRVICS manual pushbuttons would close the outboard MSIVs, but not the inboard MSIVs.

D is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that the Div 1 and 4 logic trips the A solenoids and Div 2 and 3 logic trips the B solenoids. This would set up the candidate to believe that since only the “A” solenoids are deenergized, there would be no effect. A parallel exists here as the candidate may remember that for RPS logic, which also uses ‘A’ & ‘B’ solenoids, if ‘A’ RPS bus were deenergized, only the ‘A’ scram solenoids would be deenergized.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

239001.05	239001.05 Discuss the MAIN STEAM system automatic functions/interlocks including purpose, signals, set points, sensing points, when bypassed, how/when they are.
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
223002.K6.06	K6.06	2.8	2.9	2	1	1

System Name

Primary Containment Isolation System/Nuclear Steam Supply Shut-Off

Category Statement

Knowledge of the effect that a loss or malfunction of the following will have on the PRIMARY CONTAINMENT ISOLATION SYSTEM/NUCLEAR STEAM SUPPLY SHUT-OFF : (CFR: 41.7 / 45.7)

KA Statement

Various process instrumentation

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.7	41.7

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	N-CL-OPS-239001 Pg. 22/23 CPS 9030.01C004 CPS 5067.02 E02-1NB99 Sheet 001/214/216	<u>Revision #:</u> 1 25b 32d J/C/H
<u>Justification for Non SRO CFR Link:</u>	N/A	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	CL-ILT-12078	
<u>Question Source: (i.e. New, Bank, Modified)</u>	New	
<u>Low KA Justification (if required):</u>	N/A	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	New question, wdk 07/26/2011	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	None	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	N-CL-OPS-239001 CPS 9030.01C004 CPS 5067.02 E02-1NB99 Sheet 001/214/216	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	No	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	N/A	

The 'C' Area operator has been directed to transfer the 4160V Bus 1A1 switchgear control power fuses from the MAIN fuse block to the RESERVE fuse block for maintenance.

During the transfer, ALL of the following Main Control Room indications are expected, EXCEPT...

- A. Annunciator 5060-3B, DC FAILURE 4160V BUS is lit.
- B. Postage Stamp for 4160V BUS 1A1 RES BKR NOT AVAIL is lit.
- C. Annunciator 5060-2E, UNDERVOLTAGE 125V DC MCC 1A is lit.
- D. Indicating lights (red/amber/green) for 4160V BUS 1A1 MAIN BKR are NOT lit.

Answer: C

Answer Justification

C is correct. The Annunciator 5060-2E, UNDERVOLTAGE 125V DC MCC 1A is lit when under voltage relay 27-DC1A1 drops out (at 114V DC). Relay 27-DC1A1 senses the 125V DC MCC 1A bus voltage. The fuses being transferred by the 'C' Area operator are located within the 4160V Bus 1A1 switchgear, downstream of the 125V DC MCC 1A. Therefore, this annunciator is unaffected.

A is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that the Control Power Monitor (74-21A1) remains energized when the 'C' Area operator transfers the 4160V Bus 1A1 switchgear control power fuses from the MAIN fuse block to the RESERVE fuse block. However, the sensing point for Annunciator 5060-3B, DC FAILURE 4160V BUS is downstream of the control power fuses and will alarm when the fuses are removed.

B is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that the Control Power Monitor (74-221A1-1) remains energized when the 'C' Area operator transfers the 4160V Bus 1A1 switchgear control power fuses from the MAIN fuse block to the RESERVE fuse block. However, the sensing point for Postage Stamp Lit for 4160V BUS 1A1 RES BKR NOT AVAIL is downstream of the control power fuses and will light when the fuses are removed.

D is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that the indicating lights (red/amber/green) for 4160V Bus 1A1 main circuit breaker are unaffected by 'C' Area operator transfers the 4160V Bus 1A1 switchgear control power fuses from the MAIN fuse block to the RESERVE fuse block. However, the power for these indicating lights is lost when the fuses are removed.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: MEMORY

Associated local objective(s):

262001.07	262001.07 Given the Auxiliary Power system, DESCRIBE the systems supporting and the nature of the support.
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
262001.A1.01	A1.01	3.1	3.4	2	1	1

System Name

[A.C. Electrical Distribution](#)

Category Statement

[Ability to predict and/or monitor changes in parameters associated with operating the A.C. ELECTRICAL DISTRIBUTION controls including: \(CFR: 41.5 / 45.5\)](#)

KA Statement

[Effect on instrumentation and controls of switching power supplies](#)

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.5	41.5

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 5060.02 Sect. 5060-2E</u> <u>E02-1DC01 Sheet 001</u> <u>E02-1DC99 Sheet 001</u>	<u>Revision #:</u> <u>26</u> <u>AF</u> <u>AL</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12005</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>New</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>New question, wdk 06/13/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 5060.02</u> <u>E02-1DC01</u> <u>E02-1DC99</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

A LOCA has occurred.

The only injection sources available are LPCI A and B.

Each is injecting at 5000 gpm.

RPV water level is -50 inches and rising at 10 inches per minute.

(Assume an average RPV volume of 200 gallons/inch)

You have been directed to place RHR A in Containment Spray.

After placing RHR A in Containment Spray, RPV water level will...

- A. rise at no more than 5 inches per minute.
- B. lower at no more than 10 inches per minute.
- C. lower at greater than 10 inches per minute but less than 20 inches per minute.
- D. lower at 20 inches per minute or greater.

Answer: C

Answer Justification

C is correct. With a total injection rate of 10,000 gpm and the RPV containing 200 gallons/inch, 8,000 gpm are leaking out the break. When RHR A is shifted to Containment Spray, the amount of water going into the RPV is less than the amount going out the break by 3,000 gpm. Therefore, with just RHR B injecting, level will go down at a rate of 15 inches per minute.

A is incorrect but plausible. The candidate may select this response if he/she does not attempt to determine the change in the total volume of water entering the RPV but incorrectly makes the assumption that if two pumps (equal volume) make the level rise at 10 inches per minute that one pump should make the level rise at half that amount or 5 inches per minute.

B is incorrect but plausible. The candidate may select this response if he/she realizes the two RHR pumps were originally putting in 2,000 gpm more than the leak was losing and then when RHR A is shifted to Containment Spray, the amount of water going into the RPV is less than the amount going out the break by 3,000 gpm. By incorrectly subtracting the 2,000 gpm (that was causing level to go up 10 inches per minute) from the 3,000 gpm deficit yields a 1,000 gpm deficit (which would cause level to go down by 5 inches per minute).

D is incorrect but plausible. The candidate may select this response if he/she does not attempt to determine the change in the total volume of water entering the RPV but incorrectly makes the assumption that a loss or deficit of 5,000 gpm (when RHR A is shifted to Containment Spray) equates to level lowering at 25 inches per minute.

General Info

Question Use: [Initial](#)

Question Level: [RO](#)

Station: [Clinton](#)

Cognitive Level: [HIGHER](#)

KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
203000.A1.01	A1.01	4.2*	4.3*	2	1	1

System Name

[RHR/LPCI: Injection Mode \(Plant Specific\)](#)

Category Statement

[Ability to predict and/or monitor changes in parameters associated with operating the RHR/LPCI: INJECTION MODE \(PLANT SPECIFIC\) controls including: \(CFR: 41.5 / 45.5\)](#)

KA Statement

[Reactor water level](#)

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.5	41.5

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 4402.01</u>	<u>Revision #:</u> <u>28</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12069</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>New</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>New question, wdk 03/07/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 4402.01</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

Following the receipt of an ADS OR SAFETY RELIEF VALVE LEAKING annunciator, operators observe the following:

- Recorder 1H13-P614, ADS Safety Valve Temperature, is reading 235 °F and steady for Safety Relief Valve (SRV) 1B21-F047C.
- SRV MONITORING SYSTEM TROUBLE alarm is NOT lit.
- Suppression Pool temperature reads 85 °F and steady on the Safety Parameter Display System (SPDS) display.
- Reactor power remains at rated thermal power.
- Main Generator MWe remains constant.

These conditions REQUIRE the operator to:

- A. Place the control switch to OPEN and then back to OFF.
- B. Attempt to shut the valve by removing fuses for the “A” and “B” solenoids.
- C. Record the actuation per CPS No. 3831.01, SAFETY RELIEF VALVE REPORT.
- D. Take no further specific action other than to monitor as part of routine shift activities.

Answer: D

Answer Justification

D is correct. Per CPS 4009.01, Step 4.1, If SRV is only "leaking by" as indicated by a tailpipe temperature of 235°F (confirmed as "not open" by no acoustic monitor noise and no MWe decrease), then exit this procedure. Leaking SRVs are routinely monitored as part of shift duties. A leaking SRV is typically 230°F to 270°F.

A, B and C are all incorrect but plausible. In the case of each distracter, these are actions performed for an open SRV. The candidate may select any one of these responses if he/she fails to recognize that the SRV is NOT open or that there are specific actions for a leaking SRV separate from an open SRV.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

239002.11	<p>239002.11</p> <p>EVALUATE given key MOISTURE SEPARATOR REHEATER System parameters, if needed DETERMINE a course of action to correct or mitigate the following abnormal condition(s):</p> <ul style="list-style-type: none"> .1 Rising level in Reheater Drain Tank .2 Rising level in Moisture Separator Drain Tank .3 Moisture Separator Reheaters not balanced or only one inservice (including impact on Main Turbine) .4 Failure to close Reheater Drain Tank normal drain valves during Moisture Separator Reheater shutdown .5 Failure to hold handswitch for Main Steam to Moisture Separator Reheater Inlet/Bypass Valve in closed position for 35 seconds
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
239002.A2.02	A2.02	3.1	3.2	2	1	1

System Name

Relief/Safety Valves

Category Statement

Ability to (a) predict the impacts of the following on the RELIEF/SAFETY VALVES ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: (CFR: 41.5 / 45.6)

KA Statement

Leaky SRV

CFR Data**10CFR55-41 (RO) Data**

Para Num	Text
41.5	41.5

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 4009.01 Sect. 1.1</u> <u>CPS 3101.01 Sect. 2.2.2</u>	<u>Revision #:</u> <u>12a</u> <u>20f</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-LC-1416</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Bank</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>Improved distracter justification, wdk 03/16/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 4009.01</u> <u>CPS 3101.01</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

A Battery EQUALIZING charge has been in progress for several hours.
Battery Room ventilation is lost.

Identify the impact and the required step(s) taken to mitigate that impact.

- A. Battery capacity will be reduced. Secure the EQUALIZING Battery charge immediately.
- B. Battery cell electrolyte level will rapidly lower below the top of the plates. Add additional electrolyte to restore levels.
- C. Battery bus voltage will lower. Cross-connect the Swing Battery Charger to supplement the in service Battery Charger.
- D. Battery Room hydrogen concentration will rapidly rise. Open the battery room door and set up a portable air blower to ventilate the room.

Answer: D

Answer Justification

D is correct. If the battery in the affected room is being charged, H₂ concentration may increase rapidly. If H₂ concentration reaches 2%, CPS 3412.01 Essential Switchgear Heat Removal (VX) directs opening the battery room door and setting up portable ventilation.

A is incorrect but plausible. The candidate may select this response if he/she realizes that Battery Room temperature impacts battery capacity but incorrectly believes that a higher than normal temperature affects battery capacity when in fact a lower than normal temperature reduces battery capacity while higher than normal temperature accelerates self-discharge and decreases battery life. Additionally, there is no requirement to secure the EQUALIZING Battery charge based on given plant conditions.

B is incorrect but plausible. The candidate may select this response if he/she recognizes the adverse condition but incorrectly believes electrolyte levels will rapidly lower due to rising temperature (evaporation) when in fact the greater effect is the gases generated during the EQUALIZING Battery charge which will cause electrolyte levels to rise. Additionally, electrolyte is NEVER added to an in service battery, only water as required to make up for evaporation.

C is incorrect but plausible. The candidate may select this response if he/she recognizes the adverse condition but incorrectly believes that the battery bus voltage will lower with an EQUALIZING Battery charge in progress. Additionally, a Swing Battery Charger is only placed into service if a Loss of a Battery Charger occurs.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

262003.09	262003.09 DISCUSS the effect: c. A total loss or malfunction of the Switchgear Heat Removal System has on the plant. b. A total loss or malfunction of various plant systems has on the Switchgear Heat Removal System. .1 Loss of battery room exhaust fans on room hydrogen concentration .2 Loss of Plant Chilled Water .3 Loss of Shutdown Service Water .4 Loss of Instrument Air
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
263000.A2.02	A2.02	2.6	2.9	2	1	1

System Name

D.C. Electrical Distribution

Category Statement

Ability to (a) predict the impacts of the following on the D.C. ELECTRICAL DISTRIBUTION ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: (CFR: 41.5 / 45.6)

KA Statement

Loss of ventilation during charging

CFR Data**10CFR55-41 (RO) Data**

Para Num	Text
41.5	41.5

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 3412.01 Sect. 8.2.3</u>	<u>Revision #:</u> <u>15</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12010</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>New</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>New question, wdk 03/08/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 3412.01</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

The following plant conditions exist:

- Reactor Power is 60%.
- Reactor Recirculation Pumps are in fast speed.
- TDRFPs A and B are in service, with flow through each feed pump approximately equal.
- The amber “Control Signal Failure” light for TDRFP A on 1H13-P680 has just turned on.

Then a trip of a Reactor Recirculation pump occurs and the plant does NOT scram.

Describe the expected response of TDRFP A (assuming NO OPERATOR ACTION over the next 30 seconds).

- A. flow will rise.
- B. flow will lower.
- C. flow will NOT change.
- D. will trip on low suction pressure.

Answer: A

Answer Justification

A is correct. The reduction in reactor power caused by the Reactor Recirculation pump trip will cause a corresponding rise in RPV water level. TDRFP B will slow down in response to the rising RPV water level while the speed of TDRFP A remains constant due to the Control Signal Failure. The overall effect will be a rise in the TDRFP suction pressure. Therefore, even though the speed of TDRFP A is locked, the higher suction pressure will cause a corresponding rise in TDRFP A flow.

Distracters:

B is incorrect but plausible. The candidate may select this response if he/she fails to recognize that the speed of TDRFP A is locked and therefore believes incorrectly that the TDRFP A will slow down (similar to TDRFP B) in response to RPV level rising causing TDRFP A flow to lower.

C is incorrect but plausible. The candidate may select this response if he/she recognizes that the speed of TDRFP A is locked, but discounts the effect of TDRFP B on suction pressure and incorrectly concludes that TDRFP pressure will remain constant and that TDRFP A flow will stay the same.

D is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that the overall effect of the event will be a lowering TDRFP suction pressure which is severe enough to initiate a trip on low suction pressure.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

259002.15D1	259002.15 Given FEEDWATER CONTROL System initial conditions, PREDICT how the system and/or plant parameters will respond to the manipulation of the following controls. .1 Control signal failure to the Feed Reg Valve (1FW004) .2 Control signal failure to a Turbine Driven Reactor Feedwater Pump .3 Reactor Feedwater Pump Flow Controller failure .4 Reactor water level signal failure (high/low/as is) to the Startup Level Controller .5 Reactor water level signal failure (high/low/as is) to the Master Level Controller .6 Feedwater flow signal failure to the Master Level Controller .7 Steam flow signal failure to the Master Level Controller .8 Startup Level Controller failure .9 Master Level Controller failure .10 Loss of 125VDC
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
259002.A3.10	A3.10	3.1	3.0	2	1	1

System Name

Reactor Water Level Control System

Category Statement

Ability to monitor automatic operations of the REACTOR WATER LEVEL CONTROL SYSTEM including: (CFR: 41.7 / 45.7)

KA Statement

TDRFP lockup: TDRFP

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.7	41.7

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 3103.01 Sect. 8.3.6</u> <u>CPS 5002.03 Sect. 5002-3P</u>	<u>Revision #:</u> <u>25</u> <u>27</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-6997 / ILT 09-1 NRC Exam</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Bank</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter “b” to make plausible based on OTPS review)</u>	<u>Improved distracter justification, wdk 03/16/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 3103.01</u> <u>CPS 5002.03</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

Plant is at rated power.

Annunciator 5012-5A, TROUBLE COMPUTER UPS 1A is received in the Main Control Room due to an inverter input breaker trip.

Which of the following indicates that the automatic transfer to the alternate source was UNSUCCESSFUL?

- A. Reactor low water level alarm.
- B. MSIV Position indicating lights are NOT lit.
- C. One half of the Scram Solenoids are deenergized.
- D. SDV Vent & Drain Valve Position indicating lights are NOT lit.

Answer: A

Answer Justification

A is correct. A loss of UPS 1A will cause a loss of power to Feedwater Level Control (FWLC) which will cause the Feed pumps to slow down and the Reactor water level to lower.

B is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that the MSIV Indication is powered from UPS 1A. MSIV Indication is powered from NSPS.

C is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that the Scram Solenoids are powered from UPS 1A. One half of Scram Solenoids are powered from each NSPS Solenoid (RPS) bus.

D is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that the SDV Vent & Drain Valve position is powered from UPS 1A. SDV Vent & Drain Valve position is powered from NSPS.

UPS, NSPS and NSPS Solenoid (RPS) are all instrument buses.

High Cognitive Level – Question meets the “High Cog” criteria because the Reactor low water level alarm does not annunciate directly due to the loss of UPS 1A but rather, it annunciates based on a chain of events caused by the loss of power. The candidate must first evaluate the loss of UPS 1A itself. In this case, the direct impact is to FWLC. The candidate must then realize that the effect of this condition is to cause the Feed pumps to slow down. Finally, the candidate must interpret the effect to the plant (i.e. reactor water level lowers) and realize that this condition will cause the Reactor low water level alarm to annunciate.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

262002.06	262002.06 Given an UPS System Annunciator, DESCRIBE: a. The condition causing the annunciator b. Any automatic actions c. Any operational implications
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
262002.A3.01	A3.01	2.8	3.1	2	1	1

System Name

Uninterruptable Power Supply (A.C./D.C.)

Category Statement

Ability to monitor automatic operations of the UNINTERRUPTABLE POWER SUPPLY (A.C./D.C.) including: (CFR: 41.7 / 45.7)

KA Statement

Transfer from preferred to alternate source

CFR Data**10CFR55-41 (RO) Data**

Para Num	Text
41.7	41.7

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 3509.01C005 App. A</u>	<u>Revision #:</u> <u>5a</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12074</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Modified from CL-ILT-5879</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>Modified from CL-ILT-5879, Improved answer/distracters and justifications, wdk 03/16/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 3509.01C005</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

The reactor is currently operating at 57% thermal power and 65% core flow.

The following conditions exist pertaining to the APRMs:

- APRM "B" AGAF is 0.97
- 15 LPRMs bypassed in channel "C"
- 16 LPRMs bypassed in channel "D"
- Sensor Bypass switches are in Normal

APRM channel "A" power supply then fails to 0 VDC.

What is the effect, if any, of the above conditions?

- A. No automatic actions occur.
- B. An OPRM Instability Trip is ENABLED.
- C. Reactor automatically scrams immediately.
- D. Reactor remains critical but a Rod Withdrawal Block automatically initiates.

Answer: D

Answer Justification

D is correct. When the APRM A power supply fails low, an APRM A INOPERABLE TRIP is created. Thus 1 of the 4 APRMS are in trip state resulting in a rod withdrawal block.

A is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that none of the plant conditions meet the criteria to initiate any of the other responses.

B is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that the plant conditions meet the requirements to actuate the OPRM ENABLED annunciator ($\geq 25\%$ power AND $\leq 60\%$ core flow).

C is incorrect but plausible. The candidate may select this response if he/she recognizes a scram is initiated by an APRM INOPERABLE TRIP signal incorrectly believes that two conditions described above would generate an INOPERABLE TRIP signal.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

215005.16	215005.16 EVALUATE the following AVERAGE POWER RANGE MONITOR indications/responses and DETERMINE if the indication/ response is expected and normal. .1 LPRM failure Downscale .2 LPRM failure Upscale .3 Degraded detector power supply .4 Bypass of a failed LPRM .5 APRM failure Downscale .6 APRM failure Upscale .7 Loss of power to an APRM Channel .8 Loss of Flow Signal
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
215005.A4.06	A4.06	3.6	3.8	2	1	1

System Name
Average Power Range Monitor/Local Power Range Monitor System

Category Statement
Ability to manually operate and/or monitor in the control room: (CFR: 41.7 / 45.5 to 45.8)

KA Statement
Verification of proper functioning/ operability

CFR Data**10CFR55-41 (RO) Data**

Para Num	Text
41.7	41.7

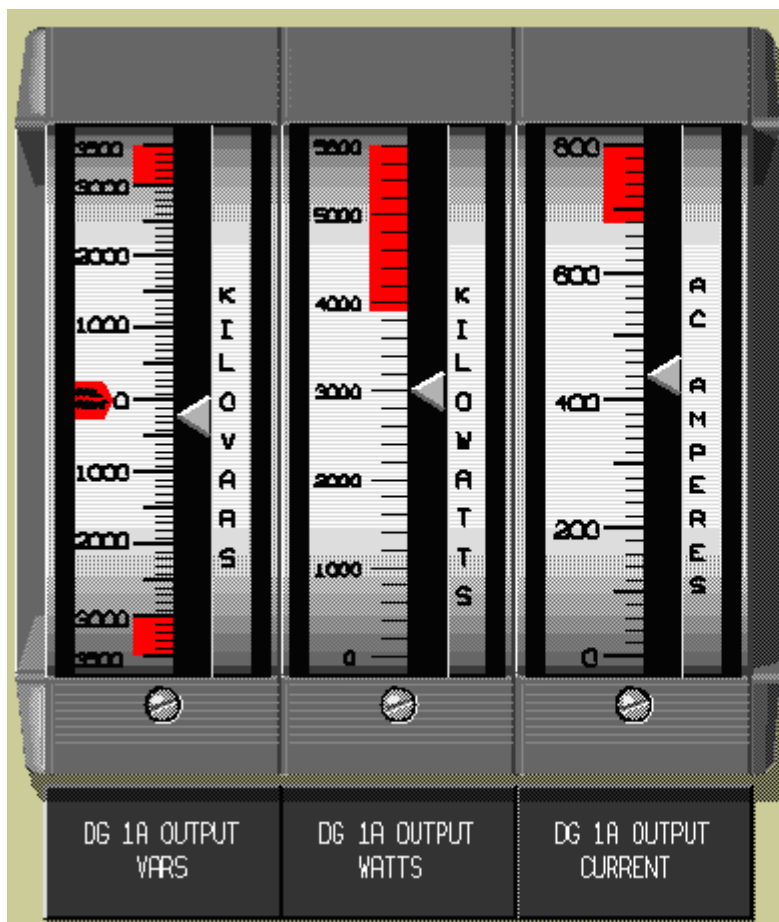
10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	CPS 5004.01 Sect. 5004-1H CPS 5005.01 Sect. 5005-1J CPS 5006.03 Sect. 5006-3D	<u>Revision #:</u> 27c 29c 32c
<u>Justification for Non SRO CFR Link:</u>	N/A	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	CL-ILT-12056	
<u>Question Source: (i.e. New, Bank, Modified)</u>	Modified from CL-ILT-1000	
<u>Low KA Justification (if required):</u>	N/A	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	Modified Stem to make a distracter the correct answer, Improved distracter justifications, wdk 04/11/2011	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	None	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	CPS 5004.01 CPS 5005.01 CPS 5006.03	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	No	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	N/A	

The 1A DG is running in parallel with RAT B.



As the 1A DG voltage regulator switch is taken to the "Raise" position, which direction will the needle on each meter INITIALLY move?

- | | VARS | WATTS | CURRENT |
|----|------|-------|---------|
| A. | ↑ | ↔ | ↓ |
| B. | ↓ | ↔ | ↓ |
| C. | ↑ | ↑ | ↑ |
| D. | ↓ | ↑ | ↑ |

Answer: A

Answer Justification

A is correct. The 1A DG is currently operating with a LEADING power factor (pf) represented by negative VARS (reactive load). As the 1A DG voltage regulator switch is momentarily taken to the "Raise" position, this will cause the VARS to drop (or move closer to zero). AMPS are proportional to VARS and they lower in this instance (until the zero point is reached). Since WATTS (real load) are manipulated by changing the speed of the machine, they will remain unchanged.

B is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that the effect of momentarily taking the voltage regulator switch to the "Raise" position will cause VARS to become more negative but cause AMPS to lower.

C is incorrect but plausible. The candidate may select this response if he/she recognizes the effect that momentarily taking the voltage regulator switch to the "Raise" position will have on VARS but incorrectly believes that it will have an effect on WATTS as well. This leads to the decision that if WATTS rises, so will AMPS.

D is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that momentarily taking the voltage regulator switch to the "Raise" position will cause VARS to become more negative thereby causing AMPS to rise or that it will have any effect on WATTS.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

264000.11	264000.11 EVALUATE given key DIESEL GENERATOR/DIESEL FUEL OIL System parameters, if needed DETERMINE a course of action to correct or mitigate the following abnormal condition(s): .1 High Crankcase Pressure .2 Overspeed .3 Overcrank .4 Low Oil Pressure .5 High Water Temperature .6 Reverse Power .7 Loss of Excitation .8 Overcurrent .9 Generator Ground Fault .10 Differential Current
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
264000.A4.01	A4.01	3.3	3.4	2	1	1

System Name

[Emergency Generators \(Diesel/Jet\)](#)

Category Statement

[Ability to manually operate and/or monitor in the control room: \(CFR: 41.7 / 45.5 to 45.8\)](#)

KA Statement

[Adjustment of exciter voltage](#)

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.7	41.7

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>Simulator Demonstration</u> <u>GFES Motors & Generators</u>	<u>Revision #:</u> <u>N/A</u> <u>4</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12033</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>New</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>New question, wdk 03/25/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>Simulator Demonstration</u> <u>GFES Motors & Generators</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

The unit suffered a small break LOCA ten minutes ago with a loss of Feedwater.

- Lowest Reactor Water Level reached was -70 inches WR.
- RCIC is in operation, maintaining Reactor Water Level.
- RCIC suction has realigned to the Suppression Pool.

Which of the following signals caused the RCIC pump suction to realign to the Suppression Pool?

- A. Low Reactor Water Level.
- B. Low RCIC Storage Tank Level.
- C. Low RCIC Pump Suction Pressure.
- D. Low Cycled Condensate Tank Level.

Answer: B

Answer Justification

B is correct. Low RCIC storage tank level causes the suction to transfer to the suppression pool.

A is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that Low Reactor Water level initiates RCIC pump suction realignment. Low Reactor Water Level (Level 2) starts RCIC but does NOT cause a suction transfer.

C is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that Low RCIC Pump Suction Pressure initiates RCIC pump suction realignment. Low RCIC Pump Suction Pressure is a pump trip signal NOT a suction transfer.

D is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that Low Cycled Condensate Tank Level initiates RCIC pump suction realignment. The Cycled Condensate Tank is NOT a suction source.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: MEMORY

Associated local objective(s):

217000.03	217000.03 DESCRIBE the function, operation, interlocks, trips, physical location, and power supplies of the following REACTOR CORE ISOLATION COOLING System components. .1 Steam Supply Shutoff Valve .2 Turbine Trip Throttle Valve .3 Exhaust Line Rupture Discs .4 Exhaust Vacuum Breakers .5 Exhaust Vacuum Breaker line Isolation Valves .6 Pump Suction Valves .7 Min Flow Valve .8 Water Leg Pump .9 Gland Seal Air Compressor .10 Lube Oil System .11 RCIC Room Cooling System .12 Ramp Generator
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
217000.K4.07	K4.07	3.6	3.6	2	1	1

System Name

Reactor Core Isolation Cooling System (RCIC)

Category Statement

Knowledge of REACTOR CORE ISOLATION COOLING SYSTEM (RCIC) design feature(s) and/or interlocks which provide for the following: (CFR: 41.7)

KA Statement

Alternate supplies of water

CFR Data**10CFR55-41 (RO) Data**

Para Num	Text
41.7	41.7

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 5063.02 Sect. 5063-2E</u>	<u>Revision #:</u> <u>31a</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-3387</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Bank</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>Improved distracter justification, wdk 03/16/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 5063.02</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>Yes</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

What inputs to DCS are used to display the status of the ADS/SRVs?

- A. Solenoids and Acoustic Monitors
- B. Solenoids and Tail Pipe Temperatures
- C. Valve stem limit switches and Acoustic Monitors
- D. Valve stem limit switches and Tail Pipe Temperatures

Answer: A

Answer Justification

A is correct. The 'A' Solenoids provide an input to DCS Main Steam And Pressure Control display screen. The Acoustic Monitors provide an input to the DCS Containment Support Display screen and the SPDS RPV, Pri-Cnmt and Hydrogen screen.

B is incorrect but plausible. The candidate may select this response if he/she correctly believes that the 'A' Solenoids provide an input to DCS but incorrectly believes that tail pipe temperatures input to DCS rather than a back panel recorder.

C is incorrect but plausible. The candidate may select this response if he/she recognizes that the Acoustic Monitors provide an input to DCS and SPDS but fails to recognize that unlike most valves the SRVs do not have stem limit switches.

D is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that tail pipe temps input to DCS rather than a back panel recorder and fails to recognize that unlike most valves the SRVs do not have stem limit switches.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: MEMORY

Associated local objective(s):

218000.04	218000.04 STATE the physical location and function of the following AUTOMATIC DEPRESSURIZATION (ADS) system components, controls, indicators, and/or sensors. .1 Valve controls .2 Actuation inhibit controls .3 Manual initiation controls .4 Manual ADS reset controls
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
B2.1.19	B2.1.19	3.9	3.8	2	1	1

System Name
218000 ADS

Category Statement
Conduct of Operations

KA Statement
Ability to use plant computers to evaluate system or component status. (CFR: 41.10 / 45.12)

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.10	41.10

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 3101.01 Sect. 8.2.2</u>	<u>Revision #:</u> <u>20</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12007</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>New</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>New question, wdk, 03/16/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 3101.01</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

Which of the following annunciators identify a condition that will NOT trip and isolate RCIC but DOES require an Emergency Operating Procedure (EOP) entry?

(Assume NO OPERATOR ACTION)

- A. 5063-7C, RCIC EQUIP AREA TEMP HIGH
- B. 5063-1A, RCIC DIV 1 STEAM LINE PRESSURE LOW
- C. 5063-3A, RCIC DIV 1 STEAM LINE DIFF PRESS HIGH
- D. 5063-8C, RCIC EQUIP AREA DIFFERENTIAL TEMP HIGH

Answer: D

Answer Justification

D is correct. Although an entry condition for EOP-8, Secondary Containment Control, there are no automatic actions associated with 5063-8C, RCIC EQUIP AREA DIFFERENTIAL TEMP HIGH.

A is incorrect but plausible. The candidate may select this response if he/she recognizes that 5063-7C, RCIC EQUIP AREA TEMP HIGH requires entry into EOP-8, Secondary Containment Control but incorrectly believes that there is NO automatic isolation signal associated with this annunciator.

B is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that 5063-1A, RCIC DIV 1 STEAM LINE PRESSURE LOW requires entry into an EOP OR that there is NO automatic isolation signal associated with this annunciator.

C is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that 5063-3A, RCIC DIV 1 STEAM LINE DIFF PRESS HIGH requires entry into an EOP OR that there is NO automatic isolation signal associated with this annunciator.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: MEMORY

Associated local objective(s):

217000.06	217000.06 Given a REACTOR CORE ISOLATION COOLING (RI) System Annunciator, DESCRIBE: <ul style="list-style-type: none">? The condition causing the annunciator? Any automatic actions? Any operational implications
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
B2.4.45	B2.4.45	4.1	4.3	2	1	1

System Name

[217000 RCIC](#)

Category Statement

[Emergency Procedures /Plan](#)

KA Statement

[Ability to prioritize and interpret the significance of each annunciator or alarm.](#)
[\(CFR: 41.10 / 43.5 / 45.3 / 45.12\)](#)

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.10	41.10

10CFR55-43 (SRO) Data

Para Num	Text
43.5	43.5

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 5063.08 Sect. 5063-8C</u>	<u>Revision #:</u> <u>34a</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12017</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>New</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter “b” to make plausible based on OTPS review)</u>	<u>New Question, wdk 03/18/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 5063.08</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

A reactor startup is in progress.

Multiple annunciators are received in the Main Control Room (MCR).

As the "A" Reactor Operator (RO), you note the following indications:



A loss of which of the following would cause these indications?

- A. DC MCC 1B Bus (1DC14E).
- B. AB MCC 1B1 Bus (1AP75E).
- C. Div 2 NSPS Bus (1C71-P001B).
- D. "B" RPS Solenoid Bus (1C71-P011B).

Answer: C

Answer Justification

C is correct. A loss of the Div 2 NSPS Bus (1C71-P001B) will cause SRM 'B' to deenergize and fail in a tripped condition.

A is incorrect but plausible. The candidate may select this response if he/she fails to recognize that even though the Div 2 NSPS Inverter is normally powered from DC MCC 1B, the inverter's static switch will transfer the loads without interruption to the alternate AC supply (CB MCC F2).

B is incorrect but plausible. The candidate may select this response if he/she fails to recognize that AB MCC 1B1 is the alternate AC supply to the Div 4 NSPS Inverter and therefore would have no effect on the Div 2 NSPS Inverter.

D is incorrect but plausible. The candidate may select this response if he/she fails to recognize that the "B" RPS Solenoid Bus powers the Div 2 MSIV and RPS solenoids and therefore would have no effect on the Div 2 NSPS Inverter.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

215004.03	215004.03 DESCRIBE the function, operation, interlocks, trips, physical location, and power supplies of the following Source Range Monitoring System components. .1 Detector Drive Motor Assemblies .2 Pulse Preamplifier .3 High Voltage Power Supply (HVPS) .4 Discriminator Module .5 Computer Module .6 Display Control Module .7 Input/Output Module
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
215004.K2.01	K2.01	2.6	2.8	2	1	1

System Name

Source Range Monitor (SRM) System

Category Statement

Knowledge of electrical power supplies to the following: (CFR: 41.7)

KA Statement

SRM channels/detectors

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.7	41.7

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

General Data		
<u>Technical Reference with Revision Number:</u>	<u>CPS 3509.01C002 App. A</u>	<u>Revision #:</u> <u>10g</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12034</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>New</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter “b” to make plausible based on OTPS review)</u>	<u>New question, wdk 03/25/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 3509.01C002</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

The plant is operating at rated power.

- An ATWS occurs.
- The "B" Reactor Operator (RO) is directed to start the Standby Liquid Control (SLC) system.
- NO OTHER OPERATOR ACTIONS have been performed.

Which ONE of the following indications has the potential to be unreliable and CANNOT be used as the principal indication of explosive valve operation and SLC injection into the RPV?

- A. Reactor Power level.
- B. SLC Storage Tank level.
- C. Squib Valve Continuity light(s).
- D. SLC Pump Discharge Header pressure.

Answer: C

Answer Justification

C is correct. The Squib Continuity Monitoring System is used to display the state of readiness of the squibs contained in the trigger assembly of the SLC System explosive valves by continuously verifying the continuity of the squib's bridgewire network. When the squib is 'fired', it should open causing the continuity light to extinguish. However, per CPS 3314.01 Standby Liquid Control (SLC) Section 2.0 Discussion/Definitions, when the squib valve is fired, it is possible for the shorted valve assembly to indicate continuity.

A is incorrect but plausible. The candidate may select this response if he/she fails to remember that the injection of borated water into the RPV will cause reactor power level to lower.

B is incorrect but plausible. The candidate may select this response if he/she fails to remember that as the borated water is removed from the SLC Storage Tank and injected into the RPV, SLC Storage Tank level will lower.

D is incorrect but plausible. The candidate may select this response if he/she fails to remember that proper response for the SLC Pump Disch Header Press should be slightly > RPV pressure and < 1400 psig.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: MEMORY

Associated local objective(s):

211000.16	211000.16 EVALUATE the following STANDBY LIQUID CONTROL indications/responses and DETERMINE if the indication/response is expected and normal. .1 System Initiation .2 Indication of boron injection .3 System Testing
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
211000.K5.04	K5.04	3.1	3.2	2	1	1

System Name

Standby Liquid Control System

Category Statement

Knowledge of the operational implications of the following concepts as they apply to STANDBY LIQUID CONTROL SYSTEM : (CFR: 41.5 / 45.3)

KA Statement

Explosive valve operation

CFR Data**10CFR55-41 (RO) Data**

Para Num	Text
41.5	41.5

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 3314.01 Sect. 2.3</u>	<u>Revision #:</u> <u>11c</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12062</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>New</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>New question, wdk 04/18/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 3314.01</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

During power operation with the Mode Switch in RUN, an event has resulted in the following conditions:

- RPV water level lowers to Level 3
- RPV pressure peaked at 1113 psig
- Drywell pressure has reached 1.2 psig

Which ONE of the following lists the expected status of the scram, backup scram and Alternate Rod Insertion (ARI) valve solenoids?

(NO OPERATOR ACTIONS had been taken.)

	SCRAM	BACKUP SCRAM	ARI
A.	deenergized	deenergized	deenergized
B.	deenergized	energized	deenergized
C.	deenergized	energized	energized
D.	energized	deenergized	deenergized

Answer: B

Answer Justification

B is correct. There was a valid scram signal (L-3 and high RPV pressure). The scram signal deenergizes the scram solenoids and energizes the backup scram solenoids. There was no valid ARI signal therefore the ARI solenoids remain deenergized.

A is incorrect but plausible. The candidate may select this response if he/she realizes that there was no valid ARI signal and therefore the ARI solenoids remain deenergized but incorrectly believes that the Backup scram valves deenergize to open like all the other valves do.

C is incorrect but plausible. The candidate may select this response if he/she realizes that the scram signal deenergizes the scram solenoids and energizes the backup scram solenoids but incorrectly believes that the ARI valves would be energized as there was no valid ARI signal. ARI initiates at Level 2 or RPV pressure of 1127 psig.

D is incorrect but plausible. The candidate may select this response if he/she realizes that there was no valid ARI signal and therefore the ARI solenoids remain deenergized but incorrectly believes that the Scram valves deenergize to open and the Backup scram valves energize to open.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

212000.03	212000.03 DESCRIBE the function, operation, interlocks, trips, and power supplies of the following Reactor Protection System (RPS) and Alternate Rod Insertion (ARI) System components. .1 RPS Half Scram .2 RPS Full Scram .3 Alternate Rod Insertion
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
212000.A1.08	A1.08	3.4	3.4	2	1	1

System Name

Reactor Protection System

Category Statement

Ability to predict and/or monitor changes in parameters associated with operating the REACTOR PROTECTION SYSTEM controls including: (CFR: 41.5 / 45.5)

KA Statement

Valve position

CFR Data**10CFR55-41 (RO) Data**

Para Num	Text
41.5	41.5

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 3305.01 Sect. 2.2</u> <u>CPS 5008.01 Sect 5008-1K</u> <u>N-CL-OPS-212000</u>	<u>Revision #:</u> <u>11c</u> <u>27</u> <u>0</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-LC-1532</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Bank</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>Improved distracter justification, wdk 04/03/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 3305.01</u> <u>CPS 5008.01</u> <u>N-CL-OPS-212000</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

A reactor startup is in progress. Reactor Water Cleanup (RT) is rejecting to the Main Condenser.

- Reactor Recirculation (RR) pumps are in slow speed.
- DRN FLOW TO CDSR (1G33-F046) is throttled open.
- Feedwater Inlet Shutoff Valve A (1B21-F065A) is throttled open and Feedwater Inlet Shutoff Valve B (1B21-F065B) is shut.
- The Main Condenser is at 24" Hg Vacuum.

What is the effect of opening DRN FLOW TO RAD WASTE (1G33-F035)?

- A. The Waste Surge Tank will evacuate causing severe structural damage.
- B. Excessive Main Condenser air in-leakage will occur causing a loss of vacuum.
- C. Feedwater (FW) flow will lower causing FW check valves to flutter on their seats.
- D. Insufficient circulation in the RPV Bottom Head region causing thermal stratification.

Answer: B

Answer Justification

B is correct. Opening 1G33-F046, Drn Flow To Cdsr OR 1G33-F041, Drn Flow To Cdsr Bypass WITH 1G33-F035, Drn Flow To Rad Waste OPEN will connect the Waste Surge Tank to the Main Condenser causing a loss of vacuum.

A is plausible but incorrect. The candidate may select this response if he/she incorrectly believes that the Waste Surge Tank is a closed tank when in fact it is vented to the Radwaste HVAC System allowing the atmosphere to be drawn into the Main Condenser.

C is plausible but incorrect. The candidate may select this response if he/she fails to recognize that the conditions are already established to prevent feedwater check valve flutter (FW return flow via one return line) if FW flow lowers to <300 gpm.

D is plausible but incorrect. The candidate may select this response if he/she fails to recognize that circulation in the bottom head region is maintained by operation of one or both RR pumps.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

204000.10	204000.10 EXPLAIN the reasons for given RWCU System operating limits and precautions.
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
204000.K1.06	K1.06	2.8	2.8	2	2	2

System Name

Reactor Water Cleanup System

Category Statement

Knowledge of the physical connections and/or cause-effect relationships between REACTOR WATER CLEANUP SYSTEM and the following: (CFR: 41.2 to 41.9 / 45.7 to 45.8)

KA Statement

Main condenser

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.2	41.2
41.3	41.3
41.4	41.4
41.5	41.5
41.6	41.6
41.7	41.7
41.8	41.8
41.9	41.9

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 3303.01 Sect. 4.5</u>	<u>Revision #:</u> <u>31b</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12022</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>New</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>New question, wdk 03/22/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 3303.01</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

A loss of Control Building MCC 1C will cause which one of the following?

- A. Auto start of 0RIX-PR012, HVAC AXM.
- B. Lockup of 1FW004, Feed Regulating Valve.
- C. Loss of 1E22-C003, HPCS Water Leg Pump.
- D. Loss of 1DG01CA, Div 1 Diesel Generator Air Compressor.

Answer: A

Answer Justification

A is correct. Control Building MCC 1C is the power supply to both HVAC Exhaust PRMs 0RIX-PR001 and 0RIX-PR002. A loss of AC power to either 0RIX-PR001 or 0RIX-PR002 will cause 0RIX-PR012 to auto start.

B is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that the Feed Regulating Valve (1FW004) is affected by the loss of CB MCC 1C when in fact 1FW004 is hydraulically operated angle valve. Hydraulic oil pressure for 1FW004 is maintained by a motor driven pump powered from TB MCC 1M. A trip of TB MCC 1M will prevent control (lockup) after the accumulator pressure is depleted.

C is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that the HPCS Water Leg Pump (1E22-C003) is affected by the loss of CB MCC 1C when in fact the HPCS Water Leg Pump is powered from HPCS MCC 1C.

D is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that the Div 1 Diesel Generator Air Compressor (1DG01CA) is affected by the loss of CB MCC 1C when in fact the Div 1 Diesel Generator Air Compressor is powered from DG MCC 1A.

General Info

Question Use: Initial

Question Level: SRO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

262001.09	<p>262001.09</p> <p>DISCUSS the effect:</p> <ul style="list-style-type: none"> a. A total loss or malfunction of the Auxiliary Power System has on the plant. b. A total loss or malfunction of various plant systems has on the Auxiliary Power System.
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
272000.K2.03	K2.03	2.5	2.8	2	2	2

System Name
Radiation Monitoring System

Category Statement
Knowledge of electrical power supplies to the following: (CFR: 41.7)

KA Statement
Stack gas radiation monitoring system

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.7	41.7

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 3315.03E001 Pg 4 of 7</u> <u>CPS 5140.41 Pg 3 of 5</u> <u>CPS 5140.42 Pg 3 of 5</u>	<u>Revision #:</u> <u>2</u> <u>1b</u> <u>1b</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-7000</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Bank</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter “b” to make plausible based on OTPS review)</u>	<u>Improved explanation/distracter justification, wdk 04/07/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 3315.03E001</u> <u>CPS 5140.41</u> <u>CPS 5140.42</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

CLINTON is at RATED THERMAL POWER with the Steam Bypass Pressure Control (SBPC) Pressure Regulator "A" in operation when its OUTPUT signal (steam flow demand) fails to zero.

Which of the following is the expected plant response if NO operator action is taken?

- A. Control valves fully close and bypass valves fully open. Pressure Regulator A channel remains in service. The Reactor scrams due to high neutron flux.
- B. Control valves fully open and bypass valves fully open. Pressure Regulator A channel remains in service. Reactor pressure lowers until a Group 1 isolation occurs.
- C. Control valves momentarily open slightly and bypass valves open slightly. Pressure Regulator control transfers to B channel. Control valves stabilize Reactor pressure at approximately the same value as before the transient.
- D. Control valves momentarily close slightly and bypass valves remain closed. Pressure Regulator control transfers to B channel. Reactor pressure stabilizes at approximately the same value as before the transient.

Answer: D

Answer Justification

D is correct. When the pressure regulator output (STEAM FLOW DEMAND) signal fails to zero it is sending a zero steam flow demand signal to the rest of the circuitry. The two PRESSURE REGULATOR channels are redundant. The controlling pressure channel is operator selected using the SELECT A/SELECT B pushbutton on the Pressure Regulator Panel. A Fault Detection circuit compares the signals in the two channels. If the difference between the compared signals exceeds a preset value, the channel closest to an average signal assumes control. When the Fault Detection circuit finds a fault, the RGLTR ERROR light on the Pressure Regulator Panel will illuminate, and the applicable MODULE 1(2) light will illuminate on Main Control Room Panel 1H13-P637. The Fault Detection circuit can be manually disabled to prevent an automatic channel swap. This function would be used when performing maintenance on a channel.

A is plausible but incorrect - The candidate may select this response of he/she incorrectly believes that the signal to just the control valves failed low.

B is plausible but incorrect - The candidate may select this response of he/she incorrectly believes that this control system is indirect acting.

C is plausible but incorrect - The candidate may select this response of he/she recognizes that the regulator will shift to the backup but incorrectly believes that this control system is indirect acting.

Question meet K/A because the SBPC system controls Main Turbine throttle pressure within a specified regulation band by positioning the Main Turbine Control Valves (Control Valves) and/or Bypass Valves to match the Main Turbine steam flow rate with the reactor steam production rate.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

241001.09	241001.09 DISCUSS the effect: d. A total loss or malfunction of the Steam Bypass & Pressure Control System has on the plant. e. A total loss or malfunction of various plant systems has on the Steam Bypass & Pressure Control System.
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
241000.K3.05	K3.05	3.7	3.7	2	2	2

System Name

Reactor/Turbine Pressure Regulating System

Category Statement

Knowledge of the effect that a loss or malfunction of the REACTOR/TURBINE PRESSURE REGULATING SYSTEM will have on following: (CFR: 41.7 / 45.4)

KA Statement

Main turbine steam flow

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.7	41.7

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>Simulator Plot</u> <u>CPS 3105.04 Sect. 2.1.7</u>	<u>Revision #:</u> <u>N/A</u> <u>13</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-M1319</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Bank</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>Improved explanation/distracter justification, wdk 03/14/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 3105.04</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

The design feature to separate downcomer flow from core flow is provided by the...

- A. baffle plate.
- B. moisture separator.
- C. core shroud.
- D. fuel support piece.

Answer: C

Answer Justification

C is correct. The core shroud is designed to separate downcomer flow from core flow.

A is incorrect. The candidate may select this response if he/she incorrectly believes that the baffle plate separates downcomer flow from core flow when the baffle plate actually separates downcomer flow from below core plate flow.

B is incorrect. The candidate may select this response if he/she incorrectly believes that the moisture separator separates downcomer flow from core flow when the moisture separator actually returns moisture to the downcomer and directs steam to the steam dryer.

D is incorrect. The candidate may select this response if he/she incorrectly believes that the fuel support piece separates downcomer flow from core flow when the fuel support piece only provides for individual bundle flow.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: MEMORY

Associated local objective(s):

290002.02	<p>290002.02</p> <p>DESCRIBE the major flow paths for the following modes of the REACTOR VESSEL and INTERNALS System operation.</p> <ul style="list-style-type: none"> .1 Recirculation Flow path (Figure 1) .2 Jet Pumps Flow path (Figure 2) .3 Feedwater Flow path (Figure 4) .4 Control Rod Drive Cooling Flow path (Figure 6) .5 Steam Flow path (Figure 7) .6 Bypass Core Flow (Figure 12) .7 Shutdown Cooling (Figure 13)
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
290002.K4.02	K4.02	3.1	3.2	2	2	2

System Name

[Reactor Vessel Internals](#)

Category Statement

[Knowledge of REACTOR VESSEL INTERNALS design feature\(s\) and/or interlocks which provide for the following: \(CFR: 41.7\)](#)

KA Statement

[Separation of fluid flow paths within the vessel](#)

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.7	41.7

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>LP N-CL-OPS-290002</u> <u>USAR Sect. 3.9.5.1.1.1</u>	<u>Revision #:</u> <u>1</u> <u>12</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>702316</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Bank</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>Improved distracter justifications, wdk 03/23/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>LP N-CL-OPS-290002</u> <u>USAR Sect. 3.9.5.1.1.1</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

The plant is currently operating at 40% RTP.

TDRFP 1A is tripped with the Auto/Manual Transfer Switch in MANUAL and the potentiometer NOT in the fully counterclockwise position.

The RFPT 1A RESET pushbutton is depressed.

NO OTHER OPERATOR ACTIONS have been performed.

What is the expected response of the TDRFP 1A?

TDRFP 1A will _____.

- A. immediately trip on overspeed
- B. reset and accelerate to the potentiometer setting
- C. NOT reset due to the current Auto/Manual Transfer Switch position
- D. indicate reset but the LP and HP Control Valves will remain closed

Answer: D

Answer Justification

D is correct. Per CPS 3103.01 Feedwater, if Manual Speed Control Potentiometer is not in the fully counter clockwise position when the RFPT reset pushbutton is depressed, then the Feedpump Turbines will give all indications of being reset (i.e., the HP and LP Stop Valves will open), however the speed signal is blocked and the LP and HP Control Valves will remain shut.

A is plausible but incorrect. The candidate may select this response if he/she incorrectly believes that the TDRFP 1A will respond and trip on overspeed when the RFPT 1A RESET pushbutton is depressed.

B is plausible but incorrect. The candidate may select this response if he/she incorrectly believes that the LP and HP Control Valves will open when the RFPT 1A RESET pushbutton is depressed.

C is plausible but incorrect. The candidate may select this response if he/she incorrectly believes that the Auto/Manual Transfer Switch must be in AUTO in order for the TDRFP 1A to reset when in fact it must be in MANUAL. This response is similar to the RCIC turbine which does start in AUTO.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: MEMORY

Associated local objective(s):

259002.05	259002.05 Discuss the FEEDWATER CONTROL system automatic functions/interlocks including purpose, signals, set points, sensing points, when bypassed, how/when they are. .1 Reactor Water Level Channel Selector Switch .2 Flow Controller FC-FW231 .3 RFPT Manual Potentiometers .4 RFPT Auto/Manual Transfer Switches .5 Startup Mode Actuator Select Switch .6 Start Up Level Control C34-R602 .7 Master Level Control C34-R600 .8 Flow Control RFPT A(B,C) C34-R601A(B,C)
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
259001.K5.03	K5.03	2.8	2.8	2	2	2

System Name

Reactor Feedwater System

Category Statement

Knowledge of the operational implications of the following concepts as they apply to REACTOR FEEDWATER SYSTEM : (CFR: 41.5 / 45.3)

KA Statement

Turbine operation: TDRFP's-Only

CFR Data**10CFR55-41 (RO) Data**

Para Num	Text
41.5	41.5

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 3103.01 Sect. 2.1.7</u>	<u>Revision #:</u> <u>25</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-2452</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Bank</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>Improved explanation/distracter justification, wdk 04/12/2011</u> <u>Replaced distracter A, wdk 06/16/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 3103.01</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

Annunciator 5050-7E, HI-HI TEMP VC SYS SUP AIR CHARCOAL FILTER TRAIN A is lit.

The Fire Protection System Deluge Valve for the VC "A" Supply Train Charcoal Adsorber is open.

There is a rupture in the Fire Protection ring header, rendering the system incapable of providing water to the VC "A" Supply Train Charcoal Adsorber.

(1) What actions, if any, must be taken to initiate the alternate deluge supply to the VC "A" Supply Train Charcoal Adsorber.

(2) What is the source of the alternate supply?

- A. (1) The Fire Protection Deluge Valve must be MANUALLY SHUT and the Alternate Deluge Supply Valve must be MANUALLY OPENED.
(2) Make-up Condensate (MC)
- B. (1) The Fire Protection Deluge Valve must be MANUALLY SHUT and the Alternate Deluge Supply Valve must be MANUALLY OPENED.
(2) Shutdown Service Water (SX)
- C. (1) No action is necessary, the Fire Protection Deluge Valve will AUTOMATICALLY SHUT and the Alternate Deluge Supply Valve will AUTOMATICALLY OPEN.
(2) Make-up Condensate (MC)
- D. (1) No action is necessary, the Fire Protection Deluge Valve will AUTOMATICALLY SHUT and the Alternate Deluge Supply Valve will AUTOMATICALLY OPEN.
(2) Shutdown Service Water (SX)

Answer: B

Answer Justification

B is correct. IAW CPS 1893.04M370, the Fire Protection (FP) supply valve must be shut prior to opening the corresponding Shutdown Service Water (SX) supply valve to the deluge system.

A is incorrect but plausible. The candidate may select this response if he/she realizes that the FP supply valve must be shut prior to opening the Alternate Deluge Supply Valve but incorrectly believes that the system supplying the Alternate Deluge Supply is the Make-up Condensate (MC) System.

C is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that the plant conditions initiate an automatic repositioning of the FP and Alternate Deluge Supply Valves while also incorrectly believing that the system supplying the Alternate Deluge Supply is the MC System.

D is incorrect but plausible. The candidate may select this response if he/she realizes that the Alternate Deluge Supply is the SX System but incorrectly believes that the plant conditions initiate an automatic repositioning of the FP and Alternate Deluge Supply Valves.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: MEMORY

Associated local objective(s):

290003.09	290003.09 DISCUSS the effect: f. A total loss or malfunction of the CONTROL ROOM HVAC System has on the plant. g. A total loss or malfunction of various plant systems has on the CONTROL ROOM HVAC System. .1 Plant Service Water .2 Shutdown Service Water .3 Service and Instrument Air (SA/IA) .4 Process Radiation Monitoring .5 Makeup Condensate .6 Fire Protection .7 AC Electrical Distribution .8 DC Electrical Distribution
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
290003.K6.04	K6.04	2.6	2.8	2	2	2

System Name

Control Room HVAC

Category Statement

Knowledge of the effect that a loss or malfunction of the following will have on the CONTROL ROOM HVAC : (CFR: 41.7 / 45.7)

KA Statement

Fire protection: Plant-Specific

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.7	41.7

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 5050.07 Sect. 5050-7E</u> <u>CPS 1893.04 M370</u> <u>N-CL-OPS-290003</u> <u>M05-1102, Sh. 001</u> <u>M05-1052, Sh. 005</u>	<u>Revision #:</u> <u>32b</u> <u>7</u> <u>0</u> <u>U</u> <u>AG</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CPS-ILT-12020</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>New</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>New question, wdk 03/21/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 5050.07</u> <u>CPS 1893.04 M370</u> <u>N-CL-OPS-290003</u> <u>M05-1102, Sh. 001</u> <u>M05-1052, Sh. 005</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

Plant conditions are as follows:

- The Reactor is operating at 60% Rated Thermal Power.
- Main Generator load is approximately 690 MWe.

Which ONE of the following describes the Rod Control and Information System (RC&IS) response if the Main Turbine First Stage Shell pressure input fails to its MAXIMUM pressure value?

Any further rod withdrawal.....

- A. of any rod is blocked.
- B. is NOT limited by notch withdrawal constraints in the allowed sequence.
- C. is limited to two notches of continuous travel for any selected rod.
- D. is limited to four notches of continuous travel for any selected rod.

Answer: C

Answer Justification

C is correct. With the Main Turbine First Stage pressure failure to maximum pressure this will invoke the Rod Withdrawal Limiter (RWL) 2 notch withdrawal limit.

A is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that a rod block will be present due to the plant conditions.

B is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that the RWL is NOT in service. The RWL is in service >16.7% RTP.

D is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that the four notch limit is invoked. The RWL four notch limit is invoked from >16.7% RTP to 70% RTP.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

201002.05	<p>201002.05</p> <p>Discuss the RC&IS system automatic functions/interlocks including purpose, signals, set points, sensing points, when bypassed, how/when they are.</p> <ul style="list-style-type: none"> .1 Rod Blocks .2 Continuous Drive Block .3 One-Rod-Out Interlock .4 Refueling Interlocks
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
201005.A1.01	A1.01	3.2	3.3	2	2	2

System Name

Rod Control and Information System (RCIS)

Category Statement

Ability to predict and/or monitor changes in parameters associated with operating the ROD CONTROL AND INFORMATION SYSTEM (RCIS) controls including: (CFR: 41.5 / 45.5)

KA Statement

First stage shell pressure/turbine load: BWR-6

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.5	41.5

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

General Data		
<u>Technical Reference with Revision Number:</u>	<u>CPS 3005.01 Sect. 6.2 & 8.1.4</u>	<u>Revision #:</u> <u>36d</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-1451</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Bank</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter “b” to make plausible based on OTPS review)</u>	<u>Enhanced stem, wdk 03/23/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 3005.01</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

The plant is operating at 86% power when the feeder breaker for CB MCC 1A trips open.

- (1) An impact on the Reactor Recirculation System is that the "A" Recirc Flow Control Valve (FCV) can drift _____.
- (2) What procedural action is taken to correct, control, or mitigate this impact?
- A. (1) SHUT.
(2) Adjust the operable FCV to maintain steady state power and balanced loop flows.
 - B. (1) SHUT.
(2) Scram before exceeding Tech Spec Limit for Jet Pump Flow Mismatch.
 - C. (1) OPEN.
(2) Adjust the operable FCV to maintain steady state power and balanced loop flows.
 - D. (1) OPEN.
(2) Scram before exceeding Tech Spec Limit for Jet Pump Flow Mismatch.

Answer: C

Answer Justification

C is correct. Power would be lost to the "A" HPU which would inhibit FCV "A". Per a Caution in CPS 5003.04 Sect. 5003.4B, the FCV could drift open at <1%/min. Subsequent operator actions direct adjusting the operable FCV to maintain steady state power and balance loop flows. CPS 4008.01 also direct control of reactor power.

A is incorrect but plausible. The candidate may select this response if he/she recognizes that adjusting the operable FCV will be required to maintain steady state power and loop flows balanced, but incorrectly believes that the FCV will drift SHUT vice OPEN based on plant conditions.

B is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that the FCV will drift SHUT vice OPEN or that a Scram is required based on plant conditions even though loop flows can be adjusted with the operable FCV.

D is incorrect but plausible. The candidate may select this response if he/she recognizes that the FCV will drift OPEN but incorrectly believes a Scram is required based on plant conditions even though loop flows can be adjusted with the operable FCV.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

202001.15	202001.15 Given various plant conditions, predict how the Reactor Recirculation System will respond to various system or component failures while operating the system or on an exam in accordance with student text. .1 RR HCU low oil pressure .2 RR HCU circuit malfunction .3 Loss of CCW System .4 Loss of DC Electrical Distribution System .5 RR Subloop Swap
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
202001.A2.19	A2.19	3.1	3.2	2	2	2

System Name

Recirculation System

Category Statement

Ability to (a) predict the impacts of the following on the RECIRCULATION SYSTEM ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: (CFR: 41.5 / 45.6)

KA Statement

Loss of A.C. power: Plant-Specific

CFR Data**10CFR55-41 (RO) Data**

Para Num	Text
41.5	41.5

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 5003.04 Sect. 5004-4B</u> <u>CPS 4008.01 Sect. 4.3</u> <u>CPS 3514.01C020</u>	<u>Revision #:</u> <u>30b</u> <u>19f</u> <u>2b</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12034</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>New</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>New question, wdk 03/25/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 5003.04</u> <u>CPS 4008.01</u> <u>CPS 3514.01C020</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

Which ONE of the following indicates an uncoupled control rod during performance of a coupling check?

- A. ROD DRIFT annunciator is received when the continuous withdraw signal is applied.
- B. ROD OVERTRAVEL annunciator is NOT received when the continuous withdrawal signal is applied.
- C. Red full-out light for affected rod goes out and stays out when the continuous withdrawal signal is applied.
- D. Drive water flow immediately lowers to stall flow (approx 1 gpm) when the continuous withdrawal signal is applied.

Answer: C

Answer Justification

C is correct. The red full out light goes out and stays out because the rod has over traveled past the full out reed switch.

A is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that the ROD DRIFT annunciator could be received based on an odd reed switch picking up past position 48 with a continuous withdraw signal applied even though the criteria for a ROD DRIFT is an odd reed switch picked up with NO drive command.

B is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that the ROD OVERTRAVEL annunciator will normally be received when the continuous withdraw signal is applied for a coupled rod. Receiving this annunciator during the performance of a control rod coupling check is an indication of an UNCOUPLED control rod.

D is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that drive water flow immediately goes to stall flow. This would be normal indication with NO rod over travel.

This meets the KA in that when the withdraw button is depressed the operation of the directional control valves is automatically performed by the RC&IS system.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: MEMORY

Associated local objective(s):

LP87435.01.07	LP87435.01.07 Recall the following CPS 9000.09 procedure items while operating the plant or on an exam: .1 Actions to be considered if a normal response of the nuclear instrumentation is not observed during any rod movement. .2 Two methods of making the Low Power and High Power Setpoints non-conservative. .3 When to perform a coupling check of a control rod when in Modes 1 or 2 .4 How to perform a coupling check of a control rod
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
201003.A3.01	A3.01	3.7	3.6	2	2	2

System Name

Control Rod and Drive Mechanism

Category Statement

Ability to monitor automatic operations of the CONTROL ROD AND DRIVE MECHANISM including:
 (CFR: 41.7 / 45.7)

KA Statement

Control rod position

CFR Data**10CFR55-41 (RO) Data**

Para Num	Text
41.7	41.7

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 3304.02 8.1.10</u>	<u>Revision #:</u> <u>18a</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-0762</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Bank</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>Improved explanation/distracter justification, wdk 06/12/2011</u> <u>Replaced distracter A, wdk 06/23/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 3304.02</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

What control room indications are available to monitor the operation of the Hydrogen Igniters?

- A. Trouble Alarms only
- B. Trouble Alarms and Amp Meters only
- C. Trouble Alarms and Indicating Lights only
- D. Trouble Alarms, Indicating Lights, and Amp Meters

Answer: C

Answer Justification

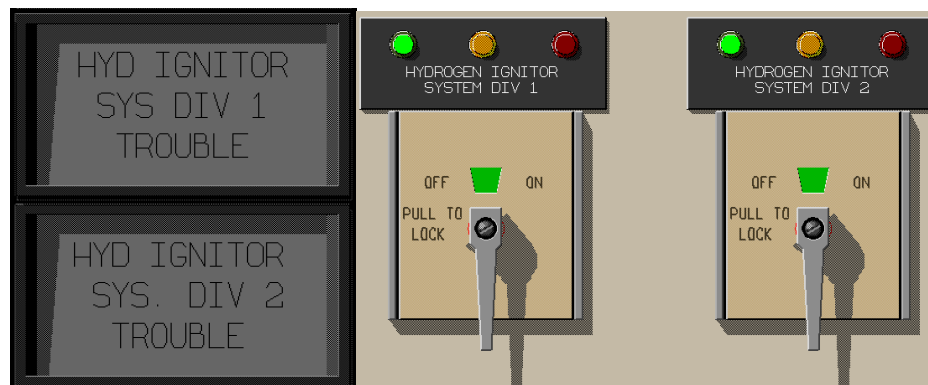
C is correct - the indications for Hydrogen Igniters in the Main Control Room (MCR) are the red and green lights associated with the control switches and the trouble alarms that monitor the power to the igniters.

A is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that there are only trouble alarms associated with the Hydrogen Igniters.

B is incorrect but plausible. The candidate may select this response if he/she recognizes that trouble alarms are used to monitor Hydrogen Igniter operation but incorrectly believes that there are no lights associated with the control switches or that MCR indications do include Amp Meters. There is a requirement to determine each igniter's current during surveillance testing, but it is performed using a clamp on amp meter locally.

D is incorrect but plausible. The candidate may select this response if he/she recognizes that trouble alarms and lights are used to monitor Hydrogen Igniter operation but incorrectly believes that MCR indications also include Amp Meters.

Control room indications:



General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: MEMORY

Associated local objective(s):

223003.04	223003.04 STATE the physical location and function of the following COMBUSTIBLE GAS CONTROL system components, controls, indicators, and/or sensors. .1 Drywell and Containment Atmosphere Hydrogen Mixing Compressors .2 Drywell Vacuum Relief Valves (CGCS Check Valves) .3 CGCS Hydrogen Recombiners .4 Hydrogen Igniters
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
223001.A4.14	A4.14	3.7	3.7	2	2	2

System Name

Primary Containment System and Auxiliaries

Category Statement

Ability to manually operate and/or monitor in the control room: (CFR: 41.7 / 45.5 to 45.8)

KA Statement

Hydrogen igniters: Plant-Specific

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.7	41.7

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 5041.05 Sect. 5041-5H</u>	<u>Revision #:</u> <u>29a</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12013</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>New</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>New question, wdk 03/16/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 5041.05</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

Given the following sequence of events:

<u>Time</u>	<u>Event</u>
T=0 minutes	A complete loss of off-site power occurs.
T+1 minutes	Reactor pressure is 550 psig, lowering at 5 psig/minute. Drywell pressure is 1.7 psig.
T+5 minutes	Containment pressure is 7.0 psig, rising at 0.2 psig/minute.
T+7 minutes	Diesel Generator 1A lube oil pressure drops to 5 psig
T+11 minutes	Reactor water level is -140 inches, lowering at 1.0 inch/minute.

Assume NO OPERATOR ACTION.

What is the status of "A" RHR system at T+13 minutes?

"A" RHR system is....

- A. not running.
- B. injecting into the RPV.
- C. spraying the containment.
- D. running on minimum flow.

Answer: C

Answer Justification

C is correct. All permissives for Automatic Containment Spray have been met and there has been sufficient time following the initiation for the spray valves to be open. Therefore Containment should be getting sprayed. The DG will not trip on low lube oil pressure with a LOCA signal present.

A is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that DG 1A will trip on low lube oil pressure with no LOCA signal. DG 1A will not trip on low lube oil pressure with a LOCA signal therefore RHR A should be running.

B is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that containment spray is NOT initiated and RHR will inject into the RPV. The RPV pressure is above the injection valve permissive and the containment spray signal shuts the injection valve.

D is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that containment spray is NOT initiated and he minimum flow valve would be open because the injection valve cannot open due to the RPV pressure. The Minimum flow valve should be closed as the Containment spray valves are open.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

203000.03	<p>203000.03</p> <p>DESCRIBE the function, operation, interlocks, trips, physical locations, and power supplies of the following RESIDUAL HEAT REMOVAL System components.</p> <ul style="list-style-type: none">.1 Suppression Pool Suction Strainer.2 RHR Pumps.3 RHR Heat Exchangers.4 B/C Water Leg Pump.5 Containment Spray Header and Nozzles.6 Suppression Pool Suction Valves F004A, F004B..7 RH Shutdown Cooling Suction Valves F006A and F006B.8 Shutdown Cooling Inboard and Outboard Isolation Valves F009 and F008.9 RH B Supply to Reactor Head Spray Valve F023.10 RH C Full Flow Test Valve F021.11 RH A (B) Full Flow Test Valves F024A and F024B.12 RH A (B) Containment Outboard Isolation Valves F027A and F027B.13 RH A(B) Containment Spray A(B) Shutoff Valves F028A and F028B.14 RH A(B) to Containment Pool Cooling Shutoff Valves F037A and F037B.15 LPCI From RH Shutoff Valves F042A, F042B, and F042C.16 LPCI From RH Testable Check Valves F041A, F041B, and F041C.17 RH Heat Exchanger Inlet Valves F047A and F047B.18 RH Heat Exchanger Outlet Valves F003A and F003B.19 RH B Radwaste First and Second Isolation Valves F049 and F040.20 RH Heat Exchanger Bypass Valves F048A and F048B.21 RH to Feedwater Shutdown Cooling Return Valves F053A and F053B.22 RH Heat Exchanger First and Second Sample Valves F060A, F060B, F075A and F075B.23 RH Pump Minimum Flow Recirc Valves F064A, F064B and F064C.24 RH Heat Exchanger SSW Inlet and Outlet Valves F014A, F014B, F068A and F068B.25 RH Fuel Pool Cooling Assist Suction Valve F066
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
B2.4.47	B2.4.47	4.2	4.2	2	2	2

System Name
226001 RHR/LPCI: CTMT Spray Mode

Category Statement
Emergency Procedures /Plan

KA Statement
Ability to diagnose and recognize trends in an accurate and timely manner utilizing the appropriate control room reference material. (CFR: 41.10 / 43.5 / 45.12)

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.10	41.10

10CFR55-43 (SRO) Data

Para Num	Text
43.5	43.5

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 3312.01 8.1.6</u>	<u>Revision #:</u> <u>38c</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-LC-1279</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Bank</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>Improved explanation/distracter justification, wdk 05/23/2011</u> <u>Minor change to distracter A and stem, wdk 05/27/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 3312.01</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

The plant is operating at 85% when the following occurs:

- 'B' CB pump trips
- The 'A' RO emergency starts the 'C' CB pump
- RPV water level stabilizes at 35 inches NR level

What is the expected plant response?

- A. MSL radiation levels rise and stabilize at some higher values.
- B. MSL radiation levels rise initially then return to normal in about 15 minutes.
- C. Reactor coolant Cesium and Iodine levels rise and stabilize at some higher values.
- D. Reactor coolant Cesium and Iodine levels rise initially then return to normal in about 10 hours.

Answer: B

Answer Justification

B is correct. Flow perturbations may result in stagnant pockets of hydrogen in the CB/CB/FW lines to be carried into the reactor which is then available to react and create additional volatile N-16 species that get carried to the MSLs. Flow perturbations cause increased rad levels that are expected to return to normal in about 15 minutes. Per USAR Section 15B.3.1.1, no failed fuel is predicted to result from a failure as described.

A is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that MSL radiation levels will rise and stabilize at some higher values when this would only happen if there were some degree of fuel failure.

C is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that a change in 'Cesium and Iodine levels' would occur based on plant conditions when these will only change should actual fuel failure occur.

D is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that a change in 'Cesium and Iodine levels' would change based on plant conditions and respond using the crud burst perturbation time as defined in Section 6.4 of the Off normal.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: MEMORY

Associated local objective(s):

271000.16	271000.16 EVALUATE the following OFFGAS indications/responses and DETERMINE if the indication/ response is expected and normal. .1 SJAЕ Steam Flow .2 Offgas Post-Treat Radiation
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
256000.K3.13	K3.13	3.3	3.3	2	2	2

System Name
Reactor Condensate System

Category Statement
Knowledge of the effect that a loss or malfunction of the REACTOR CONDENSATE SYSTEM will have on following: (CFR: 41.7 / 45.4)

KA Statement
Main steam system

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.7	41.7

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 3104.01 4.11</u> <u>CPS 4010.01 6.5</u> <u>CPS 5067.03 Sect. 5067-3F</u>	<u>Revision #:</u> <u>27d</u> <u>10g</u> <u>32a</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-LC-1145</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Bank</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>Minor change to stem, wdk 5/12/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 3104.01</u> <u>CPS 4010.01</u> <u>CPS 5067.03</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>N/A</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

The plant is operating at rated power.

- Outside ambient temperature is 37°F.
- Suppression Pool temperature is 95°F.
- Main Control Room temperature is 86°F.

At 12:00 a Station Blackout (SBO) occurs.

- The Transmission System Operator (TSO) reports that the offsite power outage is expected to last 4 hours.
- At 13:00 DC Load Shedding was initiated and completed at 13:45.

What operational implication could be realized as a result of these conditions?

- A. The Clinton 138KV line may no longer be the preferred line to restore power to CPS due to ambient temperature.
- B. Main Control Room area temperatures may exceed the habitability limit of 120°F due to loss of ventilation.
- C. RCIC and SRVs may become unavailable due to a loss of DC power before battery chargers are restored.
- D. Suppression Pool temperature may exceed the design limit of 185°F due to a loss of suppression pool cooling.

Answer: C

Answer Justification

C is correct. DC load shedding is a time critical action which effectively lowers the affected battery's discharge rate. It is required to be initiated and completed within one hour of the SBO. This timely reduction in battery discharge rate will insure a 4 hour coping period with DC power available (via battery) for the operating of RCIC and SRVs. Since the DC load shedding was NOT initiated and completed within one hour, a higher battery discharge rate was maintained for a longer period of time. Therefore, battery capacity is adversely affected and RCIC and SRVs may become unavailable before AC power is restored to the battery chargers.

A is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that one of the 345KV lines are preferred for restoration of power to CPS. If outside temperatures are < 70°F, the CLINTON 138KV line is the preferred line to restore power to CPS.

B is incorrect but plausible. The candidate may select this response if he/she incorrectly believes the peak MCR temperature would be directly affected by a premature loss of DC power. When ERO support is available, supplemental MCR cooling per CPS 4200.01C001 MCR Cooling During A SBO is initiated. Peak worst case MCR area temperatures are expected to be 107°F.

D is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that a loss of Suppression Pool (SP) cooling will cause the SP design limit to be exceeded. SBO analysis shows that the pool temperature will not exceed the SP design limit.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

DB420001.01.04	DB420001.01.04 Describe the consequences of the following: .1 Loss of AC power on the Reactor Recirc Pump Seals .2 Not completing DC load shedding in a timely manner during a Station Blackout .3 Loss of AC power on DC electrical loads .4 Energizing a Bus prior to locking out equipment with auto start features
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
295004.AK1.04	AK1.04	2.8	2.9	1	1	1

System Name

Partial or Complete Loss of D.C. Power

Category Statement

Knowledge of the operational implications of the following concepts as they apply to PARTIAL OR COMPLETE LOSS OF D.C. POWER : (CFR: 41.8 to 41.10)

KA Statement

Effect of battery discharge rate on capacity

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.10	41.10
41.8	41.8
41.9	41.9

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 4200.01 Sect. 6.2</u>	<u>Revision #:</u> <u>19a</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12015</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>New</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>New question, wdk 03/17/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 4200.01</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>Yes</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

What Tech Spec limit is directed to be violated by procedure, when containment temperature exceeds 185°F?

- A. Cool down rate
- B. Radioactive release rate
- C. Reactor water level safety limit
- D. Reactor vessel pressure safety limit

Answer: A

Answer Justification

A is correct. EOP-6 directs the performance of a blowdown when containment temperature cannot be held below 185°F. 100°F/hour may be exceeded.

B is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that EOP-6 allows exceeding the radioactive release rate limit on a high containment temperature when in fact it is allowed on containment high pressure.

C is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that violation of the reactor water level safety limit (TAF) is directed at any time but in fact it is used in EOP-1 as a conditional step prior to performing a blowdown.

D is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that violation of the reactor vessel pressure safety limit is directed at any time but in fact it is never directed by procedure but allowing this to occur may reduce the energy input into the containment thus limiting the temperature rise.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: MEMORY

Associated local objective(s):

LP87558.01.13D	<p>LP87558.01.13</p> <p>Given the following Primary Containment parameter trends and a diagram of EOP-6, determine the value at which reactor Blowdown is required, and when it would be appropriate to Blowdown in terms of approaching (cannot be held above/below) this value:</p> <ul style="list-style-type: none"> .01 Increasing Drywell Temperature (before 330°F) .02 Decreasing Low Suppression Pool Level (cannot be held above 15 ft 1 in) .03 Containment Temperature (cannot be held below 185°F)
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
295027.EK1.03	EK1.03	3.8	3.8	1	1	1

System Name

High Containment Temperature (Mark III Containment Only)

Category Statement

Knowledge of the operational implications of the following concepts as they apply to HIGH CONTAINMENT TEMPERATURE (MARK III CONTAINMENT ONLY) : (CFR: 41.8 to 41.10)

KA Statement

Containment integrity: Mark-III

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.10	41.10
41.8	41.8
41.9	41.9

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS Tech Bases</u>	<u>Revision #:</u> <u>005</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12014</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>New question, wdk 03/17/2011</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter “b” to make plausible based on OTPS review)</u>	<u>N/A</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS Tech Bases</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

The plant has experienced a series of events that result in a Group 1 isolation and an ATWS.

- The Startup Level Controller is in automatic on the MDRFP.
- The RO responsible for pressure control is cycling SRVs to maintain an 800-1065 psig pressure band.

As SRVs are cycled to maintain the given pressure band, which of the following RPV level responses is correct?

As the SRV is opened...

- A. RPV level goes up initially and feedwater level control lowers feed flow due to the level rising.
- B. RPV level goes up initially and feedwater level control raises feed flow due to the rise in steam flow.
- C. RPV level goes down initially and feedwater level control raises feed flow due to the level lowering.
- D. RPV level remains between the high and low level alarms due to the offsetting effects on rising steam flow and lowering pressure.

Answer: A

Answer Justification

A is correct. RPV level initially goes up due to the lowering RPV pressure and FWLC will reduce feed flow in response to the level increase.

B is incorrect but plausible. The candidate may select this response if he/she believes that the Startup Level Controller responds to steam flow when in fact it is the Master Level Controller that responds to steam flow. The FWLC will reduce feed flow in response to the level increase.

C is incorrect but plausible. The candidate may select this response if he/she believes that Level initially goes down when in fact Level initially goes up. Level would eventually drop due to the inventory reduction but it goes up initially due to swell

D is incorrect but plausible. The candidate may select this response if he/she believes that FWLC can maintain level under these conditions but it cannot.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

CPS.317372	DB410001.04 State the reason for the following: .1 Reactor water level response during a Scram .2 Minimizing amount of time spent in "Hot Standby" following a Scram .3 Reducing Reactor pressure to 600 psig following a Scram .4 Resetting the Scram in a timely manner
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
295025.EK1.06	EK1.06	3.5	3.6	1	1	1

System Name

High Reactor Pressure

Category Statement

Knowledge of the operational implications of the following concepts as they apply to HIGH REACTOR PRESSURE : (CFR: 41.8 to 41.10)

KA Statement

Pressure effects on reactor water level

CFR Data**10CFR55-41 (RO) Data**

Para Num	Text
41.10	41.10
41.8	41.8
41.9	41.9

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 3103.01 Sect. 2.1.3</u> <u>CPS 4100.01 Sect. 4.3</u>	<u>Revision #:</u> <u>25</u> <u>20a</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-6994</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Bank</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>Improved justification/distracter D, wdk 4/06/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 3103.01</u> <u>CPS 4100.01</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

Which one of the following would cause an SPDS Critical Safety Function box to turn RED?

- A. Drywell temperature of 122°F
- B. Suppression Pool level of 18.9 ft
- C. Suppression Pool temperature of 90°F
- D. Primary Containment temperature of 115°F

Answer: B

Answer Justification

B is correct. A low suppression pool level of 18'11" or 18.9' is an EOP-6 entry and will cause the PRI-CNMT CSF box to turn red.

A is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that a Drywell temperature of 122°F is a CFS entry because 122°F is the Containment temperature CSF entry and the CSF entry for Drywell temperature is 150°F.

C is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that a Suppression Pool temperature of 90°F is a CFS entry because 90°F is the Suppression Pool High temperature alarm but the CSF entry is at 95°F.

D is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that a Primary Containment temperature of 115°F is a CFS entry because 115°F is the "as read" Tech Spec entry condition but the CSF entry is at 122°F.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: MEMORY

Associated local objective(s):

700003.11	700003.11 EVALUATE given key PPC System parameters, if needed DETERMINE a course of action to correct or mitigate the following abnormal condition(s): .1 Critical Safety Function Alarm
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
295030.EK2.09	EK2.09	2.5	2.8	1	1	1

System Name

[Low Suppression Pool Water Level](#)

Category Statement

[Knowledge of the interrelations between LOW SUPPRESSION POOL WATER LEVEL and the following: \(CFR: 41.7 / 45.8\)](#)

KA Statement

[SPDS/ERIS/CRIDS/GDS: Plant-Specific](#)

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.7	41.7

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 3512.01 8.4.1</u>	<u>Revision #:12a</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12016</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>New</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>New question, wdk 3/17/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 3512.01</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

During core reload, a fuel bundle was dropped while attempting to place it in the core. Bubbles were observed rising from the area of the dropped bundle.

CNMT Bldg Refueling Pool Rad Monitors 1RIX-PR008A & 1RIX-PR008C are reading 120 mR/hr and 125 mR/hr respectively.

Which one of the following identifies the response of the:

(1) Fuel Building Ventilation (VF) AND

(2) Standby Gas Treatment (VG) systems?

- A. (1) VF isolates.
(2) BOTH trains of SGTS start.
- B. (1) VF isolates.
(2) ONLY one train of SGTS starts.
- C. (1) VF continues to run.
(2) BOTH trains of SGTS start.
- D. (1) VF continues to run.
(2) ONLY one train of SGTS start.

Answer: A

Answer Justification

A. is correct. IAW CPS 5050.07 and CPS 5052.07 AUTO ACTIONS, if the CNMT Bldg Refueling Pool Rad Monitors (1RIX-PR008A/B/C/D) are high (≥ 100 mR/hr) or INOP in the provided combination of channels A and C then the Fuel Building HVAC system shuts down (isolates) and BOTH Standby Gas Treatment System trains (A & B) start.

B is incorrect but plausible. The candidate may select this response if he/she realizes that the Fuel Building HVAC system shuts down (isolates) but incorrectly believes that only one train Standby Gas Treatment System starts.

C is incorrect but plausible. The candidate may select this response if he/she realizes that BOTH Standby Gas Treatment System trains (A & B) start but incorrectly believes that the Fuel Building HVAC system continues to run.

D is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that the Fuel Building HVAC system continues to run and only one train Standby Gas Treatment System starts.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: MEMORY

Associated local objective(s):

261000.05	261000.05 Discuss the VG SBTG STANDBY GAS TREATMENT system automatic functions/interlocks including purpose, signals, set points, sensing points, when bypassed, how/when they are. .1 VG Train Demister .2 VG Train Electric Heater .3 VG Train Pre-Filter .4 VG Train Upstream HEPA Filter .5 VG Train Charcoal Filter .6 VG Train Downstream HEPA Filter .7 VG Train Cooling Fan .8 VG Stack .9 VG Exhaust Fans .10 VG System Dampers .11 Charcoal Bed Deluge .12 VG Room Cooling Units
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
295023.AK2.07	AK2.07	3.6	3.9	1	1	1

System Name

Refueling Accidents

Category Statement

Knowledge of the interrelations between REFUELING ACCIDENTS and the following: (CFR: 41.7 / 45.8)

KA Statement

Standby gas treatment/FRVS

CFR Data**10CFR55-41 (RO) Data**

Para Num	Text
41.7	41.7

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 5050.07 Sect. 5050-7F</u> <u>CPS 5052.07 Sect. 5052-7F</u> <u>CPS 5140.62</u>	<u>Revision #:</u> <u>32b</u> <u>33c</u> <u>0a</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-70101</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Bank</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>Improved distracter justifications, wdk 03/29/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 5050.07</u> <u>CPS 5052.07</u> <u>CPS 5140.62</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

A station emergency is in progress, which has the potential for causing an offsite release.

Main Control Room (MCR) Ventilation (VC) System is currently aligned in the NORMAL Mode with the "A" train in operation and the "B" train in standby. Cont Rm Trn Min OS Air Dmpr 0VC01YA (East) and 0VC01YB (West) are OPEN.

The following annunciators are received:

- HI RADIATION CONT RM HVAC SYST DIVISION 1 (5050-7M)
- HI RADIATION CONT RM HVAC SYST DIVISION 2 (5052-7M)

The Outside Air Inlet Rad Monitors for the MCR VC System on P801-66B and 67B indicate the following:

- 1RIX-PR009A (West): 12 mr/hr
- 1RIX-PR009B (West): 14 mr/hr
- 1RIX-PR009C (East): 1 mr/hr
- 1RIX-PR009D (East): 2 mr/hr

Which of the following identifies the response of the VC system?

The operating VC Train ____ (1) ____.

The Cont Rm Trn Min OS Air Dmpr (0VC01YB) ____ (2) ____.

- A. (1) remains in its current NORMAL Mode
(2) must be manually SHUT
- B. (1) automatically aligns to the HI RAD Mode
(2) must be manually SHUT
- C. (1) remains in its current NORMAL Mode
(2) will automatically SHUT
- D. (1) automatically aligns to the HI RAD Mode
(2) will automatically SHUT

Answer: B

Answer Justification

B is correct. IAW CPS 5050.07 and CPS 5052.07 AUTO ACTIONS, with the detectors (1RIX-PR009 A/B/C/D) alarming (>10 mR/hr or Downscale) in the provided combination of channels A and B then the operating MCR HVAC train will realign to the High Radiation Isolation mode.

A is incorrect but plausible. The candidate may select this response if he/she recognizes that there is no automatic action that shuts 0VC01YB but incorrectly believes that there is no automatic action that will shift the operating VC train to the High Radiation Isolation mode.

C is incorrect but plausible. The candidate may select this response if he/she fails to recognize that the operating MCR HVAC train will realign to the High Radiation Isolation mode while also incorrectly believing that there is also an automatic action that shuts 0VC01YB.

D is incorrect but plausible. The candidate may select this response if he/she recognizes that the operating MCR HVAC train will realign to the High Radiation Isolation mode but incorrectly believes that there is also an automatic action that shuts 0VC01YB.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

290003.05	290003.05 Discuss the CONTROL ROOM HVAC system automatic functions/interlocks including purpose, signals, set points, sensing points, when bypassed, how/when they are. .1 High Radiation Initiation Actuation .2 Auto Blowdown Interlock associated with low inlet air temperature .3 Smoke Isolation Actuation Interlock
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
295038.EK2.07	EK2.07	3.5	3.7	1	1	1

System Name

High Off-Site Release Rate

Category Statement

Knowledge of the interrelations between HIGH OFF-SITE RELEASE RATE and the following: (CFR: 41.7 / 45.8)

KA Statement

Control room ventilation

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.7	41.7

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 5050.07 Sect. 5050-7M</u> <u>CPS 5052.07 Sect. 5052-7M</u> <u>CPS 3402.01 Sect. 8.3.3</u>	<u>Revision #:</u> <u>32b</u> <u>33c</u> <u>25b</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-6410151</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>New</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>New question, wdk 03/29/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 5050.07</u> <u>CPS 5052.07</u> <u>CPS 3402.01</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

What is the basis for raising RPV level to greater than 44 inches on Shutdown Range during a loss of SDC event?

- A. to improve the ability to monitor reactor coolant temperature
- B. to establish alternate Decay Heat Removal using ECCS Feed and Bleed via SRVs
- C. to support loss of SDC recovery
- D. to establish natural circulation flow through the RPV

Answer: D

Answer Justification

D is correct - With the Reactor Recirculation System secured and the steam separator in place, water level must be maintained above the natural circulation level as indicated by 44" on shutdown range or 61" on upset range (cold conditions). If this level is not maintained, thermal stratification will occur in the Bottom Head of the RPV. This has occurred on several occasions at various BWRs and has resulted in exceeding the Technical Specification Temperature Pressure Limits due to the Bottom Head cooling down below the limit for the pressure that existed. This has also resulted in exceeding the Technical Specification Heatup Rate limits when flow is reestablished.

A is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that monitoring reactor coolant temperature is affected by RPV level but it is not.

B is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that RPV level can be any level > 44 inches to use ECCS via SRVs as an alternate SDC method when in fact level must be raised > MSLs (~110" SD Range).

C is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that RPV level can be any level > 44 inches to support loss of SDC recovery when in fact level must be maintained > 75 inches SD range to support loss of SDC recovery. This prevents a loss of fill and vent in the event SDC is lost.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: MEMORY

Associated local objective(s):

202001.19	202001.19 Discuss the consequences of not maintaining Reactor water above the natural circulation line with no forced circulation available
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
295021.AK3.01	AK3.01	3.3	3.4	1	1	1

System Name

[Loss of Shutdown Cooling](#)

Category Statement

Knowledge of the reasons for the following responses as they apply to LOSS OF SHUTDOWN COOLING : (CFR: 41.5 / 45.6)

KA Statement

[Raising reactor water level](#)

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.5	41.5

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 3302.01 8.2.2</u> <u>CPS 3312.03 4.2</u> <u>CPS 4006.01 4.6.5</u>	<u>Revision #:</u> <u>31b</u> <u>6c</u> <u>4e</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-635467</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Bank</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter “b” to make plausible based on OTPS review)</u>	<u>Minor change to stem, wdk 5/12/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 3302.01</u> <u>CPS 3312.03</u> <u>CPS 4006.01</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

Which design features become challenged by a sustained drywell temperature of 345°F?
(RPV pressure is 1000 psig)

- A. All Reactor Water Level Indication and Automatic Depressurization System
- B. Reactor Pressure Boundary and Drywell Integrity
- C. All Reactor Water Level Indication and Reactor Pressure Boundary
- D. Automatic Depressurization System and Drywell Integrity

Answer: D

Answer Justification

D is correct. Drywell design temperature is 330°F. The Automatic Depressurization System (ADS) is qualified up to 340°F. Starting additional Drywell Coolers and Supplemental Coolers is the preemptive actions prior to requirements to initiate a Blowdown if temperature can not be held below 330°F.

A is incorrect but plausible. The candidate may select this response if he/she recognizes that ADS is impacted but incorrectly believes All Reactor Water Level Indications are unreliable even though RPV saturation temperature has not been reached.

B is incorrect but plausible. The candidate may select this response if he/she recognizes that Drywell Integrity is impacted but incorrectly believes that the RPV is threatened at this temperature when in fact Normal RPV temperature is 545°F.

C is incorrect but plausible. The candidate may select this response if he/she incorrectly believes All Reactor Water Level Indications are unreliable even though RPV saturation temperature has not been reached or that the RPV is threatened at this temperature when in fact Normal RPV temperature is 545°F.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: MEMORY

Associated local objective(s):

LP87558.01.02	<p>LP87558.01.02</p> <p>Given a diagram of EOP-6:</p> <ul style="list-style-type: none"> .01 State the conditions to exit/transfer from EOP-6 .02 State the bases for each individual step/action of EOP-6 .03 State the systems that are available for Containment Purge .04 State the systems and flow paths that can be used to cool and control pressure in the containment.
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
295028.EK3.06	EK3.06	3.4	3.7	1	1	1

System Name
High Drywell Temperature

Category Statement
Knowledge of the reasons for the following responses as they apply to HIGH DRYWELL TEMPERATURE : (CFR: 41.5 / 45.6)

KA Statement
ADS

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.5	41.5

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>EOP Tech Bases 8-8</u>	<u>Revision #:</u> <u>005</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-6281</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Bank</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter “b” to make plausible based on OTPS review)</u>	<u>Made change to stem, wdk 5/23/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>EOP Tech Bases</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

CPS has raised VARs several times in an attempt to correct grid voltage.

Given the following Generator status and the Abnormal Voltage section of CPS 3105.05, GENERATOR (TG):

Generator MVA: 1184 MVA
 Power Factor: 0.9
 Generator Terminal Voltage: 20,482 Volts

8.5.2 **Abnormal Voltage**

1. Comply with section 6.5 of LIMITATIONS
2. Operation below 95% of rated voltage (20,900 V) will require the generator output (MVA) to be reduced to below values by lowering reactor power (only way to lower generator MVA) .

	Voltage/(%)	LAG MVA Limit [Normal Oper State]	LEAD MVA Limit
	20,900 / (95.0%)	1265	1265
	20,790 / (94.5%)	1195	1129
	20,680 / (94.0%)	1189	1118
	20,570 / (93.5%)	1182	1106
	20,460 / (93.0%)	1176	1094
	20,350 / (92.5%)	1170	1082
	20,240 / (92.0%)	1164	1070
	20,130 / (91.5%)	1157	1059
	20,020 / (91.0%)	1151	1047
	19,910 / (90.5%)	1144	1036
AVR AUTO Low Limit ⇔	19,800 / (90.0%)	1138	1025
	19580 / (89.0%)	1125	1002
	19360 / (88.0%)	1113	980
	19140 / (87.0%)	1100	957
	18920 / (86.0%)	1088	936
	18700 / (85.0%)	1075	914

3. Operation above 105% of rated voltage (23,100 V) is to be avoided except during initial startup testing.
 ⚡ AVR AUTO Mode max raise limit - 24.2 KV.

Answer the following questions:

The procedure required action is to reduce generator MVA load to a MAXIMUM of __ (1) __.

The reason that the abnormal voltage is a concern is to __ (2) __.

- A. (1) 1176 MVA
(2) Prevent actuation of overvoltage relaying on the safety related buses.
- B. (1) 1176 MVA
(2) Prevent actuation of undervoltage relaying on the safety related buses.
- C. (1) 1182 MVA
(2) Prevent actuation of undervoltage relaying on the safety related buses.
- D. (1) 1182 MVA
(2) Prevent actuation of overvoltage relaying on the safety related buses.

Answer: B

Answer Justification

B is correct. CPS No. 3105.05 section on abnormal voltage for operation below 95% of rated voltage (20,900), instructs the operator to reduce MVA load to a value listed in the table. Since generator voltage is between the 93.5 percent and the 93 percent values the operator must choose the more conservative value and lower MVA to the Lagging MVA limit for the 93 percent value which is 1176 MVA. The concern with undervoltage is a loss of safety related loads due to undervoltage relaying.

A is incorrect but plausible. Overvoltage protection is provided by operator actions not relaying per 5007-5M.

C is incorrect but plausible. 1182 MVA refers to the MVA LAG limit for Main Generator voltage at 93.5%. The candidate may select this response if he/she recognizes the concern with undervoltage is a loss of safety related loads due to undervoltage relaying but fails to recognize that the 93.5% limit is the less conservative limit and therefore wrong.

D is incorrect but plausible. 1182 MVA refers to the MVA LAG limit for Main Generator voltage at 93.5%. The candidate may select this response if he/she fails to recognize that the 93.5% limit is the less conservative limit and therefore wrong. Overvoltage protection is provided by operator actions not relaying per 5007-5M.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

CPS.578182	RNS3 Describe the actions necessary to mitigate off-normal voltage conditions.
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
700000.AK3.02	AK3.02	3.6	3.9	1	1	1

System Name

Category Statement

Knowledge of the reasons for the following responses as they apply to GENERATOR VOLTAGE AND ELECTRIC GRID DISTURBANCES:
(CFR: 41.4, 41.5, 41.7, 41.10 / 45.8)

KA Statement

Actions contained in abnormal operating procedure for voltage and grid disturbances

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.10	41.10
41.4	41.4
41.5	41.5
41.7	41.7

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>3105.05 Sect. 8.5.2</u>	<u>Revision #:</u> <u>14b</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12035</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>New</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter “b” to make plausible based on OTPS review)</u>	<u>New question, wdk 04/07/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS No. 3105.05</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

The plant is operating at 97% power when both Reactor Recirculation flow control valves run back from 85% to 30% open. The plant remains on line.

NO OPERATOR ACTION is taken.

Prior to the power reduction, ACTUAL level in the downcomer is ____ (1) ____
INDICATED Wide Range level.

The difference between ACTUAL level in the downcomer and INDICATED Wide Range level will ____ (2) ____ during the power reduction.

- | | (1) | (2) |
|----|-------------|---------------|
| A. | the same as | get larger |
| B. | higher than | get larger |
| C. | the same as | stay the same |
| D. | higher than | get smaller |

Answer: D

Answer Justification

D is correct. The variable taps for wide range level instruments is close to the jet pump suction and will see a reduction in pressure at high jet pump flows and thus indicate a lower level than actual. As the flow lowers the pressure at the tap rises and the indicated level rises.

A is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that actual level is equal to the indicated level and that the difference gets larger when in fact it will get smaller as power is reduced. The incorrect assumption could be caused if the reference tap were affected by jet pump flow.

B is incorrect but plausible. The candidate may select this response if he/she realizes that actual level is higher than indicated level but incorrectly believes that the difference will get larger instead of smaller as power is reduced. The incorrect second part is true when RPV temperature is lowered.

C is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that actual level is equal to the indicated level and that the difference will stay the same throughout the power reduction.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: MEMORY

Associated local objective(s):

CPS.317337	<p>DB400801.01.05 Given an abnormal Reactor coolant flow condition, describe the impact on the following plant parameters:</p> <p>.1 Reactor power</p> <p>.2 Reactor water level</p> <p>.3 Main Turbine</p> <p>.4 Reactor Feedpumps</p>
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
295001.AA1.07	AA1.07	3.1	3.2	1	1	1

System Name

Partial or Complete Loss of Forced Core Flow Circulation

Category Statement

Ability to operate and/or monitor the following as they apply to PARTIAL OR COMPLETE LOSS OF FORCED CORE FLOW CIRCULATION : (CFR: 41.7 / 45.6)

KA Statement

Nuclear boiler instrumentation system

CFR Data**10CFR55-41 (RO) Data**

Para Num	Text
41.7	41.7

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 4411.07</u> <u>Simulator graph</u>	<u>Revision #:</u> <u>6</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12026</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>New</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified</u> <u>distracter "b" to make plausible based on OTPS review)</u>	<u>New question, wdk 3/18/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 4411.07</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

You have received a Main Control Room (MCR) fire alarm accompanied by a red flashing strobe light also in the MCR.

(1) Which ONE of the following identifies a panel whose detector would initiate these indications?

AND

(2) How would an operator extinguish a small fire in the upper section of this panel (i.e. NOT in the subfloor or surrounding areas)?

- A. (1) 1H13-P661, Div 1 NSPS Cabinet.
(2) Discharge a portable fire extinguisher into the panel.
- B. (1) 1H13-P678, Standby Information Panel.
(2) Discharge a portable fire extinguisher into the panel.
- C. (1) 1H13-P661, Div 1 NSPS Cabinet.
(2) MANUALLY initiate the MCR Halon system for this panel.
- D. (1) 1H13-P678, Standby Information Panel.
(2) MANUALLY initiate the MCR Halon system for this panel.

Answer: A

Answer Justification

A is correct. CPS 1893.04 Fire Fighting Section 8.1.2 identifies a fire alarm AND associated red flashing strobe light for MCR panel H13-P661, H13-P662 or the associated subfloor areas. CPS 1893.04M364 CPS Pre-Fire Plan states that the MCR Halon suppression system is for sub-floor sections only. Fires inside termination cabinets or panel bays must be combated manually (e.g. fire extinguisher).

B is incorrect but plausible. The candidate may select this response if he/she correctly believes that the proper way to combat a fire in 1H13-P678, Standby Information Panel is by using a fire extinguisher but incorrectly believes that a red flashing strobe light will initiate in response to the activation of a detector in 1H13-P678, Standby Information Panel.

C is incorrect but plausible. The candidate may select this response if he/she realizes that a red flashing strobe light initiates in response to the activation of a detector in 1H13-P661, Div 1 SRV Cabinet but incorrectly believes that the proper response to a detector activation in P661 would be to MANUALLY initiate the MCR Halon system for this panel. Operators must use a portable fire extinguisher to extinguish panel fires.

D is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that a red flashing strobe light initiates in response to the activation of a detector in P680 or that the proper response to a detector activation in 1H13-P678, Standby Information Panel and also incorrectly believes in P678 would be to MANUALLY initiate the MCR Halon system for this panel. Operators must use a Portable Halon Extinguisher to extinguish panel fires.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

239001.09	239001.09 DISCUSS the effect: h. A total loss or malfunction of the MAIN STEAM System has on the plant. i. A total loss or malfunction of various plant systems has on the MAIN STEAM System.
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
600000.AA1.09	AA1.09	2.5	2.7	1	1	1

System Name

Plant Fire On Site

Category Statement

Ability to operate and / or monitor the following as they apply to PLANT FIRE ON SITE:

KA Statement

Plant fire zone panel (including detector location)

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.10	41.10

10CFR55-43 (SRO) Data

Para Num	Text
43.5	43.5

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 1893.04 Sect. 8.1.2</u> <u>CPS 1893.04M364</u>	<u>Revision #:</u> <u>12c</u> <u>3</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12063</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>New</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>New question, wdk 04/20/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 1893.04</u> <u>CPS 1893.04M364</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

The unit was operating at 60% when Drywell Pressure rose to 1.9 psig.

RPV water level then SLOWLY lowered from normal operating level to -50" WR.

NO OPERATOR ACTIONS have been taken.

RCIC and RD are INJECTING.

Which of the following identifies pump(s)/system(s) also currently INJECTING?

- A. HPCS ONLY
- B. TDRFP ONLY
- C. TDRFP and HPCS
- D. MDRFP and HPCS

Answer: A

Answer Justification

A is correct. HPCS started on High Drywell Pressure and based on given plant conditions, will inject as long as RPV level is less than Level 8.

B is incorrect but plausible. The candidate may select this response if he/she fails to remember that the TDRFPs trip when RCIC is injecting (1E51-F013 not fully closed and RCIC flow > 120 gpm).

C is incorrect but plausible. The candidate may select this response if he/she recognizes that HPCS started on High Drywell Pressure and continues to inject based on plant conditions but fails to remember that the TDRFPs trip when RCIC is injecting (1E51-F013 not fully closed and RCIC flow > 120 gpm).

D is incorrect but plausible. The candidate may select this response if he/she fails to remember that the TDRFPs trip when RCIC is injecting (1E51-F013 not fully closed and RCIC flow > 120 gpm) and that the loss of the MDRFP aux oil pump (precipitated by the shunt trip of TB MCC 1M on High Drywell Pressure) will block the automatic start signal to the MDRFP.

High Cognitive Level – Question meets the “High Cog” criteria because the candidate must first evaluate the conditions provided in the stem and not only determine what start signals may be present but also identify interactions between different systems. While it is true that the candidate need only know that the HPCS system will auto initiate on high drywell pressure or RPV level 2 (both of which are present), the candidate must rule out the TDRFP based on an interaction between two systems (an interlock trips the TDRFPs when RCIC injecting) and the MDRFP based on a blocked auto start signal (loss of power to MDRFP aux oil pump caused by a shut trip of the MCC that powers it).

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

LP87594.01.07	LP87594.01.07 Given CPS 4411.03, explain notes, cautions, conditional requirements and/or describe actions taken to initiate injection and flooding sources for: .01 FW .02 CD/CB .03 Head Spray .04 RD Water Leg Pump for: .05 HPCS .06 RCIC .07 LPCS .08 LPCI Abnormal Lineups: .09 RHR through shutdown cooling .10 SX through RHR B .11 SX through RHR B test return .12 SX through containment spray B .13 Fire Protection .14 FC injection .15 SLC injection Suppression Pool Makeup/Cleanup .16 Dump upper pools .17 Containment flood through SF using CP Cycled Condensate .18 CY through ECCS fill path .19 CY to SM .20 CY through SM/SF
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
295031.EA1.04	EA1.04	4.3*	4.2	1	1	1

System Name

Reactor Low Water Level

Category Statement

Ability to operate and/or monitor the following as they apply to REACTOR LOW WATER LEVEL : (CFR: 41.7 / 45.6)

KA Statement

High pressure core spray: Plant-Specific

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.7	41.7

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 5062.02 Sect. 5062-2E</u> <u>CPS 5002.01 Sect. 5002-1G</u> <u>CPS 5002.01 Sect. 5002-1J</u> <u>CPS 4001.02 Table 1</u>	<u>Revision #:</u> <u>28</u> <u>31e</u> <u>31e</u> <u>17</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-LC-1558</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Bank</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>Improved stem/distracter justifications, wdk 03/07/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 5062.02</u> <u>CPS 5002.01</u> <u>CPS 4001.02</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

The plant was operating at 87% power.

The Instrument Air System Inboard Containment Isolation valve failed closed.

A manual reactor scram was initiated; however reactor power remained at 40% of rated thermal power.

When Standby Liquid Control (SLC) was initiated the following indications were observed:

- SLC DISCH TO RPV SQUIB A light is illuminated.
- SLC DISCH TO RPV SQUIB B light is **NOT** illuminated.
- SLC Suction Valve 1C41-F001A opened.
- SLC Suction Valve 1C41-F001B failed to open.

Which of the following is the MINIMUM condition that requires securing SLC pump(s)?

- A. when SLC Tank Level indicates zero (0) gallons.
- B. when SLC Tank Level indicates 1000 gallons.
- C. after 40 minutes of run time.
- D. after 80 minutes of run time.

Answer: D

Answer Justification

Per CPS 4411.10 SLC Operations Section 2.1.3 NOTE: SLC Strg Tank Level, 1C41-R601 indication is not available on a CNMT IA isolation. SLC Strg Tank level is maintained above the pump suction for 2 pumps - 40 min or 1 pump - 80 min.

D is correct. The loss of IA to containment caused the loss of SLC Tank Level indication (fails to 0 gallons). Tank Level indication is invalid, requiring the use of pump run times. One squib valve and one suction valve failed to open and only one pump is running. 80 minutes is the required run time for one pump.

A is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that level indication is available.

B is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that 1000 gallons is the level at which SLC pump(s) are secured. This is the level at which the tank heaters should be secured.

C is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that 40 minutes is the required run time for one pump injecting. This is the run time if both pumps were injecting.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

211000.16	211000.16 EVALUATE the following STANDBY LIQUID CONTROL indications/responses and DETERMINE if the indication/response is expected and normal. .1 System Initiation .2 Indication of boron injection .3 System Testing
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
295037.EA2.03	EA2.03	4.3*	4.4*	1	1	1

System Name

SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown

Category Statement

Ability to determine and/or interpret the following as they apply to SCRAM CONDITION PRESENT AND REACTOR POWER ABOVE APRM DOWNSCALE OR UNKNOWN : (CFR: 41.10 / 43.5 / 45.13)

KA Statement

SBLC tank level

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.10	41.10

10CFR55-43 (SRO) Data

Para Num	Text
43.5	43.5

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 4411.10 2.1.7</u>	<u>Revision #:</u> <u>5a</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12075</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Modified from CL-ILT-635631</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>Modified stem and made a different distracter the correct answer, wdk 03/18/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 4411.10</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

The plant is operating at rated power with two (2) Turbine Driven Reactor Feed Pumps (TDRFP) controlling RPV water level on the Master Level Controller.

THEN, the "A" TDRFP trips and RPV water level lowers to 8.0" on Narrow Range.

The plant stabilizes following the transient, and plant conditions are currently as follows:

- Reactor power is at 63%.
- RPV water level is at 18" on Narrow Range.
- Reactor Recirculation pumps are running in slow speed.

NO OPERATOR ACTIONS have been taken.

What is the NEXT required action, if any?

- A. Enter EOP-1, RPV CONTROL.
- B. Perform a rapid plant shutdown.
- C. Start and base load the MDRFP.
- D. No action is required for current plant conditions.

Answer: A

Answer Justification

A is correct. RPV water level dropped below Level 3, and reactor power remained above 5%. An automatic SCRAM should have actuated at RPV Level 3 (8.9") and an entry condition for EOP-1 RPV CONTROL (Reactor Power above 5% or unknown when SCRAM required) is met. The next action should be to enter EOP-1, RPV CONTROL.

B is incorrect but plausible. The candidate may select this response if he/she fails to recognize the failure to scram and the entry condition for EOP-1 RPV CONTROL being met while also failing to recognize that running back the RR flow control valves (such as during a Rapid Plant Shutdown) with the RR pumps in slow speed would have very little effect.

C is incorrect but plausible. The candidate may select this response if he/she recognizes that CPS 3103.01 FEEDWATER (FW) allows operating the MDRFP in parallel with a TDRFP which may be used to support full power operation in the event one of the TDRFPs is not available but fails to recognize the failure to scram and the entry condition for EOP-1 RPV CONTROL being met.

D is incorrect but plausible. The candidate may select this response if he/she recognizes that one TDRFP can feed the reactor up to 65% power but fails to recognize the failure to scram and the entry condition for EOP-1 RPV CONTROL being met.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

LP87552.01.01	LP87552.01.01 From memory, recall the plant conditions (parameters and setpoints) which require entry or reentry to Emergency Operating Procedure (EOP)-1, RPV CONTROL per EOP-1 without error.
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
295006.AA2.05	AA2.05	4.6*	4.6*	1	1	1

System Name

SCRAM

Category Statement

Ability to determine and/or interpret the following as they apply to SCRAM : (CFR: 41.10 / 43.5 / 45.13)

KA Statement

Whether a reactor SCRAM has occurred

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.10	41.10

10CFR55-43 (SRO) Data

Para Num	Text
43.5	43.5

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 4401.01 EOP-1</u>	<u>Revision #:</u> <u>28</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-7030</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Bank</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>Improved stem/distracter justifications, wdk 03/28/2011</u> <u>Replaced distracter C, wdk 5/27/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 4401.01</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

A Station Blackout has occurred. Division I Diesel Generator (DG) is ready to be started to re-energize 4160 V Bus 1A1.

Which of the following actions would be taken before starting the Division I DG and the reason for that action?

- A. Secure the RCIC Gland Seal Compressor; ensures adequate field flashing current is available to start DIV 1 DG.
- B. Secure the RCIC Gland Seal Compressor; to prevent compressor motor damage due to low voltage when the DG is started.
- C. Secure the Emergency Bearing Oil Pump; reduces starting load on the DG, which could cause the DG to trip on under voltage.
- D. Secure the Emergency Bearing Oil Pump; to prevent it from shunt tripping due to low voltage when the DG is started.

Answer: A

Answer Justification

A is correct. In accordance with CPS 4200.01 "For DG 1A start during a SBO: Stop the RCIC Gland Seal Air Compressor to ensure sufficient DG 1A field flashing current on the DG 1A start sequence."

B is incorrect but plausible. The candidate may select this response if he/she realizes that the RCIC Gland Seal Compressor must be secured but incorrectly believes that this is to protect the compressor instead of ensuring adequate field flashing current is available to start DIV 1 DG.

C is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that the Emergency Bearing Oil Pump (EBOP) is affected or affects the starting of the DIV 1 DG. The EBOP is DC but not off a safety related DC bus.

D is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that the Emergency Bearing Oil Pump (EBOP) is affected or affects the starting of the DIV 1 DG. The EBOP is DC but not off a safety related DC bus.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: MEMORY

Associated local objective(s):

DB420001.01.02	<p>DB420001.01.02 State the reason for the following:</p> <ul style="list-style-type: none"> .1 Selective tripping .2 Deenergizing the Radiation Monitor Trip Logic power supply prior to restoring affected buses .3 Restoring 4160 Volt Bus 1B1 promptly .4 Securing RCIC Gland Seal Air Compressor prior to restoring the DIV I Diesel Generator to service .5 The 138 KV line is the preferred source for restoration when outside temperatures are less than 70°.
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
295003.AA2.04	AA2.04	3.5	3.7	1	1	1

System Name
Partial or Complete Loss of A.C. Power

Category Statement
Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF A.C. POWER : (CFR: 41.10 / 43.5 / 45.13)

KA Statement
System lineups

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.10	41.10

10CFR55-43 (SRO) Data

Para Num	Text
43.5	43.5

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 4200.01 Sect. 4.2.3.8</u>	<u>Revision #:</u> <u>19a</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-6315</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Bank</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>Improved stem/distracter justifications, wdk 03/24/2011</u> <u>Improved distracter B, wdk 6/12/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 4200.01</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

Plant conditions are as follows:

- The Reactor is at 72% power.
- RECIRC MOTOR A WINDING COOLING WATER FLOW LOW, 5003-3D alarms.
- RECIRC MOTOR B WINDING COOLING WATER FLOW LOW, 5003-3K alarms.
- The "B" Reactor Operator reports ALL Component Cooling Water Pumps have tripped and WILL NOT restart.

A ____ (1) ____ is required.

The Main Steam Isolation Valves will ____ (2) ____ the plant cooldown.

- A. (1) Rapid Plant Shutdown
(2) remain OPEN throughout
- B. (1) Reactor Scram
(2) be SHUT during
- C. (1) Rapid Plant Shutdown
(2) be SHUT during
- D. (1) Reactor Scram
(2) remain OPEN throughout

Answer: B

Answer Justification

B is correct. In accordance with CPS 5003.03 Alarm Panel 5003 Annunciators – Row 3 Sections 5003-3D/3K Operator Actions, IF full CCW Cooling flow is lost to both RR Pumps A & B, Then SCRAM and enter CPS 4100.01, Reactor Scram.

The CCW System provides cooling water to the Service Air Compressors high-efficiency internal air coolers and oil coolers. High or low CCW temperatures would result in abnormal component temperatures and possible damage. A loss of CCW would result in a loss of IA and a shutdown/scram. SA/IA Compressors will trip on high air outlet temperature or high oil temperature and require an entry into the Loss of Air Off-Normal. In accordance with CPS 3214.01 Plant Air (IA/SA) Section 8.2.2 Containment Isolation and Recovery, the loss of IA will result in MSIVs to fail closed. MSIVs close at < 70 psig air supply pressure to their accumulators.

A is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that a Rapid Plant Shutdown is the correct response to the loss of CCW and further believes that the MSIVs will be unaffected by the impending loss of IA.

C is incorrect but plausible. The candidate may select this response if he/she recognizes that the MSIVs will be affected by the impending loss of IA causing them to fail close but incorrectly believes that a Rapid Plant Shutdown is the correct response to the loss of CCW.

D is incorrect but plausible. The candidate may select this response if he/she recognizes that based on the plant conditions a reactor scram is required but incorrectly believes that the MSIVs will be unaffected by the impending loss of IA.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

400001.09	400001.09 DISCUSS the effect: j. A total loss or malfunction of the Component Cooling Water System has on the plant. k. A total loss or malfunction of various plant systems has on the Component Cooling Water System.
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
B2.4.31	B2.4.31	4.2	4.1	1	1	1

System Name

295018 Partial or Total Loss of CCW

Category Statement

Emergency Procedures /Plan

KA Statement

Knowledge of annunciator alarms, indications, or response procedures.
(CFR: 41.10 / 45.3)

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.10	41.10

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	CPS 5003.03 Sect. 5003-3D CPS 5003.03 Sect. 5003-3K CPS 3214.01 Sect. 8.2.2	<u>Revision #:</u> 29 29 25
<u>Justification for Non SRO CFR Link:</u>	N/A	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	CL-ILT-4862	
<u>Question Source: (i.e. New, Bank, Modified)</u>	Bank	
<u>Low KA Justification (if required):</u>	N/A	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	Improved distracter justification, wdk 3/24/2011	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	None	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	CPS 5003.03 CPS 3214.01	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	No	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	N/A	

The plant has experienced a Loss of Instrument Air while at power.

Select the condition that requires IMMEDIATELY inserting a manual Reactor scram.

- A. Scram Discharge Volume water level rising to the Rod Block Setpoint.
- B. Instrument Air pressure is 70 psig and slowly lowering.
- C. Service Air Filter/Dryer unit bypass valve opens.
- D. Instrument Air Ring Headers start isolating.

Answer: A

Answer Justification

A is correct. CPS 4004.01, Instrument Air Loss requires the mode switch to be placed in SHUTDOWN during a loss of Instrument Air (IA) if; a Rod Block occurs from Scram Discharge Volume (SDV) water level or Instrument air pressure drops to 60 psig and cannot be restored.

B is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that action is required at a header pressure of 70 psig instead of 60 psig.

C is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that Service Air (SA) Filter/Dryer unit bypass valve opening is a trigger for placing the mode switch in SHUTDOWN. The SA Filter/Dryer units bypass valve will open when outlet pressure reaches 70 psig at the discharge of the Filter/Dryer. No action is required unless Instrument air pressure drops to 60 psig and cannot be restored.

D is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that the IA Ring Headers isolating would be a trigger for placing the mode switch in SHUTDOWN. The Instrument Air Ring Headers automatically isolate at 70 psig measured locally and could be seen as a worsening problem. No action is required unless air header pressure drops to 60 psig and cannot be restored.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: MEMORY

Associated local objective(s):

PB400401.01.02	PB400401.01.02 List the immediate operator actions for CPS No. 4004.01, INSTRUMENT AIR LOSS.
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
B2.1.20	B2.1.20	4.6	4.6	1	1	1

System Name
295019 Partial or Total Loss of Inst. Air

Category Statement
Conduct of Operations

KA Statement
Ability to interpret and execute procedure steps. (CFR: 41.10 / 43.5 / 45.12)

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.10	41.10

10CFR55-43 (SRO) Data

Para Num	Text
43.5	43.5

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 4004.01 Sect. 3.0</u>	<u>Revision #:</u> <u>9e</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-0144</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Bank</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>Improved stem/distracters and justifications, wdk 03/21/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 4004.01</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>Yes</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

RCIC is being controlled from the Remote Shutdown Panel. The RCIC Turbine Trip Alarm Light comes ON.

Which one of the following is a possible cause?

- A. RCIC overspeed
- B. RCIC system isolation
- C. RCIC pump low suction pressure
- D. RCIC turbine exhaust pressure high

Answer: A

Answer Justification

A is correct. The RCIC manual and overspeed trips are active when operating RCIC from the Remote Shutdown Panel (RSP).

B is incorrect but plausible. The candidate may select this response if he/she fails to recognize that the isolation trip is not active when control has been shifted from the Main Control Room to the RSP.

C is incorrect but plausible. The candidate may select this response if he/she fails to recognize that the exhaust pressure trip is not active when control has been shifted from the Main Control Room to the RSP.

D is incorrect but plausible. The candidate may select this response if he/she fails to recognize that the low suction pressure trip is not active when control has been shifted from the Main Control Room to the RSP.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: MEMORY

Associated local objective(s):

200000.06	200000.06 Given a REMOTE SHUTDOWN System Annunciator, DESCRIBE: <ul style="list-style-type: none">a. The condition causing the annunciatorb. Any automatic actionsc. Any operational implications.1 Transfer switch in EMERGENCY
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
B2.4.50	B2.4.50	4.2	4.0	1	1	1

System Name

[295016 Control Room Abandonment](#)

Category Statement

[Emergency Procedures /Plan](#)

KA Statement

[Ability to verify system alarm setpoints and operate controls identified in the alarm response manual. \(CFR: 41.10 / 43.5 / 45.3\)](#)

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.10	41.10

10CFR55-43 (SRO) Data

Para Num	Text
43.5	43.5

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 4003.01C003 Pg 5 of 5</u>	<u>Revision #:</u> <u>1</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12023</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>New</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>New question, wdk 03/28/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 4003.01C003</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

Plant conditions are causing Suppression Pool temperature to rise.

Suppression Pool temperature, Suppression Pool level and RPV pressure are shown on the Heat Capacity Limit graph. The graph requires the use of all three parameters to determine when a blowdown is required.

Which one of the three, if any, can require a blowdown due to its value alone?

- A. RPV pressure
- B. None of the three
- C. Suppression Pool level
- D. Suppression Pool temperature

Answer: C

Answer Justification

C is correct. Per the EOP Technical Bases, a suppression pool low level of 15'1" requires a blow down no matter what any other parameters are indicating.

A is incorrect but plausible. The candidate may select this response if he/she recognizes that a high RPV pressure requires pressure to be reduced but will not alone require a blowdown.

B is incorrect but plausible. The candidate may select this response if he/she fails to recognize that Suppression pool level does require a blowdown.

D is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that Suppression Pool temperature by itself requires a blowdown when in fact Suppression pool temperature will require a scram but by itself will not require a blowdown.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: MEMORY

Associated local objective(s):

LP87558.01.07D	LP87558.01.07 Given a decreasing Suppression Pool water level, determine when it is appropriate to dump the Upper Pools in terms of approaching a level of 15 ft 1 in.
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
295026.EK2.06	EK2.06	3.5	3.7	1	1	1

System Name

[Suppression Pool High Water Temperature](#)

Category Statement

[Knowledge of the interrelations between SUPPRESSION POOL HIGH WATER TEMPERATURE and the following: \(CFR: 41.7 / 45.8\)](#)

KA Statement

[Suppression pool level](#)

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.7	41.7

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>EOP TB pg. 8-20</u>	<u>Revision #:</u> <u>005</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12036</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>New</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>New question, wdk 3/21/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>EOP TB</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

Which transient, if initiated from RATED power, would result in the largest impact on the margin to the Minimum Critical Power Ratio (MCPR) safety limit?

- A. Control Rod Withdrawal Error
- B. Main Turbine Trip Without Bypass
- C. Pressure Regulator Failure - Downscale
- D. Feedwater Control Failure - Maximum Demand

Answer: B

Answer Justification

B is correct. Of the transients listed, the UFSAR Thermal & Hydraulic design bases recognize the turbine trip without bypass as having the largest effect on MCPR.

A, C & D are all incorrect but plausible. The candidate may select any of these responses if he/she that any of these transients have the largest impact on MCPR. These are all transients that are analyzed for their impact on MCPR but all have a smaller impact than the turbine trip without bypass.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: MEMORY

Associated local objective(s):

CPS.720099	<p>LP87439.1.1 Minimum Critical Power Ratio (CPR)</p> <ul style="list-style-type: none"> .1 State the definition of Minimum Critical Power Ratio .2 State the basis of the Limiting Condition for Operation for CPR .3 State the Mode of Fuel Failure for CPR .4 State the general parameters measured for CPR .5 State the definition of the Maximum Fraction of Critical Power Ratio (MFLCPR) .6 Given the Core Operating Limits Report, state the general reason for the curves for $MCPR_p$ and $MCPR_f$.7 Given a $MCPR_p$ and $MCPR_f$, state which one is the current operational limit.
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
295005.AK1.02	AK1.02	3.2	3.6	1	1	1

System Name

[Main Turbine Generator Trip](#)

Category Statement

[Knowledge of the operational implications of the following concepts as they apply to MAIN TURBINE GENERATOR TRIP : \(CFR: 41.8 to 41.10\)](#)

KA Statement

[†Core thermal limit considerations](#)

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.10	41.10
41.8	41.8
41.9	41.9

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

General Data		
Technical Reference with Revision Number:	UFSAR Sect. 15D.4.4	Revision #: 14
Justification for Non SRO CFR Link:	N/A	
Question History: (i.e. LGS NRC-05, OYS CERT-04)	CL-ILT-12024	
Question Source: (i.e. New, Bank, Modified)	New	
Low KA Justification (if required):	N/A	
Revision History: Revision History: (i.e. Modified distracter “b” to make plausible based on OTPS review)	New question, wdk 5/12/2011	
ILT		
Supplied Ref (If appropriate): (i.e. ABN-##)	None	
Excluded Reference: (i.e. Ensure ON-## not provided)	UFSAR	
LORT		
PRA: (i.e. Yes or No or #)	No	
LORT Question Section: (i.e. A-Systems or B-Procedures)	N/A	

The plant is at 59% rated power.

A periodic Reactor Core Isolation Cooling (RCIC) surveillance is in progress.

Level 8 (+52 inches water level) is reached in the Reactor Pressure Vessel (RPV).

(1) Select the actuation caused by the ABOVE plant conditions

AND

(2) the reason for that actuation.

- A. (1) Main Turbine trip.
(2) It prevents Main Turbine damage due to moisture carryover.
- B. (1) Reactor Scram.
(2) It protects against the loss of a heat sink.
- C. (1) RCIC Turbine trip.
(2) It prevents RCIC Turbine damage due to control system instabilities.
- D. (1) TDRFP trip.
(2) It protects the Feedwater piping against thermal stresses that could cause bowing.

Answer: A

Answer Justification

A is correct. The Reactor Vessel High Water Level 8 (+ 52 inches) Main Turbine trip prevents turbine damage due to moisture carryover.

B is incorrect but plausible. The candidate may select this response if he/she recognizes that a Reactor Scram is initiated at Level 8 but incorrectly believes that the reason is to protect the Reactor Coolant System against overpressurization. The Scram ensures Minimum Critical Power Ratio (MCPR) is maintained above the MCPR Safety Limit.

C is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that the RCIC Turbine trips on Level 8 when in fact the 1E51-F045 receives a close signal. Also, the Operation of RCIC Pump Flow Cont, 1E51-R600 in AUTO when < 75% demand (450 gpm) promotes the likelihood of control system instability (erratic oscillations of RCIC Turbine speed and system flow) not RPV high water level.

D is incorrect but plausible. The candidate may select this response if he/she recognizes that a TDRFP trip is initiated at Level 8 but incorrectly believes that this protects the Feedwater piping against thermal stresses that could cause bowing when in fact this is done by limiting the differential temperature between RT return flow and feedwater flow.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: MEMORY

Associated local objective(s):

245000.05	245000.05 Discuss the MAIN TURBINE (TG) system automatic functions/interlocks including purpose, signals, set points, sensing points, when bypassed, how/when they are.
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
295008.AK1.01	AK1.01	3.0	3.2	1	2	2

System Name

High Reactor Water Level

Category Statement

Knowledge of the operational implications of the following concepts as they apply to HIGH REACTOR WATER LEVEL : (CFR: 41.8 to 41.10)

KA Statement

Moisture carryover

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.10	41.10
41.8	41.8
41.9	41.9

10CFR55-43 (SRO) Data

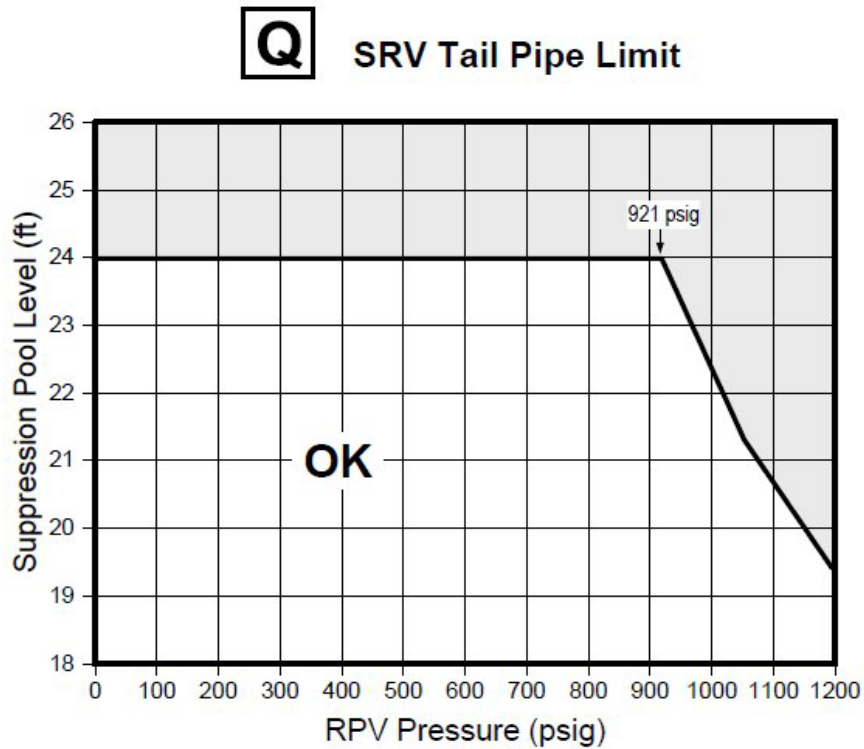
Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 3105.01 Sect. 6.9</u> <u>USAR Sect. 7.7.1.4.1.1</u>	<u>Revision #:</u> <u>36c</u> <u>11</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12025</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>New</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>New question, wdk 03/22/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 3105.01</u> <u>USAR</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

Suppression pool level is 23 feet.

RPV pressure is 1000 psig.



Opening SRVs under these conditions....

- A. may result in missile damage to the Reactor Pressure Vessel.
- B. may result in direct pressurization of the Containment.
- C. may result in steam entrainment in pump suction.
- D. is the preferred method to depressurize the RPV.

Answer: B

Answer Justification

B is correct. The candidate must apply the initial conditions to Figure Q in order to determine that the plant is operating above the SRV Tail Pipe Limit. Per the EOP Technical Bases, the operation of SRVs while above the SRV Tail Pipe Limit may result in Tail Pipe failure which results in direct pressurization of the containment.

A is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that the concern is missile damage to the Reactor Pressure Vessel (RPV). The RPV is protected by the reactor shield wall.

C is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that the concern is steam entrainment in pump suction. Pump suction are separated from SRV Tailpipes by the width of the pool.

D is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that the initial conditions, when applied to Figure Q, determine that the plant is operating in the OK region of the SRV Tail Pipe Limit. Based on this determination, opening SRV(s) would be the preferred method to depressurize the RPV.

High Cognitive Level – Question meets the “High Cog” criteria because the candidate must first apply the initial conditions to Figure Q in order to determine that the plant is operating above the SRV Tail Pipe Limit. Then, the candidate must apply his/her knowledge of the EOP Technical Bases to determine the correct effect.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

223001.01	223001.01 STATE the purpose(s) of the PRIMARY CONTAINMENT System including applicable design bases.
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
295029.EK2.06	EK2.06	3.4	3.5	1	2	2

System Name

High Suppression Pool Water Level

Category Statement

Knowledge of the interrelations between HIGH SUPPRESSION POOL WATER LEVEL and the following: (CFR: 41.7 / 45.8)

KA Statement

SRV's and discharge piping

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.7	41.7

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>EOP-TB pg. 11-46</u>	<u>Revision #:</u> <u>5</u>
<u>Justification for Non SRO CFR Link:</u>		
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-LC-0832</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Bank</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>Improved distracter A and added figure to question, wdk 03/28/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>EOP-TB</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

Drywell temperature is 155°F and rising.

The CRS has directed starting all available Drywell Coolers and Supplemental Coolers.

Assume that all available Drywell cooling can maintain drywell temperature less than 185°F.

This action is taken to prevent jeopardizing _____ integrity.

- A. Recirc Pump Seal
- B. Safety Relief Valve
- C. Primary Containment
- D. RPV Level Instrument

Answer: C

Answer Justification

C is correct. Per EOP Technical Bases, this action is taken if drywell temperature cannot be held below 150°F. A high drywell temperature is a symptom of events which may jeopardize primary containment integrity.

A is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that Recirc Pump seals would be jeopardized by a high drywell temperature. Drywell temperature has a very limited effect on Recirc Pump seals.

B is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that Safety Relief Valves (SRVs) would be jeopardized by a high drywell temperature. The SRVs are qualified up to 340°F and a Blowdown is required at 330°

D is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that RPV Level instruments would be jeopardized by a high drywell temperature. The preferred level instruments, wide and narrow range, are not affected by drywell temperature until saturation is reached.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: MEMORY

Associated local objective(s):

LP87558.01.02	<p>LP87558.01.02</p> <p>Given a diagram of EOP-6:</p> <ul style="list-style-type: none"> .01 State the conditions to exit/transfer from EOP-6 .02 State the bases for each individual step/action of EOP-6 .03 State the systems that are available for Containment Purge .04 State the systems and flow paths that can be used to cool and control pressure in the containment.
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
295012.AK3.01	AK3.01	3.5	3.6	1	2	2

System Name

[High Drywell Temperature](#)

Category Statement

[Knowledge of the reasons for the following responses as they apply to HIGH DRYWELL TEMPERATURE : \(CFR: 41.5 / 45.6\)](#)

KA Statement

[Increased drywell cooling](#)

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.5	41.5

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>EOP TB pg. 8-2</u>	<u>Revision #:</u> <u>5</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12027</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Bank</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>Improved distracter justification, wdk 7/01/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>EOP TB</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

The plant is operating at rated power when a loss of all Feedwater occurs.

RCIC AUTO starts.

HPCS fails to AUTO start.

Reactor Water Level continues to slowly lower.

Division 1 & Division 2 Diesel Generators are in standby.

Which of the following is expected due to the above conditions?

- A. ALL RWCU Inboard and Outboard Containment Isolation Valves are shut.
- B. ALL IA Inboard and Outboard Containment and Drywell Isolation Valves are shut.
- C. ONLY 1IA008 and 1IA007 IA Inboard and Outboard Drywell Isolation Valves are shut.
- D. ONLY 1G33-F001 and 1G33-F004 RWCU Inboard and Outboard Containment Isolation Valves are shut.

Answer: A

Answer Justification

A is correct. RCIC auto starting and HPCS failing to auto start on a loss of Feedwater means that reactor water level lowered below Level 2 (-45.5 inches) which is an isolation signal to RWCU and all associated containment isolation valves should shut. Since Div 1 & 2 Diesel Generators are still in standby, RPV Level 1 has NOT been reached.

B is incorrect but plausible. The candidate may select this response if he/she realizes that 1IA013B and 1IA012B (part of Group #8 Isolation Valves) isolate on either a Level 2 signal or High Drywell Pressure but fails to recognize that 1IA008 and 1IA007 are Group #18 and 1IA006 and 1IA005 are Group #13 BOP Isolation Valves, all of which isolate on a Level 1 (-145.5 inches) setpoint.

C is incorrect but plausible. The candidate may select this response if he/she fails to recognize that 1IA008 and 1IA007 are Group #18 BOP Isolation Valves which isolate on a Level 1 (-145.5 inches) setpoint.

D is incorrect but plausible. Conditions indicate Alternate Injection Systems (SLC) are required because Reactor Water Level is less than Level 3 and cannot be restored. The candidate may select this response if he/she fails to recognize that level had not lowered to Level 2 and the A & B SLC pumps were started for Alternate Injection.

High Cognitive Level – Question meets the “High Cog” criteria because the candidate must first evaluate the conditions presented in the stem to determine that a RPV Level 2 condition has been met. Since RPV level continues to lower, it must also be determined by the stated conditions that a RPV Level 1 condition has NOT yet been met. Finally, the candidate must apply his/her knowledge of Level 2 isolations.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

204000.03	204000.03 DESCRIBE the function, operation, interlocks, trips, physical location, and power supplies of the following RWCU System components. .1 Suction Valves .2 Containment Isolation Valves .3 RWCU Pump .4 RWCU Heat Exchangers .5 Reject Flow Controller .6 Filter Demineralizers (FD) .7 FD Support Equipment .8 Durability Monitor
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
295009.AA1.04	AA1.04	2.7	2.7	1	2	2

System Name

Low Reactor Water Level

Category Statement

Ability to operate and/or monitor the following as they apply to LOW REACTOR WATER LEVEL : (CFR: 41.7 / 45.6)

KA Statement

Reactor water cleanup

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.7	41.7

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 4001.02C001</u>	<u>Revision #:</u> <u>15b</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12028</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>New</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>New question, wdk 3/23/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 4001.02C001</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>Yes</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

The plant was operating at near full power.

- Circulating Water (CW) Pumps A & B (1CW01PA/B) are operating.
- Main Condenser Vacuum began to degrade.
- Main Condenser air leakage was noted to be 200 scfm and rising (unidentified source).

An Emergency Power Reduction to 70% has just been completed. Current conditions:

- Main Condenser Vacuum 23.0" Hg and continues to degrade at 0.1" Hg/minute.
- Air leakage to the Main Condenser is 215 scfm and continues to rise at 1 SCFM/minute.

Which of the following is the NEXT required action?

- A. Lower reactor power to 30 - 40%.
- B. Place both SJAE Trains in service.
- C. Place the mode switch in SHUTDOWN.
- D. Start an additional Circulating Water (CW) Pump.

Answer: C

Answer Justification

C is correct. CPS 4100.01, Reactor Scram "IF Vacuum reaches 23" Hg vac and is lowering, THEN perform a manual scram."

A is incorrect but plausible. The candidate may select this response if he/she recognizes the off-gas system adverse condition of air leakage to the Main Condenser > 136 scfm but fails to recognize that the value of main condenser vacuum is the overriding concern.

B is incorrect but plausible. The candidate may select this response if he/she recognizes that air leakage to the Main Condenser may be the cause of the degrading vacuum but fails to recognize that SJAE trains may be swapped, but not operated simultaneously.

D is incorrect but plausible. The candidate may select this response if he/she believes that running additional CW pumps can improve Main Condenser Vacuum but fails to recognize that this action will not correct a deficiency caused by air leakage.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: MEMORY

Associated local objective(s):

CPS.317369	DB410001.01 Given specific plant conditions, determine if CPS No. 4100.01, REACTOR SCRAM should be used.
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
295002.AA2.01	AA2.01	2.9	3.1	1	2	2

System Name

[Loss of Main Condenser Vacuum](#)

Category Statement

[Ability to determine and/or interpret the following as they apply to LOSS OF MAIN CONDENSER VACUUM : \(CFR: 41.10 / 43.5 / 45.13\)](#)

KA Statement

[Condenser vacuum/absolute pressure](#)

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.10	41.10

10CFR55-43 (SRO) Data

Para Num	Text
43.5	43.5

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 4100.01 Note</u>	<u>Revision #:</u> <u>20a</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12037</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Modified from CL-ILT-6640</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>Changed the stem, correct answer and two distracters, wdk 4/07/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 4100.01</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

An ATM Channel Functional Test and Calibration Check is being performed IAW CPS 9030.01C023, RPS Drywell Pressure C71-N650A (B, C, D) Checklist. The first channel ATM "As Found" data is within the Acceptable limit but NOT within the "As Left" limit.

What action, if any, is required?

- A. Terminate the surveillance.
- B. Place the ATM channel in TRIP.
- C. Contact IMD for ATM calibration.
- D. Continue on with the next channel.

Answer: C

Answer Justification

C is correct. Per CPS 9030.01, section 8.1.29 the ATM must be calibrated per section 8.2.

A is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that there is no additional guidance and the surveillance must be terminated. However, there is guidance to calibrate per section 8.2 and therefore, terminating the surveillance is not allowed.

B is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that placing the ATM channel in TRIP is the correct action. The ATM channel data was within the Acceptable limit and therefore placing the channel in trip would not be a appropriate action.

D is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that continuing with the next channel is appropriate. Continuing on to the next channel is not allowed until the present channel is calibrated per section 8.1.29.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: MEMORY

Associated local objective(s):

LP85802.2.2.12	LP85802.2.2.12 Knowledge of surveillance procedures.
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
B2.2.12	B2.2.12	3.7	4.1	1	2	2

System Name

[295010 High Drywell Pressure](#)

Category Statement

[Equipment Control](#)

KA Statement

[Knowledge of surveillance procedures.](#)
[\(CFR: 41.10 / 45.13\)](#)

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.10	41.10

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 9030.01 Sect. 8.1.29</u>	<u>Revision #:</u> <u>33a</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12061</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>New</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>New question, wdk 3/23/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 9030.01</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

A plant startup is in progress

- Reactor power 18%.
- The current Control Rod Move Sheet is complete and verified by a second licensed RO.
- The CRS just completed a brief on the next evolution - Generator Synchronization.

Reactor power suddenly rises to 22% and stabilizes.

Based on the above plant conditions, which of the following events caused the rise in reactor power?

- A. Dropped Control Rod.
- B. Loss of Feedwater Heating.
- C. Grid Frequency LOWERING.
- D. Core Shroud crack ABOVE the Top Guide.

Answer: A

Answer Justification

A is correct. Per 4007.03 Rod Drop, an unexpected change in reactor power with no change in RR flow or FW temperature is a symptom of a rod drop.

B is incorrect but plausible. The candidate may select this response if he/she fails to understand that based on plant conditions that feedwater heating is not yet in service and will not be placed in service until after synchronizing the generator to the grid.

C is incorrect but plausible. The candidate may select this response if he/she recognizes that grid frequency had a direct impact on Reactor Recirculation (RR) pump speed and that core flow is directly proportional to pump speed but fails to understand that based on plant conditions a lowering grid frequency would cause RR pump speed to lower, core flow to lower and ultimately, reactor power to lower.

D is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that a core shroud crack above the top guide will cause reactor power to rise when it will actually cause reactor power to lower abruptly, per CPS 4008.02 Core Shroud Cracking.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

CPS.317330

PB400703.05 Describe how a "Rod Drop" could occur.

KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
295014.AK2.05	AK2.05	4.0	4.1*	1	2	2

System Name

[Inadvertent Reactivity Addition](#)

Category Statement

[Knowledge of the interrelations between INADVERTENT REACTIVITY ADDITION and the following: \(CFR: 41.7 / 45.8\)](#)

KA Statement

[Neutron monitoring system](#)

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.7	41.7

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 4007.03 Sect. 1.4</u>	<u>Revision #:</u> <u>8d</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12029</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>New</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter “b” to make plausible based on OTPS review)</u>	<u>New question, wdk 03/23/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 4007.03</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

You are dispatching an operator to investigate the status of a 480VAC molded case circuit breaker due to the loss of position indication for a Motor Operated Valve. The operator asks for the physical location of the breaker.

(1) What would you use to determine the physical location of the breaker/MCC?

AND

(2) The breaker is discovered in the TRIP position. How is the breaker reset and closed?

- A. (1) Passport.
(2) Turn the breaker operator past OFF to RESET, then to ON.
- B. (1) E02 Drawing.
(2) Turn the breaker operator past OFF to RESET, then to ON.
- C. (1) Passport.
(2) Turn the breaker operator to OFF, depress the RESET pushbutton, then turn the breaker operator to ON.
- D. (1) E02 Drawing.
(2) Turn the breaker operator to OFF, depress the RESET pushbutton, then turn the breaker operator to ON.

Answer: A

Answer Justification

A is correct. Passport contains the location of plant equipment and the breaker operator must be turned past OFF to RESET, then to ON.

B is incorrect but plausible. The candidate may select this response if he/she recognizes the breaker operator must be turned past OFF to RESET, then to ON but incorrectly believes that the E02 drawing will provide the physical location of the breaker/MCC.

C is incorrect but plausible. The candidate may select this response if he/she recognizes that Passport contains the location of plant equipment but incorrectly believes that the RESET pushbutton is used in conjunction with resetting the breaker when in fact it is used to reset the motor overloads.

D is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that the E02 drawing will provide the physical location of the breaker/MCC or that the RESET pushbutton is used in conjunction with resetting the breaker when in fact it is used to reset the motor overloads.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: MEMORY

Associated local objective(s):

LP85114.01.05	LP85114.01.05 Recall the physical location to access and operate the following Low Voltage System breakers and the associated local/remote control devices during normal system operation, emergency plant conditions, or on a written exam in accordance with station procedures: .1 480v Substation K-Line Breakers .2 480v MCC Molded Case Breakers .3 220/120v Distribution Panel Breakers
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
B2.1.30	B2.1.30	4.4	4.0	3		

System Name

Conduct of Operations

Category Statement

Conduct of Operations

KA Statement

Ability to locate and operate components, including local controls.
 (CFR: 41.7 / 45.7)

CFR Data**10CFR55-41 (RO) Data**

Para Num	Text
41.7	41.7

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>LP85114 pg 12 of 49</u>	<u>Revision #:</u> <u>5</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12066</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>New</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>New question, wdk 04/28/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>LP85114</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

You are a Reactor Operator (RO).

On the first day, following (7) days of vacation, you work your normal shift from 0700-1500.

The Shift Manager (SM), requests that you work the eight (8) hour shift immediately following yours on overtime and you agree.

On the second day following vacation, you begin your next shift at 0900.

Assuming the SM wants the RO to work the MAXIMUM number of hours he/she can, what is the LATEST time the RO can work to without violating 10CFR26 Work Hour Limits?

- A. 1500
- B. 1700
- C. 1900
- D. 2300

Answer: C

Answer Justification

C is correct. On the first day, you worked a "normal" 8 hour shift (0700-1500) and an additional 8 hour shift for a total of 16 hours out of a 24-hour period. You are allowed to work no more than 26 hours in a 48-hour period. Therefore, $26 - 16 = 10$ hours remaining that you may work. $0900 + 10 \text{ hours} = 1900$, which is the LATEST you can work without violating 10 CFR26 Work Hour Limits.

A is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that they are allowed to work 22 hours in any 48-hour period, incorrectly calculate the hours remaining or incorrectly apply the hours remaining to determine the latest time.

B is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that they are allowed to work 24 hours in any 48-hour period, incorrectly calculate the hours remaining or incorrectly apply the hours remaining to determine the latest time.

D is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that they are allowed to work 30 hours in any 48-hour period, incorrectly calculate the hours remaining or incorrectly apply the hours remaining to determine the latest time.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

LP85801.2.1.5	LP85801.2.1.5 Ability to locate and use procedures and directives related to shift staffing and activities.
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
B2.1.05	B2.1.05	2.9*	3.9	3		

System Name

Conduct of Operations

Category Statement

Conduct of Operations

KA Statement

Ability to use procedures related to shift staffing, such as minimum crew complement, overtime limitations, etc.

(CFR: 41.10 / 43.5 / 45.12)

CFR Data**10CFR55-41 (RO) Data**

Para Num	Text
41.10	41.10

10CFR55-43 (SRO) Data

Para Num	Text
43.5	43.5

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>LS-AA-119 Sect. 5.1</u>	<u>Revision #:</u> <u>9</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12030</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>New</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distractor “b” to make plausible based on OTPS review)</u>	<u>New question, wdk 03/24/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>LS-AA-119</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

System/component interlocks are allowed to be overridden _____.

- A. while performing emergent equipment troubleshooting activities when directed by the system engineer.
- B. while performing a test as directed by an approved surveillance procedure.
- C. when needed to prevent a reactor scram during periods of economic alert with permission of a licensed operator.
- D. at any time with ONLY the Shift Managers permission.

Answer: B

Answer Justification

B is correct. OP-CL-108-101-1001 Section 3.9.4 states – Interlocks may be overridden by approved CPS procedures without further control (e.g., jumper installation for surveillances or actuation of bypass switches).

A and C are incorrect but plausible. The candidate may select one of these responses if he/she incorrectly believes that any person in control of any evolution other than the SM/CRS may defeat or override an interlock in emergency conditions or conditions to protect equipment or personnel safety.

D is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that Shift Manager (SM) may give approval in this case when in fact SMngt shall receive verbal authorization from the CPS Operations Manager or designee when not an emergency or to prevent equipment damage or personnel injury.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: MEMORY

Associated local objective(s):

LP85802.2.2.14	LP85802.2.2.14 Knowledge of the process for controlling equipment configuration or status.
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
B2.2.14	B2.2.14	3.9	4.3	3		

System Name
Equipment Control

Category Statement
Equipment Control

KA Statement
Knowledge of the process for controlling equipment configuration or status. (CFR: 41.10 / 43.3 / 45.13)

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.10	41.10

10CFR55-43 (SRO) Data

Para Num	Text
43.3	43.3

Other NRC Data

General Data		
Technical Reference with Revision Number:	OP-CL-108-101-1001 Sect. 3.9	Revision #: 9
Justification for Non SRO CFR Link:	N/A	
Question History: (i.e. LGS NRC-05, OYS CERT-04)	CL-ILT-3413	
Question Source: (i.e. New, Bank, Modified)	Bank	
Low KA Justification (if required):	N/A	
Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)	Improved distracter justifications, wdk 03/24/2011	
ILT		
Supplied Ref (If appropriate): (i.e. ABN-##)	None	
Excluded Reference: (i.e. Ensure ON-## not provided)	OP-CL-108-101-1001	
LORT		
PRA: (i.e. Yes or No or #)	No	
LORT Question Section: (i.e. A-Systems or B-Procedures)	N/A	

Annunciator 5060-8E, DIESEL GENERATOR 1A TROUBLE, has a blue flag on it.

Which ONE of the following describes the status of Annunciator 5060-8E?

- A. Partially Disabled annunciator.
- B. Out of Service annunciator.
- C. Fully Disabled annunciator.
- D. Nuisance Annunciator removed from service.

Answer: B

Answer Justification

B is correct. IAW CPS 1406.01 ANNUNCIATOR TRACKING PROGRAM, a blue flag is used on an Out of Service annunciator.

A is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that an Orange flag is used to identify an Out of Service annunciator when in fact it is used to identify a partially disabled annunciator.

C is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that a Red flag is used to identify an Out of Service annunciator when in fact it is used to identify a fully disabled annunciator.

D is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that a Blue flag is used to identify a Nuisance Annunciator removed from service when in fact a flag is not used to identify this specific condition. The annunciator is caused by a valid condition. If it was removed from service it would be flagged orange or red.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: MEMORY

KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
B2.2.43		3.0	3.3	3		

System Name
Equipment Control

Category Statement
Equipment Control

KA Statement
Knowledge of the process used to track inoperable alarms. (CFR: 41.10 / 43.5 / 45.13)

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.10	41.10

10CFR55-43 (SRO) Data

Para Num	Text
43.5	43.5

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 1406.01 Sect. 2.2.1</u>	<u>Revision #:</u> <u>14c</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12055</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Modified from CL-ILT-12040</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>Changed stem to make a distracter the correct answer, wdk 4/15/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 1406.01</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

An individual has 1800 mR TEDE annual exposure.

This worker is required to perform an evolution with an exposure estimate of 400 mR.

WHICH ONE of the following describes the appropriate dose controls?

- A. No Dose Extension is required
- B. Admin Dose Extension is required
- C. Planned Special Exposure is required
- D. No further exposure is permitted

Answer: B

Answer Justification

B is correct. Per RP-AA-203 Exposure Control and Authorization, you must use Attachment 1, Dose Control Level Extension Form, or a computerized equivalent, to authorize exposures for adult individuals in excess of 2000 mrem routine TEDE in a year.

A is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that a dose extension is not required because the candidate believes that no action is required until a different increment such as the 10CFR20 Limit (5000 mr) is reached.

C is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that a Planned Special Exposure is required when exceeding 2000 mrem instead of the 10CFR20 Limit.

D is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that the individual has reached a limit or will reach a limit that cannot be exceeded if this work evolution is performed.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: MEMORY

Associated local objective(s):

LP85803.2.3.4	LP85803.2.3.4 Knowledge of radiation exposure limits under normal or emergency conditions.
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
B2.3.04	B2.3.04	3.2	3.7	3		

System Name
Radiation Control

Category Statement
Radiation Control

KA Statement
Knowledge of radiation exposure limits under normal or emergency conditions. (CFR: 41.12 / 43.4 / 45.10)

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.12	41.12

10CFR55-43 (SRO) Data

Para Num	Text
43.4	43.4

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>RP-AA-203</u>	<u>Revision #:</u> <u>3</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12076</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Bank</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>Improved distracter justification, wdk 7/01/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>RP-AA-203</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

An irradiated fuel bundle being moved from the Reactor Cavity to the Inclined Fuel Transfer System becomes ungrappled and falls into the Reactor vessel downcomer area.

Which of the following people would be at greatest risk of radiation overexposure?

- A. Refuel SRO on the Bridge.
- B. Operator in Fuel Building 755' el.
- C. Mechanic installing Safety Relief Valves.
- D. Instrument Maintenance Technician at Standby Liquid Control Skid.

Answer: C

Answer Justification

C is correct. Per CPS 3007.01 Preparation and Recovery from Refueling Operations, RP must be contacted prior to entry into upper elevations of the drywell during spent fuel movement. Per CPS 4979.07 Dropped or Irradiated Fuel Bundle, dropping an irradiated fuel bundle poses a significant radiological problem. The mechanic would have the greatest risk because he could move into an area with very little shielding between him and the dropped fuel bundle.

A, B, and D are all incorrect but plausible. In the case of each distracter, the other personnel have either large quantities of water or concrete as shielding. The candidate may select any of these responses if he/she understands that dropping an irradiated fuel bundle poses a significant radiological problem, but incorrectly believes that any of these personnel are in a closer proximity to the dropped irradiated fuel bundle than the mechanic installing Safety Relief Valves.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

CPS.317442	DB497907.01.03 Describe the hazards created by a dropped fuel bundle.
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
B2.3.14		3.4	3.8	3		

System Name
Radiation Control

Category Statement
Radiation Control

KA Statement
Knowledge of radiation or contamination hazards that may arise during normal, abnormal, or emergency conditions or activities. (CFR: 41.12 / 43.4 / 45.10)

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.12	41.12

10CFR55-43 (SRO) Data

Para Num	Text
43.4	43.4

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 3007.01 Sect. 4.10</u> <u>CPS 4979.07 Sect. 6.1</u> <u>N-CL-OPS-223001</u>	<u>Revision #:</u> <u>15</u> <u>8e</u> <u>0</u>
<u>Justification for Non SRO CFR Link:</u>		
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-5981</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Bank</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>Improved distracter justification, wdk 7/01/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 3007.01</u> <u>CPS 4979.07</u> <u>N-CL-OPS-223001</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

The plant was operating at 85% power, End of Cycle Coastdown.
A faulty relay causes a Main Generator trip with a subsequent Main Turbine trip and Reactor scram.

Current plant conditions are:

- Reactor power is 19%, slowly lowering.
- One Safety Relief Valve (SRV) is open.
- ALL Main Steam Isolation Valves (MSIVs) are open.
- SB&PC Pressure Regulator setpoint is at 930 psig.
- SLC is injecting.
- NO ADDITIONAL OPERATOR ACTIONS have been performed.

The CRS has assigned the RPV pressure band of 800 to 1065 psig.

Which of the following actions will the "A" RO take to minimize heat addition to the Suppression Pool and control RPV pressure in the assigned band?

- A. Open ALL Main Steam Line Drains.
- B. Run Reactor Water Cleanup in Reject mode.
- C. Reduce the Pressure Regulator setpoint to 900 psig.
- D. Run Reactor Core Isolation Cooling in the Tank to Tank mode.

Answer: C

Answer Justification

C is correct. A generator trip at EOC Coastdown resulted in Reactor pressure reaching 1103 psig and opening SRV F051D. Reaching 1103 psig also initiate Low-Low Set and change the reset valve of SRV F051D to 926 psig. Because Pressure Set is set to 930 psig, the bypass valves will maintain pressure above the reset pressure of F051D. The "A" RO is directed by the CRS to maintain his pressure band IAW CPS 4411.09. The action to lower Pressure Set is per 4411.09 section 2.2.1.10, BYPASS VALVE OPERATION and is allowed by CPS 4404.01 EOP-1A ATWS RPV Level Control. When pressure set is reduced to 900 psig, the bypass valves will control at a pressure below the reset point of SRV F051D and the SRV will shut. It is necessary to shut this SRV to stop heat addition to the suppression pool.

A is incorrect but plausible. The candidate may select this response if he/she recognizes that the Main steam line (MSL) drains will start to lower pressure but fails to realize the bypass valves will shut to control pressure at 930 psig. The net result is that the bypass valves will close down more and pressure will not lower to below reset point of SRV F051D.

B is incorrect but plausible. The candidate may select this response if he/she fails to recognize that this action will cause pressure and bypass valves to behave much like the action of opening MSL drains but also more important, RWCU in Reject mode will remove boron from the reactor coolant system added by the SLC system and is specifically prohibited by EOP-1A.

D is incorrect but plausible. The candidate may select this response if he/she fails to recognize that this action will cause pressure and bypass valves to behave much like the action of opening MSL drains but also more important, RCIC in the Tank to Tank mode will also add more heat to the suppression pool.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

LP87553.01.07	LP87553.01.07 Predict the consequences/impact of the following while responding to an EOP-1A emergency: .01 Division 2 Loss Of Coolant Accident (LOCA) signal on the operation of the MDRFP FW Injection Valve (1FW004) .02 Failing to shut 1FW002A/B when the associated TDRFP flow path is no longer required .03 Failing to isolate RT when injecting boron .04 Injecting boron too fast when using HPCS or RCIC for boron injection .05 Allowing HPCS/ RCIC flow to decrease to the associated minimum flow setpoint while using HPCS/ RCIC for alternate boron injection .06 Allowing the RPV water level to fall below Level 3 (+8.9 in.) with the FW Pumps in service (Setpoint Setdown) .07 Division 2 LOCA signal on the operation of the MDRFP .08 RCIC injection with the Main Turbine and/or RFPTs in service .09 RPV pressure reduction during an ATWS
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
B2.4.06	B2.4.06	3.7	4.7	3		

System Name

Emergency Procedures /Plan

Category Statement

Emergency Procedures /Plan

KA Statement

Knowledge of EOP mitigation strategies.
(CFR: 41.10 / 43.5 / 45.13)

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.10	41.10

10CFR55-43 (SRO) Data

Para Num	Text
43.5	43.5

Other NRC Data

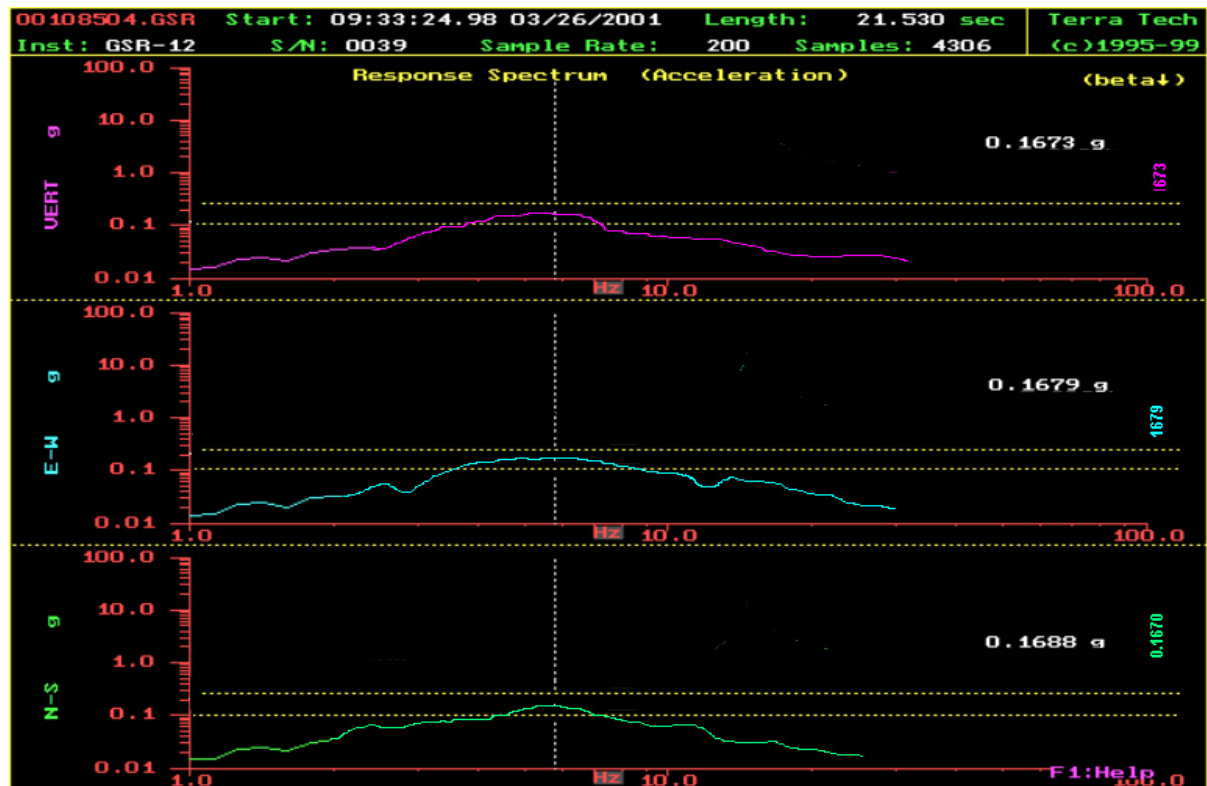
<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 4411.09</u> <u>CPS 4404.01</u> <u>OP-CL-101-111-1001 Sect. D</u>	<u>Revision #:</u> <u>5e</u> <u>28</u> <u>6</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12077</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>New</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)</u>	<u>New question, wdk 7/26/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 4411.09</u> <u>CPS 4404.01</u> <u>OP-CL-101-111-1001</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

The plant is operating at rated power.

Control room annunciators indicate an earthquake has occurred.

The Security Captain reports, "Ground motion felt by site personnel".

Based on the graphic below provided by the Seismic Data Analyzer:



Select ALL the alarms which would be LIT on the 1H13-P865 Seismic Warning Panel.

- A. SEISMIC SYSTEM TRIGGERED
- B. SEISMIC SYSTEM TRIGGERED
OPERATING BASIS EQUAKE
- C. SEISMIC SYSTEM TRIGGERED
OPERATING BASIS EQUAKE
1VS-EM014 CONTMNT 712' 0"
- D. SEISMIC SYSTEM TRIGGERED
OPERATING BASIS EQUAKE
1VS-EM014 CONTMNT 712' 0"
SAFE SHUTDOWN EARTHQUAKE

Answer: C

Answer Justification

C is correct. Per CPS 4301.01 EARTHQUAKE, one or more of the following alarms may be LIT based on their setpoint:

1. SEISMIC SYSTEM TRIGGERED at 0.02 g
2. OPERATING BASIS EQUAKE (OBE) at 0.10 g
3. 1VS-EM014 CONTMNT 712'0" at 0.11 g Horz/0.11 g Vert
4. SAFE SHUTDOWN EARTHQUAKE (SSE) at 0.25 g

The acceleration graphic shows that the earthquake exceeded 0.1g, and was less than 0.25g, therefore all alarms EXCEPT for SAFE SHUTDOWN EARTHQUAKE (SSE) at 0.25 g should be LIT.

A, B and D are all incorrect but plausible. The candidate may select any one of these responses if he/she incorrectly believes that any of alarms 1-3 should NOT be LIT when each alarms setpoint has been exceeded by the values provided in the graphic or alarm 4 SHOULD be LIT when its setpoint has NOT been exceeded by the values provided in the graphic.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

CPS.317404	DB430101.01.05 Describe the indications available at the Seismic Central Recording Unit for a seismic event
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
B2.4.46	B2.4.46	4.2	4.2	3		

System Name

Emergency Procedures /Plan

Category Statement

Emergency Procedures /Plan

KA Statement

Ability to verify that the alarms are consistent with the plant conditions.
(CFR: 41.10 / 43.5 / 45.3 / 45.12)

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.10	41.10

10CFR55-43 (SRO) Data

Para Num	Text
43.5	43.5

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 4301.01Sect. 1.3</u>	<u>Revision #:</u> <u>14a</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12031</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>New</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter “b” to make plausible based on OTPS review)</u>	<u>New question, wdk 03/25/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 4301.01</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

While performing actions for an Emergency, an announcement is made. Due to being involved in the plant response, all you heard was that the Station Emergency Director has declared a "Foxtrot Sierra One" (FS1).

What is the current Emergency Classification Level?

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

Answer: C

Answer Justification

C is correct. Per EP-AA-1003 Radiological Emergency Planning Annex for Clinton Station, the Initiating Conditions are coded with a two letter and one number code. The first letter is the Recognition Category designator, the second letter is the Classification Level, "U" for (Notification of) Unusual Event, "A" for Alert, "S" for Site Area Emergency and "G" for General Emergency. Therefore, a "Foxtrot Sierra One" (FS1) would signify a Site Area Emergency".

A, B and D are all plausible but incorrect. In the case of each distracter, they are all Emergency Classification Levels and a candidate may select any of these responses if he/she believes that the Emergency Classification Level is obtained in a manner different from that described above.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: MEMORY

Associated local objective(s):

LP85804.2.4.29	LP85804.2.4.29 Knowledge of the emergency plan.
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
B2.4.29	B2.4.29	3.1	4.4	3		

System Name

[Emergency Procedures /Plan](#)

Category Statement

[Emergency Procedures /Plan](#)

KA Statement

[Knowledge of the emergency plan.](#)
[\(CFR: 41.10 / 43.5 / 45.11\)](#)

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.10	41.10

10CFR55-43 (SRO) Data

Para Num	Text
43.5	43.5

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>EP-AA-1003 Sect. 3</u>	<u>Revision #:</u> <u>18</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12073</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>New</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter “b” to make plausible based on OTPS review)</u>	<u>New question, wdk 06/23/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>EP-AA-1003</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

With the plant operating at rated thermal power, number three (3) jet pump flow instrumentation fails downscale.

Which ONE of the following indications would validate the downscale failure of number three (3) jet pump flow instrumentation?

- A. "A" loop driving flow lowers by 5 percent.
"B" loop driving flow raises by 5 percent.
Core flow remains unchanged.
- B. "A" loop driving flow lowers by 10 percent.
"B" loop driving flow raises by 10 percent.
Core flow remains unchanged.
- C. "A" loop driving flow remain unchanged.
"B" loop driving flow remain unchanged.
Core flow lowers 25 percent.
- D. "A" loop driving flow remain unchanged.
"B" loop driving flow remain unchanged.
Core flow lowers 5 percent.

Answer: D

Answer Justification

D is correct. Per N-CL-OPS-202001 Reactor Recirculation System, each of the 20 jet pumps is instrumented with a differential pressure transmitter, which measure the differential pressure between a single tap at the jet pump's diffuser inlet and a common low pressure reference leg that senses lower plenum (below-the-core plate) pressure. These dp signals are converted to flow and are used for to give total core flow indication.

The "A" & "B" loop flow indication is provided by elbow taps on each RR Pump suction line. A failure of the #3 JP flow indication will not affect "A" & "B" loop flow indication.

Since each JP flow indicator supplies 5% of the total core flow indication, core flow indication will decrease 5%.

A & B are incorrect but plausible. In the case of each distracter, loop driving flows change and a candidate may select either of these responses if he/she believes loop driving flows are affected by the number three (3) jet pump flow instrumentation failing downscale however, loop driving flow will not be affected since they are provided by elbow taps on each RR Pump suction line.

C is incorrect but plausible. The candidate may select this response if he/she recognizes that the "A" & "B" loop flow indication are unaffected but incorrectly believes that indicated core flow will decrease by 25% instead of 5%.

General Info

Question Use: Initial

Question Level: RO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

202001.04	<p>202001.04</p> <p>STATE the physical location and function of the following Reactor Recirculation system components, controls, indicators, and/or sensors.</p> <ul style="list-style-type: none"> .1 Reactor Recirculation Pumps .2 RR Pump Mechanical Seal .3 Recirculation Flow Control Valves .4 Recirculation Pump Suction and Discharge Valves .5 Jet Pumps .6 Hydraulic Power Units .7 HPU Servo Control Valve .8 HPU Pilot Operated Isolation Valve .9 HPU Pilot Operated Lockout Valve .10 HPU Shuttle Valve .11 HPU Solenoid Operated Isolation Valves .12 HPU Subloop Discharge Bypass Valve .13 Low Frequency Motor Generator (LFMG) Sets .14 Piping .15 Flow Diverters .16 Recirculation Flow Instrumentation
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
B2.1.45	B2.1.45	4.3	4.3	3		

System Name

Conduct of Operations

Category Statement

Conduct of Operations

KA Statement

Ability to identify and interpret diverse indications to validate the response of another indication.
(CFR: 41.7 / 43.5 / 45.4)

CFR Data**10CFR55-41 (RO) Data**

Para Num	Text
41.7	41.7

10CFR55-43 (SRO) Data

Para Num	Text
43.5	43.5

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>N-CL-OPS-202001 Pg 32</u>	<u>Revision #:</u> <u>1</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-689056 / ILT 08-1 NRC Exam</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Bank</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>Improved distracter justification, wdk 7/01/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>N-CL-OPS-202001</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

A plant shutdown is in progress with the following:

- 6A Feedwater Heater is out-of-service and isolated for repairs.
- Reactor power is 30%.
- Both RR Pumps are running in SLOW speed.

THEN, RR Pump 'A' trips (breaker fault).

The immediate operator actions are complete.

When the plant stabilizes:

- Reactor power is 25%.
- Feedwater temperature is 15°F below normal full feedwater heating.

Which ONE of the following describes a plant condition that would be allowed to continue for an unlimited period of time AND require the least amount of plant manipulation to establish?

- A. Present plant conditions
- B. 20% Reactor power
- C. Hot shutdown
- D. Cold shutdown

Answer: B

Answer Justification

B is correct. When in single loop with less than full feedwater heating LCO 3.2.1/3.2.2/3.2.3 actions must be entered because Thermal limits can not be assured due to no valid COLR. The LCOs require a power reduction to less than 21.6% within 4 hours. A reference is not given in that the concept that the plant must be placed in a condition where the thermal limits are not applicable is being tested.

A is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that no additional actions are required. Power must be reduced to less than 21.6% within 4 hours.

C is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that the conditions presented in the stem require placing the plant in hot shutdown. The plant is allowed to remain at power but many LCOs require placing the plant in hot shutdown.

D is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that the conditions presented in the stem require placing the plant in hot shutdown. The plant is allowed to remain at power but many LCOs require placing the plant in cold shutdown.

SRO – This question presents the plant in a condition that has not been analyzed for by the facility license and therefore the SRO must recognize this condition and apply Tech Spec requirements to determine the required action to place the plant into an acceptable condition.

The K/A is met in that the operator must interpret Reactor Power which is determined from Neutron monitoring to decide what condition is allowed.

General Info

Question Use: Initial

Question Level: SRO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

CPS.317331	DB400801.01.01 Given specific plant conditions, determine if CPS No. 4008.01, ABNORMAL REACTOR COOLANT FLOW, should be used.
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
295001.AA2.02	AA2.02	3.1	3.2	1	1	1

System Name

Partial or Complete Loss of Forced Core Flow Circulation

Category Statement

Ability to determine and/or interpret the following as they apply to PARTIAL OR COMPLETE LOSS OF FORCED CORE FLOW CIRCULATION : (CFR: 41.10 / 43.5 / 45.13)

KA Statement

Neutron monitoring

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.10	41.10

10CFR55-43 (SRO) Data

Para Num	Text
43.5	43.5

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 4008.01</u>	<u>Revision #:</u> <u>19F</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12057</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>New</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>New question, 4/15/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 4008.01</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

Plant conditions are as follows:

- A manual scram and ARI have been initiated.
- Reactor power is 7%.
- Reactor water level is -45 inches, stable.
- Drywell pressure is 2.0 psig, rising very slowly.
- ALL SRVs are closed.
- Suppression Pool temperature is 130 °F, stable.
- Suppression Pool level is 19.5', stable.
- Standby Liquid Control (SLC) has been initiated and has injected for 20 minutes.

Which of the following describes the NEXT required operator action?

- A. Lower Reactor water level to reduce subcooling.
- B. Lower Reactor water level to reduce reactor power.
- C. Maintain Reactor water level -162" (TAF) to Level 8 (52") to keep the core covered.
- D. Depressurize the RPV; hold cooldown rate below 100°F/hr in preparation to place Shutdown Cooling in service.

Answer: B

Answer Justification

B is correct. The candidate assesses plant conditions and determines that CPS 4404.01, EOP-1A ATWS RPV Control must be entered as a mitigation strategy. Utilizing the Level leg "If-And-And-Then" override and proceeding with the Level section at circle 6, the candidate will determine that reactor water level must be lowered to reduce reactor power.

A is incorrect but plausible. The candidate may select this response if he/she incorrectly concludes that the BIT Override requirements are not met.

C is incorrect but plausible. The candidate may select this response if he/she incorrectly concludes that using Band A is the correct course of action (Power and Level are too high for this band).

D is incorrect but plausible. The candidate may select this response if he/she incorrectly concludes that the conditions are met for allowing this action when in fact the conditions prior to these actions in the Pressure Leg have not been met.

SRO - This question requires assessing plant conditions and then selecting an appropriate section (leg) of EOP-1A to mitigate the condition.

General Info

Question Use: Initial

Question Level: SRO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

LP87553.01.03	<p>LP87553.01.03</p> <p>Given a diagram of EOP-1A:</p> <p>.01 Describe the conditions to exit/transfer from EOP-1A</p> <p>.02 State the bases for each individual step/action of EOP-1A</p> <p>.03 Discuss the importance of verifying that the appropriate automatic actions of EOP-1A occur as required</p> <p>.04 List the available methods to be used to stabilize/control RPV pressure in EOP-1A</p> <p>.05 List the Preferred ATWS level control systems.</p>
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
295037.EA2.01	EA2.01	4.2*	4.3*	1	1	1

System Name

SCRAM Condition Present and Reactor Power Above APRM Downscale or Unknown

Category Statement

Ability to determine and/or interpret the following as they apply to SCRAM CONDITION PRESENT AND REACTOR POWER ABOVE APRM DOWNSCALE OR UNKNOWN : (CFR: 41.10 / 43.5 / 45.13)

KA Statement

Reactor power

CFR Data**10CFR55-41 (RO) Data**

Para Num	Text
41.10	41.10

10CFR55-43 (SRO) Data

Para Num	Text
43.5	43.5

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 4404.01 EOP-1A</u>	<u>Revision #:</u> <u>28</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-LC-1273</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Bank</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>Improved stem and distracter justifications, wdk 04/08/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>CPS 4404.01</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>None</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

The plant is operating at Rated Power when the following conditions are discovered:

- Reactor Water Cleanup (RT) HX Room is 192°F and rising.
- Containment temperature trends up from 75°F to 115°F and continues to rise.
- Containment Pressure is 0.1 psig.
- RT System is operating.

Which of the following actions needs to be taken concerning RT and what action is required when containment temperature rises to 189°F?

RWCU system ____ (1) ____ shutdown and isolation is required.

____ (2) ____ is required due to Containment Temperature.

- A. (1) emergency
(2) Containment spray
- B. (1) normal
(2) Containment spray
- C. (1) normal
(2) A blowdown
- D. (1) emergency
(2) A blowdown

Answer: D

Answer Justification

D is correct. Based on plant conditions, a RWCU Isolation should have occurred, so RWCU would need to be manually isolated. The 189°F Containment Temperature would require a Blowdown per CPS 4402.01 EOP-6 Primary Containment Control because you cannot hold Containment Temperature below 185°F.

A is incorrect but plausible. The candidate may select the response if he/she recognized that an automatic isolation of RWCU should have occurred but failed to recognize that the "OK TO SPRAY" region of Figure O was not entered and therefore Containment Sprays cannot be used. Also since you cannot hold Containment Temperature below 185°F, a Blowdown per EOP-6 is required.

B is incorrect but plausible. The candidate may select the response if he/she failed to recognize that an automatic isolation of RWCU should have occurred and also failed to recognize that the "OK TO SPRAY" region of Figure O was not entered and therefore Containment Sprays cannot be used. An isolation signal is present so RWCU would need to be emergency shutdown and isolated. Answer is plausible because if the room temperature was much less than the isolation setpoint then a normal shutdown and isolation may be appropriate due to being easier on the equipment.

C is incorrect but plausible. The candidate may select the response if he/she recognized that a Blowdown per EOP-6 is required but failed to recognize that an automatic isolation of RWCU should have occurred.

SRO - This question requires assessing plant conditions and then selecting an appropriate section (leg) of EOP-6 to mitigate the condition.

General Info

Question Use: Initial

Question Level: SRO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

LP87558.01.10D	LP87558.01.10 Given a slow rate of change in the following Containment parameters, describe the normal means of controlling these conditions per EOP-6: .01 Increasing Drywell temperature .02 Increasing Suppression Pool temperature .03 Increasing Suppression Pool water level .04 Decreasing Suppression Pool water level .05 Increasing Containment temperatures .06 Increasing Drywell and/or Containment Pressure (HG; VR/VQ; VG)
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
295027.EA2.01	EA2.01	3.7	3.7	1	1	1

System Name

High Containment Temperature (Mark III Containment Only)

Category Statement

Ability to determine and/or interpret the following as they apply to HIGH CONTAINMENT TEMPERATURE (MARK III CONTAINMENT ONLY) : (CFR: 41.10 / 43.5 / 45.13)

KA Statement

Containment temperature: Mark-III

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.10	41.10

10CFR55-43 (SRO) Data

Para Num	Text
43.5	43.5

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 4402.01 EOP-6</u> <u>CPS 4001.02C001</u>	<u>Revision #:</u> <u>28</u> <u>15b</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-LC-0983</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Bank</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>Improved layout of question and distracter justifications, wdk 4/22/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>CPS 4402.01</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 4001.02C001</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>Yes</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

A transient has occurred, the reactor has scrammed and plant conditions are as follows:

- All control rods are fully inserted.
- Suppression Pool Temperature 140°F and steady.
- Suppression Pool Level is at 15 feet 4 inches and dropping at 0.1 inches per minute.
- The suppression pool level decrease CANNOT be stopped.
- Drywell Pressure is at 1.5 psig and steady.
- Drywell Temperature is at 185°F and steady.
- Containment Temperature is at 120°F and steady.
- Containment pressure is at 1.1 psig and steady.
- RPV water level is at -95 inches Wide Range and rising.
- RPV pressure is at 700 psig and steady.
- Suppression pool dump valves, 1SM001A, 1B, 2A and 2B, are shut.

Which of the following describes the NEXT required operator action?

- A. Lower RPV pressure to below Heat Capacity Limit curve.
- B. BLOWDOWN; enter EOP-3.
- C. Start containment sprays.
- D. Dump upper pools.

Answer: D

Answer Justification

D is correct. Per CPS No. 4402.01 EOP-6 Primary Containment Control, in the POOL LEVEL section, Low Level - Below 18 ft 11 in., "Cannot hold pool level above 15 ft 1 in." This directs dumping the upper pools before pool level reaches 15ft 1 in.

A is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that the current conditions require lowering RPV pressure below Figure P Heat Capacity Limit.

B is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that the current conditions require a Blowdown. RPV water level is above the top of the active fuel, therefore a Blowdown is not required. Also Blowdown comes after Dumping the Upper Pools in the Suppression Pool Level leg.

C is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that the current conditions require starting containment sprays. Not required, drywell/containment pressure < 1.68 psig.

SRO - This question requires assessing plant conditions and then selecting an appropriate section (leg) of EOP-6 to mitigate the condition.

KA - CPS EOPs do not have "immediate actions" so this is testing actions contained within an EOP.

General Info

Question Use: Initial

Question Level: SRO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

LP87558.01.07D	LP87558.01.07 Given a decreasing Suppression Pool water level, determine when it is appropriate to dump the Upper Pools in terms of approaching a level of 15 ft 1 in.
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
B2.4.01	B2.4.01	4.6	4.8	1	1	1

System Name

295030 Low Suppression Pool Wtr Lvl

Category Statement

Emergency Procedures /Plan

KA Statement

Knowledge of EOP entry conditions and immediate action steps.
(CFR: 41.10 / 43.5 / 45.13)

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.10	41.10

10CFR55-43 (SRO) Data

Para Num	Text
43.5	43.5

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 4402.01 EOP-6</u>	<u>Revision #:</u> <u>28</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-LC-0016</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Bank</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>Improved distracter A and justifications, wdk 3/29/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>CPS 4402.01</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>None</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

CPS is in Mode 3 preparing for a refueling outage with the following conditions:

- RPV Level is 35".
- "B" loop of SDC is in service.
- Reactor coolant temperature is 300°F.
- RPV pressure is 54 psig.
- A Group 1 Isolation signal is in for IM testing.
- Circ Water is Shutdown.

A reactor coolant leak that is quickly isolated causes RPV level to drop to 5" and then return to 35".

Subsequently, Reactor coolant temperature is 342°F and RPV pressure is 106 psig.

WHICH ONE of the following procedures MUST be entered FIRST and describes the actions performed?

- A. 3312.03, RHR - Shutdown Cooling (SDC) & Fuel Pool Cooling and Assist, and line up "A" RHR for SDC.
- B. 4006.01, Loss of Shutdown Cooling, and reduce RPV pressure using SRVs.
- C. 3312.02, Alternate Shutdown Cooling Methods, and line up RHR-SDC through LPCI injection path.
- D. 4006.01, Loss of Shutdown Cooling, and Reduce RPV pressure using Main Steam Line Drains.

Answer: B

Answer Justification

B is correct. SRVs are listed in Table 2 of CPS 4006.01. RPV level is low enough to cause a SDC isolation. Pressure must be reduced before SDC can be restored. The shutdown of CW makes the Main Condenser unavailable and therefore, pressure must be reduced with SRVs.

A is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that even though CPS 3312.03 will be used to restore shutdown cooling, pressure must be reduced per CPS 4006.01 first.

C is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that this method would be preferred to provide shutdown cooling but is to be used only as a last resort.

D is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that the use of Main Steam Line Drains to reduce RPV pressure is preferred, however Main Steam Line Drains cannot be used with a Group 1 isolation signal. A low vacuum signal can be bypassed but not the other Group 1 signals.

SRO - This question is testing assessment of facility conditions and selection of the appropriate procedure to mitigate the condition.

General Info

Question Use: Initial

Question Level: SRO

Station: Clinton

Cognitive Level: HIGHER

KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
B2.4.09	B2.4.09	3.8	4.2	1	1	1

System Name

295031 Reactor Low Water Level

Category Statement

Emergency Procedures /Plan

KA Statement

Knowledge of low power/shutdown implications in accident (e.g., loss of coolant accident or loss of residual heat removal) mitigation strategies.
(CFR: 41.10 / 43.5 / 45.13)

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.10	41.10

10CFR55-43 (SRO) Data

Para Num	Text
43.5	43.5

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 4006.01</u> <u>CPS 4001.02C001</u>	<u>Revision #:</u> <u>4e</u> <u>15b</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12043</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Bank</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>Improved stem and distracter justification, wdk 4/08/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 4006.01</u> <u>CPS 4001.02C001</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

Plant conditions are currently as follows:

- Drywell temperature is 300 °F, stable.
- Drywell pressure is 8.5 psig, rising at 0.1 psig/minute.
- RPV water level is -142 inches (Wide Range), stable.
- RPV pressure is 200 psig, lowering at 5.0 psig/minute.
- Suppression Pool level is 18 feet 10 inches, lowering at 0.1 inch/minute.
- Suppression Pool Temperature is 180 °F, rising at 1.0 °F/minute.
- Containment pressure is 1.3 psig, stable.
- Containment temperature is 132°F, stable.
- Group 1 isolation is complete.

Which ONE of the following describes the NEXT required operator action?

- A. Dump upper pools.
- B. Perform a blowdown.
- C. Start containment sprays.
- D. Rapidly depressurize the RPV using the main turbine bypass valves.

Answer: B

Answer Justification

B is correct. Per CPS 4402.01, EOP-6 Primary Containment Control, in the POOL TEMPERATURE section, and cannot hold pool temperature below the Figure P Heat Capacity Limit, a blowdown is required based on conditions presented in the stem.

A is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that suppression pool level is low enough to require dumping the upper pools. Level is still high enough that other methods should be attempted first. Answer is plausible because this will be required if pool level keeps dropping.

C is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that containment pressure is high enough to require starting containment sprays. Containment pressure is stable and not in the "OK TO SPRAY" region of figure O and spraying would remove more water from a suppression pool with lowering level. Answer is plausible because if containment pressure was raising this would become correct.

D is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that depressurizing the RPV via the main turbine bypass valves is an option, however a Group 1 Isolation has occurred. This action will not depressurize the Reactor. Answer is plausible because if the MSIVs were open this would have been correct before fig P was exceeded.

SRO - This question is testing assessment of facility conditions and selection of the appropriate procedure to mitigate the condition.

General Info

Question Use: Initial

Question Level: SRO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

LP87558.01.08D	LP87558.01.08 Given a diagram of EOP-6, explain the use and/or function of the following inserts: .01 Detail A, RPV Water Level Instruments .02 Detail Z, NPSH/Vortex Limits .03 Figure B, RPV Saturation Temperature .04 Figure C, Minimum Usable Levels .05 Figure D, Primary Containment Pressure Limit .06 Figure N, Pressure Suppression Pressure .07 Figure O, Containment Spray Initiation Limit .08 Figure P, Heat Capacity Limit .09 Figure Q, SRV Tail Pipe Limit
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
295026.EA2.03	EA2.03	3.9	4.0	1	1	1

System Name

Suppression Pool High Water Temperature

Category Statement

Ability to determine and/or interpret the following as they apply to SUPPRESSION POOL HIGH WATER TEMPERATURE: (CFR: 41.10 / 43.5 / 45.13)

KA Statement

Reactor pressure

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.10	41.10

10CFR55-43 (SRO) Data

Para Num	Text
43.5	43.5

Other NRC Data

General Data		
Technical Reference with Revision Number:	CPS 4402.01 EOP-6	Revision #: 28
Justification for Non SRO CFR Link:	N/A	
Question History: (i.e. LGS NRC-05, OYS CERT-04)	CL-ILT-12046 / ILT 08-1 NRC Exam	
Question Source: (i.e. New, Bank, Modified)	Bank	
Low KA Justification (if required):	N/A	
Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)	Improved distracter justification, wdk 4/08/2011	
ILT		
Supplied Ref (If appropriate): (i.e. ABN-##)	CPS 4402.01	
Excluded Reference: (i.e. Ensure ON-## not provided)	None	
LORT		
PRA: (i.e. Yes or No or #)	No	
LORT Question Section: (i.e. A-Systems or B-Procedures)	N/A	

A loss of Service Air/Instrument (SA/IA) Pressure with the reactor at 90% resulted in the following conditions:

- Reactor scrammed, all rods in.
- Equalizing header pressure is 0 psig.
- ADS Backup Air Bottle Pressures are 2400 psig each.

SA/IA pressure is now recovering and rising from a low of 40 psig.

Which of the following actions shall ROs be directed to perform NEXT per CPS 4004.01, Instrument Air Loss?

- A. Open IA ring header isolation valves to the Control Building.
- B. Place all Main Steam Isolation Valve control switches to CLOSE.
- C. Open IA ring header isolation valves to the Radwaste Building.
- D. Place all SRV control switches to OFF.

Answer: B

Answer Justification

B is correct. Per CPS 4004.01 Instrument Air Loss, the control switches for Main Steam Isolation Valves (MSIVs) are required to be placed to CLOSE to prevent an inadvertent reopening when air pressure is restored.

A is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that opening the IA ring header isolation valves to the Control Building is appropriate based on the presented conditions. Although this action is not addressed in CPS 4004.01, the recovery of the Control Building IA ring header is addressed in the normal operating procedure CPS 3214.01, Plant Air (IA & SA).

C is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that opening the IA ring header isolation valves to the Radwaste Building is appropriate based on the presented conditions. Although this action is not addressed in CPS 4004.01, the recovery of the Radwaste Building IA ring header is addressed in the normal operating procedure CPS 3214.01, Plant Air (IA & SA).

D is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that placing all SRV control switches to OFF is appropriate based on the presented conditions. EOP-1 has this requirement if all IA to the SRVs is lost which includes the back up air bottles. The ADS Backup Air Bottle Pressures are shown in the stem with normal values.

SRO - This question is testing assessment of facility conditions and selection of the appropriate procedure to mitigate the condition.

General Info

Question Use: Initial

Question Level: SRO

Station: Clinton

Cognitive Level: MEMORY

Associated local objective(s):

PB400401.01.04	PB400401.01.04 Describe the effect a loss of Instrument Air has on the following: .1 Reactor Protection System (RPS) .2 Main Steam Isolation Valves .3 Automatic Depressurization System (ADS) .4 Condenser Vacuum System (CA) .5 Feedwater System (FW) .6 Condensate/Condensate Booster System (CD/CB) .7 Reactor Water Cleanup System (RT) .8 Off-Gas System (OG) .9 Drywell Purge System (VQ) .10 CNMT, Fuel, Auxiliary, Turbine and Radwaste Building HVAC systems (VR, VF, VA, VT, VW) .11 Plant Chillers (WO) .12 Drywell and CNMT Equipment/Floor Drain System (RE/RF)
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
B2.4.11	B2.4.11	4.0	4.2	1	1	1

System Name

295019 Partial or Complete Loss of Inst. Air

Category Statement

Emergency Procedures /Plan

KA Statement
Knowledge of abnormal condition procedures.
(CFR: 41.10 / 43.5 / 45.13)
CFR Data**10CFR55-41 (RO) Data**

Para Num	Text
41.10	41.10

10CFR55-43 (SRO) Data

Para Num	Text
43.5	43.5

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 4004.01</u>	<u>Revision #:</u> <u>9e</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-6006</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Bank</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>Improved distracter B and justifications, wdk 4/06/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 4004.01</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

The unit is operating at rated power.

The lower retention element fails on an in service Condensate Polisher.

A Reactor Coolant Chemistry sample that was taken 72 hours ago had the following results:

- Chlorides = 0.21 ppb
- Conductivity = 0.42 uS/cm
- pH = 6.1

A sample just taken has the following results:

- Chlorides = 0.34 ppb
- Conductivity = 1.05 uS/cm
- pH = 5.8

What is/are the required action(s) for these conditions?

- A. Be in at least MODE 2 within the next 6 hours.
- B. Be in at least MODE 3 within 12 hours.
- C. Restore the chloride concentration to within the limit within 24 hours.
- D. Return conductivity to less than Action Level 2 within 24 hours or Initiate an orderly plant shutdown to establish cold shutdown conditions within the next 16 hours.

Answer: D

Answer Justification

D is correct. Per CPS 4010.02 Plant Chemistry, with the conductivity exceeding 1.0 mS/cm, you are required to return conductivity to less than level 2 within 24 hours or initiate an orderly plant shutdown to establish cold shutdown conditions within 16 hours.

A is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that you must be in at least MODE 2 within the next 6 hours. This would be applicable if "the conductivity, chloride concentration, or pH exceeding the limit specified in Table 3.3.1-1 for more than 72 hours during one continuous time interval or with the conductivity and chloride concentration exceeding the limit specified in Table 3.3.1-1, for more than 336 hours per year - there is no indication that the limits have been exceeded for that amount of time. pH is dropping and may exceed its limit.

B is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that although applicable, you can't continue operation for 72 hours to restore it. The most limiting requirement is answer D.

C is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that you must restore the chloride concentration to within the limit within 24 hours. This would be applicable if the Chloride level were greater than the level 1 limit. It is not above the limit. Plausible because if the candidate misreads the chart and applies the conductivity limit to Chlorides.

SRO – This question presents a plant condition that the SRO must recognize and apply Tech Spec requirements to determine the required action to place the plant into an acceptable condition.

General Info

Question Use: Initial

Question Level: SRO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

256001.12	256001.12 Given CONDENSATE POLISHING AND FILTRATION SYSTEM System operability status OR key parameter indications, plant conditions, and a copy of Tech Specs, DETERMINE if Tech Spec Limiting Condition for Operations have been met, and required actions if any.
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
B2.1.34	B2.1.34	2.7	3.5	3		

System Name

Conduct of Operations

Category Statement

Conduct of Operations

KA Statement

Knowledge of primary and secondary plant chemistry limits.
(CFR: 41.10 / 43.5 / 45.12)

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.10	41.10

10CFR55-43 (SRO) Data

Para Num	Text
43.5	43.5

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 4010.02 Sect. 4.4</u> <u>CPS ORM Sect. 2.3.1</u> <u>CY-AB-120-100 Sect. 4.3.3</u>	<u>Revision #:</u> <u>8</u> <u>65</u> <u>11</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-LC-9055</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Bank</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>Improved stem, distracter B and justifications, wdk 4/22/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>CPS 4010.02</u> <u>CPS ORM 2.3.1</u> <u>CY-AB-120-100</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>None</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

Given the following plant conditions:

- New Fuel inspection is in progress in the Fuel Building.
- Spent Fuel Storage Area Radiation Monitor, 1RIX-AR016 is in HIGH ALARM.
- 1RIX-AR016 indicates 3 mr/hr, rising slowly.

It is required to enter CPS 4979.02, Abnormal High Area Radiation ____ (1) ____, and ____ (2) ____.

- A. (1) ONLY
(2) verify VG auto starts
- B. (1) ONLY
(2) evaluate the need to evacuate the area
- C. (1) AND EOP-8, Secondary Containment Control
(2) verify VG auto starts
- D. (1) AND EOP-8, Secondary Containment Control
(2) evaluate the need to evacuate the area

Answer: D

Answer Justification

D is correct. Entry conditions are met for BOTH CPS 4979.02 Abnormal High Radiation Levels AND EOP-8 Secondary Containment Control. Per CPS 4979.02 it is required to evaluate the need to evacuate the affected area.

A is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that only entry conditions for CPS 4979.02 are met and that the conditions presented in the stem would cause an auto start of VG. VG auto starts on high rad signals but not Spent Fuel Storage Area Radiation Monitor.

B is incorrect but plausible. The candidate may select this response if he/she recognizes that per CPS 4979.02 it is required to evaluate the need to evacuate the affected area but incorrectly believes that only entry conditions for CPS 4979.02 are met. The Spent Fuel Storage Area Radiation Monitor entry is listed in Table U of EOP-8 and the student may not know this.

C is incorrect but plausible. The candidate may select this response if he/she recognizes that entry conditions for BOTH CPS 4979.02 and EOP-8 are met but incorrectly believes that the conditions presented in the stem would cause an auto start of VG.

SRO - The EOP-8 entry condition is "Area radiation above max normal (Table U)". Table U lists 30 different max normal radiation levels. The table must be used to determine if an entry is required. This is SRO level responsibility. Also requires assessment of plant conditions & selection of appropriate procedures and actions from that procedure.

General Info

Question Use: Initial

Question Level: SRO

Station: Clinton

Cognitive Level: MEMORY

Associated local objective(s):

LP87559.01.01	LP87559.01.01 State the plant conditions (parameters and setpoints) which require entry/reentry to EOP-8.
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
B2.4.08	B2.4.08	3.8	4.5	1	2	2

System Name
295033 Secondary Containment Area Radiation Levels

Category Statement
Emergency Procedures /Plan

KA Statement
Knowledge of how abnormal operating procedures are used in conjunction with EOPs. (CFR: 41.10 / 43.5 / 45.13)

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.10	41.10

10CFR55-43 (SRO) Data

Para Num	Text
43.5	43.5

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 4406.01 EOP-8</u> <u>CPS 4979.02</u>	<u>Revision #:</u> <u>28a</u> <u>9</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-4928</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Bank</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>Improved distracter justification, wdk 4/08/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>CPS 4406.01</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 4979.02</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

A plant startup is in progress. An automatic Scram occurs for unknown reasons.

You note the following:

- Reactor Mode Switch is in SHUTDOWN.
- Three (3) control rods are at position 02 and one (1) control rod is at position 04.
- Reactor Power is < 2% via APRM indication and lowering slowly.
- RPV Level dropped to 7 inches momentarily but is currently at 20 inches.
- The SRM and IRMs are fully inserted.
- SLC has NOT been started.
- There is no Reactor Engineer on site.

Assuming reactor power is currently on IRM Range 6 and lowering, you will:

- A. exit EOP-1A and enter EOP-1
- B. remain in CPS 4100.01 Reactor Scram and EOP-1 ONLY
- C. enter CPS 4100.01 Reactor Scram while remaining in EOP-1A ONLY
- D. enter CPS 4411.08 Alternate Control Rod Insertion and CPS 4410.00C012 Defeating ATWS Interlocks

Answer: C

Answer Justification

C is correct. IAW CPS 4100.01 Reactor Scram, Shut down criteria is met when:

- All rods in to at least 02, OR
- No more than 1 rod out past 02, with all other rods in at 00, OR
- A qualified RE has determined that the reactor will remain S/D under all conditions without boron.

Therefore, shutdown criteria is NOT met.

When RPV water level momentarily dropped to 7 inches (below Level 3 - 8.9 inches), an entry condition for EOP-1 was met. Since shutdown criteria was NOT met, you are directed to enter EOP-1A. Finally, since reactor power was on IRM Range 6 and lowering, you are directed to leave the POWER leg of EOP-1A and enter CPS 4100.01 Reactor Scram. Under section 4.5 Power Control Actions of CPS 4100.01, you are directed to perform alternate rod insertion per CPS 4411.08 Alternate Control Rod Insertion with the exception that the ATWS Interlocks listed in CPS 4410.00C012 Defeating ATWS Interlocks SHALL NOT be defeated.

A is incorrect but plausible. The candidate may select this response if he/she recognizes that initially shutdown criteria is not met but once in EOP-1A mistakenly believes that since reactor is subcritical, shutdown criteria is now met and meets the override to exit EOP-1A..

B is incorrect but plausible. The candidate may select this response if he/she recognizes that an EOP-1 entry condition is met but incorrectly believes that shutdown criteria is met which leads them to the box directing entry into CPS 4100.01 Reactor Scram while continuing in EOP-1.

D is incorrect but plausible. The candidate may select this response if he/she fails to recognize that the override to exit the power leg is met.

SRO - This question requires assessing plant conditions and then selecting the appropriate section (leg) of EOP-1A to mitigate the condition.

General Info

Question Use: Initial

Question Level: SRO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

LP87553.01.12	<p>LP87553.01.12</p> <p>Given a diagram of EOP-1A, appropriate EOP-support procedures, and simulated plant conditions determine which course of action should take priority over others:</p> <ul style="list-style-type: none"> .01 Establishing RPV water level in accordance with the Level Bands provided in the Level Path. .02 Preventing LPCS/LPCI injection not needed for core cooling if drywell pressure is above 1.68 psig .03 Defeating interlocks for inserting control rods using CPS No. 4411.08, ALTERNATE CONTROL ROD INSERTION .04 Use of CPS No. 4100.01, REACTOR SCRAM vs. CPS No. 4411.08, ALTERNATE CONTROL ROD INSERTION, to insert control rods
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
295015.AA2.02	AA2.02	4.1*	4.2*	1	2	2

System Name
Incomplete SCRAM

Category Statement
Ability to determine and/or interpret the following as they apply to INCOMPLETE SCRAM : (CFR: 41.10 / 43.5 / 45.13)

KA Statement
Control rod position

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.10	41.10

10CFR55-43 (SRO) Data

Para Num	Text
43.5	43.5

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 4100.01</u> <u>CPS 4401.01</u> <u>CPS 4404.01</u> <u>CPS 4411.08</u>	<u>Revision #:</u> <u>20a</u> <u>28</u> <u>28</u> <u>5C</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12044</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>New</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distractor "b" to make plausible based on OTPS review)</u>	<u>New question, wdk 03/30/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>CPS 4404.01</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 4100.01</u> <u>CPS 4401.01</u> <u>CPS 4411.08</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

A plant startup is in progress. RPV pressure is ~ 50 psig with turbine shell warming in progress per CPS 3002.01, Heatup and Pressurization.

- A ground fault (~ 0 K Ω to ground) occurs on 4160V Bus 1B1.
- All plant equipment operates as designed.

Based on the stated conditions, which of the following procedural actions MUST the CRS ensure is performed?

- A. Manually jack the turbine per CPS 3105.01, Turbine (TG, EHC, TS).
- B. Shut 1B33-F023B, Pump Suction Valve per CPS 3302.01, Reactor Recirculation (RR).
- C. Place ADS Backup Air Bottles on service per CPS 3101.01, Main Steam (MS, IS & ADS).
- D. Take Local Control of 1FW004, Feedwater Regulating Valve IAW CPS 3103.01, Feedwater (FW).

Answer: A

Answer Justification

A is correct. A zero ground will cause Bus 1B1 to lockout (deenergizes). CPS 4200.01 Loss of AC Power, Subsequent Actions, ECCS Bus Deenergization Concerns, Step 13 states "IF Bus 1B1 is deenergized AND Turbine generator (TG) has coasted to a stop, THEN manually jack the TG per CPS 3105.01, Turbine (TG, EHC, TS). Since the TG was on the turning gear prior to the event and would immediately stop once the turning gear is deenergized (powered from TB MCC 1M which is powered from 4160V Bus 1B1), it would be appropriate to manually jack the TG as described in CPS 4200.01.

B is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that the Reactor Recirculation Pump B deenergizes based on the stated conditions which would then require its associated suction valve to be shut IAW CPS 3302.01, Reactor Recirculation (RR).

C is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that both ADS Supply Header Isolation Valves (1IA013B & 1IA012B) would shut based on the stated conditions which would then require the Backup ADS Air Bottles to be placed in service IAW CPS 3101.01, Main Steam (MS, IS & ADS). However, since only 1IA013B is effected by the stated conditions and it is a Motor Operated Valve (MOV) which will stay in its current (open) position, the subsequent actions stated are not necessary.

D is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that 1FW004 is unable to be controlled from the Main Control Room (MCR) but can be controlled locally based on the stated conditions which could then be mitigated by taking local control of 1FW004, Feedwater Regulating Valve IAW CPS 3103.01, Feedwater (FW). However, since RFP 1C Flow Control Valve Hydraulic Pump is deenergized (powered from TB MCC 1M which is powered from 4160V Bus 1B1) by the stated conditions, the subsequent actions stated are unable to be performed.

SRO Justification: SRO licensed personnel must assess the plant conditions (shell warming) and based on that assessment, must determine the impact to the AC Electrical Distribution system (loss of power to jacking gear motor) and choose the correct procedure and actions to mitigate that impact (potential rotor bow/need to jack TG).

General Info

Question Use: Initial

Question Level: SRO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

DB420001.01.05	DB420001.01.05 Describe when manual Turbine Generator jacking is required following a loss of AC power
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
262001.A2.05	A2.05	2.9	3.3	2	1	1

System Name

A.C. Electrical Distribution

Category Statement

Ability to (a) predict the impacts of the following on the A.C. ELECTRICAL DISTRIBUTION ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: (CFR: 41.5 / 45.6)

KA Statement

Bus grounds

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.5	41.5

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 4200.01 Sect. 4.2.1</u>	<u>Revision #:</u> <u>19a</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12064</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>New</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>New question, wdk 04/22/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 4200.01</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

The plant is operating at rated power, during prolonged hot summer conditions, with the following:

- Abnormally high CCW heat load conditions exist.
- ALL available CCW Pumps and HXs are in service.
- CCW HX Shell Side Outlet Temperature is now 106°F and STABLE.

Which ONE of the following describes:

(1) a consequence of allowing CCW HX Shell Side Outlet Temperature to remain at this temperature,

AND

(2) a required action?

- A. (1) Operating the CCW HX in excess of its DESIGN limit for Shell Side Outlet Temperature.
(2) Line up an FC Heat Exchanger with cooling supplied by SX.
- B. (1) Operating with a CCW Temperature that will cause a High CCW Temperature trip of the Service Air Compressors.
(2) Remove the CCW Demineralizer from service.
- C. (1) Operating the CCW HX in excess of its DESIGN limit for Shell Side Outlet Temperature.
(2) Remove the CCW Demineralizer from service.
- D. (1) Operating with a CCW Temperature that will cause a High CCW Temperature trip of the Service Air Compressors.
(2) Line up an FC Heat Exchanger with cooling supplied by SX.

Answer: A

Answer Justification

A is correct. Per CPS 3203.01 Component Cooling Water (CC), Sections 6.1 and 8.3.1., the given Outlet Temperature is above the 105°F Design limit for the HXs. Section 8.3.1 directs operators to place a second FC HX in service, cooled by SX (Shutdown Service Water). Section 8.3.1.4(2)c directs operators to 'consider' shifting all FC cooling over to SX (taking about 30% of the total CCW heat load off the CCW system, per Appendix B on page 70). Close scrutiny by the CPS Facility Author and an SRO Validator (incumbent) has determined that the 'intent' of the wording in CPS 3203.01, Section 6.1.2 is as phrased here in this answer choice.

B is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that the Service Air (SA) Compressor will trip on high CCW temperature or that conditions provided in the stem require a CCW Demineralizer to be removed from service. The Service Air Compressors trip on high oil and high air temperature. A previous modification removed the trip on high CCW temperature. Removing the CCW Demineralizer from service is not required unless a temperature of 150°F is reached.

C is incorrect but plausible. The candidate may select this response if he/she realizes the correct consequence for the conditions provided in the stem but incorrectly believes that the conditions provided in the stem require a CCW Demineralizer to be removed from service.

D is incorrect but plausible. The candidate may select this response if he/she realizes the correct action for the conditions provided in the stem but incorrectly believes that the Service Air (SA) Compressor will trip on high CCW temperature.

SRO - This question is testing assessment of facility conditions and selection of the appropriate procedure to mitigate the condition.

General Info

Question Use: Initial

Question Level: SRO

Station: Clinton

Cognitive Level: MEMORY

Associated local objective(s):

400001.10	400001.10 EXPLAIN the reasons for given Component Cooling Water System operating limits and precautions.
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
400000.A2.03	A2.03	2.9	3.0	2	1	1

System Name
Component Cooling Water System (CCWS)

Category Statement
Ability to (a) predict the impacts of the following on the CCWS and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal operation: (CFR: 41.5 / 45.6)

KA Statement
High/low CCW temperature

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.5	41.5

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

General Data		
Technical Reference with Revision Number:	CPS 3203.01 Sect. 6.1.2 Sect. 8.1.3	Revision #: 32
Justification for Non SRO CFR Link:	N/A	
Question History: (i.e. LGS NRC-05, OYS CERT-04)	CL-ILT-6058	
Question Source: (i.e. New, Bank, Modified)	Bank	
Low KA Justification (if required):	N/A	
Revision History: Revision History: (i.e. Modified distracter “b” to make plausible based on OTPS review)	Improved distracters and justifications, wdk 4/08/2011	
ILT		
Supplied Ref (If appropriate): (i.e. ABN-##)	None	
Excluded Reference: (i.e. Ensure ON-## not provided)	CPS 3203.01	
LORT		
PRA: (i.e. Yes or No or #)	No	
LORT Question Section: (i.e. A-Systems or B-Procedures)	N/A	

The plant is operating at rated power.

During a valve stroking surveillance of RHR A, Fill & Vent is lost.

Annunciator 5064-5F, RHR PUMP A DISCHARGE PRESS ABNORMAL comes in and CANNOT be cleared.

(1) What action does the CRS direct?

AND

(2) Why?

- A. (1) Perform ultrasonic testing on the RHR A system piping.
(2) RHR A can NOT be confirmed operable until system is verified "water solid".
- B. (1) Perform ultrasonic testing on the RHR A system piping.
(2) Prevent the effects of water hammer.
- C. (1) Remove the breaker control power fuses for the RHR Pump A.
(2) RHR A can NOT be confirmed operable until system is verified "water solid".
- D. (1) Remove the breaker control power fuses for the RHR Pump A.
(2) Prevent the effects of water hammer.

Answer: D

Answer Justification

D is correct. IAW CPS 3312.01 Residual Heat Removal, RHR Pump breaker control power fuses should be pulled when none of the suction lines are available, or when the RHR pump has lost its fill & vent (e.g., RHR Pump A(B)[C] Discharge Press Abnormal annunciators: 5064-5F; 5065-5A; 5065-5C can not be cleared after attempts to fill & vent.) IAW Tech Spec Basis 3.5.1 ECCS - Operating, To ensure rapid delivery of water to the RPV and to minimize water hammer effects, the ECCS discharge line "keep fill" systems are designed to maintain all pump discharge lines filled with water.

A is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that Ultrasonic testing on the RHR A system piping can be done in lieu of annunciator 5064-5F clearing. IAW CPS 3312.01 Residual Heat Removal, Ultrasonic testing is required after filling and venting to verify system is "water solid" prior to declaring operability however, it is not prescribed to take the place of annunciator 5064-5F.

B is incorrect but plausible. The candidate may select this response if he/she realizes that to ensure rapid delivery of water to the RPV and to minimize water hammer effects the system must be kept full but incorrectly believes that Ultrasonic testing on the RHR A system piping can be done in lieu of annunciator 5064-5F clearing thereby negating the need to remove the RHR A Pump breaker control power fuses.

C is incorrect but plausible. The candidate may select this response if he/she realizes that the RHR A Pump breaker control power fuses should be pulled but incorrectly believes that Ultrasonic testing on the RHR A system piping can be done in lieu of annunciator 5064-5F clearing.

SRO – This question presents a plant condition that the SRO must recognize and apply Tech Spec requirements to determine the required action to place the plant into an acceptable condition.

General Info

Question Use: Initial

Question Level: SRO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

203000.10	203000.10 EXPLAIN the reasons for given RESIDUAL HEAT REMOVAL System operating limits and precautions.
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
B2.1.32	B2.1.32	3.8	4.0	2	1	1

System Name
203000 RHR/LPCI: Injection

Category Statement
Conduct of Operations

KA Statement
Ability to explain and apply system limits and precautions. (CFR: 41.10 / 43.2 / 45.12)

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.10	41.10

10CFR55-43 (SRO) Data

Para Num	Text
43.2	43.2

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 3312.01 Sect. 4.13</u> <u>ITS Bases 3.5.1, SR 3.5.1.1</u>	<u>Revision #:</u> <u>38c</u> <u>13-2</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12045</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>New</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>New question, wdk 03/31/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 3312.01 Sect. 4.13</u> <u>ITS Bases 3.5.1, SR 2.5.1.1</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

The unit is operating at 85% Rated Thermal Power.

On April 1st at 1200 it was discovered that lube oil inventory for Division 3 Diesel Generator (DG) engine is 280 gallons.

On April 2nd at 0800 Maintenance completes adding 30 gallons of lube oil to the Div 3 DG engine and closes the system.

On April 3rd at 0100 it is discovered that the Division 2 DG Starting Air Receiver pressure is being controlled between 200 and 250 psig.

Which ONE of the following identifies the EARLIEST that a Diesel Generator must be declared INOPERABLE?

- A. April 1st @ 1200.
- B. April 3rd @ 0100.
- C. April 3rd @ 1200.
- D. April 5th @ 0100.

Answer: A

Answer Justification

A is correct:

LCO 3.8.3 Condition F. One or more DGs with diesel fuel oil, lube oil, or starting air subsystem not within limits for reasons other than Condition A, B, C, D, or E.

Condition B. One or more DGs with lube oil inventory:

1. For each 16 cylinder engine, < 347 gal and ≥ 327 gal; and
2. For each 12 cylinder engine, < 284 gal and ≥ 269 gal.

The candidate will also need to know that the Division 3 DG is 16 cylinders.

B is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that this date & time is appropriate because tech specs required the Division 2 DG to be declared inoperable immediately upon discovering an out of spec Starting Air Receiver Pressure. If Condition E which requires Starting Air Receiver pressure < 200 psig and ≥ 140 psig is misread, the candidate may think the air pressure is too high and could damage the air start system.

C is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that the Division 3 DG is a 12-cylinder engine. Then, LCO 3.8.3 Action B.1 would allow 48 hours to restore lube oil inventory to within tech spec limits. (This action would have been accomplished by the addition of the 30 gallons).

D is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that this date & time is appropriate because tech specs allow 48 hours to restore Starting Air Receiver pressure if < 200 psig and ≥ 140 psig. If Condition E which requires Starting Air Receiver pressure < 200 psig and ≥ 140 psig is misread, the candidate may think the air pressure within this band and LCO 3.8.3 Action E.1 applies.

SRO – This question presents a plant condition that the SRO must recognize and apply Tech Spec requirements to determine the required action to place the plant into an acceptable condition.

General Info

Question Use: Initial

Question Level: SRO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

264000.12

264000.12

Given DIESEL GENERATOR/DIESEL FUEL OIL System operability status OR key parameter indications, plant conditions, and a copy of Tech Specs, DETERMINE if Tech Spec Limiting Condition for Operations have been met, and required actions if any.

- .1 SX
- .2 DC Electrical Distribution (DC)
- .3 AC Electrical Distribution (AP)
- .4 Diesel Generator Ventilation (VD)

KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
B2.2.22	B2.2.22	4.0	4.7	2	1	1

System Name
264000 EDGs

Category Statement
Equipment Control

KA Statement
Knowledge of limiting conditions for operations and safety limits. (CFR: 41.5 / 43.2 / 45.2)

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.5	41.5

10CFR55-43 (SRO) Data

Para Num	Text
43.2	43.2

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>ITS 3.8.3</u> <u>CPS 3506.01</u>	<u>Revision #:</u> <u>Amnd. 95</u> <u>34b</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12065</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Modified from CL-ILT-6700</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>Modified stem/distracters to make lube oil inventory the concern instead of air receiver pressure, wdk 4/26/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>ITS 3.8.1, 3.8.3</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>N/A</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

The plant was in Mode 4 with RHR B in Shutdown Cooling with RPV level being maintained at 80 inches on Upset range.

Ten minutes ago the RHR B pump tripped and could NOT be restarted.

RHR A will be in Shutdown Cooling mode in 45 minutes.

Reactor Vessel pressure is 2 psig and rising at 0.1 psig/minute.

All requirements for Hot Shutdown are still met.

What Emergency Classification, if any, is required?

- A. None
- B. Unusual Event
- C. Alert
- D. Site Area Emergency

Answer: B

Answer Justification

B is correct. An UNPLANNED loss of decay heat removal capability that results in RCS temperature > 200° F is an unusual event. The rise in RPV pressure is an indication that RPV temperature is above 200° F.

A is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that the conditions presented in the stem do not meet any Emergency Classification criteria. This response could be chosen if the candidate does not think the pressure rise is an indication of temperature above 200° F.

C is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that secondary containment was not in effect or pressure had reached 10 psig.

D is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that meeting thresholds in table M1 requires a Site Area Emergency due to the table being located in the SAE Box.

SRO – This question requires the candidate to make an Emergency Plan Classification.

General Info

Question Use: Initial

Question Level: SRO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

CPS.318254	<p>LP87537.01.10</p> <p>Given section 3 of EP-AA-1003, Radiological Emergency Plan Annex For Clinton Station, and plant parameters indicative of one or more of the following events, properly classify the emergency.</p> <p>.01 Fission Product Boundary Failure</p> <p>.02 Fuel Damage/Degraded Core</p> <p>.03 Radiological Emergency</p> <p>.04 Abnormal Reactor Coolant Leaks, Temperatures and/or Pressures</p> <p>.05 Steam Line Breaks/Safety Relief Valve Failure</p> <p>.06 Loss of Shutdown Systems</p> <p>.07 Reactor Scram</p> <p>.08 Electrical Power Failure</p> <p>.09 Control Room Events</p> <p>.10 Fire</p> <p>.11 Security Events</p> <p>.12 Natural Phenomenon</p> <p>.13 Contaminated Injury</p> <p>.14 Other Hazardous Conditions</p> <p>.15 Loss of Annunciators</p> <p>.16 Failure to meet Tech Spec Action Statement</p>
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
B2.4.41	B2.4.41	2.9	4.6	2	1	1

System Name

205000 Shutdown Cooling Mode

Category Statement

Emergency Procedures /Plan

KA Statement

Knowledge of the emergency action level thresholds and classifications.
(CFR: 41.10 / 43.5 / 45.11)

CFR Data**10CFR55-41 (RO) Data**

Para Num	Text
41.10	41.10

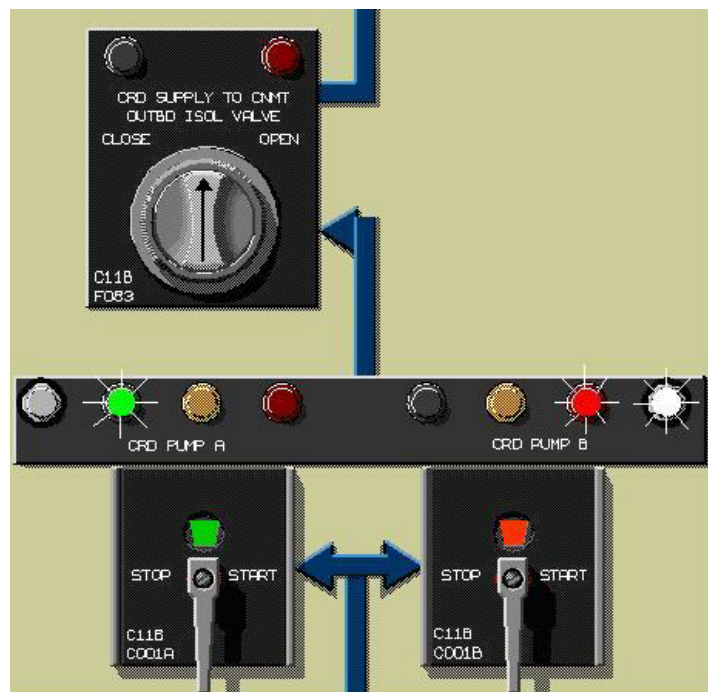
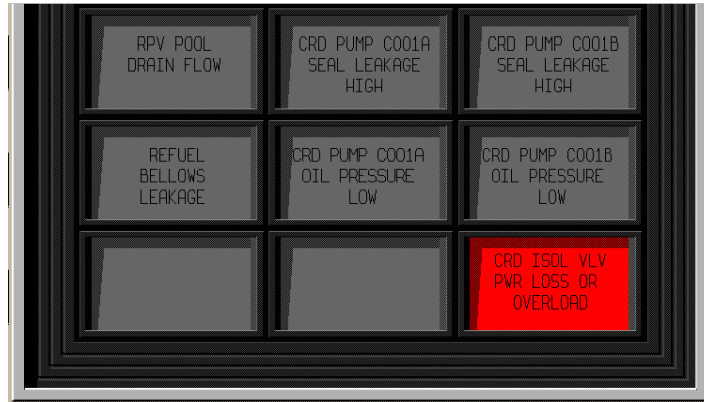
10CFR55-43 (SRO) Data

Para Num	Text
43.5	43.5

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>EP-AA-1003</u>	<u>Revision #:</u> <u>18</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12048</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>New</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>New question, wdk 4/01/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>EP-AA-1003</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>N/A</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

The plant is at rated power when the following indications occur.



Over the next two days while repairs are being made:

The CRD system ____(1)___.

1C11-F083 CRD Cnmt Outboard Isolation Valve ____(2)___.

- A. (1) must be shutdown
(2) may remain open
- B. (1) may remain operating
(2) must be closed
- C. (1) may remain operating
(2) may remain open
- D. (1) must be shutdown
(2) must be closed

Answer: D

Answer Justification

D is correct. Tech Spec 3.6.1.3 PCIVs requires for Inop Containment Isolation valves that the penetration be isolated. C11BF083 is the CRD Outboard Isolation valve the Inboard is a check valve. Therefore C11BF083 must be shut, isolating CRD to the containment. CPS 3304.01 Control Rod Hydraulic and Control (RD) requires the CRD pumps shutoff prior to shutting C11BF083.

A is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that the inboard valve was a check valve.

B is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that CRD may remain operating with the containment isolation shut.

C is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that CRD may remain operating with the containment isolation shut and did not know that the inboard valve was a check valve.

SRO – This question presents a plant condition that the SRO must recognize and apply Tech Spec requirements to determine the required action to place the plant into an acceptable condition as well as selecting the appropriate procedure to mitigate the condition.

General Info

Question Use: Initial

Question Level: SRO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

201001.09	201001.09 DISCUSS the effect: a. A total loss or malfunction of the Control Rod Drive Hydraulic System has on the plant. b. A total loss or malfunction of various plant systems has on the Control Rod Drive Hydraulic System.
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
201001.A2.03	A2.03	3.0	3.1	2	2	2

System Name

[Control Rod Drive Hydraulic System](#)

Category Statement

[Ability to \(a\) predict the impacts of the following on the CONTROL ROD DRIVE HYDRAULIC SYSTEM ; and \(b\) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: \(CFR: 41.5 / 45.6\)](#)

KA Statement

[Power supply failures](#)

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.5	41.5

10CFR55-43 (SRO) Data

Para Num	Text
NA	NA

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>ITS 3.6.1.3</u> <u>CPS 3304.01</u>	<u>Revision #:</u> <u>Amnd. 158</u> <u>33c</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12050</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>New</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>New question, wdk 4/01/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 3304.01</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

The Plant is operating at rated power.

At 1200 on 01/01 the Reactor vessel water level input to 1B21-R623A failed low due to a malfunction.

At 1200 on 01/13 (12 days after 1B21-R623A Reactor vessel water level input failed), the Reactor vessel water level input to 1B21-R623B fails low.

With regard to RPV Press/Level Recorders - Post Accident Monitors (1B21-R623A/B) on P601, answer the following:

(1) What is the Operability status on 1B21-R623A?

(2) What is the latest time that ONE Reactor vessel water level input must be restored in order to avoid additional action?

- A. (1) 1B21-R623A all functions are Inoperable.
(2) At 1159 on 01/20.
- B. (1) 1B21-R623A all functions are Inoperable.
(2) At 1159 on 01/31.
- C. (1) 1B21-R623A Reactor level function is Inoperable.
(2) At 1159 on 01/20.
- D. (1) 1B21-R623A Reactor level function is Inoperable.
(2) At 1159 on 01/31.

Answer: C

Answer Justification

C is correct. Tech Spec LCO 3.3.3.1 states that the PAM instrumentation for each Function in Table 3.3.3.1-1 shall be OPERABLE. The table lists Rx Steam Dome Pressure and Rx Vessel Water Level as two different functions. Therefore, ONLY the Rx Vessel Water Level is considered Inoperable. One (1) function with one (1) channel inoperable requires the channel to be returned to an OPERABLE status in 30 days. One (1) function with two (2) channels inoperable requires the channel to be returned to an OPERABLE status in 7days. Since 25 days have already passed prior to the second inoperable channel failing, the first required action to expire would be that of the original completion time which is 5 days later (1200 01/31).

A is incorrect but plausible. The candidate may select this response if he/she realizes that the first required action started 25 days ago and will expire in 5 days regardless of the second failure but incorrectly believes that the entire Post Accident Monitor (1B21-R623A) is inoperable even though only one function is not working.

B is incorrect but plausible. The candidate may select this response if he/she fails to recognize that the first required action started 25 days ago and will expire in 5 days regardless of the second failure and incorrectly believes that the entire Post Accident Monitor (1B21-R623A) is inoperable even though only one function is not working.

A is incorrect but plausible. The candidate may select this response if he/she realizes that only the Rx Vessel Water Level function is inoperable but does not affect the Rx Steam Dome Pressure indication of Post Accident Monitor (1B21-R623A) but fails to recognize that the first required action started 25 days ago and will expire in 5 days regardless of the second failure.

SRO – This question presents a plant condition that the SRO must recognize and apply Tech Spec requirements to determine the required action to place the plant into an acceptable condition. Also, an understanding of how parallel clocks are treated is required.

General Info

Question Use: Initial

Question Level: SRO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

216000.14	216000.14 Given NUCLEAR BOILER System operability status and a copy of Tech Specs, DISCUSS the bases for the NUCLEAR BOILER System Tech Spec LCO, related safety limits and Limiting Safety System Settings.
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
B2.2.37		3.6	4.6	2	2	2

System Name
216000 Nuclear Boiler Inst.

Category Statement
Equipment Control

KA Statement
Ability to determine operability and/or availability of safety related equipment. (CFR: 41.7 / 43.5 / 45.12)

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.7	41.7

10CFR55-43 (SRO) Data

Para Num	Text
43.5	43.5

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>ITS 3.3.3.1</u>	<u>Revision #:</u> <u>163</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12049</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>New</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>New question, wdk 04/01/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>ITS 3.3.3.1</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>None</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

Core Alterations were stopped by the Refuel SRO due to plant conditions.

Who has the authority to grant permission to resume fuel movement?

- A. Refuel SRO
- B. Shift Manager
- C. Lead Refuel SRO
- D. Control Room Supervisor

Answer: B

Answer Justification

B is correct - Per CPS 3703.01 Core Alterations Section 4.2.9, the Shift Manager's permission is required to resume fuel movement.

A is incorrect but plausible. The candidate may select this response if he/she fails to recognize that the Refuel SRO has responsibility during core alterations but does not possess the authority to grant permission to resume fuel movement.

C is incorrect but plausible. The candidate may select this response if he/she fails to recognize that the Lead Refuel SRO has responsibility during core alterations but does not possess the authority to grant permission to resume fuel movement.

D is incorrect but plausible. The candidate may select this response if he/she fails to recognize that the Control Room Supervisor has responsibility during core alterations but does not possess the authority to grant permission to resume fuel movement.

SRO - This question is testing assessment of facility conditions and selection of the appropriate procedure to mitigate the condition.

General Info

Question Use: Initial

Question Level: SRO

Station: Clinton

Cognitive Level: MEMORY

Associated local objective(s):

LP85802.2.2.26	LP85802.2.2.26 Knowledge of refueling administrative requirements. (Moved to 2.1.41)
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
B2.1.35		2.2	3.9	2	2	2

System Name

[234000 Fuel Handling Equipment](#)

Category Statement

[Conduct of Operations](#)

KA Statement

Knowledge of the fuel-handling responsibilities of SROs.
(CFR: 41.10 / 43.7)

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.10	41.10

10CFR55-43 (SRO) Data

Para Num	Text
43.7	43.7

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 3703.01 Sect. 4.29</u>	<u>Revision #:</u> <u>26a</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12070</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>New</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter “b” to make plausible based on OTPS review)</u>	<u>New question, wdk 5/27/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 3703.01</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>N/A</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

The plant is operating at near rated power in the middle of summer.

Several SRVs are leaking.

Yesterday at 1500 Suppression Pool temperature was 96°F.

Today at 1500 Suppression Pool temperature is 98°F.

The CRS will direct the panel operators to perform...

- A. CPS 3006.01, Unit Shutdown and notify all onsite personnel via a plant announcement.
- B. CPS 4100.01, Reactor Scram and notify Plant Management ONLY.
- C. CPS 3006.01, Unit Shutdown and notify Plant Management ONLY.
- D. CPS 4100.01, Reactor Scram and notify all onsite personnel via a plant announcement.

Answer: A

Answer Justification

A is correct. The LCO completion time for high suppression pool temperature has been exceeded and power must be reduced to less than or equal to 1% within 12 hours. A plant shut down must be announced over the public address system.

B is incorrect but plausible. The candidate may select this response if he/she fails to realize that a scram is not required but a controlled shut down is and a plant shut down must be announced over the public address system.

C is incorrect but plausible. The candidate may select this response if he/she fails to realize that a plant shut down must be announced over the public address system.

D is incorrect but plausible. The candidate may select this response if he/she fails to realize that a scram is not required but a controlled shut down is to be performed.

OP-AA-104-101 Significant event reporting lists events and who they must be reported to and there are some that are only reported to Plant Management.

Scramming would cause an unwarranted plant transient and would be incorrect.

SRO – This question presents a plant condition that the SRO must recognize and apply Tech Spec requirements to determine the required action to place the plant into an acceptable condition. Also, the candidate must realize that a plant announcement is required (selection of the appropriate procedure to mitigate the condition).

General Info

Question Use: Initial

Question Level: SRO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

239001.12	239001.12 Given MAIN STEAM System operability status OR key parameter indications, plant conditions, and a copy of Tech Specs, DETERMINE if Tech Spec Limiting Condition for Operations have been met, and required actions if any.
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
B2.1.14	B2.1.14	3.1	3.1	3		

System Name

Conduct of Operations

Category Statement

Conduct of Operations

KA Statement

Knowledge of criteria or conditions that require plant-wide announcements, such as pump starts, reactor trips, mode changes, etc.
(CFR: 41.10 / 43.5 / 45.12)

CFR Data**10CFR55-41 (RO) Data**

Para Num	Text
41.10	41.10

10CFR55-43 (SRO) Data

Para Num	Text
43.5	43.5

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>ITS 3.6.2.1</u> <u>OP-AA-104-101</u>	<u>Revision #:</u> <u>Amend. 95</u> <u>2</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-6896</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Bank</u>	
<u>Low KA Justification (if required):</u>		
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>Improved stem and distracter justifications, wdk 4/07/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>ITS 3.6.2.1</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>OP-AA-104-101</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

The plant was shutdown with maintenance in progress on HPCS, with the following:

- The breaker to HPCS Suction from the RCIC Storage Tank Valve (1E22-F001) was OFF.
- A change in the scope of the maintenance required the local MANUAL CLOSURE of 1E22-F001.
- NO actual work was performed on 1E22-F001.

Following completion of maintenance and removal of the clearance, what is the MINIMUM required action to declare 1E22-F001 operable?

- A. Stroke the valve manually ONLY.
- B. Stroke the valve electrically ONLY.
- C. Manually unseat the valve and stroke the valve electrically.
- D. Manually unseat the valve and perform stroke time testing.

Answer: C

Answer Justification

C is correct. Motor Operated Valves manually placed on their closed seat or backseat require manual unseating prior to electrical operation. An MOV which has been manually seated shall be declared inoperable, manually unseated and then stroked electrically to return it to the motor mode of operation.

A is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that stroking the valve manually is all that is necessary to restore operability. The valve need not be stroked manually, just unseated manually.

B is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that there is no requirement to manually unseat the valve. The valve must first be unseated manually prior to stroking electrically.

D is incorrect but plausible. The candidate may select this response if he/she realizes that the valve must be manually unseated and stroked electrically but incorrectly believes that Stroke timing is required to restore operability.

SRO - This question is linked to a task that is labeled as an SRO-only task, and the task is NOT listed in the RO task list. Additionally and IAW OP-AA-108-115 OPERABILITY DETERMINATION Section 3.3, "A senior licensed operator (i.e., SRO) on the operating shift crew is responsible for the determination of whether an SSC is operable".

General Info

Question Use: Initial

Question Level: SRO

Station: Clinton

Cognitive Level: MEMORY

Associated local objective(s):

LP85802.2.2.21	LP85802.2.2.21 Knowledge of pre and post maintenance operability requirements.
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
B2.2.21	B2.2.21	2.9	4.1	3		

System Name

[Equipment Control](#)

Category Statement

[Equipment Control](#)

KA Statement

Knowledge of pre- and post-maintenance operability requirements.
(CFR: 41.10 / 43.2)

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.10	41.10

10CFR55-43 (SRO) Data

Para Num	Text
43.2	43.2

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>OP-AA-103-105</u>	<u>Revision #:</u> <u>2</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-LC-1054</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Bank</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter “b” to make plausible based on OTPS review)</u>	<u>Improved distracter justification, wdk 6/13/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>OP-AA-103-105</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

An event has occurred and the TSC has NOT yet been activated.

Containment Venting that will exceed release rate limits is required per EOP-6, Primary Containment Control.

The CRS shall...

- A. proceed with Containment venting with NO additional authorization.
- B. proceed with Containment venting ONLY after authorization from the Shift Manager.
- C. proceed with Containment venting ONLY after authorization from the Plant Manager.
- D. delay Containment venting until the TSC has Command and Control and the venting is authorized by the Station Emergency Director.

Answer: B

Answer Justification

B is correct. EOP-6 requires the Station Emergency Director to authorize exceeding the release rate limits and the Shift Manager is the Station Emergency Director until the TSC is activated.

A is incorrect but plausible. The candidate may select this response if he/she fails to realize that this is an EOP action driven by the CRS.

C is incorrect but plausible. The candidate may select this response if he/she fails to realize that the Plant Manager can not authorize the release.

D is incorrect but plausible. The candidate may select this response if he/she fails to realize that the Shift Manager can authorize the release (as the Station Emergency Director) and will make the decision to release or NOT. There is no need to delay.

SRO - This question requires assessing plant conditions and then selecting an appropriate section (leg) of EOP-6 to mitigate the condition and involves a transition into an emergency contingency procedure.

General Info

Question Use: Initial

Question Level: SRO

Station: Clinton

Cognitive Level: MEMORY

Associated local objective(s):

LP85803.2.3.11	LP85803.2.3.11 Ability to control radiation releases.
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
B2.3.11	B2.3.11	3.8	4.3	3		

System Name
Radiation Control

Category Statement
Radiation Control

KA Statement
Ability to control radiation releases. (CFR: 41.11 / 43.4 / 45.10)

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.11	41.11

10CFR55-43 (SRO) Data

Para Num	Text
43.4	43.4

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 4402.01 EOP-6</u>	<u>Revision #:</u> <u>28</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-6918</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Bank</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>Improved distracter justifications, wdk 5/24/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>CPS 4402.01</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>None</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

The upper end of the EOP hierarchy represents guidance which is...

- A. function or intent driven (e.g., inject water, isolate a leak).
- B. overridden by lower tier procedures should a conflict in operating direction exist.
- C. written with a lower level of conservative decision making as they are only concerned with placing the plant in a safe condition.
- D. required to be performed as "direct referral" to the source procedure (i.e. actions cannot be performed from memory) regardless of event severity.

Answer: A

Answer Justification

A is correct. The upper end of the hierarchy represents function or intent driven guidance procedures (e.g., inject water, isolate a leak) which utilize applicable operating details from the lower tier documents.

B is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that the lower tier procedures take precedence should a conflict in operating direction exist when in fact, the upper tier procedure in use shall take precedence.

C is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that in order to get the plant to a safe condition; upper tier documents are less conservative. Each higher level of emergency response procedure is written with a higher level of conservative decision making designed to bring the plant into the safest condition possible.

D is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that regardless of event severity, actions cannot be performed by memory. However, consistent with the severity of the emergency event, these actions may be performed from memory without direct referral to the source document.

SRO – This question requires knowledge of administrative procedures that specify hierarchy of plant normal, abnormal and emergency procedures.

General Info

Question Use: Initial

Question Level: SRO

Station: Clinton

Cognitive Level: MEMORY

Associated local objective(s):

LP87551.01.02	LP87551.01.02 Explain the relative position of the EOPs in the hierarchy of plant procedures.
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
B2.4.23	B2.4.23	3.4	4.4	3		

System Name
Emergency Procedures /Plan

Category Statement
Emergency Procedures /Plan

KA Statement
<p>Knowledge of the bases for prioritizing emergency procedure implementation during emergency operations.</p> <p>(CFR: 41.10 / 43.5 / 45.13)</p>

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.10	41.10

10CFR55-43 (SRO) Data

Para Num	Text
43.5	43.5

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>CPS 1005.09 Sect. 8.13.1</u>	<u>Revision #:</u> <u>8e</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12053</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>New</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>New question, wdk 04/04/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 1005.09</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

During an emergency condition at Clinton Power Station you are directed to communicate a Protective Action Recommendation (PAR) notification to the State and County agencies.

Which of the following identifies:

(1) the LOWEST Emergency Classification Level that would require this notification

AND

(2) the time requirement to initiate this notification once the Emergency Classification declaration has been made?

- A. (1) General Emergency
(2) 1 hour.
- B. (1) General Emergency
(2) 15 minutes.
- C. (1) Site Area Emergency
(2) 1 hour.
- D. (1) Site Area Emergency
(2) 15 minutes.

Answer: B

Answer Justification

B is correct. General Emergency is the highest level of Emergency Classification and the only Emergency Classification that requires a Protective Action Recommendation (PAR) determination. The State and Local notification must be initiated within 15 minutes of the declaration or escalation of the Emergency Classification to General Emergency.

A is incorrect but plausible. The candidate may select this response if he/she recognizes the correct Emergency Classification requiring a PAR determination but incorrectly believes that the required time for notification is 1 hour.

C is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that the correct Emergency Classification requiring a PAR determination is a Site Area Emergency (just below the General Emergency in severity) while also incorrectly believing that the required time for notification is 1 hour.

D is incorrect but plausible. The candidate may select this response if he/she recognizes the correct time requirement for notifying State and Local Agencies but incorrectly believes that the correct Emergency Classification requiring a PAR determination is a Site Area Emergency (just below the General Emergency in severity).

SRO – This question requires the candidate to have knowledge of the Emergency Plan Classification process including the application of Protective Action Recommendations (PARs) and their associated notification requirements.

General Info

Question Use: Initial

Question Level: SRO

Station: Clinton

Cognitive Level: MEMORY

Associated local objective(s):

CPS.502041	Discuss the Defined Terms associated with the EALs and Basis document
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
B2.4.44	B2.4.44	2.4	4.4	3		

System Name
Emergency Procedures /Plan

Category Statement
Emergency Procedures /Plan

KA Statement
Knowledge of emergency plan protective action recommendations. (CFR: 41.10 / 41.12 / 43.5 / 45.11)

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.10	41.10
41.12	41.12

10CFR55-43 (SRO) Data

Para Num	Text
43.5	43.5

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>EP-AA-111-F-07</u> <u>EP-AA-114 Sect. 4.1</u>	<u>Revision #:</u> <u>D</u> <u>9</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12051</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>New</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>New Question, wdk 04/04/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>NONE</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>EP-AA-111-F-07</u> <u>EP-AA-114</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

Plant conditions as follows:

- The reactor is at rated power.
- All rods are fully withdrawn.
- CRD Pump "A" is tagged out.

1400 CRD Pump "B" trips.

1410 ACCUMULATOR TROUBLE (5006-1H) annunciator is received.

1420 "C" Area reports the local accumulator pressures of the three (3) alarming accumulators are:

<u>Pressure</u>	<u>Rod</u>
1485 psig	20-17
1505 psig	36-33
1510 psig	52-41

Which of the following statements describes your NEXT required action?

- A. Place the reactor MODE switch in the SHUTDOWN Immediately.
- B. If unable to restore charging header pressure by 1440 then immediately place the Mode Switch in SHUTDOWN.
- C. Declare the associated control rods inoperable by 1520.
- D. Declare the associated control rod scram times slow by 2220.

Answer: B

Answer Justification

B is correct. ITS 3.1.5 Control Rod Scram Accumulators REQUIRED ACTION B.1 initially applies since three (3) accumulators are INOPERABLE (pressure < 1520 psig). Twenty (20) minutes are allowed to restore charging water header pressure from the discovery of CONDITION B (Time 1420). If unable to accomplish the restoration within the allotted time (NLT 1440), REQUIRED ACTION D.1 applies and the Mode Switch must be placed in the shutdown position immediately.

A is incorrect but plausible. The candidate may select this response if he/she incorrectly selects CONDITION C based on one (1) or more accumulators are INOPERABLE with reactor pressure < 600 psig. REQUIRED ACTION C.1 could then be selected which cannot be met, which in turn moves to CONDITION D and REQUIRED ACTION D.1 which directs placing the reactor MODE switch in the SHUTDOWN position immediately.

C is incorrect but plausible. The candidate may select this response if he/she correctly identifies CONDITION B based on two (2) or more accumulators are INOPERABLE but incorrectly chooses REQUIRED ACTION B.2.2 (as in B.1 and B.2.1 OR B.2.2) leading to the belief that the ONLY action is that the associated control rods must be declared inoperable within one (1) hour from the time the accumulator was INOPERABLE (1420) which would be 1520.

D is incorrect but plausible. The candidate may select this response if he/she incorrectly believes that only one (1) accumulator is INOPERABLE and CONDITION A is applicable. REQUIRED ACTION A.2 could be selected however the time would be eight (8) hours from the time the accumulator was INOPERABLE (1420) which would be 2220.

SRO – This question presents a plant condition that the SRO must recognize and apply Tech Spec requirements to determine the required action to place the plant into an acceptable condition.

General Info

Question Use: Initial

Question Level: SRO

Station: Clinton

Cognitive Level: HIGHER

Associated local objective(s):

201001.13	201001.13 Given Control Rod Drive Hydraulic System key parameter indications and plant conditions, DETERMINE if the [Control Rod Drive Hydraulic] Tech Spec LCOs have been met for one hour or less LCO's.
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
295022.AA2.01	AA2.01	3.5	3.6	1	2	2

System Name
Loss of CRD Pumps

Category Statement
Ability to determine and/or interpret the following as they apply to LOSS OF CRD PUMPS : (CFR: 41.10 / 43.5 / 45.13)

KA Statement
Accumulator pressure

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.10	41.10

10CFR55-43 (SRO) Data

Para Num	Text
43.5	43.5

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>ITS 3.1.5</u> <u>CPS 5006.01 Sect. 5006-1H</u>	<u>Revision #:</u> <u>Amd. 95</u> <u>32d</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12041</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>New</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>New question, wdk 03/30/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>ITS 3.1.5</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>CPS 5006.01</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	

A 50.59 Review must be performed for which ONE of the following procedure changes?

- A. Adding a table or figure for clarification.
- B. Updating changes in organizational titles.
- C. Correcting step numbers in a procedure note.
- D. Adding a valve stroke time testing requirement.

Answer: D

Answer Justification

D is correct. Per LS-AA-104, Step 4.6.1. If the scope of the original activity is changed, the Activity is not going to be accomplished as evaluated in the previously approved 50.59 Review, or new information is discovered that necessitates revision of a previously approved 50.59 Review, then EVALUATE the previously approved 50.59 Review to determine if a revision is appropriate.

A is incorrect but plausible. The candidate may select this response if he/she fail to realize that adding a table or figure for clarification will not effect the safety evaluation. This will require a review but not a 50.59.

B is incorrect but plausible. The candidate may select this response if he/she fail to realize that updating changes in organizational titles will not effect the safety evaluation. This will require a review but not a 50.59.

C is incorrect but plausible. The candidate may select this response if he/she fail to realize that correcting step numbers in a procedure note will not effect the safety evaluation. This will require a review but not a 50.59.

SRO – This question requires knowledge of administrative procedures that specify the requirements to perform 50.59 Reviews.

General Info

Question Use: Initial

Question Level: SRO

Station: Clinton

Cognitive Level: MEMORY

Associated local objective(s):

LP85802.2.2.6	LP85802.2.2.6 Knowledge of the process for making changes to procedures.
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KA Data

KA Number	Viewed KA	RO Value	SRO Value	Tier	RO Group	SRO Group
B2.2.05	B2.2.05	2.2	3.2	3		

System Name
Equipment Control

Category Statement
Equipment Control

KA Statement
Knowledge of the process for making design or operating changes to the facility. (CFR: 41.10 / 43.3 / 45.13)

CFR Data

10CFR55-41 (RO) Data

Para Num	Text
41.10	41.10

10CFR55-43 (SRO) Data

Para Num	Text
43.3	43.3

Other NRC Data

<u>General Data</u>		
<u>Technical Reference with Revision Number:</u>	<u>LS-AA-104 Sect. 4.6.1</u>	<u>Revision #:</u> <u>6</u>
<u>Justification for Non SRO CFR Link:</u>	<u>N/A</u>	
<u>Question History: (i.e. LGS NRC-05, OYS CERT-04)</u>	<u>CL-ILT-12072</u>	
<u>Question Source: (i.e. New, Bank, Modified)</u>	<u>Modified from CL-ILT-6712</u>	
<u>Low KA Justification (if required):</u>	<u>N/A</u>	
<u>Revision History: Revision History: (i.e. Modified distracter "b" to make plausible based on OTPS review)</u>	<u>Modified by rewording the stem and changing the correct answer, wdk 06/13/2011</u>	
<u>ILT</u>		
<u>Supplied Ref (If appropriate): (i.e. ABN-##)</u>	<u>None</u>	
<u>Excluded Reference: (i.e. Ensure ON-## not provided)</u>	<u>LS-AA-104</u>	
<u>LORT</u>		
<u>PRA: (i.e. Yes or No or #)</u>	<u>No</u>	
<u>LORT Question Section: (i.e. A-Systems or B-Procedures)</u>	<u>N/A</u>	