

Modified Bank # \_\_\_\_\_  
New \_\_\_\_\_

Question History: Last NRC Exam \_\_\_\_\_

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

10 CFR Part 55 Content: 55.41 41.5  
55.43 \_\_\_\_\_

Comments:

K/A: 059 K3.04 - Knowledge of the effect that a loss or malfunction of the MFW will have on the following: RCS

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### Question Worksheet

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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	2	_____
	Group #	1	_____
	K/A #	061 K5.05	
	Importance	2.7	3.2

#### Proposed Question:

Subsequent to a reactor trip from 100% power, a severe water hammer causes the aux feedwater line to Feed Lead 2-1 to break.

The break is just upstream of the check valve that isolates main feedwater from aux feedwater.

How do the following AFW LCVs respond to this malfunction?

- LCV-110 AFW PP 2-2 discharge to S/G 2-1
  - LCV-111 AFW PP 2-2 discharge to S/G 2-2
  - LCV-106 AFW PP 2-1 discharge to S/G 2-1
- A. High AFW flow to S/G 2-1 will result in LCV-110 throttling. LCV-111 will open in an attempt to feed S/G 2-2. LCV-106 will remain open until closed by operator action.
- B. Low pressure on the AFW line to S/G 2-1 will send a signal to close LCV-110 and LCV-106. LCV-111 will be available to feed S/G 2-2.
- C. Low AFW PP 2-2 discharge pressure will result in throttling LCV-110 and LCV-111. LCV-106 will remain open until closed by operator action.
- D. Low pressure on the AFW line will send a close signal to LCV-110. LCV-111 will open in an attempt to feed S/G 2-2. LCV-106 will remain open until closed by operator action.

Proposed Answer:

- C. Low AFW PP 2-2 discharge pressure will result in throttling LCV-110 and LCV-111. LCV-106 will remain open until closed by operator action.

Explanation:

A incorrect, valves throttle on low pressure.

B incorrect, valves will not receive a close signal.

C correct, as pressure decreases, both 110 and 111 will throttle to prevent runout. 106 is operated manually.

ro tier 2 group 1\_46.doc

D incorrect, valve will not receive a close signal.

Technical Reference(s): D1 – Auxiliary Feedwater

Proposed references to be provided to applicants during examination: none

Learning Objective: 8401 – Explain automatic actions associated with AFW system valves.

Question Source: Bank # DCPP A-0688  
Modified Bank # \_\_\_\_\_  
New \_\_\_\_\_

Question History: Last NRC Exam \_\_\_\_\_

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

10 CFR Part 55 Content: 55.41 41.7  
55.43 \_\_\_\_\_

Comments: K/A: 061 K5.05 - Knowledge of the operational implications of the following concepts as they apply to the AFW: Feed line voiding and water hammer

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**Question Worksheet**

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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	2	_____
	Group #	1	_____
	K/A #	063 A2.01	
	Importance	3.3	3.4

**Proposed Question:**

With Unit 1 at 100% power, how does the 12 KV Bus D/E protection circuitry interface with the RCPs?

- A. If 2 out of 3 relays on bus E sense  $< 54$  Hz, a trip signal is sent to RCP 1-1 and 1-3 breakers.
- B. If 2 out of 3 relays on either bus D or E sense  $< 54$  Hz, a trip signal is sent to all 4 RCP breakers.
- C. If 1 out of 2 relays on buses D and E sense  $< 70\%$  voltage, a trip signal is sent to all 4 RCP breakers.
- D. If 1 out 2 relays on bus D sense  $< 70\%$  voltage, a trip signal is sent to RCP 1-2 and 1-4 breakers.

Proposed Answer:

- A. If 2 out of 3 relays on bus E sense  $< 54$  Hz, a trip signal is sent to RCP 1-1 and 1-3 breakers.

Explanation:

A correct, Bus E supplies RCPs 11 and 13.

B incorrect, only the RCPs on the bus get trip signal.

C incorrect, low voltage on both buses results in a reactor trip signal.

D incorrect, does not trip RCPs.

Technical Reference(s): J5 – 12 KV Electrical System

Proposed references to be provided to applicants during examination: none

Learning Objective: 6249 Analyze the logic associated with 12 kV Protection Relay indication lights

Question Source: Bank # DCPD S-44862  
Modified Bank # \_\_\_\_\_  
New \_\_\_\_\_

Question History: Last NRC Exam N/A  
Question Cognitive Level: Memory or Fundamental Knowledge X  
Comprehension or Analysis

10 CFR Part 55 Content: 55.41 41.7  
55.43

Comments:

K/A: 063 A2.01 - Knowledge of bus power supplies to the following: Major system loads  
062 ~~A~~2.01

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**Question Worksheet**


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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	2	_____
	Group #	1	_____
	K/A #	063	A2.01
	Importance	2.5	3.2*

**Proposed Question:**

Unit 1 is at full power.

PK20-21, 125V/250V DC System, alarms due to a ground on 250V DC Battery bus 15. An operator dispatched to the ground detector reports the following:

- Indication on LCD display: R - = 52 K
- LED 1 and 2 are lit

MS should be informed of which of the following?

**Reference Provided**

- There is a ground on the positive leg of the system.
- There is a ground on the negative leg of the system.
- There is an alarm but no indication of a ground on the system.
- There is a ground on either the positive and negative legs of the system or on the common leg of the system.

Proposed Answer:

- There is a ground on the negative leg of the system.

Explanation:

A incorrect, the indication would be R + =

B correct, per step 6.2.3, negative ground indicated by insulation resistance value on the negative (R-) leg and both LEDs would be lit.

C incorrect, no ground indicated by LCD showing alarm setpoint (R = 37K) and no LEDs lit.

D incorrect, indication would be only LED 2 lit and LCD indication of common leg resistance (R)

Technical Reference(s): PK20-21, OP J-9:V

Proposed references to be provided to applicants during examination: OP J-9:V

Learning Objective: 4193 - Explain the DC Power system grounding system, and how grounds are detected.

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

Question History: Last NRC Exam \_\_\_\_\_  
Question Cognitive Level: Memory or Fundamental Knowledge \_\_\_\_\_  
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 41.10  
55.43

Comments:

K/A: 063 A2.01 - Ability to (a) predict the impacts of the following malfunctions or operations on the DC electrical systems; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Grounds

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**Question Worksheet**

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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	2	_____
	Group #	1	_____
	K/A #	064	A3.10
	Importance	2.8	2.8*

**Proposed Question:**

Diesel DG 13 is carrying 4160V bus F following a loss of normal power to the bus and SI actuation.

The Operator goes to RAISE on the diesel's speed control for three (3) seconds.

Which of the following represents the effect this action has on indicated bus voltage, frequency, Mwe and Kvar?

- |    | <u>VOLTS</u> | <u>FREQ</u> | <u>Mwe</u> | <u>Kvar</u> |
|----|--------------|-------------|------------|-------------|
| A. | UP           | SAME        | SAME       | SAME        |
| B. | SAME         | SAME        | UP         | UP          |
| C. | UP           | UP          | UP         | UP          |
| D. | SAME         | SAME        | SAME       | SAME        |

Proposed Answer:

- D. SAME SAME SAME SAME

Explanation:

A incorrect, this is true if volts is raised (previous answer on question)

B incorrect, load is set by sequencer

C incorrect, this is if in DROOP mode and volts are raised as well.

D correct, Volts set by voltage control switch, freq set at 60 hz, load determined by bus loading.

Technical Reference(s): J6B – Diesel Generator System

Proposed references to be provided to applicants during examination: none

Learning Objective: 4158 - Explain the Isochronous/Droop modes of operation.

Question Source: Bank #  
Modified Bank # DCPP P-1228  
New \_\_\_\_\_

Question History: Last NRC Exam DCPP SRO 2/94  
Question Cognitive Level: Memory or Fundamental Knowledge  
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 41.7  
55.43 \_\_\_\_\_

Comments:

K/A: 064 A3.10 - Ability to monitor automatic operation of the ED/G system, including:  
Function of ED/G megawatt load controller

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**Question Worksheet**


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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	2	_____
	Group #	1	_____
	K/A #	064	A3.03
	Importance	3.4	3.3

**Proposed Question:**

The following conditions exist on D/G 1-3:

- D/G 1-3 is supplying its vital bus due to a loss of offsite power
- Auto-Manual switch is in AUTO
- Local-Remote switch is in REMOTE

PK1808, Diesel 13 Cooling System, alarms. Jacket water temperature is reported to be 205°F.

Assuming the alarm is valid, D/G 1-3 will

- trip due to the shutdown relay.
- trip due to high jacket water temperature.
- continue to run because the Diesel Generator Auto-Manual switch is in the AUTO position.
- continue to run because the Diesel Generator Local-Remote switch is in the REMOTE position.

Proposed Answer:

- continue to run because the Diesel Generator Local-Remote switch is in the REMOTE position.

Explanation:

A incorrect, high jacket water does not energize the SDR.

B incorrect, the trip is only in effect if in LOCAL.

C incorrect, position of the Auto/Manual switch does not affect when the trip is effective.

D correct, the diesel will trip if in LOCAL.

Technical Reference(s):  
J6B, Diesel Generator System  
PK1808, Diesel 13 Cooling System

Proposed references to be provided to applicants during examination: none

Learning Objective:  
6406 – Interpret the meaning of controller/switch indications for Diesel Engine Generator.

Question Source: Bank # A-0418  
Modified Bank # \_\_\_\_\_  
New

Question History: Last NRC Exam \_\_\_\_\_  
Question Cognitive Level: Memory or Fundamental Knowledge X  
Comprehension or Analysis

10 CFR Part 55 Content: 55.41 41.7  
55.43 \_\_\_\_\_

Comments:

K/A: 064 A3.03 - Ability to monitor automatic operation of the ED/G system, including:  
Indicating lights, meters, and recorders

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**Question Worksheet**


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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	1	_____
	Group #	2	_____
	K/A #	073 K1.01	
	Importance	3.6	3.9

**Proposed Question:**

Unit 2 is at full power. A small steam generator tube leak is causing steam line radiation monitor RM-73 to read 1000 cpm.

If the monitor is functioning properly, what should happen to the indication if the unit is shutdown to Hot Standby?

- A. Indication should decrease due to the lack of N-16 production.
- B. Indication should decrease due to the decrease in iodine production.
- C. Indication should remain the same due to the continued tube leakage.
- D. Indication should increase because there is less steam flow but the same amount of radiation.

Proposed Answer:

- A. Indication should decrease due to the lack of N-16 production.

Explanation:

The steam line radiation monitors detect N-16 from the tube leakage. Once the unit is shutdown, N-16 production ceases and the indication will decrease.

Technical Reference(s): G4A – Radiation Monitoring

Proposed references to be provided to applicants during examination: None.

Learning Objective: 8485 Explain the conditions that effect Radiation Monitoring system radiation monitor indications

Question Source: Bank #  
 Modified Bank # S-1207  
 New \_\_\_\_\_

Question History: Last NRC Exam N/A

ro tier 2 group 1\_51.doc

Question Cognitive Level:

Memory or Fundamental Knowledge	X
Comprehension or Analysis	___

10 CFR Part 55 Content: 55.41 41.11  
55.43 \_\_\_\_\_

Comments: K/A: 073 K1.01 - Knowledge of the physical connections and/or cause effect relationships between the PRM system and the following systems: Those systems served by PRMs

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**Question Worksheet**


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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	2	_____
	Group #	1	_____
	K/A #	073	A4.02
	Importance	3.7	3.7

**Proposed Question:**

Which of the following is the minimum action(s) necessary to defeat CVI actuation due to a high radiation signal from Containment Exhaust Radiation Monitor RM-44A?

- A. Place the CVI selector switch in MODE 6.
- B. Place the ENABLE/BYPASS for RM-44A in BYPASS.
- C. Place the ENABLE/BYPASS for RM-44A in BYPASS and CVI selector switch in MODE 6.
- D. Place the CVI selector switch in MODE 6 and open breaker PJRM-11 on 1G.

Proposed Answer:

- B. Placing the ENABLE/BYPASS for RM-44A in BYPASS.

Explanation:

- A incorrect, CVI selector defeats SSPS input.
- B correct, in BYPASS, CVI due to high radiation is defeated.
- C incorrect, CVI selector defeats SSPS input.
- D incorrect, not necessary to de energize the monitor.

Technical Reference(s): G4B – Digital Radiation Monitoring System

Proposed references to be provided to applicants during examination: none

Learning Objective: 3279 - Explain the operation of Digital Radiation Monitoring System controls in control room.

Question Source:

New X

Question History: Last NRC Exam N/A

Question Cognitive Level:

Memory or Fundamental Knowledge	X
Comprehension or Analysis	_____

10 CFR Part 55 Content: 55.41 41.11  
55.43 \_\_\_\_\_

Comments:

K/A: 073 A4.02 - Ability to manually operate and/or monitor in the control room:  
Radiation monitoring system control panel

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**Question Worksheet**


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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	2	_____
	Group #	1	_____
	K/A #	076	K3.05
	Importance	3.0*	3.2*

**Proposed Question:****PLANT CONDITIONS:**

- RHR cooldown initiated using RHR pump 1-1 and 1-1 heat exchanger
- RHR flow is 3000 gpm
- A cooldown rate of 30 °F/hr has been established

Which of the following failures will cause the cooldown rate to decrease?

- Loss of Aux Saltwater.
- Loss of power to FCV-641A (RHR Pump Recirc valve).
- Loss of control air to HCV-133 (RHR HX Outlet to CVCS control valve).
- Maximum control air signal is applied to HCV-670 (RHR HX Bypass FCV).

Proposed Answer:

- Loss of Aux Saltwater.

Explanation:

A, correct, results in less cooling to the CCW heat exchanger which will lead to less cooling for RHR heat exchanger.

B incorrect, loss of power to the recirc valve (MOV) will result in the valve maintaining its current position.

C incorrect, valve fails closed on loss of air but will have no effect on cooldown rate.

D incorrect, valve will close, all flow thru the heat exchanger, cooldown will increase.

Technical Reference(s): B-2, RHR, pages 1-5, 2-30, 2-38

Proposed references to be provided to applicants during examination: None

Learning Objective: 7009 – Analyze the control logic for RHR system valves.  
8089 - Analyze control logic for CCW components.

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Question Source:

Modified Bank # INPO 20643

Question History: Last NRC Exam Kewaunee 09/2002

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

10 CFR Part 55 Content: 55.41 41.4  
55.43 \_\_\_\_\_

Comments:

076 K3.05 - Knowledge of the effect that a loss or malfunction of the SWS will have on the following: RHR components, controls, sensors, indicators, and alarms, including rad monitors

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**Question Worksheet**


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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	2	_____
	Group #	1	_____
	K/A #	078	K4.01
	Importance	2.7	2.9

**Proposed Question:**

Unit 1 was at 100% power when a total loss of instrument air occurred.

What must be done so that the 10% steam dumps can be controlled, and what is the source of control pressure to operate the valves?

- A. Cut in toggle switch on VB-3, control is via backup nitrogen.
- B. Leave Hagan controller in auto, control is via backup nitrogen.
- C. Leave Hagan controller in auto, control is via backup air bottles.
- D. Place Hagan controller in manual, control is via backup air bottles.

Proposed Answer:

- B. Leave Hagan controller in auto, control is via backup nitrogen.

Explanation:

A incorrect, cutout switch associated with backup air.

B correct, nitrogen will operate the valves as pressure decreases below 85 psig.

C incorrect, backup air bottles operate if pressure decreases below 80 psig (once nitrogen depleted).

D incorrect, backup air will not be used at this time.

Technical Reference(s): C2B – Steam Dump System page 2.1-14

Proposed references to be provided to applicants during examination: none

Learning Objective: 8042 - Explain physical connections and/or cause effect relationships between the Steam Dump System and other systems.

Question Source: Bank # INPO 22521

Question History: Last NRC Exam DCPD 10/2002

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

10 CFR Part 55 Content: 55.41 41.7  
55.43 \_\_\_\_\_

Comments: K/A: 078 K4.01 - Knowledge of IAS design feature(s) and/or interlock(s) which provide for the following: Manual/automatic transfers of control

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**Question Worksheet**


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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	2	_____
	Group #	1	_____
	K/A #	103 A2.03	
	Importance	3.5*	3.8*

**Proposed Question:**

The following events have occurred:

- Unit 1 tripped from full power and Safety Injection actuated.
- Both Main Feedwater pump turbines are tripped.
- Feedwater Isolation valves are closed due to automatic action.

You are performing the actions of Appendix E, ESF Auto Actions, Secondary and Auxiliaries Status.

At step 2, Verify Containment Isolation Phase A, you note that one Red light is lit, the other is out and approximately half the White lights are lit.

Which of the following describes the probable failure and action necessary to address the failure?

- A. The train of SI with the Red light lit failed to actuate. Manually actuate SI or manually complete the Phase A isolation.
- B. The train of SI with the Red light out failed to actuate. Manually actuate SI or manually complete the Phase A isolation.
- C. The train of Phase A with the Red light lit failed to actuate. Manually actuate Containment Isolation Phase A or manually complete the Phase A isolation.
- D. The train of Phase A with the Red light out failed to actuate. Manually actuate Containment Isolation Phase A or manually complete the Phase A isolation.

Proposed Answer:

- D. The train of Phase A with the Red light out failed to actuate. Manually actuate Containment Isolation Phase A or manually complete the Phase A isolation.

Explanation:

A incorrect, because both MFPs are tripped and FW Isolation valves closed, both trains of SI have actuated.

B incorrect, because both MFPs are tripped and FW Isolation valves closed, both trains of SI have actuated.

C incorrect, Red light lit indicates that train has actuated.

D correct, the light out indicates that train has failed to actuate. The action is to actuate CI Phase A or manually close valves with white lights lit.

Technical Reference(s):

E-0, Appendix E

B6A, ESFAS pages 2.2-17 and 2.2-36

Proposed references to be provided to applicants during examination: none

Learning Objective: 4006 – Explain the conditions that affect Monitor Light Box lights.

Question Source:

New X

Question History:

Last NRC Exam N/A

Question Cognitive Level:

Memory or Fundamental Knowledge \_\_\_\_\_  
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 41.7  
55.43

Comments:

K/A: 103 A2.03 - Ability to (a) predict the impacts of the following malfunctions or operations on the containment system and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Phase A and B isolation

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**Question Worksheet**


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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	2	_____
	Group #	2	_____
	K/A #	001	K6.13
	Importance Rating	3.6*	3.7*

**Proposed Question:**

The DRPI Accuracy Mode Switch is in the "A + B" position. Indicated Control Bank D rod position on VB-2 is 24 steps.

Which of the following states what indicated rod position on VB-2 will be if the Accuracy Mode switch is taken to "Data A only" or "Data B only" positions?

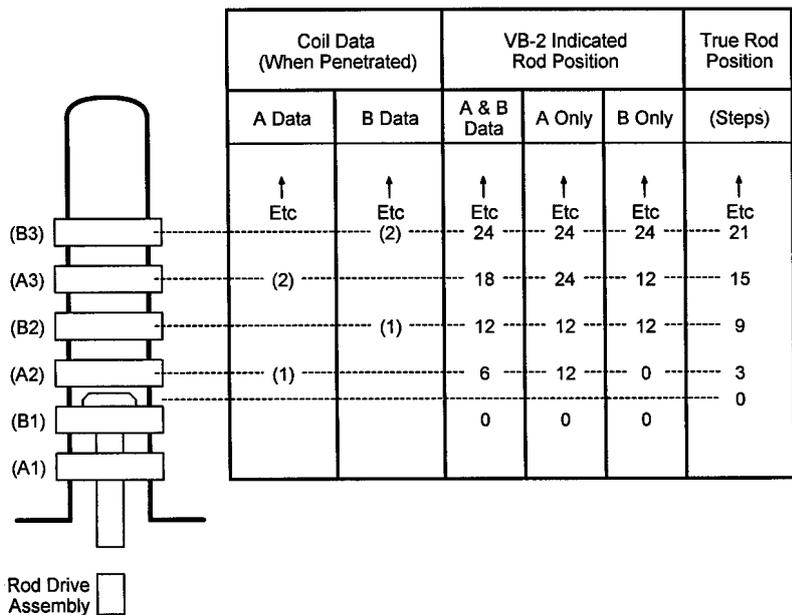
	<b>Switch in "Data A only" Indication on VB-2 is:</b>	<b>Switch in "Data B only" Indication on VB-2 is:</b>
A.	18 steps	18 steps
B.	18 steps	30 steps
C.	24 steps	24 steps
D.	30 steps	18 steps

Proposed Answer:

C. 24 steps 24 steps

Explanation: The resolution of the detector is six steps (3.75 inches).

The tables below describe how detector accuracy is obtained for various detector configurations.



Technical Reference(s): System text Digital Rod Position Indication System.  
 Vision questions S-0879 and S-0880

Proposed references to be provided to applicants during examination: None

Learning Objective: 4913 – Explain the operation of DRPI

Question Source:

Modified Bank # S-0879 and S-0880 (attached)  
 New \_\_\_\_\_

Question History:

Last NRC Exam: N/A

Question Cognitive Level: Memory or Fundamental Knowledge  
 Comprehension or Analysis

X

10 CFR Part 55 Content: 55.41 41.6  
 55.43 \_\_\_\_\_

Comments:

K/A: 001 K6.13 – Knowledge of the effect of a loss or malfunction on the following  
 CRDS components: Location and operation of RPIS

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### Question Worksheet

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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	2	_____
	Group #	2	_____
	K/A #	014	A4.004
	Importance Rating	2.7	2.7

#### Proposed Question:

#### PLANT CONDITIONS:

- A Unit 1 startup is in progress following a reactor trip.
- All equipment is operable.
- The crew is placing Rod Control in service.

The operator takes the Rod Control Startup Reset switch to RESET to zero the Group Step Demand counters.

What additional change(s) should occur as a result of going to RESET?

- A. Indicated Rod Speed goes to approximately 48 spm.
- B. PK03-17, Rod Cont Urgent Failure annunciator clears.
- C. PK03-21, DRPI Failure/Rod Bottom annunciator clears.
- D. Indicated Rod Speed goes to approximately 48 spm, PK03-17, Rod Cont Urgent Failure annunciator clears and PK03-21, DRPI Failure/Rod Bottom annunciator clears.

#### Proposed Answer:

- B. PK03-17, Rod Cont Urgent Failure annunciator clears.

#### Explanation:

A incorrect, rod speed goes to 48 spm when rods are placed in Manual.

B correct, the Urgent Failure alarms clears due to the reset.

C incorrect, rods are still on the bottom. The alarms clears during control bank withdrawal.

D incorrect, only the urgent failure alarm clears.

Technical Reference(s): A3A, Rod Control System, page 3-5

Proposed references to be provided to applicants during examination: None

Learning Objective: 9917 - Explain the operation of ROD CONTROL system

Question Source:

Modified Bank #  
New X

Question History: Last NRC Exam: N/A

Question Cognitive Level: Memory or Fundamental Knowledge X  
Comprehension or Analysis

10 CFR Part 55 Content: 55.41 41.6  
55.43 \_\_\_\_\_

Comments: Resampled KA. Original KA selected (A4.03) is not applicable. Randomly selected from KA's 014 A4.01, A4.02 and A4.04.

K/A: 014 A4.04 Ability to manually operate and/or monitor in the control room: Re-zeroing of rod position prior to startup

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### Question Worksheet

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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	2	_____
	Group #	1	_____
	K/A #	016	K3.01
	Importance	3.4*	3.6*

#### Proposed Question:

Which of the following events would cause Tave to decrease approximately 4°F?

- A. Power is reduced from 100% to 90% maintaining Tave on program.
- B. 10% atmospheric steam dump valve fails open at 100% power, EOL, all rods out.
- C. At 1% power, in a normal startup lineup, Main Steam pressure transmitter, PT-507 fails high. (No operator action)
- D. At 100% power, with control systems in AUTO, Turbine Impulse pressure transmitter, PT-505 fails low. (No operator action)

Proposed Answer:

- C. At 1% power, in a normal startup lineup, Main Steam pressure transmitter, PT-507 fails high. (No operator action)

Explanation:

A incorrect, at 100% power, Tave is 572°F. Over all, Tave changes 25°F, or .25°F/%. Therefore a 10% change will cause Tave to decrease 2.5°F.

B incorrect, power will increase approximately 2.5%. Tave will decrease less than 4°F

C correct, PT-507 failing high will cause steam dumps (in steam pressure mode) to fail open. They will close at P-12. Tave will decrease from 547 to 543°F, or 4°F.

D incorrect, PT-505 failing low will cause rods to drive in. Tave will drop but without operator action, will decrease much more than 4°F.

Technical Reference(s): A1 – Reactor Coolant System  
C2B – Steam Dump System

Proposed references to be provided to applicants during examination: none

Learning Objective: 10546, 10549, 10551 - Calculate the following parameters associated with the RCS for various power levels - TH, - TC, - DT, - TAVG, - Pzr Level  
8004 - Analyze Steam Dump System control logic.

Question Source: New X

Question History: Last NRC Exam N/A

Question Cognitive Level:

Memory or Fundamental Knowledge \_\_\_\_\_  
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 41.5  
55.43 \_\_\_\_\_

Comments:

K/A: 016 K3.01 - Knowledge of the effect that a loss or malfunction of the NNIS will have on the following: RCS

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**Question Worksheet**

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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	2	_____
	Group #	2	_____
	K/A #	028	K2.01
	Importance Rating	2.5*	2.8*

**Proposed Question:**

What is the power supply to Hydrogen Recombiner 1-2?

- A. 480V Non-Vital Bus D.
- B. 480V Vital Bus H.
- C. 480V Non-Vital Bus J.
- D. 4160V Vital Bus G.

Proposed Answer:

- B. 480V Vital Bus H.

Explanation:

A incorrect, Bus D is next to the recombiner  
B correct, Recombiner 1-2 is powered from 480V bus H.  
C incorrect, Bus J powers many containment loads  
D incorrect, power supply is 480V.

Technical Reference(s): STG H9, Containment Hydrogen Recombiners page 2-7

Proposed references to be provided to applicants during examination: None

Learning Objective: 3650 - Identify the power supply for the Containment Hydrogen Recombiners

Question Source: New X

Question History: Last NRC Exam: N/A

Question Cognitive Level: Memory or Fundamental Knowledge X

10 CFR Part 55 Content: 55.41 41.7  
55.43 \_\_\_\_\_

Comments: K/A: 028 K2.01 - Knowledge of bus power supplies to the Hydrogen Recombiners

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## Question Worksheet

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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	2	_____
	Group #	2	_____
	K/A #	029	A1.03
	Importance	3.0*	3.3*

### Proposed Question:

An alternate containment purge is being performed on unit 2 in accordance with OP H-4:II, Alternate Method For Purging Containment to reduce radionuclide concentration prior to personnel entry.

The purge should be discontinued when containment pressure reaches which of the following?

- A. 1.2 psig
- B. 0.0 psig
- C. -0.5 psig
- D. -1.0 psig

Proposed Answer:

- B. 0.0 psig

Explanation:

A incorrect, this is the TS limit pressure.

B correct, purge should be stopped at approximately 0.0 psig.

C incorrect, operator is directed not to allow pressure to decrease below -0.3 psig.

D incorrect, this is the TS value.

Technical Reference(s):

OP H-4:II

TS 3.6.4

Proposed references to be provided to applicants during examination: none

Learning Objective: 5129 – State the limits for Containment Purge System

Question Source:

New X

Question History: Last NRC Exam N/A

Question Cognitive Level:

Memory or Fundamental Knowledge X  
Comprehension or Analysis \_\_\_\_\_

10 CFR Part 55 Content: 55.41 41.10  
55.43 \_\_\_\_\_

Comments:

K/A: 029 A1.03 - Ability to predict and/or monitor changes in parameters to prevent exceeding design limits) associated with operating the Containment Purge System controls including: Containment pressure, temperature, and humidity

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**Question Worksheet**

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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	2	_____
	Group #	2	_____
	K/A #	034	G2.4.12
	Importance	3.4	3.9

**Proposed Question:**

**PLANT CONDITIONS:**

- Core offload is in progress
- The manipulator crane is transferring a spent fuel assembly from the reactor vessel to the transfer canal
- The assembly is currently close to the transfer canal.

CVI actuates due to high radiation.

Which of the following describes what should be done with the spent fuel assembly?

- A. Return it to its original core position.
- B. Leave the assembly in the mast of the manipulator crane.
- C. Place the assembly in the containment side upender and lower the upender.
- D. Place the assembly in the containment side upender, lower the upender, and send the assembly into the fuel handling building.

Proposed Answer:

- C. Place the assembly in the containment side upender and lower the upender.

Explanation:

A incorrect, if closer to the core, the fuel assembly is placed any open core position.

B incorrect, this is not an option.

C correct, if close to the upender, AP-21 placed in the upender and lowered.

D incorrect, not a required action.

Technical Reference(s): AP-21, Irradiated Fuel Damage.

Proposed references to be provided to applicants during examination: None

Learning Objective: 6619 Explain the actions for fuel damage, actual or suspected  
ro tier 2 group 2\_61.doc

Question Source: Bank # DCPP P-1729

Question History: Last NRC Exam DCPP RO 10/94

Question Cognitive Level:

Memory or Fundamental Knowledge \_\_\_\_\_  
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 41.13  
55.43 \_\_\_\_\_

Comments:

K/A: 034 G2.4.12 – Fuel Handling Equipment - Knowledge of general operating crew responsibilities during emergency operations.

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**Question Worksheet**


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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	2	_____
	Group #	2	_____
	K/A #	041	A2.02
	Importance	3.6	3.9

**Proposed Question:**

Unit 1 is at 100% power. Control systems are in AUTO. Turbine Feedbacks are in for a planned ramp.

The CO notes that reactor power is beginning to increase. The Aux NO reports a steam dump valve just outside the turbine building appears to be fully open. Initial attempts to isolate the valve have failed.

Which of the following actions would be appropriate?

**Reference Provided**

- A. Reduce power approximately 2.5%. Use procedure OP B-1A:VII, section 6.3 to restore rods to the full out position.
- B. Reduce power approximately 2.5%. Use procedure OP B-1A:VII, section 6.7 to restore rods to the full out position.
- C. Reduce power approximately 4%. Use procedure OP B-1A:VII, section 6.3 to restore rods to the full out position.
- D. Reduce power approximately 4%. Use procedure OP B-1A:VII, section 6.7 to restore rods to the full out position.

Proposed Answer:

- C. Reduce power approximately 4%. Use procedure OP B-1A:VII, section 6.3 to restore rods to the full out position.

Explanation:

A incorrect, the 10% steam dumps are located on the north and south side of containment

B incorrect, the 10% steam dumps are located on the north and south side of containment and 6.7 is not appropriate for the plant conditions.

ro tier 2 group 2\_62.doc

C correct, the 35% steam dump valves (9) are located on the east side of the turbine building. Power will increase approximately 4%. Because RMU is in Auto, section 6.3 is appropriate (as directed by the procedure)

D incorrect, this section is used if not aligned for automatic.

Technical Reference(s):

C-2B, Steam Dump System

OP B-1A:VII, CVCS Makeup Control System Operation.

Proposed references to be provided to applicants during examination: OP B-1A:VII, CVCS Makeup Control System Operation, pages 1, 6, 16.

Learning Objective: 8016 - Identify the location of Steam Dump System equipment outside the control room.

Question Source:

New                      X

Question History:

Last NRC Exam                      \_\_\_\_\_

Question Cognitive Level:

Memory or Fundamental Knowledge                      \_\_\_\_\_  
Comprehension or Analysis                      X

10 CFR Part 55 Content: 55.41 41.5  
55.43

Comments: K/A: 041 A2.02 - Ability to (a) predict the impacts of the following malfunctions or operations on the SDS; and (b) based on those predictions or mitigate the consequences of those malfunctions or operations: Steam valve stuck open

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**Question Worksheet**


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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	2	_____
	Group #	2	_____
	K/A #	068	K4.01
	Importance	3.4	4.1

**Proposed Question:**

How would the liquid radwaste system respond if RE-18, Liquid Radwaste Rad Monitor, alarmed during a discharge of a Floor Drain Receiver?

The following component names apply to this question:

- FCV-647, Filter 0-4 to ASW Overboard or EDRs
  - RCV-18, Liquid Waste to Overboard
  - FCV-477, Filters 04 and 05 outlet to EDRs
  - FCV-720, FDR recirc valve
- A. RCV-18 closes. The running Floor Drain Receiver pump will receive a trip signal.
- B. FCV-720 opens and RCV-18 closes. The tank that is on discharge will swap to recirculation.
- C. FCV-720 opens and FCV-647 closes. The tank that is on discharge will swap to recirculation.
- D. RCV-18 closes and FCV-477 opens. Flow is directed to the Equipment Drain Receiver that is on fill.

Proposed Answer:

- D. RCV-18 closes and FCV-477 opens. Flow is directed to the Equipment Drain Receiver that is on fill.

Explanation:

A incorrect, RCV-18 closes, but the pump does not trip.

B incorrect, FCV-720 is not affected by RE-18.

C incorrect, neither action occurs.

D correct, the discharge terminates (RCV-18 closes) and it is directed to the EDR inlet header (FCV-477)

Technical Reference(s): G1 – Liquid Radwaste System  
ro tier 2 group 2\_63.doc

Proposed references to be provided to applicants during examination: none

Learning Objective: 8442 Explain automatic actions associated with Liquid Rad Waste system valve

Question Source: Bank # DCPP A-0542

Question History: Last NRC Exam N/A

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

10 CFR Part 55 Content: 55.41 41.13  
55.43 \_\_\_\_\_

Comments:

K/A: 068 K4.01 Knowledge of design feature(s) and/or interlock(s) which provide for the following: Safety and environmental precautions for handling hot, acidic, and radioactive liquids

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### Question Worksheet

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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	2	_____
	Group #	2	_____
	K/A #	072	K5.02
	Importance	2.5	3.2

#### Proposed Question:

Health Physics is about to transfer a small spherical radioactive source through the Auxiliary Building. The source measures 1000 mrem/hr gamma at 6 inches. The transport route of the source will take it 5 feet away from an Area Radiation Monitoring System (ARMS) detector.

Which of the following describes the maximum radiation (due to the source) shown on the ARMS indicator?

- A. 10.0 mrem/hr.
- B. 40.0 mrem/hr.
- C. 100.0 mrem/hr.
- D. 200.0 mrem/hr.

Proposed Answer:

- A. 10.0 mrem/hr.

Explanation:

A correct, Dose = DR x  $(d_1/d_2)^2$

Dose = 1000 mr/hr  $(.5/5)^2$

Dose = 10.0 mrem

B incorrect, this was correct answer when given on previous exam (but increased by a factor of 10)

C incorrect, if the result of  $(0.5/5)$  is not squared.

D incorrect, if  $100/5$ .

Technical Reference(s): NM-10, RP for Non-Licensed Operators

Proposed references to be provided to applicants during examination: none

Learning Objective: 72414 - Given a dose rate from a point source at a given distance, estimate the dose rate at multiples of fractions of that distance time (within one order of magnitude)

Question Source: Modified Bank # INPO 22492

Question History: Last NRC Exam DCPD 10/2002

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

10 CFR Part 55 Content: 55.41 41.5  
55.43 \_\_\_\_\_

Comments: K/A: 072 K5.02 - Knowledge of the operational implications of the following concepts as they apply to the ARM system: Radiation intensity changes with source distance

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**Question Worksheet**

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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	2	_____
	Group #	2	_____
	K/A #	075	K1.08
	Importance	3.2*	3.2*

**Proposed Question:**

When, if at all, would it be appropriate to cross-tie the ASW and Circ Water bays?

- A. Never. Due to the PRA importance of the ASW system, it should not be cross-tied with other non-safety systems.
- B. If Chlorine injection into the ASW system is necessary.
- C. If the ASW pumps are losing suction.
- D. If there is a Tsunami warning.

Proposed Answer:

- C. If the ASW pumps are losing suction.

Explanation:

A incorrect, although important to PRA, ASW may be crossed tied if ASW bay level is low and the pumps are losing suction.

B incorrect, Chlorination is to both the Circ Water and ASW bays.

C correct, if the bay level is low and the pumps are losing suction (or cavitating), cross-tying maybe appropriate if the Circ Water screens are less affected.

D incorrect, both bays would be affected.

Technical Reference(s):

AR PK01-03, Aux Saltwater Pumps (rev 13)

AP-10 pages 2, 3 (rev 8)

Proposed references to be provided to applicants during examination: none

Learning Objective: 3547 - Describe the actions to be taken in the event the ASW screens cannot be unclogged

Question Source:

New X

Question History:

Last NRC Exam N/A

Question Cognitive Level:

Memory or Fundamental Knowledge X  
Comprehension or Analysis \_\_\_\_\_

10 CFR Part 55 Content: 55.41 41.4  
55.43 \_\_\_\_\_

Comments:

K/A: 075 K1.08 - Knowledge of the physical connections and/or causeeffect relationships between the circulating water system and the following systems: Emergency/essential SWS

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**Question Worksheet**


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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	3	_____
	Group #	1	_____
	K/A #	G2.1.10	
	Importance	2.7	3.9

**Proposed Question:**

Which of the following conditions, by itself, would be a violation of the Facility Operating License for Unit 1?

- A. 101% indicated NI power.
- B. Calculated power of 3415 MWth.
- C. Performing a power ascension at greater than 5%/hour.
- D. Performing a plant shutdown in accordance with Technical Specification 3.0.3.

Proposed Answer:

- B. Calculated power of 3415 MWth.

Explanation:

A incorrect, 101% NI does not necessarily correlate to power in excess of RTP.

B correct, as a condition of the operating license, PG&E can operate the unit not in excess of 3411MWth.

C incorrect, this would violate fuel conditioning guidelines but not the Facility License.

D incorrect, a shutdown in accordance with TS is operating the plant within TS as specified in the license.

Technical Reference(s):

Facility Operating License, Units 1 and 2.

Proposed references to be provided to applicants during examination: none

Learning Objective: 9666 - Identify the operating license contents.

Question Source:

New            X

Question History:            Last NRC Exam            \_\_\_\_\_

ro tier 3 group 1\_66.doc

Question Cognitive Level:

Memory or Fundamental Knowledge  
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 41.10  
55.43

Comments:

K/A: G2.1.10 – Knowledge of conditions and limitations in the facility license.

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## Question Worksheet

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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	3	_____
	Group #	1	_____
	K/A #	G2.1.21	
	Importance	3.1	3.2

### Proposed Question:

You have been given a procedure to perform work.

You notice that the procedure was ~~been~~ "issued for use" 4 days ago.

Which one of the following actions, if any, is necessary prior to beginning the work?

- A. Revalidate the procedure using the Procedure Navigator.
- B. The current procedure cannot be used, get the procedure reissued.
- C. Check the copy you have has a signature on the front page and the number of pages and attachments match with another copy of the procedure.
- D. Once the procedure has been "issued for use", no action is necessary prior to beginning the work.

Proposed Answer:

- A. Revalidate the procedure using the Procedure Navigator.

Explanation:

A correct, Immediately prior to initially starting a job (i.e., within the shift), issue the procedure for use (see below instructions) or revalidate it if already issued for use. To revalidate procedures, use the Procedure Navigator procedure properties or list of recently revised procedures.

B incorrect, reissuing is not necessary.

C incorrect, This is part of issuing the procedure for use.

D incorrect, validation is required each shift.

Technical Reference(s):

AD1.ID1 R13, Procedure Use and Adherence

Proposed references to be provided to applicants during examination: none

Learning Objective: 9798 – State requirements for procedure deviation.

Question Source: Bank #  
Modified Bank # DCPP N-72598  
New \_\_\_\_\_

Question History: Last NRC Exam N/A

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

10 CFR Part 55 Content: 55.41 41.10  
55.43 \_\_\_\_\_

Comments:

K/A: G2.1.21 – Ability to obtain and verify controlled procedure copy.

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**Question Worksheet**


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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	3	_____
	Group #	1	_____
	K/A #	G2.1.29	
	Importance	3.4	3.3

**Proposed Question:**

Which of the following is the proper method for independently verifying the position of a normally SEALED CLOSED manual valve?

- A. Visually check the position of the valve stem to verify the valve position.
- B. Remove the seal and attempt to move the operator in the open direction, close and reseal.
- C. Check the sealed component checklist binder to determine if the valve has been opened.
- D. Remove the seal, move the valve in the closed direction without using excessive force then reseal.

**Proposed Answer:**

- D. Remove the seal, move the valve in the closed direction enough to verify stem movement, return valve to original position and seal.

**Explanation:**

A incorrect, visual verification may be made on a throttle valve if other indications are unavailable

B incorrect, valve is not moved in the closed direction.

C incorrect, seal must be removed and position verified.

D correct, to verify the valve open:

1. Compare the component tag number with the implementing document.
2. Physically verify the valve position by checking the valve open.
  - Move the valve in closed direction without using excessive force.

Sealed or locked valves shall be verified with the sealing or locking devices removed.

Technical Reference(s): OP1.DC2 page 6 of 9

Proposed references to be provided to applicants during examination: none  
ro tier 3 group 1\_68.doc

Learning Objective: 7912 – Explain actions to take when performing an alignment on valves based on their position

Question Source: Bank # DCPP P-1544

Question History: Last NRC Exam STP 11/94

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

10 CFR Part 55 Content: 55.41 41.10  
55.43 \_\_\_\_\_

Comments:

K/A: G2.1.29 - Knowledge of how to conduct and verify valve lineups.

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### Question Worksheet

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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	3	_____
	Group #	2	_____
	K/A #	G2.2.28	
	Importance	2.6	3.5

**Proposed Question:**

OP B-8H, Non-Refueling Fuel Handling Instructions, states that the new fuel elevator is normally used only for lowering new fuel assemblies into the SFP.

An exception is to raise a new fuel assembly out of the spent fuel pool.

Whose approval is necessary to perform this exception?

- A. Shift Manager
- B. Fuel Handling Supervisor
- C. Radiation Protection Foreman
- D. Station Director or his delegate

Proposed Answer:

- D. Station Director or his delegate

Explanation:

A incorrect, SFM responsible operation of the plant and plant equipment needed to support the fuel movements and the proper logging of the movements in the Operations Shift Log.

B incorrect, FHS responsible for supervision of fuel or load handling operations, response to high radiation or other emergency conditions and communications with the Control Room.

C incorrect, RP responsible for RP support whenever personnel are removing equipment from the SFP water.

D correct, per caution in procedure, The new fuel elevator is normally used only for lowering new fuel assemblies into the SFP. The exceptions to this are for movement of the dummy fuel assembly, raising a new fuel assembly out of the SFP or for fuel repair. These exceptions require prior permission of the Station Director or his delegate.

Technical Reference(s): OP B-8H page 3 of 8  
ro tier 3 group 2\_69.doc

Proposed references to be provided to applicants during examination: none

Learning Objective: 4501 - Explain the operation of NEW FUEL ELEVATOR

Question Source:

New X

Question History: Last NRC Exam N/A

Question Cognitive Level:

Memory or Fundamental Knowledge X  
Comprehension or Analysis \_\_\_\_\_

10 CFR Part 55 Content: 55.41 41.13  
55.43

Comments: K/A: G2.2.28 – Knowledge of new and spent fuel movement procedures.

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**Question Worksheet**


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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	3	_____
	Group #	2	_____
	K/A #	G2.2.33	
	Importance	2.5	2.9

**Proposed Question:**

Unit 2 is performing a plant shutdown and driving in the control banks.

As the rods are inserted, at what point will the Control Bank A rods begin to insert?

Note: Overlap thumbwheels are set for 100 steps.

- A. When the 4 Control Bank B rods reach 100 steps.
- B. When the 4 Control Bank B rods reach 128 steps.
- C. When the 8 Control Bank B rods reach 100 steps.
- D. When the 8 Control Bank B rods reach 128 steps.

Proposed Answer:

- C. When the 8 Control Bank B rods reach 100 steps.

Explanation:

A incorrect, there are 8 CBB rods for Unit 2, 4 for Unit 1.

B incorrect, there is 100 steps of overlap for CBB and CBA, therefore, CBA will begin moving at CBB at 100.

C correct, there are 8 CBB rods for Unit 2, 4 for Unit 1 and there is 100 steps of overlap for CBB and CBA, therefore, CBA will begin moving at CBB at 100.

D incorrect, there is 100 steps of overlap for CBB and CBA, therefore, CBA will begin moving at CBB at 100.

Technical Reference(s):

STP R-1A, attachment 9.1 and 9.2  
OIM A-3-4

Proposed references to be provided to applicants during examination: none

Learning Objective: 5038 - Explain the unit differences for the Rod Control system.  
5048 - Explain the operation of the Bank Overlap Unit.

Question Source:

New X

Question History: Last NRC Exam N/A

Question Cognitive Level:

Memory or Fundamental Knowledge  
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 41.6  
55.43

Comments: Unit difference.

K/A: G2.2.33 – Knowledge of control rod programming.

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### Question Worksheet

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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	3	_____
	Group #	3	_____
	K/A #	G2.3.1	
	Importance	2.6	3.0

#### **Proposed Question:**

The 10CFR20 limit for radiation exposure to the lens of the eye is:

- A. 5 rem/year
- B. 15 rem/year
- C. 50 rem/year
- D. 75 rem/year

Proposed Answer:

- B. 15 rem/year

Explanation:

- A incorrect, this includes the federal limit (5 rem TEDE)
- B correct, this is the federal limit
- C incorrect, this is the SDE
- D incorrect, this is the lifetime LDE.

Technical Reference(s): EP RB-2, DCPP Emergency Exposure Guidelines

Proposed references to be provided to applicants during examination: none

Learning Objective: 71145 - STATE the 10CFR20 radiation dose limits for TEDE, skin, extremities, lense of the eye, individual organs, the embryo/fetus and a member of the public

Question Source: Bank # DCPP P-69975

Question History: Last NRC Exam none

Question Cognitive Level:

Memory or Fundamental Knowledge	X
Comprehension or Analysis	_____

10 CFR Part 55 Content: 55.41 41.12  
55.43 43.4

Comments:

K/A: G2.3.1 - Knowledge of 10 CFR: 20 and related facility radiation control requirements.

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**Question Worksheet**


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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	3	_____
	Group #	3	_____
	K/A #	G2.3.2	
	Importance	2.5	2.9

**Proposed Question:**

The Total Effective Dose Equivalent (TEDE) is defined as:

- A. The sum of the Total Organ Dose Equivalent (TODE) and the Shallow Dose Equivalent (SDE)
- B. The sum of the Deep Dose Equivalent (DDE) and the Committed Dose Equivalent (CDE)
- C. The sum of the Deep Dose Equivalent (DDE) and the Committed Effective Dose Equivalent (CEDE)
- D. The sum of the Total Organ Dose Equivalent (TODE) and the Committed Effective Dose Equivalent (CEDE)

Proposed Answer:

- C. The sum of the Deep Dose Equivalent (DDE) and the Committed Effective Dose Equivalent (CEDE)

Explanation:

A incorrect, does not use TODE or SDE

B incorrect, TODE = The summed total of the DDE (external whole body exposure) and the CDE (internal dose to the organs or tissues from internal exposure from non-stochastic ALI), when CDE is not zero.

C correct, TEDE = The sum of the DDE (for external exposures) and the CEDE (for internal exposures).

D incorrect, does not use TODE

Technical Reference(s): LEP3, EP RB PROCEDURES

Proposed references to be provided to applicants during examination: none  
ro tier 3 group 3\_72.doc

Learning Objective:

71144 - DEFINE the following:

- a. CDE
- b. CEDE
- c. DDE
- d. LDE
- e. SDE
- f. TEDE
- g. Total Organ Dose Equivalent
- h. Declared Pregnant Female
- i. Restricted Area

Question Source: Bank # P-69970

Question History: Last NRC Exam N/A

Question Cognitive Level:

Memory or Fundamental Knowledge	X
Comprehension or Analysis	_____

10 CFR Part 55 Content: 55.41 41.12  
55.43 43.4

Comments: K/A: G2.3.2 – Knowledge of facility ALARA program.

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**Question Worksheet**


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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	3	_____
	Group #	3	_____
	K/A #	G2.3.4	
	Importance	2.5	3.1

**Proposed Question:**

An operator has a Total Effective Dose Equivalent (TEDE) of 4 REM for the current year.

He has been approved to exceed the Administrative Guideline.

Which of the following is the longest the operator can stay in a 100 mR/hr radiation area without exceeding the DCPD Administrative Exposure Limit for the year?

- A. None, the Administrative Guideline limit and Administrative Exposure Limit for a year are the same.
- B. 1 hour
- C. 5 hours
- D. 10 hours

Proposed Answer:

- C. 5 hours

Explanation:

DCPD limit is 10% below federal limit – 4.5 rem. Max stay time is 5 hours.

A incorrect, maximum permissible is 4.5 rem.

B incorrect, this would still be under to the limit.

C correct, exposure would be 4.5 rem – the DCPD exposure limit.

D incorrect, this would be 5.0 rem.

Technical Reference(s):

Student handout for Radiation Worker Training – page 45 (rev 1/02)

Proposed references to be provided to applicants during examination: none

Learning Objective: State the DCPD exposure limits and guidelines (including declared pregnant female).

Question Source:

Modified Bank # INPO 22396

Question History:

Last NRC Exam

DCPD 10/02

Question Cognitive Level:

Memory or Fundamental Knowledge

Comprehension or Analysis

      
X

10 CFR Part 55 Content: 55.41 41.12  
55.43

Comments:

K/A: G2.3.4 - Knowledge of radiation exposure limits and contamination control, including permissible levels in excess of those authorized.

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**Question Worksheet**

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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	3	_____
	Group #	4	_____
	K/A #	G2.4.12	
	Importance	3.4	3.9

**Proposed Question:**

A LOCA has occurred on Unit 2.

The crew is reviewing the foldout page as part of a procedure transition tailboard.

As a minimum, what amount of repeat back is required by an operator who is assigned a foldout page item to monitor?

- A. The high level action.
- B. Simple acknowledgement of the assignment.
- C. A brief summary of the action and the parameters to monitor.
- D. The high level action and the specific parameters and values to monitor.

Proposed Answer:

- A. The high level action.

Explanation:

A correct, per OP1.DC11 page 10 (rev 24)... foldout page should be reviewed with the crew as a part of the procedure transition tailboard. Specific assignments should be made to appropriate control room operators by assigning the foldout page number and the operator repeating back the high level action. Specific parameters and values are not required to be repeated back. A copy of the foldout page should be given to any operator with an assignment.

B incorrect, repeat high level action.

C incorrect, repeat back the high level action.

D incorrect, specific parameters etc not required.

Technical Reference(s): OP1.DC11 - Conduct of Operations - Abnormal Plant Conditions



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**Question Worksheet**


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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	3	_____
	Group #	4	_____
	K/A #	G2.4.45	
	Importance	3.3	3.6

**Proposed Question:**

The crew has entered E-0, Reactor Trip or Safety Injection. SI has actuated. Immediate actions are complete.

Which of the following alarms should be brought to the attention of the SFM as soon as it is received and reviewed by the operator?

- A. AR PK09-11, Feedwater Isolation
- B. AR PK09-12, Main Feedwater Pump Trip (RED)
- C. AR PK09-18, Turbine Driven Aux FW Pp
- D. AR PK12-13, AMSAC Tripped

Proposed Answer:

- C. AR PK09-18, Turbine Driven Aux FW Pp

Explanation:

OP1.DC11 states: All alarms received in the control room shall be reviewed for significance. Significant alarms received during the use of AOPs and EOPs shall be brought to the attention of the SFM by the person acknowledging the alarm.

A incorrect, expected alarm.

B incorrect, expected alarm.

C correct, alarm signals trouble with a running AFW pump.

D incorrect, expected alarm.

Proposed references to be provided to applicants during examination: none

Learning Objective: 7951 - Explain the duties on a reactor trip

Technical Reference(s):

OP1.DC11 – Conduct of Operations – Abnormal Plant Conditions

AR PK12-13

AR PK09-18

AR PK09-12

AR PK09-11

Question Source:

New X

Question History: Last NRC Exam N/A

Question Cognitive Level:

Memory or Fundamental Knowledge \_\_\_\_\_  
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 41.10  
55.43

Comments:

K/A: G2.4.45 - Ability to prioritize and interpret the significance of each annunciator or alarm.

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**Question Worksheet**


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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	_____	1
	Group #	_____	1
	K/A #	EPE 011 G2.2.25	
	Importance		3.7

**Proposed Question:**

Technical Specification 3.5.1, Accumulators, applies until the plant is in MODE 3, less than 1000 psig.

Why are the Accumulators allowed to be removed from service below 1000 psig?

- A. Nitrogen injection is a larger risk.
- B. Accumulators are no longer necessary for long term cooling.
- C. The probability of a large LOCA with a blowdown phase is sufficiently low.
- D. ECCS injection is sufficient to ensure peak clad temperature remains below 2200°F.

Proposed Answer:

- D. ECCS injection is sufficient to ensure peak clad temperature remains below 2200°F.

Explanation:

A incorrect, this is why Accumulators are isolated in many EOPs.

B incorrect, Accumulators are not credited for long term cooling.

C incorrect, a large LOCA will still have a blowdown phase.

D correct, below 1000 psig, ECCS injection is sufficient to maintain core cooling.

Technical Reference(s):

B 3.5.1 – Accumulators Bases

TS 3.5.1 - Accumulators

Proposed references to be provided to applicants during examination: none

Learning Objective: 9694E - Discuss Technical Specification Bases.

Question Source:

New X

Question History: Last NRC Exam N/A  
Question Cognitive Level: Memory or Fundamental Knowledge X  
Comprehension or Analysis

10 CFR Part 55 Content: 55.41 \_\_\_\_\_  
55.43 43.2

Comments:

K/A: EPE 01 1 G2.2.25 – Large Break LOCA, Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.

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**Question Worksheet**


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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	_____	1
	Group #	_____	1
	K/A #	APE 022 G2.1.33	
	Importance		4.0

**Proposed Question:****PLANT CONDITIONS:**

- Unit 1 is in MODE 6.
- The crew is preparing to fill the refueling cavity to the 140' elevation from the RWST
- Both Boric Acid Storage Tanks are inoperable

As a minimum, what must the level in the RWST (in whole %) be to allow the filling of the refueling cavity and not violate ECGs?

**Reference Provided**

- A. 45%
- B. 74%
- C. 85%
- D. 96%

Proposed Answer:

- C. 85%

**Explanation:**

A incorrect, this is what would be required to fill the cavity to 23 feet above the fuel.

B incorrect, neglects the 50,000 gallons required for the RWST to be operable for ECG 8.8.

C correct, required volume is 365,119 gallons (74%) plus 50,000 gallons to have the RWST operable for ECG 8.8. This brings the required volume to 415,119 gallons (85% - 415,963 gallons).

D incorrect, use of the SI pump is allowable in MODE 6.

Technical Reference(s):

ECG 8.8, Reactivity Control Systems – Borated Water Source – Shutdown Refueling Water Storage Tank Percent Indicated Vs. Volume, Page IE-9.2b  
Refueling Canal, Page I.E.-19.10.b.

Proposed references to be provided to applicants during examination:

ECG 8.8, Reactivity Control Systems – Borated Water Source – Shutdown Refueling Water Storage Tank Percent Indicated Vs. Volume, Page IE-9.2b  
Refueling Canal, Page I.E.-19.10.b.

Learning Objective: 66041 - Discuss the requirements of System 8 ECGs

Question Source:

New X

Question History: Last NRC Exam N/A

Question Cognitive Level:

Memory or Fundamental Knowledge \_\_\_\_\_  
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 \_\_\_\_\_  
55.43 43.2/43.3

Comments:

K/A: APE 022 G2.1.33 - Loss of Reactor Coolant Makeup - Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications.

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**Question Worksheet**


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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	_____	1
	Group #	_____	1
	K/A #	APE 025 AA2.02	
	Importance		3.8

**Proposed Question:****PLANT CONDITIONS:**

- Unit 1 is in MODE 5.
- RHR pump 1-1 is in service.

PK11-21, High Radiation alarms. A few minutes later, PK02-16, RHR System and PK02-17 RHR Pumps also go into alarm.

Which of the following procedures should the SFM utilize to address the current plant conditions?

- A. AP-1, Excessive Reactor Coolant System Leakage.
- B. AP-16, Malfunction of the RHR System.
- C. AP-24, Shutdown LOCA.
- D. AP SD-2, Loss of RCS Inventory.

Proposed Answer:

- D. AP SD-2, Loss of RCS Inventory.

Explanation:

A incorrect, not appropriate in MODE 5 (applies in MODEs 1 - 4).

B incorrect, not applicable in MODE 5 or appropriate if there is a loss of RCS inventory.

C incorrect, not applicable in MODE 5.

D correct, this is the procedure to use for loss of RCS inventory in MODE 5.

Technical Reference(s):

PK02-16, PK02-17, PK11-21

OP AP-24, OP AP SD-2, OP AP -1, OP AP-16

Proposed references to be provided to applicants during examination: none  
sro tier 1 group 1\_78.doc

Learning Objective: 3478 - State the entry conditions for abnormal operating procedures

Question Source:

New X

Question History: Last NRC Exam N/A

Question Cognitive Level:

Memory or Fundamental Knowledge \_\_\_\_\_  
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 \_\_\_\_\_  
55.43 43.5

Comments:

K/A: APE 025 AA2.02 - Ability to determine and interpret the following as they apply to the Loss of Residual Heat Removal System: Leakage of reactor coolant from RHR into closed cooling water system or into reactor building atmosphere

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**Question Worksheet**


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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	_____	3
	Group #	_____	1
	K/A #	APE 026	AA2.06
	Importance		3.1

**Proposed Question:**

Unit 1 is at full power when the running CCW pumps trip and no other CCW pumps can be started.

Which of the following describes the approximate time limit for establishing backup cooling to one CCP and the concern if it is not established in time?

- A. 1 hour – loss of integrity to RCP seals.
- B. 1 hour – damage to the seals of the CCPs.
- C. 4 hours – loss of integrity to RCP seals.
- D. 4 hours – damage to the seals of the CCPs.

Proposed Answer:

- A. 1 hour – loss of integrity to RCP seals.

Explanation:

A correct, per Appendix C of AP-11, Without either seal injection or thermal barrier cooling the integrity of the RCP seals will be lost in approximately one hour.

B incorrect, the concern is the RCP seal package.

C incorrect, the time is one hour.

D incorrect, the concern is the RCP seal package.

Technical Reference(s): AP-11, appendix C

Proposed references to be provided to applicants during examination: none

Learning Objective:

3502, 3495, 5664 - Explain the alternate cooling lineup for the CCP using fire water and how it affects the CCP cooling operations.

Question Source:

New X

Question History: Last NRC Exam N/A

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

10 CFR Part 55 Content: 55.41 \_\_\_\_\_  
55.43 43.5

Comments:

K/A: APE 026 AA2.06 - Ability to determine and interpret the following as they apply to the Loss of Component Cooling Water: The length of time after the loss of CCW flow to a component before that component may be damaged

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**Question Worksheet**


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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	_____	3
	Group #	_____	1
	K/A #	APE 054 AA2.01	
	Importance		4.4

**Proposed Question:**

While at 45% power, a main feed reg valve failure causes level in one steam generator to rise to 80%.

Which of the following actions should be implemented by the SFM?

- A. Direct the operator to trip the reactor and enter E-0, Reactor Trip or Safety Injection.
- B. Enter AP-25, Rapid Load Reduction.
- C. Enter AP-29, Main Turbine Malfunction.
- D. Enter AP-2, Full Load Rejection.

Proposed Answer:

- A. Direct the operator to trip the reactor and enter E-0, Reactor Trip or Safety Injection.

Explanation:

A correct, exceeding P-14, causes a turbine trip, the running MFP to trip and FWI. The loss of feed will cause levels in the other steam generators to drop, the reactor will have to be tripped.

B incorrect, cannot reduce load, must trip the reactor.

C incorrect, the turbine will trip but the reactor must be tripped.

D incorrect, the turbine trip will cause a loss of load, but the reactor must be tripped.

Technical Reference(s): B-6A, Reactor Protection

Proposed references to be provided to applicants during examination: none

Learning Objective: 7373, 8181, 8182, 3308, 3302, 3301 - State the setpoints for all Reactor Trips, control and protection interlocks and ESFAS actuation signals.

Question Source:

New X

Question History: Last NRC Exam N/A

Question Cognitive Level:

Memory or Fundamental Knowledge \_\_\_\_\_  
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 \_\_\_\_\_  
55.43 43.5

Comments:

K/A: APE 054 AA2.01 - Ability to determine and interpret the following as they apply to the Loss of Main Feedwater (MFW): Occurrence of reactor and/or turbine trip

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**Question Worksheet**


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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	_____	1
	Group #	_____	1
	K/A #	APE 057 AA2.14	
	Importance		3.6

**Proposed Question:**

Unit 1 is at full power.

AR PK19-19, UPS Failure alarms. The CO reports inputs 1503 and 1505 are in.

Which of the following describes the status of inverter 1-4 and the vital AC instrument bus 14?

**Reference Provided**

- A. Both the inverter and the vital AC instrument bus are OPERABLE.
- B. The inverter is OPERABLE; the vital AC instrument bus is inoperable.
- C. The inverter is inoperable; the vital AC instrument bus is OPERABLE.
- D. Both the inverter and vital AC instrument bus are inoperable. The vital AC instrument bus will be OPERABLE if the inverter can be transferred to its backup.

Proposed Answer:

- C. The inverter is inoperable; the vital AC instrument bus is OPERABLE.

Explanation:

A incorrect, for the inverter to be OPERABLE, it must be powered from its normal source or from the DC source.

B incorrect, the inverter has transferred to its backup supply (input 1505), therefore the vital AC instrument bus is OPERABLE.

C correct, the vital instrument bus is powered from a class 1E CVT (backup supply) and OPERABLE, the inverter is inoperable.

D incorrect, the vital AC bus is currently energized.

Technical Reference(s):  
Tech Spec 3.8.7  
Tech Spec Bases B3.8.7  
AR PK19-19

Proposed references to be provided to applicants during examination:  
Tech Spec 3.8.7  
Tech Spec Bases B3.8.7  
AR PK19-19

Learning Objective: 9697 - Identify Technical Specification LCOs

Question Source:

New X

Question History: Last NRC Exam N/A

Question Cognitive Level:

Memory or Fundamental Knowledge \_\_\_\_\_  
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 \_\_\_\_\_  
55.43 43.2

Comments:

K/A: APE 057 AA2.14 - Ability to determine and interpret the following as they apply to  
Loss of Vital AC Instrument Bus: That substitute power sources have come on line  
on a loss of initial ac

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**Question Worksheet**


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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	_____	1
	Group #	_____	2
	K/A #	APE 061 AA2.05	
	Importance		4.2

**Proposed Question:**

During refueling operations, gas bubbles are observed by the refueling crew. RE-2, containment area monitor, has an elevated reading and is in alarm.

After evacuation is completed, re-entry into containment is required to determine the extent of fuel damage.

Radiation Protection has stated that containment area radiation levels are unacceptable for general area occupation, therefore, re-entry into containment is:

- A. permitted via an SWP.
- B. prohibited under any circumstances.
- C. permitted with permission of the Shift Manager.
- D. permitted with permission of the Refueling SRO.

Proposed Answer:

- A. permitted via an SWP.

Explanation:

Per AP-21, Prohibit reentry of personnel to the building until condition becomes acceptable for occupancy as verified by Radiation Protection

– OR –

As permitted and directed by Radiation Protection via an SWP if reentry is required.

Technical Reference(s): OP AP-21

Proposed references to be provided to applicants during examination:

Learning Objective: 6619 - Explain the actions for fuel damage, actual or suspected

Question Source:

sro tier 1 group 2\_82.doc

DCPP R-1068

Question History: Last NRC Exam N/A  
Question Cognitive Level: Memory or Fundamental Knowledge X  
Comprehension or Analysis

10 CFR Part 55 Content: 55.41 \_\_\_\_\_  
55.43 43.4

Comments: unit difference

K/A: APE 061 AA2.05 - Ability to determine and interpret the following as they apply to the Area Radiation Monitoring (ARM) System Alarms: Need for area evacuation; check against existing limits

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### Question Worksheet

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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	_____	1
	Group #	_____	2
	K/A #	W/E02 EA2.1	
	Importance		4.2

#### **Proposed Question:**

A steam break occurs inside containment on Steam Generator 2-2. The crew is performing the steps of E-0, Reactor Trip or Safety Injection.

Current plant conditions:

- Containment pressure – 14 psig (peak at 25 psig)
- Steam Generator 2-2 early isolation performed
- Total AFW throttled to 500 gpm
- RCS pressure – 1850 and increasing
- Steam Generator pressures:
  - 2-1 – 900 psig, stable
  - 2-2 – 0 psig, stable
  - 2-3 and 2-4 – 1000 psig, stable
- Pressurizer Level – 35%, increasing
- RCS Subcooling 50°F

The procedural flowpath should be E-0 to ....

- A. E-1.1
- B. E-2 to E-1.1
- C. FR-Z.1 to E-1.1
- D. FR-Z.1 to E-2 to E-1.1

Proposed Answer:

- B. E-2 to E-1.1

Explanation:

A incorrect, at step 11 of E-0, (No Steam Generator completely depressurized), the crew will be directed to E-2.

B correct, crew will go to E-2, confirm/complete the S/G isolation then go to E-1.1

C incorrect, the condition for transitioning to Z.1 no longer exists.

D incorrect, the condition for transitioning to Z.1 no longer exists.

Technical Reference(s):

E-0, F-0

Proposed references to be provided to applicants during examination: none

Learning Objective: 3552 - Identify entry conditions for the EOPs

Question Source: Bank #  
Modified Bank # DCPP P-51520  
New \_\_\_\_\_

Question History: Last NRC Exam N/A

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

10 CFR Part 55 Content: 55.41 \_\_\_\_\_  
55.43 43.5

Comments:

K/A: W/E02 EA2.1 - Ability to determine and interpret the following as they apply to SI Termination: Facility conditions and selection of appropriate procedures during abnormal and emergency operations.

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**Question Worksheet**


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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	_____	1
	Group #	_____	2
	K/A #	W/E09 EA2.1	
	Importance		3.8

**Proposed Question:**

The following plant conditions exist:

- A loss of offsite power has occurred.
- The crew is performing the actions of E-0.2, Natural Circulation Cooldown.
- Low steamline pressure and low PZR pressure SI signals are blocked.
- RCS pressure is 1850 psig and trending down slowly.
- Pressurizer Level is 55% and increasing slowly
- CST level is 35%
- RCS temperature is 535°F
- The crew performing a cooldown at 25°F per hour.
- RVLIS is unavailable.
- All CRDM fans are running

Based on the current plant conditions, which of the following procedures should the crew be in when the plant reaches cold shutdown?

**Reference Provided**

- A. E-0.2, Natural Circulation Cooldown
- B. E-0.3, Natural Circulation Cooldown With Steam Void in the Vessel (With RVLIS)
- C. E-0.4, Natural Circulation Cooldown With Steam Void in the Vessel (Without RVLIS)
- D. OP L-7, Plant Stabilization Following a Reactor Trip or OP L-5, Plant Cooldown From Minimum Load to Cold Shutdown.

Proposed Answer:

- C. E-0.4, Natural Circulation Cooldown With Steam Void in the Vessel (Without RVLIS)

Explanation:

A incorrect, based on graph IB-3, insufficient CST level means a faster cooldown is needed than is accomplished in E-0.2

B incorrect, RVLIS is not available.

C correct, based on CST level and no RVLIS, crew should go to E-0.4

D incorrect, these are the procedures used if a RCP can be started.

Technical Reference(s):

E-0.2, Natural Circulation Cooldown

Vol 9, Section IF, Figure IB-2, (page IF-2)

Proposed references to be provided to applicants during examination:

Pages IF-1, IF-2, IF-3

Learning Objective: 5433 - Identify exit conditions for the EOPs

Question Source:

New X

Question History: Last NRC Exam N/A

Question Cognitive Level:

Memory or Fundamental Knowledge \_\_\_\_\_  
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 \_\_\_\_\_  
55.43 43.5

Comments: is E-0.2 necessary to answer the question?

K/A: W/E09 EA2.1 - Ability to determine and interpret the following as they apply to Natural Circulation Operations: Facility conditions and selection of appropriate procedures during abnormal and emergency operations.

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**Question Worksheet**


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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	_____	1
	Group #	_____	2
	K/A #	W/E13 G2.4.30	
	Importance		3.6

**Proposed Question:**

The following conditions exist on Unit 1:

- A spurious closure of all MSIVs occurred while operating at 100% power
- The reactor tripped and immediate actions of E-0, "Reactor Trip or Safety Injection" performed
- During the post trip review, it is discovered that an overpressure condition on 13 SG with pressure at 1240 psig existed.
- There is no indication that any of the safeties on the 13 steam generator operated
- All other steam generators and plant safety systems functioned as designed
- During subsequent repairs the unit has been holding in MODE 3 for the past 20 hours

The condition of the 13 steam generator is reportable to the NRC because:

**Reference Provided**

- A. The plant exceeded a safety limit.
- B. A loss of two fission barriers was imminent.
- C. Challenges occurred to the safety valves.
- D. The plant is in a condition prohibited by Technical Specifications.

Proposed Answer:

- D. The plant is in a condition prohibited by Technical Specifications.

Explanation:

A incorrect, the safety limits are RCS pressure and Reactor Core (the combination of THERMAL POWER, Reactor Coolant System (RCS) highest loop average temperature, and pressurizer pressure).

B incorrect, no evidence of a loss of a fission barrier.

C incorrect, the challenge of the safety valves is not the reportable event, the loss of the safety valves is the reportable event.

D correct, steam generator safeties are necessary in MODES 1 thru 3. All safeties are inoperable. The unit should have been in MODE 4 in 12 hours.

Technical Reference(s):

Technical Specification 2.1 and 3.7.1

XI1.ID2, Regulatory Reporting Requirements and Reporting Process, attachment 8.5 page 4 of 8

Proposed references to be provided to applicants during examination:

Technical Specification 2.1 and 3.7.1

Learning Objective: 9697 - Identify Technical Specification LCOs

Question Source: Bank # INPO 21506

Question History: Last NRC Exam Braidwood 7/2002

Question Cognitive Level:

Memory or Fundamental Knowledge \_\_\_\_\_  
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 \_\_\_\_\_  
55.43 43.2

Comments: print TS 3.7.1, 2.1, Eplan G-1 and Reporting Requirements, att. 8.4

K/A: W/E13 G2.4.30 – Steam Generator Overpressure - Knowledge of which events related to system operations/status should be reported to outside agencies.

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### Question Worksheet

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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	_____	2
	Group #	_____	1
	K/A #	003 A2.05	
	Importance		2.8

**Proposed Question:**

The crew is making preparations to start a RCP using Attachment B in E-0.2, "Natural Circulation Cooldown". The CO reports Seal Leakoff flow is low. All other conditions for starting the RCP are met.

Which of the following actions should the SFM direct the operator to perform?

- A. Increase VCT level.
- B. Increase charging flow.
- C. Decrease VCT pressure.
- D. Start the RCP, normal conditions are desired but not required for starting the RCP.

Proposed Answer:

- C. Decrease VCT pressure.

Explanation:

A incorrect, increasing VCT level will increase VCT pressure, which will further decrease seal leakoff flow.

B incorrect, increasing charging will not affect appreciably affect seal leakoff.

C correct, decreasing VCT pressure will decrease the DP and increase seal leakoff flow.

D incorrect, this is not a procedure in which RCPs are started if normal conditions are not met.

Technical Reference(s):

E-0.2, Natural Circulation Cooldown, attachment B, Restart of Reactor Coolant Pump

Proposed references to be provided to applicants during examination: none

Learning Objective: 4892 - State the cause/effect relationship between VCT and RCPs

Question Source:

New X

Question History:

Last NRC Exam N/A

Question Cognitive Level:

Memory or Fundamental Knowledge \_\_\_\_\_  
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 41.5  
55.43 43.5

Comments:

K/A: 003 A2.05 – Reactor Coolant Pump - Ability to (a) predict the impacts of the following malfunctions or operations on the RCPS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Effects of VCT pressure on RCP seal leakoff flows

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**Question Worksheet**


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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	_____	2
	Group #	_____	1
	K/A #	005 G2.4.45	
	Importance		3.6

**Proposed Question:**

The crew is performing the actions of E-1, Loss of Reactor or Secondary Coolant.

PK01-22, RHR SUCT VLV CHMBR LEVEL HI alarms.

Which of the following describes whether or not action should be taken by the crew to investigate the alarm?

- A. Action should be taken. The alarm indicates seat leakage is occurring which could cause the valve(s) to bind when opened.
- B. Action should be taken. The alarm indicates a potential leak, which if left uncorrected could lead to motor damage.
- C. No action necessary. The valves are designed to operate in adverse conditions.
- D. No action necessary. The alarm is expected as water from the containment sump fills the piping up to the valve.

Proposed Answer:

- B. Action should be taken. The alarm indicates a potential leak, which if left uncorrected could lead to motor damage.

Explanation:

A incorrect, this is not an indication of seat leakage.

B correct, If chamber level gets too high, valves 8982A or B may get water into the valve motor and render the valve inoperable.

C incorrect, the valves may not operate in this condition.

D incorrect, if piping is intact, this alarm will not actuate.

Technical Reference(s):

sro tier 2 group 1\_87.doc

PK01-22, RHR SUCT VLV CHMBR LEVEL HI

Proposed references to be provided to applicants during examination: none

Learning Objective: 7036 - State the RHR parameters that produce alarms.

Question Source:

New X

Question History:

Last NRC Exam N/A

Question Cognitive Level:

Memory or Fundamental Knowledge \_\_\_\_\_  
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 \_\_\_\_\_  
55.43 43.5

Comments:

K/A: 005 G2.4.45 - Residual Heat Removal - Ability to prioritize and interpret the significance of each annunciator or alarm.

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**Question Worksheet**


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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	_____	2
	Group #	_____	1
	K/A #	022 A2.04	
	Importance		3.2

**Proposed Question:**

High ocean temperature and fouling of CCW heat exchanger 11 has caused the following conditions to occur on Unit 1:

- PK01-16, CONTMT ENVIRONMENT – PPC is in alarm
- Containment Temperature ;
  - 100 ft elevation between crane wall and containment wall 122 °F
  - 100 ft elevation between S/Gs 117 °F
  - 140 ft elevation 118 °F
  - 184 ft elevation 120 °F
- CFCUs 11, 12, 13 and 15 are running in FAST
- All CRDM fan coolers are running
- Amps on CFCUs 11, 12, and 13 are 330
- Amps on CFCU 15 is 340
- Containment pressure is above the alarm setpoint and is currently 1.0 psig and increasing slowly

Which of the following actions should the SFM direct the operator to perform?

**Reference Provided**

- A. Start CFCU 14 and stop CFCU 15.
- B. Start CFCU 14, and consider venting containment.
- C. Start CFCU 14, reduce containment temperature to less than 120°F within the next 8 hours or be in MODE 3 in the next 6 hours and consider venting containment.
- D. Start CFCU 14, stop CFCU 15, reduce containment temperature to less than 120°F within the next 8 hours or be in MODE 3 in the next 6 hours and consider venting containment.

Proposed Answer:

- B. Start CFCU 14, and consider venting containment.
- sro tier 2 group 1\_88.doc

Explanation:

A incorrect, no guidance to stop CFCU 14.

B correct, CFCU 14 should be started. Containment temperature (average) is less than TS 3.6.5 limit of 120°F. Consideration of venting containment should be considered since amps on CFCU 15 are above 130.

C incorrect, Containment temperature (average) is less than TS 3.6.5 limit of 120°F.

D incorrect, no guidance to stop CFCU 14.

Technical Reference(s):

PK01-16

Tech Spec 3.6.4

Tech Spec 3.6.5

Proposed references to be provided to applicants during examination:

PK01-16

Tech Spec 3.6.4

Tech Spec 3.6.5

Learning Objective: 9697F - Identify 3.6 Technical Specification LCOs

Question Source:

New X

Question History: Last NRC Exam N/A

Question Cognitive Level:

Memory or Fundamental Knowledge \_\_\_\_\_  
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41  
55.43 43.2

Comments:

K/A: 022 A2.04 - Ability to (a) predict the impacts of the following malfunctions or operations on the CCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations:  
Loss of service water

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**Question Worksheet**


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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	_____	2
	Group #	_____	1
	K/A #	076 G2.2.22	
	Importance		4.1

**Proposed Question:**

Units 1 and 2 are at full power.

Both trains of ASW on Unit 2 are declared inoperable. Cross Tie valve FCV-601 has been opened to provide ASW to Unit 2.

Which of the following describes when, if at all, the units must be in MODE 3?

**Reference Provided**

- A. Unit 2 must be in MODE 3 in 6 hours. Unit 1 can remain at power indefinitely.
- B. Unit 2 must be in MODE 3 in 6 hours. Unit 1 must be in MODE 3 in 78 hours.
- C. Unit 2 must be in MODE 3 in 7 hours. Unit 1 can remain at power indefinitely.
- D. Unit 2 must be in MODE 3 in 7 hours. Unit 1 must be in MODE 3 in 78 hours.

Proposed Answer:

- D. Unit 2 must be in MODE 3 in 7 hours. Unit 1 must be in MODE 3 in 78 hours.

Explanation:

Per TS Bases B3.7.8 - In the event of a total loss of ASW in one unit, the capability to cross-tie units ensures the availability of sufficient redundant cooling capacity for the affected unit. If the unit cross-tie capability were used, the unit with no operable ASW train would enter LCO 3.0.3, and the unit from which ASW was being provided would be in a 72-hour action with the cross-tie then declared inoperable.

A incorrect, the time for Unit 1 is 7 hours, (3.0.3), Unit 2 must shutdown, starting in 72 hours, due to one train inoperable (because it is providing unit 1 ASW)

B incorrect, the time for Unit 1 is 7 hours, (3.0.3)

C incorrect, Unit 2 must shutdown, starting in 72 hours, due to one train inoperable (because it is providing unit 1 ASW)

D correct, per TS 3.0.3, Unit 1 must be in MODE 3 in 7 hours. Unit 2 can remain at power for 72 hours (TS 3.7.8 ACTION A) but then must be in MODE 3 in 6 hours (ACTION B) - 78 hours total.

Technical Reference(s):  
Tech Spec 3.7.8  
Tech Spec Bases B3.7.8

Proposed references to be provided to applicants during examination:  
Tech Spec 3.7.8  
Tech Spec 3.0.3

Learning Objective: 9697 – Identify Technical Specification LCOs

Question Source: Bank # DCPD R-55056  
Modified Bank # \_\_\_\_\_  
New \_\_\_\_\_

Question History: Last NRC Exam N/A  
Question Cognitive Level: Memory or Fundamental Knowledge \_\_\_\_\_  
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 \_\_\_\_\_  
55.43 43.2

Comments:

K/A: 076 G2.2.22 – Service Water - Knowledge of limiting conditions for operations and safety limits.

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**Question Worksheet**

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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	_____	2
	Group #	_____	1
	K/A #	010 A2.03	
	Importance		4.2

**Proposed Question:**

**PLANT CONDITIONS:**

- Unit 1 is at full power.
- PORV PCV-455C has been isolated in accordance with Technical Specification 3.4.11, due to mechanical binding.

A partial load rejection causes PCV-456 and PCV-474 to open. PCV-474 does not reclose and the operator isolates the PORV by closing its block valve.

Which of the following Technical Specifications should the SFM enter?

**Reference Provided**

- A. Enter Technical Specification 3.0.3.
- B. Enter Technical Specification 3.4.11 ACTION B.
- C. Enter Technical Specification 3.4.11 ACTION E.
- D. Enter Technical Specification 3.4.11 ACTION B and ACTION E.

Proposed Answer:

- B. Enter Technical Specification 3.4.11 ACTION B.

Explanation:

A incorrect, this situation addressed by TS 3.4.11

B correct, per NOTE, a separate entry is made for the inoperable PORV

C incorrect, PCV-474 is not Class I

D incorrect, PCV-474 is not Class I

Technical Reference(s):

A4A – Pressurizer, Pressurizer Pressure and Level Control, page 2.1-34  
TS 3.4.11

Proposed references to be provided to applicants during examination:  
3.4.11

Learning Objective: 9697 - Identify Technical Specification LCOs

Question Source:

New X

Question History: Last NRC Exam N/A

Question Cognitive Level:

Memory or Fundamental Knowledge \_\_\_\_\_  
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41  
55.43 43.2

Comments:

K/A: 010 A2.03 - Ability to (a) predict the impacts of the following malfunctions or operations on the PZR PCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: PORV failures

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**Question Worksheet**


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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	_____	2
	Group #	_____	2
	K/A #	014 G2.4.10	
	Importance		3.1

**Proposed Question:**

The crew is recovering a dropped rod in Shutdown Bank C on Unit 2.

As the operator begins to withdraw the dropped shutdown rod, PK03-17, Rod Control Urgent Failure alarms.

Which of the following describes the appropriate response to this alarm?

- A. The alarm is expected due to a logic error, acknowledge the alarm and continue with the dropped rod recovery.
- B. The alarm is expected due to regulation failure, acknowledge the alarm and continue with the dropped rod recovery.
- C. The alarm is unexpected, acknowledge the alarm and refer to the annunciator response procedure, the dropped rod recovery should be suspended.
- D. The alarm is unexpected, acknowledge the alarm and refer to the annunciator response procedure, the dropped rod recovery may continue if sufficient operators are available to handle both activities.

Proposed Answer:

- C. The alarm is unexpected, acknowledge the alarm and refer to the annunciator response procedure, the dropped rod recovery should be suspended.

Explanation:

A incorrect, if expected, it would be due to regulation failure.

B incorrect, not expected for Shutdown C or D dropped rod recovery.

C correct, the alarm is unexpected, per OP1DC12, the crew should acknowledge and refer to the annunciator response procedure. Additionally, Control Room activities the could distract from the annunciator response should be suspended.

D incorrect, the recovery should be suspended.

Technical Reference(s):

PK03-17, Rod Cont Urgent Failure

OP1. DC12 (rev 29), Conduct of Routine Operations

OP AP-12C, Dropped Control Rod

Proposed references to be provided to applicants during examination: none

Learning Objective:

5036 – State the Rod Control system parameters that produce alarms.

Question Source:

New X

Question History: Last NRC Exam N/A

Question Cognitive Level:

Memory or Fundamental Knowledge \_\_\_\_\_  
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 \_\_\_\_\_  
55.43 43.6

Comments:

K/A: 014 G2.4.10 – Knowledge of annunciator response procedures.

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**Question Worksheet**


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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	_____	2
	Group #	_____	2
	K/A #	034 A2.01	
	Importance		4.4

**Proposed Question:**

The following events have occurred on Unit 1:

- During core off load a spent fuel assembly was dropped in the Unit 1 Fuel Handling Building
- Some gas has escaped from the fuel assembly.
- A manual dose assessment projected a maximum (peak) site boundary dose rate of 282 mrem/hr Thyroid CDE and a total dose of 845 mrem Thyroid CDE.

How should this be classified?

**Reference Provided**

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

Proposed Answer:

- C. Site Area Emergency

Explanation:

A incorrect, this was the answer on original question (values off by a factor of 10).

B incorrect, dose rate is too low.

C correct, Projected dose at the Site Boundary (800 meters) is  $\geq 100$  mRem TEDE OR  $\geq 500$  mRem Thyroid CDE for actual or expected release. Initial conditions are greater than both.

D incorrect, requires greater than 1 rem

Technical Reference(s):

EP G-1, Attachment 7.1

sro tier 2 group 2\_92.doc

Proposed references to be provided to applicants during examination:  
EP G-1, Attachment 7.1

Learning Objective:  
8557 - Demonstrate the ability to use emergency action level classification chart

Question Source:  
Modified Bank # DCPP R-70668

Question History: Last NRC Exam N/A

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

10 CFR Part 55 Content: 55.41  
55.43 43.7

Comments:

K/A: 034 A2.01 - Ability to (a) predict the impacts of the following malfunctions or operations on the Fuel Handling System ; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Dropped fuel element

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**Question Worksheet**


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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	_____	2
	Group #	_____	2
	K/A #	011 A2.05	
	Importance		3.7

**Proposed Question:****PLANT CONDITIONS:**

- A reactor trip and safety injection has occurred on Unit 1
- SI has been reset
- All CFCUs are running
- Containment temperature is 100°F
- All ECCS pumps are running
- All CCW and ASW pumps are running
- Emergency Diesel Generators are supplying buses F, G and H
- Loads on the diesels are as follows:
  - 1-1 - 2500 kW
  - 1-2 - 2800 kW
  - 1-3 - 2700 kW

The crew is attempting to restore power to a group of pressurizer heaters using OP A4A:l section 6.3 as directed by the EOP in use.

Which of the following actions should the SFM direct the operator to perform?

**Reference Provided**

- A. Energize heater group 12 from the backup supply, no load stripping is necessary.
- B. Energize heater group 13 from the backup supply, no load stripping is necessary.
- C. Reduce load on Emergency Diesel Generator 1-2 and then energize heater group 12 from the backup supply.
- D. Reduce load on Emergency Diesel Generator 1-3 and then energize heater group 13 from the backup supply.

Proposed Answer:

B. Energize heater group 13 from the backup supply, no load stripping is necessary.

Explanation:

A incorrect, group 12 is powered from bus G. Load on EDG 1-2 is 2800 kW, load reduction would be required.

B correct, group 13 is powered from bus H. Bus H is powered by EDG 1-1. Load is below 2.6 MW, no bus stripping is necessary.

C incorrect, this would be required if group 13 could not be powered.

D incorrect, this would be true on Unit 2.

Technical Reference(s): OP A-4A:I, Pressurizer – Make Available

Proposed references to be provided to applicants during examination:

OP A-4A:I, Pressurizer – Make Available

Learning Objective:

9990 - Identify the power supply for RCS Pressurizer Pressure Control system major components.

Question Source:

New X

Question History: Last NRC Exam N/A

Question Cognitive Level:

Memory or Fundamental Knowledge \_\_\_\_\_  
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41  
55.43 43.5

Comments:

K/A: 011 A2.05 - Ability to (a) predict the impacts of the following malfunctions or operations on the PZR LCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Loss of PZR heaters

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**Question Worksheet**


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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	_____	3
	Group #	_____	1
	K/A #	G2.1.10	
	Importance		3.9

**Proposed Question:**

The crew is responding to a reactor trip initiated by an earthquake tripping all 3 channels of the seismic monitors.

Which of the following describes the action the crew must take, if any, regarding the fire detection instrumentation to meet the requirements of ECG 18.3, Fire Detector Instrumentation?

**Reference Provided**

- A. Patrols of fire zones listed in ECG 18.3 must be initiated within 2 hours.
- B. Inspection for fires in fire zones listed in ECG 18.3 must be completed within 2 hours.
- C. Patrols of fire zones with equipment in operation and listed in ECG 18.3 must be initiated within 2 hours.
- D. No action is required, the threshold as stated in ECG 18.3 has not been met.

Proposed Answer:

- B. Inspection for fires in fire zones listed in ECG 18.3 must be completed within 2 hours.

Explanation:

A incorrect, inspection must be complete in 2 hours.

B correct, per clarification sent 10/18/2004, "...all zones listed in ECG 18.3 have to be inspected for fires within 2 hours. ...It is a requirement of our facility license to have this inspection complete in 2 hours."

C incorrect, all zones listed must be patrolled.

D incorrect, the threshold (>0.02 g) has been exceeded, trip setpoint is 0.03 g.

Technical Reference(s):

ECG 18.3

Email from Mark Lemke dated 10/18/2004

Proposed references to be provided to applicants during examination: ECG 18.3

Learning Objective: 66056 - Discuss the requirements of System 18 ECGs.

Question Source:

New X

Question History: Last NRC Exam N/A

Question Cognitive Level:

Memory or Fundamental Knowledge \_\_\_\_\_  
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 \_\_\_\_\_  
55.43 43.2

Comments:

K/A: G2.1.10 – Knowledge of conditions and limitations in the facility license.

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**Question Worksheet**


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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	_____	3
	Group #	_____	1
	K/A #	G2.1.22	
	Importance		3.3

**Proposed Question:**

Of the 3 conditions listed below, which of the following causes a MODE change from MODE 6 to MODE 5?

1. RCS temperature increases above 200°F.
2. One reactor vessel head closure bolt is fully tensioned.
3. The last reactor vessel head closure bolt is fully tensioned.

- A. Condition 2 only.
- B. Condition 3 only.
- C. Condition 1 or condition 2.
- D. Condition 1 or condition 3.

Proposed Answer:

- B. Condition 3 only.

Explanation:

A incorrect, this is the mode change from 5 to 6.

B correct, to transition from mode 6 to mode 5, all reactor vessel head closure bolts are fully tensioned.

C and D incorrect, no mode change if temperature increases above 200°F

Technical Reference(s): DCPD Tech Specs section 1.1, Definitions.

Proposed references to be provided to applicants during examination: none

Learning Objective:

9696 – Define Technical Specification items found in the Definition Section

Question Source:

Modified Bank # DCPD S-52672

sro tier 3 group 1\_95.doc

Question History: Last NRC Exam N/A

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

10 CFR Part 55 Content: 55.41 \_\_\_\_\_  
55.43 43.2

Comments:

K/A: G2.1.22 - Ability to determine Mode of Operation

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**Question Worksheet**


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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	_____	3
	Group #	_____	2
	K/A #	G2.2.27	
	Importance		3.5

**Proposed Question:**

A refueling outage is in progress on Unit 2.

Which of the following identifies the FIRST core alteration activity requiring the presence of the Refueling SRO in Containment?

- A. Unlatching RCCAs
- B. Lifting the upper internals
- C. Moving the first fuel assembly
- D. Lifting the reactor vessel head

Proposed Answer:

- A. Unlatching RCCAs

Explanation:

A correct, per OP B-8DS2, the Refueling SRO is responsible for supervising Core Alterations. RCCA unlatching and moving of fuel assemblies are core alterations. Unlatching is performed prior to removal of the fuel assembly.  
 B incorrect, performed after unlatching RCCAs.  
 C incorrect, core alteration after unlatching.  
 D incorrect, prior to unlatching, but not a core alteration.

Technical Reference(s):

OP L-6, Refueling  
 OP B-8DS1, Core Unloading  
 OP B-8D attachment 9.1 Core Unloading Prerequisites Checklist

Proposed references to be provided to applicants during examination: none

Learning Objective:

6497 - State the responsibilities and duties of Refueling SRO

5827 – Explain which activities are considered core alterations and which are not.

Question Source: Bank #  
Modified Bank # INPO 23199  
New \_\_\_\_\_

Question History: Last NRC Exam Salem 11/02

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

10 CFR Part 55 Content: 55.41 \_\_\_\_\_  
55.43 43.6

Comments:

K/A: G2.2.27 – Knowledge of the refueling process

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**Question Worksheet**


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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #		3
	Group #		3
	K/A #	G2.3.4	
	Importance		3.1

**Proposed Question:**

A Site Area Emergency has been declared due to a LOCA Outside Containment with limited makeup to the RWST available.

An operator volunteers to make an emergency entry into the penetration area to attempt to isolate the leak. This action would result in a significant reduction in offsite dose. The individual has all the required approvals and the following exposure history:

- Age 25 yrs.
- Total Lifetime exposure 3800 mrem TEDE
- Current Year exposure 800 mrem TEDE

What is the MAXIMUM exposure the operator may receive while performing this action?

- A. 4200 mrem TEDE
- B. 5000 mrem TEDE
- C. 24,200 mrem TEDE
- D. 25,000 mrem TEDE

Proposed Answer:

- D. 25,000 mrem TEDE

Explanation:

A incorrect, this includes a reduction of federal limit (5 rem TEDE) less current exposure  
 B incorrect, this is the federal limit and emergency exposure limit for radiological assessment sampling

C incorrect, this takes into account the current TEDE which does not apply

D correct, to save a life or for dose saving to population, 25 rem is the guideline.

Technical Reference(s): EP RB-2, DCPD Emergency Exposure Guidelines

Proposed references to be provided to applicants during examination: none

Learning Objective: 7954 - State the emergency dose limits

Question Source: Bank # INPO 20049

Question History: Last NRC Exam Braidwood 10/2001

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

10 CFR Part 55 Content: 55.41 \_\_\_\_\_  
55.43 43.4

Comments: K/A: G2.3.4 - Knowledge of radiation exposure limits and contamination control, including permissible levels in excess of those authorized.

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**Question Worksheet**


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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	_____	3
	Group #	_____	3
	K/A #	G2.3.8	
	Importance		3.2

**Proposed Question:**

A discharge of Gas Decay Tank 1-2 is planned.

The current conditions exist:

- Current time and date - 2200, 17 July
- RE-22 declared inoperable at 0100 on 3 July
- The planned discharge will take 4 hours
- 2 samples have been independently drawn and analyzed

Which of the following describes whether the planned discharge may or may not occur?

**Reference Provided**

- The planned discharge may not occur until RE-22 is restored to OPERABLE status.
- The planned discharge may proceed in its entirety.
- The discharge may occur, but only for 3 hours, then it must be terminated.
- The discharge may not proceed because during the discharge the allowable time RE-22 may be inoperable will expire.

Proposed Answer:

- The planned discharge may not occur until RE-22 is restored to OPERABLE status.

Explanation:

A correct, as of 0100 on 17 July, the 14 days allowed by ECG (and procedure OP G-2:V) has been exceeded. A discharge is not allowed.

B incorrect, 14 days exceeded.

C incorrect, 14 days already exceeded.

D incorrect, if there is time available, the discharge could have continued for a short period of time.

Technical Reference(s):

ECG 39.4

OP G-2:V, Gaseous Radwaste System – Gas Decay Tank Discharge

Proposed references to be provided to applicants during examination:

OP G-2:V

ECG 39.4

Learning Objective:

7428 - State gaseous radwaste system administrative controls

66068 - Discuss the requirements of System 39 ECGs.

Question Source:

New X

Question History: Last NRC Exam N/A

Question Cognitive Level:

Memory or Fundamental Knowledge \_\_\_\_\_  
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 \_\_\_\_\_  
55.43 43.2

Comments:

K/A: G2.3.8 - Knowledge of the process for performing a planned gaseous radioactive release.

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**Question Worksheet**


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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	_____	3
	Group #	_____	4
	K/A #	G2.4.41	
	Importance		4.1

**Proposed Question:**

A radiological emergency event is in progress. The release could result in exceeding EPA PAGs near the site boundary.

Which of the following Emergency Event Classifications would be appropriate?

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

Proposed Answer:

- C. Site Area Emergency

Explanation:

C correct, definition of SAE:

Events which are in progress or have occurred involving actual or likely major failures of plant functions needed for protection of the public.

- Reflects conditions where there is a clear potential for radioactive release.
- Radioactive releases or their potential may exceed EPA PAGs, but only near the site boundary

Technical Reference(s): LEP-2, Emergency Plan Procedures

Proposed references to be provided to applicants during examination: none

Learning Objective: 8535 - State the definition of the four emergency event classifications

Question Source: Bank # E-36020

sro tier 3 group 4\_099.doc

Question History: Last NRC Exam N/A

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

10 CFR Part 55 Content: 55.41 \_\_\_\_\_  
55.43 43.4

Comments:

K/A: G2.4.41 - Knowledge of the emergency action level thresholds and classifications.

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**Question Worksheet**

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Examination Outline Cross-Reference:	Level	RO	SRO
	Tier #	_____	3
	Group #	_____	4
	K/A #	G2.4.45	
	Importance		3.6

**Proposed Question:**

A Unit 1 shutdown from full power is in progress at 1%/min.

The following events occur:

- PK15-22 alarms on Unit 2 due to Alarm Input 1531- Main Annun Unit 1 Train A and B Failure.
- On Unit 1 ALL annunciator windows are blank, and the alarm typewriter and CRT have NOT responded for 18 minutes.
- The PPC and SPDS are not responding

What Classification or notification is required to be made?

**Reference Provided**

- A. 1 hour Non-emergency report.
- B. Unusual Event.
- C. Alert.
- D. Site Area Emergency.

Proposed Answer:

- B. Unusual Event.

Explanation:

A incorrect, threshold for emergency classification exceeded.

B correct, UE 16.

C incorrect, no major transient in progress and PPC and SPDS not responding.

D incorrect, no major transient in progress.

Technical Reference(s):

EP G-1 Attachment 7.1

Proposed references to be provided to applicants during examination:  
EP G-1 Attachment 7.1

Learning Objective: 5464 – Explain the classification of emergency conditions

Question Source:

Modified Bank # DCPP B-0621

Question History: Last NRC Exam N/A

Question Cognitive Level:

Memory or Fundamental Knowledge \_\_\_\_\_  
Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 \_\_\_\_\_  
55.43 43.5

Comments:

K/A: G2.4.45 – Ability to prioritize and interpret the significance of each annunciator or alarm.