

## 2008 Reactor Operator Exam

1

This Exam Level RO  
Appears on:K/A # 42008AK2.03  
Importance  
Rating:

Given the following conditions:

- Unit 1 is at 100% power
- PZR level is 51.5 %
- Pressurizer is in Boron Equalization
- Pressurizer pressure is 2235 psia
- PZR pressure controller, RCN-PIC-100, output is 40% and stable
- PZR level controller, RCN-LIC-110, output is 40% and stable

NOW

- Letdown controller output 45% and INCREASING
- Pressure controller output 25% and LOWERING

Which one of the following events could cause the given CVCS controller responses?

- A. Secondary steam leak
- B. Pressurizer steam space leak
- C. A full strength CEA has dropped
- D. A purification IX with new resin has been placed in service

Answer: B

Associated KA:  
L10452

Given PZR Safety Valve tailpipe temperatures and the steam tables analyze the data to determine the status of the PZR safety valve

Reference Id: Q10492  
 Difficulty: 4.00  
 Time to complete: 3  
 Cognitive Category: Not LINKED to a Cognitive Question Category  
 Question Source: Not LINKED to a SOURCE  
 Comment:

**Proposed reference to be provided to applicant during examination:** None**Technical Reference:** GFES, PPCS lesson plan**K&A:** Knowledge of the interrelations between the Pressurizer Vapor Space Accident and the following: Controllers and Positioners**Justification:**

A is Wrong - steam leak equals cooldown level output would lower pressure output would lower

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B is Correct - vapor space leak causes Pzr level increase which causes letdown controller output to increase. Pzr pressure will drop causing pressure controller output to lower to prop heaters full on at 0 output

C is Wrong - dropped CEA means colder water = level drop= letdown controller lowering and pressure controller lowering

D is Wrong - this is a dilution causing an RCS heatup so letdown controller will increase and if anything a pressure increase which would cause controller output to increase

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2

This Exam Level RO  
Appears on:

K/A # 41011EK1.01  
Importance  
Rating:

Given the following conditions:

- Unit 1 tripped from 100% power 30 minutes ago
- RCPs were manually tripped 25 minutes ago due to CSAS actuation
- RCS T-cold is 325 °F and lowering
- RCS T-hot is 450 °F and lowering
- Highest CET temperature is 490 °F
- RCS pressure is 565 psia

Natural Circulation flow ...

- A. is established ensure SG levels are 40 - 65% NR
- B. is established place the RCS on Shutdown Cooling
- C. is not established ensure SG levels are 40 - 65% NR
- D. is not established place the RCS on Shutdown Cooling

Answer: C

Associated KA:  
L62490

Given a LOCA Event, Tailboard the guidance included in the LOCA Emergency Procedure Technical Guideline.

Reference Id:	Q10493
Difficulty:	2.00
Time to complete:	2
10CFR Category:	CFR 55.41 (10) 55.41 (10) Administrative, normal, abnormal, and emergency operating procedures for the facility.
Cognitive Level:	Comprehension / Anal
Question Source:	New
Comment:	

**Proposed reference to be provided to applicant during examination:** Steam Tables

**Technical Reference:** 40EP-9EO03, LOCA / 40DP-9AP08, LOCA Tech Guideline

**K&A:** Knowledge of the operational implications of the following concepts as they apply to the Large Break LOCA: Natural circulation and cooling, including reflux boiling.

**Justification:**

A & B are Wrong - Natl Circ can not be verified delta T is to great, Delta between Thot and CET is to great and subcooling is not met for Thot but not the required CET temperatures

C is correct Natl circ can not be verified and ensuring SG levels 45 - 60% NR is directed by LOCA

D is Wrong - SDC is not permitted with inadequate subcooling

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This Exam Level RO  
Appears on:

K/A # 42025AK3.03  
Importance  
Rating:

The plant is currently exhibiting the following conditions during plant heatup in Mode 5 following refueling.

- RCS - 205°F and 310 psia.
- RCPs 1A and 1B are running.
- Both S/G's at 30% WR Level.
- LPSI 'A' had been running on Shutdown Cooling, but has recently tripped on overcurrent.

Which of the following actions should the Operator perform to restore RCS Heat Removal.

- A. Start LPSI Pump 'B' on Shutdown Cooling.
- B. Trip the 2 operating Reactor Coolant Pumps.
- C. Start CS Pump 'A' on Shutdown Cooling.
- D. Shift heat removal to the secondary using SBCS.

Answer: A

Associated KA:  
56506

Given the LMFRP is being performed and HR is in progress outline the major steps used to control Core and RCS heat removal in HR (LMFRP)

100866

Active Question Bank 2004

Reference Id: Q5414  
 Difficulty: 3.00  
 Time to complete: 3  
 10CFR Category: CFR 55.41 (10) 55.41 (10) Administrative, normal, abnormal, and emergency operating procedures for the facility.  
 Cognitive Level: Comprehension / Anal  
 Question Source: PV Bank Not Modified  
 Comment:

**Proposed reference to be provided to applicant during examination:** None

**Technical Reference:** 40EP-9EO11, LMFRP

**K&A:** Knowledge of the reasons for the following responses as they apply to the Loss of Residual Heat Removal System: Immediate actions contained in EOP for Loss of RHRS

**Justification:**

A is Correct - LPSI B is available and meets criteria

B is Correct - CS RCS pressure is too high

C is Wrong - this would slow the heat-up but is not procedurally directed

D is Wrong - SBCS requires a mode change

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This Exam Level RO  
Appears on:

K/A # 42027AA2.12  
Importance  
Rating:

Given the following conditions:

- Pressurizer pressure is 2250 psia
- Pressurizer level is 52%
- Pressurizer low level heater cutout switch (RCN-HS-100-3) is selected to Channel X
- Pressurizer level control channel selector (RCN-HS-110) is selected to Channel X

Which one of the following conditions is true regarding the Pressurizer Pressure Control System?

- A. Backup heaters will energize if RCS pressure drops to 2225 psia
- B. All heaters will energize if PZR level transmitter RCN-LT-110X fails high
- C. All heaters will de-energize if PZR level transmitter RCN-LT-110Y fails low
- D. Proportional heaters will trip and must be reset if pressurizer pressure reaches 2275 psia

Answer: B

Associated KA:  
L75234

Describe the function of Pressurizer Level Instruments (RCN-LT-110X and RCN-LT-110Y) inputs to the Pressurizer Pressure Control System.

Reference Id: Q10494  
Difficulty: 3.00  
Time to complete: 3  
10CFR Category:

CFR 55.41 (7) 55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Cognitive Level: Comprehension / Anal  
Question Source: New  
Comment:

**Proposed reference to be provided to applicant during examination:** None

**Technical Reference:** PPCS Lesson Plan

**K&A:** Ability to determine and interpret the following as they apply to the Pressurizer Pressure Control Malfunctions: PZR level

**Justification:**

A is Wrong - backup heaters energize 2200 de-energize at 2225 psia

B is Correct - all heaters energize on a +3% level deviation

C is Wrong - channel Y has no effect if not in Y or both

D is Wrong - Prop heaters have 0 output but do not trip or require reset at 2275 psia

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This Exam Level RO  
Appears on:  
K/A # 2.2.3  
Importance  
Rating:

The minimum allowed switchyard voltage for Unit 1 is \_\_\_\_\_ than Unit 2 in addition Unit 1 will trip open the Water Reclamation Facility supply breakers on a simultaneous low switchyard voltage and \_\_\_\_\_ signal.

- A. lower, LOP
- B. lower, SIAS
- C. higher, LOP
- D. higher, SIAS

Answer: D

Associated KA:  
30264

Unit differences

Reference Id: Q10495  
Difficulty: 2.00  
Time to complete: 2  
10CFR Category: CFR 55.41 (7)

55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Cognitive Level: Memory  
Question Source: New  
Comment:

**Proposed reference to be provided to applicant during examination:** None

**Technical Reference:** 41AL-1RK1B, window 6B

**K&A:** Equipment Control (multi-unit) Knowledge of the design, procedural, and operational differences between units.

**Justification:**

A & B are Wrong - Unit 1 has a higher minimum voltage requirement but examinee may think that U1 requirement is lower because it will shed loads on a SIAS

C is Wrong - SIAS and voltage permissive is required

D is Correct - see above

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This Exam Level RO  
Appears on:K/A # 41038EK3.08  
Importance  
Rating:

Given the following conditions:

- Unit 1 was manually tripped due to a SG tube rupture
- RCS pressure 1100 psia
- RCS Tcold is 531 °F
- RCS Thot is 536 °F

Which one of the following actions/conditions is correct?

- A. Trip 2 RCPs, cooldown rate is limited to 30 °F/hr
- B. Trip 2 RCPs, cooldown rate is limited to 100 °F/hr
- C. Trip all 4 RCPs, cooldown rate is limited to 30 °F/hr
- D. Trip all 4 RCPs, cooldown rate is limited to 100 °F/hr

Answer: C

Associated KA:  
L11239

Given the SGTR EOP is being performed and a cooldown to less than 550°F is required describe how and at what rate the cooldown will be performed

Reference Id: Q10496  
 Difficulty: 4.00  
 Time to complete: 3  
 10CFR Category: CFR 55.41 (10) 55.41 (10) Administrative, normal, abnormal, and emergency operating procedures for the facility.  
 Cognitive Level: Comprehension / Anal  
 Question Source: New  
 Comment:

**Proposed reference to be provided to applicant during examination:** Steam Tables**Technical Reference:** 40EP-9EO04, LOCA**K&A:** Knowledge of the reasons for the following responses as they apply to the SGTR:  
Criteria for securing RCP**Justification:**

A &amp; B are wrong - Thot is less than 24 degrees subcooled all 4 RCPs must be tripped

C is Wrong - with a loss of forced circulation the cooldown is limited to 30 degrees/hr

D is Wrong - 100 is the TS limit and the limit with RCPs

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This Exam Level RO  
Appears on:

K/A # 42040AK2.02  
Importance  
Rating:

Given the following plant conditions:

- The reactor has tripped.
- PZR level is 25% and lowering.
- RCS pressure is 1700 psia and dropping.
- Containment pressure and temperature is rising.
- RCS subcooling is 75°F and increasing.
- SG 1 level is 45% WR and lowering
- Loop 1 Tcold is 520°F and lowering
- SG 2 level is 65% WR and lowering
- Loop 2 Tcold is 555°F and lowering

Which one of the following is the most likely response of the SG 1 steam flow transmitters?

- A. SGN-FT-1011 flow > SGN-FT-1012 flow. SGN-FT-1011 and SGN-FT-1012 each indicate 0 (zero) flow when MSIS actuates.
- B. SGN-FT-1011 flow equals SGN-FT-1012 flow. Both steam flow detectors approach no flow as dryout conditions are reached.
- C. SGN-FT-1011 flow equals SGN-FT-1012 flow. Both steam flow detectors decrease to 0 (zero) flow when MSIS actuates.
- D. SGN-FT-1011 flow > SGN-FT-1012 flow. SGN-FT-1011 flow approaches no flow as dryout conditions are reached. SGN-FT-1012 indicates 0 (zero) flow when MSIS actuates.

Answer: D

Associated KA:  
L11203

Given plant conditions analyze SG parameters to determine the presence and relative severity of an ESD

Reference Id: Q10497  
Difficulty: 2.00  
Time to complete: 3  
10CFR Category: CFR 55.41 (7)

55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Cognitive Level: Comprehension / Anal  
Question Source: New  
Comment:

**Proposed reference to be provided to applicant during examination: None**

**Technical Reference:** mechanical prints, 01-SGP-0002

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**K&A:** Knowledge of the interrelations between the Steam Line Rupture and the following:  
Sensors and detectors

**Justification:**

A is Wrong - 1 > 2 is correct but since the leak is in containment flow will degrade not go to 0 on MSIS

B is Wrong - 1 = 2 is wrong but examinee may assume redundant indications as they are used in COLSS. Flow will trend to 0 as dryout conditions are reached

C is Wrong - 1 = 2 is wrong and MSIS will not cause flow to go to zero

D is Correct - 1 . 2 is correct and 1011 will go to 0 as dryout approaches and 1012 goes to 0 on MSIS. Flow detectors are on SG nozzle outlets

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This Exam Level RO  
Appears on:

K/A # 41055EA1.01  
Importance  
Rating:

Given the following plant conditions:

- Unit 1 has been in a blackout condition for 2 hours.
- QSPDS indicates 32 degrees superheat and has been stable for the last 15 minutes.
- CET temperatures and RCS pressure have also been stable for the last 15 minutes.

What is the condition of RCS and core heat removal?

- A. Two phase natural circulation is maintaining heat removal.
- B. Single phase natural circulation is maintaining heat removal.
- C. All natural circulation has been lost, core uncover has occurred.
- D. All natural circulation has been lost, but the core still remains covered.

Answer: A

Associated KA:

[L56411](#) Given conditions of a Blackout state the action necessary to maintain subcooling margin

[L75186](#) Maintain RCS temp

[L61432](#) State the action necessary to maintain subcooling margin during a blackout.

[100866](#) Active Question Bank 2004

Reference Id: Q8927  
 Difficulty: 3.00  
 Time to complete: 3  
 10CFR Category: CFR 55.41 (10) 55.41 (10) Administrative, normal, abnormal, and emergency operating procedures for the facility.

Cognitive Level: Comprehension / Anal  
 Question Source: PV Bank Not Modified  
 Comment:

**Proposed reference to be provided to applicant during examination:** None

**Technical Reference:** 40EP-9EO08, BLACKOUT / 40DP-9AP13. BO Tech Guideline

**K&A:** Ability to operate and monitor the following as they apply to a Station Blackout: In-core thermocouple temperatures

**Justification:**

A is Correct - single phase natl circ has been lost. Provided that REP CET is maintained less than 50 degrees superheated than the core is covered and 2 phase natl circ flow is effective

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This Exam Level RO  
Appears on:

K/A # 42056AK1.04  
Importance  
Rating:

Given the following conditions:

- Main Spray valves 100E & 100F failed open
- SIAS/CIAS/MSIS automatically initiated
- Offsite power was lost when the reactor tripped
- Offsite power has been restored
- PZR level is 7% and slowly increasing
- RCS Tcold temperature is 510°F
- RCS Thot temperature is 520°F
- REP CET temperature is 550°F
- RCS pressure is 1044 psia

The RCS is currently ....

- A. 24°F subcooled. RCP restart is permitted at the current RCS conditions.
- B. 24°F subcooled. HPSI flow may be throttled at the current RCS conditions.
- C. at saturation conditions. RCP restart is permitted if RCS pressure is raised to 1300 psia.
- D. at saturation conditions. HPSI flow may be throttled if RCS pressure is raised to 1300 psia.

Answer: C

Associated KA:  
30267

RCP restart

Reference Id: Q10498  
 Difficulty: 3.00  
 Time to complete: 3  
 10CFR Category: CFR 55.41 (10) 55.41 (10) Administrative, normal, abnormal, and emergency operating procedures for the facility.  
 Cognitive Level: Comprehension / Anal  
 Question Source: New  
 Comment:

**Proposed reference to be provided to applicant during examination:** Steam Tables / Standard App. 2 (RCP curves)

**Technical Reference:** Standard appendixes 1 & 2, 40ep-9EO07, LOOP

**K&A:** Knowledge of the operational implications of the following concepts as they apply to Loss of Offsite Power: Definition of saturation conditions, implication for the systems

**Justification:**

A & B are Wrong - RCS is 24 degrees subcooled by Thot but must use CET temp when in Natl Circ

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C is Correct - RCS is at saturation and minimum RCS pressure for 550 degrees is 1300 psia

D is Wrong - RCS is at saturation but HPSI can not be throttled with < 10% PZR level

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10

This Exam Level RO  
Appears on:

K/A # 42062AK3.03  
Importance  
Rating:

Given the following conditions:

- Unit 1 has tripped from rated power due to a Loss of Offsite Power event.
- All systems have responded as designed
- The crew has cross connected Essential Cooling Water (EW) system "A" to Nuclear Cooling Water per Standard Appendix 63.

The procedure now directs that EWA-HCV-53, SDCHX A Outlet Isolation, be throttled closed to an EW system flow of 8500 gpm to ...

- A. maintain Operability of the EW "A" system.
- B. provide the NCW priority loads with adequate flow.
- C. prevent EW pump damage due to operating in a runout condition.
- D. ensure adequate flow to the Fuel Pool Heat Exchangers if aligned.

Answer: B

Associated KA:  
30268

X-tie EW to NC

Reference Id: Q10499  
 Difficulty: 2.00  
 Time to complete: 3  
 10CFR Category: CFR 55.41 (8) 55.41 (8) Components, capacity, and functions of emergency systems.  
 Cognitive Level: Memory  
 Question Source: New  
 Comment:

**Proposed reference to be provided to applicant during examination:** None

**Technical Reference:** SA-63 and Tech Guide/ 40DP-9AP12, LOOP Tech Guide /

**K&A:** Knowledge of the reasons for the following responses as they apply to the Loss of Nuclear Service Water: Guidance actions contained in EOP for Loss of nuclear service water

**Justification:**

A is Wrong - EW is INOP when cross tied

B is Correct - this is to ensure adequate flow to NCW priority loads

C is Wrong - not for runout but examinee could believe this to be true when taking systems out of normal alignment

D is Wrong - One train of EW not sized to provide both NCW and Fuel Pool cooling, this would require aligning the other train

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11

This Exam Level RO  
Appears on:

K/A # 42077AA1.03  
Importance  
Rating:

Given the following conditions:

- Unit 1 is operating at rated electrical power
- A grid disturbance occurs
- The Operator notes that LED 15 (V/HZ) is flashing

This indicates that the Generex has .....

- A. overridden the AC regulator to maintain excitation at an acceptable level. AC regulator control can be restored by decreasing the AC regulator setpoint.
- B. limited Main Generator output voltage. AC regulator control can be restored by decreasing the AC regulator setpoint.
- C. overridden the AC regulator to increase excitation to an acceptable level. AC regulator control can be restored by increasing the AC regulator setpoint.
- D. raised Main Generator output voltage. AC regulator control can be restored by increasing the AC regulator setpoint.

Answer: B

Associated KA:  
L75018

Explain the operation of the Volts/Hertz Regulator and Trip circuits under normal operating conditions.

Reference Id: Q10500  
 Difficulty: 4.00  
 Time to complete: 3  
 10CFR Category: CFR 55.41 (10) 55.41 (10) Administrative, normal, abnormal, and emergency operating procedures for the facility.  
 Cognitive Level: Memory  
 Question Source: Modified PV Bank  
 Comment:

modified from Q21330

**Proposed reference to be provided to applicant during examination:** None

**Technical Reference:** 40OP-9MB01, Main Generation and Excitation / 40AL-9RK6B (6B08D), ARP / LOIT lesson plan

**K&A:** Ability to operate and/or monitor the following as they apply to Generator Voltage and Electric Grid Disturbances: Voltage Regulator Controls

**Justification:**

A is Correct - V/HZ is designed to limit generator voltage prior to a V/HZ trip and AC regulation is restored by lowering the AC reg setpoint

B is Wrong - increase and raise are wrong

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C & D are describing the URAL circuit which works to maintain excitation raising the AC regulator is how URAL is restored.

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12

This Exam Level RO  
Appears on:

K/A # 44E02EA2.2  
Importance  
Rating:

Given the following plant conditions:

- Unit 1 has manually tripped from 90% power for a scheduled refueling outage
- SPTAs were entered at 0000
- Reactor Trip ORP entered at 0015

The Boron Dilution Alarm System (BDAS) must be placed in service and channel check completed when Rx power is less than .....

- A.  $2 \times 10^{-4}$ % power but no later than 0100
- B.  $2 \times 10^{-4}$ % power but no later than 0115
- C.  $2 \times 10^{-6}$ % power but no later than 0100
- D.  $2 \times 10^{-6}$ % power but no later than 0115

Answer: C

Associated KA:  
L10354

Given conditions of a reactor trip describe the time limitation (including its bases) placed on aligning the BDAS

L74318

Given the plant has been placed in Mode 3 apply the requirements for Boron Dilution Alarm System (BDAS)

100866

Active Question Bank 2004

Reference Id: Q9699  
 Difficulty: 2.00  
 Time to complete: 2  
 10CFR Category: CFR 55.41 (10) 55.41 (10) Administrative, normal, abnormal, and emergency operating procedures for the facility.  
 Cognitive Level: Memory  
 Question Source: Modified PV Bank  
 Comment:

**Proposed reference to be provided to applicant during examination:** None

**Technical Reference:** Rx trip, 40EP-9EO02 / Rx Trip tech guide 40DP-9AP07 / LCO 3.3.12

**K&A:** Ability to determine and interpret the following as they apply to the (Reactor Trip Recovery) Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments.

**Justification:**

A and B are wrong BDAS is not placed in service until 10<sup>-6</sup>%, 10<sup>-4</sup> is verification of subcritical conditions following a rx trip and is used in CPCs log 1 & 2 bistables

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C is Correct - 10 -6 and one hour from Rx trip (SPTAs) is the standard

D is Wrong - waiting 15 minutes for start of EOP is not conservative

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13

This Exam Level RO  
Appears on:

K/A # 44E06EK22  
Importance  
Rating:

Given the following conditions:

- Unit 1 tripped from rated power
- Auxiliary Feedpump "B" is OOS
- Auxiliary Feedpump "A" oversped tripped and won't reset
- Main Feed Pump "A" tripped due to a control oil failure
- SBCS valve 1004 sticks open and will not close
- MSIS initiated on low SG pressure
- SIAS initiated on low PZR pressure
- PBA-S03 tripped on an 86 Lockout
- NNN-D16 tripped
- Both SGs are **DRY**

The CRS should implement the (1) procedure and restore a maximum feedwater flow (2).

- A. (1) Functional Recovery (2) of 500 gpm to each SG
- B. (1) Loss of all Feedwater (2) of 500 gpm to each SG
- C. (1) Functional Recovery (2) of 1000 gpm to only one SG
- D. (1) Loss of all Feedwater (2) of 1000 gpm to only one SG

Answer: C

Associated KA:  
L10502

Given conditions of a LOAF and the status of plant equipment determine from where feed can be established

Reference Id: Q10307  
 Difficulty: 3.00  
 Time to complete: 3  
 10CFR Category: CFR 55.41 (10) 55.41 (10) Administrative, normal, abnormal, and emergency operating procedures for the facility.  
 Cognitive Level: Comprehension / Anal  
 Question Source: PV Bank Not Modified  
 Comment:

**Proposed reference to be provided to applicant during examination:** NONE

**Technical Reference:** FRP, 40EP-9EO09 and SA 44

**K&A:** Ability to determine and interpret the following as they apply to the (Loss of Feedwater) Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments.

**Justification:**

A is Correct -

B is Correct -

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C is Wrong -

D is Wrong -

14

This Exam Level RO  
Appears on:K/A # 34003KK5.02  
Importance  
Rating:

Each RCP motor has a fly wheel which:

- A. Reduces RCP coastdown time to prevent free-wheeling.
- B. Increases RCP coastdown time to maximize decay heat removal.
- C. Prevents an idle pump from turning due to flow from other running RCP's.
- D. Provides shaft balancing to prevent excessive vibration on pump start and stops.

Answer: B

Associated KA:  
[L67246](#)

Explain the operation of the Reactor Coolant Pumps under normal operating conditions.

[100866](#)

Active Question Bank 2004

Reference Id: Q3571  
 Difficulty: 2.00  
 Time to complete: 2  
 10CFR Category: CFR 55.41 (3) 55.41 (3) Mechanical components and design features of the reactor primary system.  
 Cognitive Level: Memory  
 Question Source: Modified PV Bank  
 Comment:

**Proposed reference to be provided to applicant during examination: None****Technical Reference:** LCO 3.9.3**K&A:****Justification:**

A is Correct -

B is Correct -

C is Wrong -

D is Wrong -

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15

This Exam Level RO  
Appears on:K/A # 3.4005K2.03  
Importance  
Rating:

What are the power supplies to the Shutdown Cooling Isolation valves, SIA-HV-651 (A) and SIC-HV653 (B)?

- A. (A) 480 VAC Class LC, PG (B) 480 VAC Class LC, PG
- B. (A) 480 VAC Class LC, PG (B) 125 VDC Class MCC, PK
- C. (A) 480 VAC Class MCC, PH (B) 480 VAC Class MCC, PH
- D. (A) 480 VAC Class MCC, PH (B) 125 VDC Class MCC, PK

Answer: D

Associated KA:  
65136

Identify the power supplies to SI related equipment.

Reference Id: Q10504  
Difficulty: 2.00  
Time to complete: 2  
10CFR Category:

CFR 55.41 (7) 55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Cognitive Level: Memory  
Question Source: New  
Comment:

**Proposed reference to be provided to applicant during examination:**

**Technical Reference:** Electrical prints, 01-E-SIB-013 & 014

**K&A:** Knowledge of bus power supplies to the following: RCS pressure boundary motor-operated valves

**Justification:**

A is wrong -

B is wrong -

C is wrong -

D is CORRECT - SI-651 is supplied by a class MCC (PH) and SI-653 is supplied by class DC (PK) thru an inverter N43

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16

This Exam Level RO  
Appears on:

K/A # 34005A4.03  
Importance  
Rating:

Given the following conditions:

- Unit 1 is in Mode 5
- No RCPs are in operation
- Shutdown Cooling train A is in service, flow is being provided by LPSI pump A
- A plant heatup to Mode 4 is scheduled to begin later this shift
- You have been directed to initiate performance of 40ST-9RC01 (RCS and Pressurizer Heatup and Cooldown Rates)

Which temperature instrument is required to be used to track the RCS heatup rate?

- A. Loop 1 Thot
- B. Loop 1 Tcold
- C. SDC Heat Exchanger A inlet
- D. SDC Heat Exchanger A outlet

Answer: D

Associated KA:  
65120

Describe the Control Room indications associated with the SDC system.

Reference Id: Q10505  
Difficulty: 3.00  
Time to complete: 2  
10CFR Category: CFR 55.41 (7)

55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Cognitive Level: Memory  
Question Source: New  
Comment:

**Proposed reference to be provided to applicant during examination:** None

**Technical Reference:** 40ST-9RC01, RCS and Pressurizer heatup and cooldown rates

**K&A:** Ability to manually operate and/or monitor in the control room: RHR temperature, PZR heaters and flow, and nitrogen

**Justification:**

A is Wrong - this temp is used for isolating SG during SGTR and during verification of Natl Circ conditions

B is Wrong - used if RCPs are running

C is Wrong - examinee may have a misconception on which temperature is considered bulk RCS temp

D is Correct - correct per ST

2008 Reactor Operator Exam

## 2008 Reactor Operator Exam

17

This Exam Level RO  
Appears on:K/A # 32006K6.13  
Importance  
Rating:

Given the following plant conditions:

- A LOCA has occurred on Unit 1.
- RCS pressure is 750 psia and lowering.
- One minute after the Train B Essential Chiller started, a fault locks out PBB-S04.

The expected Emergency Core Cooling System injection flow would be:

- A. increasing HPSI flow into all reactor coolant loops.
- B. increasing LPSI and HPSI flow into all reactor coolant loops.
- C. increasing HPSI flow into reactor coolant loops 1A and 1B only.
- D. increasing LPSI and HPSI flow into reactor coolant loops 1A and 1B only.

Answer: A

Associated KA:  
100866

Active Question Bank 2004

65106

Describe the design characteristics of the HPSI pumps.

Reference Id: Q8305  
Difficulty: 3.00  
Time to complete: 3

10CFR Category:

CFR 55.41 (7)

55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Cognitive Level: Comprehension / Anal  
Question Source: PV Bank Not Modified  
Comment:**Proposed reference to be provided to applicant during examination:** None**Technical Reference:** Standard Appendix 2**K&A:** Knowledge of the effect of a loss or malfunction on the following will have on the ECCS: Pumps**Justification:**

A is Correct - pressure is too high for LPSI pumps to inject and HPSI will inject into all 4 cold legs and increase flow rate as pressure continues to drop

B is Wrong - examinee may not know LPSI shutoff head

C is Wrong - examinee may not realize that HPSI injects to all cold legs

D is Wrong - LPSI flow is loop specific and pressure is above shutoff head. HPSI flows to all cold legs

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## 2008 Reactor Operator Exam

18

This Exam Level RO  
Appears on:K/A # 38008A2.04  
Importance  
Rating:

Given the following conditions:

- A failure of both Nuclear Cooling Water pumps has occurred.
- The Operating Crew has cross connected "A" EW to NC from the control room.
- A small leak into one of the High Pressure Seal Coolers occurs after the systems are crossconnected.

Based on these conditions, how will RMS respond?

- A. RU-155D (Letdown) alarm **ONLY**. Take actions per 40AO-9ZZ05, Loss of Letdown AOP.
- B. RU-2 (ECW "A") **AND** RU-6 (NCW) alarm. Take actions per 40AO-9ZZ03, Loss of Cooling Water AOP.
- C. RU-6 (NCW) **AND** RU-155D (Letdown) alarm. Take actions per 40AO-9ZZ02, Excessive RCS Leakrate AOP.
- D. RU-2 (ECW "A") alarm **ONLY**. Take actions per 74RM-9EF41, Radiation Monitoring System Alarm Response.

Answer: D

Associated KA:  
100866

Active Question Bank 2004

65002

Explain the operation of the NC Radiation Monitoring under normal operating conditions.

Reference Id: Q27523  
Difficulty: 2.00  
Time to complete: 3  
10CFR Category: CFR 55.41 (5)

55.41 (5) Facility operating characteristics during steady state and transient conditions, including coolant chemistry, causes and effects of temperature, pressure and reactivity changes, effects of load changes, and operating limitations and reasons for these operating characteristics.

Cognitive Level: Comprehension / Anal  
Question Source: Modified PV Bank  
Comment:**Proposed reference to be provided to applicant during examination:** None**Technical Reference:** 74RM-9EF41, Radiation Monitoring System Alarm Response / 01-M-NCP-0001, mech print**K&A:** Ability to (a) predict the impacts of the following malfunctions or operations on the CCWS, and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: PRMS alarm**Justification:**

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**2008 Reactor Operator Exam**

A is Wrong - When NC and EW are X-connected only RU-2 is in the system Letdown is isolated when NCV-99 is closed

B is Wrong - RU-6 is a non vital load and is isolated when NCV-99 is closed

C is Wrong - see above

D is Correct - RU-2 still monitors EW and is in service during the cross connect

2008 Reactor Operator Exam

19

This Exam Level RO  
Appears on:

K/A # 33010K6.03  
Importance  
Rating:

Given the following plant conditions:

- Unit 1 is at 98% power.
- Pressurizer Pressure Control System (PPCS) is in "Automatic" with a setpoint of 2252 psia
- RCS pressure is 2252 psia and stable

NOW

- Main spray valve RC-100E red and green position indicator lights are lit.
- Main spray valve RC-100F only the green position indicator light is lit.
- Spray Valve Selection handswitch RCN-HS-100-10 is selected to BOTH
- RCS pressure is 2220 psia and lowering

Pressurizer Pressure Master controller output is currently in the \_\_\_\_\_ percent range and the pressurizer backup heaters are \_\_\_\_\_.

- A. 0 - 32, energized
- B. 33 - 50, energized
- C. 0 - 32, de-energized
- D. 33 - 50, de-energized

Answer: C

Associated KA:  
100866

Active Question Bank 2004

L75344

Describe the response of the Pressurizer Pressure Control System to a failure of an input transmitter.

L88170

Describe the Control Room controls associated with the Pressurizer Pressure Master Controller including it's indications.

L75245

Describe the Control Room controls associated with the Pressurizer Spray Valve Controller including it's indications.

Reference Id:  
Difficulty:  
Time to complete:  
10CFR Category:

Q62087  
3.00  
4  
CFR 55.41 (7) 55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Cognitive Level:  
Question Source:  
Comment:

Comprehension / Anal  
Modified PV Bank

Proposed reference to be provided to applicant during examination: None

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**2008 Reactor Operator Exam**

**Technical Reference:** LOIT lesson plan

**K&A:** Knowledge of the effect of a loss or malfunction of the following will have on the PZR  
PCS: PZR sprays and heaters

**Justification:**

A is Wrong - BU heaters do not energize till 2200 psia decreasing and turn off at 2225 increasing

B is Wrong - BU heaters do not energize till 2200 psia decreasing and turn off at 2225 increasing

C is Correct - Spray valves operate in the 33 - 55% master controller range, prop heaters 0 - 33%. These indications are for a failed open spray valve in both they are either both open or closed and the low pressure confirms a malfunction. the Controller would be calling for increasing output of the prop heaters therefore the range would be 0 - 33% output

D is Wrong - 33-55% is the full range of spray valve 2250 - 2275 psia

2008 Reactor Operator Exam

20

This Exam Level RO  
Appears on:

K/A # 37012K1.06  
Importance  
Rating:

Unit 1 is operating at 100% power when the following events occur:

- RCP 1A trips
- All 4 RPS channels of CPCs DNBR & LPD pre-trips and trips have initiated
- All 4 RPS channels SG-1 Lo Flow trips have initiated
- DNBR LO is in fast flash on the Reactor Trip 1st Out Annunciator board
- The Reactor has not tripped, phase current lights are still illuminated
- An AO has been sent to open the Reactor Trip Switchgear breakers locally

Under these conditions the Main Turbine ...

- A. tripped when the Reactor trip signal was generated.
- B. will trip when the Reactor trip undervoltage relays are actuated.
- C. will trip following the Reactor trip when the Overspeed signal is generated.
- D. will trip following the Reactor trip when the Reverse Power signal is generated.

Answer: B

Reference Id: Q10506  
 Difficulty: 3.00  
 Time to complete: 2  
 10CFR Category: CFR 55.41 (7) 55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.  
 Cognitive Level: Comprehension / Anal  
 Question Source: New  
 Comment:

**Proposed reference to be provided to applicant during examination:** None

**Technical Reference:** 01-E-MAB-0008

**K&A:** Knowledge of the physical connections and/or cause effect relationships between the RPS and the following systems: T/G

**Justification:**

A is Wrong - Turbine trip is generated by the UVRX relays

B is Correct - Turbine trip is generated by the UVRX relays which come from the RTSG breakers

C is Wrong -

D is Wrong - This would be on a Sequential trip

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21

This Exam Level RO  
Appears on:  
K/A # 2.4.9  
Importance  
Rating:

Unit 1 had been stable in Mode 4 but now the following conditions are observed:

- RCS is at 284°F and stable.
- Pressurizer pressure is 250 psia and lowering.
- Pressurizer level is 50% and lowering.
- Containment sump levels are increasing.
- Containment humidity is increasing.
- SG 1 pressure is 55 psia and stable
- RU-1, Containment Atmosphere is reading
- RU-4, SG 1 Blowdown is reading
- 1A and 1B RCPs are running.
- Shutdown cooling is not in service at this time.
- SIA-UV-651, SIC-UV-653, SIB-UV-652 and SID-UV-654 are open.

A \_\_\_\_\_ event is in progress and the CRS is required to enter ....

- A. LOCA, -- 40EP-9EO03 (Loss of Coolant Accident).
- B. Dual, -- 40EP-9EO09 (Functional Recovery Procedure).
- C. SGTR, -- 40EP-9EO04 (Steam Generator Tube Rupture).
- D. LOCA, -- 40EP-9EO11 (Lower Mode Functional Recovery).

Answer: D

Associated KA:  
L56421

Given plant conditions determine whether or not entry into or exit from the LMFRP is appropriate

Reference Id: Q10508  
 Difficulty: 2.00  
 Time to complete: 2  
 10CFR Category: CFR 55.41 (10) 55.41 (10) Administrative, normal, abnormal, and emergency operating procedures for the facility.  
 Cognitive Level: Comprehension / Anal  
 Question Source: New  
 Comment:

**Proposed reference to be provided to applicant during examination:** Steam Tables

**Technical Reference:** 40EP-9EO11, LMFRP

**K&A:** Emergency Procedures / Plan Knowledge of low power / shutdown implications in accident (e.g. LOCA or loss of RHR) mitigation strategies.

**Justification:**

A is Wrong - indications of a LOCA event are correct but with LTOPs is service LMFRP is the correct procedure

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B is Wrong - SG pressure is consistent with RCS temperature, RU-4 readings are normal = NO dual event

C is Wrong - SG pressure is consistent with RCS temperature, RU-4 readings are normal = NO SGTR

D is Correct - indications of a LOCA and LMFRP is required to be entered

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22

This Exam Level RO  
Appears on:

K/A # 32013K4.06  
Importance  
Rating:

Given the following conditions:

- Inadvertant "A" train Recirculation Actuation Signal (RAS) has initiated
- The initiating signal has been cleared

In order to reset the RAS in the AUX relay cabinets the Operator, **at a minimum**, must press ....

- A. either reset button.
- B. both reset buttons, one at a time.
- C. both reset buttons simultaneously.
- D. and hold one reset button, for a minimum of 5 seconds.

Answer: A

Associated KA:  
L77239

Describe how an ESFAS subsystem can be manually actuated and manually reset from the Aux Relay Cabinets.

100866

Active Question Bank 2004

Reference Id: Q8248  
 Difficulty: 2.00  
 Time to complete: 1  
 10CFR Category: CFR 55.41 (7) 55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Cognitive Level: Memory  
 Question Source: PV Bank Not Modified  
 Comment:

**Proposed reference to be provided to applicant during examination:** None

**Technical Reference:** LOIT lesson plans

**K&A:** Knowledge of ESFAS design feature(s) and/or interlocks(s) which provide for the following Recirculation actuation system reset

**Justification:**

A is Correct - de-pressing either button will immediately power up the actuation relays energizing the lockout relay and repositions contact to rest the signal

B, C & D will reset the RAS actuation but are not the minimum required actions

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23

This Exam Level RO  
Appears on:

K/A # 35022k1.04  
Importance  
Rating:

The Containment Normal ACUs are cooled by (1) and will isolate on a (2).

- A. (1) Normal Chilled Water (2) CSAS
- B. (1) Nuclear Cooling Water (2) CIAS
- C. (1) Normal Chilled Water (2) CIAS
- D. (1) Nuclear Cooling Water (2) CSAS

Answer: C

Associated KA:  
74427

Describe how the Containment Building HVAC System is supported by the following systems:

- Nuclear Cooling Water (NC)
- Normal Chilled Water (WC)
- Engineered Safety Features Actuation System (ESFAS)
- Balance of Plant-Engineered Safety Features Actuation System (BOP-ESFAS)

Reference Id: Q10509  
 Difficulty: 3.00  
 Time to complete: 2  
 10CFR Category: CFR 55.41 (4) 55.41 (4) Secondary coolant and auxiliary systems that affect the facility.  
 Cognitive Level: Memory  
 Question Source: New  
 Comment:

**Proposed reference to be provided to applicant during examination:** None

**Technical Reference:** LOIT lesson plan, 40OP-9HC01 (contmt HVAC), 01-M-WCP-0001

**K&A:** Knowledge of the physical connections and/or cause-effect relationships between the CCS and the following systems: Chilled water

**Justification:**

- A is Correct - WC supplies Cntmt normal HVAC and isolates on a CIAS
- B is Wrong - right supply but Nuclear Cooling water isolates on a CSAS
- C is Wrong - wrong supply but correct isolation signal / **NCW supplies the CEDM coolers**
- D is Wrong - wrong supply wrong signal

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24

This Exam Level RO  
Appears on:  
K/A # 34039a4.07  
Importance  
Rating:

Proper operation of an ADV from the control room requires that the operator initially check the thumbwheel set at zero for the controller, and enable  (a)  then  (b) .

- A. (a) both of the permissives (b) set the controller for the desired demand, the valve should open immediately.
- B. (a) either of the permissives (b) set the controller for the desired demand, the valve should open within 1 minute.
- C. (a) either of the permissives (b) set the demand to 30%, the valve should open immediately, then adjust controller demand as desired.
- D. (a) both of the permissives (b) set the demand to 30%, the valve should open within 1 minute, then adjust controller demand as desired.

Answer: D

Associated KA:  
L75014

Explain the operation of the Atmospheric Dump Valves under normal operating conditions.

Reference Id: Q3770  
Difficulty: 3.00  
Time to complete: 3  
10CFR Category:

CFR 55.41 (7) 55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Cognitive Level: Memory  
Question Source: Modified PV Bank  
Comment:

**Proposed reference to be provided to applicant during examination:** None

**Technical Reference:** 40OP-9SG01, Main Steam

**K&A:** Ability to manually operate and/or monitor in the control room: Steam dump valves.

**Justification:**

A is Wrong - requires both permissives and initial opening requires the demand be set at 30% also requires a minute to open

B is Wrong - initial opening requires the demand be set at 30% (PV event)

C is Wrong - requires both permissives requires a minute to open

D is Correct - this is correct operation per PVNGS note in the procedure mentions valve opens within a minute after to apply force required to overcome bonnet pressure. This reflect back to the PVNGS event of the 80s when the CR operators were unable to operate ADVs from the CR due to setting demand to low (10%)

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25

This Exam Level      RO  
Appears on:  
  
K/A #                    34059k4.16  
Importance  
Rating:

Four conditions that will cause a Feedwater Pump Trip are Lo Vacuum, ...

- A.      Hi vibrations, Hi discharge pressure and Thrust Bearing Wear
- B.      Lo bearing oil pressure, Loss of speed signal and Hi vibrations
- C.      Thrust Bearing Wear, Lo suction pressure and Hi discharge pressure
- D.      Lo suction pressure, Lo bearing oil pressure and Loss of speed signal

Answer:                C

Associated KA:  
100866

Active Question Bank 2004

L74627

Describe the conditions required to generate the following annunciators.

- FWPT Trip
- FWPT Trip Ckt Energized
- FWPT Lube Oil Press Low
- FWPT High Vibration
- FWP Discharge Press High
- FWPT Suction Pressure Low

L82496

Explain the operation of the MFWP Turbine Trip subsystem under normal operating conditions.

Reference Id:                    Q3418  
Difficulty:                        3.00  
Time to complete:                5

10CFR Category:

CFR 55.41 (7)

55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Cognitive Level:  
Question Source:  
Comment:

Memory  
Modified PV Bank

**Proposed reference to be provided to applicant during examination:** None

**Technical Reference:** 40AL-9RK6A windows 3B, 5A, 2A & 3C

**K&A:** Knowledge of MFW design feature(s) and/or interlock(s) which provide for the following: Automatic trips for MFW pumps

**Justification:**

- A is Wrong - Hi vibrations is alarm not trip
- B is Wrong - Loss of speed signal and Hi vibrations are is alarms not trip
- C is Correct - all trips not alarms
- D is Wrong - Loss of speed signal is alarm not trip

## 2008 Reactor Operator Exam

26

This Exam Level Appears on:	RO	SRO EXAM 2007
K/A # Importance Rating:	34061a2.05	3.40

Given the following plant conditions:

- Unit 1 tripped from 100% full power.
- SPTA's in progress
- SIAS, CIAS, MSIS, and AFAS-1 have initiated.
- The RCS is in forced circulation.
- Steam Generator #1 pressure is 745 psia and dropping rapidly.
- Steam Generator #1 level is 8% WR and dropping rapidly
- Steam Generator #2 pressure is 940 psia and slowly lowering.
- Steam Generator #2 level is 37% WR and slowly lowering.
- Auxiliary feedwater flow is > 2000 gpm to steam generator #1.
- Auxiliary feedwater flow is 0 gpm to steam generator #2.

Which ONE of the following actions correctly address the existing symptoms in accordance with the Excess Steam Demand procedure?

- AFAS-2 has failed. Throttle and balance flow to each steam generator.
- SG 2 > SG 1 lockout has failed. Stop feeding SG #1 and allow SG #2 to feed in RTO.
- AFAS-2 has failed. Initiate maximum flow to SG #2, allow maximum flow to SG #1 until level is greater than 10%.
- SG 2 > SG 1 lockout has failed. Stop feeding SG #1 and ensure auxiliary feedwater flow is restoring level in SG #2.

Answer: **D**

Associated KA:  
L11202

Given conditions of an ESD describe the mitigating strategy outlined in the ESD EOP

Reference Id: Q10244  
 Difficulty: 3.00  
 Time to complete: 4  
 Cognitive Level: Comprehension / Anal  
 Question Source: Modified PV Bank  
 Comment:

**Proposed reference to be provided to applicant during examination:**

**Technical Reference:** 40AL-9RK5B windows 5B08C/9C, ESD procedure

**K&A:** Ability to (a) predict the impacts of the following malfunctions or operations on the AFW; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Automatic control malfunction

**Justification:**

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A is Wrong - SG 2 is > AFAS setpoint and flow and SG 1 flow needs to be stopped

B is Wrong - delta-P lockout has failed but RCS is too cold to feed SG 2, 940# = 537 degrees which prevents RTO flow

C is Wrong - AFAS- 2 is fine. SG 2 doesn't need max flow and SG 1 feed should be stopped

D is Correct - DP lockout has failed setpoint is 185 psid, stop feeding SG 1

27

This Exam Level RO  
Appears on:

K/A # 36063k2.01  
Importance  
Rating:

The Main Turbine Emergency Bearing Oil pump is powered from the \_\_\_\_\_ system.

- A. PK, 125 VDC Class
- B. PH, 480 VAC Class
- C. NK, 125 VDC Non-Class
- D. NH, 480 VAC Non-Class

Answer: C

Associated KA:  
L68175

Describe the major Loads associated with the Non-Class 125 VDC Power System.

Reference Id: Q10511  
Difficulty: 2.00  
Time to complete: 2  
10CFR Category:

CFR 55.41 (7) 55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Cognitive Level: Memory  
Question Source: New  
Comment:

**Proposed reference to be provided to applicant during examination:**

**Technical Reference:** 40OP-9LO01, MT Lube Oil system

**K&A:** Knowledge of bus power supplies to the following: Major dc loads

**Justification:**

A is Wrong -

B is Wrong -

C is Correct - any other answer is incorrect, NKN-M46 is the power supply

D is Wrong -

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28

This Exam Level RO  
Appears on:

K/A # 36064k1.03  
Importance  
Rating:

Per LCO 3.8.3, Diesel Generator Fuel Oil Storage Tank level must be maintained greater than (a) level in order to provide storage for (b) days of continuou 100% rated output operation.

- A. (a) 71% (b) 7
- B. (a) 80% (b) 7
- C. (a) 71% (b) 10
- D. (a) 80% (b) 10

Answer: B

Associated KA:  
L75054

Explain the operation of the Diesel Fuel Oil sub-system under normal operating conditions.

Reference Id: Q10512  
 Difficulty: 3.00  
 Time to complete: 2  
 10CFR Category: CFR 55.41 (8) 55.41 (8) Components, capacity, and functions of emergency systems.  
 Cognitive Level: Memory  
 Question Source: New  
 Comment:

**Proposed reference to be provided to applicant during examination:** None

**Technical Reference:** Tech Specs and Bases

**K&A:** Knowledge of the physical connections and/or cause-effect relationships between the ED/G system and the following systems: Diesel fuel oil supply system

**Justification:**

- A is Wrong - 71% is mentioned in TS and is the level below which 3.0.3 would apply. 7 days is correct
- B is Correct - 80% and 7 days per LCO 3.8.3
- C is Wrong - 10 days is the LCO limit per 3.8.1
- D is Wrong - 10 days is the LCO limit per 3.8.1

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29

This Exam Level      RO  
Appears on:  
  
K/A #                    37073a1.01  
Importance  
Rating:

Given the following Unit 1 conditions:

- The plant is in a normal full power alignment
- Dry Cask storage and transfer operations are in progress
- "A" train of Control Room Essential Filtration System (CREFAS) is in bypass
- An event occurs causing Hi Radiation levels in the Fuel Building
- RU-19, New fuel storage area monitor
- RU-31, Fuel building ventilation monitor
- RU-145, Fuel building ventilation monitor
- RU-146, Fuel building ventilation monitor

Which one of the following should occur if radiation levels continue to increase?

- A.      RU-145 will shutdown, RU-146 comes on line
- B.      RU-31 will shutdown, RU-146 will come on line
- C.      RU -19 will initiate a full FBEVAS and CREVAS actuation
- D.      RU-145 will initiate a full FBEVAS actuation, only B train CREFAS actuates

Answer:                A

Associated KA:  
66731

Describe the interlocks associated with the Radiation Monitors at PVNGS

Reference Id:                    Q10513  
Difficulty:                        3.00  
Time to complete:                3  
10CFR Category:                CFR 55.41 (7)      55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.  
  
Cognitive Level:                Comprehension / Anal  
Question Source:                New  
Comment:

**Proposed reference to be provided to applicant during examination:** None

**Technical Reference:** LOIT lesson plan / 40OP-9SA01, BOP ESFAS operations / System Training Manuals

**K&A:** Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the PRM system controls including: Radiation levels

**Justification:**

A is Correct - RU-145 (low range) will shutdown after FBEVAS due to the monitor becoming over saturated, RU-146 high range comes on line

B is Wrong - RU-31 does not shutdown

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C is Wrong - RU-19 does not actuate either FBEVAS signal, RU-31/145

D is Wrong - Ru-145 will initiate a full FBEVAS signal and both trains of CREFAS will initiate. X-trips are downstream of bypass

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30

This Exam Level RO  
Appears on:

K/A # 34076a1.02  
Importance  
Rating:

The following conditions exist:

- The reactor is at 100% power
- Plant Cooling water pump "A" discharge pressure is rapidly degrading
- Plant Cooling water pump "B" trips on an 86 when it attempts to auto start
- Plant Cooling water header pressure continues to degrade

The CRS should direct ...

- A. cross connecting EW to NC per 40AO-9ZZ03
- B. an immediate Reactor trip and perform SPTAs
- C. a Turbine trip and perform 40AO-9ZZ08, Load Rejection
- D. one attempt to reset the 86 on the "B" PW pump per the Relay Resetting procedure

Answer: B

Associated KA:  
L62235

Given the Loss of Cooling Water AOP is being performed determine the appropriate mitigating strategies for a loss of plant cooling water

Reference Id:  
Difficulty:  
Time to complete:  
10CFR Category:

Q9937  
3.00  
4  
CFR 55.41 (5) 55.41 (5) Facility operating characteristics during steady state and transient conditions, including coolant chemistry, causes and effects of temperature, pressure and reactivity changes, effects of load changes, and operating limitations and reasons for these operating characteristics.

Cognitive Level:  
Question Source:  
Comment:

Memory  
PV Bank Not Modified

**Proposed reference to be provided to applicant during examination:** None

**Technical Reference:** 40A0-9ZZ03, Loss of Cooling Water AOP / Relay resetting procedure, 40DP-9OP02

**K&A:** Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the SWS controls including: Reactor and turbine building closed cooling water temperatures.

**Justification:**

A is Wrong - would be performed for a loss of NC only

B is Correct - procedure directs Rx trip and SPTAs

C is Wrong - Turbine Trip would reduce heat load but not directed by this procedure

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D is Wrong - 86 relays can only be reset in emergency if the DG is tied to the bus

## 2008 Reactor Operator Exam

31

This Exam Level RO  
Appears on:K/A # 34076k3.05  
Importance  
Rating:

Given the following plant conditions:

- Unit 1 is on Shutdown Cooling 'A' in a normal alignment.
- RCS temperature is 240° F
- RCS pressure is 195 psia
- A tube leak has just begun in the 'A' SDC heat exchanger.

Which ONE of the following symptoms will occur?

- A. RU-6, NC rad monitor alarm
- B. Decreasing spray pond level
- C. Increasing EW 'A' surge tank level
- D. Increasing rad levels in the west piping penetration room

Answer: C

Associated KA:

100866

Active Question Bank 2004

N76946

Describe the interface between the Essential Cooling Water system and its support/supported systems.

L65400

Describe how the Essential Cooling Water system is supported by the following systems:

- Radiation Monitoring (SQ)
- Service Gas (GA)
- Demineralized Water (DW)
- Chemical Waster (CM)
- Fire Portection (FP)
- Condensate Transfer (CT)
- Spray Pond (SP)
- Plant Protection System (SA)
- Auxiliary Building HVAC (HA)
- 4160 Class Distribution (PB)
- 480 VAC Class Motor Control Centers (PH)
- Essential Chilled Water (EC)

L65403

Describe how the Essential Cooling Water system supports the following systems:

- Essential Chilled Water (EC)
- Safety Injection (SI)
- Nuclear Cooling Water (NC)
- Fuel Pool Cooling (PC)

Reference Id:

Q20925

Difficulty:

3.00

Time to complete:

3

10CFR Category:

CFR 55.41 (7)

55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

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**2008 Reactor Operator Exam**

Cognitive Level:  
Question Source:  
Comment:

Comprehension / Anal  
New

**Proposed reference to be provided to applicant during examination:** None

**Technical Reference:** LOIT lesson plan

**K&A:** 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

**Justification:**

A is Wrong - SDC is cooled by EW system.

B is Wrong - SDC is at a higher pressure than EW

C is Correct - EW is the cooling medium for SDC and is at a higher pressure than EW.

D is Wrong - the "bowling alley" pipe chase is a long distance from the SDC Room and is not an expected symptom for this type of event.

2008 Reactor Operator Exam

32

This Exam Level RO  
Appears on:

K/A # 38078a3.01  
Importance  
Rating:

Given the following conditions:

- Unit 1 is operating in a normal full power alignment

The normal Instrument Air pressure is (a) psig and the Nitrogen backup valve opens at (b) psig.

- A. (a) 115 (b) 95
- B. (a) 115 (b) 85
- C. (a) 105 (b) 95
- D. (a) 105 (b) 85

Answer: B

Associated KA:  
L76595

Describe the Control Room indications associated with the Instrument Air system.

Reference Id: Q10515  
Difficulty: 3.00  
Time to complete: 2  
10CFR Category:

CFR 55.41 (7) 55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Cognitive Level: Memory  
Question Source: New  
Comment:

**Proposed reference to be provided to applicant during examination:** None

**Technical Reference:** 40OP-9IA01, IA system / 40AL-9RK7B, 7B01B ARP

**K&A:** Ability to monitor automatic operation of the IAS, including: Air pressure

**Justification:**

A is Wrong - 115 is correct but 95 is the low pressure alarm

B is Correct - 115 is correct and the N2 backup opens at 85 psig

C is Wrong - 105 is when the 3rd compressor should start and 95 is the low pressure alarm

D is Wrong - 105 is when the 3rd compressor should start but 85 is when the backup opens

2008 Reactor Operator Exam

33

This Exam Level RO  
Appears on:

K/A # 35103a3.01  
Importance  
Rating:

Given the following plant conditions:

- Containment pressure Channel A is 3.4 psig
- Containment pressure Channel B is 2.7 psig
- Containment pressure Channel C is 3.1 psig
- Containment pressure Channel D is 2.6 psig
- Pressurizer pressure Channel A is 1845 psia
- Pressurizer pressure Channel B is 1830 psia
- Pressurizer pressure Channel C is 1832 psia
- Pressurizer pressure Channel D is 1840 psia
- SG 1 pressure Channel A is 980 psia
- SG 1 pressure Channel B is 950 psia
- SG 1 pressure Channel C is 970 psia
- SG 1 pressure Channel D is 970 psia
- Any required ESFAS actuations have properly initiated
- 
- Assuming **NO** Operator actions, the SG sample valves are ....
  - A. closed due to SIAS & CIAS actuations only
  - B. closed due to a CIAS, SIAS and MSIS actuations
  - C. open, Hi containment trip setpoint (CIAS) has not been reached
  - D. open, Lo SG pressure trip setpoint (MSIS) has not been reached

Answer: B

Associated KA:  
L77167

Describe what automatically initiates the Containment Isolation Actuation System (CIAS) and its function.

Reference Id: Q10516  
Difficulty: 4.00  
Time to complete: 4

10CFR Category:

CFR 55.41 (7) 55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Cognitive Level: Comprehension / Anal  
Question Source: New  
Comment:

**Proposed reference to be provided to applicant during examination:** None

**Technical Reference:** 41AL-9RK5B windows 5C, 6C and 7C

**K&A:** Ability to monitor automatic operation of the containment system, including: Containment isolation

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**2008 Reactor Operator Exam**

**Justification:** *3.0 psig in cntmt will initiate CIAS, SIAS and MSIS signals*

A is Wrong - Valves will be closed, all 3 signals were generated not just SIAS/CIAS

B is Correct - Valves will be closed due all 3 ESFAS actuations

C is Wrong - open is wrong and CIAS initiates at 3 psig

D is Wrong - open is wrong but it is true that Lo pressure MSIS has not initiate

2008 Reactor Operator Exam

34

This Exam Level RO  
Appears on:

K/A # 37012K502  
Importance  
Rating:

Given the following conditions:

- Unit 1 is operating at 100% output
- RCP 1A experiences a failure causing it to slow down at 1% per minute

Assuming that all other input parameters remained the same, the CPC calculated value of DNBR will ...

- A. not change until RCP speed reaches 95% of rated speed, then a DNBR trip will occur.
- B. not change until RCP speed reaches 95% of rated speed, then an Auxiliary trip will occur.
- C. gradually decrease until RCP speed reaches 95% of rated speed, then a DNBR trip will occur.
- D. gradually decrease until RCP speed reaches 95% of rated speed, then an Auxiliary trip will occur.

Answer: C

Associated KA: 100866	Active Question Bank 2004
L78285	Explain how RCS Mass Flow rate is calculated in the Core Protection Calculators.
L98190	Describe the function of the Reactor Coolant Pump Speed inputs to the Core Protection Calculators.
L77427	Describe the function of the Reactor Coolant Pump Speed inputs to the Core Protection Calculators.
L98190	Describe the function of the Reactor Coolant Pump Speed inputs to the Core Protection Calculators.

Reference Id: Q3180  
 Difficulty: 3.00  
 Time to complete: 3  
 10CFR Category: CFR 55.41 (7) 55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.  
 Cognitive Level: Comprehension / Anal  
 Question Source: PV Bank Not Modified  
 Comment:

2008 Reactor Operator Exam

35

This Exam Level      RO  
Appears on:  
  
K/A #                    35103k3.03  
Importance  
Rating:

Given the following conditions:

- Unit 1 is in Mode 6
- Refueling Purge is in operation
- Core alterations are in progress
- RU-38, Power Access Purge B monitor has failed high and been placed in Bypass
- Effluents Tech reports that RU-37, Power Access Purge Monitor A has failed a channel check and recommends that the monitor be declared Inoperable

Which one of the following actions is required?

- A.      Containment must be evacuated
- B.      Core alterations must be stopped
- C.      RU-34, Containment Building Refueling Purge Monitor must be placed in service
- D.      Both trains of Control Room Essential Ventilation Actuation System (CREVAS) must be placed in service

Answer:                B

Associated KA:  
75094

Describe LCO 3.9.3 and its basis.

Reference Id:                    Q10517  
Difficulty:                        4.00  
Time to complete:                3  
10CFR Category:

CFR 55.41 (7)                    55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Cognitive Level:                Memory  
Question Source:                New  
Comment:

**Proposed reference to be provided to applicant during examination:**

**Technical Reference:** LCO 3.9.3

**K&A:** Knowledge of the effect that a loss or malfunction of the containment system will have on the following: Loss of containment integrity under refueling operations.

**Justification:**

A is Wrong - there is no accident in progress just a monitor/setpoint failure

B is Correct - LCO 3.9.3 requires that during core alterations contmt penetrations must be operable this would include CPIAS closure of refueling purge valves

C is Wrong - RU-34 is required for refueling purge operations

D is Wrong - CPIAS cross trips CREFAS but this action is not required

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2008 Reactor Operator Exam

36

This Exam Level      RO  
Appears on:  
  
K/A #                  34045k5.23  
Importance  
Rating:

Given the following conditions:

- Reactor power is currently at 40%
- Rod control (CEDMCS) is in Auto Sequential
- Group 5 CEAs are at 120 inches withdrawn
- A power accession to 60% is being performed
- A 1 gpm dilution is in progress
- **NO** Turbine load adjustments have been made
- RK window 4A08B, T-avg / T-ref, is in alarm
- CEA Auto Control Status has high a demand light illuminated

Which one of the following conditions is occurring?

- A.      CEAs are inserting at 3 inches per minute
- B.      CEAs are inserting at 30 inches per minute
- C.      CEAs are withdrawing at 3 inches per minute
- D.      CEAs are withdrawing at 30 inches per minute

Answer:                  A

Associated KA:                                  Rod Control & Boron concentration relationship  
**30269**

**L78793**                                  Describe the normal operation and any automatic functions / interlocks associated with CEDMCS.

Reference Id:                                  Q10518  
Difficulty:                                      3.00  
Time to complete:                            3  
10CFR Category:                            CFR 55.41 (5)                  55.41 (5) Facility operating characteristics during steady state and transient conditions, including coolant chemistry, causes and effects of temperature, pressure and reactivity changes, effects of load changes, and operating limitations and reasons for these operating characteristics.

Cognitive Level:                              Comprehension / Anal  
Question Source:                              New  
Comment:

**Proposed reference to be provided to applicant during examination:** None

**Technical Reference:** 40AL-9RK4A, window 4A08B / LOIT lesson plan / STM

**K&A:** Knowledge of the operational implications of the following concepts as they apply to the MT/B System: Relationship between rod control and RCS boron concentration during T/G load increases

**Justification:**

A is Correct - CEA will be inserting and AS is limited to 3 inches per minute

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B is Wrong - same as above, 30 inches is available in manual only

C & D are Wrong - CEAs will have an insertion demand signal

## 2008 Reactor Operator Exam

37

This Exam Level RO  
Appears on:K/A # 34056k1.03  
Importance  
Rating:

Given the following conditions:

- Unit 1 is operating at rated power
- The Secondary is in a normal full power alignment
- Feedwater Pumps A & B low suction pressure alarms (white alarm lights) have annunciated

Which one of the following conditions could have occurred?

- A. Lo-Lo level in the A Low Pressure heater strings
- B. Instrument Air isolated to B condensate pump miniflow valve
- C. Condensate Demin Bypass valve CDN-PDV-195 output is 0%
- D. Either of the B condensate suction valves CDN-HV-1 or 2 has closed

Answer: B

Associated KA:  
L67439

Discuss the purpose and conditions under which the Condensate System is designed to function.

Reference Id:  
Difficulty:  
Time to complete:  
10CFR Category:Q10519  
3.00  
2  
CFR 55.41 (5)

55.41 (5) Facility operating characteristics during steady state and transient conditions, including coolant chemistry, causes and effects of temperature, pressure and reactivity changes, effects of load changes, and operating limitations and reasons for these operating characteristics.

Cognitive Level:  
Question Source:  
Comment:Comprehension / Anal  
New**Proposed reference to be provided to applicant during examination:** None**Technical Reference:** LOIT lesson plan / 40AL-9RK6A, window 6A05D**K&A:** Knowledge of the physical connections and/or cause-effect relationships between the Condensate System and the following systems: MFW .**Justification:**

A is Wrong - Hi-HI level will cause a LP string to isolate

B is Wrong - miniflow fails open on loss of IA

C is Correct - CDN-HV-195 is reverse acting 0% output means the valve is open = more pressure to suction

D is Wrong - Both CDN\_HV-1 &amp; 2 have to close to cause the B condensate pump to trip

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38

This Exam Level      RO  
Appears on:

K/A #            2.1.4  
Importance  
Rating:

Per Conduct of Shift Operations, 40DP-9OP02, the minimum requirements to maintain an active Reactor Operator license are...

- A.      40 hours of licensed watchstanding duties in the previous month
- B.      60 hours of licensed watchstanding duties in the previous month
- C.      40 hours of licensed watchstanding duties in the previous calendar quarter
- D.      60 hours of licensed watchstanding duties in the previous calendar quarter

Answer:            D

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Associated KA:  
[L12030](#)

State the minimum requirements for shift crew manning.

Reference Id:            Q10520  
Difficulty:                3.00  
Time to complete:      2  
10CFR Category:      CFR 55.41 (10)      55.41 (10) Administrative, normal, abnormal, and emergency operating procedures for the facility.  
Cognitive Level:        Memory  
Question Source:        New  
Comment:

**Proposed reference to be provided to applicant during examination:** None

**Technical Reference:** 40DP-9OP02

**K&A:** Conduct of Operations: Knowledge of individual licensed operator responsibilities related to shift staffing, such as medical requirements, "no-solo" operation, maintenance of active license status, 10CFR55, etc.

**Justification:**

D is Correct - 60 HOURS PER QUARTER IS THE ONLY CORRECT ANSWER

2008 Reactor Operator Exam

39

This Exam Level RO  
Appears on:

K/A # 2.1.27  
Importance  
Rating:

Why do the the Fuel Building Essential AFUs automatically align to the Auxiliary Building during a SIAS?

- A. The essential AFU simply augment the normal AFUs, ensuring a negative pressure is maintained.
- B. Due to the number of additional heat loads, such as motors and piping, additional air movement is necessary.
- C. The essential AFUs are responsible for treating the air below the 100' elevation, which may contain contamination from a SI pump seal failure.
- D. Since the normal AHUs and AFUs trip on a SIAS, the Fuel Building Essential AFUs will ensure a negative pressure is kept on the building.

Answer: C

Associated KA:  
67350

Discuss the purpose and conditions under which the Fuel Building HVAC System is designed to function.

N77019

Describe the normal operation of the Normal Exhaust AFUs.

L62455

Given that a SIAS has actuated Identify why the Fuel Building essentials AFU take a suctions on the AUX building below the 100'

100866

Active Question Bank 2004

Reference Id:  
Difficulty:  
Time to complete:  
10CFR Category:

Q8310  
2.00  
2  
CFR 55.41 (7)

55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Cognitive Level:  
Question Source:  
Comment:

Memory  
PV Bank Not Modified

**Proposed reference to be provided to applicant during examination:**

**Technical Reference:**

**K&A:** Conduct of Operations: Knowledge of system purpose and or function.

**Justification:**

A is Correct -

B is Correct -

C is Wrong -

D is Wrong -

## 2008 Reactor Operator Exam

40

This Exam Level RO  
Appears on:K/A # 2.1.34  
Importance  
Rating:

Which one of the below listed conditions would require an immediate Reactor trip?

- A. RCP 1A seal failure and Bleedoff flow is 7 gpm
- B. RCS leak with letdown in service, 3 charging pumps operating and lowering pressurizer level
- C. Main Generator sync'd to the grid with 1400 MW output and Condenser Vacuum is 5 inches HgA
- D. Steam Generator Chemistry, Chlorides are > 1 ppm with a corresponding rise in Cation Conductivity

Answer: D

Associated KA:  
L10043

Determine if a reactor trip is necessary and if so, what actions are required after the trip

Reference Id: Q22405  
 Difficulty: 4.00  
 Time to complete: 3  
 10CFR Category: CFR 55.41 (10) 55.41 (10) Administrative, normal, abnormal, and emergency operating procedures for the facility.  
 Cognitive Level: Memory  
 Question Source: New  
 Comment:

Conduct of Operations: Knowledge of primary and secondary plant chemistry limits

**Proposed reference to be provided to applicant during examination:****Technical Reference:****K&A:****Justification:**

A is Correct -

B is Correct -

C is Wrong -

D is Wrong -

2008 Reactor Operator Exam

41

This Exam Level RO  
Appears on:

K/A # 2.2.21  
Importance  
Rating:

Given the following conditions:

- Unit 1 is in mode 1
- The "A" Diesel Generator (DG) and Spray Pond pump were removed from service for scheduled maintenance on July 1st
- The DG quarterly SR 100% date was July 1st
- Today is July 3rd, all work and required retest of the "A" DG have been completed

The minimum requirements to declare the "A" DG Operable is that the "A" Spray pond pump be ...

- A. Functional. (only)
- B. Operable. (only)
- C. Functional and the quarterly Diesel SR is completed.
- D. Operable and the quarterly Diesel SR is completed.

Answer: B

Associated KA:  
[L79568](#)

Given a copy of TS and the TRM Determine if a specific piece of equipment is required to be operable.

Reference Id: Q22406  
Difficulty: 3.00  
Time to complete: 3  
10CFR Category: CFR 55.41 (5)

55.41 (5) Facility operating characteristics during steady state and transient conditions, including coolant chemistry, causes and effects of temperature, pressure and reactivity changes, effects of load changes, and operating limitations and reasons for these operating characteristics.

Cognitive Level: Comprehension / Anal  
Question Source: New  
Comment:

Equipment Control Knowledge of pre- and post-maintenance operability requirements.  
**Proposed reference to be provided to applicant during examination:**

**Technical Reference:**

**K&A:**

**Justification:**

- A is Correct -
- B is Correct -
- C is Wrong -
- D is Wrong -

2008 Reactor Operator Exam

42

This Exam Level RO  
Appears on:

K/A # 2.2.42  
Importance  
Rating:

Given the following conditions:

- Unit 1 is operating at rated power

Which one of the following is an entry level condition for Tech Specs?

- A. 610 psig in SIT 1A
- B. 60% Pressurizer level
- C. 86 lockout/trip of the "A" Fuel Pool Cooling pump
- D. 86 lockout/trip of a single DG "A" starting air compressor

Answer: B

Associated KA:  
L89775

Given a set of plant conditions determine whether or not the LCOs of 3.4 are satisfied

Reference Id:  
Difficulty:  
Time to complete:  
10CFR Category:

Q22407  
4.00  
3  
CFR 55.41 (7)

55.41 (7) Design, components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Cognitive Level:  
Question Source:  
Comment:

Memory  
New

**Proposed reference to be provided to applicant during examination:** None

**Technical Reference:** Tech specs

**K&A:** Equipment Control: Ability to recognize system parameters that are entry level conditions for Tech Specs

**Justification:**

A is Wrong - 610 psig is the low alarm, TS is 600 psig

B is Correct - LCO 3.4.9 27 band is 27 to 56% pwr level

C is Wrong - "A" fuel pool cooling is a class powered pump but not TS, temp is the LCO

D is Wrong - DG air pressure is TS not the compressors

## 2008 Reactor Operator Exam

43

This Exam Level RO  
Appears on:K/A # 2.3.4  
Importance  
Rating:

Which of the following is the 10 CFR20 annual exposure limit for Whole Body (TEDE) and Lens of the eyes (LDE)?

- A. 1500 mrem TEDE, 15 Rem LDE
- B. 1500 mrem TEDE, 50 Rem LDE
- C. 5 Rem TEDE, 15 Rem LDE
- D. 5 Rem TEDE, 50 Rem LDE

Answer: C

Associated KA:  
30226

exposure limits

Reference Id: Q22408  
 Difficulty: 2.00  
 Time to complete: 2  
 10CFR Category: CFR 55.41 (12) 55.41 (12) Radiological safety principles and procedures.  
 Cognitive Level: Memory  
 Question Source: New  
 Comment:

**Proposed reference to be provided to applicant during examination:** None

**Technical Reference:** General Employee Training / EPIP-99, appendix K

**K&A:** Radiation Control: Knowledge of radiation exposure limits under normal or emergency conditions.

**Justification:**

A is Wrong - 1500mrem is the quarterly limit, 15 LDE is correct

B is Wrong - 1500mrem is the quarterly limit, 50 is the extremities limit

C is Correct - 5 Rem is the yearly TEDE limit and 15 is correct

D is Wrong - 5 Rem is the yearly TEDE limit, 50 is the extremities limit

## 2008 Reactor Operator Exam

44

This Exam Level RO  
Appears on:K/A # 2.3.13  
Importance  
Rating:

Given the following conditions:

- Unit 1 is operating at rated power
- Unit 3 is supplying the Aux Steam Cross-Tie Header
- ERFDADS leakrate has increased from .3 to 1.1 gpm
- RU-139, Main Steam Line monitor shows an increasing trend
- RU-141, Condenser Vacuum/Gland Seal Exhaust shows an increasing trend
- RU-142, (all channels) Main Steam Line N-16 monitor show an increasing trend

Which one of the following actions is **NOT** directed by the Excessive RCS Leakrate AOP for these conditions?

- A. Select OFF on SGN-HS-1007 & 1008, Mode select switches
- B. Close the Unit 3 Aux Steam isolation valve to the x-tie header
- C. Place ARN-HS-19, Post Filter Mode Select Switch, in the "THRU FILTER MODE"
- D. Throttle open CDN-HV-275, Demin Water Feed to the Condensate Service Header

Answer: B

Associated KA:  
L10174

Given indications of a Steam Generator Tube Leak, describe the possible adverse effects of SBCS and Aux. Stream operation, and the operator action to minimize these consequences.

Reference Id: Q22409  
 Difficulty: 4.00  
 Time to complete: 4  
 10CFR Category: CFR 55.41 (12) 55.41 (12) Radiological safety principles and procedures.  
 Cognitive Level: Memory  
 Question Source: New  
 Comment:

**Proposed reference to be provided to applicant during examination:** None**Technical Reference:** 40AO-9ZZ02, Excessive RCS Leakrate**K&A:** Radiation Control: Knowledge of radiological safety procedures pertaining to licensed operator duties, such as response to radiation monitor alarms, containment entry requirements, fuel handling responsibilities, access to locked high-radiation areas, aligning filters, etc.**Justification:** all of these actions except isolating Unit 3 from the aux steam x-tie header can be found in appendix C of 40AO-9ZZ02

A is Wrong -

B is Correct -

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C is Wrong -

D is Wrong -



2008 Reactor Operator Exam

46

This Exam Level RO  
Appears on:

K/A # 44E06ek1.1  
Importance  
Rating:

Given the following plant conditions:

- A reactor trip from 100% power occurs due to an inadvertent MSIS "A".
- PBA-S03 is de-energized due to a bus lockout.
- AFB-P01 is out of service to repair a pump bearing and is disassembled.
- AFA-P01 tripped on overspeed.

The crew has completed the SPTA's and the CRS has entered the appropriate EOP.

Which ONE of the following Operator actions should be performed first?

Answer:

Associated KA:  
100866

Active Question Bank 2004

L76768

Given a loss of all feedwater event perform required actions

L90312

As an operating crew mitigate a loss of all feedwater using the condensate pumps

L61371

Describe the major mitigating strategies used during a LOAF.

L61386

Describe how the RCPs are operated (including the bases for this action) during a LOAF.

L10494

Given a Loss of all Feed determine the major mitigating strategies contained in 40EP-9EO06

Reference Id: Q0878

Difficulty: 2.00

Time to complete: 2

10CFR Category: CFR 55.41 (10) 55.41 (10) Administrative, normal, abnormal, and emergency operating procedures for the facility.

Cognitive Level: Comprehension / Anal

Question Source: PV Bank Not Modified

Comment:

**Proposed reference to be provided to applicant during examination:** None

**Technical Reference:** 40EP-99EO06, LOAF

**K&A:** Knowledge of the operational implications of the following concepts as they apply to the (Loss of Feedwater) Normal, abnormal and emergency operating procedures associated with (Loss of Feedwater), facility's license and amendments.

**Justification:**

A is Correct - step 4 of LOAF

B is Wrong - PBA-S03 is dead

C is Wrong - no indication that AFAS is currently required and no AF pumps are available

D is Wrong - Condensate pumps are performed in the FRP

## 2008 Reactor Operator Exam

## Cognitive Level Summary

Number of questions linked:	45	Percentage
Memory	23	23
Comprehension	0	0
Analysis	0	0

## Question Source Summary

Number of questions linked to source:	45	Percentage
<b>New</b>		
New	28	28
<b>Modified</b>		
INPO Bank Modified	0	
PV Bank Modified	8	
Total Modified	8	8
<b>Bank</b>		
INPO Bank Not Modified	0	
PV Bank Not Modified	9	
PV NRC Exam Question Not Modified	0	
Total BANK	9	9

2008 Senior Reactor Operator Exam

1

This Exam Level Appears on:	SRO
	SRO EXAM 2008 Tier 1 Group 1
K/A #	2.4.44
Importance Rating:	4.40

Given the following conditions:

- Unit 1 was manually tripped due to lowering Pzr pressure and level
- SIAS/CIAS/MSIS have properly initiated
- SBCS is maintaining T-cold at 565°F
- RCS pressure is stable at 1750 psia
- HPSI flow is adequate
- Cntmt pressure which had been 4.5 psig is rapidly dropping
- RU-148 is reading 2.2E +05 mrem/hr
- RU-149 is reading 2.3E +05 mrem/hr
- Wind is from 210°

What (if any) Protective Action Recommendations (PARs) should be made for these conditions?

- A. No PARs are required
- B. Shelter within a 2-mile radius
- C. Evacuation for a 2-mile radius and 5 miles in sectors A-B-C
- D. Evacuation for a 2-mile radius and 5 miles in sectors B-C-D

Answer: B

Associated KA:  
L92708

Given the appropriate portions of EPIP-01 and either plant conditions or an EAL identify the prescribed Protective Action Recommendations.

Reference Id:  
Difficulty:  
Time to complete:  
10CFR Category:

Q10469  
3.00  
4  
CFR 55.43 (5)      55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Cognitive Level:  
Question Source:  
Comment:

Comprehension / Anal  
New

**Proposed reference to be provided to applicant during examination:** EPIP-99, appendices A (table 1) & B

**Technical Reference:** EPIP-99, appendices A & B

**K&A:** Knowledge of emergency plan protective action recommendations.

**Justification:**

**A is wrong - event is an SAE requiring PARs**

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**2008 Senior Reactor Operator Exam**

**B is correct - event is SAE requiring shelter for a 2-mile radius**

- 1. potential loss of RCS (LOCA) with no loss of subcooling [1-6]**
- 2. loss of containment [1-10]**

**C and D are wrong - Rad Monitor reading while elevated do not meet requirement for a LOSS of Fuel Clad Barrier which would elevate to a GE and require evacuation**

2008 Senior Reactor Operator Exam

2

This Exam Level      SRO  
Appears on:

K/A #                  2.4.20  
Importance  
Rating:

The following plant conditions exist:

- Unit 1 tripped from 100% power.
- Pressurizer pressure is 1600 psia and lowering.
- PZR level is 28% and lowering.
- Containment pressure is 3.5 psig and increasing.
- SG #1 pressure is 1090 psia and stable.
- SG #2 pressure is 1100 psia and stable.
- SG #1 level is 70% WR and lowering.
- SG #2 level is 70% WR and lowering.
- RCS T-cold is 560°F and slowly lowering.
- Containment temperature is 112°F and increasing.
- Containment humidity is 42% and increasing.
- HPSI flow is 150 gpm to each loop.
- SIAS/CIAS/MSIS have initiated.

The CRS has come to the step in the Emergency Operating Procedure regarding throttling HPSI flow and finds the following:

**CAUTION**

Throttling HPSI injection valves will cause erosion to downstream piping

The correct mitigating EOP for these conditions is (A) and throttling HPSI injection valves to lower HPSI flow (B)

- A.      (A) LOCA (B) is not permitted
- B.      (A) ESD (B) is not permitted
- C.      (A) LOCA (B) is permitted but not preferred
- D.      (A) ESD (B) is permitted but not preferred

Answer:                  C

Associated KA:  
16350

Describe the use of cautions and notes in the EOPs.

Reference Id:  
Difficulty:  
Time to complete:  
10CFR Category:

Q10483  
0.00  
0  
CFR 55.43 (5)      55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

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**2008 Senior Reactor Operator Exam**

Cognitive Level:  
Question Source:  
Comment:

Comprehension / Anal  
New

**Proposed reference to be provided to applicant during examination:** None

**Technical Reference:** 40DP-9AP16, EOP Users Guide 40DP-9AP15 EOP writers guide

**K&A:** Knowledge of the operational implications of EOP warnings, cautions, and notes.

**Justification:**

A is Wrong - LOCA is correct but caution only warn of potential hazard not give direction

B is Wrong - ESD is wrong

C is Correct - LOCA is correct and the caution would prefer full valve stroke but it is not required

D is Wrong - ESD is Wrong

2008 Senior Reactor Operator Exam

3

This Exam Level      SRO  
Appears on:

K/A #                  2.1.25  
Importance  
Rating:

Given the following conditions:

- Unit-1 has been shutdown for five days and is currently in Mode 5
- The RCS is being maintained at 102 ft 6 inches in preparation for installing Steam Generator Nozzle Dams
- The Steam Generator primary manways are off
- RCS temperature is 135 °F

Per the tables found in the Unit-1 Safety Analyses Operational Data (SAOD) during a sustained Loss of Shutdown Cooling the RCS ...

- A.      time to boil is 18.9 minutes
- B.      time to boil is 23.3 minutes
- C.      makeup flowrate to compensate for boil off is 76.9 gpm
- D.      makeup flowrate to compensate for boil off is 98.5 gpm

Answer:                  D

Associated KA:  
L56598

Given the LMFRP HR-2 is being performed, and provided with Time to Boil curves determine time to core boiling using the TTB curves in the back of the core data book and describe what this value is used for

100866

Active Question Bank 2004

Reference Id:                  Q1187  
 Difficulty:                      4.00  
 Time to complete:              5  
 10CFR Category:              CFR 55.43 (5)      55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.  
 Cognitive Level:                  Comprehension / Anal  
 Question Source:                  Modified PV Bank  
 Comment:

**Proposed reference to be provided to applicant during examination:** Unit-1 Safety Analysis Operational Data (SAOD)

**Technical Reference:** Unit-1 Safety Analysis Operational Data (SAOD)

**K&A:** Ability to interpret reference materials, such as graphs, curves, tables, etc.

**Justification:**

**A is Wrong, time to boil at midloop is 14.7 minutes (18.9 comes from flange level after core reload)**

**B is Wrong, time to boil at midloop is 14.7 minutes (23.3 comes from flange level prior to core reload)**

**2008 Senior Reactor Operator Exam**

**C is Wrong, 76.9 gpm is the makeup requirement for midloop after core reload**

**D is Correct, this is the makeup rate for midloop prior to core offload**

## 2008 Senior Reactor Operator Exam

4

This Exam Level      SRO  
Appears on:K/A #                42056AA209  
Importance  
Rating:

Given the following plant conditions:

- The plant is operating at 100% power
- NAN-S02 Fast Bus Transfer is blocked due to SWYD maintenance
- The "A" and "C" Containment Normal ACUs are running
- The "B" and "D" Containment Normal ACUs are in standby.
- The "A" and "B" Normal Chillers are running
- NAN-S05 bus faults and de-energizes
- All equipment actuates as expected

The CRS should implement ...

- A. 40EP-9EO02 (Reactor Trip), containment cooling can be restored by cross connecting Essential Cooling Water to Nuclear Cooling Water
- B. 40EP-9EO07 (LOOP), containment cooling will be restored when the A & C normal containment ACUs and the A normal chiller automatically restart after the "A" train LOP
- C. 40EP-9EO07 (LOOP), containment cooling can be restored by cross connecting Essential Cooling Water to Nuclear Cooling Water
- D. 40EP-9EO02 (Reactor Trip), containment cooling will be restored when the A & C normal containment ACUs and the A normal chiller automatically restart after the "A" train LOP

Answer:            C

Associated KA:  
74452

Describe the automatic functions associated with the Containment Building Normal ACU Fans (HCN-A01-A, B, C, &amp; D) .

Reference Id:            Q10470

Difficulty:                4.00

Time to complete:        0

10CFR Category:        CFR 55.43 (5)        55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Cognitive Level:        Comprehension / Anal

Question Source:        New

Comment:

**Proposed reference to be provided to applicant during examination:** None**Technical Reference:** 40EP-0EO07(LOOP)**K&A:** Ability to determine and interpret the following as they apply to the Loss of Offsite Power: Operational status of reactor building cooling unit

---

**2008 Senior Reactor Operator Exam****Justification:**

**A is Wrong, 40AO-9zz12 may be entered to supplement the EOP in use but the A/C ACUs will restart following the LOP not B/D in addition the fans will be running but normal chillers have lost power due to the LOOP**

**B is Wrong, 40AO-9ZZ20 may be entered to supplement the EOP in use but there are normal chillers running due the loss of NA/NB buses (LOOP)**

**C is Correct, Although there is power available in the swyd the faulted S05 bus and the fast bus transfer block on the SO2 creates a loss of NA/NB buses requiring entry in to the LOOP procedure. LOOP has steps to x-tie EW to NC to restore cooling as needed.**

**D is Wrong, the event is LOOP/LOFC in addition there is no auto start of the "A" normal chiller although it is power from PBA-S03**

2008 Senior Reactor Operator Exam

5

This Exam Level      SRO  
Appears on:

K/A #                  44E02EA22  
Importance  
Rating:

Given the following conditions:

- Unit - 1 tripped from 100%
- RU-142 (N-16 Main steam Line Monitor) channel 1 was reading 92 cpm at the time of the trip
- RU-142 (N-16 Main steam Line Monitor) channel 2 was reading 96 cpm at the time of the trip
- RCS pressure 2150 psia and slowly lowering
- Pressurizer level 31% and recovering
- SG 1 level is 65% WR and lowering
- SG 2 level is 60% WR and lowering
- NAN-S01 is de-energized
- PBA-S03 is de-energized
- NNN-D11 is de-energized
- RCS Thot is 565°F and slowly lowering
- RCS Tcold is 562°F and slowly lowering
- Main Feedwater flow is 0 gpm to each SG

The CRS should enter ...

- A.      Reactor Trip and stabilize Tcold 560 to 570 °F
- B.      Loss of All Feedwater and restore SG levels to 45 to 60% NR
- C.      Steam Generator Tube Rupture and lower Thot to less than 540 °F
- D.      Loss of Offsite Power/Loss of Forced Circulation and initiate MSIS

Answer:                  A

Associated KA:  
L10350

Given conditions of a reactor trip analyze whether or not entry into the Reactor Trip EOP is appropriate

Reference Id:  
Difficulty:  
Time to complete:  
10CFR Category:

Q10471  
2.00  
2  
CFR 55.43 (5)

55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Cognitive Level:  
Question Source:  
Comment:

Comprehension / Anal  
New

**Proposed reference to be provided to applicant during examination:** None

**Technical Reference:** Reactor Trip (40EP-9EO02), 40AO-9ZZ14 (Loss of non class instrument power)

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**2008 Senior Reactor Operator Exam**

**K&A:** Ability to determine and interpret the following as they apply to the (Reactor Trip Recovery) Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments.

**Justification:**

**A is Correct, all indications are consistent with RT and RT directs the use of ADVs to stabilize RCS temperature with a loss of SBCS (NNN-D11)**

**B is Wrong, SG feed rate is 0 gpm due to low RCS temp < 564 which is the cut off for Reactor Trip Override (RTO). Additionally AF "A" and AF "B" are available**

**C is Wrong, low RCS temperature and pressure could be indicative of SGTR but the SG RU readings are in the normal range**

**D is wrong, NAN-S02 is still energized**

2008 Senior Reactor Operator Exam

6

This Exam Level      SRO  
Appears on:

K/A #                  44E06EA22  
Importance  
Rating:

Given the following conditions:

- Unit 1 tripped on Lo SG pressure caused by a steam line break
- SG 1 pressure is currently 1170 psia being controlled by ADVs
- SG 2 pressure is currently 1180 psia being controlled by ADVs
- Offsite power was lost on the turbine trip
- 4160 bus PBA-S03 has faulted and is de-energized
- Both SG levels are 20% WR and slowly lowering
- AFA-P01 has tripped on overspeed
- AFB-P01 has tripped due to an 86 lock-out
- Feed rate to both SGs is 0 gpm.
- All appropriate ESFAS actuations have initiated

Which one of the following would be the appropriate procedurally directed action to restore the RCS Heat Removal Safety Function?

- A.      Reset AFA-P01 overspeed trip and establish feed after 40EP-9EO06 (LOAF) is entered
- B.      Depressurize a SG and establish feedflow with a Condensate pump after 40EP-9EO09 (FRP) is entered
- C.      Stop the RCPs and establish feed using a Main Feedwater pump after 40EP-9EO07 (LOOP) is entered
- D.      Override the Downcomer isolation valves and establish feed using AFN-P01 prior to exiting the Standard Post Trip Actions

Answer:                  A

Associated KA:  
L61371

Describe the major mitigating strategies used during a LOAF.

Reference Id:                  Q10472  
Difficulty:                      3.00  
Time to complete:            4  
10CFR Category:              CFR 55.43 (5)

55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Cognitive Level:              Comprehension / Anal  
Question Source:              Modified PV Bank  
Comment:

**Proposed reference to be provided to applicant during examination:** NONE

**Technical Reference:** EOP Operations Expectations, 40EP-9EO01 (SPTAs). 40EP-9EO06 (LOAF)

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**2008 Senior Reactor Operator Exam**

**K&A:** Ability to determine and interpret the following as they apply to the (Loss of Feedwater) Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments.

**Modified from Q10472**

**Justification:**

A is Correct - LOAF allows the resetting of AFA per appendix 38

B is Wrong - Condensate pumps are not available due the LOOP

C is Wrong - LOOP will not restore feedwater and MFPS are not available due to MSIS and LOOP causing a loss of vacuum

D is Wrong - AFN-P01 has lost power, PBA-S03

2008 Senior Reactor Operator Exam

7

This Exam Level      SRO  
Appears on:

K/A #                  2.3.14  
Importance  
Rating:

Given the following conditions:

- Unit 1 manually tripped due to lowering Pressurizer level and pressure
- SIAS/CIAS were manually initiated on trend
- AFA-P01 (Steam Driven AFW pump) is OOS and under clearance
- T-cold is 564 °F controlled by SBCVs 1 & 4
- RCS pressure is 1850 psia and lowering
- Containment pressure is .3 psig and stable
- SGs are being fed by Main Feed pumps in RTO
- SG 1 level is 55% WR and increasing
- SG 2 level is 47% WR and dropping

Which one of the following events (occurring independently) would cause an increase the radioactive release rate to atmosphere (get worse)?

- A.      Offsite power de-energizes
- B.      Both Main Feed pumps trip
- C.      Increasing the RCS leakrate
- D.      **NOT** stopping 2 RCPs when required

Answer:                  A

Associated KA:  
L11218

Given that the SGTR EOP is being implemented describe the SGTR EOP mitigation strategy

Reference Id:	Q10473	
Difficulty:	4.00	
Time to complete:	3	
10CFR Category:	CFR 55.43 (4)	55.43 (4) Radiation hazards that may arise during normal and abnormal situations, including maintenance activities and various contamination conditions.
Cognitive Level:	Comprehension / Anal	
Question Source:	New	
Comment:		

**Proposed reference to be provided to applicant during examination:** None

**Technical Reference:**                          40EP-9EO04

**K&A:** Knowledge of radiation or contamination hazards that may arise during normal, abnormal, or emergency conditions or activities.

**Justification:** examinee has adequate information to determine that a SGTR on SG #1 is occurring

A is correct - a loss of Offsite power will cause a loss of vacuum leading to the use of ADVs or SBCVs 7 and 8 either one will cause a release to atmosphere

**2008 Senior Reactor Operator Exam**

B is wrong - with AFA OOS starting any other AFW pump will not cause a release

C is wrong - increasing the RCS leakrate with good vacuum will not increase the release to atmosphere

D is wrong - with a SGTR not stopping RCPs will not cause a bigger leak as it would for a LOCA

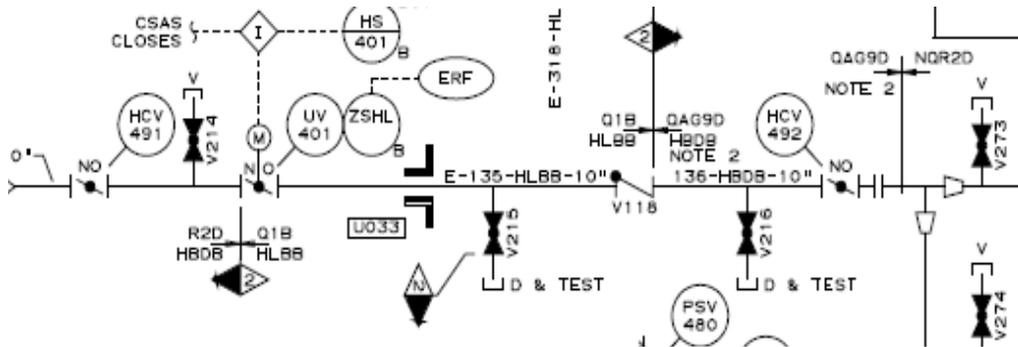
2008 Senior Reactor Operator Exam

8

This Exam Level SRO  
Appears on:

K/A # 42069AA201  
Importance  
Rating:

Given the following:



- Unit 1 is in Mode 3
- NCB-UV-401 failed it's stroke time Surveillance Test and has been declared INOPERABLE

Containment Isolation (LCO 3.6.3) ...

- A. does not apply in Mode 3
- B. does not apply, NCB-UV-401 closes on a Containment Spray signal
- C. can be complied with by closing and tagging NCN-HCV-491 within 4 hours
- D. can be complied with provided the system remains filled and check valve NCA-V118 remains Operable

Answer: C

Associated KA:  
L89788

Given a set of plant conditions apply the one hour or less actions statements of T.S. 3.6

Reference Id: Q10474  
 Difficulty: 5.00  
 Time to complete: 3  
 10CFR Category: CFR 55.43 (1) 55.43 (1) Conditions and limitations in the facility license.  
 Cognitive Level: Memory  
 Question Source: New  
 Comment:

**Proposed reference to be provided to applicant during examination:** None

**Technical Reference:** Tech Specs 3.6.3

**K&A:** Ability to determine and interpret the following as they apply to the Loss of Containment Integrity:

**Justification:**

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A is wrong - 3.6.3 applies modes 1 - 4

B is wrong - the valve does close on CSAS but CIAS does apply

C is correct - LCO 3.6.3 condition A allows the use of a check valve and slow thru the valve secured

D is wrong - check valve can be given credit with flow secured

## 2008 Senior Reactor Operator Exam

9

This Exam Level      SRO  
Appears on:K/A #                44A16AA22  
Importance  
Rating:

Given the following conditions:

- Letdown flow has lowered to maintain Pzr level constant.
- RCS temperature is stable.
- ERFDADS indicates a stable 12 gpm RCS leakrate
- Equipment Drain Tank (EDT) level is increasing.
- RU-1 (Containment Atmosphere) is reading  $7.5 \text{ E} - 02 \text{ } \mu\text{Ci/cc}$
- RU-6 (Nuclear Cooling Water) is reading  $1.14 \text{ E} - 06 \text{ } \mu\text{Ci/cc}$
- RU-141, ch 1 (Condenser Vacuum/Gland Steam Exhaust) is reading  $4.61 \text{ E} - 07 \text{ } \mu\text{Ci/cc}$

Based on these conditions the operating crew is required to implement the Excessive RCS Leakrate AOP ...

- A.      section 5.0 due to SG Tube leakage. Take actions per condition B of LCO 3.4.14.
- B.      section 3.0 due to RCS identified leakage. Take actions per condition A of LCO 3.4.14.
- C.      section 3.0 due to RCS unidentified leakage. Take actions per condition A of LCO 3.4.14.
- D.      section 4.0 due to RCS to Nuclear Cooling Water leakage. Take actions per condition B of LCO 3.4.14.

Answer:            B

Associated KA:  
L10169

Given indications of RCS or a Steam Generator Tube Leak, describe the basic procedure methodology, including Reactor Trip is thresholds,

Reference Id:                    Q10475  
 Difficulty:                        3.00  
 Time to complete:                4  
 10CFR Category:                CFR 55.43 (1)      55.43 (1) Conditions and limitations in the facility license.  
 Cognitive Level:                 Comprehension / Anal  
 Question Source:                New  
 Comment:

**Proposed reference to be provided to applicant during examination:** Tech Spec LCO 3.4.14**Technical Reference:** LCO 3.4.14, 40AO-9ZZ03 (Excessive RCS Leakage)**K&A:** Adherence to appropriate procedures and operation within the limitations in the facility\*s license and amendments.**Justification:****A is Wrong. this is not a SGTL, RU 141 reading are normal**

**2008 Senior Reactor Operator Exam**

**B is Correct.** candidate has sufficient info to determine identified leakage exceeds limits (10 gpm) of LCO 3.4.14. EDT level increasing and normal RU-1 readings indicate identified leakage.

**C is Wrong.** this is not unidentified leakage it is going to the EDT

**D is wrong.** this is not a leak in to NCW, RU-6 readings are normal

2008 Senior Reactor Operator Exam

10

This Exam Level Appears on: SRO

K/A # 236  
Importance  
Rating:

Given the following plant conditions:

- A large break LOCA has occurred.
- Due to emergency conditions a gaseous radioactive release from Containment must be performed to relieve pressure in the containment and bring the plant to a safer condition.

Who may authorize this release without a release permit?

- A. Shift Manager.
- B. Effluents Supervisor.
- C. Chemistry Supervisor.
- D. Radiation Protection Supervisor.

Answer: A

Associated KA:  
L57256

Given that abnormal conditions require exceeding ODCM requirements describe whose authority is needed to exceed requirements and what reporting is necessary

100866

Active Question Bank 2004

Reference Id: Q6695  
 Difficulty: 3.00  
 Time to complete: 4  
 10CFR Category: CFR 55.43 (4) 55.43 (4) Radiation hazards that may arise during normal and abnormal situations, including maintenance activities and various contamination conditions.

Cognitive Level: Memory  
 Question Source: PV Bank Not Modified  
 Comment:

**Proposed reference to be provided to applicant during examination:** None

**Technical Reference:** LOIT lesson plan / 74RM-9EF20, GR release permits and offsite dose assessments

**K&A:** Knowledge of the requirements for reviewing and approving release permits.

**Justification:**

A is Correct - Only the Shift Manager or CRS allowed to approve emergency release's to stabilize the plant during EOP performance

B is Wrong -

C is Wrong -

D is Wrong -

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11

This Exam Level      SRO  
Appears on:

K/A #                    37012A203  
Importance  
Rating:

Given the following plant conditions:

- Unit 1 is operating at rated power.
- Channel B "LO SG-1 PRESS" bistable is bypassed and tripped.

Time 1

- Channel A "LO SG-1PRESS" bistable trips due to a transmitter failure.

Time 2

- PNB-D26 de-energizes due to a ground fault
- The CRS directs recovery actions per the Loss of Class Instrument or Control Power AOP

Pressing the "B" Channel PPS bistable bypass button for "LO SG-1 PRESS" will result in a ...

- A. reactor trip, implement the Reactor Trip procedure.
- B. reactor trip, implement the Loss Of All Feed procedure.
- C. full MSIS actuation, implement the Large Load Reject procedure.
- D. half leg MSIS actuation, implement guidance per the alarm response procedure.

Answer:                A

Associated KA:  
L77088

Describe the RPS Trip Channel bypass interlock.

Reference Id:                    Q10476  
Difficulty:                        0.00  
Time to complete:                0  
10CFR Category:

CFR 55.43 (5)                    55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Cognitive Level:                Comprehension / Anal  
Question Source:                Modified PV Bank  
Comment:

**Proposed reference to be provided to applicant during examination:** None

**Technical Reference:** training material

**Modified from Q2596**

**K&A:** Ability to (a) predict the impacts of the following malfunctions or operations on the RPS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Incorrect channel bypassing

**Justification:**

**Pushing the B train Lo SG 2 pressure pushbutton will cause the B train to come out of Bypass initiating an MSIS and Rx trip**

---

**2008 Senior Reactor Operator Exam**

A is Correct - Rx trip will be implemented due to 2/4 Lo SG-1 pressure trip, AFW can be used to feed the SGs

B is Wrong - LOAF will not be needed even though MFW will be locked out and require Override of FWIV to restore

C is Wrong - examinee may not realize Rx trip (A & B channels) and opt for large load reject due to MSIVs closing

D is Wrong - examinee may think the A & B channels or only SG 1 will initiate a half leg trip

2008 Senior Reactor Operator Exam

12

This Exam Level      SRO  
Appears on:

K/A #                    2.4.38  
Importance  
Rating:

Given the following conditions:

- Unit 1 tripped 20 minutes ago from 100% power
- Offsite power was lost on the trip
- Pressurizer level is 0%
- Pressurizer pressure is 950 psia and dropping
- RCS T-hot is 564 °F
- QSPDS indicates 0° subcooling
- PBB-S04 has faulted and is de-energized
- AFA-P01 will not come up to speed
- HPSI pump "A" is under clearance
- RCS activity is 330 µCi/gm Dose Equivalent I-131
- Containment pressure is 9.1 psig and increasing
- RVLMS indicates 0% in the outlet plenum
- All other equipment has functioned as required

Which one of the following events would change the current Eplan classification level?

- A.      CS pump A trips
- B.      AFN-P01 trips on an 86 lockout
- C.      RVLMS indicated plenum level increases to 47%
- D.      RU-148, CNTMT Rad Monitor readings increase to 4.1 E +05 mrem/hr

Answer:                    A

Associated KA:  
L58622

Given an Emergency Plan condition, use the EAL tables and basis document to determine the emergency plan classification

Reference Id:                    Q10477  
Difficulty:                        2.00  
Time to complete:                4

10CFR Category:

CFR 55.43 (5)                    55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Cognitive Level:                    Comprehension / Anal  
Question Source:                    New  
Comment:

**Proposed reference to be provided to applicant during examination:** Table 1 of EPIP-99

**Technical Reference:** Table 1 of EPIP-99

**K&A:** Ability to take actions called for in the facility emergency plan, including | supporting or acting as emergency coordinator if required.

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**2008 Senior Reactor Operator Exam****Justification:**

A is Correct - loss of CS pump A [1-10] will upgrade classification to a GE, 2 lost barriers and an additional potential lost barrier of cntmt. B CS pump was lost due to PBB-S04 loss

B is Wrong - a loss of AFN is a LOAF but this a potential [1-8] and will not cause upgrade already have [1-6] lost in the RCS Barrier

C is Wrong - RVLMS increasing will not lower classification [1-2] is or has been below 21% additionally RCS activity is a loss of Fuel Clad [1-3]

D is Wrong - RU-148 readings are another loss of Fuel Clad no upgrade [1-4] additionally readings do not meet the potential loss of cntmt requirements [1-11]

2008 Senior Reactor Operator Exam

13

This Exam Level      SRO  
Appears on:

K/A #                    34059A212  
Importance  
Rating:

Given the following conditions:

- Unit 1 is operating at 100% power
- SG 2 Economizer Feed Regulating Valve SGN-HV-1122 has failed open
- Area 2 reports that SGN-HV-1122 is mechanically seized
- SG 2 level is 65% NR and RISING
- RCS T-cold is 558°F and LOWERING
- The Crew initiates a manual Reactor Trip

Assuming no other Operation actions, SG 2 level will continue to increase until a(n) (1) signal is generated and the CRS should implement the (2) procedure upon completing SPTAs.

- A.      (1) MSIS (2) Reactor Trip
- B.      (1) MSIS (2) Excessive Steam Demand
- C.      (1) High Level Override (2) Reactor Trip
- D.      (1) High Level Override (2) Excessive Steam Demand

Answer:                B

Associated KA:  
L11200

Given conditions of an ESD analyze whether or not entry into the ESD EOP is appropriate

Reference Id:	Q10484	
Difficulty:	3.00	
Time to complete:	2	
10CFR Category:	CFR 55.43 (5)	55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Cognitive Level:                Comprehension / Anal  
Question Source:                New  
Comment:

**Proposed reference to be provided to applicant during examination:** None

**Technical Reference:** Reactor Trip and ESD procedures / Board 6 alarm response and 40AO-9ZZ17 inadvertant PPS-ESFAS actuations

**K&A:** Ability to (a) predict the impacts of the following malfunctions or operations on the MFW; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Failure of feedwater regulating valves

**Justification:**

A is Wrong - T-cold below 560 excludes Rx Trip procedure

B is Correct - MSIS shuts Isolation valves to stop FW flow, ESD entry conditions include rise in FW flow until stopped by MSIS

**2008 Senior Reactor Operator Exam**

C is Wrong - HLO only shuts reg valves not Isolation valves, Rx Trip is wrong

D is Wrong - HLO only shuts reg valves not Isolation valves

## 2008 Senior Reactor Operator Exam

14

This Exam Level      SRO  
Appears on:K/A #            2.4.45  
Importance  
Rating:

Given the following conditions:

- Unit 1 has tripped from rated power
- Offsite power was lost following the reactor trip
- DG "B" is under clearance and OOS
- DG "A" is supplying power to PBA-S03
- AFA-P01 is feeding each SG at 300 gpm
- SPTAs have been completed
- CRS has implemented the Loss of Offsite Power/ Loss of Forced Circulation
- MSIS has been manually actuated

NOW

- Window 1A04A (125 1E CC M41 CHGR A/AC PNL D21 TRBL) is alarming
- Point ID - PKYS3 125 VDC CC PKA-M41 Bus Undv/Ground/Breaker Trip is in alarm
- The Reactor Operator reports that the PK "A" bus shows 0 volts

The CRS should ...

- A. remain in LOOP/LOFC and initiate feedwater flow with AFN-P01 by overriding and opening downcomer isolation valves
- B. transition to the Loss of All Feed procedure and initiate AFW flow per Standard Appendix 40, Local Operation of AFA-P01
- C. transition to the Blackout procedure and restore power and feedwater flow by paralleling Blackout Turbine Generators to PBA-S03
- D. transition to the Functional Recovery procedure and implement the appropriate MVAC appendix to restore power and feedwater flow.

Answer:            D

Associated KA:  
L74204

Describe how the 125 VDC Class IE Power System supports the operation of the following systems:

- Class IE 4.16 kV Switchgear and 480 Vac Load Centers (PB & PG)
- Class IE Standby Generation System (PE)
- Auxiliary Feed System (AF)
- Safety Injection (SI)
- Class IE 120 Vac Instrumentation Power (PN)
- Steam Generators (SG)

Reference Id:            Q10485  
 Difficulty:                5.00  
 Time to complete:        4  
 10CFR Category:        CFR 55.43 (5)      55.43 (5) Assessment of facility conditions and selection of

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Cognitive Level:  
Question Source:  
Comment:

appropriate procedures during normal, abnormal, and emergency situations.  
Comprehension / Anal  
New

**Proposed reference to be provided to applicant during examination:** None

**Technical Reference:** 40AO-9ZZ13, Loss of Class Instrument or Control Power

**K&A:** Emergency Procedures / Plan Ability to prioritize and interpret the significance of each annunciator or alarm.

**Justification:**

A is Wrong - the loss of PKA-M41 causes a DG trip = no AFN-P01, dual event requires entry into FRP

B is Wrong - Dual event requires entry into FRP, LOAF will not address the loss of power although manual operation of AFA would restore AFW flow

C is Wrong - dual event requires entry into the FRP. although Blackout would restore power and ultimately restore flow the Blackout assumes that AFA and ADVs are available

D is Correct - Loss of PKA-M41 trips the A DG and loses Control Power to AFA-P01 it to shutdown. This is now a dual event Blackout and LOAF, FRP is mandated

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15

This Exam Level      SRO  
Appears on:

K/A #                    38078A2.01  
Importance  
Rating:

Given the following conditions

- Unit 1 is operating at 100% power
- Instrument Air System (IA) is aligned for normal operation
- IA system pressure is 110 psia
- Instrument Air Dryer IAN-M01D has failed and will not supply the IA system

Which one of the following is correct?

- A.     The nitrogen backup valve will open and maintain normal IA header pressure
- B.     The IA header pressure will decrease to ~ 85 psia. Implement 40AO-9ZZ06, Loss of Instrument Air, to valve in another air dryer
- C.     IA dryers are normally aligned for parallel operation. IAN-M01C will maintain normal IA header pressure
- D.     IAN-C02 Service Breathing Air compressor can be aligned to maintain IA pressure ~ 110 psia per 40OP-9IA02, Service/Breathing Air System.

Answer:                B

Associated KA:  
L76601

Describe the flowpath of Service/Breathing Air, including the following:

- Air Compressor
- Air Receivers
- Air Dryers

Reference Id:                    Q10479  
Difficulty:                        2.00  
Time to complete:                3  
10CFR Category:                CFR 55.43 (5)

55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Cognitive Level:                Memory  
Question Source:                New  
Comment:

**Proposed reference to be provided to applicant during examination:** None

**Technical Reference:** 40OP-9IA01 (Instrument Air System), 40OP-9IA02 (Service/Breathing Air), 40AO-9ZZ06 (Loss of Instrument Air)

**K&A:** Ability to (a) predict the impacts of the following malfunctions or operations on the IAS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: **Air dryer and filter malfunction**

**Justification:**

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A is Wrong - LP nitrogen will open but maintain ~ 85 psia

B is Correct - Nitrogen maintains and ZZ06 should be implemented to mitigate effects

C is Wrong - IA dryers are not normally aligned for parallel operation but it is an available option per section 4.6 of IA01

D is Wrong - Service Air and IA can not be x-tied, although in the past it was possible

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16

This Exam Level      SRO  
Appears on:

K/A #                    37015A2.01  
Importance  
Rating:

Given the following plant conditions:

- Unit 1 is operating at 100% power
- PNB-N12 (Inverter for 1-E-PNB-D26) fails to zero output

Which ONE of the following describes the effect on the Nuclear Instrumentation system?

- A. Control Channel 2 experiences a momentary CEA withdraw demand when the PN bus shifts to the Voltage Regulator
- B. B train Safety channel remains Operable. The "B" PN bus automatically shifts to the Voltage Regulator on a loss of Inverter power.
- C. Control Channel 2 losses power. Manually select the unaffected instrument (channel 1) at the RRS Test Panel per 40AO-9ZZ16, RRS Malfunction AOP
- D. B train Safety channel is Inoperable. Power can be restored by manually shifting the "B" PN bus to the Voltage Regulator per 40OP-9PN02.

Answer:                    D

Associated KA:  
L75651

Describe how the Nuclear Instrumentation System is supported by the following systems:

- Class IE Instrument 120 V AC Power System (PN)
- Containment Building HVAC (HC)
- Non-Class IE Instrument 120 V AC Power System (NN)

Reference Id:                    Q10480

Difficulty:                        4.00

Time to complete:                3

10CFR Category:                CFR 55.43 (5)      55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Cognitive Level:                Memory

Question Source:                New

Comment:

**Proposed reference to be provided to applicant during examination:** None

**Technical Reference:** 40AO-9ZZ13 (Loss of Class Instrument/Control Power), 40OP-9PN02 (120 AC Class Instrument Channel "B")

**K&A:** Ability to (a) predict the impacts of the following malfunctions or operations on the NIS; and (b based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: **Nuclear Instrumentation System (NIS)**

**Justification:**

A is Wrong - Control channel 2 is fed by NNN-D12 not PNB-D12, may believe the make before break feature could cause a momentary WD demand

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B is Wrong - bus would shift to VR in Units 2 & 3, this feature is not available in Unit-1

C is Correct - Power is lost in Unit 1 and can be restored by shifting to the VR

D is Wrong - Control channel 2 is fed NNN-D12 not PNB-D12

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17

This Exam Level SRO  
Appears on:

K/A # 2.1.20  
Importance  
Rating:

Given the following conditions:

- Unit 1 is operating at 100% power
- 40AO-9ZZ02, Excessive RCS Leakrate was entered at 10:30
- A SG tube leak has been confirmed
- A 15 minute manual leakrate has been performed with the following results

	Initial (1130)	Final (1145)	Conversions
PRZ level	51%	52%	66.49 gal/%
VCT level	36%	35%	40.5 gal/%
RCS Tave	571.0°F	570.8°F	123 gal/°F

Assuming a stable leakrate, interpret the data to determine the required action(s) per appendix F of 40AO-9ZZ02

- A. Commence an orderly plant shutdown
- B. Commence a plant shutdown and be in Mode 3 within 24 hours
- C. Commence prompt and controlled shutdown to ≤ 50% power within 1 hour and be in Mode 3 within the next 2 hours
- D. Commence shutdown and be in mode 3 within 6 hours

Answer: B

Associated KA:  
L56818

Given plant conditions related to a Steam Generator Tube leak and Appendix F of 40AO-9ZZ02 analyze these conditions to determine if continued operation is permitted

Reference Id:  
Difficulty:  
Time to complete:  
10CFR Category:

Q10486  
3.00  
4  
CFR 55.43 (5) 55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Cognitive Level:  
Question Source:  
Comment:

Comprehension / Anal  
New

**Proposed reference to be provided to applicant during examination:** Appendix F of 40AO-9ZZ02

**Technical Reference:** 40AO-9ZZ02, Excessive RCS leakrate

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**K&A:** Conduct of Operations: Ability to execute procedure steps.

**Justification:**

A is Wrong -

B is Correct - Leakrate is .092 gpm requiring plant shutdown and mode 3 within 24 hours

C is Wrong - Stable leak rate is given in stem -- Leakrate is not changing > .0208 gpm / hr

D is Wrong -

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18

This Exam Level      SRO  
Appears on:

K/A #                    34041A2.02  
Importance  
Rating:

Given the following conditions:

- Unit 1 is stable at rated power
- Steam Bypass Control Valve (SBCV) testing is in progress
- Main Turbine load has been lowered approximately 11%
- SBCS Master Controller SGN-PIC-1010 is in Local Auto
- CEDMCS is in manual sequential
- Reg Group 5 is 120 inches withdrawn
- SBCV #1 is 40% open with a manual permissive
- SBCV #4 is 40% open with a manual permissive
- SBCV #6 fails full open
- Tavg-Tref Hi-Lo window is in alarm (4A08B)
- COLSS CMC (5B01C) & PC (5B01D) windows are in alarm
- AWP, Auto Withdraw Prohibit (4A09A) alarm has cleared
- CEA withdraw demand (green lights) are present on Board 5

SBCVs 1001 & 1004 will ...

- A. modulate closed, withdraw CEAs to clear the Tavg - Tref alarm window
- B. modulate closed, reduce turbine load to clear the COLSS Master alarm window
- C. only close on loss of permissive signal, withdraw CEAs to clear the Tavg - Tref alarm window
- D. only close on loss of permissive signal, reduce turbine load to clear the COLSS Master alarm window

Answer:                    B

Associated KA:  
L65679

Describe the Control Room controls associated with the individual SBCS valves including:

- Emergency Off Reset
- Valve Mode Select

Reference Id:                    Q10487  
Difficulty:                        3.00  
Time to complete:                3  
10CFR Category:                CFR 55.43 (5)      55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Cognitive Level:                Comprehension / Anal  
Question Source:                New  
Comment:

**Proposed reference to be provided to applicant during examination: None**

**Technical Reference: 40AL-9RK5B 40AL-9RK4A, ARPs**

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**K&A:** 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

**Justification:**

A is Wrong - Tavg/Tref is a low alarm due to 1006 coming open. CEA wd demand would be expected for turbine power > reactor power. AWP clears when modulate and permissive SBCS signals go away

B is Correct - 1001/1004 will modulate closed. manual permissive and Local/Auto will not effect valve operation. COLSS alarms need to be cleared.

C is Wrong - SBCVx 1001 & 1004 will both modulate close as 1006 comes open

D is Wrong - SBCVx 1001 & 1004 will both modulate close as 1006 comes open

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19

This Exam Level      SRO  
Appears on:

K/A #                  2.1.7  
Importance  
Rating:

Given the following Unit 1 conditions:

- The Main Turbine tripped 60 minutes ago
- Rx power was stabilized at 55%
- Tave was stabilized at 576 °F

NOW

- Pzr level is on program
- Letdown flow is 72 gpm and lowering
- Rx power is slowly dropping
- Tave is slowly dropping
- CEDMCS has a withdraw demand

Which one of the following is the most likely event in progress?

- A.      A small RCS leak, implement 40AO-9ZZ02, Excessive RCS Leakage.
- B.      A small steam leak. Trip the Reactor and implement 40EP-9EO06, Excess Steam Demand.
- C.      That instrument RCN-TT-111X is failing low, implement 40AO-9ZZ16, RRS Malfunctions.
- D.      Normal xenon response following a Large Load Reject. Direct a dilution per 40OP-9CH01.

Answer:                  D

Associated KA:  
L569445

Given a TLI instrument failing low describe the impact this would have on various control systems that rely on this indication

Reference Id:                  Q10481  
Difficulty:                      4.00  
Time to complete:              3  
10CFR Category:              CFR 55.43 (5)

55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Cognitive Level:              Comprehension / Anal  
Question Source:              New  
Comment:

**Proposed reference to be provided to applicant during examination:** None

**Technical Reference:** 40AO-9ZZ16, RRS Malfunctions

**K&A:** Conduct of Operations: Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior, and instrument interpretation.

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**2008 Senior Reactor Operator Exam****Justification:**

A is Wrong - RCS leakage will not cause changes in anything other than Letdown flow decreasing

B is Wrong - Steam leak will cause power increase and temperature decrease

C is Wrong - That failing low causes Letdown flow to increase but not all the other changes

D is Correct - Xenon will build in after trip causing power drop, temperature drop, WD demand and Letdown decrease trying to maintain Pzr level with decreasing RCS temp

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20

This Exam Level      SRO  
Appears on:

K/A #                    2.1.37  
Importance  
Rating:

Given the following conditions:

- Unit 1 is planning a 15% downpower
- The crew is about to start the Reactivity Brief

Which one of the following statement is correct regarding the Reactivity Management guidance found in Operations Department Practices (ODP-01)?

- A.     The Shift Technical Advisor (STA) must attend the reactivity brief
- B.     A Maneuvering Box gameplan must be used for this planned power reduction
- C.     A peer check is required prior to each reactivity evolution performed during the downpower
- D.     An additional reactivity brief is required for each turbine manipulation performed during the downpower

Answer:                C

Associated KA:  
30265

ODP-1 Reactivity Management

Reference Id:                    Q10490  
Difficulty:                        2.00  
Time to complete:                2  
10CFR Category:                CFR 55.41 (10)      55.41 (10) Administrative, normal, abnormal, and emergency operating procedures for the facility.  
Cognitive Level:                Memory  
Question Source:                New  
Comment:

**Proposed reference to be provided to applicant during examination:** None

**Technical Reference:** ODP-01

**K&A:** Conduct of Operations: Knowledge of procedures, guidelines or limitations associated with Reactivity Management

**Justification:**

A is Wrong - STA is required if available

B is Wrong - Manv. Box should be used if it fits the situation

C is Correct - CRS ensures the performance of peer checks for all reactivity evolutions

D is Wrong - additional briefs are not required for each step of multiple manipulations within a specified reactivity evolution

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21

This Exam Level      SRO  
Appears on:

K/A #                  2.2.37  
Importance  
Rating:

Given the following conditions:

- Unit 1 is operating at rated power
- DG "A" is under clearance and OOS for planned maintenance
- A low level alarm is received on the "B" Essential Chill water surge tank
- Area 3 reports a leak on the HPSI pump room "B" Essential ACU, HAB-Z01
- Chill Water (EC) is isolated to HAB-Z01

Which one of the following correctly reflects HPSI pump status?

- A.      HPSI pumps A/B are both Inoperable but functional
- B.      HPSI pumps A/B are both Inoperable and non-functional
- C.      HPSI pump A is Operable and functional provided offsite power is available to PBA-S03
- D.      HPSI pump B is Operable and functional provided room temperature is maintained < 104 °F

Answer:                  A

Associated KA:  
L89782

Given a set of plant conditions apply the one hour or less actions statements of T.S. 3.5

Reference Id:                          Q10482  
 Difficulty:                              5.00  
 Time to complete:                    4  
 10CFR Category:                    CFR 55.43 (2)      55.43 (2) Facility operating limitations in the technical specifications and their bases.  
 Cognitive Level:                      Memory  
 Question Source:                      New  
 Comment:

**Proposed reference to be provided to applicant during examination:** None

**Technical Reference:** Tech Specs

**K&A:** Ability to determine operability and/or availability of safety related equipment.

**Justification:**

A is Correct - Both HPSI are Inop per definition but both are also functional to use if needed

B is Wrong - see above

C is Wrong - Operable means emergency source of power is available

D is Wrong - Operable requires attendant equipment available including room coolers

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22

This Exam Level      SRO  
Appears on:

K/A #                  2.2.39  
Importance  
Rating:

Given the following conditions:

- Unit 1 is operating at rated power.
- Diesel Generator "A" monthly Surveillance Testing is in progress.
- Diesel Generator "A" trips during the cooldown cycle.
- Diesel Generator "A" is declared Inoperable.

Which one of the following Tech Spec actions must be completed within one hour?

- A.      Restore DG "A" to Operable status.
- B.      Determine that DG "B" is not Inoperable due to a common cause failure.
- C.      Verify correct breaker alignment and indicated power availability for two offsite power circuits.
- D.      Declare required feature(s) supported by the Inoperable DG Inoperable when its redundant required feature(s) is inoperable.

Answer:                  C

Associated KA:  
L89756

Given a set of plant conditions apply the one hour or less actions statements of T.S. 3.8

100866

Active Question Bank 2004

Reference Id:                  Q8585  
 Difficulty:                      2.00  
 Time to complete:              2  
 10CFR Category:              CFR 55.43 (2)      55.43 (2) Facility operating limitations in the technical specifications and their bases.  
 Cognitive Level:                Memory  
 Question Source:                PV Bank Not Modified  
 Comment:

**Proposed reference to be provided to applicant during examination:** None

**Technical Reference:** Tech Specs LCO 3.8.1

**K&A:** Knowledge of less than or equal to one hour Technical Specification action statements for systems.

**Justification:**

A is Wrong - This is a 10 day action per 3.8.1

B is Wrong - This is a 24 hour actions

C is Correct - 40ST-9ZZ02 must be completed within one hour and every 8 there after

D is Wrong - 4 hours requirement with concurrent inoperability of redundant equip

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23

This Exam Level      SRO  
Appears on:

K/A #            2.3.4  
Importance  
Rating:

Given the following conditions:

- A General Emergency has been declared
- Satellite Technical Support Center (STSC) has been activated
- Operations Support Center (OSC) has been activated
- It has been determined that in order to stabilize the plant repair activities are required to be performed in a high dose area

Who can authorize a "Protecting Valuable Property" exposure and what is the Dose limit?

- A.      Emergency Coordinator ONLY, 25 Rem TEDE
- B.      Emergency Coordinator ONLY, 10 Rem TEDE
- C.      Emergency Coordinator or Radiation Protection Monitor, 10 Rem TEDE
- D.      Emergency Coordinator or Radiation Protection Monitor, 25 Rem TEDE

Answer:            B

Associated KA:  
30226

exposure limits

Reference Id:            Q10491  
Difficulty:                2.00  
Time to complete:      3

10CFR Category:

CFR 55.43 (4)

55.43 (4) Radiation hazards that may arise during normal and abnormal situations, including maintenance activities and various contamination conditions.

Cognitive Level:        Memory  
Question Source:        New  
Comment:

**Proposed reference to be provided to applicant during examination:** None

**Technical Reference:** EPIP-99 Appendix K

**K&A:** Radiation Control Knowledge of radiation exposure limits and contamination control, including permissible levels in excess of those authorized.

**Justification:**

A is Wrong -

B is Correct - Per EPIP-99 appendix K, only the EC is authorized to allow any exposures > 5 REM TEDE for protecting valuable equipment or life saving activities

C is Wrong -

D is Wrong -

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24

This Exam Level      SRO  
Appears on:

K/A #            2.3.14  
Importance  
Rating:

Given the following conditions:

- Unit 1 is in Mode 5
- RCS pressure is 200 psia
- RCS temperature is 190°F and stable
- LPSI pump "A" is providing Shutdown Cooling (SDC) flow at 4100 gpm
- Per the Outage schedule. SDC is to be swapped to Containment Spray pump "B"

This activity will cause which one of the following conditions?

- A. CS pump "B" seal pressure limits to be exceeded
- B. CS pump "B" seal temperature limits to be exceeded
- C. require entry in to LCO 3.6.6, Containment Spray System.
- D. unknown radiation levels in "B" Containment Spray system

Answer:            D

Associated KA:  
L65102

Describe the purpose and conditions under which the Shut Down Cooling System is designed to function.

Reference Id:            Q10489  
Difficulty:                3.00  
Time to complete:      2  
10CFR Category:      CFR 55.43 (4)

55.43 (4) Radiation hazards that may arise during normal and abnormal situations, including maintenance activities and various contamination conditions.

Cognitive Level:        Memory  
Question Source:        New  
Comment:

**Proposed reference to be provided to applicant during examination:** None

**Technical Reference:** 40OP-9SI01, Shutdown Cooling Initiation - Tech Specs, LCO 3.6.6

**K&A:** Knowledge of radiation or contamination hazards that may arise during normal, abnormal, or emergency conditions or activities.

**Justification:**

A is Wrong - seal pressure limit is 250 psia

B is Wrong - seal temperature limit is 200 °F

C is Wrong - LCO 3.6.6 applies 1-4

D is Correct - rad levels are expected to increase significantly when initiating or swapping SDC trains. Limitations and Precautions

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25

This Exam Level Appears on: SRO

K/A # 2.4.8  
Importance  
Rating:

Given the following conditions:

- Unit 1 is operating at 100% power
- RU-6 (Nuclear Cooling Water) is in high alarm
- The Crew is performing actions per the Excessive RCS Leakrate, 40AO-9ZZ02
- Alarm window 4A02A (RCP 1A TRBL) is alarming
- All available Charging Pumps are running
- Letdown is isolated
- PZR level is continuing to lower

The CRS is expected to ....

- A. trip the Reactor and continue performance of 40AO-9ZZ02 during SPTAs.
- B. exit 40AO-9ZZ02 and initiate performance of 40AO-9ZZ04, RCP Motor Emergencies.
- C. continue 40AO-9ZZ02. If Nuclear Cooling Water is isolated for 10 minutes then trip the Reactor.
- D. trip the Reactor and perform SPTAs. AOP performance is not allowed until Safety Function assessment is complete.

Answer: A

Associated KA:  
L10343

Given that an ORP is being implemented describe the use of an AO or OP when the reactor trips or when performing an EOP

Reference Id:  
Difficulty:  
Time to complete:  
10CFR Category:

Q10478  
2.00  
2  
CFR 55.43 (5) 55.43 (5) Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Cognitive Level:  
Question Source:  
Comment:

Memory  
New

**Proposed reference to be provided to applicant during examination:** None

**Technical Reference:** 40AO-9ZZ02 (Excessive RCS Leakrate), 40DP-9AP16 (EOP Users Guide)

**K&A:** Knowledge of how abnormal operating procedures are used in conjunction with EOPs.

**Justification:**

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A is Correct – reactor trip criteria is met (ZZ02)and actions to isolate the seal cooler need to continue per ZZ02. EOP user guide allows performance of non EOP activities to for equipment protection safety and placing plant systems in a safe condition

B is Wrong - the RCP trbl alarm requires performance of RCP Motor Emergencies, but not required to exit the current AOP also we still need to trip the reactor now

C is Wrong – reactor needs to be tripped now not in 10 minutes if seal cooler is isolated

D is Wrong - SEE A above

**Cognitive Level Summary**

Number of questions linked:	25	Percentage
Memory	10	10
Comprehension	0	0
Analysis	0	0

**Question Source Summary**

Number of questions linked to source:	25	Percentage
<b>New</b>		
New	20	20
<b>Modified</b>		
INPO Bank Modified	0	
PV Bank Modified	3	
Total Modified	3	3
<b>Bank</b>		
INPO Bank Not Modified	0	
PV Bank Not Modified	2	
PV NRC Exam Question Not Modified	0	
Total BANK	2	2