

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>2</u>	<u> </u>
	Group #	<u>1</u>	<u> </u>
	K/A #	<u>003 K5.02</u>	<u> </u>
	Importance Rating	<u>2.8</u>	<u> </u>

Knowledge of the operational implications of the following concepts as they apply to the RCPS: Effects of RCP coastdown on RCS parameters

Proposed Question: Common 1

Which ONE of the following describes a function of the flywheel on the RCP's?

- A. Prolongs RCP coastdown time to aid in maintaining loop flow thus maintaining hot channel factors at an acceptable level during certain loss of RCS flow events.
- B. Prolongs RCP coastdown time to aid in maintaining loop flow thus maintaining DNBR within acceptable limits during certain loss of flow events.
- C. Maintains constant RCP speed, minimizing the potential for spurious RCS low flow reactor trips and maintaining hot channel factors at an acceptable level during power operation.
- D. Maintains constant RCP speed, minimizing the potential for spurious RCS low flow reactor trips and maintaining DNBR within limits during power operation.

Proposed Answer:

B

will change/add to...

Explanation (Optional):

- A. Incorrect. Flywheel designed to provide inertia to aid DNBR, not specifically for hot channel factors. Hot channel factors are affected by control rods.
- B. Correct.
- C. Incorrect. Flywheel more important for loss of flow, where RCP coastdown time is important for heat removal. Hot channel factors are affected by control rods.
- D. Incorrect. RCS flow is a consideration for DNBR, but at rated RCP speed, the flywheel inertia is insignificant in performing the function of maintaining flow.

Technical Reference(s): 1SQS-6.3, 1OM-1.1B (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 1SQS-15.1 Objective 2 (As available)

Question Source: Bank # _____
Modified Bank # X (Note changes or attach parent)
New _____

Question History: _____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	003 K3.02	
	Importance Rating	3.5	

Knowledge of the effect that a loss or malfunction of the RCPS will have on the following: S/G

Proposed Question: Common 2

Given the following conditions:

- The Unit is at 100% power with all systems in NSA.
- RC-P-1A, Reactor Coolant Pump has tripped on overcurrent due to an apparent shaft seizure.
- A reactor trip occurs.

Which ONE of the following describes SG response to the event 3 (THREE) minutes following the trip?

SG "1A" level is...

- Lower than "1B" and "1C" SG due to SG shrink when the RCP tripped.
- Higher than "1B" and "1C" SG due to less heat removal from "1A" SG.
- Higher than "1B" and "1C" SG due to SG swell when the RCP tripped.
- Lower than "1B" and "1C" SG due to the rise in Tcold on the idle loop.

Proposed Answer: **B**

Explanation (Optional):

- Incorrect. Effects of shrink are minimal.
- Correct. Less heat input means less evaporation of SG contents, therefore, same feed, higher level.
- Incorrect. Effects of SG swell are minimal, but in this case, there is no SG swell.
- Incorrect. Delta T on the idle loop will go to 0, but Tcold will be at no-load temperature.

Technical Reference(s): T&AA Simulator (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 1SQS 6.3, Obj 6 (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

1.	bsgnwrpt	(1)	53.1416	SPARE	SG WIDE RANGE LEVEL %
2.	bsgnwrpt	(2)	49.6618	SPARE	SG WIDE RANGE LEVEL %
3.	bsgnwrpt	(3)	46.7236	SPARE	SG WIDE RANGE LEVEL %
4.	asgntot	(1)	104923.		WATER + STEAM S/G MASS
5.	asgntot	(2)	98924.0		WATER + STEAM S/G MASS
6.	asgntot	(3)	93446.1		WATER + STEAM S/G MASS

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- 56.
- 59.
- 60.
- 61.

*N.R. Levels ARE still off scale
Low.*

*NRC
Copy*

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	004 A4.12	
	Importance Rating	3.8	

Ability to manually operate and/or monitor in the control room: Boration/dilution batch control

Proposed Question: Common 3

Given the following:

- The Unit is at 100% power with all systems in NSA.
- Annunciator [A4-51] Loop TAVG High is in alarm.

You are directed to adjust RCS temperature using the Boration/Dilution controls. Determine the mode of makeup control required and the expected corresponding valve lineup.

A. Borate:

FCV-1CH-113A, Boric Acid Flow Control Valve - OPEN
 FCV-1CH-114A, Primary Water Flow Control Valve - CLOSED
 FCV-1CH-113B, Makeup Stop Valve To Charging Pump Suction - OPEN
 FCV-1CH-114B, Makeup Stop Valve To VCT - CLOSED

B. Borate:

FCV-1CH-113A, Boric Acid Flow Control Valve - OPEN
 FCV-1CH-114A, Primary Water Flow Control Valve - CLOSED
 FCV-1CH-113B, Makeup Stop Valve To Charging Pump Suction - CLOSED
 FCV-1CH-114B, Makeup Stop Valve To VCT - OPEN

C. Dilute:

FCV-1CH-113A, Boric Acid Flow Control Valve - OPEN
 FCV-1CH-114A, Primary Water Flow Control Valve - OPEN
 FCV-1CH-113B, Makeup Stop Valve To Charging Pump Suction - OPEN
 FCV-1CH-114B, Makeup Stop Valve To VCT - CLOSED

D. Dilute:

FCV-1CH-113A, Boric Acid Flow Control Valve - CLOSED
 FCV-1CH-114A, Primary Water Flow Control Valve - OPEN
 FCV-1CH-113B, Makeup Stop Valve To Charging Pump Suction - CLOSED
 FCV-1CH-114B, Makeup Stop Valve To VCT - OPEN

Proposed Answer: **A**

Explanation (Optional):

- A. Correct. Boration is required for Tavgr rising. Valve lineup is correct.
- B. Incorrect. Although boration is required, FCV-113B and FCV-114B are listed in the incorrect position.
- C. Incorrect. Dilution is not required, and FCV-114A is in the incorrect position.
- D. Incorrect. Dilution is not required, and each valve is in the opposite of it's correct position.

Technical Reference(s): 1OM-7.4.L (Attach if not previously provided)Proposed references to be provided to applicants during examination: NONELearning Objective: 1SQS-7.1 Objective 2 (As available)

Question Source: Bank # X

Modified Bank # (Note changes or attach parent)

New

Question History: Last NRC Exam

Question Cognitive Level: Memory or Fundamental Knowledge

Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 X

55.43

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	005 A4.04	
	Importance Rating	3.1	

Ability to manually operate and/or monitor in the control room: Controls and indication for closed cooling water pumps

Proposed Question: Common 4

Given the following conditions:

- The Unit is in Mode 4. RCS cooldown is in progress on RHR Train "B".
- [CC-P-1A], Component Cooling Water Pump is running.
- [CC-P-1B], Component Cooling Water Pump is racked out.
- [CC-P-1C], Component Cooling Water Pump is ~~running~~ *in standby* connected to the 1DF bus. ←

The following annunciator is received in the Control Room:

- [A6-35], PRI COMP COOL PUMP DISCH PRESS LOW

The crew determines that the cause is a high CCR system demand, with NO other failures present. *not needed*

Assuming all equipment operates as required and no operator action, which ONE of the following describes the CCR pump control indication on Benchboard-B?

- CC-P-1A green and bright white indication. CC-P-1C red indication.
- CC-P-1A red indication. CC-P-1C green and bright white indication.
- CC-P-1A green indication. CC-P-1C green and bright white indication.
- CC-P-1A red indication. CC-P-1C red indication.

Proposed Answer: **D**

Explanation (Optional):

*no green light & plants
only red & white
(green targets)*

- A. Incorrect. Green and bright white would indicate a pump trip. Indications in stem of question do not provide for a trip, rather, just a low pressure.
- B. Incorrect. Green and bright white would indicate a pump trip. Indications in stem of question do not provide for a trip, rather, just a low pressure.
- C. Incorrect. Green and bright white would indicate a pump trip. Indications in stem of question do not provide for a trip, rather, just a low pressure.
- D. Correct. Both pumps run; CC-P-P1C after auto starting.

Technical Reference(s): 1SQS-15.1 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 1SQS-15.1 Objective 21 (As available)

Question Source: Bank # _____
 Modified Bank # _____ (Note changes or attach parent)
 New X

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 X
 55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>2</u>	<u> </u>
	Group #	<u>1</u>	<u> </u>
	K/A #	<u>005 K3.01</u>	<u> </u>
	Importance Rating	<u>3.9</u>	<u> </u>

Knowledge of the effect that a loss or malfunction of the RHRS will have on the following: RCS

Proposed Question: Common 5

Given the following conditions:

- The Unit is in Mode 4, cooling down for refueling.
- RHR Pump "A" and heat exchanger are in service.
- The auto setpoint on [MOV-RH-605], RHR Heat Exchanger Bypass Flow Control Valve, drifts **HIGH**.

Which ONE of the following describes the effect, if any, on the RCS cooldown rate?

The RCS cooldown rate...

- rises, due to the increased flow through the RHR heat exchanger.
- lowers, due to the decreased total flow through the RHR system.
- lowers, due to the decreased flow through the RHR heat exchanger.
- rises, due to the increased total flow through the RHR system.

Proposed Answer: **C**

Explanation (Optional):

- Incorrect. Cooldown rate will not rise. If setpoint drifts high, more total flow will result in less RHR heat exchanger flow.
- Incorrect. Rate does lower, but total flow increases, not decreases.
- Correct. More bypass flow with a higher setpoint for total flow.
- Incorrect. Temperature may rise, but the rate will slow down. Reason is correct.

Technical Reference(s): 1SQS-10.1 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 1SQS-10.1 Objective 6 (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	006 A2.12	
	Importance Rating	4.0	

Ability to (a) predict the impacts of the following malfunctions or operations on the ECCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Conditions requiring actuation of ECCS

Proposed Question: Common 6

Given the following conditions:

- A reactor trip has occurred.
- The crew has transitioned to ES-0.1, Reactor Trip Response.

The following conditions develop:

- RCS pressure is 1950 psig and slowly lowering.
- CH-P-1A, Charging Pump is RUNNING.
- CH-P-1B, Charging Pump is in STANDBY.
- Charging flow is offscale HIGH.
- Letdown is isolated.
- RCS temperature is 542°F and slowly lowering.
- PRZR level is 4% and lowering.

Which ONE of the following actions is required?

- Initiate SI and continue in ES-0.1.
- Initiate SI and return to E-0.
- Start SI pumps as required to maintain PRZR level and continue in ES-0.1.
- Start SI pumps as required to maintain PRZR level and return to E-0.

Proposed Answer: **B**

Explanation (Optional):

- A. Incorrect. While the action is correct, the crew will not remain in ES-0.1.
 B. Correct. PRZR level is below the minimum left hand page requiring SI actuation.
 C. Incorrect. Would only start HHSI as needed if the crew is in a reduction or termination of SI sequence. Since it has not initiated, this action would be inappropriate.
 D. Incorrect. Procedure transition is correct but action is incorrect.

Technical Reference(s): ES-0.1 Left Hand Page (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 3SQS-53.2, Objective 4 (As available)

Question Source: Bank # _____
 Modified Bank # X (Note changes or attach parent)
 New _____

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 X
 55.43 _____

Comments:
 Robinson 2004 NRC exam

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	007 A4.01	
	Importance Rating	2.7	

Ability to manually operate and/or monitor in the control room: PRT spray supply valve

Proposed Question: Common 7

Given the following conditions:

- A load rejection has occurred.
- PRZR PORV operation has resulted in high pressure and temperature in the PRZR Relief Tank.
- The PORV has reseated.

Which ONE of the following describes the operation of the PRT spray valve in response to the high PRT pressure?

- A. MOV-1RC-516, PRT Spray Valve, and TV-1RC-519, PRT Primary Water Supply Isol Valve automatically open.
- B. MOV-1RC-516, PRT Spray Valve and [TV-1RC-519], PRT Primary Water Supply Isol Valve must both be manually opened. *from the CR*
- C. Check open MOV-1RC-516, PRT Spray Valve. TV-1RC-519, PRT Primary Water Supply Isol Valve must be manually opened. *from the CR*
- D. MOV-1RC-516, PRT Spray Valve must be manually opened. Check open TV-1RC-519, PRT Primary Water Supply Isol Valve.

Proposed Answer: **C**

Explanation (Optional):

- A. Incorrect. Both valves are manual.
- B. Incorrect. MOV-516 will already be open. Would be correct for BVPS-2.
- C. Correct. MOV-516 is open in NSA.
- D. Incorrect. Opposite action for the valves.

Technical Reference(s): 1OM-6.4.AAC (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 1SQS-6.4 Objective 10 (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	008 A2.02	
	Importance Rating	3.2	

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: High/low surge tank level

Proposed Question: **Common 8**

The Unit is at 80% power with all systems in NSA when the following alarms are received:

- [A6-37], PRI Comp Cool Water Surge Tank level HIGH-LOW.
- [A4-71], Radiation monitoring HIGH.
- [A4-72], Radiation monitoring HIGH-HIGH.

CCR Surge Tank level is 70% and rising slowly.

Which ONE of the following actions is required?

- Trip the reactor; enter E-0, Reactor Trip Or Safety Injection and trip all RCP's.
- Check Containment and Auxiliary Building sump levels for source of leakage and attempt to isolate. *← will replace B. w/ non-related system detector*
- Close any RCP thermal barrier isolation valve that indicates less than 50 gpm CCR discharge flow.
- Close TV-1CH-200A, B, & C, Letdown Orifice Isolation Valves to determine if the leak is in the CVCS letdown non-regenerative heat exchanger.

Proposed Answer: **D**

Explanation (Optional):

- Incorrect. No reactor trip required. CCP surge tank level is not offscale.
- Incorrect. Action is required for out-leakage from CCR.
- Incorrect. This is a normal flowrate. Valve would be closed if flow was > 50 gpm.
- Correct. Leak isolation of higher pressure systems would include the non-regenerative heat exchanger.

Technical Reference(s): AOP-1.15.1 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 1SQS-53C.1, Objective 5 (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	010 K5.01	
	Importance Rating	3.5	

Knowledge of the operational implications of the following concepts as they apply to the PZR PCS: Determination of condition of fluid in PZR, using steam tables

Proposed Question: Common 9

Given the following conditions:

- A Unit heatup is in progress.
- RCS pressure is 335 psig with [PCV-1CH-145], Letdown Backpressure Control Valve in AUTO.
- PRZR temperature is 380°F and rising at 1°F per minute.
- The PRZR is SOLID; a bubble is being drawn.

Which ONE of the following is the approximate time before a bubble is formed in the pressurizer?

- A. Less than 1 hour
- B. 1 hour to 2 hours
- C. 2 hours to 3 hours
- D. 3 hours to 4 hours

*will better group times in minutes
to make all choices viable
(make sure only 1 correct answer)*

Proposed Answer: **A**

Explanation (Optional):

- A. Correct. 335 psig is 350 psia, saturation temperature is 431°F. At 1°F per minute, it will take 51 minutes to draw a bubble.
- B. Incorrect. Allows for interpretation mistakes and symmetry of choices.
- C. Incorrect. Allows for interpretation mistakes and symmetry of choices.
- D. Incorrect. Allows for interpretation mistakes and symmetry of choices.

Technical Reference(s): 1OM-6.4.AR (Attach if not previously provided)
Steam Tables

Proposed references to be provided to applicants during examination: Steam Tables

Learning Objective: 1SQS-6.4 Objective 9 (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	012 K6.06	
	Importance Rating	2.7	

Knowledge of the effect of a loss or malfunction of the following will have on the RPS: Sensors and detectors

Proposed Question: Common 10

Given the following conditions:

- The Unit was operating at 68% power.
- An automatic reactor trip occurred.
- The cause of the trip was low RCS flow in Loop "1A".
- The cause of the trip was determined to be an instrument failure.

Which ONE of the following input failures caused the reactor trip?

- The Loop "1A" high pressure side flow input failed high.
- The Loop "1A" high pressure side flow input failed low.
- One Loop "1A" low pressure side flow input failed high.
- One Loop "1A" low pressure side flow input failed low.

Proposed Answer: **B**

Explanation (Optional):

- Incorrect. High side input will indicate high DP and high flow.
- Correct. Each flow transmitter takes input from 1 high side tap and 3 low side taps. If the high side tap fails low, then all 3 DP's indicate low, satisfying the 2/3 logic for 1 loop low flow trip.
- Incorrect. Low side tap failing high only causes 1 out of 3 low flow trips. 2 out of 3 are required for a reactor trip to occur.
- Incorrect. Low side failing low would cause a high DP and high flow indication.

Technical Reference(s): 1OM-6 Figure 6-1 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 3SQS-1.1 Objective 8 and 11 (As available)

Question Source:	Bank #	<u>X</u>	
	Modified Bank #	<u> </u>	(Note changes or attach parent)
	New	<u> </u>	

Question History: Last NRC Exam 2002

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

10 CFR Part 55 Content:	55.41	<u>X</u>
	55.43	<u> </u>

Comments:
BVPS-1 2002 NRC exam Q24

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	013 A4.01	
	Importance Rating	4.5	

Ability to manually operate and/or monitor in the control room: ESFAS-initiated equipment which fails to actuate

Proposed Question: Common 11

Given the following conditions:

- The Unit was operating at 100% power.
- A PRZR PORV failed open.
- The reactor has tripped on low PRZR pressure.
- PRZR pressure stabilizes at 1700 psig.

Plant status is as follows:

- All control rods are fully inserted.
- Status Panel 62-4C light "S Inj Act Sig" is **NOT** LIT.
- Normally running charging pump is in service.
- Standby charging pump is NOT running,
- NO LHSI pumps are running.
- CIA is NOT actuated.
- CIB is NOT actuated.
- Main steam lines are NOT isolated.
- Feedwater Isolation is NOT actuated.

← plot c cont P in stem (←CIB)

Which ONE of the following describes the required manual operator actions?

BOLD Manually initiate both trains of ...

- A. Safety Injection.
- B. Safety Injection and ~~CIB~~ ^{MSI}
- C. Safety Injection, CIB, and Main Steam Line Isolation.
- D. Safety Injection, CIB, Main ~~Steam Line~~ ^{FW} Isolation, and CIA.

Proposed Answer: **A**

Explanation (Optional):

- A. Correct. When PRZR pressure drops below 1845 psig, SI should have actuated, which would result in Safety Injection, CIA, and Feedwater Isolation. Manual actuation of SI should start the non-running HHSI and LHSI pumps as well as actuate CIA and the Feedwater Isolation.
- B. Incorrect. CIB is not actuated on low PRZR pressure.
- C. Incorrect. CIB and MSL Isolation are not actuated on low PRZR pressure.
- D. Incorrect. CIB and MSL Isolation are not actuated on low PRZR pressure. CIA will actuate when SI is initiated.

Technical Reference(s): **E-0** (Attach if not previously provided)
Att 1-K
1OM-1.2B

Proposed references to be provided to applicants during examination: NONELearning Objective: 3SQS-1.1 Objective 10 (As available)

Question Source: Bank # X
 Modified Bank # (Note changes or attach parent)
 New

Question History: Last NRC Exam 2002

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

10 CFR Part 55 Content: 55.41 X
 55.43

Comments:

BVPS-1 2002 NRC exam Q8

NEW

Examination Outline Cross-reference:

Level
Tier #
Group
K/A #
Impor

Steve,

Couple of changes for
the Written Exam.

—
—
—
—

Knowledge of CCS design feature(s) and/or interlock(s) which provide

Proposed Question: Common 12

Which ONE of the following describes the operation of the System?

Please replace & destroy
old pages. Tom W.

Inner and outer cooling coils are supplied by...

- A. Chilled water. Coils are isolated on CIA.
- B. Chilled water. Coils are isolated on CIB.
- C. Component cooling water. Coils are isolated on CIA.
- D. Component cooling water. Coils are isolated on CIB.

Proposed Answer:

D

changed
Answer

Explanation (Optional):

- A. Incorrect. Chilled water cools outer
- B. Incorrect. Not cooled by chilled water
- C. Incorrect. Isolated on CIB.
- D. Correct.

ration coolers.

Technical Reference(s): 1SQS-15.1

(Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 1SQS-15.1 Objective 2

(As available)

Question Source:

Bank #

Modified Bank #

New

X

(Note changes or attach parent)

- A. Incorrect. Fans trip on a CIB due to a loss of the stub bus.
- B. Correct.
- C. Incorrect. All fans trip. None will be manually started until after the stub bus is re-energized.
- D. Incorrect. All fans trip, and cannot be manually started until after the stub bus is re-energized.

Technical Reference(s): 1SQS-44.C.1 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 1SQS-44.C.1 Objective 13 (As available)

Question Source: Bank # _____
 Modified Bank # _____ (Note changes or attach parent)
 New X

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 X
 55.43 _____

Comments:

OLD

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	022 K4.01	
	Importance Rating	2.5	

Knowledge of CCS design feature(s) and/or interlock(s) which provide for the following: Cooling of containment penetrations

Proposed Question: Common 12

Which ONE of the following describes the operation of the Containment Penetration Cooling System?

Inner and outer cooling coils are supplied by...

- A. Chilled water. Coils are isolated on CIA.
- B. Chilled water. Coils are isolated on CIB.
- C. Component cooling water. Coils are isolated on CIA.
- D. Component cooling water. Coils are isolated on CIB.

Proposed Answer: **C**

Explanation (Optional):

- A. Incorrect. Chilled water cools other coils, but not penetration coolers.
- B. Incorrect. Not cooled by chilled water. Isolates on CIB
- C. Correct.
- D. Incorrect. Isolated on CIA.

A?

A

Technical Reference(s): 1SQS-15.1 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 1SQS-15.1 Objective 2 (As available)

Question Source: Bank # _____

Modified Bank # _____ (Note changes or attach parent)

New X

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>2</u>	<u> </u>
	Group #	<u>1</u>	<u> </u>
	K/A #	<u>022 K1.02</u>	<u> </u>
	Importance Rating	<u>3.7</u>	<u> </u>

Knowledge of the physical connections and/or cause-effect relationships between the CCS and the following systems: SEC/remote monitoring systems

Proposed Question: Common 13

Given the following conditions:

- The reactor has tripped.
- Safety Injection actuates on low PRZR pressure.
- All equipment has started and is operating as designed.
- RCS pressure is 340 psig and lowering.
- CTMT pressure is 18 psig and rising.

Prior to the event, [1VS-F-1A and 1B], Containment Air Recirculation Fans were running. [1VS-F-1C], Containment Air Recirculation Fan was in standby aligned to 480V Bus 1P.

Which ONE of the following describes the status of the containment air recirculation fans? (Assuming **NO** operator actions.)

- A. All containment air recirculation fans are running.
- B. All containment air recirculation fans are tripped and CANNOT be started.
- C. 1VS-F-1A and 1B, Containment Air Recirculation Fans must be manually started. 1VS-F-1C is tripped and cannot be started.
- D. 1VS-F-1A, 1B and 1C, Containment Air Recirculation Fans must be manually started.

Proposed Answer: **B**

Explanation (Optional):

- A. Incorrect. Fans trip on an SI.
- B. Correct.
- C. Incorrect. All fans trip. None will be manually started until after the SI is reset.
- E. Incorrect. All fans trip, cannot be manually started until SI is reset.

Technical Reference(s): 1SQS-44.C.1 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 1SQS-44.C.1 Objective 13 (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>2</u>	<u> </u>
	Group #	<u>1</u>	<u> </u>
	K/A #	<u>026 G2.1.23</u>	<u> </u>
	Importance Rating	<u>3.9</u>	<u> </u>

Conduct of Operations: Ability to perform specific system and integrated plant procedures during all modes of plant operation.

Proposed Question: Common 14

Given the following conditions:

- A LOCA has occurred.
- The crew is performing actions of E-1, Loss Of Reactor Or Secondary Coolant.
- SI and CIA are reset.
- The crew is evaluating whether Containment Spray should be stopped.
- Containment pressure is (-) 3 psig.

Which ONE of the following describes the action required for Containment Spray?

- A. STOP ONE (1) train of Quench Spray. When containment pressure reaches 8.9 psia, STOP one train of Recirc Spray.
- B. STOP BOTH trains of Quench Spray. Stop Recirc Spray pumps when containment pressure reaches 8.9 psia.
- C. Leave BOTH trains of Quench Spray running until containment pressure is reduced to 8.9 psia.
- D. STOP Quench Spray Chem Injection pumps. Leave Quench Spray pumps running until containment pressure reaches 8.9 psia.

Proposed Answer: **B**

Explanation (Optional):

- A. Incorrect. When stopping Quench Spray, both trains will be stopped.
- B. Correct. Requires CNMT pressure less than (-) 2 psig.
- C. Incorrect. Recirc Spray is stopped at this pressure.
- D. Incorrect. When Chem Injection pumps are stopped, Quench Spray is also stopped.

Technical Reference(s): E-1 Step 10 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 3SQS-53.3 Objective 3 (As available)

Question Source: Bank # _____
 Modified Bank # _____ (Note changes or attach parent)
 New X

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 X
 55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	039 K3.05	
	Importance Rating	3.6	

Knowledge of the effect that a loss or malfunction of the MRSS will have on the following: RCS

Proposed Question: Common 15

Given the following conditions:

- A Unit startup is in progress following a mid-cycle outage.
- The reactor is critical at 1×10^{-8} amps on the Intermediate Range NI's.

A condenser steam dump valve fails partially open.

Assuming **NO** action by the crew, which ONE of the following describes the **IMMEDIATE** effect on the plant?

- A. Power INCREASES; RCS Temperature INCREASES
- B. Power INCREASES; RCS Temperature DECREASES
- C. Power DECREASES; RCS Temperature INCREASES
- D. Power DECREASES; RCS Temperature DECREASES

Proposed Answer: **B**

Explanation (Optional):

- A. Incorrect. More steam demand will cause temperature to decrease.
- B. Correct. Negative MTC. (Middle of Life) If temperature decreases, power increases.
- C. Incorrect. Power increases due to negative MTC. Temperature decreases due to increased heat removal.
- D. Incorrect. If MTC was positive, this would be the initial effect, but MTC is only positive at BOL with a high boron concentration.

Technical Reference(s): GFE - Reactor Operational Physics (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 1SQS-21.1 Objective 11 (As available)

Question Source: Bank # X
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	039 K1.08	
	Importance Rating	2.7	

Knowledge of the physical connections and/or cause-effect relationships between the MRSS and the following systems: MFW

Proposed Question: Common 16

Given the following conditions:

- The Unit is at 100% power.
- The following annunciators are in alarm:
 - o [A7-45], Steam Generator 1A Level Deviation From Setpoint
 - o [A7-48], Loop 1 Steam Flow Greater Than Feedwater Flow

The BOP determines that [FCV-1FW-478], SG 1A Feed Regulating Valve is opening.

Which ONE of the following describes the event taking place?

- A. A controlling feedwater flow transmitter has failed high.
- B. A controlling steam pressure transmitter has failed high.
- C. A controlling steam flow transmitter has failed low.
- D. A SG level transmitter has failed high.

Proposed Answer: **B**

Explanation (Optional):

- A. Incorrect. For this failure, the FRV would close.
- B. Correct. Steam pressure compensates steam flow and will fail flow in the same direction. Feedwater will attempt to compensate, the FRV will open and SG level will rise.
- C. Incorrect. If steam flow fails low, then the FRV controller responds by closing the FRV, and SG level decreases.
- D. Incorrect. If a SG level transmitter fails high, then the FRV would compensate by closing.

Technical Reference(s): 1OM-24.4.IF (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 1SQS-24.1 Objective 16 (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	059 A3.02	
	Importance Rating	2.9	

Ability to monitor automatic operation of the MFW, including: Programmed levels of the S/G

Proposed Question: Common 17

With SG level on program which ONE of the following is the expected behavior for SG level during a power ascension from 0% to 100% power?

- A. Level ramps from 33% at 0% RTP to 44% at 20% RTP, then holds at 44%.
- B. Level is constant at 33% throughout the power ascension.
- C. Level will hold at 33% until 20% power, then rises to 44% at 100% RTP.
- D. Level is constant at 44% throughout the power ascension.

Proposed Answer: AD (typo)

Explanation (Optional):

- A. Incorrect. Similar to former program prior to SG level program modification change.
- B. Incorrect. Wrong level program.
- C. Incorrect. SG program prior to SG level program modification change.
- D. Correct.

Technical Reference(s): 1SQS-24.1 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: _____

Learning Objective: 1SQS-24.1 Objective 13 (As available)

Question Source: Bank # _____
 Modified Bank # X (Note changes or attach parent)
 New _____

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 X
55.43

Comments:
Recent Plant modification

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>2</u>	<u> </u>
	Group #	<u>1</u>	<u> </u>
	K/A #	<u>059 K4.16</u>	<u> </u>
	Importance Rating	<u>3.1</u>	<u> </u>

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

Proposed Question: **Common 18**
directly

Which ONE of the following will automatically trip [1FW-P-1A], Main Feedwater Pump?

- A. 2 out of 3 Lo-Lo Level in any SG.
- B. Reactor Trip coincident with Low Tavg.
- C. Low lube oil pressure of 4 psig.
- D. MOV-1FW-150A, Main FW Pump Discharge Valve shut.

Proposed Answer: **C**

Explanation (Optional):

- A. Incorrect. Results in a reactor trip and automatic start of the AFW pumps.
- B. Incorrect. Results in a partial FWI, but does not include MFP trip.
- C. Correct. Lube oil pressure of 5 psig or less is a MFW pump trip signal.
- D. Incorrect. Discharge valve shut is a start interlock for the pump.

Technical Reference(s): 1OM-24.1.D (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 1SQS-24.1 Objective 13 (As available)

Question Source: Bank # X
 Modified Bank # (Note changes or attach parent)
 New

Question History: Last NRC Exam 2002

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

10 CFR Part 55 Content: 55.41 X
55.43

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>2</u>	_____
	Group #	<u>1</u>	_____
	K/A #	<u>061 K1.07</u>	_____
	Importance Rating	<u>3.6</u>	_____

Knowledge of the physical connections and/or cause-effect relationships between the AFW and the following systems Emergency water source

Proposed Question: **Common 19**

Which ONE of the following describes the suction source for the Auxiliary Feedwater Pumps?

- A. Normal suction aligned to PPDWST. Suction can be aligned to [1WT-TK-26], Demineralized Water Tank if the PPDWST is unavailable.
- B. Normal suction aligned to [1WT-TK-26], Demineralized Water Tank. Suction can be aligned to the PPDWST if the Demineralized Water Tank is unavailable.
- C. Normal suction aligned to the PPDWST. Individual pump suction lines may be cross-connected.
- D. Normal suction aligned to [1WT-TK-26], Demineralized Water Tank. Individual pump suction lines may be cross-connected.

Proposed Answer: **C**

Explanation (Optional):

- A. Incorrect. TK26 is used to fill the PPDWST.
- B. Incorrect. Pumps are not aligned to TK26.
- C. Correct. Pump suction lines can be aligned to make all pumps available in case of a suction line break.
- D. Incorrect. Pumps are not aligned to TK26.

Technical Reference(s): 1SQS-24.1 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 1SQS-24.1 Objective 2 (As available)

Question Source: Bank # _____

Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	061 A3.02	
	Importance Rating	4.0	

Ability to monitor automatic operation of the AFW, including: RCS cooldown during AFW operations

Proposed Question: Common 20

The plant is in Mode 3 following a reactor trip. A plant cooldown of 50°F/hr. is underway.

Assuming SG level is held constant, which ONE of the following describes the trend of auxiliary feedwater flow requirements as the plant cools down to Mode 5?

- A. More AFW flow is required to maintain SG level due to the increased density of the SG water as it cools.
- B. AFW flow requirements are constant as long as the cooldown rate remains constant.
- C. Less AFW flow is required to maintain SG level because heat input to the SG's decrease as the cooldown continues.
- D. AFW flow requirements are constant as long as SG level remains constant.

Proposed Answer: **C**

Explanation (Optional):

- A. Incorrect. Density will increase, but the effect is minimal compared to decay heat change.
- B. Incorrect. Even though the cooldown rate is constant, less heat is being removed as temperature goes down.
- C. Correct.
- D. Incorrect. It takes less feedwater to maintain level constant as the RCS cooldown continues. Otherwise, AFW pumps would be adequate for full power operation.

Technical Reference(s): Thermo (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 1SQS-24.1 Objective 5 (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	062 K2.01	
	Importance Rating	3.3	

Knowledge of bus power supplies to the following: Major System Loads

Proposed Question: Common 21

Which ONE of the following describes the 4KV busses that supply power to [1RC-P-1A] and [1RC-P-1C], Reactor Coolant Pumps, respectively?

- A. Bus 1A and Bus 1C
- B. Bus 1B and Bus 1C
- C. Bus 1C and Bus 1A
- D. Bus 1C and Bus 1B

replace / rework

Proposed Answer: **A**

Explanation (Optional):

- A. Correct.
- B. Incorrect. Bus 1B supplies RCP 1B.
- C. Incorrect. Opposite from actual.
- D. Incorrect. Both busses are wrong.

Technical Reference(s): 1SQS-6.3 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: _____

Learning Objective: 1SQS-6.3 Objective 4 (As available)

Question Source: Bank # _____
 Modified Bank # _____ (Note changes or attach parent)
 New X

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 X
55.43

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	_____
	Group #	1	_____
	K/A #	063 K3.01	_____
	Importance Rating	3.7	_____

Knowledge of the effect that a loss or malfunction of the dc electrical system will have on the following: ED/G

Proposed Question: Common 22

How is an emergency diesel generator in standby affected by a loss of all 125VDC power?

- A. It can be locally started, and could still generate power after manual field flash.
- B. It can start automatically, but cannot generate electricity due to loss of field flash.
- C. It can start automatically, and could still generate power after manual field flash.
- D. It can be locally started, but cannot generate electricity due to loss of field flash.

Proposed Answer: **D**

Explanation (Optional):

- A. Incorrect. Cannot generate power if no DC available for field flash.
- B. Incorrect. Auto start circuitry is disabled.
- C. Incorrect. Auto start circuitry is disabled.
- D. Correct.

Technical Reference(s): 1SQS-36.2 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: _____

Learning Objective: 1SQS-36.2 Objective 3 (As available)

Question Source: Bank # X

Modified Bank # _____ (Note changes or attach parent)

New _____

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41
55.43

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	064 K4.02	
	Importance Rating	3.9	

Knowledge of ED/G system design feature(s) and/or inter-lock(s) which provide for the following: Trips for ED/G while operating (normal or emergency)

Proposed Question: Common 23

Given the following conditions:

- A loss of offsite power occurred.
- While performing actions of E-0, the RO manually initiated a Safety Injection.
- Approximately 5 minutes later, No. 1 EDG tripped.

Which ONE of the following was the cause of the EDG trip?

- Loss of Field
- Reverse Power
- Ground Overcurrent
- Differential Overcurrent

Proposed Answer: **D**

Explanation (Optional):

- Incorrect. Only active when the EDG is paralleled.
- Incorrect. Only active when the EDG is paralleled.
- Incorrect. Only active when the EDG is paralleled.
- Correct. Differential and overspeed trips remain active when EDG is supplying the bus in UNIT mode.

Technical Reference(s): 1SQS-36.2 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 1SQS-36.2 Objective 13 (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	064 A3.05	
	Importance Rating	2.8	

Ability to monitor automatic operation of the ED/G system, including: Operation of the governor control of frequency and voltage control in parallel operation

Proposed Question: Common 24

Given the following conditions:

- The Unit is at 100% power.
- 1OST-36.2, Diesel Generator No. 2 Monthly Test is in progress.
- No. 2 EDG is paralleled to the grid, carrying approximately 50% load.
- A grid disturbance causes frequency to drop very slightly. Grid voltage remains constant.

Which ONE of the following describes the response of No. 2 EDG?

- A. KW output rises.
- B. KW output lowers.
- C. KW output and KVAR output rises.
- D. KW output and KVAR output lowers.

Proposed Answer: **A**

Explanation (Optional):

- A. Correct. If frequency drops, the EDG will attempt to increase speed, which will pick up real load.
- B. Incorrect. KW output will rise when the EDG tries to raise grid frequency.
- C. Incorrect. KVAR output will remain essentially constant if grid voltage is constant. If it did change, it would change in the opposite direction of KW.
- D. Incorrect. KW output will rise.

Technical Reference(s): Electrical Theory Manual (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 1SQS-36.2 Objective 12 (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	073 A2.02	
	Importance Rating	2.7	

Ability to (a) predict the impacts of the following malfunctions or operations on the PRM system; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Detector failure

Proposed Question: Common 25

A liquid waste release is in progress to the cooling tower blowdown, when the following annunciator alarms:

- [A4-70], Radiation Monitor Power Supply Failure

The BOP determines that [RM-1LW-104], Liquid Waste Effluent Monitor is failed downscale.

Which ONE of the following is the required action?

- The release may continue provided grab samples are taken within 4 hours and determined to remain within limits.
- The release may continue provided two (2) independent samples are independently determined to be within limits and two (2) technically qualified personnel verify the valve lineup.
- The release must be terminated. It shall not be restarted until detector RM-1LW-104 is operable.
- The release must be terminated. It shall not be restarted until two (2) samples are independently analyzed and two (2) technically qualified personnel verify valve lineups.

Proposed Answer: **D**

Explanation (Optional):

- Incorrect. With a failed monitor, the release must be stopped until compensatory actions have been put in place.
- Incorrect. Action is correct, but not for an ongoing release.
- Incorrect. Action is correct, but RM-104 does not have to be operable if compensatory measures are taken.
- Correct.

Technical Reference(s): ODCM (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 1SQS-17.1 Objective 11 (As available)

Question Source: Bank # X
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 X
55.43 X

Comments:
BVPS-2 2002 NRC

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>2</u>	<u> </u>
	Group #	<u>1</u>	<u> </u>
	K/A #	<u>076 K2.01</u>	<u> </u>
	Importance Rating	<u>2.7</u>	<u> </u>

Knowledge of bus power supplies to the following: Service water

Proposed Question: Common 26

Given the following conditions:

- [WR-P-1A], RPRW Pump is in standby.
- [WR-P-1B], RPRW Pump is racked out.
- [WR-P-1C], RPRW Pump is running in place of WR-P-1B.

The Control Room is being evacuated. Control for all three (3) River Water pumps is shifted to the Emergency Shutdown Panel with all control switches in AUTO.

Subsequently, a loss offsite power occurs.

Which ONE of the following describes the River Water pumps that will be in operation when the EDG's have completed their loading sequence?

- A. WR-P-1A ONLY
- B. WR-P-1C ONLY
- C. WR-P-1A and WR-P-1C ONLY
- D. NO River Water pumps will be running.

Proposed Answer: **C**

Explanation (Optional):

- A. Incorrect. The swing pump, 1C will also start if racked onto the 1DF bus.
- B. Incorrect. Both 1A and 1C pumps will start.
- C. Correct.
- D. Incorrect. Pumps that are in AUTO will receive a start signal.

Technical Reference(s): 1SQS-30.1 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 1SQS-30.1 Objective 1 (As available)

Question Source: Bank # X
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:
BVPS-1 Bank – Not previous NRC. Modified distractors

Examination Outline Cross-reference:	Level	RO	SRO
Tier #		2	
Group #		1	
K/A #		078 K3.02	
Importance Rating		3.4	

Knowledge of the effect that a loss or malfunction of the IAS will have on the following: Systems having pneumatic valves and controls

Proposed Question: Common 27

Which of the following valves fail **OPEN** on a loss of power or air?

1. [TCV-1CC-100], CCR Temperature Control Valve
2. [FCV-1CH-113A], Boric Acid To Blender FCV
3. [SOV-11A-230], Instrument Air Dryer Bypass Valve
4. [FCV-1CH-113B], Blender Outlet to Charging Pumps FCV

change nomenclature desc. to a "system effect"

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

Proposed Answer: **C**

Explanation (Optional):

- A. Incorrect. FCV-1CH-113B fails closed.
- B. Incorrect. TCV-1CC-100 fails closed.
- C. Correct.
- D. Incorrect. FCV-1CH-113B fails closed.

Technical Reference(s): AOP-1.34.1 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 1SQS-34.1 Objective 11 (As available)

Question Source: Bank # X
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam

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

10 CFR Part 55 Content: 55.41 X
55.43

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>2</u>	<u> </u>
	Group #	<u>1</u>	<u> </u>
	K/A #	<u>103 A3.01</u>	<u> </u>
	Importance Rating	<u>3.9</u>	<u> </u>

Ability to monitor automatic operation of the containment system, including: Containment isolation

Proposed Question: **Common 28**

A reactor trip and safety injection has occurred. The following conditions currently exist:

- RCS pressure is 1700 psig.
- Tavg is 545°F.
- Containment pressure is (-1) psig.
- All SG pressures are 1000 psia.
- All SG NR levels are 5% and slowly rising.

double jeopardy comment accepted

Which ONE of the following, if any, additional ESF actuations have occurred?

- A. CIA
- B. MSLI
- C. CIA and CIB
- D. No additional ESF actuations have occurred.

replace w/ system failure leading to CIA/CIB actuation?

Proposed Answer: **A**

Explanation (Optional):

- A. Correct. No conditions shown, but SI will cause CIA also.
- B. Incorrect. Containment pressure is too low, main steam pressure is too high.
- C. Incorrect. Containment pressure is too low.
- D. Incorrect. CIA will occur due to the SI signal.

Technical Reference(s): 1SQS-11.1 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 1SQS-11.1 Objective 18 (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>2</u>	<u> </u>
	Group #	<u>2</u>	<u> </u>
	K/A #	<u>001 K2.01</u>	<u> </u>
	Importance Rating	<u>3.5</u>	<u> </u>

Knowledge of bus power supplies to the following: One-line diagram of power supply to M/G sets.

Proposed Question: **Common 29**

What is the correct sequence of components that supply power from the 480 VAC substations to the control rod drive mechanisms (CRDMs)?

(RDMG's = Rod Drive Motor Generator Sets)

- A. 480V Bus A, RDMG's, Power Cabinets, Trip Breakers
- B. 480V Bus B, Power Cabinets, Trip Breakers, RDMG's
- C. 480V Bus A, Trip Breakers, RDMG's, Power Cabinets
- D. 480V Bus B, RDMG's, Trip Breakers, Power Cabinets

Proposed Answer: **D**

Explanation (Optional):

- A. Incorrect. Sequence is wrong.
- B. Incorrect. Sequence is wrong.
- C. Incorrect. Sequence is wrong.
- D. Correct.

Technical Reference(s): 3SQS-1.3 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 3SQS-1.3 Objective 3 (As available)

Question Source: Bank # X
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

BVPS-1/2 Bank Reference ID 1586

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>2</u>	<u> </u>
	Group #	<u>2</u>	<u> </u>
	K/A #	<u>002 K4.05</u>	<u> </u>
	Importance Rating	<u>3.8</u>	<u> </u>

Knowledge of bus power supplies to the following: One-line diagram of power supply to M/G sets. *typo, will fix*
Proposed Question: Common 30

Which ONE of the following describes ONLY the equipment required by Technical Specifications to be **OPERABLE** for detection of small amounts of RCS leakage?

- A. Containment Temperature Monitoring and Containment Dew Point Monitor
- B. Containment Sump Monitor and Containment Temperature Monitoring
- C. Containment Particulate Activity Radiation Monitor and Containment Sump Monitor
- D. Containment Dew Point Monitor and Containment Gaseous Activity Radiation Monitor

Proposed Answer: B/C *unit differences -> typo*

Explanation (Optional):

- A. Incorrect. Dew point monitor is helpful, but not required.
- B. Correct.
- C. Incorrect. Containment temperature monitor is helpful, but not required.
- D. Incorrect. Containment temperature and dewpoint will indicate leakage, but are not required by TS.

Technical Reference(s): Tech Spec and Bases (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: N/A (As available)

Question Source: Bank #
 Modified Bank # (Note changes or attach parent)
 New X

Question History: Last NRC Exam

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

10 CFR Part 55 Content: 55.41 X
55.43 X

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	011 K3.01	
	Importance Rating	3.2	

Knowledge of the effect that a loss or malfunction of the PZR LCS will have on the following: CVCS

Proposed Question: Common 31

Given the following conditions:

- The Unit is at 100% power with all systems in NSA.
- The controlling PRZR level transmitter [LT-1RC-459] fails at the programmed level that corresponds to full plant load.
- ASSUME **NO** operator action is taken.

Which ONE of the following describes the effect on charging flow and PRZR level when the plant is REDUCED to 10% power?

- Charging flow remains constant and actual PRZR level remains constant. PRZR heaters will energize to compensate for reduced T_{avg} .
- Charging flow decreases and actual PRZR level decreases. On low PRZR level, letdown will isolate and the PRZR heaters will turn off.
- Actual PRZR level increases and charging flow increases. The backup heaters will energize as level rises due to the apparent in-surge.
- Actual PRZR level decreases and charging flow increases. When actual level increases back to program level, charging flow will back down to maintain level.

Proposed Answer: **B**

Explanation (Optional):

- A. Incorrect.
- B. Correct. Charging flow will decrease because Tavg is decreasing and it will appear that actual level is too high due to the failed transmitter. (Indicated level will be 54% when actual will start to decrease). LT-460 will show the actual PRZR level which will decrease to 14%, letdown will isolate and the heaters will cut off.
- C. Incorrect.
- D. Incorrect.

Technical Reference(s): 1SQS-7.1 (Attach if not previously provided)Proposed references to be provided to applicants during examination: NONELearning Objective: 1SQS-7.1 Objective 19 (As available)

Question Source: Bank # X

Modified Bank # (Note changes or attach parent)

New

Question History: Last NRC Exam

Question Cognitive Level: Memory or Fundamental Knowledge

Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 X

55.43

Comments:

Robinson 2002 NRC exam

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	041 A1.01	
	Importance Rating	2.9	

Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the SDS controls, including: Tavg, verification above low-low setpoint

Proposed Question: Common 32

The Unit was operating at 100% power when a reactor trip occurred due to a LOCA. All Safety Injection systems failed to operate and the crew entered FR-C.1, Response To Inadequate Core Cooling.

Given the following:

- The Unit Supervisor has directed the depressurization of all intact SG's to 150 psig using the condenser steam dump valves.
- All MSIV's are open and the condenser is available.
- [AM-1MS-464B], Steam Dump Controller is in MANUAL.
- The Steam Dump Control Mode Selector Switch is in the STM PRESS position and SG depressurization is underway.
- PRZR pressure is > 1950 psig and the Block Steamline SI Switches have NOT been placed in the BLOCK position.
- As the SG depressurization progresses, the steam flow automatically stops.

Which ONE of the following caused the steam flow to stop?

- SG pressure has reached 150 psig, or Main Steamline Isolation occurred due to exceeding the high steam pressure rate setpoint.
- Steam header pressure has dropped below the setpoint on AM-1MS-464B, or Tavg is below 541°F and no action has been taken to defeat the Tavg Interlock.
- Tavg is below 541°F and no action has been taken to defeat the Tavg Interlock, or Main Steamline Isolation occurred due to exceeding the low steam pressure rate sensitive setpoint.
- Main Steamline Isolation due to exceeding the high steam pressure rate setpoint, or steam header pressure has dropped below the setpoint on AM-1MS-464B.

Proposed Answer: **B**

Explanation (Optional):

- A. Incorrect. No automatic actions halt steam dump at 150 psig.
- B. Incorrect. AM-1MS-464B is in manual. Pressure setpoint has no effect.
- C. Correct. As Tavg approaches 541°F, the Tavg Interlock must be defeated by holding both steam dump control bypass interlock selector switches to the DEFEAT TAVG NTLK position until the status light, "2/3 Lo-Lo Tavg" is LIT. This action was not performed. Also, the Main Steamline Isolation due to exceeding the high steam pressure rate setpoint is active and could have resulted in an MSIV isolation if the rate of depressurization was excessive.
- D. Incorrect. AM-1MS-464B is in manual. Pressure setpoint has no effect.

Technical Reference(s): FR-C.1, Step 16 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 1SQS-21.1 Objective 11 (As available)

Question Source: Bank # X
 Modified Bank # _____ (Note changes or attach parent)
 New _____

Question History: Last NRC Exam 2002

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

10 CFR Part 55 Content: 55.41 X
 55.43 _____

Comments:
 2002 NRC exam

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	033 G2.1.27	
	Importance Rating	2.8	

Conduct of Operations: Knowledge of system purpose and or function.

Proposed Question: Common 33

Which ONE of the following describes a design feature of the Spent Fuel Pool Cooling and Purification System?

- A. Maintains $K_{eff} < 0.95$ with unborated water during all fuel handling activities.
- B. Ensures that any pipe break in the system will maintain sufficient shielding over irradiated fuel bundles.
- C. Maintains water temperature below 200°F for all postulated events.
- D. Provides sufficient storage for all irradiated fuel assemblies for the life of the plant.

Proposed Answer: **B**

Explanation (Optional):

- A. Incorrect. Boration is required for core offload to SFP.
- B. Correct.
- C. Incorrect. If allowed to heat up with a full core offloaded, SFP would reach boiling if without cooling.
- D. Incorrect. Available storage is limited to 18 refuelings.

Technical Reference(s): 1SQS-20.1 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 1SQSD-20.1 Objective 1 (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>2</u>	<u> </u>
	Group #	<u>2</u>	<u> </u>
	K/A #	<u>034 K6.02</u>	<u> </u>
	Importance Rating	<u>2.6</u>	<u> </u>

Knowledge of the effect of a loss or malfunction on the following will have on the Fuel Handling System : Radiation monitoring systems

Proposed Question: Common 34

Given the following conditions:

- The Unit has been in Mode 6 for seven (7) days.
- Fuel movement is in progress.
- Containment Purge System is operating.

[RM-1VS-104A], Containment Purge And Exhaust Radiation Monitor fails a channel check and is declared **INOPERABLE**.

Which ONE of the following describes how, if at all, fuel movement is affected?

- A. No effect. Refueling may continue.
- B. Refueling may continue as long as RM-219A and B, Containment Area Monitors are operable.
- C. Suspend fuel movement until the Containment Purge System is isolated, and then resume refueling activities.
- D. Refueling may continue as long as RM-1VS-104B, Containment Purge And Exhaust Radiation Monitor remains operable.

Proposed Answer: **A**

Explanation (Optional):

- A. Correct. As long as > 100 hours shutdown, monitors are not required by TS.
- B. Incorrect. No requirement for RM219A/B to replace RM104A, and there is no input to purge isolation.
- C. Incorrect. If CNMT purge monitors were required, this would be an alternative action to perform.
- D. Incorrect. If they were required, they would both be required.

Technical Reference(s): 1OM-44C.1 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 1SQS-44C.1, Objective 17 (As available)

Question Source: Bank # _____
 Modified Bank # _____ (Note changes or attach parent)
 New X

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 X
 55.43 X

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	045 K1.18	
	Importance Rating	3.6	

Knowledge of the physical connections and/or cause-effect relationships between the MT/G system and the following systems: RPS

Proposed Question: Common 35

While operating at 100% power, an OTΔT runback occurs.

give conditions, do not state OTΔT runback

Which ONE of the following describes the response of the main turbine/generator? Assume the initiating condition does not clear.

- A. The load reference is runback, the runback timer will cycle on/off, on for 1.5 seconds, then off for 30 seconds, until generator load is zero.
- B. The load reference is runback, the runback timer will cycle on/off, on for 1.5 seconds, then off for 30 seconds, until generator load is reduced to 20%.
- C. Load is reduced at the ^{constant} rate of 200% per minute until load is reduced to 20%, with no further automatic action.
- D. Load is reduced at the ^{constant} rate of 200% per minute until load is reduced to 0%, with no further automatic action.

Proposed Answer: **A**

Explanation (Optional):

- A. Correct.
- B. Incorrect. There is no limit to 20% if the initiating condition remains active.
- C. Incorrect. Load is reduced at a rate of 200% per minute, but only in 1.5 second pulses, and would not stop at 20% power.
- D. Incorrect. Load is reduced at a rate of 200% per minute, but only in 1.5 second pulses.

Technical Reference(s): 1SQS-35.3 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 1SQS-35.3 Objective 2 (As available)

Question Source: Bank # X
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam

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

10 CFR Part 55 Content: 55.41 X
55.43

Comments:
BVPS-1 Ref ID 1SQS-26.1-12-01

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	068 A3.02	
	Importance Rating	3.6	

Ability to monitor automatic operation of the Liquid Radwaste System including: Automatic isolation

Proposed Question: Common 36

Given the following conditions:

- The Unit is at 100% power with all systems in NSA.
- A batch discharge of the contents of [1LW-TK-7A], Steam Generator Drain Tank 7A is in progress.
- [RM-1LW-104A], Liquid Waste Effluent Monitor has generated a **HIGH-HIGH** radiation signal.

How will this affect the Liquid Waste Disposal System?

try to make more plausible

- TV-LW-105, Liquid Waste Effluent Trip Valve receives an open signal and FCV-LW-104-1, Liquid Waste Effluent Low Range Flow Control Valve closes.
- The running steam generator drain tank pump will stop and FCV-LW-104-1, Liquid Waste Effluent Low Range Flow Control Valve closes.
- The running steam generator drain tank pump will stop and FCV-LW-104-2, Liquid Waste Effluent High Range Flow Control Valve closes.
- FCV-LW-104-1 and FCV-LW-104-2, Liquid Waste Effluent High and Low Range Flow Control Valves and TV-LW-105, Liquid Waste Effluent Trip Valve receive a signal to close.

Proposed Answer: **D**

Explanation (Optional):

- Incorrect. TV-LW-105 receives a closed signal on high radiation.
- Incorrect. The radiation signal does not generate a signal to stop the SG drain tank pump.
- Incorrect. The radiation signal does not generate a signal to stop the SG drain tank pump.
- Correct. All three valves receive a close signal on high radiation.

Technical Reference(s): 1OM-17.1.D (Attach if not previously provided)
1OM-17 Figure 17-22

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 1SQS-17.1 Objective 5 (As available)

Question Source: Bank # 1SQS-17-05-01
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>2</u>	<u> </u>
	Group #	<u>2</u>	<u> </u>
	K/A #	<u>071 A1.06</u>	<u> </u>
	Importance Rating	<u>2.5</u>	<u> </u>

Ability to predict and/or monitor changes in parameters(to prevent exceeding design limits) associated with Waste Gas Disposal System operating the controls including: Ventilation system

Proposed Question: Common 37

A gaseous waste release is in progress in accordance with 1OM-19.4.E, Decay Tank Discharge.

For the current ventilation dilution flow, which ONE of the following actions would **INCREASE** the radioactive release rate of the discharge?

- A. Opening TV-1GW-103A2, Gaseous Waste Decay Tank Bleed Valve prior to opening FCV-1GW-105, Decay Tank Bleed Control Valve.
- B. Stopping 1GW-F-1A, GW Disposal Blower when the release is in progress.
- C. Closing TV-1GW-103A2, Gaseous Waste Decay Tank Bleed Valve prior to closing FCV-1GW-105, Decay Tank Bleed Control Valve.
- D. Opening FCV-1GW-105, Decay Tank Bleed Control Valve from 75% to 100% while the discharge is in progress.

Proposed Answer: **D**

Explanation (Optional):

- A. Incorrect. Normal procedure direction.
- B. Incorrect. Action will slow decrease the flow rate.
- C. Incorrect. Either valve closed first will isolate the flow path.
- D. Correct. Increases bleed flow to the vent system.

*rework
A+D both can be correct
B+C not very plausible*

Technical Reference(s): 1OM-19.4.E (Attach if not previously provided)

Proposed references to be provided to applicants during examination: _____

Learning Objective: 1SQS-19.1 Objective 3 (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	075 K1.02	
	Importance Rating	2.9	

Knowledge of the physical connections and/or cause-effect relationships between the circulating water system and the following systems: Liquid radwaste discharge

Proposed Question: Common 38

A Liquid Waste Disposal System Precaution & Limitation states that two tanks containing radioactive liquid can **NOT** be discharged at the same time.

Which ONE of the following describes the reason for this Precaution & Limitation?

- A. The discharge permit for discharging the contents of a liquid waste tank is based upon a dilution rate which includes cooling tower blowdown rate of both units.
- B. Pipe size restrictions in the effluent line could result in an overpressure condition if more than 1 waste tank pump is in operation.
- C. The limit prevents excessive wear on the foot valve in the discharge structure due to high flow rates.
- D. The common discharge point is only provided with a limited amount of dilution flow from the Unit 1 cooling tower blowdown.

Proposed Answer: **A**

Explanation (Optional):

- A. Correct.
- B. Incorrect. There are no pipe size restrictions, as either Unit can discharge to its own or the other Unit's cooling tower blowdown.
- C. Incorrect. Insignificant flow compared to blowdown.
- D. Incorrect. No common discharge point actually exists. The piping is tied so that either Unit can discharge to either cooling tower blowdown.

*Consider re-work
per level 7
is 'A' the correct answer*

Technical Reference(s): 10M-17 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 1SQS-17.1 Objective 7 (As available)

Question Source: Bank # X
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: Last NRC Exam 2002

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>1</u>	<u> </u>
	Group #	<u>1</u>	<u> </u>
	K/A #	<u>007 EA1.09</u>	<u> </u>
	Importance Rating	<u>3.2</u>	<u> </u>

Ability to operate and monitor the following as they apply to a reactor trip: CVCS

Proposed Question: Common 39

Given the following conditions:

- A reactor trip has occurred.
- Due to a steam dump failure, PRZR level dropped to 10%.
- PRZR level has recovered to 22%.
- The crew is performing the actions of ES-0.1, Reactor Trip Response.
- The RO is restoring letdown after re-energizing PRZR heaters.

*Strengthen out order
↓ 2 valves, add float
SI did NOT occur*

Which ONE of the following is the **FIRST** action taken when restoring letdown in accordance with ES-0.1, Reactor Trip Response?

- Place PCV-1CH-145, Letdown Backpressure Regulator in MANUAL.
- OPEN TV-1CH-204, Letdown Containment Isolation Valve.
- Ensure PCV-1CH-145] Letdown Backpressure Regulator is CLOSED.
- Ensure TV-1CH-204, Letdown Containment Isolation Valve is CLOSED.

Proposed Answer: **A**

Explanation (Optional):

- Correct.
- Incorrect. If no CIA, valve should already be open.
- Incorrect. 'As found' may be closed, but valve is required to be open.
- Incorrect. Valve should remain open without a CIA.

Technical Reference(s): ES-0.1 Step 7.C RNO (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 3SQS-53.3 Objective 3 (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	_____
	Group #	1	_____
	K/A #	008 AA2.20	_____
	Importance Rating	3.4	_____

Ability to determine and interpret the following as they apply to the Pressurizer Vapor Space Accident: The effect of an open PORV on code safety, based on observation of plant parameters

Proposed Question: Common 40

With the plant operating at 100% power, the reactor trips on low PRZR pressure.

[PI-1RC-472], Pressurizer Relief Tank pressure indicates 35 psig. The crew suspects that a PORV opened inadvertently and is now stuck partially open.

Which ONE of the following confirming indications could be expected if a PORV is stuck partially open?

- A. PORV relief line temperature stabilized at 281°F. PRZR safety relief line temperatures slowly rising.
- B. PORV relief line temperature stabilized at 250°F. PRZR safety relief line temperatures slowly rising.
- C. PORV relief line temperature stabilized at 281°F. PRZR safety relief line temperatures indicate ambient temperature and stable.
- D. PORV relief line temperature stabilized at 250°F. PRZR safety relief line temperatures indicate ambient temperature and stable.

Proposed Answer: **A**

Explanation (Optional):

- A. Correct. 281°F is the saturation temperature corresponding to 50 psia.
- B. Incorrect. 255°F is approximately the saturation temperature corresponding to 35 psia (35 psig PRT pressure = 50 psia). Safety relief line temperatures would be rising because they share a common discharge line to the PRT with the PORV's.
- C. Incorrect. 281°F is the saturation temperature corresponding to 50 psia. However, safety relief line temperatures would be rising because they share a common discharge line to the PRT with the PORV's.
- E. Incorrect. 255°F is approximately the saturation temperature corresponding to 35 psia (35 psig PRT pressure = 50 psia); Also, safety relief line temperatures would be rising because they share a common discharge line to the PRT with the PORV's.

Technical Reference(s): Steam Tables (Attach if not previously provided)
1OM6.4 Annunciator Response

Proposed references to be provided to applicants during examination: Steam Tables

Learning Objective: 1SQS-6.4 Objectives 19/20 (As available)

Question Source: Bank # _____
Modified Bank # X (Note changes or attach parent)
New _____

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:
Provide Candidates with Steam Tables

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	015 AK1.01	
	Importance Rating	4.4	

Knowledge of the operational implications of the following concepts as they apply to the Reactor Coolant Pump Malfunctions (Loss of RC Flow): Natural Circulation in a Nuclear Power Plant

Proposed Question: Common 41

The Unit is operating at 100 % power when a loss of component cooling water results in a manual reactor trip. Ten minutes after the trip, the following conditions exist:

<u>SG</u>	<u>Pressure</u>
1A	1000 psig and stable
1B	1005 psig and stable
1C	995 psig and stable

- All RCP's are OFF.
- RCS pressure is 2230 psig and stable.
- That is approximately 575°F in all three (3) loops and slowly lowering.
- Core Exit TC's indicate approximately 580°F.
- Tcold is approximately 555°F in all three (3) loops and stable.

Which ONE of the following describes the condition of the RCS and the preferred method of heat removal for the current plant conditions?

- Natural circulation exists. The condenser steam dumps are maintaining heat removal.
- Natural circulation does NOT exist. Heat removal will be established by opening the condenser steam dumps.
- Natural circulation exists. SG atmospheric steam dump valves are maintaining heat removal.
- Natural circulation does NOT exist. Heat removal will be established by opening the SG atmospheric steam dump valves.

Proposed Answer: **B**

Explanation (Optional):

- A. Incorrect. Natural circulation does not exist because Tcold temperatures are too high and stable.
- B. Incorrect. Condenser steam dumps are the preferred method of heat removal in ES-0.2.
- C. Incorrect. Natural circulation does not exist because Tcold is too high for SG pressure, and not trending down. No indications that SG ADV's are open for heat removal.
- D. Correct. Tcold is above saturation for each SG and not trending down indicating natural circulation does not exist. SG ADV's are not the preferred method of heat removal.

Technical Reference(s): EOP Attachment 2-G (Attach if not previously provided)

Proposed references to be provided to applicants during examination: Steam Tables

Learning Objective: 3SQS-53.2 Objective 12 (As available)

Question Source: Bank # _____
 Modified Bank # X (Note changes or attach parent)
 New _____

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 X
 55.43 _____

Comments:

BVPS-1 2002 Audit Examination

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	022 AA2.04	
	Importance Rating	2.9	

Ability to determine and interpret the following as they apply to the Loss of Reactor Coolant Pump Makeup: How long PZR level can be maintained within limits

Proposed Question: Common 42

The Unit was operating at 55% power when all charging flow was lost. The following conditions exist:

- The crew has isolated letdown flow while attempting to restore charging flow.
- The RO reports that PRZR level is lowering at a rate of 1% every five (5) minutes.
- PRZR level was approximately 2% below reference when letdown was isolated.

Assuming charging flow is not restored, approximately how long can PRZR heater operation be maintained?

- A. 1 hour
- B. 1.5 hours
- C. 2 hours
- D. 2.5 hours

Proposed Answer: **C**

Explanation (Optional):

- A. Incorrect. Value is close and symmetrical.
- B. Incorrect. Value is close and symmetrical.
- C. Correct. At 55% power, Tavg is approximately 55% of range. Pressurizer level program will be approximately 55% of scale between 22% and 54%. Pressurizer heater cutout is at 14%. Therefore, with level lowering at 1% every 5 minutes, it will take 128 minutes to reach 14%.
- D. Incorrect. Value is close and symmetrical.

Technical Reference(s): 1SQS-6.4 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 1SQSD-6.4 Objectives 16/19 (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>1</u>	<u> </u>
	Group #	<u>1</u>	<u> </u>
	K/A #	<u>025 AA1.08</u>	<u> </u>
	Importance Rating	<u>2.9</u>	<u> </u>

Ability to operate and / or monitor the following as they apply to the Loss of Residual Heat Removal System: RHR cooler inlet and outlet temperature indicators

Proposed Question: **Common 43**

Given the following conditions:

- The Unit is in Mode 5.
- A loss of RHR cooling occurred due to a loss of CCR.
- The RO reports that all CCR pumps are tripped.
- The crew is performing actions of AOP-1.10.1, Residual Heat Removal System Loss.

Which ONE of the following describes the reason for monitoring RHR temperature at this time?

- A. RHR temperature must be logged to determine time to RCS saturation.
- B. RHR temperature must be logged to determine time available to vent RHR pumps.
- C. If temperature exceeds 180°F, the RHR pumps must be tripped to prevent seal damage.
- D. If temperature exceeds 180°F, the RHR pumps must be tripped to prevent cavitation.

Proposed Answer: **C**

Explanation (Optional):

- A. Incorrect. Core exit temperatures, not RHR temperature is logged.
- B. Incorrect. Core exit temperatures, not RHR temperature is logged.
- C. Correct.
- D. Incorrect. When cavitation occurs or RCS reaches saturation, pumps will be tripped.

Technical Reference(s): AOP 1.10.1 Step 9 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 1SQS-53C.1 Objective 4 (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	027 AA2.02	
	Importance Rating	3.8	

Ability to determine and interpret the following as they apply to the Pressurizer Pressure Control Malfunctions: Normal values for RCS pressure

Proposed Question: Common 44

Given the following conditions:

- The Unit is at 100% power with all systems in NSA.
- The following annunciator is in alarm:
 - [A4-11], Pressurizer Control Press LOW

The RO determines that [PT-1RC-445], Pressurizer Pressure Transmitter is failing low.

Assuming **NO** operator action is taken, which ONE of the following describes the expected indication on PT-1RC-444?

- A. Rises until PCV-1RC-455C, PRZR PORV Relief Valve OPENS.
- B. Rises until PCV-1RC-455D and 456 PRZR PORV Relief Valves OPEN.
- C. Remains constant at the normal full power value. NO control action occurs.
- D. Remains constant due to AUTO control of PRZR Heater Group 2C. All backup heaters TRIP.

Proposed Answer: **C**

Explanation (Optional):

- A. Incorrect. If PT-445 fails low, the only indication will be the alarm. Heaters and spray valves are controlled from the master controller.
- B. Incorrect. These 2 valves are controlled by PT-445, which is failing low.
- C. Correct.
- D. Incorrect. Backup heaters do NOT trip and there is no reason for them to trip.

Technical Reference(s): 1OM-6.4.IF (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 1SQS-6.4 Objective 19 (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	029 EK3.11	
	Importance Rating	4.2	

Knowledge of the reasons for the following responses as they apply to the ATWS: Initiating emergency boration

Proposed Question: Common 45

Which ONE of the following describes the reason that emergency boration is initiated in FR-S.1, Response To Nuclear Generation - ATWS?

- A. After control rod trip and rod insertion functions, boration is the next most direct manner of adding negative reactivity to the core.
- B. It is the fastest method of adding negative reactivity in the event that an uncontrolled cooldown results from a turbine trip failure.
- C. To provide a method of boron addition at high RCS pressures, helping to avoid unnecessary SI initiation.
- D. It is required because the UFSAR accident analysis does not take credit for local operator actions in the event of an ATWS.

Proposed Answer: **A**

Explanation (Optional):

- A. Correct.
- B. Incorrect. The fastest method is to insert rods.
- C. Incorrect. Avoiding SI initiation is not a concern for FR-S.1.
- D. Incorrect. Whether or not the UFSAR takes credit for local actions has no bearing on why boration is initiated.

Technical Reference(s): FR-S.1 Background (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 3SQS-53.3 Objective 3 (As available)

Question Source: Bank # X

Modified Bank # _____ (Note changes or attach parent)

New _____

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis _____10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

Vendor Bank – Robinson 2004 Audit

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	038 EA1.16	
	Importance Rating	4.4	

Ability to operate and monitor the following as they apply to a SGTR: S/G atmospheric relief valve and secondary PORV controllers and indicators

Proposed Question: Common 46

Given the following:

- The Unit has sustained a Steam Generator Tube Rupture and the crew is preparing to cooldown to a target temperature of 505°F.
- A loss of offsite power occurs.
- All equipment functions as required.

Which ONE of the following describes how the cooldown to target temperature will be accomplished?

- A. ^{Fully} Open the intact SG atmospheric dump valves ^{to est.} at maximum ^{cooldown} rate.
- B. Gradually open the intact SG atmospheric dump valves. ^{to est target c/d rate}
- C. Gradually open the condenser steam dumps in "Pressure Control" Mode.
- D. ^{Fully} Open the condenser steam dumps in "Pressure Control" Mode ^{to est.} at maximum ^{c/d} rate.

Proposed Answer: **A**

Explanation (Optional):

- A. Correct.
- B. Incorrect. Cooldown should be performed as quickly as possible.
- C. Incorrect. Condenser steam dumps are not available.
- D. Incorrect. Condenser steam dumps are not available.

Technical Reference(s): E-3 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 3SQSD-53.3 Objective 3 (As available)

Question Source: Bank # X
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	_____
	Group #	1	_____
	K/A #	040 AA2.05	_____
	Importance Rating	4.1	_____

Ability to determine and interpret the following as they apply to the Steam Line Rupture: When ESFAS systems may be secured

Proposed Question: Common 47

Given the following conditions:

- A reactor trip and safety injection have occurred.
- The crew is performing the actions of E-2, Faulted Steam Generator Isolation due to the uncontrolled depressurization of SG "1A".
- The crew is evaluating if SI flow should be reduced.
- The following conditions exist:
 - RCS temperature is 460°F.
 - RCS pressure is 1650 psig, and rising slowly.
 - Containment pressure is 23 psig.
 - SG "1B" and "1C" NR levels are 15% and rising.
 - AFW flow is 375 gpm.
 - PRZR level is 20%.

Based on the conditions above, the crew may enter ES-1.1, SI Termination...

- A. immediately.
- B. after transition to E-1 when RCS subcooling criteria is met.
- C. after transition to E-1 when PRZR level criteria is met.
- D. after transition to E-1 when SG level criteria is met.

Proposed Answer: X C typo

Explanation (Optional):

- A. Incorrect. PRZR level criteria is not high enough for the adverse CTMT conditions.
- B. Incorrect. Due to faulted SG, subcooling criteria is easily met.
- C. Correct.
- D. Incorrect. While SG levels are below the criteria for adverse CTMT, AFW flow is sufficient.

Technical Reference(s): ES-1.1 Entry from E-2, E-1 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 3SQS-53.3 Objective 2 (As available)

Question Source: Bank # _____
 Modified Bank # _____ (Note changes or attach parent)
 New X

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 X
 55.43 X

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	054 AA1.04	
	Importance Rating	4.4	

Ability to operate and / or monitor the following as they apply to the Loss of Main Feedwater (MFW): HPI, under total feedwater loss conditions

Proposed Question: Common 48

Given the following:

- The crew is responding to an event and is currently in FR-H.1, Response To Loss Of Secondary Heat Sink.
- Attempts to restore feedwater flow have failed.
- RCS bleed and feed has been established with one PRZR PORV open.
- The other two PORV's will NOT open.

Which ONE of the following actions is required to be taken?

- Terminate attempts to establish a SG heat sink because one PRZR PORV will provide sufficient bleed flow to permit adequate RCS heat removal.
- Continue attempts to open the failed PRZR PORV's and reduce SI flow as necessary to prevent rapid overpressurization of the RCS.
- Establish alternate RCS bleed paths because one PRZR PORV may not depressurize the RCS sufficiently to permit adequate cooling from the SI flow.
- Terminate RCS bleed and feed because with only one PRZR PORV open, RCS pressure will rise causing SI flow and RCS inventory to drop.

Proposed Answer: **C**

Explanation (Optional):

- A. Incorrect. Efforts to establish a heat sink are on-going.
 B. Incorrect. SI flow should not be reduced.
 C. Correct.
 D. Incorrect. Bleed and feed should not be terminated, although if no other vent paths can be opened, there may be insufficient feed.

Technical Reference(s): 1OM-53B.4.FR-H.1, Step 19 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 3SQS-53.3 Objective 3 (As available)

Question Source: Bank # X
 Modified Bank # (Note changes or attach parent)
 New

Question History: 2001 BVPS-2 NRC Exam

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

10 CFR Part 55 Content: 55.41 X
 55.43

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	055 EK1.02	
	Importance Rating	4.1	

Knowledge of the operational implications of the following concepts as they apply to the Station Blackout : Natural circulation cooling

Proposed Question: Common 49

In ECA-0.0, Loss Of All Emergency 4KV Power, during the rapid depressurization of intact SG's to 250 psig, an overshoot occurs and all SG's are reduced to 160 psig before the depressurization is stabilized.

Which ONE of the following conditions may result from this overshoot in SG depressurization?

- A. The Integrity CSFST may be challenged.
- B. The Subcriticality CSFST may be challenged.
- C. Natural circulation ~~may not remain an effective form of heat removal.~~ *make clearer*
- D. Sufficient steam ^{pressure} ~~supply~~ may not be available for effective turbine driven AFW pump operation.

Proposed Answer: **C**

Explanation (Optional):

- A. Incorrect. Even if Integrity was challenged, action would not be taken because there is no power.
- B. Incorrect. Even if Subcriticality was challenged, action would not be taken because there is no power.
- C. Correct. N₂ injection to the RCS would interrupt natural circulation flow.
- D. Incorrect. TDAFW pump can run down to 100 psig.

Technical Reference(s): ECA-0.0 Background (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 3SQS-53.3 Objective 3 (As available)

Question Source: Bank # X
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam

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

10 CFR Part 55 Content: 55.41 X
55.43

Comments:
Prairie Island Western Technical Bank # 44443

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	056 AA1.10	
	Importance Rating	4.3	

Ability to operate and / or monitor the following as they apply to the Loss of Offsite Power: Auxiliary/emergency feedwater pump (motor driven)

Proposed Question: Common 50

Given the following conditions:

- A reactor trip occurred from 100% power.
- No. 2 EDG is OOS.
- A loss of offsite power occurs.
- All equipment operates as designed.

Which ONE of the following describes the status of the motor driven AFW pumps?

- A. 1-FW-P-3A and 1FW-P-3B are both RUNNING.
- B. 1FW-P-3A and 1FW-P-3B are both STOPPED.
- C. 1FW-P-3A is RUNNING. 1FW-P-3B is STOPPED.
- D. 1FW-P-3B is RUNNING. 1FW-P-3A is STOPPED.

Proposed Answer: **C**

Explanation (Optional):

- A. Incorrect. 1FW-P-3B can not run without power.
- B. Incorrect. 1FW-P-P3A will be running.
- C. Correct.
- D. Incorrect. Opposite of actual pump operation.

Technical Reference(s): 1SQS-24.1 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 1SQS-24.1 Objective 7 (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	057 AA2.04	
	Importance Rating	3.7	

Ability to determine and interpret the following as they apply to the Loss of Vital AC Instrument Bus: ESF system panel alarm annunciators and channel status indicators

Proposed Question: Common 51

A loss of 120VAC Vital Bus No. 1 has occurred.

Which ONE of the following affected channel ESF bistable status indicators will be **EXTINGUISHED** following the vital bus failure?

- A. HHCP PRESS CH TRIP/DEFEAT
- B. PRZR PRESS LOW SI ST.PT.
- C. PZR HI LEVEL RX TRIP
- D. LOOP S.G. HI-HI LEVEL

Proposed Answer: **A**

Explanation (Optional):

- A. Correct. Energize to actuate. Loss of power will not actuate bistable.
- B. Incorrect. Light will be lit due to actuation.
- C. Incorrect. Light will be lit due to actuation.
- D. Incorrect. Light will be lit due to actuation.

Technical Reference(s): AOP-1.38.1A Step 7 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 3SQS-38.1 Objective 12 (As available)

Question Source: Bank # _____
 Modified Bank # _____ (Note changes or attach parent)

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	_____
	Group #	1	_____
	K/A #	057 AA2.04	_____
	Importance Rating	3.7	_____

Ability to determine and interpret the following as they apply to the Loss of Vital AC Instrument Bus: ESF system panel alarm annunciators and channel status indicators

Proposed Question: Common 51

A loss of 120VAC Vital Bus No. 1 has occurred.

Which ONE of the following affected channel ESF bistable status indicators will be **EXTINGUISHED** following the vital bus failure?

- A. HHCP PRESS CH TRIP/DEFEAT
- B. PRZR PRESS LOW SI ST.PT.
- C. LOOP LO STM PR RATE
- D. LOOP S.G. HI-HI LEVEL

Proposed Answer: C

Explanation (Optional):

- A. Correct. Energize to actuate. Loss of power will not actuate bistable.
- B. Incorrect. Light will be lit due to actuation.
- C. Incorrect. Light will be lit due to actuation.
- D. Incorrect. Light will be lit due to actuation.

Technical Reference(s): AOP-1.38.1A Step 7 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 3SQS-38.1 Objective 12 (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)

New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>1</u>	<u> </u>
	Group #	<u>1</u>	<u> </u>
	K/A #	<u>058 AA1.01</u>	<u> </u>
	Importance Rating	<u>3.4</u>	<u> </u>

Ability to operate and / or monitor the following as they apply to the Loss of DC Power: Cross-tie of the affected dc bus with the alternate supply

Proposed Question: Common 52

How is it ensured that loads powered off of two different 125VDC buses ("swing") loads do not inadvertently cross-tie the affected DC buses?

- A. A mechanical interlock prevents simultaneous closure of both DC supply breakers.
- B. An electrical interlock trips both DC supply breakers if they are simultaneously closed.
- C. An alarm sounds in the control room to warn the operators if both DC supply breakers are simultaneously closed.
- D. Administrative controls only (procedure requirements) prevent simultaneous closure of both DC supply breakers.

Proposed Answer: **A**

Explanation (Optional):

- A. Correct. A physical barrier in the design of the distribution buses ensure loads cannot be cross-tied.
- B. Incorrect for reason above.
- C. Incorrect for reason above.
- D. Incorrect for reason above.

Technical Reference(s): _____ (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # X
 Modified Bank # (Note changes or attach parent)

New

Question History:

Last NRC Exam

Question Cognitive Level:

Memory or Fundamental Knowledge
Comprehension or Analysis

 X

10 CFR Part 55 Content:

55.41 X
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	062 AA2.01	
	Importance Rating	2.9	

Ability to determine and interpret the following as they apply to the Loss of Nuclear Service Water: Length of time before equipment damage

Proposed Question: Common 53

Given the following conditions:

- The Unit is at 100% power with all systems in NSA.
- The crew was attempting to locate and isolate a CCR system leak in accordance with AOP-1.15.1, Loss Of Primary Component Cooling Water.
- The US was directed by AOP-1.15.1 to go to AOP-1.6.8, Abnormal RCP Operation.
- [TV-1CC-107A], 1A RCP Th Barr CCR Outlet Isol Valve is closed.

Which ONE of the following describes the maximum amount of time that RCP's can be run under these conditions?

- A. 5 minutes if seal injection flow is maintained.
- B. Indefinitely if seal injection flow is maintained.
- C. 5 minutes, as long as RCP motor bearing temperatures are stable.
- D. Indefinitely, as long as RCP motor bearing temperatures are stable.

rework/replace

Proposed Answer: **B**

Explanation (Optional):

- A. Incorrect. If seal injection is available, then RCP's may run.
- B. Correct.
- C. Incorrect. Motor bearing temperature is a concern for loss of CCP, but not thermal barrier heat exchanger loss.
- D. Incorrect. Motor bearing temperature is a concern for loss of CCP, but not thermal barrier heat exchanger loss.

Technical Reference(s): AOP-1.6.8 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 1SQS-6.3 Objective 19/21 (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	_____
	Group #	1	_____
	K/A #	E04 EA2.1	_____
	Importance Rating	3.4	_____

Ability to determine and interpret the following as they apply to the (LOCA Outside Containment) Facility conditions and selection of appropriate procedures during abnormal and emergency operations.

Proposed Question: Common 54

Following a reactor trip and safety injection, the crew is performing actions of E-0, Reactor Trip Or Safety Injection.

The following conditions exist:

- All SG pressures are stable at 1000 psig.
- All SG NR levels are approximately 25%.
- AFW is supplying the SG's.
- RCS pressure is approximately 1000 psig.
- RCS temperature is 545°F.
- [RM-1VS-110], CTMT/SLCRS Exhaust Monitor SPING 4 is in alarm.
- [RM-1VS-112], CTMT/SLCRS Exhaust Monitor SA 9/10 is in alarm.
- Containment pressure is (-) 5 psig.

Which ONE of the following procedures will mitigate this event?

- A. E-1, Loss Of Reactor Or Secondary Coolant
- B. ES-1.1, SI Termination
- C. ES-1.2, Post-LOCA Cooldown And Depressurization
- D. ECA-1.2, LOCA Outside Containment

Proposed Answer: **D**

Explanation (Optional):

- A. Incorrect. CNMT parameters are normal.
- B. Incorrect. RCS pressure not high enough.
- C. Incorrect. Entry would be from E-1, which would not be used.
- D. Correct.

Technical Reference(s): E-0 (Attach if not previously provided)Proposed references to be provided to applicants during examination: NONELearning Objective: 3SQS-53.3 Objective 2 (As available)

Question Source: Bank # _____

Modified Bank # _____ (Note changes or attach parent)

New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____

Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 X

55.43 X

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	E05 EK3.2	
	Importance Rating	3.7	

Knowledge of the reasons for the following responses as they apply to the (Loss of Secondary Heat Sink) Normal abnormal and emergency operating procedures associated with (Loss of Secondary Heat Sink).

Proposed Question: Common 55

Given the following conditions:

- A reactor trip and safety injection have occurred.
- The crew has performed the actions of E-O, Reactor Trip Or Safety Injection.
- AFW flow cannot be established.
- All SG NR levels are offscale low.
- The crew has entered FR-H.1, Response To Loss Of Secondary Heat Sink.
- RCS pressure is 200 psig.
- SG pressures are each 550 psig and lowering.

Which ONE of the following describes the ^{req. actions} ~~plant conditions~~?

- Remain in FR-H.1 because a large break LOCA is in progress AND a secondary heat sink is required.
- Remain in FR-H.1 because a small break LOCA is in progress AND a secondary heat sink is required.
- Go to E-1 because a large break LOCA is in progress AND a secondary heat sink is NOT required.
- Go to E-1 because a small break LOCA is in progress AND a secondary heat sink in NOT required.

Proposed Answer: **C**

Explanation (Optional):

- A. Incorrect. RCS pressure is less than SG pressure, so SG's are acting as a heat sink.
- B. Incorrect. SBLOCA is not in progress.
- C. Correct. With RCS pressure less than SG pressure, break is of a larger size and SI will provide heat removal. SG's are heat sources, not heat sinks.
- D. Incorrect. SBLOCA is not in progress.

Technical Reference(s): FR-H.1 and Background Document (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 3SQS-53.3 objective 3 (As available)

Question Source: Bank # X

Modified Bank # _____ (Note changes or attach parent)

New _____

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____

Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 X

55.43 X

Comments:

Robinson 2002 Audit Exam

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	E11 EK1.3	
	Importance Rating	3.6	

Knowledge of the operational implications of the following concepts as they apply to the (Loss of Emergency Coolant Recirculation) Annunciators and conditions indicating signals, and remedial actions associated with the (Loss of Emergency Coolant Recirculation).

Proposed Question: Common 56

Given the following conditions:

- A LOCA has occurred.
- Due to multiple equipment failures, the crew is performing actions of ECA-1.1, Loss Of Emergency Coolant Recirculation.
- Two (2) Charging/HHSI pumps and two (2) LHSI pumps are running.
- RWST level is approximately 1.5 feet and continues to lower.

Which ONE of the following describes the action required in accordance with ECA-1.1?

- A. STOP ONE (1) HHSI and ONE (1) LHSI pump and verify NO backflow from the RWST to CTMT sump.
- B. STOP ONE (1) HHSI and ONE (1) LHSI pump and initiate secondary depressurization to facilitate SI accumulator injection.
- C. STOP ALL pumps taking a suction from the RWST and verify NO back flow from the RWST to the CTMT sump.
- D. STOP ALL pumps taking a suction from the RWST and initiate secondary depressurization to facilitate SI accumulator injection.

Proposed Answer: **D**

Explanation (Optional):

- A. Incorrect. RWST level is too low to leave any pumps running.
- B. Incorrect. RWST level is too low to leave any pumps running.
- C. Incorrect. Correct action for pumps, but instead of being concerned with backflow, the crew must initiate depressurization.
- D. Correct.

Technical Reference(s): ECA-1.1 Step 35 (Attach if not previously provided)Proposed references to be provided to applicants during examination: NONELearning Objective: 3SQS-53.3 Objective 3 (As available)

Question Source: Bank # _____

Modified Bank # _____ (Note changes or attach parent)

New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____

Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 X

55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	_____
	Group #	2	_____
	K/A #	001 AA1.01	_____
	Importance Rating	3.5	_____

Ability to operate and / or monitor the following as they apply to the Continuous Rod Withdrawal: Bank select switch

Proposed Question: Common 57

The following conditions exist:

- The Unit is operating at 80%, steady-state power.
- The Rod Control Selector Switch is in Automatic.
- Control Bank "D" starts to step in continuously.
- Turbine load is stable.

Which ONE of the following actions must the operator take in response to these conditions?

- A. Place the Rod Control Mode Selector Switch in Manual.
- B. Place the Rod Control Mode Selector Switch in Bank "D" position.
- C. Place the Rod Control Mode Selector Switch in either Shutdown Bank position.
- D. Manually trip the reactor and actuate safety injection.

Proposed Answer: **A**

Explanation (Optional):

- A. Correct. If load is stable, control rods are to be placed in Manual.
- B. Incorrect. Wrong position.
- C. Incorrect. Wrong position.
- D. Incorrect. Actions not required for this type of failure.

Technical Reference(s): AOP-1.1.3 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # X
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam

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

10 CFR Part 55 Content: 55.41 X
55.43

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>1</u>	<u> </u>
	Group #	<u>2</u>	<u> </u>
	K/A #	<u>003 AK2.05</u>	<u> </u>
	Importance Rating	<u>2.5</u>	<u> </u>

Knowledge of the interrelations between the Dropped Control Rod and the following: Control rod drive power supplies and logic circuits

Proposed Question: Common 58

Given the following conditions:

- The Unit is operating at 100% power, with all systems in NSA. *Control*
- The RO recognizes that Control Bank "D", Group 2, and Bank "B", Group 2 control rods drop just prior to a reactor trip.

Which ONE of the following is the cause of the failure?

- A. Logic Cabinet Oscillator failure
- B. Logic Cabinet Master Cyclor failure
- C. Power Cabinet Thyristor failure
- D. Power Cabinet Logic error

Proposed Answer: **C**

Explanation (Optional):

- A. Incorrect. Causes an urgent failure and locks up control rods.
- B. Incorrect. Causes an urgent failure and locks up control rods.
- C. Correct. Will cause a loss of power to stationary gripper coils, resulting in a rod drop.
- D. Incorrect. Causes an urgent failure and locks up control rods.

Technical Reference(s): 3SQS-1.3 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 3SQS-1.3 Objective 6 (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	2	
	K/A #	037 AK1.02	
	Importance Rating	3.5	

Knowledge of the operational implications of the following concepts as they apply to Steam Generator Tube Leak: Leak Rate versus pressure drop

Proposed Question: Common 59

During operation at power SG tube leakage is detected and estimated at 250 gpm by the Reactor Operator. The following plant indications exist:

- RCS pressure - 2200 psig and lowering
- Reactor power - 80%
- SG pressures - 1000 psig
- PRZR level - 42% and lowering

The Unit is then tripped and plant parameters following the trip are:

- RCS pressure - 1700 psig and lowering
- Reactor power - 0%
- SG pressures - 1100 psig
- PRZR level - 13%

Based on the two sets of given data, which ONE of the following describes the effect on primary-to-secondary leakage?

Leakage following the trip is...

- one half of the initial leak rate or about 125 gpm.
- essentially equal to the initial leak rate or about 250 gpm.
- approximately 70% of the initial leak rate or about 175 gpm.
- One third of the initial leak rate or about 83 gpm.

Proposed Answer: **C**

Explanation (Optional):

- A. Incorrect. The DP is approximately half.
 B. Incorrect. As DP changes, flow rate also changes.
 C. Correct. Leak rate is proportional to the square root of the DP.
 D. Incorrect. Inverse of distractor C.

Technical Reference(s): Thermo (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: N/A (As available)

Question Source: Bank # X
 Modified Bank # _____ (Note changes or attach parent)
 New _____

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 X
 55.43 _____

Comments:

Indian Point 2 2001 Audit Exam – Western Tech Bank Archive

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	_____
	Group #	2	_____
	K/A #	061 AA2.01	_____
	Importance Rating	3.5	_____

Ability to determine and interpret the following as they apply to the Area Radiation Monitoring (ARM) System Alarms: ARM panel displays

Proposed Question: Common 60

For a source check on a radiation monitor to be considered satisfactory, the radiation monitor meter must deflect enough to ...

- A. indicate above background ONLY.
- B. illuminate the HIGH alarm status light ONLY.
- C. illuminate the HIGH and HIGH-HIGH status lights ONLY.
- D. illuminate the HIGH and HIGH-HIGH status lights, and annunciators [A4-71], Radiation Monitor High and [A4-72], Radiation Monitor High-High.

Proposed Answer: A

Explanation (Optional):

- A. Correct.
- B. Incorrect. Does not have to deflect to alarm point. Calibration does this.
- C. Incorrect. Does not have to deflect to alarm point. Calibration does this.
- D. Incorrect. This indication should exist if distractor C was the criteria for a source check.

Technical Reference(s): 1SQS-43.1 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 1SQS-43.1 Objective 7 (As available)

Question Source:

Bank #	X	
Modified Bank #	_____	(Note changes or attach parent)
New	_____	

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:
Editorially enhanced

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	2	
	K/A #	E01 G2.4.31	
	Importance Rating	3.3	

Emergency Procedures / Plan Knowledge of annunciators alarms and indications, and use of the response instructions.

Proposed Question: Common 61

Given the following conditions:

- An inadvertent safety injection has occurred.
- The crew has completed the SI termination actions of ES-1.1, SI Termination.
- The following status light on Panel 62 is illuminated:
 - AUTO SAF INJ. BLOCK

Which ONE of the following actions is required to clear the status light in accordance with ES-1.1, SI Termination?

- A. Depress and hold the SI reset pushbuttons until the light clears.
- B. Reset SI, CIA, CIB, and SI Recirc Changeover.
- C. Close, and then re-open the reactor trip breakers.
- D. Depress and hold reactor the trip pushbutton until the light clears.

Proposed Answer: **C**

Explanation (Optional):

- A. Incorrect. This action is what causes the status light to actuate.
- B. Incorrect. Resetting SI will bring in the light; the other actions will have no effect.
- C. Correct. P4 resets the auto SI circuitry, which will be actuated by cycling the RTB's.
- D. Incorrect. If the RTB's are already open, this will have no effect.

Technical Reference(s): ES-1.1, Step 31 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 3SQS-53.3 Objective 3 (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>1</u>	<u> </u>
	Group #	<u>2</u>	<u> </u>
	K/A #	<u>E07 EK3.3</u>	<u> </u>
	Importance Rating	<u>3.8</u>	<u> </u>

Knowledge of the reasons for the following responses as they apply to the (Saturated Core Cooling) Manipulation of controls required to obtain desired operating results during abnormal and emergency situations.

Proposed Question: Common 62

Select the statement that describes the purpose of depressurizing the SG's in FR-C.1, Response To Inadequate Core Cooling.

- A. To prevent the SG's from acting as a source of heat to the inadequately cooled core.
- B. To reduce RCS pressure in order to allow SI accumulator and/or LHSI flow.
- C. To maximize the effectiveness of reflux boiling as a means of core cooling.
- D. To minimize the possibility of lifting a secondary safety valve in the event of a SG tube rupture.

Proposed Answer: **B**

Explanation (Optional):

- A. Incorrect. If in FR-C.1, SG's are already marginal heat sink.
- B. Correct.
- C. Incorrect. Reflux boiling is most likely not the mode of heat transfer in this condition.
- D. Incorrect. Reducing pressure would provide this function, but is not performed for this reason in FR-C.1.

Technical Reference(s): FR-C.1 Background (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 3SQS-53.3 Objective 3 (As available)

Question Source: Bank # X

 Modified Bank # (Note changes or attach parent)

 New

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis _____10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

BVPS-1 Bank ID 3777

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	2	
	K/A #	E08 EK3.3	
	Importance Rating	3.7	

Knowledge of the reasons for the following responses as they apply to the (Pressurized Thermal Shock) Manipulation of controls required to obtain desired operating results during abnormal and emergency situations.

Proposed Question: Common 63

Following a Small Break LOCA, the crew is performing the actions contained in FR-P.1, Response To Imminent Pressurized Thermal Shock Conditions.

Which ONE of the following describes the difference in SI termination Criteria for FR-P.1 as opposed to the criteria in ES-1.1, Safety Injection Termination?

The criteria in FR-P.1 is...

- A. less restrictive to allow for a faster reduction in RCS pressure.
- B. more restrictive to allow for a more controlled reduction in RCS pressure.
- C. less restrictive because subsequent RCP restart is likely to cause propagation of any existing flaw in the reactor vessel walls.
- D. more restrictive because subsequent RCP restart is likely to cause propagation of any existing flaw in the reactor vessel walls.

Proposed Answer: **A**

Explanation (Optional):

- A. Correct. The criteria are less restrictive so that SI reduction can aid the RCS pressure reduction. RVLIS level rather than PRZR level is used as a measure of inventory.
- B. Incorrect. Opposite of actual reason.
- C. Incorrect. RCP restart will not cause a crack to propagate under any of the conditions analyzed for this procedure. However, propagation of flaws is a major concern in a PTS event.
- D. Incorrect. RCP restart will not cause a crack to propagate under any of the conditions analyzed for this procedure. However, propagation of flaws is a major concern in a PTS event.

Technical Reference(s): FR-P.1 Background (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 3SQS-53.3 Objective 3 (As available)

Question Source: Bank # X
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:
Salem 2001 NRC exam Western Tech Bank Archive

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	2	
	K/A #	E13 EK2.1	
	Importance Rating	3.0	

Knowledge of the interrelations between the (Steam Generator Overpressure) and the following: Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Proposed Question: Common 64

A reactor trip has occurred. The crew has entered FR-H.2, Response To Steam Generator Overpressure based upon a **YELLOW** condition on the Heat Sink CSF Status Tree. The following conditions exist:

- SG "1A" pressure indicates 1150 psig.
- SG "1B" and "1C" pressures indicate 1010 psig.
- SG "1A" NR level is 65%.
- Instrument air header pressure is ~~30 psig and lowering.~~

Which ONE of the following actions ~~will be required~~ ^{is available} to mitigate the SG overpressure condition?

- A. Initiate ~~AFW~~ ^{blowdown} flow.
- B. Open main steam ~~bypass~~ ^{dump} valves.
- C. Go to FR-H.3, Response To SG High Level to reduce pressure by reducing SG level.
- D. Locally open the residual heat release valve to reduce SG pressure.

Proposed Answer: **D**

Explanation (Optional):

- A. Incorrect. Do not initiate AFW flow with a high level present.
- B. Incorrect. Condenser steam dump is not available.
- C. Incorrect. Only go to FR-H.3 if level is greater than 94%.
- D. Correct. Loss of instrument air requires use of RHR valve to lower SG pressure.

Technical Reference(s): FR-H.2 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 3SQS-53.3 Objective 3 (As available)

Question Source: Bank # _____
Modified Bank # X (Note changes or attach parent)
New _____

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

Examination Outline Cross-reference:	Level Tier # Group # K/A # Importance Rating	RO 1 2 068 G2.1.30 3.9	SRO
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Conduct of Operations: Ability to locate and operate components, including local controls.

Proposed Question: Common 65

The Control Room has been evacuated due to a fire. The crew is performing the actions of 1OM-56C.4.B, Alternate Safe Shutdown Outside Control Room using Train "B" equipment.

SG NR levels are 10% and trending down in all three (3) SG's.

Which ONE of the following describes the preferred method of maintaining secondary heat sink?

- A. Maintain SG levels 25 - 50% NR by manually increasing turbine driven AFW pump speed OR by manually throttling HCV-1MS-104, Residual Heat Release Valve.
- B. Maintain SG levels 25-50% WR by manually increasing turbine driven AFW pump speed OR manually throttling PCV-1MS-101A, B, C, SG Atmospheric Dump Valves.
- C. Maintain SG levels greater than 50% NR by operating the dedicated AFW pump OR by manually throttling HCV-1MS-104, Residual Heat Release Valve.
- D. Maintain SG levels greater than 50% WR by operating the dedicated AFW pump OR manually throttling PCV-1MS-101A, B, C, SG Atmospheric Dump Valves.

Proposed Answer: **A**

Explanation (Optional):

- A. Correct.
- B. Incorrect. Atmospheric dump valves are the alternate method of controlling steam release.
- C. Incorrect. Dedicated AFW pump is only used for situations where inventory is limited.
- D. Incorrect. Dedicated AFW pump is only used for situations where inventory is limited. SG ADV's are alternate method of steam removal.

Technical Reference(s): 1OM-56.4.B (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 1SQS-56C.1 Objective 4 (As available)

Question Source: Bank # X
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: Last NRC Exam 2002 NRC

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

10 CFR Part 55 Content: 55.41 X
55.43 X

Comments:
BVPS-1 2002 NRC S77

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	_____
	Group #	1	_____
	K/A #	G2.1.1	_____
	Importance Rating	3.7	_____

Knowledge of conduct of operations requirements.

Proposed Question: Common 66

You are a licensed Reactor Operator and have been assigned to an administrative function. You are current in maintaining qualification in the Licensed Operator Requalification Program. The date is February 23, 2005 and you are preparing to return to shift duties.

The time you were on shift since this assignment is as follows:

- 12 hours on December 24, 2004 BOP
- 12 hours on November 23, 2004 BOP
- 12 hours on November 22, 2004 BOP
- 12 hours on September 19, 2004 RO
- 12 hours on September 18, 2004 RO

Which ONE of the following describes the status of your license in accordance with 1/2-ADM-1351, Licensed Operator Retraining Program?

- A. Your license is active. You may stand watch with no restrictions.
- B. Your license is active. You must regain qualification as RO by standing three (3) additional 12 hour shifts in the RO position.
- C. Your license is inactive. You must reactivate your license by standing five (5) 8 hour shifts under instruction in the RO position ONLY.
- D. Your license is inactive. You must reactivate you license by standing five (5) 8 hour shifts under instruction as either the RO or BOP.

Proposed Answer: **D**

Explanation (Optional):

- A. Incorrect. License is inactive due to insufficient hours last quarter.
- B. Incorrect. Proficiency is not based on board position.
- C. Incorrect. May regain proficiency in either position.
- D. Correct. Last calendar quarter did not stand 5 shifts.

Technical Reference(s): 1/2 ADM-1351 (Attach if not previously provided)Proposed references to be provided to applicants during examination: NONELearning Objective: N/A (As available)

Question Source: Bank # _____

Modified Bank # X (Note changes or attach parent)

New _____

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____

Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 X

55.43 _____

Comments:

Robinson 2004 Audit exam - Western Tech Bank Archive

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>3</u>	
	Group #		
	K/A #	-1880	5250 MWD
	Importance Rating	vs 960	- 6.73 $\frac{\text{pcm}}{\text{ppm}}$

Ability to obtain and interpret station reference materials such as graphs, monographs, or
Proposed Question: Common 67

Given the following conditions:

- The Unit has been at 100% power for 3 weeks. All system
- RCS boron concentration is 1000 ppm.
- A controlled power reduction to 50% is to be performed.

Defect = 920 pcm
 $\frac{920}{6.73} = 136.7 \text{ ppm}$
 $\approx 950 \text{ gal?}$

Using the references provided and maintaining control rods at their current position, which ONE of the following describes the ~~MINIMUM~~ amount of boric acid required to initially maneuver the plant to 50% power?
approx. make

- A. ⁷⁰⁰⁻ 800 gallons
- B. ⁸⁵⁰⁻⁹⁵⁰ 1100 gallons
- C. ¹⁰⁰⁰⁻¹¹⁰⁰ 1400 gallons
- D. ¹¹⁵⁰⁻¹²⁵⁰ 1700 gallons

clearly distractors to make one the answer

Proposed Answer: **B**

Explanation (Optional):

- A. Correct. Power defect is approximately 950 pcm (1950 - 1000). A critical boron concentration of 1000 ppm indicates approximately 9500 MWD/MTU. Differential Boron worth is approximately - 6.9 pcm/ppm. Therefore, 950 / - 6.9 = 138 ppm. Using boron addition nomograph results in approximately 900 gallons of boric acid or less.
- B. Incorrect. High enough to allow for minor interpretation differences on nomograph reading.
- C. Incorrect. Used to provide consistent distractor and allows for minor interpretation differences.
- D. Incorrect. Used to provide consistent distractor and allows for minor interpretation differences.

Technical Reference(s): Curve Book CB-13, CB-21, (Attach if not previously provided)
CB-28, CB-36

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 1SQS-7.1 Objective 17 (As available)

Question Source: Bank # _____
Modified Bank # X (Note changes or attach parent)
New _____

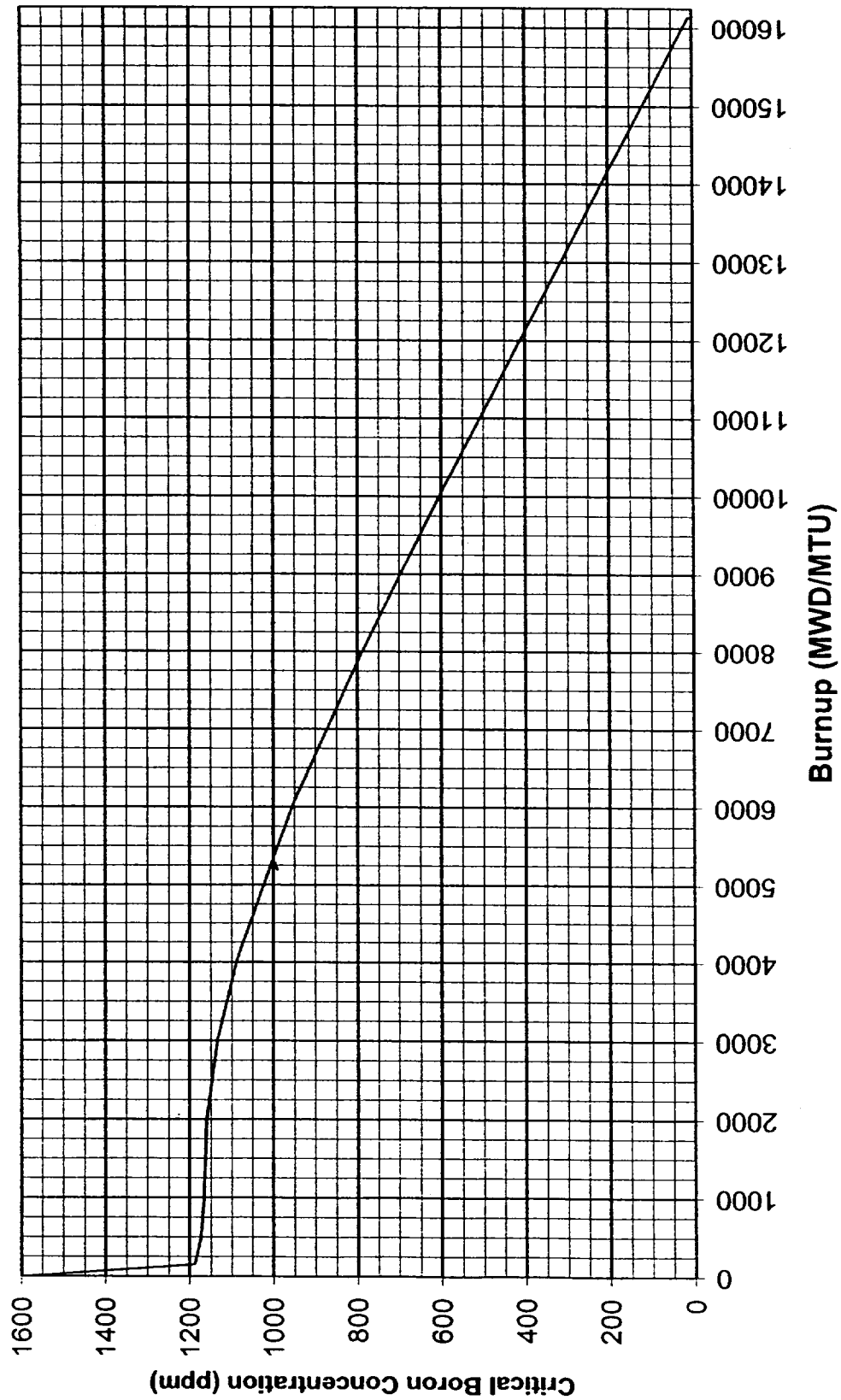
Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

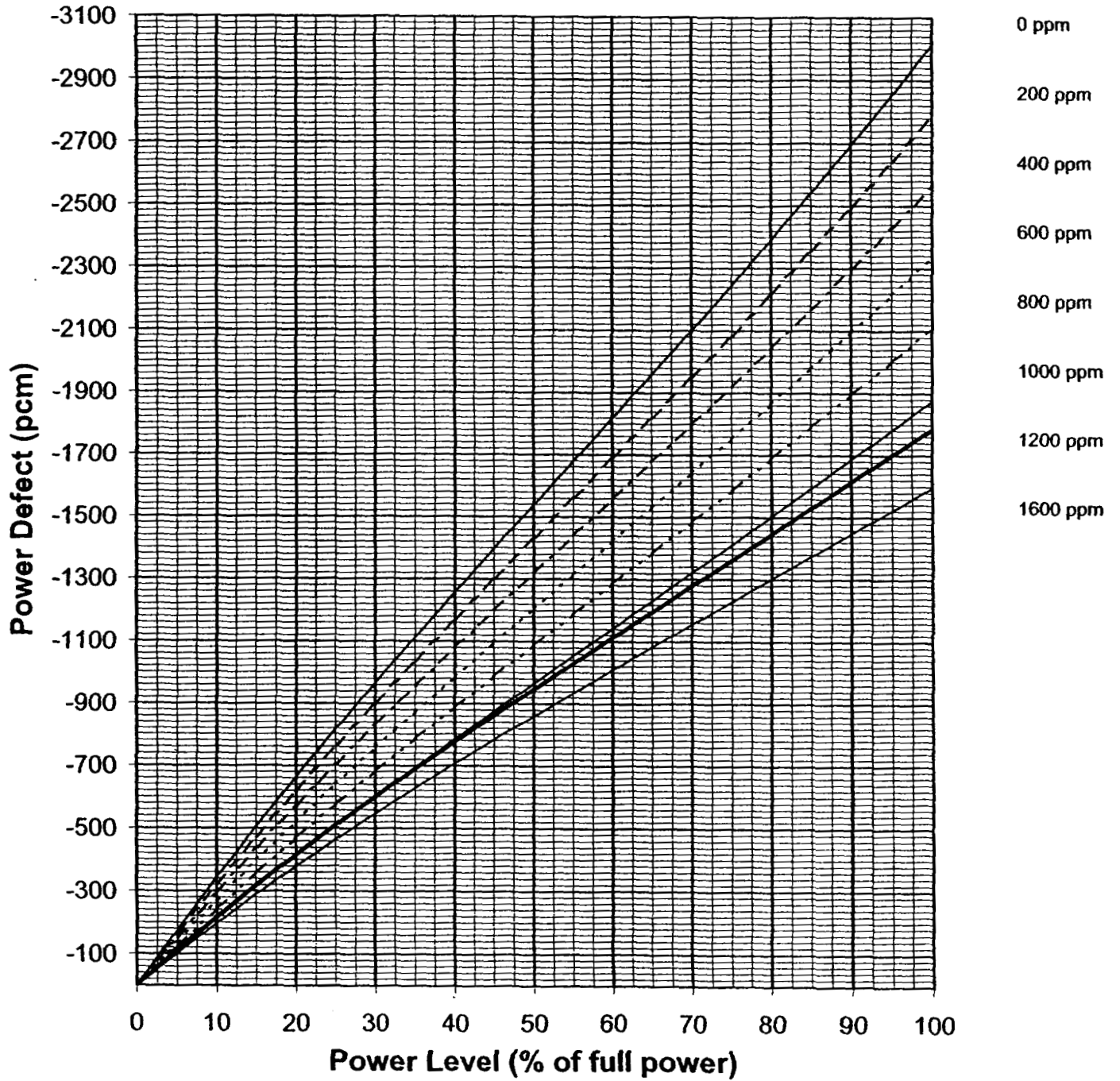
Comments:
BVPS-1 2002 NRC exam

**Critical Boron Concentration vs Burnup
HFP, ARO, Equilibrium Xenon
Unit 1, Cycle 17**



CONTROLLED
BVPS UNIT 1

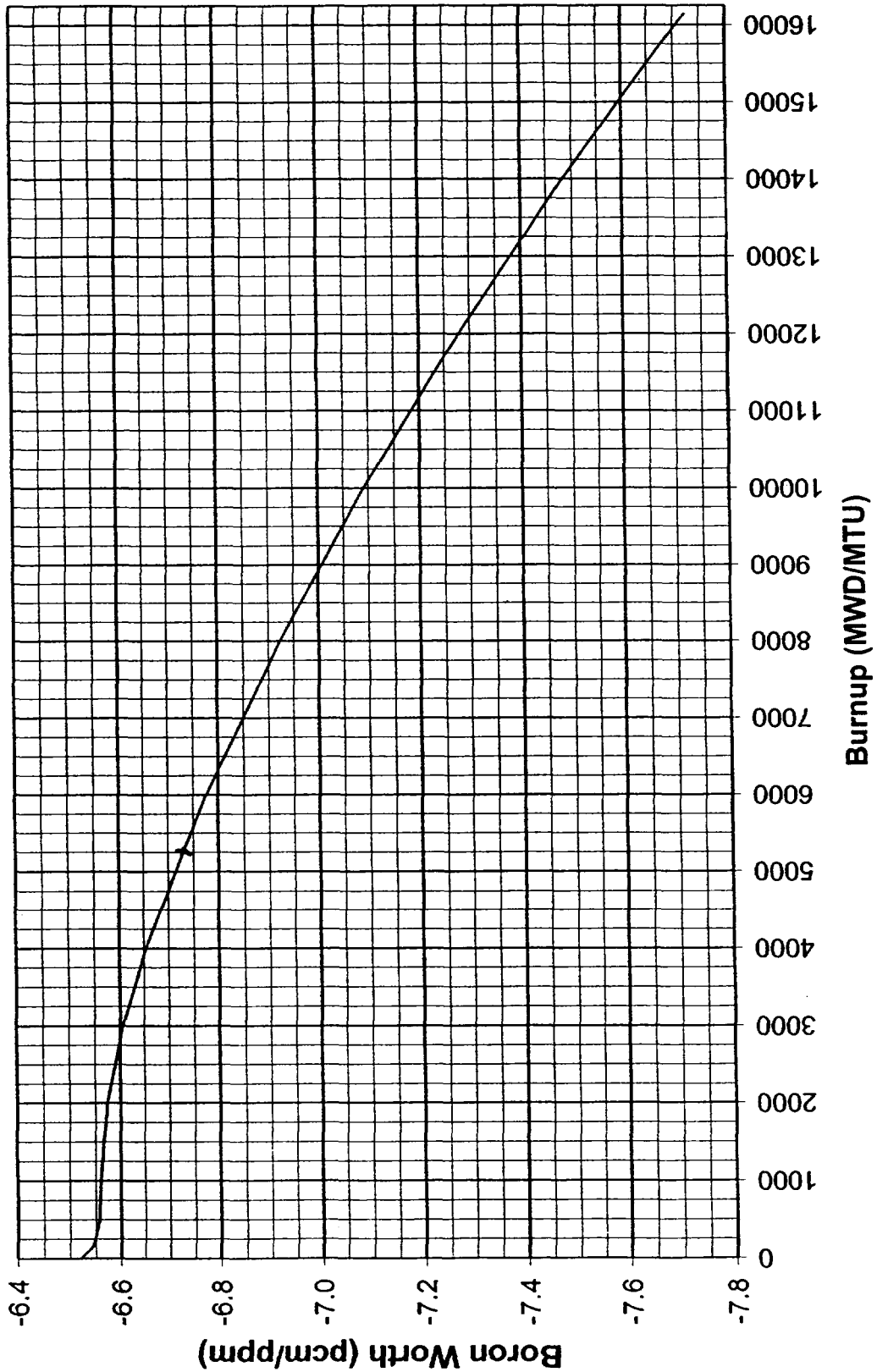
**Power Defect vs Percent Power
BOL, MOL, EOL
Unit 1, Cycle 17**



Issue 17 Rev 0

CONTROLLED
BVPS UNIT 1

**Boron Worth vs Burnup
ARO, HFP, Critical Boron
Unit 1, Cycle 17**

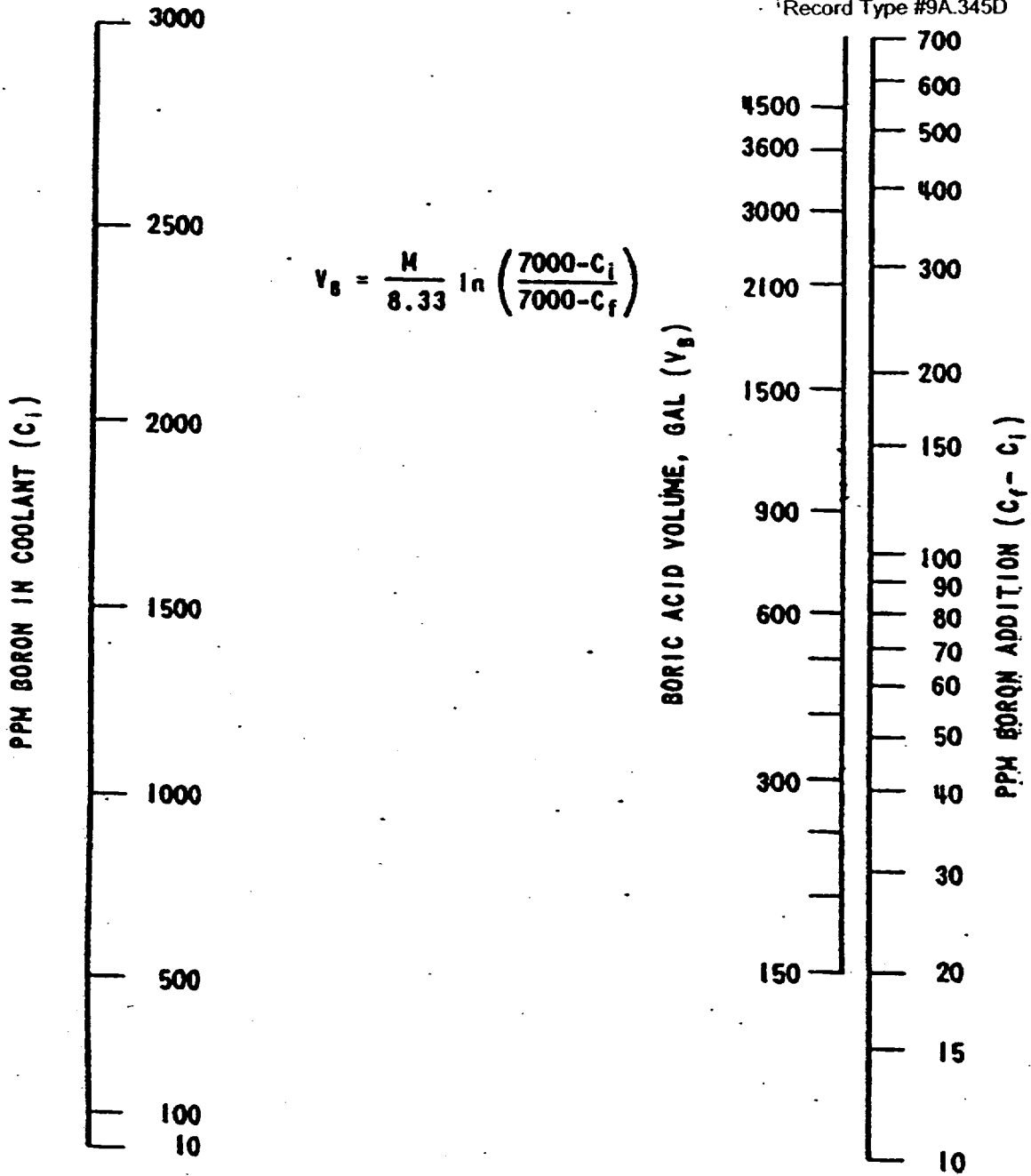


CONTROLLED
BVPS UNIT 1

CURVE BOOK - BVPS I

CB-31

Record Type #9A.345D



BORON ADDITION

(refer to figure CB-36 for correction factors)
 (refer to 1OM-6.5.B.6, Table 6-6, "RCS Volume")

CONTROLLED
 BVPS UNIT 1

ISSUE 17 REV 0

CURVE BOOK – BVPS I

CB-36

Record Type #9A.345D

NOMOGRAPH CORRECTION FACTORS

Plant Conditions			Correction Factor (K) (See Note)
Pressure (psig)	T (AVG) (°F)	Pressurizer Level	
2235	547-570	Normal Operating	1.00
1600	500	No-Load	1.05
1200	450	No-Load	1.10
800	400	No-Load	1.16
400	350	No-Load	1.18
400	300	No-Load	1.20
400	300	Solid Water	1.35
400	200	No-Load	1.28
400	200	Solid Water	1.40
400	100	Solid Water	1.47

NOTE: CORRECTION FACTORS ARE APPLIED AS FOLLOWS:

(a) Boron Addition and Dilution Total Volume Nomographs

$$V(\text{Corrected}) = K \times V(\text{Nomograph})$$

(b) Boron Addition and Dilution Rate Nomographs

$$\frac{dc}{dt}(\text{Corrected}) = \frac{1}{K} \times \frac{dc}{dt}(\text{Nomograph})$$

CONTROLLED
BVPS UNIT 1

ISSUE 17 REV 0

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	
	Group #	2	
	K/A #	G2.2.12	
	Importance Rating	3.0	

Knowledge of surveillance procedures.

Proposed Question: Common 68

When performing an OST procedure, which ONE of the following conditions **PROHIBITS** the use of "N/A" in the sign-off spaces provided?

- A. Performance of partial tests.
- B. Inability to perform the OST as written.
- C. Performing an OST that pre-establishes conditions for non-performance of steps.
- D. Performance of steps ~~that~~ cannot be performed due to plant conditions but do not change the intent of the procedure.

new distractor D

Proposed Answer: **B**

Explanation (Optional):

- A. Incorrect. Partial tests allow use of N/A.
- B. Correct. Situation requires issuing a revision after placing equipment in a safe condition.
- C. Incorrect. N/A is specifically used for this condition.
- D. Incorrect. May use N/A as long as procedure intent is not altered.

Technical Reference(s): 1/2-ADM-0104 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 3SSG-Admin Objective 5 (As available)

Question Source: Bank # X
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: Last NRC Exam 2002

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

BVPS-1 2002 NRC exam

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	
	Group #	2	
	K/A #	G2.2.25	
	Importance Rating	2.5	

Knowledge of RO duties in the control room during fuel handling such as alarms from fuel handling area, communication with fuel storage facility, systems operated from the control room in support of fueling operations, and supporting instrumentation.

Proposed Question: Common 69

*typo
(put in right K/A)*

Regarding Technical Specification **SAFETY LIMITS**, which ONE of the following core limitations does the OTΔT Reactor Trip prevent exceeding?

- A. Total Core Power
- B. Power Density (KW/ft)
- C. Axial Flux Difference (AFD)
- D. Departure from Nucleate Boiling (DNB)

Proposed Answer: **D**

Explanation (Optional):

- A. Incorrect. Power Range and OPΔT trips provide protection for total core power.
- B. Incorrect. Power Range and OPΔT trips provide protection for power density.
- C. Incorrect. Protection is from the power range trips.
- D. Correct.

Technical Reference(s): TS Bases, 3.3.1 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 3SQS-1.1 Objective 16 (As available)

Question Source: Bank # X
 Modified Bank # _____ (Note changes or attach parent)
 New _____

Question History: Last NRC Exam 2002

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

10 CFR Part 55 Content: 55.41 X
55.43 X

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
Tier #		3	
Group #		2	
K/A #		G2.2.30	
Importance Rating		3.5	

Knowledge of RO duties in the control room during fuel handling such as alarms from fuel handling area, communication with fuel storage facility, systems operated from the control room in support of fueling operations, and supporting instrumentation.

Proposed Question: Common 70

Which ONE of the following is a responsibility of the Reactor Operator during refueling operations?

- A. Monitor source range count rate during core reload, and remain cognizant of 1/M plot results.
- B. Verify the operability of the containment evacuation alarm each shift. *make more wrong*
- C. Maintain a 1/M plot or ICRR during core fuel shuffle.
- D. Update the Control Room status board for each core alteration as it is performed.

Proposed Answer: **A**

Explanation (Optional):

- A. Correct.
- B. Incorrect. Verified each day.
- C. Incorrect. Reactivity monitoring function performed by Refueling Group.
- D. Incorrect. Reactivity monitoring function performed by Refueling Group.

Technical Reference(s): Ops Expectations Handbook (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: N/A (As available)

Question Source: Bank # X
 Modified Bank # _____ (Note changes or attach parent)
 New _____

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 X
55.43

Comments:

Prairie Island Western Tech Bank Question ID 44573

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	_____
	Group #	3	_____
	K/A #	G2.3.10	_____
	Importance Rating	2.9	_____

Ability to perform procedures to reduce excessive levels of radiation and guard against personnel exposure

Proposed Question: Common 71

Given the following conditions:

- You are required to make an entry to a Locked High Radiation Area.
- Your year-to-date exposure is 2.6 Rem Total Effective Dose Equivalent (TEDE).
- The job is planned to take 20 minutes to complete, with 5 minutes transit time each way.
- Transit path radiation levels are 400 mR/hr.
- Work area radiation levels are 1200 mR/hr.

Which ONE of the following describes your eligibility to perform this task?

- You may perform this task provided you are signed onto a High Radiation Area RWP.
- You may not perform this task because you will exceed the BVPS Administrative TEDE limit.
- You may perform this task provided you meet the requirements for a Planned Special Exposure (PSE).
- You may not perform the task because your current year to date exposure is already within 80% of the BVPS Administrative TEDE Limit.

Proposed Answer: **A**

Explanation (Optional):

- Correct.
- Incorrect. BVPS TEDE is 4 Rem. Actual exposure results in a little over 3 Rem.
- Incorrect. PSE not required, rates not high enough.
- Incorrect. 80% of BVPS TEDE would be 3.2 Rem.

Technical Reference(s): 1/2 ADM-1601 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # X
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis _____10 CFR Part 55 Content: 55.41 X
55.43 X

Comments:

BVPS-2 2002 NRC S94

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>3</u>	<u> </u>
	Group #	<u>3</u>	<u> </u>
	K/A #	<u>G2.3.11</u>	<u> </u>
	Importance Rating	<u>2.7</u>	<u> </u>

Ability to control radiation releases.

Proposed Question: Common 72

Given the following conditions:

- A rapid load reduction from 100% power to 65% power was performed approximately 3 hours ago.
- [RM-1CH-101B], Reactor Coolant Letdown Low Range Monitor is in alarm.
- [RM-1CH-101A], Reactor Coolant Letdown High Range Monitor has just reached its alarm setpoint.
- Actions of 1OM-43.4.AAC, Radiation Monitoring HIGH-HIGH have been completed.
- Chemistry confirms RCS activity exceeds TS 3.4.8 limits.

The US directs a plant shutdown be performed.

Which ONE of the following actions is subsequently performed to limit the release of radioactivity?

- A. MSIV's are closed.
- B. SG atmospheric dump valve setpoints are raised.
- C. RCS is cooled down below 500°F.
- D. Maximum condensate polishers are placed in service.

Proposed Answer: **C**

Explanation (Optional):

- A. Incorrect. Closing MSIV's would contribute to a radiation release through SG ADV's and safety valves if cooldown and depressurization was not performed in a timely manner.
- B. Incorrect. SG ADV setpoints are normally raised in SGTR procedure, but are operated manually at BVPS.
- C. Correct.
- D. Incorrect. Condensate polishing does not exist at BV-1, although it would help clean up the secondary plant.

Technical Reference(s): TS 3.4.8 (Attach if not previously provided)
1OM-43.4.AAC

Proposed references to be provided to applicants during examination: NONELearning Objective: 1SQS-43.1 Objectives 9 and 10 (As available)

Question Source: Bank # X
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam 2002

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

10 CFR Part 55 Content: 55.41 X
55.43

Comments:

BVPS-1 2002 NRC Western Tech Bank 46428

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	<u>3</u>	_____
	Group #	<u>4</u>	_____
	K/A #	<u>G2.4.29</u>	_____
	Importance Rating	_____	_____

Knowledge of the emergency plan.

Proposed Question: Common 73

Which of the following is the **LOWEST** emergency classification at which the Technical Support Center (TSC) MUST be activated?

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

Proposed Answer: **B**

Explanation (Optional):

- A. Incorrect. NUE does not require TSC staffing.
- B. Correct.
- C. Incorrect. Staffed at the Alert level.
- D. Incorrect. Staffed at the Alert level.

Technical Reference(s): 1/2 EPP-I-3 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # X
 Modified Bank # _____ (Note changes or attach parent)
 New _____

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

Indian Point 3 Audit Exam; 2002 Western Technical Services, Inc. Exam Bank ID 44958.

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	_____
	Group #	4	_____
	K/A #	G2.4.20	_____
	Importance Rating	_____	_____

Knowledge of operational implications of EOP warnings, cautions, and notes.

Proposed Question: Common 74

During the performance of EOP actions, the crew observes a NOTE prior to Step 1 of the EOP, and a CAUTION prior to Step 3 of the EOP.

Which ONE of the following describes the applicability of these statements during the performance of the EOP?

- A. The NOTE is applicable throughout the entire procedure. The CAUTION applies to Step 3 ONLY.
- B. The NOTE applies to Step 1 ONLY. The CAUTION applies to Step 3 ONLY.
- C. The NOTE is applicable throughout the entire procedure. The CAUTION applies to all steps of the procedure that succeed it.
- D. The NOTE applies to Step 1 ONLY. The CAUTION applies to all steps of the procedure that succeed it.

Proposed Answer: **A**

Explanation (Optional):

- A. Correct.
- B. Incorrect. Note applies to the entire procedure.
- C. Incorrect. Caution applies only to the step it precedes.
- D. Incorrect. Opposite of actual application.

Technical Reference(s): EOP User's Guide (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 3SQS-53.1 Objective 1 (As available)

Question Source: Bank # _____

Modified Bank # _____ (Note changes or attach parent)

New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis _____10 CFR Part 55 Content: 55.41 X
55.43 _____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	_____
	Group #	4	_____
	K/A #	G2.4.48	_____
	Importance Rating	3.5	_____

Ability to interpret control room indications to verify the status and operation of system, and understand how operator actions and directives affect plant and system conditions.

Proposed Question: Common 75

Given the following conditions:

- A reactor trip and safety injection have occurred.
- All equipment is operating as designed.
- The crew is performing diagnostic actions of E-0, Reactor Trip Or Safety Injection.
- Containment pressure is 19 psig and LOWERING.
- RCS pressure is 1250 psig and STABLE.
- RCS subcooling margin is 46°F and STABLE.
- PRZR level is 4% and RISING.
- All AFW pumps are running with 400 gpm flow.
- All RCP's are STOPPED.

← add ESI-3 parameter to rule out 'A' as correct

Based upon the conditions above, in which ONE of the following procedures will the crew start a reactor coolant pump, if it is desired?

- ES-1.3, Transfer to Cold Leg Recirculation
- ES-1.1, SI Termination
- E-1, Loss Of Reactor Or Secondary Coolant
- ES-1.2, Post-LOCA Cooldown And Depressurization

Proposed Answer: **D**

Explanation (Optional):

- Incorrect. ES-1.3 is not appropriate for these conditions.
- Incorrect. SI Termination criteria is not met.
- Incorrect. Transition to ES-1.2 will occur first.
- Correct. ES-1.2 is performed which will start RCP's during the RCS cooldown.

Technical Reference(s): ES-1.2 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 3SQS-53.3 Objective 3 (As available)

Question Source: Bank # X
 Modified Bank # _____ (Note changes or attach parent)
 New _____

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 X
 55.43 X

Comments:

Byron Western Technical Services, Inc. Exam Bank ID 42085

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

Ability to determine and interpret the following as they apply to the Loss of Residual Heat Removal System: Leakage of reactor coolant from RHR into closed cooling water system or into reactor building atmosphere

Proposed Question: SRO 76

Given the following conditions:

- The Unit is in Mode 4.
- RHR Train "B" is in service.
- PRZR level is 20% and dropping.
- Containment sump alarms are occurring.
- Containment radiation monitors are alarming.

*Feedback to include
or get to a loss of RHR
May have to shut down 1 +
due to...
...& change*

Which ONE of the following describes the action required under these conditions?

- A. Manually initiate Safety Injection in accordance with AOP-1.6.5, Shutdown LOCA.
- B. Stop RHR Pump "B" in accordance with AOP-1.10.1, Residual Heat Removal System Loss.
- C. Isolate letdown and raise charging flow in accordance with AOP-1.6.5, Shutdown LOCA.
- D. Operate HHSI pumps as necessary to maintain RCS inventory in accordance with AOP-1.10.1, Residual Heat Removal System Loss.

Proposed Answer: **C**

Explanation (Optional):

- A. Incorrect. Plant conditions preclude initiation of SI.
- B. Incorrect. Would not stop RHR pump until cavitation; also includes wrong procedure.
- C. Correct.
- D. Incorrect. Wrong procedure, and would perform other steps prior to using HHSI pumps.

Technical Reference(s): AOP-1.6.5 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 1SQS-53C.1 Objective 5 (As available)

Question Source: Bank # _____
 Modified Bank # _____ (Note changes or attach parent)
 New X

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 _____
 55.43 X

Comments:

10CFR55.43(b) item 5 because the SRO must assess plant conditions and choose the correct procedure and action.

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	_____	1
	Group #	_____	1
	K/A #	029 EA2.01	_____
	Importance Rating	_____	4.7

Ability to determine or interpret the following as they apply to a ATWS: Reactor nuclear instrumentation

Proposed Question: SRO 77

Given the following conditions:

- A manual reactor trip is attempted by the RO.
- Reactor Trip Breaker "A" has lost position indication.
- Reactor Trip Breaker "B" indicates closed.
- Reactor power indicates ~~28%~~ and stable. *6%*
- The crew has entered E-0, Reactor Trip Or Safety Injection.

*replace A or B (not tripped)
and lower power (Assume 28%)*

Which ONE of the following describes the condition of the reactor and the appropriate action?

- A. The reactor is tripped. Continue in E-0, Reactor Trip Or Safety Injection.
- B. The reactor is tripped. Emergency boration is required per ES-0.1, Reactor Trip Response.
- C. The reactor is NOT tripped. Transition to FR-S.1, Response To Nuclear Power Generation - ATWS.
- D. The reactor is NOT tripped. Dispatch an operator to locally trip the reactor and initiate a turbine trip per E-0, Reactor Trip Or Safety Injection.

Proposed Answer: C

Explanation (Optional):

- A. Incorrect. Power range indication does not show prompt drop as expected post-trip.
- B. Incorrect. The reactor is not tripped, transition is to FR-S.1, not ES-0.1.
- C. Correct.
- D. Incorrect. E-0 does not dispatch anyone to locally trip the reactor.

Technical Reference(s): E-0, FR-S.1 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 3SQSD-53.3 Objective 3 (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 _____
55.43 X

Comments:
10CFR55.43(b) item 5 because the SRO must assess plant conditions and choose the correct procedure.

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	_____	1
	Group #	_____	1
	K/A #	038 G2.2.25	_____
	Importance Rating	_____	3.7

Equipment Control Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.

Proposed Question: SRO 78

With the plant in Mode 1, 2, or 3, Technical Specifications limits the RCS activity to $\leq 0.1 \mu\text{Ci/gm}$ Dose Equivalent I-131.

Which ONE of the following describes the basis for this limit?

- A. In case of a steam break-induced steam generator tube rupture, ensures offsite dose does not exceed a small fraction of 10CFR100 guidelines.
- B. In case of a LOCA, ensures offsite dose does not exceed a small fraction of 10CFR100 guidelines.
- C. In case of a steam break-induced steam generator tube rupture, ensures offsite dose rates do not exceed 10CFR20 limits.
- D. In case of a LOCA, ensures offsite dose rates do not exceed 10CFR20 limits.

Proposed Answer: **A**

Explanation (Optional):

- A. Correct.
- B. Incorrect. LOCA is not the concern for RCS activity.
- C. Incorrect. 10CFR20 limits are for normal operation.
- D. Incorrect. LOCA is not the concern, and 10CFR20 limits are for normal operation.

Technical Reference(s): T.S. 3.4.8 Bases (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 3SQSTS.3 Objective 5.B (As available)

Question Source: Bank # _____

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
	Group #		1
	K/A #	058 G2.2.25	
	Importance Rating		3.7

Equipment control Knowledge of bases in technical specifications for limiting conditions for operations and safety limits.

Proposed Question: SRO 79

Given the following conditions:

- The plant is in Mode 6.
- Refueling is in progress, with an irradiated fuel assembly movement in progress in containment.
- Train "A" is the Protected Train.
- Train "B" 125V DC Bus 1-2 is out-of-service for battery replacement.

125VDC Bus 1-3 sustains a fault and is de-energized. The Refueling crew is ordered to complete the fuel assembly movement in progress and then suspend refueling operations.

Which ONE of the following describes the reason that Technical Specifications requires suspending the fuel movement?

- A. The failure of DC Bus 1-3 also makes 120V AC distribution inoperable.
- B. Failure of protected train DC power raises the Shutdown Risk level to an unacceptable RED status.
- C. The plant no longer meets the initial conditions assumed in the safety analysis of a redundant set of AC and DC power sources operable during an assumed loss of offsite AC power and single failure of 1 other AC source.
- D. There is insufficient instrumentation and control power available to recover from a postulated event, such as a Fuel Handling Accident.

Proposed Answer: **D**

Explanation (Optional):

- A. Incorrect. Even though the statement is true, it is not the reason that fuel movement is suspended.
- B. Incorrect. May be a true statement, but Shutdown Risk and TS are not interdependent.
- C. Incorrect. Basis for operability in Modes 1 - 4. Plant is in Mode 6.
- D. Correct.

Technical Reference(s): TS 3.8.2.4 Basis (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 3SQSTS.3 Objective 5.B (As available)

Question Source: Bank # _____
 Modified Bank # _____ (Note changes or attach parent)
 New X

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 _____
 55.43 X

Comments:

10CFR55.43(b) item 2 because the SRO must understand Technical Specification Bases.

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	_____	1
	Group #	_____	1
	K/A #	062 G2.4.31	
	Importance Rating	_____	3.4

Emergency Procedures / Plan Knowledge of Annunciators alarms and indications, and use of the response instructions.

Proposed Question: SRO 80

Given the following conditions:

The plant is at 100% power with all systems in NSA.

The following annunciators are in alarm:

- [A1-40], CC WTR HT EXCH RIVER WTR PP DISCH LINE A PRESS LOW
- [A1-59], INTAKE STRUCT RIVER WATER PP DISCH LINE PRESS LOW
- [A1-82], RIVER WATER PP AUTO START-STOP

Additionally, the operators note the following conditions:

- [WR-P-1A], River Water Pump is tripped (previously running).
- [WR-P-1B], River Water Pump remains in Standby.

Which ONE of the following actions is required to restore River Water System flow?

- Start WR-P-1B, remove WR-P-1A from service, and place WR-P-1C on the 1AE Bus in accordance with the ARP's and the applicable section of 1OM-30.
- Start WR-P-1B, remove WR-P-1A from service, and place WR-P-1C on the 1DF Bus in accordance with the ARP's and the applicable section of 1OM-30.
- Start WR-P-9A or WR-P-9B, Aux River Water Pumps and place WR-P-1C on the 1AE Bus in accordance with AOP-1.30.2, River Water/Normal Intake Structure Loss.
- Start WR-P-9A or WR-P-9B, Aux River Water Pumps and place WR-P-1C on the 1AE Bus in accordance with AOP-1.30.2, River Water/Normal Intake Structure Loss.

Proposed Answer: **A**

Explanation (Optional):

- A. Correct. Start the standby pump and place the swing pump on the bus with the pump that is inoperable.
- B. Incorrect. 1DF bus already has a running RW pump.
- C. Incorrect. Wrong action for the given failure, and wrong procedure usage.
- D. Incorrect. Wrong action and wrong bus for the failure given, and wrong procedure usage.

Technical Reference(s): 1OM-30.4 AAC, AAF (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 1SQS -30.1 Objective 9 (As available)

Question Source: Bank # _____

Modified Bank # _____ (Note changes or attach parent)

New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____

Comprehension or Analysis X

10 CFR Part 55 Content: 55.41 _____

55.43 X

Comments:

10CFR55.43(b) item 5 because the SRO must assess plant conditions and choose the procedure and actions for mitigation.

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	_____	<u>1</u>
	Group #	_____	<u>1</u>
	K/A #	<u>E11 EA2.1</u>	_____
	Importance Rating	_____	<u>4.2</u>

Ability to determine and interpret the following as they apply to the (Loss of Emergency Coolant Recirculation) Facility conditions and selection of appropriate procedures during abnormal and emergency operations.

Proposed Question: **SRO 81**

A reactor trip and safety injection have occurred.

ECA-1.2, LOCA Outside Containment has been entered from E-0, Reactor Trip Or Safety Injection.

After closing the valves listed in ECA-1.2, the following conditions exist:

- RCS pressure is 1400 psig and STABLE.
- ECCS flow is STABLE.

Which ONE of the following describes the status of the LOCA and required action?

- The LOCA is isolated. Transition to E-1, Loss Of Reactor Or Secondary Coolant.
- The LOCA is NOT isolated. Transition to ECA-1.1, Loss Of Emergency Coolant Recirculation.
- The LOCA is NOT isolated. Transition to E-0, Reactor Trip Or Safety Injection.
- The LOCA is isolated. Transition to ES-1.1, SI Termination.

Proposed Answer: **B**

Explanation (Optional):

- Incorrect. LOCA is not isolated with RCS pressure and SI flow stable.
- Correct. Unisolable LOCA, use ECA-1.1.
- Incorrect. E-0 is the wrong transition.
- Incorrect. LOCA is NOT isolated.

Technical Reference(s): ECA-1.2 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 3SQS-53.3 Objective 3 (As available)

Question Source: Bank # X
 Modified Bank # _____ (Note changes or attach parent)
 New _____

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 _____
 55.43 X

Comments:

BVPS-2 Audit exam 2002 Western Technical Services, Inc. Exam Bank ID 47439.

10CFR55.43(b) item 5 because the SRO must assess plant conditions and choose the appropriate procedure.

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
	Group #		2
	K/A #	037 G2.4.30	
	Importance Rating		3.6

Emergency Procedures / Plan Knowledge of which events related to system operations/status should be reported to outside agencies.

Proposed Question: SRO 82

Given the following conditions:

- 0802: A SG tube leak is discovered.
- 0814: A plant shutdown is commenced.
- 0818: The reactor is tripped and safety injection is initiated based upon inability to maintain PRZR level.
- 0822: ALERT is declared.

Which ONE of the following is the **LATEST** time that the NRC may be notified of this event?

- A. 0902
- B. 0914
- C. 0918
- D. 0922

replace to match K/A

Proposed Answer: **D**

Explanation (Optional):

- A. Incorrect. 1 hour after initial indication of event.
- B. Incorrect. 1 hour after shutdown commenced (would be a 4 hour notification).
- C. Incorrect. 1 hour after reactor trip and conditions are available for the classification.
- D. Correct. 1 hour after declaration of the event is the longest time allowed.

Technical Reference(s): 1/2 EPP-I-1B (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 _____
55.43 X

Comments:

10CFR55.43(b) item 5 because the SRO must assess the event and reportability, and determine the correct time to meet the NRC commitment.

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	_____	<u>1</u>
	Group #	_____	<u>2</u>
	K/A #	<u>E09 EA2.2</u>	_____
	Importance Rating	_____	<u>3.8</u>

Ability to determine and interpret the following as they apply to the Natural Circulation Operations: Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments

Proposed Question: SRO 83

Given the following conditions:

- A reactor trip has occurred due to a loss of offsite power.
- The crew is performing actions of ES-0.2, Natural Circulation Cooldown.
- RVLIS is **NOT** available.
- The crew has commenced RCS depressurization to 1950 psig.

The following conditions are indicated:

- RCS pressure is 2030 psig and trending DOWN.
- RCS Tav_g is 547°F and trending DOWN slowly.
- PRZR level is 21% and trending DOWN slowly.

Which ONE of the following operator actions will be required?

- Continue depressurization to 1950 psig and block SI.
- Initiate Safety Injection and go to E-0, Reactor Trip Or Safety Injection.
- Stop the cooldown, Block SI, and initiate depressurization to 1950 psig.
- Stop the depressurization and go to ES-0.4, Natural Circulation With Steam Void In Vessel (Without RVLIS).

Proposed Answer: **A**

Explanation (Optional):

- A. Correct. Plant conditions are consistent with maintaining the cooldown.
 B. Incorrect. SI actuation criteria are not met.
 C. Incorrect. SI Block SI does not occur until 1950 psig.
 D. Incorrect. Indications of voiding, or conditions that may cause voiding, do not exist.

Technical Reference(s): ES-0.2 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 3SQS-53.3 Objective 3 (As available)

Question Source: Bank # _____
 Modified Bank # X (Note changes or attach parent)
 New _____

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 _____
 55.43 X

Comments:

10CFR55.43(b) item 5 because the SRO must evaluate plant conditions and select the appropriate procedural action.

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	_____	1
	Group #	_____	2
	K/A #	E01 EA2.1	_____
	Importance Rating	_____	4.0

Ability to determine and interpret the following as they apply to the (Reactor Trip or Safety Injection Rediagnosis) Facility conditions and selection of appropriate procedures during abnormal and emergency operations.

Proposed Question: SRO 84

Following a reactor trip and safety injection due to a faulted SG inside containment, the following conditions exist:

- All equipment is operating as required.
- The crew has performed actions of E-2, Faulted Steam Generator Isolation.
- Containment pressure is 19 psig and LOWERING.
- RCS pressure is 1850 psig and STABLE.
- RCS subcooling margin is 110°F and STABLE.
- PRZR level is 40% and RISING.
- Affected SG WR level is 10%.
- All AFW pumps are running with 390 gpm flow.
- Unaffected SG NR levels are 33% and RISING.

*(Crew has taken
for rediagnosis (K/A))*

Which ONE of the following conditions exists, and which ONE of the following procedures will be used next?

- The affected SG is still blowing down. Remain in E-2, Faulted Steam Generator Isolation.
- SI Termination criteria is satisfied. Go to ES-1.1, SI Termination.
- A LOCA is in progress. Go to E-1, Loss Of Reactor Or Secondary Coolant.
- A RED condition exists on the Heat Sink CSF Status Tree. Go to FR-H.1, Response To Loss Of Secondary Heat Sink.

Proposed Answer: **B**

Explanation (Optional):

- Incorrect. May transition once steps are complete.
- Correct.
- Incorrect. A LOCA is not evidenced based on the conditions given.
- Incorrect. A Red Path does not exist, only 1 SG with level < FR-H.1 entry conditions.

Technical Reference(s): E-2 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 3SQS-53.3 Objective 3 (As available)

Question Source: Bank # _____
 Modified Bank # X (Note changes or attach parent)
 New _____

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 _____
 55.43 X

Comments:

10CFR55.43(b) item 5 because the SRO must determine plant conditions and select appropriate procedure response.

Robinson 2002 NRC Exam; Western Technical Services, Inc. Exam Bank ID 19019

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	_____	<u>1</u>
	Group #	_____	<u>2</u>
	K/A #	E06 G2.4.4	
	Importance Rating	_____	<u>4.3</u>

Emergency Procedures / Plan Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.

Proposed Question: SRO 85

Given the following conditions:

- A LOCA has occurred.
- ECCS has NOT functioned as required.
- All RCP's are TRIPPED.
- CET's indicate 626°F.
- RVLIS Full Range is 40%.
- All SG pressures are approximately 1070 psig.
- Total AFW flow is 350 gpm.
- SG NR levels are 13%, 11%, and 17%, respectively.

Which ONE of the following procedures should the crew implement for these conditions?

- A. FR-H.1, Response To Loss Of Secondary Heat Sink
- B. FR-H.2, Response To Steam Generator Overpressure
- C. FR-C.1, Response To Inadequate Core Cooling
- D. FR-C.2, Response To Degraded Core Cooling

Proposed Answer: **D**

Explanation (Optional):

- A. Incorrect. A Red Path on Heat Sink is not indicated.
- B. Incorrect. A Yellow Path on Heat Sink does not exist.
- C. Incorrect. Core Cooling CSF is in Orange Path condition, not a Red Path.
- D. Correct. Core Cooling CSF is in Orange Path condition.

Technical Reference(s): CSF Status Trees (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 3SQS-53.3 Objective 5 (As available)

Question Source: Bank # X
 Modified Bank # _____ (Note changes or attach parent)
 New _____

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 _____
 55.43 X

Comments:

10CFR55.43(b) item 5 because the SRO must evaluate plant conditions and determine the appropriate procedure selection.

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Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	_____	<u>2</u>
	Group #	_____	<u>1</u>
	K/A #	<u>003 G2.1.33</u>	
	Importance Rating	_____	<u>4.0</u>

Conduct of Operations: Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications.

Proposed Question: SRO 86

Given the following conditions:

- The plant is in Mode 5.
- RCS Loop "1A" is ISOLATED.
- All RCP's are STOPPED.
- Loop "1B" and "1C" cold leg temperatures are approximately 165°F.
- The OPPS enable temperature specified in the PTLR is 308°.
- SG's are at approximately 20 psig.
- It is desired to start RCP "1B".

*may rework for J2)
try to have T/R make
sense*

Which ONE of the following restrictions or limitations, if any, exists for starting RCP "1B"?

- A. No restrictions currently exist. RCP "1B" may be started.
- B. SG's must be depressurized to atmospheric pressure prior to starting RCP "1B".
- C. SG's must be pressurized to approximately 50 psig prior to starting RCP "1B".
- D. RCS Loop "1A" must be placed in service prior to starting RCP "1B".

Proposed Answer: **B**

Explanation (Optional):

- A. Incorrect. SG temperature is too high, because RCS temperature is below the PTLR temperature.
- B. Correct. Must get within 50 degrees in order to start an RCP.
- C. Incorrect. Should depressurize, not pressurize, the SG.
- D. Incorrect. RCP start with a different loop isolated is not prohibited.

Technical Reference(s): Tech Spec 3.4.1.3 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 3SQSTS.2 Objective 3 (As available)

Question Source: Bank # _____
 Modified Bank # _____ (Note changes or attach parent)
 New X

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 _____
 55.43 X

Comments:

10CFR55.43(b) item 2 because the SRO must determine Technical Specification applicability for starting RCP's.

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	_____	2
	Group #	_____	1
	K/A #	010 G2.2.22	_____
	Importance Rating	_____	4.1

Equipment control Knowledge of limiting conditions for operations and safety limits.

Proposed Question: SRO 87

Which ONE of the following describes the components that are assumed to operate at their setpoints to ensure that RCS pressure remains below the Technical Specification Safety Limit?

Pressurizer Safety Valves...

- A. ONLY.
- B. and at least ONE (1) PRZR PORV.
- C. and at least TWO (2) PRZR PORV's.
- D. and all THREE (3) PRZR PORV's.

replace - too easy

Proposed Answer: **A**

Explanation (Optional):

- A. Correct.
- B. Incorrect. PORV's are only required for LTOP.
- C. Incorrect. PORV's are only required for LTOP.
- D. Incorrect. PORV's are only required for LTOP.

Technical Reference(s): Tech Spec 3.4.3 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # _____
 Modified Bank # _____ (Note changes or attach parent)
 New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis _____10 CFR Part 55 Content: 55.41 _____
55.43 X

Comments:

10CFR55.43(b) item 2 because the SRO must understand the basis for operability of equipment required by Technical Specifications.

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	_____	2
	Group #	_____	1
	K/A #	039 A2.05	_____
	Importance Rating	_____	3.6

Ability to (a) predict the impacts of the following mal-functions or operations on the MRSS; and (b) based on predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Increasing steam demand, its relationship to increases in reactor power

Proposed Question: SRO 88

Given the following conditions:

- The plant is at 100% power with all systems in NSA.
- The RO has recently performed a small dilution for RCS temperature control.
- The following indications are available in the Control Room:
 - Power Range NI's are increasing.
 - Tavg is decreasing.
 - Steam flow and feed flow are slightly elevated.

Reactor power is 101% and rising slowly.

Which ONE of the following describes the event in progress and the action required?

- A. Main steam line leak; reduce power by reducing turbine load as necessary.
- B. Inadvertent RCS dilution; reduce power and Tavg by inserting control rods.
- C. Main steam line leak; trip the reactor and enter E-0, Reactor Trip Or Safety Injection.
- D. Inadvertent RCS dilution; trip the reactor and enter E-0, Reactor Trip Or Safety Injection.

Proposed Answer: **A**

Explanation (Optional):

- A. Correct. Power increasing and temperature decreasing mean the transient is induced by the secondary (steam demand).
- B. Incorrect. Temperature would be rising if a dilution was occurring.
- C. Incorrect. No requirement for a reactor trip.
- D. Incorrect. Not a dilution, and no reactor trip requirement is met.

Technical Reference(s): Simulator (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 _____
55.43 X

Comments:
10CFR55.43(b) item 5 because the SRO must evaluate plant conditions and determine appropriate procedural action

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	_____	<u>2</u>
	Group #	_____	<u>1</u>
	K/A #	<u>078 A2.01</u>	
	Importance Rating	_____	<u>2.9</u>

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 malfunctions

Proposed Question: SRO 89

Given the following conditions:

- The Unit is at 100% power with all systems in NSA.
- [IA-1PI-106], Instrument Air Pressure has been slowly decreasing and is reading 85 psig.
- The crew enters AOP-1.34.1, Loss of Station Instrument Air.
- All station air compressors are running. No reports of air leakage have been received.

Which one of the following actions will be performed next in accordance with AOP-1.34.1, Loss Of Station Instrument Air?

- Place the instrument air dryer bypass filters in service.
- Place main feedwater regulating valve control in MANUAL.
- Start the motor driven AFW pumps.
- Trip the reactor and enter E-0, Reactor Trip Or Safety Injection.

Proposed Answer: **A**

Explanation (Optional):

- Correct.
- Incorrect. Air pressure is not low enough.
- Incorrect. Have not lost control of MFP's, no need to start MDAFW pumps.
- Incorrect. Reactor trip criteria on low air pressure is not met.

Technical Reference(s): AOP-1.34.1 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 1SQSD-53C.1 Objective 5 (As available)

Question Source: Bank # X
 Modified Bank # _____ (Note changes or attach parent)
 New _____

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 _____
 55.43 X

Comments:

10CFR55.43(b) item 5 because the SRO must evaluate plant conditions and determine appropriate procedural action.

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		2
	Group #		1
	K/A #	103 A2.04	
	Importance Rating		3.6

Ability to (a) predict the impacts of the following malfunctions or operations on the containment system-and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations Containment evacuation (including recognition of the alarm)

Proposed Question: SRO 90

The Unit is in Mode 6. Refueling operations are in progress. The Refueling SRO reports that a fuel assembly has been dropped. Containment Purge Process Monitors are in alarm.

For these conditions, which one of the following actions will be required by AOP-1.49.1, Irradiated Fuel Damage While Refueling?

- A. Initiate a containment evacuation.
- B. Manually initiate Control Room ventilation isolation.
- C. Reset CREVS and manually align Control Room ventilation.
- D. Start the containment air recirculation system.

(work to SRO level)

Proposed Answer: **A**

Explanation (Optional):

- A. Correct.
- B. Incorrect. Control Room high radiation is not indicated requiring this action.
- C. Incorrect. CREVS should not be actuated. High radiation for CREVS is not indicated.
- D. Incorrect. Containment air recirculation system does not function to mitigate this event.

Technical Reference(s): AOP-1.49.1 (Attach if not previously provided)
Tech Spec 3.1.3.1

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 1SQS-53C.1 Objective 5 (As available)

Question Source: Bank # _____
Modified Bank # X (Note changes or attach parent)
New _____

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 _____
55.43 X

Comments:

BVPS-1 2002 NRC exam

10CFR55.43(b) item 5 and item 6 because the SRO must assess conditions and choose procedural action for a refueling accident.

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	_____	<u>2</u>
	Group #	_____	<u>2</u>
	K/A #	001 G2.1.32	_____
	Importance Rating	_____	<u>3.8</u>

Conduct of Operations: Ability to explain and apply all system limits and precautions.

Proposed Question: SRO 91

The Unit is in Mode 1 at 91% power. Control Bank "D" Group 1 step counter position is 136 steps.

CERPI indicates the following:

- Control Rod H02 at 134 steps.
- Control Rod H14 at 145 steps.
- Control Rod P08 at 122 steps.
- Control Rod B08 at 120 steps.

Which ONE of the following describes the action(s) required by Technical Specifications and AOP-1.1.8, Rod Inoperability?

- A. Immediately trip the reactor and initiate emergency boration of the RCS.
- B. Reduce thermal power to less than 80% within 1 hour and restore both control rods to within alignment within 2 hours.
- C. Restore both control rods to within alignment in 2 hours or be in Hot Standby within 6 hours.
- D. Verify shutdown margin is within the limits within 1 hour and be in Hot Standby within 6 hours.

Proposed Answer: **D**

Explanation (Optional):

- A. Incorrect. A reactor trip is required for 2 dropped rods. Boration for stuck rods.
- B. Incorrect. Power reduction is not required for misalignment of rods.
- C. Incorrect. More than 1 rod is misaligned. No opportunity provided for restoration.
- D. Correct.

Technical Reference(s): AOP-1.2.8 (Attach if not previously provided)
Tech Spec 3.1.3.1

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # X
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 _____
55.43 X

Comments:

10CFR55.43(b) item 2 and item 5 because the SRO must choose the appropriate action for the plant condition in accordance with Technical Specifications.

BVPS-2 2002 NRC Exam

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	_____	<u>2</u>
	Group #	_____	<u>2</u>
	K/A #	035 A2.01	_____
	Importance Rating	_____	<u>4.5</u>

Ability to (a) predict the impacts of the following malfunctions or operation on the S/GS system; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Faulted or Ruptured SG

Proposed Question: SRO 92

Given the following conditions:

- A reactor trip and safety injection have occurred.
- RCS pressure is 1600 psig and DECREASING.
- PRZR level is offscale LOW.
- Tavg is 500°F and DECREASING.
- Containment pressure is 3 psig and INCREASING.
- SG "1A" pressure is 620 psig and DECREASING.
- SG "1B" and "1C" pressures are 900 psig and STABLE.

Which ONE of the following procedures will be used immediately following transition from E-0, Reactor Trip Or Safety Injection?

- A. ES-1.1, SI Termination
- B. ES-1.2, Post LOCA Cooldown And Depressurization
- C. E-2, Faulted Steam Generator Isolation
- D. ES-0.1, Reactor Trip Response

Proposed Answer: **C**

Explanation (Optional):

- A. Incorrect. Criteria is not met for SI Termination.
- B. Incorrect. Transition to ES-1.2 occurs from E-1.
- C. Correct.
- D. Incorrect. SI is actuated, ES-0.1 would not apply.

Technical Reference(s): E-2 Entry, E-0 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 3SQS-53.3 Objective 3 (As available)

Question Source: Bank # _____
 Modified Bank # X (Note changes or attach parent)
 New _____

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 _____
 55.43 X

Comments:

BVPS-1 2002 Audit

10CFR55.43(b) item 5 because the SRO must assess conditions and choose the correct procedure for the event in progress.

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	_____	<u>2</u>
	Group #	_____	<u>2</u>
	K/A #	056 G2.4.50	_____
	Importance Rating	_____	<u>3.3</u>

Emergency Procedures / Plan Ability to verify system alarm setpoints and operate controls identified in the alarm response manual.

Proposed Question: SRO 93

The Unit is at 72% power with all systems in NSA.

The following annunciators are in alarm:

- [A7-1], Condensate Pump Auto Start-Stop
- [A7-5], Condensate Pump Disch Press Low
- [A7-6], Steam Generator Feed Pump Suction Pressure Low

The BOP determines that [CN-P-1B], Condensate Pump has tripped. The control switch bright white indication is **LIT**.

Which ONE of the following describes the action required?

- A. Trip the reactor. Enter E-0, Reactor Trip Or Safety Injection.
- B. Reset and attempt ONE (1) restart of Condensate Pump "1B".
- C. Reduce power to less than 65% in accordance with AOP-1.24.1, Loss Of Main Feedwater.
- D. Reduce turbine load until Annunciator A7-6 is clear in accordance with the ARP's.

Proposed Answer: **D**

Explanation (Optional):

- A. Incorrect. Does not meet the reactor trip criteria.
- B. Incorrect. Bright white indication would preclude restart of the pump.
- C. Incorrect. Action is correct for a loss of a main feed pump.
- D. Correct.

Technical Reference(s): 1OM-22A.4 AAC, AAD, AAE (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 1SQS-53C.1 Objective 5 (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 _____
55.43 X

Comments:

10CFR55.43(b) item 5 because the SRO must assess plant conditions and choose the appropriate procedure.

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	_____	<u>3</u>
	Group #	_____	<u>1</u>
	K/A #	<u>G2.1.20</u>	_____
	Importance Rating	_____	<u>4.2</u>

Ability to execute procedure steps.

Proposed Question: SRO 94

Given the following conditions:

- The crew is performing E-0, Reactor Trip Or Safety Injection.
- The BOP has been directed to perform Attachment 1-K, Verification of Automatic Actions.
- While performing Attachment 1-K, the US determines that a transition to E-1, Loss Of Reactor Or Secondary Coolant is necessary.

Which ONE of the following actions is required?

- A. Discontinue actions in Attachment 1-K until directed to by E-1.
- B. Continue actions in Attachment 1-K, but do not perform actions of any other attachment until directed to by E-1.
- C. Complete the actions required by Attachment 1-K prior to transitioning to E-1.
- D. Transition to E-1 and continue actions as necessary in Attachment 1-K.

Proposed Answer: **D**

Explanation (Optional):

- A. Incorrect. Attachment 1-K is in progress and must be completed.
- B. Incorrect. If other attachments become necessary, they will be performed as resources are available.
- C. Incorrect. Performance of Attachment 1-K will not delay the actions of E-1.
- D. Correct.

Technical Reference(s): EOP User's Guide (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONELearning Objective: 3SQS-53.1 Objective 1 (As available)Question Source: Bank # X
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge _____
Comprehension or Analysis X10 CFR Part 55 Content: 55.41 _____
55.43 X

Comments:

BVPS-1 2002 Audit Exam

10CFR55.43(b) item 5 because the SRO must evaluate plant conditions and determine the correct procedural response.

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	_____	3
	Group #	_____	1
	K/A #	G2.1.14	_____
	Importance Rating	_____	3.3

Knowledge of system status criteria which require the notification of plant personnel.

Proposed Question: SRO 95

You are the Unit Supervisor on night shift, Saturday evening.

You receive a report from the Outside Tour Operator that a safety related component is mispositioned and there are indications of tampering.

Which ONE of the following describes the action required in accordance with 1/2-ADM-0701, Reporting and Notification of Potential Mispositioning or Tampering Events?

- A. Direct the Operator to reposition the component and immediately report to the Control Room. Notify the Security Shift Supervisor.
- B. Direct the Operator to reposition the component and immediately report to the Control Room. Direct the PAB Tour Operator to second check the component position.
- C. Direct the Operator to leave the component in its current position and remain in the area. Direct the PAB Tour Operator to verify the mispositioning.
- D. Direct the Operator to leave the component in its current position and remain in the area. Notify the Security Shift Supervisor.

Proposed Answer: **D**

Explanation (Optional):

- A. Incorrect. The component must not be repositioned.
- B. Incorrect. The component must not be repositioned, thus no second check either.
- C. Incorrect. A second verification is not required; Security must be notified.
- D. Correct.

Technical Reference(s): 1/2-ADM-0701 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: _____

Learning Objective: _____ (As available)

Question Source: Bank # _____
Modified Bank # _____ (Note changes or attach parent)
New X

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 _____
55.43 X

Comments:

10CFR55.43(b) item 5 because the SRO must determine the event and evaluate procedural action.

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

Knowledge of new and spent fuel movement procedures.

Proposed Question: SRO 96

The Unit is in Mode 6. Fuel movement is in progress.

Which ONE of the following describes the person accountable to ensure overall adherence to all Technical Specifications related to Refueling?

- A. Shift Manager
- B. Outage Manager
- C. Refueling Coordinator
- D. Refueling SRO

Proposed Answer: **A**

Explanation (Optional):

- A. Correct.
- B. Incorrect. Responsible for work related outage activities, but may not be licensed.
- C. Incorrect. Acts as go between for vendor and facility for refueling operations.
- D. Incorrect. Responsible for verifying compliance prior to initiation, and ensure compliance for what indications and parameters are available in the Control Room, but does not carry overall responsibility.

Technical Reference(s): 1/2 RP-1.1 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # _____

Modified Bank # _____ (Note changes or attach parent)

New X

Question History: Last NRC Exam _____

Question Cognitive Level: Memory or Fundamental Knowledge X
Comprehension or Analysis _____10 CFR Part 55 Content: 55.41 _____
55.43 X

Comments:

10CFR55.43(b) item 2 and item 7 because the SRO must understand responsibilities of Refueling personnel and TS requirements.

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	_____	3
	Group #	_____	2
	K/A #	G2.2.22	_____
	Importance Rating	_____	4.1

Knowledge of limiting conditions for operations and safety limits.

Proposed Question: SRO 97

During hydrostatic testing of the RCS in Mode 5, RCS pressure is increased to 2770 psig.

Which ONE of the following describes the **MAXIMUM** time allowed in accordance with Technical Specifications to reduce pressure below the Safety Limit?

- A. 5 minutes
- B. 15 minutes
- C. 30 minutes
- D. 1 hour

Proposed Answer: **A**

Explanation (Optional):

- A. Correct.
- B. Incorrect. Corresponds to time allotted to notify local authorities.
- C. Incorrect. Time frame is not relevant, used for symmetry.
- D. Incorrect. Corresponds to time allotted to notify the NRC.

Technical Reference(s): T.S. 2.1.2 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: _____ (As available)

Question Source: Bank # X
Modified Bank # _____ (Note changes or attach parent)

New

Question History:

Last NRC Exam

Question Cognitive Level:

Memory or Fundamental Knowledge
Comprehension or Analysis

 X

10 CFR Part 55 Content:

55.41 _____
55.43 X

Comments:

10CFR55.43(b) item 2 because the SRO must evaluate an action requirement when a safety limit has been violated.

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	_____	<u>3</u>
	Group #	_____	<u>3</u>
	K/A #	<u>G2.3.9</u>	_____
	Importance Rating	_____	<u>3.4</u>

Knowledge of the process for performing a containment purge.

Proposed Question: SRO 98

The plant is in Mode 5. Preparations are being made to enter containment.

Which ONE of the following describes the correct sequence for initiating a containment purge to the ventilation vent in accordance with 1OM-44.C.4?

- A. Open the supply and exhaust dampers; start 1VS-F-5, CNMT Purge Exhaust Fan. If desired, start 1VS-HV-5, CNMT Purge Vent Supply Fan after ensuring the ~~NORMAL/REFUELING control switch is in the NORMAL position.~~
- B. Open the supply and exhaust dampers; start 1VS-F-5, CNMT Purge Exhaust Fan. If desired, start 1VS-HV-5, CNMT Purge Vent Sup Fan after ensuring the ~~NORMAL/REFUELING control switch is in the REFUELING position.~~
- C. Start 1VS-F-5, CNMT Purge Exhaust Fan. Ensure the supply and exhaust dampers open. Place the NORMAL/REFUELING control switch in the NORMAL position and start 1VS-HV-5, CNMT Purge Vent Supply Fan.
- D. Start 1VS-F-5, CNMT Purge Exhaust Fan. Ensure the supply and exhaust dampers open. Place the NORMAL/REFUELING control switch in the REFUELING position and start 1VS-HV-5, CNMT Purge Vent Supply Fan.

Arrange to correct procedure order

Proposed Answer: **A**

Explanation (Optional):

- A. Correct.
- B. Incorrect. Switch should be placed in the NORMAL position.
- C. Incorrect. Wrong sequence, and dampers are manually aligned.
- D. Incorrect. Wrong sequence, wrong switch position, and dampers are manually aligned.

Technical Reference(s): 1OM-44C.4.A (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 1SQS-44.C.1 Objective 1 (As available)

Question Source: Bank # X
 Modified Bank # _____ (Note changes or attach parent)
 New _____

Question History: Last NRC Exam 2002

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

10 CFR Part 55 Content: 55.41 X
 55.43 _____

Comments: 10CFR55.43(b) item 4 because the SRO must know the proper procedure to line up containment systems related to radioactive release.

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	_____	<u>3</u>
	Group #	_____	<u>4</u>
	K/A #	<u>G2.4.35</u>	_____
	Importance Rating	_____	<u>3.5</u>

Knowledge of local auxiliary operator tasks during emergency operations including system geography and system implications.

Proposed Question: SRO 99

Given the following conditions:

- You are the Shift Manager.
- The Control Room is being evacuated due to a fire.
- The affected fire area is CS-1, Cable Spreading Area.
- The available train is Train "B".
- You are assigning responsibilities in the Brigade Room in accordance with 1OM-56C.4, Alternate Safe Shutdown from Outside the Control Room.
- The PAB Tour Operator is available to perform the Nuclear Operator procedure.

Which ONE of the following actions will you direct the PAB Tour Operator to perform?

- A. Go to the Remote Shutdown Panel and initiate equipment transfer to LOCAL.
- B. Manually feed SG's using the turbine driven AFW pump locally.
- C. Align charging pump control for manual local operation.
- D. Align the available EDG and support systems for operation.

Proposed Answer: **D**

Explanation (Optional):

- A. Incorrect. Unit Supervisor goes to the Remote Shutdown Panel.
- B. Incorrect. This is performed from the Remote Shutdown Panel.
- C. Incorrect. This is performed from the Remote Shutdown Panel.
- D. Correct.

Technical Reference(s): 1OM-56C.4.D (Attach if not previously provided)

Proposed references to be provided to applicants during examination: NONE

Learning Objective: 1OM-56C.1 Objective 2 (As available)

Question Source: Bank # _____
 Modified Bank # _____ (Note changes or attach parent)
 New X

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 _____
 55.43 X

Comments:

10CFR55.43(b) item 5 because the SRO must direct the actions of Operators during an emergency requiring control room evacuation.

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	_____	<u>3</u>
	Group #	_____	<u>4</u>
	K/A #	<u>G2.4.4</u>	_____
	Importance Rating	_____	<u>4.3</u>

Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.

Proposed Question: SRO 100

Given the following conditions:

- The Unit is operating at 100% power.
- EDG No. 2 is out of service and is expected to return to service in two (2) hours.
- A loss of offsite power occurs.
- The reactor is tripped and the crew enters E-0, Reactor Trip Or Safety Injection.
- SI is **NOT** actuated.
- The crew transitions to FR-H.1, Loss Of Secondary Heat Sink based on a CSFST RED Path condition.

Subsequently, EDG No. 1 output breaker trips on a fault.

Which ONE of the following actions will be taken?

- A. Immediately transition to ECA-0.0, Loss Of All 4KV Emergency Power.
- B. Restore feed flow in FR-H.1, and then return to E-0 to restore EDG No. 1.
- C. Remain in FR-H.1 until directed to return to procedure in effect, and then transition to ECA-0.0.
- D. Remain in FR-H.1 unless a higher priority RED condition is observed. When directed to return to procedure in effect, return to E-0. Restore EDG No. 1 or No. 2 in ES-0.1, Reactor Trip Response.

Proposed Answer: **A**

Explanation (Optional):

- A. Correct.
- B. Incorrect. No AC power is available, therefore transition to ECA-0.0 is required.
- C. Incorrect. Transition to ECA-0.0 immediately, even if a RED condition exists.
- D. Incorrect. This would be correct if only one EDG was tripped.

Technical Reference(s): ECA 0.0, EOP User's Guide (Attach if not previously provided)Proposed references to be provided to applicants during examination: NONELearning Objective: 3SQS-53.1 Objective 1 (As available)

Question Source: Bank # X

Modified Bank # (Note changes or attach parent)

New

Question History: Last NRC Exam

Question Cognitive Level: Memory or Fundamental Knowledge

Comprehension or Analysis X

10 CFR Part 55 Content: 55.41

55.43 X

Comments:

Robinson 2002 NRC exam

10CFR55.43(b) item 5 because the SRO must assess facility conditions and determine the appropriate procedural action during a loss of all 4KV AC power