Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	007EA1.06	
Importance Rating	4.4	4.5

Proposed Question:

The first step of E-0, Reactor Trip or Safety Injection verifies a reactor trip by observing ALL ROD BOTTOM LIGHTS - LIT.

If the Digital Rod Position Indication panel is not available, which ONE of the following is required to ensure that the reactor is tripped?

A. Initiate Immediate Boration of the RCS.

B. Verify Power Range NIS is less than 5%.

C. De-energize load centers PG19 and PG20.

D. Dispatch an operator to locally trip the reactor.

Proposed Answer: B

Explanation:

A. Incorrect-FR-S.1 action (no transition required)
B. Correct-E-0, step 1 RNO
C. Incorrect-FR-S.1 action (no transition required)
D. Incorrect-FR-S.1 action (no transition required)

Technical Reference(s): E-0, Reactor Trip or Safety Injection, R1B6
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: C T61.003D 6, LP-4, CBC Mod D

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

Question History: **Last NRC Exam** N/A
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 7 **55.43** _____

Comments: _____

Outline #: B001 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	009EK1.01	
Importance Rating	4.2	4.7

Proposed Question:

The Callaway plant has experienced a small break LOCA and a Loss of Off-Site power. The RCS is being depressurized in accordance with ES-1.2, Post LOCA Cooldown and Depressurization.

The following conditions exist:

- RCS pressure — 800 psig and DECREASING
- Tcold — 390 degrees F and STABLE
- Core exit T/Cs — 525 degrees F and STABLE
- Pressurizer level — 72% and rapidly INCREASING

Which ONE of the following describes the cause of the abnormally high Pressurizer level?

A. PZR spray flow is increasing due to the RCS pressure decrease.

B. RCS pressure is below the injection point for the SI Pumps

C. PZR level indication is inaccurate due to the loss of CTMT Cooling

D. Rx Vessel upper head is voiding due to saturated conditions

Proposed Answer: D

Explanation:

A. Incorrect-PZR spray flow is not available without off-site power to RCP's
B. Incorrect-The SI Accumulators do not inject until 650 psig
C. Incorrect-Containment Coolers are powered from safeguard power
D. Correct-Core exit T/Cs are above saturation temperature for the existing RCS pressure.

Technical Reference(s): ES-1.2, Post LOCA Cooldown and Depressurization, R1B2
(Attach if not previously provided)

Proposed references provided to applicants during examination: Steam Tables

Learning Objective: H T61.003D 6, LP-10, CBC Mod D

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 8 **55.43** ____

Comments: IPE/PRA. Modified from Beaver Valley 1 – 1997 (attached)

Outline #: B002 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	011EK3.08	
Importance Rating	3.9	4.1

Proposed Question:

A Large Break LOCA has occurred. Actions of ES-1.3, Transfer To Cold Leg Recirculation, have been completed.

During alignment, EJ-HV-8804A, RHR to Charging/SI Pumps Isolation Valve, failed to open and could NOT be manually opened.

Which ONE of the following describes the present ECCS flow path?

A. BOTH RHR Pumps are aligned to supply the cold leg injection headers. RHR Pump 'B' is supplying suction to the SI Pumps and Centrifugal Charging Pumps.

B. RHR Pump 'A' is STOPPED. RHR Pump 'B' is supplying suction to the SI Pumps and Centrifugal Charging Pumps.

C. RHR Pump 'B' is supplying suction to SI Pump 'B' and Centrifugal Charging Pump 'B'. SI Pump 'A' and Centrifugal Charging Pump 'A' are STOPPED.

D. The RHR discharge headers are cross-tied with only RHR Pump 'B' running and aligned to supply the cold leg injection headers.

Proposed Answer: A

Explanation:

Either RHR Pump can supply the suction to both trains of SI Pumps and Centrifugal Charging Pumps. The RHR discharge header cross connect valves are closed to prevent a loss of all injection flow if one RHR Pump were to quit functioning.

Technical Reference(s): ES-1.3, Transfer to Cold Leg Recirculation, R1A3
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: H T61.0110 6, LP-56, Systems

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 5 **55.43** ____

Comments: IPE/ PRA. Modified from INPO exam bank. Braidwood 1998.

Outline #: B003 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	015/17AK3.03	
Importance Rating	3.7	4.0

Proposed Question:

The plant is operating at 30% when MCB annunciator 70A, RCP VIB DANGER, alarms.

The following indications exist at RP312, BB YI-471:

- RCP A FRAME VIBRATION 7 MILS
- RCP B SHAFT VIBRATION 18 MILS
- RCP C SHAFT VIBRATION 22 MILS
- RCP D FRAME VIBRATION 3 MILS

Which ONE of the following actions should be taken?

A. Secure Reactor Coolant Pumps A and C

B. Secure Reactor Coolant Pumps B and C

C. Trip the reactor and turbine. Secure RCPs A and C

D. Trip the reactor and turbine. Secure RCPs B and C

Proposed Answer: C

Explanation:

If more than one RCP vibration exceeds 5 mils on the frame or 20 mils on the shaft (regardless of power level), OTO-BB-00002 directs the operators to trip the reactor, turbine and affected RCPs.

Technical Reference(s): OTO-BB-00002, Reactor Coolant Pump Off-Normal, R019
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: B T61.003B 6, LP-15, CBC Mod B

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 10 **55.43** _____

Comments: _____

Outline #: B004 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	022G2.1.20	
Importance Rating	3.9	3.4

Proposed Question:

The plant is operating at 75% power with Centrifugal Charging Pump A supplying normal charging flow to the RCS.

The following MCB annunciators are received:

- 38A LTDN REGEN HX TEMP HI
- 41A SEAL INJ TO RCP FLOW LO
- 42A CHG LINE FLOW HILO

The Reactor Operator observes that BGLCV0112B, CVCS VCT OUT UPSTREAM ISO, has gone closed.

Which ONE of the following is the required IMMEDIATE ACTION?

A. Start Centrifugal Charging Pump B

B. Open BNLCV0112D, CCP A SUCT FROM RWST ISO VLV

C. Fully open BGFCV0121, CHG HDR FCV, to maximize charging flow.

D. Secure Centrifugal Charging Pump A

Proposed Answer: D

Explanation:

A. Incorrect-this action for a failed pump. Also there is no suction flow path.
B. Incorrect-there is no guidance for opening an alternate flow path.
C. Incorrect-this is a discharge flow control valve (the suction flow path is isolated).
D. Correct-OTO-BG-00002 directs the operators to secure any pump that shows signs of cavitation

Technical Reference(s): OTO-BG-00002, Loss of Charging, R004
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: B T61.003B 6, LP-22, CBC Mod B

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 7 **55.43** _____

Comments: IPE/PRA. CAR 200101996. CAR 199803573

Outline #: B005 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	025AA2.07	
Importance Rating	3.4	3.7

Proposed Question:

Callaway is in Mode 5. The RCS is drained to just above mid-loop with 'B' RHR Pump in service providing shutdown cooling.

The Reactor Operator notes the following indications:

- RHR Pump 'B' discharge flow (EJ FI-619) is unstable.
- RHR Pump 'B' discharge pressure (EJ PI-615) is unstable.

The Primary Equipment Operator reports the noise level of 'B' RHR pump has increased significantly from last observation.

Which ONE of the following is required by OTO-EJ-00001, LOSS OF RHR Flow?

A. Start 'A' RHR Pump and secure 'B' RHR Pump.

B. Secure 'B' RHR Pump and vent the RHR system.

C. Feed any S/G to at least 66% wide range level.

D. Reduce 'B' RHR Pump flow until it stabilizes.

Proposed Answer: B

Explanation:

A. Incorrect-OTO-EJ-00001 cautions the operator to NOT start the standby RHR pump unless the cause of the loss of flow is known and corrective action has been taken
B. Correct-If the RHR pump is cavitating, SECURE it
C. Incorrect-The S/G cannot be used for a heat sinks unless the loops are filled
D. Incorrect- If the RHR pump is cavitating, SECURE it.

Technical Reference(s): OTO-EJ-00001, Loss of RHR Flow, R014
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: D,F,G T61.003E 6, LP-3, CBC Mod E

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

Question History: **Last NRC Exam** Turkey Point 1997
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 14 **55.43** 5

Comments: IPE/PRA. NRC Notice 92-6.

Outline #: B006 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	026AA1.05	
Importance Rating	3.1	3.1

Proposed Question:

The plant is operating at 100% power with the following Component Cooling Water (CCW) lineup.

- 'A' CCW pump is in service supplying the service loop
- 'B' CCW train is Secured

The Reactor Operator notices that the 'A' CCW Surge Tank level is DECREASING.

Which ONE of the following is the FIRST AUTOMATIC ACTION that will occur if no operator action is taken?

A. 'A' CCW Surge Tank makeup and vent valves CLOSE

B. CCW to the Radwaste Building ISOLATES

C. 'C' CCW pump STARTS on low discharge pressure

D. Makeup to the 'A' CCW Surge Tank INITIATES

Proposed Answer: D

Explanation:

A. Incorrect-these valves close on high radiation
B. Incorrect-RW isolates at 10%
C. Incorrect-this pressure will not be reached prior to automatic makeup
D. Correct-initiates at 43.75%

Technical Reference(s): OTO-EG-00001, CCW System Malfunction, R006
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: A T61.003B 6, LP-29, CBC Mod B

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 7 **55.43** _____

Comments: IPE/PRA. CAR 200000185

Outline #: B007 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	027G2.1.28	
Importance Rating	3.2	3.3

Proposed Question:

The plant is operating at 100% power.

A failure of the selected pressurizer pressure channel caused RCS pressure to decrease from 2235 psig to 2215 psig.

A valid pressurizer pressure channel is now selected for input to the Master Pressurizer Pressure Controller (BB PK-455A).

Which ONE of the following describes the status of the Pressurizer Pressure Control system? Assume all controls are in automatic.

A. The Variable Heaters are FULL ON and the Backup Heaters are OFF

B. The Variable Heaters are OFF and the Backup Heaters are OFF

C. The Variable Heaters are FULL ON and the Backup Heaters are ON

D. The Variable Heaters are OFF and the Backup Heaters are ON

Proposed Answer: A

Explanation:

The variable heaters are fully energized at 2220 psig and the backup heaters turn on at 2210 psig decreasing.

Technical Reference(s): OTN-BB-00005, Pressurizer and Pressure Control, R006
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: A T61.0110 6, LP-30, Systems

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 7 **55.43** _____

Comments: _____

Outline #: B008 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	040AK1.06	
Importance Rating	3.7	3.8

Proposed Question:

The plant was operating at 100% power when a steam line break occurred on the 'A' Main Steam Line.

Present plant conditions:

S/G 'A' pressure	550 psig
Other S/G pressures	950 psig
S/G 'A' steam flow	1E6 lbm/hr
Other S/G steam flows	0.0 lbm/hr
Containment pressure	1.5 psig

Prior to the Steam Line Isolation Signal (SLIS), indicated steam flow INCREASED on all four Steam Generators.

Which ONE of the following describes the reason for this increase in steam flow?

A. The drop in steam pressure affected the density compensation for steam flow.

B. There was steam backflow through the 'A' S/G Main Steam Isolation Valve.

C. Reduced feedwater flow caused the intact S/G pressures to increase.

D. The reactivity transient caused the intact S/G pressures to increase.

Proposed Answer: B

Explanation:

A. Incorrect-This would make indicated steam flow decrease.
B. Correct-Intact Steam Generators feed back to the break.
C. Incorrect-Feedwater flow increases.
D. Incorrect-Pressure decreases on all steam lines.

Technical Reference(s): T61.003D 6, LP D-03 Accident Analysis
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: B T61.0110 6, LP-20, Systems

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 5 **55.43** _____

Comments: _____

Outline #: B009 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	054AK1.01	
Importance Rating	4.1	4.3

Proposed Question:

A Large Loss of Secondary Coolant event occurs inside containment.

Which ONE of the following indications could the operating crew use to differentiate between a Steam Line break and a Feed Line break?

A. RCS pressure initially INCREASES for a Steam Line break

B. Containment pressure increase is GREATER for a Steam Line break

C. RCS T-AVG initially INCREASES for a Feed Line break

D. Containment Sump level increase is GREATER for a Feed Line break

Proposed Answer: C

Explanation:

A. Incorrect-RCS pressure decreases
B. Incorrect-No distinction between events
C. Correct-S/G level decreases. RCS T-AVG and pressure increase
D. Incorrect- No distinction between events

Technical Reference(s): T61.003D 6, LP-3, Accident Analysis
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: A T61.003D 6, LP-3, CBC Mod D

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

Question History: **Last NRC Exam** 1998 Retake, R30
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 5 **55.43** _____

Comments: _____

Outline #: B010 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	055G2.1.23	
Importance Rating	3.9	4.0

Proposed Question:

The crew is responding to a station blackout in accordance with ECA-0.0, "Loss of All AC Power".

While checking DC bus loads at step 14, Off-Site power is restored to bus NB01.

Which ONE of the following describes the required procedure action?

A. Continue in ECA-0.0. Implement FRGs as required.

B. Immediately transition to ECA-0.1, Loss of All AC Recovery.

C. Return to E-0, Rx Trip or Safety Injection, step 3.

D. Go to step 24 of ECA-0.0 and continue recovery actions.

Proposed Answer: D

Explanation:

A. Incorrect-CSFs are monitored for information only, FRGs should not be implemented
B. Incorrect-Recovery guideline is selected at step 28
C. Incorrect-Returning to procedure and step in effect is not directed after placing ECCS pumps in pull-to-lock
D. Correct-ECA-0.0 is written such that step 24 can be entered from any step that follows the caution of step 6.

Technical Reference(s): ECA-0.0 Loss of All A/C Power, R1B2
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: J T61.003D 6, LP-22, CBC Mod D

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 10 **55.43** ____

Comments: IPE/PRA. Modified from Callaway Bank, parent question attached.

Outline #: B011 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	056AA1.31	
Importance Rating	3.3	3.3

Proposed Question:

The plant is at 55% power when a loss of PA02 occurs.

Which ONE of the following sets of equipment is available for Pressurizer pressure control?

A. Spray valves and PORVs.

B. Variable and Backup heaters.

C. Backup heaters and PORVs.

D. Variable heaters and Spray valves.

Proposed Answer: C

Explanation:

A. Incorrect-Spray valves are not available without ‘D’ RCP
B. Incorrect-Variable heaters have no power
C. Correct-Backup heaters and PORVs are powered from NB01 and NB02
D. Incorrect- Variable heaters have no power and Spray valves are not available without ‘D’ RCP.

Technical Reference(s): T61.0110 6, LP-9, Reactor Coolant System
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: B T61.0110 6, LP-09, Reactor Coolant System

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 7 **55.43** ____

Comments: Modified from Callaway Bank, parent question attached.

Outline #: B012 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	057AA1.04	
Importance Rating	3.5	3.6

Proposed Question:

The plant is at 100% power with the NCP in service.

The Red train ESFAS status panel audible alarm is received and the RO immediately recognizes that the NCP suction has shifted from the VCT to the RWST. The NCP is still supplying charging flow.

Which ONE of the following could be the cause of the NCP suction swapover?

A. Instrument bus NN01has become DE-ENERGIZED

B. A single train Safety Injection signal has occurred on Train ‘A’

C. VCT level channel BG LI-149 has failed LOW

D. A flux doubling has occurred on Source Range NIS channel N 31

Proposed Answer: A

Explanation:

A. Correct-Supplies power to VCT level channel 112. Causes valve swap
B. Incorrect-NCP trips on a SIS
C. Incorrect-Causes VCT automatic makeup
D. Incorrect-Source Range NIS channels are deenergized above P-10

Technical Reference(s): OTO-NN-00001, Loss of Safety Related Instrument Power, R006
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: A T61.003B 6, LP-45, CBC Mod B

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

Question History: **Last NRC Exam** N/A
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 7 **55.43** ____

Comments: Modified from Callaway bank. Parent question attached.

Outline #: R013 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	058G2.1.27	
Importance Rating	2.8	2.9

Proposed Question:

The plant is operating at 100% power with the 'A' Centrifugal Charging Pump (CCP) in service.

A loss of DC control power to NB01 occurs.

10 minutes later, a spurious Safety Injection occurs.

Which ONE of the following pump combinations will exist as a result of these failures?

A. 'A' CCP-RUNNING, 'B' CCP-NOT RUNNING, 'A' RHR pump-NOT RUNNING

B. 'A' CCP-NOT RUNNING, 'B' CCP-NOT RUNNING, 'A' RHR pump-RUNNING

C. 'A' CCP-RUNNING, 'B' CCP-RUNNING, 'A' RHR pump-NOT RUNNING

D. 'A' CCP-NOT RUNNING, 'B' CCP-RUNNING, 'A' RHR pump-NOT RUNNING

Proposed Answer: C

Explanation:

A. Incorrect-'B' CCP will start
B. Incorrect-'A' CCP does not stop, 'B' CCP will start and 'A' RHR pump breaker will not close
C. Correct-'A' CCP continues to run, 'B' CCP will start and 'A' RHR pump breaker will not close
D. Incorrect--'A' CCP does not stop

Technical Reference(s): T61.0070 6, LP-18, Circuit Breakers
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: B, J T61.0110 6, LP-6, Systems

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

Question History: **Last NRC Exam** North Anna-1996
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 7 **55.43** _____

Comments: IPE/PRA

Outline #: B014 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	062AA2.04	
Importance Rating	2.5	2.9

Proposed Question:

The plant is in Mode 1 at 100% power. 'A' Essential Service Water train is in Manual Operation to reduce Containment temperature.

Which ONE of the following is an AUTOMATIC plant response to a loss of all Service Water pumps?

A. Essential Service Water 'B' pump starts to supply loads

B. Turbine Runback on high Stator Cooling temperature

C. Both Class 1E Air Conditioners trip on high temperature

D. Turbine Setback reduces load to 75% of rated power

Proposed Answer: B

Explanation:

A. Incorrect-'B' ESW pump only starts following a SIS or NB bus undervoltage
B. Correct-runback initiates at 82-deg C Stator Cooling temperature
C. Incorrect-'A' Class 1E Air Conditioner is being supplied from ESW
D. Incorrect-Turbine Setback is initiated by a Circulating Water pump trip

Technical Reference(s): OTN-CE-00001, Stator Cooling Water, R011
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: H T61.0110 6, LP-33, Systems

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 5 **55.43** _____

Comments: IPE/ PRA. Callaway bank

Outline #: B015 **Author:** RAN

Examination Outline Cross-reference:	**Level**	**RO**	**SRO**
	Tier #	1	1
	Group #	1	1
	K/A #	065G2.4.50	
	Importance Rating	3.3	3.3

Proposed Question:

All Service and Instrument Air controls are in AUTOMATIC, with the Compressor Sequence Selector switch in position ABC.

The Reactor Operator is investigating a decreasing Instrument Air pressure and observes the following.

- KA-PI-40, Instrument Air Header pressure indicator — 108 psig
- 'A' Air Compressor (CKA01A) — RUNNING
- 'B' Air Compressor (CKA01B) — OFF
- 'C' Air Compressor (CKA01C) — OFF
- KA-PV-11, Service Air Isolation valve — OPEN

Which ONE of the following actions would address the problem?

A. Dispatch an EO to the Instrument Air Dryers

B. Start the 'B' Instrument Air Compressor

C. Start the 'C' Instrument Air Compressor

D. Isolate the Service Air Header

Proposed Answer: A

Explanation:

A. Correct-The MCB indicator is downstream of the air dryers
B,C&D Incorrect-the pressure switches that controls the air compressors and the service air header isolation valve are upstream of the air dryers, There would have to be multiple failures for all three of these components to operate incorrectly

Technical Reference(s): OTO-KA-00001, Loss of Instrument Air
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: F T61.0110 6, LP-14, Systems

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 7 **55.43** _____

Comments: _____

Outline #: B016 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	W/E04EK2.2	
Importance Rating	3.8	4.0

Proposed Question:

A LOCA outside containment has occurred. Actions are being performed in accordance with ECA-1.2, LOCA Outside Containment.

Which ONE of the following is the PRIMARY indication that the leak has been successfully isolated?

A. ECCS flow DECREASING

B. Aux Bldg sump level DECREASING

C. ECCS pressure INCREASING

D. RCS pressure INCREASING

Proposed Answer: D

Explanation:

A. Incorrect-Not evaluated
B. Incorrect-Not evaluated
C. Incorrect-Not evaluated
D. Correct-LOCA outside of CTMT isolated

Technical Reference(s): ECA-1.2, LOCA Outside Containment, R1B1
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: B T61.003D 6, LP-14, CBC Mod D

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

Question History: **Last NRC Exam** JUNE 2000
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 7 **55.43** _____

Comments: Callaway bank

Outline #: B017 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	1	1
K/A #	W/E05EK2.2	
Importance Rating	3.9	4.2

Proposed Question:

The crew has transitioned to FR-H.1, Response to Loss of Secondary Heat Sink, due to a loss of all Auxiliary Feedwater (AFW) flow to the Steam Generators.

- RCS bleed and feed has been established
- All Steam Generator pressures are at 800 psig

It is desired to feed the 'D' Steam Generator when a feedwater source becomes available.

Which ONE of the following pumps could be used?

A. 'A' Motor Driven AFW pump

B. Any available Condensate pump

C. 'B' Motor Driven AFW pump

D. Diesel Driven Fire Water pump

Proposed Answer: C

Explanation:

A. Incorrect-Does not feed 'D' S/G
B. Incorrect-discharge pressure is too low
C. Correct-Feeds the 'D' S/G
D. Incorrect-discharge pressure is too low

Technical Reference(s): FR-H.1, Loss of Secondary Heat Sink R 1B2
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: S T61.003D 6, LP-26 CBC Mod D

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 7 **55.43** _____

Comments: _____

Outline #: B018 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	2	2
K/A #	001AA1.02	
Importance Rating	3.6	3.4

Proposed Question:

Reactor power is 80% and steady. A continuous rod withdrawal occurs while the bank selector switch is in AUTO. Placing the bank selector switch in MANUAL stops the outward rod motion.

Which ONE of the following is the required immediate action?

A. Emergency Borate

B. Insert Control Rods

C. Raise Turbine Load

D. Trip the Reactor

Proposed Answer: B

Explanation:

A, C & D. Incorrect-Not required.
B. Correct-Required immediate action

Technical Reference(s): OTO-SF-00002, Continuous Control Rod Withdrawal R003
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: B T61.003B 6, LP-53, CBC Mod B

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 7 **55.43** _____

Comments: Callaway bank

Outline #: B019 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	2	2
K/A #	003AA1.05	
Importance Rating	4.1	4.1

Proposed Question:

The following plant conditions exist:

Turbine Load	900 MWe
TAVG	570 degrees F
Rod Bottom light for rod P6	LIT

The following MCB annunciators are LIT:

T REF/ T AUCT HI, 65D
PR CHANNEL DEV,78A
PR UPPER DETECTOR FLUX DEV,78B
PR LOWER DETECTOR FLUX DEV, 78C
CONTROL ROD DEV, 79C
RPI ROD DEV, 80C
ROD AT BOTTOM, 81B

Which ONE of the following describes the required IMMEDIATE operator action to stabilize the plant?

A. DECREASE Turbine load to maintain T AVG within 3 degrees F of T REF

B. TRIP the Reactor and proceed to E-0, Rx Trip or Safety Injection

C. WITHDRAW Control Rods to maintain T AVG within 3 degrees F of T REF

D. BORATE the RCS to maintain T AVG within 3 degrees F of T REF

Proposed Answer: A

Explanation:

A. Correct-Immediate operator action in response to a dropped control rod
B. Incorrect-This is the action for more than one dropped rods
C. Incorrect-Control rod movement is not directed
D. Incorrect-This is performed during recovery

Technical Reference(s): OTO-SF-00003, Dropped Control Rod R008
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: B T61.003B 6, LP-54, CBC Mod B

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

Question History: **Last NRC Exam** Braidwood 1996
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 7 **55.43** _____

Comments: _____

Outline #: B020 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	2	2
K/A #	037AA2.12	
Importance Rating	3.3	4.1

Proposed Question:

High secondary radiation alarms on Process Radiation Monitor Control Panel (RM-11) indicate a Steam Generator tube leak. The following data is taken to determine the leak rate.

Time (min.)	0	5	10
Reactor Power (%)	100	100	100
Tave (deg F)	586.4	586.4	586.4
Charging flow (BG FI-121A)	105	105	105
Letdown flow (BG FI-215A)	75	75	75
Total Seal Injection flow (BG FI-132)	30	30	30
Pressurizer level (%)	55	54	53
Total Seal Leak-off flow (BG FR-154/155/156/157)	12	12	12

(Assume 1% Pressurizer level = 60 gallons)
(All flow rates are in gallons per minute)

Which ONE of the following is the approximate Steam Generator tube leak rate?

A. 12 gpm

B. 18 gpm

C. 30 gpm

D. 60 gpm

Proposed Answer: C

Explanation:

105 – (75 + 12) = 18 gpm charging – (letdown + seal leak-off)
(2% x 60gal/%) / 10 min. = 12 gpm change in Pressurizer level
Total = 30 gpm
D. Incorrectly adds the 30 gpm seal injection flow (already accounted for in charging flow)

Technical Reference(s): T61.0110 6, LP-11, CVCS
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: B T61.003B 6, LP-14, CBC Mod B

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 7 **55.43** ____

Comments: IPE/ PRA. Modified from Callaway 1997. Parent question attached

Outline #: B021 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	2	2
K/A #	059AK3.01	
Importance Rating	3.5	3.9

Proposed Question:

A radioactive liquid release from Discharge Monitor Tank 'A' is in progress. A RED alarm is received on HB-RE-18, Radwaste Building Discharge Line Radiation Element. The release is terminated by HBFV0866, LRW discharge flow control valve, automatically closing.

Which ONE of the following is the REASON for termination?

A. Ensure the concentration of radioactive material released to Unrestricted Areas is maintained ess than values for the Ingestion Exposure Pathway

B. Ensure the concentration of radioactive material released to Unrestricted Areas is maintained less than 10CFR20 limits

C. Dilution water flow is too low and the discharge is terminated until a higher cooling tower blowdown line flow rate can be calculated

D. Dilution water flow is too high and the discharge is terminated until a lower cooling tower blowdown line flow rate can be calculated

Proposed Answer: B

Explanation:

A. Incorrect-this is for a gaseous/particulate release
B. Correct-
C. Incorrect- low dilution flow will close HBV0866, but the signal comes from CT blowdown
D. Incorrect- high dilution flow will not close HBV0866

Technical Reference(s): T61.0110 6, LP-16
(Attach if not previously provided) APA-ZZ-01003, Callaway Plant ODCM, R014

Proposed references provided to applicants during examination: N/A

Learning Objective: Q T61.0110 6, LP-16, Systems

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

Question History: **Last NRC Exam** _____
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 5 **55.43** _____

Comments: _____

Outline #: B022 **Author:** SMP

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	2	2
K/A #	060AK1.02	
Importance Rating	2.5	3.1

Proposed Question:

A Health Physics contractor, with a complete exposure history, has already accumulated 500 MREM whole body Total Effective Dose Equivalent (TEDE) dose this year at other nuclear plants.

Which ONE of the following is the maximum whole body TEDE dose that this worker can receive at the Callaway plant this year without exceeding the administrative exposure limits of APA-ZZ-01000, Callaway Plant Health Physics Program?

A. 500 MREM

B. 1500 MREM

C. 2000 MREM

D. 3500 MREM

Proposed Answer: C

Explanation:

2000 MREM at Callaway not to exceed 4000 MREM including prior site.

Technical Reference(s): APA-ZZ-01000, Callaway HP Program R017
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: B T61.003A 6, LP-31, CBC Mod A

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 10 **55.43** _____

Comments: _____

Outline #: B023 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	2	2
K/A #	061G2.4.31	
Importance Rating	3.3	3.4

Proposed Question:

The Radwaste building Truck Space Area Radiation Monitor (ARM) has alarmed and was acknowledged in the Control Room.

Which ONE of the following describes how subsequent ARM alarms (with the exception of Containment High Range ARM) are identified to the Control Room operators?

A. ARM MCB annunciator reflash with audible alarm

B. RM-11, Process Radiation Control panel alarm

C. SPDS, Safety Parameters Display system only

D. Local alarm and elevated meter reading only

Proposed Answer: A

Explanation:

The ARM system MCB annunciator alarms have reflash capability

Technical Reference(s): T61.0110 6, LP-36 Process and Area Rad Monitoring
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: C T61.0110 6, LP-36 Systems

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 5 **55.43** _____

Comments: Callaway Bank

Outline #: B024 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	2	2
K/A #	W/E02EK2.1	
Importance Rating	3.4	3.9

Proposed Question:

A Reactor Trip and Safety Injection have occurred due to a small Loss of Coolant Accident. The crew has transitioned to ES-1.1, SI Termination, and is preparing to reset the SI signal.

Which ONE of the following concerns exist while performing this procedure following SI signal reset?

A. A subsequent SI signal will RESTART safeguards equipment that is secured.

B. The Shutdown Sequencer will NOT actuate if offsite power is lost.

C. NB02 undervoltage may OCCUR on subsequent Reactor Coolant Pump start.

D. ECCS pumps will NOT automatically restart if offsite power is lost.

Proposed Answer: D

Explanation:

A. Incorrect-P-4 blocks subsequent SI actuation.
B. Incorrect-SI reset enables the shutdown sequencer.
C. Incorrect-SI reset lengthens NB bus degraded voltage trip.
D. Correct-Manual action is required to restart safeguards equipment.

Technical Reference(s): ES-1.1, SI Termination R1B2
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: P T61.003D 6, LP-09 SI Termination

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 7 **55.43** ____

Comments: Modified from Callaway bank. Parent question attached.

Outline #: B025 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	2	2
K/A #	W/E13EK3.4	
Importance Rating	3.1	3.3

Proposed Question:

FR-H.2, Response to Steam Generator Overpressure, provides actions for an overpressure condition affecting any steam generator with pressure above which ONE of the following?

A. The HIGHEST steamline Safety Valve setpoint

B. The steam generator Atmospheric Steam Dump setpoint

C. The LOWEST steamline Safety Valve setpoint

D. The Reactor Coolant System pressure

Proposed Answer: A

Explanation:

See system purpose

Technical Reference(s): FR-H.2, Response to S/G Overpressure R1-2
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: U T61.003D 6, LP-26, CBC Mod D

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 7 **55.43** _____

Comments: Callaway bank

Outline #: B026 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	1	1
Group #	2	2
K/A #	W/E03EA1.2	
Importance Rating	3.1	3.3

Proposed Question:

During the performance of ES-1.2, Post LOCA Cooldown and Depressurization, the operator is directed to stop the SI pumps.

Assume the RCS Pressure is stable at 1750 psig.

Which ONE of the following describes the effect on SUBCOOLING when the FIRST Safety Injection Pump is secured?

A. DECREASES because SI flow will be reduced to the output of the remaining SI pump

B. Remains CONSTANT because RCS pressure is greater than the shutoff head of the SI pumps

C. DECREASES because RCS pressure drops below the shutoff head of the remaining SI pump

D. Remains CONSTANT because CCP flow will increase to maintain RCS pressure

Proposed Answer: B

Explanation:

Shutoff head for the SI pumps is 1536 psig. Securing the pump will have no effect on RCS pressure, remaining SI pump or CCP flow

Technical Reference(s): T61.0110 6, LP-56 ECCS
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: I T61.003D 6, LP-10 CBC Mod D

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

Question History: **Last NRC Exam** JUNE 2000
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 7 **55.43** _____

Comments: _____

Outline #: B027 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	003G2.4.4	
Importance Rating	4.0	4.3

Proposed Question:

The following plant conditions exist:

- Reactor Power 40%
- RCS pressure 2235 psig
- TAVG 569 DEG F

Reactor Coolant Pump Seal Injection flow is lost.

Which ONE of the following describes a condition that would require tripping the affected Reactor Coolant Pump?

A. 8 gpm #1 Seal leakoff flow

B. 35 psid #2 Seal differential pressure

C. 180 DEG F #1 Seal and Bearing inlet temperature

D. 104 DEG F Thermal Barrier CCW supply temperature

Proposed Answer: A

Explanation:

A. Correct- Trip RCP if #1 Seal Leakoff flow >6gpm
B. Incorrect-#2 Seal is designed to drop full RCS pressure if #1 Seal fails
C. Incorrect-RCP Trip setpoint is 230 DEG F
D. Incorrect-Limit is 105 DEG F (Not a trip criteria)

Technical Reference(s): OTO-BB-00002, RCP Off-Normal R019
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: C T61.003B 6, LP-15 RCP Off-Normal

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 10 **55.43** ____

Comments: Modified Callaway bank. Parent question attached

Outline #: B028 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	004K4.11	
Importance Rating	3.1	3.6

Proposed Question:

Choose the ONE statement below that best describes the interlocks associated with the CVCS Letdown Isolation valves (BGLCV0459 and 0460) and the CVCS Letdown Orifice Isolation valves (BGHV8149A, B and C).

A. The Orifice Isolation valves must be open in order to open the Letdown Isolation valves

B. The Orifice Isolation valves must be closed in order to close the Letdown Isolation valves

C. The Letdown Isolation valves must be closed in order to close the Orifice Isolation valves

D. The Letdown Isolation valves must be open in order to close the Orifice Isolation valves

Proposed Answer: B

Explanation:

To close the Letdown Isolation valves from the main control board, all Orifice Isolation valves must be closed. This is to maintain the regenerative heat exchanger at RCS pressure, which will prevent steam flashing and possible damage to the heat exchanger tubes. There are no interlocks that prevent closing the Orifice Isolation valves.

Technical Reference(s): T61.0110 6, LP-11 CVCS
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: B T61.0110 6, LP-11 Systems

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 10 **55.43** _____

Comments: IPE/ PRA. Callaway bank

Outline #: B029 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	004K6.24	
Importance Rating	2.5	2.6

Proposed Question:

The following plant conditions exist:

- Mode 1
- VCT level 40% and stable
- 120 gpm letdown
- All control systems in automatic

VCT level transmitter BG LT-185 fails to 100%.

Assume that NO operator action is taken.

Which ONE of the following describes the effect on plant equipment?

A. CVCS letdown flow is DIVERTED to the RHUT

B. Automatic VCT makeup is INHIBITED

C. Train 'B' CCP valve swap is INHIBITED on a Safety Injection

D. Train 'B' Low VCT Level valve swap is INHIBITED

Proposed Answer: D

Explanation:

A. Incorrect-Controlled by BGLT0149
B. Incorrect-Controlled by BGLT0149
C. Incorrect-Not affected
D. Correct-BGLCV112C and BNLCV112E will not swap

Technical Reference(s): OTO-BG-00004, VCT Level Channel Failure, R004
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: A T61.003B 6, LP B-63 CBC Mod B

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 10 **55.43** _____

Comments: IPE/ PRA.

Outline #: B030 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	005A4.01	
Importance Rating	3.6	3.4

Proposed Question:

Which ONE of the following would prevent OPENING BN HV-8812A, RWST to RHR Suction Isolation valve, from the Main Control Board?

A. EM HV-8814A, SI pump 'A' recirc to RWST valve OPEN

B. EJ HV-8804A RHR to SI and CCP Suction valve OPEN

C. EJ HV-8811A, Containment Sump to RHR Suction valve OPEN

D. BB PV-8702A, RCS to RHR Suction valve OPEN

Proposed Answer: C

Explanation:

A. Incorrect-This valve is interlocked with EJ HV-8804A
B. Incorrect-This valve is interlocked with EJ HV-8701A
C. Correct-This valve must be closed
D. Incorrect-BN HV-8812A must be closed to open this valve, but it's position does not prevent opening BN HV-8812A

Technical Reference(s): OTN-EJ-00001, RHR System
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: B T61.0110 6, LP-07 Systems

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 5 **55.43** _____

Comments: IPE/ PRA. Callaway bank

Outline #: B031 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	006K5.06	
Importance Rating	3.5	3.9

Proposed Question:

The plant is operating at 100% power when a large break LOCA occurs.

Which ONE of the following is the HIGHEST RCS pressure that a level decrease would be observed in the SI Accumulators?

A. 780 psig

B. 680 psig

C. 580 psig

D. 480 psig

Proposed Answer: C

Explanation:

SI Accumulators are maintained between 602 and 648 psig per T/S SR 3.5.1.2 in MODES 1and 2, and MODE 3 with RCS pressure > 1000 psig.

Technical Reference(s): T/S SR 3.5.1.2
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: G T61.0110 6, LP-56 Systems

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 5 **55.43** _____

Comments: Callaway bank

Outline #: B032 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	007A1.03	
Importance Rating	2.6	2.7

Proposed Question:

While in Mode 1 at 100% power, the following conditions exist in the PRT:

- LEVEL at 88% and INCREASING SLOWLY
- PRESSURE at 20 PSIG and INCREASING SLOWLY
- TEMPERATURE at 175 DEG F and INCREASING

Which ONE of the below is the cause of the conditions above?

A. CLOSING RCP No. 1 Seal Leakoff Isolation (BBHV8141B)

B. Seat leakage from RHR discharge relief (EJ8856A)

C. OPENING PRT Reactor Makeup Water Supply (BBHV8045)

D. Seat leakage from Pressurizer Safety (BB8010C)

Proposed Answer: D

Explanation:

A. Incorrect-Relief valve is downstream
B. Incorrect-Relieves to RHUT
C. Incorrect-Not a high enough temperature
D. Correct-High temperature input

Technical Reference(s): T61.0110 6, LP-09, RCS
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: E T61.0110 6, LP-09 Systems

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 5 **55.43** _____

Comments: Callaway bank

Outline #: B033 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	008K2.02	
Importance Rating	3.0	3.2

Proposed Question:

The following plant conditions exist:

- 50% Reactor Power
- CCW Pump 'D' is Running
- CCW Pump 'B' is in Standby

A Lockout occurs on the Startup Transformer

Which ONE of the following describes the design response of the CCW System?

A. CCW Pump 'D' is shed and the Shutdown Sequencer starts CCW Pump ‘B’

B. CCW Pump 'D' continues to run and the Shutdown Sequencer starts CCW Pump ‘B’

C. CCW Pump 'D' is shed and CCW Pump 'B' remains in Standby

D. CCW Pump 'D' continues to run and CCW Pump 'B' remains in Standby

Proposed Answer: A

Explanation:

NB02 is de-energized by the loss of the Startup Transformer. The undervoltage condition generates a load-shed signal that opens both CCW pump circuit breakers. Emergency DG NE02 starts and re-energizes NB02, starting the Shutdown Sequencer. CCW Pump ‘B’ is started at the 5-second step in the load sequence. CCW Pump ‘D’ will only start on a failure of CCW Pump ‘B’.

Technical Reference(s): T61.0110 6, LP-10, CCW
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: C T61.0110 6, LP-10 Systems

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 7 **55.43** _____

Comments: IPE/ PRA

Outline #: B034 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	008A1.04	
Importance Rating	3.1	3.2

Proposed Question:

The following plant conditions exist:

- Power is 80%
- NCP is in Service
- VCT level is DECREASING
- CCW Surge tank "A" level is INCREASING
- EG RE-9, CCW Process Radiation Monitor reading is INCREASING

Which ONE of the following components is the source of in-leakage to the CCW system under current plant conditions?

A. RHR heat exchanger

B. CVCS Letdown heat exchanger

C. Spent Fuel Pool Cooling heat exchanger

D. Seal Water Return heat exchanger

Proposed Answer: B

Explanation:

A. Incorrect-CCW pressure is @100 and RHR in service is RCS + 195 psig
B. Correct-Higher pressure and radiation than CCW
C. Incorrect- CCW pressure is @100 and SFP ~70 psig
D. Incorrect- CCW pressure is @100 and Seal Water is 15-30 psig

Technical Reference(s): OTO-BB-00003, RCS Excessive Leakage R010
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: H T61.0110 6, LP-10 Systems

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 5 **55.43** ____

Comments: 2004 ILE. IPE/ PRA. Modified from Callaway bank. Parent question attached.

Outline #: B035 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	010K5.02	
Importance Rating	2.6	3.0

Proposed Question:

The crew is depressurizing the RCS with a Pressurizer Power Operated Relief Valve (PORV) following a Steam Generator Tube Rupture (SGTR).

Present plant conditions:

RCS pressure is 1800 psig with a steam bubble in the pressurizer
PRT pressure is 30 psig

Which ONE of the following is the approximate tailpipe temperature?

A. 200 DEG F

B. 225 DEG F

C. 250 DEG F

D. 275 DEG F

Proposed Answer: D

Explanation:

Enthalpy for a saturated vapor at 1800 psig (1815 psia) is 1151 BTU/lbm and will remain constant through the throttling process. The enthalpy line intersects the pressure line of 30 psig (45 psia) under the vapor dome, making it a saturated wet vapor mixture. The saturation temperature for 45 psia is approximately 275 DEG F.

Technical Reference(s): Steam Tables
(Attach if not previously provided)

Proposed references provided to applicants during examination: Steam Tables

Learning Objective: C T61.0070 6, LP-13 Characteristics of Steam/ Water

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 5 **55.43** ____

Comments: Modified from Callaway bank. Parent question attached.

Outline #: B036 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	012A3.06	
Importance Rating	3.7	3.7

Proposed Question:

Which ONE of the following groups of conditions will generate an automatic S/G Water Level Low-Low Reactor Trip signal?

	AE LI-517 S/G 'A' Level	ELAPSED TIME	GN PI-936 CTMT Atmos Press	BB TI-421 RC LP 2 Delta T
A	23%	4 minutes	2 psig	25%
B	28%	3 minutes	2 psig	20%
C	18%	2 minutes	1 psig	10%
D	13%	1 minute	1 psig	15%

Proposed Answer: A

Explanation:

A. Correct-Setpoint is 27% when CTMT > 1.5 psig. No time delay
B. Incorrect-Setpoint is 27% when CTMT > 1.5 psig.
C. Incorrect-Setpoint is 21.6% when CTMT < 1.5 psig. Time delay is 232 seconds
D. Incorrect-Setpoint is 21.6% when CTMT < 1.5 psig. Time delay is 122 seconds

Technical Reference(s): T61.0110 6, LP-27 Reactor Protection
(Attach if not previously provided)

Proposed references provided to applicants during examination: _____

Learning Objective: C T61.0110 6, LP-27 Systems

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 7 **55.43** _____

Comments: _____

Outline #: B037 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	013K1.07	
Importance Rating	4.1	4.4

Proposed Question:

The Engineered Safety Features Actuation System (ESFAS) has generated a Turbine Driven Auxiliary Feedwater System Actuation (TDAFAS).

Which ONE of the following conditions is necessary to RESET the TDAFAS?

A. S/G level above the Low-Low setpoint in ALL Steam Generators

B. ATWS Mitigation System Actuation Circuit (AMSAC) signal RESET

C. Both FC HS 25 and FC HS-26 in the BLOCK position

D. At least ONE Main Feedwater Pump Turbine RESET

Proposed Answer: B

Explanation:

E. Incorrect-Only required in 3 of 4 Steam Generators
F. Correct-Required
G. Incorrect-Only required for MDAFAS
H. Incorrect-Only required for MDAFAS

Technical Reference(s): OTO-SA-00001, ESFAS Verification and Restoration R012
(Attach if not previously provided)

Proposed references provided to applicants during examination: Steam Tables

Learning Objective: B T61.0110 6, LP-52 Systems

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 7 **55.43** _____

Comments: _____

Outline #: B038 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	022A2.03	
Importance Rating	2.6	3.0

Proposed Question:

The crew is responding to a Main Steamline Break in Containment in accordance with E-0, Reactor Trip or Safety Injection. The Reactor Operator is performing Attachment 12, SI Automatic Actions, and reports that the Containment Coolers are running in FAST speed.

Which ONE of the following describes the required action (if any) and the reason for the decision?

A. Shift the coolers to SLOW speed to reduce the electrical load on NB01 and NB02 in the event of a loss of off-site power

B. Allow the coolers to continue running in FAST speed due to the reduced Essential Service Water flow

C. Shift the coolers to SLOW speed to prevent fan motor overload due to the Containment atmosphere conditions

D. Allow the coolers to continue running in FAST speed to prevent the formation of explosive hydrogen pockets

Proposed Answer: C

Explanation:

I. Incorrect-Within the design capacity of the bus
J. Incorrect-Required shifting to slow speed. ESW flow increases
K. Correct-Denser atmosphere causes fans to draw more amperage
L. Incorrect-Required shifting to slow speed. No H2 formation expected

Technical Reference(s): E-0, Reactor Trip or Safety Injection R1B5
(Attach if not previously provided)

Proposed references provided to applicants during examination: _____

Learning Objective: B T61.0110 6, LP-40 Systems

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 5 **55.43** _____

Comments: Modified from Callaway bank. Parent attached.

Outline #: B039 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	026K1.02	
Importance Rating	4.1	4.1

Proposed Question:

The Containment Spray System and the Containment Cooling System are two systems that provide post-accident cooling of the containment atmosphere. However, the Technical Specification LCO allowed outage times for the two systems are different.

Select the ONE statement below that describes why the allowed TS LCO outage time for the Containment Spray System is more restrictive.

A. The Containment Cooling System is classified as a “supported system” per ODP-ZZ-00027, Safety Function Determination Program

B. The Containment Spray System provides the only mechanism for reducing sump pH in the recirculation phase

C. The Containment Cooling System has four fans, which provide a greater redundancy than the Containment Spray System

D. The Containment Spray System provides a mechanism for removing iodine from the containment atmosphere

Proposed Answer: D

Explanation:

M. Incorrect-True statement but CTMT Spray ia also a “supported system”
N. Incorrect-Trisodium Phosphate increases the pH
O. Incorrect-Each Cooling Train requires two fans
P. Correct- Coolers cannot remove iodine

Technical Reference(s): Technical Specification B 3.6.6, R0
(Attach if not previously provided)

Proposed references provided to applicants during examination: _____

Learning Objective: B T61.0110 6, LP-18 CTMT Spray

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

Question History: **Last NRC Exam** Salem-1, 1996
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 5 **55.43** _____

Comments: _____

Outline #: B040 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	039A2.04	
Importance Rating	3.4	3.7

Proposed Question:

The plant is operating at 100% power.

The 'C' Steam Generator Atmospheric Steam Dump fails OPEN and CANNOT be closed.

Which ONE of the following describes the plant response and required operator action?

A. Reactor Power DECREASES. Withdraw Control Rods to match TAVG and TREF.

B. Reactor Power INCREASES. Reduce Turbine load to stabilize power <3565 MW.

C. Reactor Power DECREASES. Raise Turbine load as required to restore full power.

D. Reactor Power INCREASES. Insert Control Rods to match TAVG and TREF.

Proposed Answer: B

Explanation:

Q. Incorrect-Power increases. Reduction in steam flow is required
R. Correct- Power increases. Reduction in steam flow is required
S. Incorrect-Power increases. Reduction in steam flow is required
T. Incorrect-Reduction in steam flow is required

Technical Reference(s): OTO-AB-00001, Steam Dump Malfunction, R006
(Attach if not previously provided)

Proposed references provided to applicants during examination: _____

Learning Objective: B T61.003D 6, LP B02 CBC Mod D

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 5 **55.43** _____

Comments: Modified from Callaway Bank. Parent question attached.

Outline #: B041 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	056K1.03	
Importance Rating	2.6	2.6

Proposed Question:

The plant is operating at 30%.

Which ONE of the following conditions will cause an AUTOMATIC trip of the operating Main Feedwater Pump (MFP)?

A. 16 inches HgA Main Condenser pressure

B. 240 psig MFP suction pressure

C. 2/3 Condensate pumps trip

D. 6 psig MFP bearing oil pressure

Proposed Answer: A

Explanation:

U. Correct-Trips > 15.6” HgA
V. Incorrect- Alarm only at 325 psig
W. Incorrect-All Condensate pumps must trip
X. Incorrect-Trips < 4 psig

Technical Reference(s): OTO-AD-00001, Loss of Condenser Vacuum, R011
(Attach if not previously provided)

Proposed references provided to applicants during examination: _____

Learning Objective: D T61.0110 6, LP 23 Systems

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 7 **55.43** _____

Comments: Callaway Bank

Outline #: B042 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	056A2.04	
Importance Rating	2.6	2.8

Proposed Question:

The plant is operating at 90% power level. A break in the Condenser Hotwell level instrument tap has caused all three Condensate pumps to TRIP.

Which ONE of the following describes the plant response and required action to mitigate the event?

A. Both Main Feedwater pumps TRIP. Drive Control Rods IN and initiate emergency boration.

B. Main Feedwater pumps continue to run. Drive Control Rods IN and initiate emergency boration.

C. Both Main Feedwater pumps TRIP. Manually TRIP the reactor and go to E-0, Reactor Trip or Safety Injection.

D. Main Feedwater pumps continue to run. Manually TRIP the reactor and go to E-0, Reactor Trip or Safety Injection.

Proposed Answer: C

Explanation:

Y. Incorrect-Trip Rx if power > 80%
Z. Incorrect- MFP's trip. Trip Rx if power > 80%
AA. Correct-MFP's trip. Trip Rx if power > 80%
BB. Incorrect- MFP's trip.

Technical Reference(s): OTO-AE-00001, Feedwater System Malfunction, R005

Technical Reference(s): T61.0110 6, LP-22 Systems
(Attach if not previously provided)

Proposed references provided to applicants during examination: _____

Learning Objective: D T61.0110 6, LP-23 Systems

Learning Objective: A T61.003B 6, LP B-10 CBC Mod B

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 5 **55.43** _____

Comments: _____

Outline #: B043 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	059K3.02	
Importance Rating	3.6	3.7

Proposed Question:

Which ONE of the following will result in the auto start of both Motor Driven Auxiliary Feedwater pumps but NOT the Turbine Driven Auxiliary Feedwater pump?

A. Lo-Lo level on any two S/Gs

B. Loss of off-site power

C. ATWS Mitigation System activation

D. Trip of Both Main Feedwater pumps

Proposed Answer: D

Explanation:

CC. Incorrect-Both MDAFAS and TDAFAS
DD. Incorrect-TDAFAS only
EE. Incorrect- Both MDAFAS and TDAFAS
FF.Correct-MDAFAS only

Technical Reference(s): T61.0110 6, LP-25 Auxiliary Feedwater
(Attach if not previously provided)

Proposed references provided to applicants during examination: _____

Learning Objective: F T61.0110 6, LP-25 Systems

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 7 **55.43** _____

Comments: IPE/ PRA. Callaway Bank

Outline #: B044 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	059A2.11	
Importance Rating	3.0	3.3

Proposed Question:

The following plant conditions exist:

- Reactor Power is 40%.
- ACPT0506 is the selected Impulse Pressure Channel.
- All control systems are in their normal lineup.

Which ONE of the following failures would cause an INITIAL DECREASE in feedwater flow to all S/Gs and what action would mitigate the failure?

A. Main Steam Header Pressure Channel, ABPT0507, fails LOW. Take manual control of Main Feedwater pump speed.

B. Main Feed Header Pressure Channel, ABPT0508, fails LOW. Take manual control of Main Feedwater Regulating valves.

C. Turbine Impulse Pressure Channel, ACPT0505, fails LOW. Take manual control of Main Feedwater pump speed.

D. Turbine Impulse Pressure Channel, ACPT0506, fails LOW. Take manual control of Main Feedwater Regulating valves.

Proposed Answer: A

Explanation:

GG. Correct-Reduces MFP speed
HH. Incorrect-Increases MFP speed
II. Incorrect-No input to MFP speed control
JJ. Incorrect-No input to MFP speed control

Technical Reference(s): OTO-AB-00004, Steam Header Pressure Channel Failure, R03
(Attach if not previously provided)

Proposed references provided to applicants during examination: _____

Learning Objective: E T61.0110 6, LP-23 Systems

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 5 **55.43** _____

Comments: Callaway Bank

Outline #: B045 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	061K3.02	
Importance Rating	4.2	4.4

Proposed Question:

Following a Reactor Shutdown, a Main Feedwater Pump trip generated an Auxiliary Feedwater Actuation Signal (AFAS).

After the AFW pumps started, a pipe rupture occurred downstream of the suction check valve to the 'B' Motor Driven AFW pump.

Which ONE of the following describes the effect on Steam Generator level following the pipe rupture?

A. S/G 'A' level will DECREASE until operator action is taken to start the Turbine Driven AFW pump.

B. S/G 'B' level will DECREASE until operator action is taken to swap the 'B' Motor Driven AFW pump suction to Essential Service Water.

C. S/G 'C' level will DECREASE until operator action is taken to start the Turbine Driven AFW pump.

D. S/G 'D' level will DECREASE until operator action is taken to feed it from the 'A' Motor Driven AFW pump.

Proposed Answer: A

Explanation:

KK. Correct-'A' S/G is fed by 'B' MDAFP. TDAFP does not start on MFP trip.
LL. Incorrect-'B' S/G is not fed by 'B' MDAFP and will not decrease.
MM. Incorrect-'C' S/G is fed by 'A' MDAFP and will not decrease.
NN. Incorrect-'D' S/G is not fed by 'A' MDAFP.

Technical Reference(s): T61.0110 6, LP-25 Auxiliary Feedwater System
(Attach if not previously provided)

Proposed references provided to applicants during examination: _____

Learning Objective: F T61.0110 6, LP-25 Systems

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 7 **55.43** _____

Comments: IPE/ PRA. Modified from INPO Bank. Point Beach 1995 - attached.

Outline #: B046 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	062A1.03	
Importance Rating	2.5	2.8

Proposed Question:

The following plant conditions exist:

- 75% Reactor Power
- 120 gpm CVCS Letdown flow
- 132 gpm Charging flow

It is necessary to transfer Safety Related instrument bus, NN03, to it's backup power supply (SOLA Transformer).

Which ONE of the following should be performed prior to switching power supplies?

A. Prepare for charging pump suction swap to the RWST

B. Select away from the affected control channels

C. Begin Delta-I monitoring for the inoperable computer points

D. Place Excess Letdown in service, charge only to the seals

Proposed Answer: B

Explanation:

OO. Incorrect-NN01 and NN04 only.
PP. Correct-Prevents control system transients.
QQ. Incorrect-Not required.
RR. Incorrect-NN01 and NN04 only.

Technical Reference(s): OTO-NN-0001, Loss of Safety Related Instrument Power, R006
(Attach if not previously provided)

Proposed references provided to applicants during examination: _____

Learning Objective: B T61.0110 6, LP-06 Systems

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 5 **55.43** _____

Comments: Modified from Callaway Bank. Parent attached.

Outline #: B047 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	063K1.03	
Importance Rating	2.9	3.5

Proposed Question:

Which ONE of the following Class 1E 125 VDC Electrical System lineups satisfies the Technical Specification LCO for D.C. Sources in MODE 1?

	NORMAL CHARGER NK21	ALTERNATE CHARGER NK25	BATTERY NK11
A	Disconnected	Connected from PG Bus	Connected
B	Disconnected	Disconnected	Connected
C	Disconnected	Connected from NG Bus	Connected
D	Connected	Disconnected	Disconnected

Proposed Answer: C

Explanation:

E. Incorrect-NK25 must be supplied from vital bus
F. Incorrect-No charger connected
G. Correct-Approved lineup
H. Incorrect-No battery connected

Technical Reference(s): OSP-NB-00001, Class 1E Electrical Source Verification R020
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: G T61.0110 6, LP-06 Systems

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 10 **55.43** _____

Comments: Callaway bank

Outline #: B048 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	063K2.01	
Importance Rating	2.9	3.1

Proposed Question:

The plant is at 100% power with all systems in a normal lineup.

A fault de-energizes Class 1E 125 VDC Bus, NK01.

Which ONE of the following major DC loads is deenergized?

A. Load Center NG02 breaker control

B. Pressurizer PORV BBPCV456A

C. 125VDC Battery Charger NK21

D. 7.5 KVA Inverter NN11

Proposed Answer: D

Explanation:

I. Incorrect-Powered from NK04
J. Incorrect-Powered from NK04
K. Incorrect- NK21 is the power supply to NK01
L. Correct- Supplied by NK01

Technical Reference(s): E-21NK01, Class 1E 125VDC Meter and Relay Diagram
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: A T61.0110 6, LP-06 Systems

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 7 **55.43** _____

Comments: _____

Outline #: B049 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	064K4.10	
Importance Rating	3.5	4.0

Proposed Question:

A monthly Standby Diesel Generator Surveillance is in progress.

The DG is carrying 6.2 MW when the NB bus Normal Supply Breaker TRIPS on a transformer fault.

Choose the ONE statement that best describes the plant response.

A. A safety related load shed OCCURS. NO Shutdown Sequencer Actuation.

B. NO load shedding occurs. The Shutdown Sequencer ACTUATES.

C. A safety related load shed OCCURS. The Shutdown Sequencer ACTUATES.

D. NO load shedding occurs. NO Shutdown Sequencer Actuation.

Proposed Answer: B

Explanation:

M. Incorrect-Load shed is actuated on an NB bus UV
N. Correct-No NB bus UV occurs, no load shed. Sequencer actuated by breaker position
O. Incorrect-Load shed is actuated on an NB bus UV
P. Incorrect-Sequencer actuated by breaker position

Technical Reference(s): OTA-RL-RK018C, ANNUNCIATOR RESPONSE R008
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: B T61.0110 6, LP-51 Systems

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 7 **55.43** ____

Comments: IPE/ PRA. Callaway Bank. Parent attached.

Outline #: B050 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	073G2.1.32	
Importance Rating	3.4	3.8

Proposed Question:

Which ONE of the following will initiate a Blowdown and Sample Process Isolation Signal (BSPIS)?

A. S/G Blowdown Non-regenerative Heat Exchanger high temperature

B. Undervoltage on Safeguards Bus NB01 or NB02

C. Motor Driven Auxiliary Feedwater Actuation Signal (MD-AFAS)

D. Down power rad monitor BMRT0052 without jumpers installed

Proposed Answer: D

Explanation:

Q. Incorrect-Closes BM HV -1 through 4
R. Incorrect-Input to SGBSIS
S. Incorrect-Input to SGBSIS
T. Correct-Precaution in OTN-SP-00002

Technical Reference(s): OTN-SP-00002, RM- 23 Process Monitoring Panel R003
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: G.1 T61.003A 6, LP A-2 CBC MOD A

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 10 **55.43** _____

Comments: Callaway Bank

Outline #: B051 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	076K3.05	
Importance Rating	3.0	3.2

Proposed Question:

The plant is in MODE 5 with the 'B' RHR Train in service providing RCS cooling.

A loss of 'B' Train Essential Service Water has caused Component Cooling Water Temperature to slowly Increase.

Which ONE of the following describes how the RHR system maintains a CONSTANT RCS temperature?

A. RHR HX Flow Control Valve (EJHCV0607) AUTOMATICALLY opens to increase cooling and RHR HX Bypass valve (EJFCV0619) is MANUALLY closed to control system flow.

B. RHR HX Bypass valve (EJFCV0619) is MANUALLY opened to increase cooling and RHR HX Flow Control Valve (EJHCV0607) AUTOMATICALLY closes to control system flow

C. RHR HX Flow Control Valve (EJHCV0607) is MANUALLY opened to increase cooling and RHR HX Bypass valve (EJFCV0619) AUTOMATICALLY closes to control system flow.

D. RHR HX Bypass valve (EJFCV0619) AUTOMATICALLY opens to increase cooling and RHR HX Flow Control Valve (EJHCV0607) is MANUALLY closed to control system flow.

Proposed Answer: C

Explanation:

EJHCV0607 manually controls RHR flow through the HX to control cooling.
EJFCV619 automatically controls system flow

Technical Reference(s): OTN-EJ-00001, RHR R017
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: D T61.0110 6, LP-7 Systems

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 7 **55.43** _____

Comments: IPE/ PRA

Outline #: B052 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	076A4.01	
Importance Rating	2.9	2.9

Proposed Question:

The plant is in a refueling outage with the following conditions:

- Service Water pumps 'A' and 'B' are RUNNING.
- Essential Service Water pumps are SECURED.
- ANN 12A, SVC WTR PMP LOCKOUT, is LIT due to Relay Testing on 'C' Service Water pump.

It is desired to secure one of the operating Service Water pumps because of high discharge pressure (>75 psig).

Which ONE of the following is required prior to reducing the number of operating Service Water pumps to ONE (1)?

A. Place CSEA2102, SVC WTR PMP AUTO BACKUP Switch, in OFF

B. Isolate BOTH CCW Heat Exchangers from the Service Water flowpath

C. Place BOTH ESW trains in service - MANUAL OPERATION

D. ISOLATE the Containment Coolers from the Service Water flowpath

Proposed Answer: A

Explanation:

A. Correct-Prevents automatic restart of a running pump
B. Incorrect-Isolate ONE or bypass BOTH anytime Service Water is supplying ESW
C. Incorrect-Not required during low load conditions
D. Incorrect-Only required if all flow is lost

Technical Reference(s): OTN-EA-00001, Service Water System, R015
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: E T61.0110 6, LP-4 Systems

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 7 **55.43** _____

Comments: IPE/ PRA. CAR 199701081

Outline #: B053 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	078A3.01	
Importance Rating	3.1	3.2

Proposed Question:

Which ONE of the following will occur upon a decreasing Instrument Air System pressure due to a break at the condensate polishers?

A. The STANDBY air compressor will load at 117 psig, Service Air Header Isolation valve KA-PV-11 will close at 115 psig

B. The LAG air compressor will load at 117 psig, ALL air compressors will be running at 115 psig

C. The LAG air compressor will load at 115 psig, Service Air Header Isolation valve KA-PV-11 will close at 105 psig

D. The STANDBY air compressor will load at 119 psig, ALL air compressors will be running at 117 psig.

Proposed Answer: B

Explanation:

A. Incorrect-Standby loads at 115 psig, KA-PV-11 closes at 110 psig
B. Correct-Lag loads at 117 psig, Standby loads at 115 psig
C. Incorrect-Lag loads at 117 psig, KA-PV-11 closes at 110 psig
D. Incorrect-Standby loads at 115 psig, Standby loads at 115 psig

Technical Reference(s): OTN-KA-00001, Compressed Air System, R012
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: E T61.0110 6, LP-14 Systems

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 7 **55.43** _____

Comments: Callaway Bank

Outline #: B054 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	1	1
K/A #	103A2.03	
Importance Rating	3.5	3.8

Proposed Question:

The following plant conditions exist:

- A large break LOCA has occurred
- Containment Pressure has risen to 5 psig

Which ONE of the following signals must be reset to open KAHV0029, Instrument Air Containment Isolation valve?

A. CIS-B

B. SIS

C. CRVIS

D. CIS-A

Proposed Answer: D

Explanation:

E. Incorrect-Does not actuate until 27 psig in Containment
F. Incorrect-SIS actuates CIS-A, but reset not required to reset CIS-A
G. Incorrect-Actuated by CIS-A, but reverse is not true
H. Correct-Closes KAHV0029 and must be reset to open valve

Technical Reference(s): OTO-SA-00001, ESFAS Verification and Restoration, R012
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: C T61.003B 6, LP B-48 CBC Mod B

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 5 **55.43** _____

Comments: Callaway Bank

Outline #: B055 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	2	2
K/A #	011K5.12	
Importance Rating	2.7	3.3

Proposed Question:

Which ONE of the following describes the design and purpose of the Pressurizer Level Control system?

A. Programmed level is varied as MASS changes due to turbine load changes, reducing the required volume of the pressurizer vessel.

B. Pressurizer level is held constant as MASS changes due to a 10% turbine load decrease, reducing the required capacity of the charging and letdown systems.

C. Programmed level is varied as TAVG changes to provide a constant mass, reducing the required capacity of the charging and letdown systems.

D. Pressurizer level is held constant as TAVG changes due to a 10% turbine load decrease, reducing the required volume of the pressurizer vessel.

Proposed Answer: C

Explanation:

I. Incorrect-Mass is maintained constant with load changes.
J. Incorrect-Mass is maintained constant with load changes.
K. Correct- Mass is maintained constant with load changes.
L. Incorrect-Level is varied with load changes.

Technical Reference(s): OTA-RL-RK032C, Windows 32A through 32F, R003
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: B.4 T61.0110 6, LP-9, Systems
K T61.0110 6, LP-30, Systems

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 5 **55.43** ____

Comments: Modified from Callaway Bank – parent question attached.

Outline #: B056 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	2	2
K/A #	014K4.06	
Importance Rating	3.4	3.7

Proposed Question:

The operating crew is performing OTG-ZZ-00002, Reactor Startup. The procedure directs you to verify proper bank overlap as rods are withdrawn.

Which ONE of the following sets of rod positions represents proper Control Bank Overlap?

A. Bank ‘A’ at 220 steps and Bank ‘B’ at 105 steps

B. Bank ‘B’ at 200 steps and Bank ‘C’ at 87 steps

C. Bank ‘A’ at 228 steps and Bank ‘B’ at 110 steps

D. Bank ‘B’ at 115 steps and Bank ‘C’ at 3 steps

Proposed Answer: A

Explanation:

M. Correct-Bank ‘B’ begins stepping out when Bank ‘A’ reaches 115 steps.
N. Incorrect-Bank ‘C’ should be at 85 steps
O. Incorrect-Bank ‘B’ should be at 113 steps
P. Incorrect-Bank ‘C’ should be at 0 steps

Technical Reference(s): TS 3.1.6, Curve Book Figure 13-1, COLR 2.4.3, R041
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: D T61.0110 6, LP-26, Systems

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 5 **55.43** ____

Comments: Modified from Callaway Bank – parent question attached.

Outline #: B057 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	2	2
K/A #	015K6.02	
Importance Rating	2.6	2.9

Proposed Question:

The following conditions exist during a reactor startup:

- P-6 has just energized
- Source Range channel N31 indicates 4.0 E04 CPS
- Source Range channel N32 indicates 4.2 E04 CPS
- Intermediate Range channel N35 indicates 1.5 E-10 Amps
- Intermediate Range channel N36 indicates 1.0 E-11 Amps

Use Attachment 3 of OTG-ZZ-00002, Reactor Startup (attached), to determine which ONE of the following conditions exist.

A. Intermediate Range channel N36 is under-compensated

B. Intermediate Range channel N36 is over-compensated

C. Intermediate Range channel N35 is under-compensated

D. Intermediate Range channel N35 is over-compensated

Proposed Answer: B

Explanation:

4.0 E4 CPS on the Source Range NIS channels corresponds to approximately 1.0 E-10 Amps on the Intermediate Range NIS channels. This would lead to the conclusion that Intermediate Range channel N35 is indicating correctly. Over-compensation would make Intermediate Range channel N36 read erroneously low.

Technical Reference(s): OTG-ZZ-00002, Reactor Startup, R033
(Attach if not previously provided)

Proposed references provided to applicants during examination: Att. 3 of OTG-ZZ-00002

Learning Objective: I T61.0110 6, LP-28, Systems

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 7 **55.43** ____

Comments: Modified from Callaway Bank – parent question attached.

Outline #: B058 **Author:** RAN

Rod height comparison chart for 50 step withdrawals

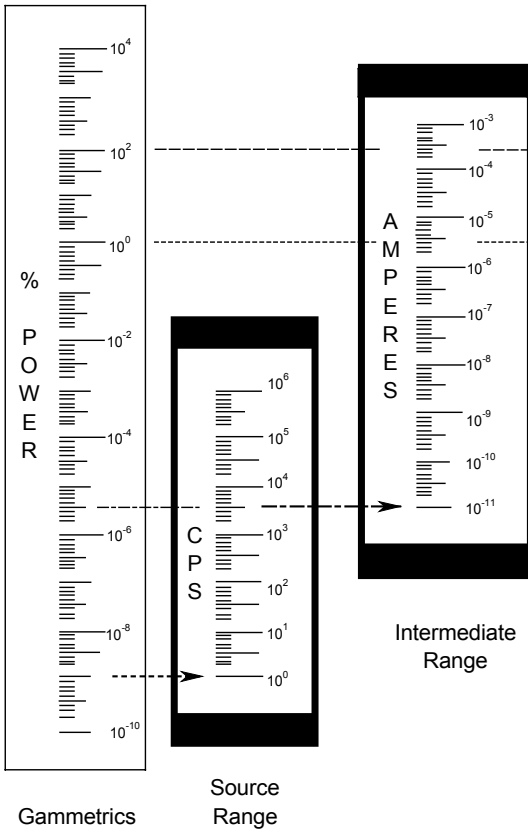
A	B	C	D
150	35	0	0
200	85	0	0
228	135	20	0
228	185	70	0
228	228	120	5
228	228	170	55
228	228	220	105
228	228	228	155

FLUX DOUBLING VALUES			
Initial Counts	First Doubling	5 Doublings Initial Counts x 32	6 Doublings Initial Counts x 64
N31 _____ cps	N31 _____ cps	N31 _____ cps	N31 _____ cps
N32 _____ cps	N32 _____ cps	N32 _____ cps	N32 _____ cps

When one intermediate range channel exceeds 10^{-10} amps Observe that the P-6 permissive light is energized and perform the following:

1. Verify one decade of overlap between the source and intermediate range level instruments
2. Verify indication on both the source and intermediate startup rate instruments
3. Transfer the SE NR-45 recorder to the intermediate ranges
4. Prior to Source Range counts exceeding 5E4 cps, Block the source range HIGH FLUX REACTOR TRIP by performing the following:
   - Press BLOCK pushbutton on SE HS-5, "A" Train
   - Verify SR TRIP A BLOC illuminates on SB069
   - Press BLOCK pushbutton on SE HS-10, "B" Train
   - Verify SR TRIP B BLOC illuminates on SB069
   - Verify that the high voltage has been removed from the source range detectors

NOTE: These relationships are illustrative based on nominal core flux profile Actual plant performance may diffe Reactor Engineering may be conta for questions about actual plant be



Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	2	2
K/A #	017A3.01	
Importance Rating	3.6	3.8

Proposed Question:

A Safety Injection was initiated in response to a small break LOCA. The Reactor Coolant Pumps were secured when the trip criterion was reached.

The crew is currently in ES-1.2, Post LOCA Cooldown and Depressurization with the following plant conditions:

RCS pressure	1250 PSIG
RCS Cold Leg Temperature	500 DEGF and stable
RCS Hot Leg Temperature	515 DEGF and stable
Core Exit Thermocouple (CETC)s	585 DEGF and stable
S/G pressure	700 PSIG and stable

Which ONE of the following describes the status of RCS natural circulation?

A. Natural circulation exists

B. Does not exist - CETCs are not decreasing

C. Does not exist - hot leg temp > Tsat for S/G pressure

D. Does not exist - inadequate subcooling

Proposed Answer: D

Explanation:

Q. Incorrect-Tsat for 1250 psig = 570 DEGF. No subcooling
R. Incorrect-CETC can be stable if natural circulation exists
S. Incorrect-Cold leg temp is compared to S/G pressure
T. Correct-Tsat for 1250 psig = 570 DEGF. No subcooling

Technical Reference(s): ES-1.2, Post LOCA cooldown and Depressurization, R1B2-
(Attach if not previously provided)

Proposed references provided to applicants during examination: Steam Tables

Learning Objective: O T61.003D 6, LP-10, CBC Mod D

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 7 **55.43** ____

Comments: Modified from 1996 North Anna Bank – parent question attached.

Outline #: B059 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	2	2
K/A #	028A1.01	
Importance Rating	3.4	3.8

Proposed Question:

Which ONE of the following explains when the Containment Hydrogen Purge Subsystem would be placed in service?

A. Hydrogen concentration increases with Recombiners in service.

B. Whenever a Containment Purge Isolation Signal is initiated

C. When hydrogen concentration increases above 4%.

D. Whenever a Safety Injection Signal is initiated

Proposed Answer: A

Explanation:

U. Correct-the Recombiners are not effective
V. Incorrect-only used when H2 is not being reduced by the Recombiners
W. Incorrect- only used when H2 is not being reduced by the Recombiners
X. Incorrect- only used when H2 is not being reduced by the Recombiners

Technical Reference(s): OTN-GS-00001, Containment Hydrogen Control System, R009
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: K T61.0110 6, LP-40, Systems

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 5 **55.43** _____

Comments: Callaway Bank

Outline #: B060 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	2	2
K/A #	029K4.03	
Importance Rating	3.2	3.5

Proposed Question:

Which ONE of the following signals will directly cause an automatic Containment Purge Isolation Signal (CPIS)?

A. CTMT HI-1

B. CIS-A

C. FBIS

D. CIS-B

Proposed Answer: B

Explanation:

CPIS is generated by:

- CTMT Purge Exhaust Hi Rad
- CIS-A
- Manual

Technical Reference(s): OTO-SA-00001, ESFAS Verification and Restoration, R012
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: N T61.0110 6, LP-40, Systems

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 7 **55.43** _____

Comments: Callaway Bank

Outline #: B061 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	2	2
K/A #	034K4.01	
Importance Rating	2.6	3.4

Proposed Question:

Which ONE of the following Refueling Machine interlocks is designed to prevent dropping a fuel assembly during movement?

A. Underload (load) Interlock

B. Fuel Transfer Interlock

C. Gripper Engage/ Disengage Interlock

D. Master Overload Interlock

Proposed Answer: C

Explanation:

A. Incorrect-Prevents lowering the hoist if the load is less than design
B. Incorrect-Prevents raising or lowering the fuel transfer cart unless gripper full up
C. Correct-Prevents disengaging hoist unless in full down position in core or transfer area
D. Incorrect-Prevents raising the hoist on excess load

Technical Reference(s): OTS-KE-00013, Refueling Machine, R020
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: H T61.003E 6, LP-5, CBC Mod E

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 7 **55.43** _____

Comments: _____

Outline #: B062 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	2	2
K/A #	068K6.10	
Importance Rating	2.5	2.9

Proposed Question:

A liquid radioactive release from Discharge Monitor Tank (DMT) 'A' is in progress.

HB-RE-18, Liquid Radwaste Discharge Monitor fails HIGH.

Which ONE of the following describes the effect on the DMT release?

A. The release may CONTINUE if FSAR samples are taken

B. The release must be MANUALLY terminated

C. The release may CONTINUE for up to fourteen days

D. The release is AUTOMATICALLY terminated.

Proposed Answer: D

Explanation:

HB-RE-18 will automatically close the DMT discharge valve on high radiation level.

Technical Reference(s): OTA-SP-RM011, Radiation Monitor Control Panel, R024
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: Q T61.0110 6, LP-16, Systems

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 5 **55.43** ____

Comments: Modified from Callaway Bank – parent question attached.

Outline #: B063 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	2	2
K/A #	072A1.01	
Importance Rating	3.4	3.6

Proposed Question:

The Hot Lab technician informs you that the samples will be drawn for the scheduled monthly surveillance. Shortly after this notification, an Area Radiation Hi Hi alarm is received on RC Sample Room Area Radiation Monitor SDRE0024.

Which ONE of the following is the required response of the Control Room staff?

A. Have Health Physics adjust the alarm setpoint to allow the monitor to reset

B. Direct the evacuation of all personnel from the RC Sample Room

C. Announce the alarm as “Expected” until notified that samples are complete

D. Direct the Count Room technician to take samples and verify the alarm

Proposed Answer: B

Explanation:

A. Incorrect-The alarm is not due to buildup in area background
B. Correct-Evacuate all personnel
C. Incorrect-The alarm is not expected. Alarm setpoint is 1E3 MR/HR
D. Incorrect-The Count room technician is only responsible for process rad monitors

Technical Reference(s): OTA-RL-RK062, Alarm Response, R006
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: C T61.0110 6, LP-36, Systems

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 5 **55.43** _____

Comments: _____

Outline #: B064 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	2	2
Group #	2	2
K/A #	086A4.01	
Importance Rating	3.3	3.3

Proposed Question:

The Wet Pipe Sprinkler System has ACTUATED at the Technical Support Center. The Fire Water System Pressure has DECREASED to 123 psig.

Which ONE of the following describes the AUTOMATIC response of the Fire Protection System?

A. Only the Accumulator Air Compressor STARTS

B. Only the Accumulator Air Compressor and the Electric Fire Pump START

C. Only the Accumulator Air Compressor, the Electric Fire Pump and the 'A' Diesel Fire Pump START

D. The Accumulator Air Compressor, the Electric Fire Pump and BOTH Diesel Fire Pumps START

Proposed Answer: C

Explanation:

Air Compressor starts at 160 psig
Electric pump starts at 130 psig
'A' Diesel pump starts at 125 psig
'B' Diesel pump starts at 120 psig

Technical Reference(s): OTN-KC-00001, Fire Protection System, R015
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: E T61.0110 6, LP-35, Systems

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

Question History: **Last NRC Exam** 1998
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 5 **55.43** _____

Comments: Callaway Bank

Outline #: B065 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3
Group #		
K/A #	G2.1.10	
Importance Rating	2.7	3.9

Proposed Question:

Technical Specification Surveillance Requirement 3.5.4.1 verifies that the RWST borated water temperature is between 37 DEGF and 100 DEGF. The required frequency of this surveillance is 24 hours.

Which ONE of the following is the MAXIMUM allowed time from the previous performance to complete the surveillance and satisfy the specified frequency?

A. 24 hours

B. 30 hours

C. 36 hours

D. 48 hours

Proposed Answer: B

Explanation:

The specified frequency for each SR is met if performed within 1.25 times the interval-as measured from the previous performance.

Technical Reference(s): TS SR 3.0.2, Amendment No. 133
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: F T61.003A 6, LP-1, CBC Mod A

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 10 **55.43** ____

Comments: Modified from Callaway Bank. Parent attached.

Outline #: B066 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3
Group #		
K/A #	G2.1.23	
Importance Rating	3.9	4.0

Proposed Question:

In which ONE of the following situations would performance of a procedure be allowed to continue?

A. When bulleted steps will NOT be performed in the listed sequence

B. When a step is NOT expected to achieve the desired result

C. When a step contains a TECHNICAL typographical error

D. When performance will result in a condition NOT consistent with good practices

Proposed Answer: A

Explanation:

A. Correct-Allowed exception
B. Incorrect-Work must be stopped
C. Incorrect-Work must be stopped
D. Incorrect-Work must be stopped

Technical Reference(s): APA-ZZ-00100, Use and Adherence to Procedures, R016
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: C T61.003A 6, LP-29, CBC Mod A

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 10 **55.43** _____

Comments: _____

Outline #: B067 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3
Group #		
K/A #	G2.2.2	
Importance Rating	4.0	3.5

Proposed Question:

Which ONE of the following situations would REQUIRE a peer check?

A. REDUCING Turbine load in response to a loss of Condenser Vacuum

B. SELECTING a valid channel on BB PS-455G, RCS PZR Pressure Recorder

C. Manually INSERTING Control Rods during a Turbine Runback

D. DILUTING the RCS in response to a Charging Pump suction swap to RWST

Proposed Answer: D

Explanation:

E. Incorrect-Negative reactivity addition during a transient
F. Incorrect-Not required for recorders
G. Incorrect-Negative reactivity addition during a transient
H. Correct-Always required for positive reactivity additions

Technical Reference(s): ODP-ZZ-00001, OPS Department-Code of Conduct, R016
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: A T61.003A 6, LP-1, CBC Mod A

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 10 **55.43** _____

Comments: _____

Outline #: B068 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3
Group #		
K/A #	G2.2.24	
Importance Rating	2.6	3.8

Proposed Question:

Which ONE of the following situations would REQUIRE an EOSL entry for the stated component?

A. A monthly Emergency Diesel Generator surveillance is started and completed on the same shift

B. A Safety Injection Pump is out of service due to the INOPERABILITY of a support system

C. A CCP is placed in pull-to-lock during testing and an entry is made in the Control Room Supervisor log

D. An oil leak is discovered and repaired on an RHR pump during scheduled surveillance testing

Proposed Answer: D

Explanation:

I. Incorrect-Allowed exception
J. Incorrect-Allowed exception
K. Incorrect-Allowed exception
L. Correct-Corrective maintenance performed in conjunction with a surveillance

Technical Reference(s): ODP-ZZ-00002, Equipment Status Control, R020
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: B T61.003A 6, LP-1, CBC Mod A

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 10 **55.43** _____

Comments: _____

Outline #: B069 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3
Group #		
K/A #	G2.3.2	
Importance Rating	2.5	2.9

Proposed Question:

Which ONE of the following Callaway Plant administrative controls is used to maintain occupational radiation dose As Low As Reasonably Achievable (ALARA)?

A. Entry into the Seal Table area is NOT allowed when Flux Mapping is in progress

B. Entryways into areas posted as “Caution High Radiation Area” and above are locked or continuously guarded

C. Entry into the In-Core Instrument Tunnel is ONLY allowed when irradiated fuel is off loaded

D. Entry into areas posted as “Very High Radiation Area” require continuous coverage by radiation protection personnel

Proposed Answer: A

Explanation:

M. Correct-Designated DHRA-NE during flux mapping
N. Incorrect-Requirement for DHRA and above
O. Incorrect- In-Core Instrument Thimbles are retracted when core is off loaded
P. Incorrect- Entry into posted VHRA not allowed

Technical Reference(s): HTP-ZZ-06001, HR/ VHRA Access, R021
(Attach if not previously provided) HDP-ZZ-01500, Radiological Posting, R016

Proposed references provided to applicants during examination: N/A

Learning Objective: F T61.003A 6, LP-31, CBC Mod A

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 12 **55.43** _____

Comments: _____

Outline #: B070 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3
Group #		
K/A #	G2.3.4	
Importance Rating	2.5	3.1

Proposed Question:

A Site Emergency has been declared.

Which ONE of the following describes an allowed situation for authorization to exceed the dose limits of 10CFR20 (Deep Dose Equivalent) for a male Radiation Worker with a complete dose history?

A. 20 REM for Planned Special Exposures

B. 25 REM to Protect the Public

C. 30 REM to Save a Life

D. 35 REM to Mitigate an Accident

Proposed Answer: C

Explanation:

Q. Incorrect-Planned special exposure not authorized at Callaway
R. Incorrect-10 REM maximum
S. Correct-Up to 100 REM to save a life
T. Incorrect-10 REM maximum

Technical Reference(s): APA-ZZ-01000, Callaway Plant Health Physics Program, R017
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: B T61.003A 6, LP-31, CBC Mod A

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 12 **55.43** _____

Comments: _____

Outline #: B071 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3
Group #		
K/A #	G2.3.9	
Importance Rating	2.5	3.4

Proposed Question:

With the Containment Equipment Hatch open, the Containment Purge Exhaust Fan is RUN while the Containment Purge Supply Fan is SECURED.

Which ONE of the following describes WHY?

A. To maintain Containment temperature below 120 DEG F

B. To minimize the run time on the Containment Purge Supply fan

C. To minimize the amount of time the purge dampers are open

D. To ensure air flow is into Containment from the outside atmosphere

Proposed Answer: D

Explanation:

A. Incorrect-Temperature control is not a factor
B. Incorrect-Fan run time is not limited
C. Incorrect-Damper time is only limited for Mini-Purge
D. Correct-Prevents unmonitored release

Technical Reference(s): OTN-GT-00001, Containment Purge System, R018
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: B T61.003A 6, LP-12, CBC Mod A

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 10 **55.43** _____

Comments: Callaway Bank

Outline #: B072 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3
Group #		
K/A #	G2.4.11	
Importance Rating	3.4	3.6

Proposed Question:

The plant is operating at 100% steady state power when several simultaneous MCB annunciators alarm. It is immediately obvious that a plant transient is in progress.

Which ONE of the following describes the responsibility of the Unit Reactor Operator?

A. Refer to the appropriate annunciator response procedure and then perform any required immediate operator actions

B. Announce that “Transient annunciator response rules apply”. When plant conditions stabilize, acknowledge the annunciators

C. Scan the annunciators while performing any required immediate actions. Summarize and announce the unexpected annunciators

D. Acknowledge the alarms and announce each annunciator window number as an unexpected alarm

Proposed Answer: C

Explanation:

A. Incorrect-Immediate actions are performed from memory prior to procedure direction
B. Incorrect-Only the Control Room Supervisor can make this declaration
C. Correct-Annunciator response during Off Normal operations
D. Incorrect-Normal operation response. The annunciator noun name is used

Technical Reference(s): ODP-ZZ-00001, OPS Dept-Code of Conduct, R016
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: A T61.003A 6, LP-1, CBC Mod A

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 10 **55.43** _____

Comments: _____

Outline #: B073 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3
Group #		
K/A #	G2.4.16	
Importance Rating	3.0	4.0

Proposed Question:

The crew has transitioned to E-1, Loss of Reactor or Secondary Coolant. Critical Safety Function Status Tree monitoring indicates the following:

1. Heat Sink Yellow
2. Integrity Orange
3. Containment Red
4. Inventory Yellow
5. Core Cooling Red
6. Subcriticality Orange

Which ONE of the following is the priority order of Function Restoration Guideline implementation for these results?

A. 3, 5, 6, 2, 4, 1

B. 3, 5, 1, 2, 3, 4

C. 5, 3, 6, 2, 1, 4

D. 5, 3, 2, 6, 4, 1

Proposed Answer: C

Explanation:

Priority is Red, Orange, and Yellow. Then CSF priority is Subcriticality, Core Cooling, Heat Sink, Integrity, Containment and Inventory.

Technical Reference(s): CSF-1, Critical Safety Function Status Trees, R1B0
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: J, K T61.003D 6, LP-1, CBC Mod D

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 10 **55.43** ____

Comments: Modified from Callaway Bank. Parent question attached.

Outline #: B074 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	3	3
Group #		
K/A #	G2.4.50	
Importance Rating	3.3	3.3

Proposed Question:

The plant is operating at 40% power during the initial plant startup following a refueling outage.

MCB ANN 119B, TURB VIB HI HI ALARM, is received unexpectedly.

Vibration level is verified to be 19 MILS on ACYE0027, LP TURB C BRG 7

Which ONE of the following is the required operator action?

A. Trip the Reactor. Then trip the Turbine and implement E-0, Rx Trip or SI

B. Trip the Turbine and implement OTO-AC-00001, Turbine Trip

C. Trip the Turbine. Then trip the Reactor and implement E-0, Rx Trip or SI

D. Begin reducing Turbine load in an attempt to reduce vibration

Proposed Answer: B

Explanation:

A. Incorrect-Reactor trip not required < 50%
B. Correct-Trip turbine if any bearing > 12 MILS
C. Incorrect-Reactor trip not required < 50%
D. Incorrect-Trip turbine if any bearing > 12 MILS

Technical Reference(s): OTA-RL-RK119B, Alarm Response Windows 119A-F, R002
(Attach if not previously provided) OTO-AC-00002, Turbine Vibration, R007

Proposed references provided to applicants during examination: N/A

Learning Objective: A T61.003B 6, LP-7, CBC Mod B

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** 10 **55.43** _____

Comments: _____

Outline #: B075 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	N/A	1
Group #	N/A	1
K/A #	008AA2.12	
Importance Rating	N/A	3.7

Proposed Question:

The following plant conditions exist:

- Pressurizer level 56% and increasing
- Pressurizer Pressure 1790 psig and decreasing
- PRT Pressure 95 psig and increasing
- PRT Temperature 180 degrees F and increasing
- CTMT Temperature 110 degrees F and table
- CTMT Pressure 0.3 psig and stable
- CTMT Humidity 17% and stable
- CTMT Sump level 22 inches and stable
- S/G Pressures 1050 psig and stable
- S/G Levels 40% NR and stable
- RM-11 No alarms

All required automatic actions have occurred.

Which ONE of the following describes the Emergency Operating Procedure that provides guidance for the event in progress?

A. E-3, Steam Generator Tube Rupture

B. E-2, Faulted Steam Generator Isolation

C. ECA-1.2, LOCA Outside Containment

D. E-1, Loss of Reactor or Secondary Coolant

Proposed Answer: D

Explanation:

E. Incorrect-no radiation alarms
F. Incorrect-PZR level would decrease
G. Incorrect-PRT is part of the RCS
H. Correct-PZR level Increases for steam space leak

Technical Reference(s): T61.003D 6, LP SD-07, CBC Mod D
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: L T61.003D 6, LP SD-07, CBC Mod D

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

Question History: **Last NRC Exam** Palo Verde 1997
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** _____ **55.43** 5

Comments: _____

Outline #: S076 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	N/A	1
Group #	N/A	1
K/A #	038EA2.01	
Importance Rating	N/A	4.7

Proposed Question:

The caution prior to step 5 of E-3, SGTR, directs the operator to isolate the ruptured steam generator from the intact steam generators prior to commencing an RCS cooldown.

Which ONE of the following is the basis for this caution?

A. Ensures that a subsequent steam line break does not result in the uncontrolled depressurization of all steam generators

B. Minimizes radiological releases and ensures RCS subcooling when primary-to-secondary leakage is terminated

C. Ensures that a steam generator overfill condition does not result in an uncontrolled release of radioactive liquid to the environment

D. Minimizes the duration of the primary-to secondary leakage by allowing the RCS cooldown and depressurization to be performed simultaneously

Proposed Answer: B

Explanation:

I. Incorrect-Basis for SLIS during a main steam line break
J. Correct-Prevents ruptured S/G depressurization during cooldown
K. Incorrect-Release still possible via ASD or safety valves
L. Incorrect-Cooldown and depressurization are not performed simultaneously

Technical Reference(s): E-3, SGTR, R1B4
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: R T61.003D 6, LP 17, CBC Mod D

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** _____ **55.43** 5

Comments: Callaway bank. IPE/ PRA

Outline #: S077 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	N/A	1
Group #	N/A	1
K/A #	055G2.4.44	
Importance Rating	N/A	4.0

Proposed Question:

A prolonged loss of all AC power has resulted in a declaration of a General Emergency.

- There is no release in progress
- You are the Emergency Coordinator

Which ONE of the following is the correct initial protective action recommendation for the population in the affected sectors?

A. Shelter for a 2 mile radius and 5 miles downwind of the plant

B. Evacuate for a 5 mile radius around the plant

C. Shelter for a 5 mile radius around the plant

D. Evacuate for a 2 mile radius and 5 miles downwind of the plant

Proposed Answer: D

Explanation:

Evacuation of a 2 mile radius and 5 miles downwind of the plant is the minimum initial PAR, unless travel would present an extreme hazard

Technical Reference(s): EIP-ZZ-00212, Protective Action Recommendations, R021
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: H T68.1020 6, RERP OPERATIONS

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** _____ **55.43** 5

Comments: IPE/ PRA

Outline #: S078 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	N/A	1
Group #		1
K/A #	056AA2.14	
Importance Rating	N/A	4.6

Proposed Question:

The plant is in Mode 1 at 100% reactor power.

A loss of Offsite Power occurs to 4160V buss NB01 due to a NB01 Bus Lockout.

Which ONE of the following describes the operational status of Emergency Diesel Generator NE01?

A. Inoperable since it cannot be connected to bus NB01.

B. Inoperable since it's associated ESF transformer is inoperable.

C. Operable if Service Water is supplying cooling water.

D. Operable if it comes up to speed and voltage within 12 seconds.

Proposed Answer: A

Explanation:

E. Correct-must be capable of connecting to its respective ESF bus
F. Incorrect-it is inoperable because it cannot be connected to the bus
G. Incorrect-SW is not safety related.
H. Incorrect- must be capable of connecting to its respective ESF bus

Technical Reference(s): T/S Bases 3.8.1
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: L T61.003A 6, A8, CBC Mod 'A'

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** _____ **55.43** 5

Comments: IPE/ PRA

Outline #: S079 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	N/A	1
Group #		1
K/A #	057G2.4.4	
Importance Rating	N/A	4.3

Proposed Question:

Which ONE of the following plant conditions requires entry into E-0, Reactor Trip of Safety Injection?

A. A reactor startup is complete with power stable in the Intermediate Range at 5.0 E-11 Amps. A fault causes Source Range channel N32 to fail low.

B. A plant startup is complete with power stable in the Power Range at 30%. A fault causes Instrument Bus NN02 to become de-energized.

C. A reactor startup is complete with power stable in the Intermediate Range at 5.0 E-11 Amps. A fault causes Instrument Bus NN02 to become de-energized.

D. A plant startup is complete with power stable in the Power Range at 30%. A fault causes a Trip of 'C' Reactor Coolant Pump.

Proposed Answer: C

Explanation:

A. Incorrect-Fail low will not produce RX trip signal
B. Incorrect-IR Hi flux trip is blocked at 15%
C. Correct-NN02 supplies SR NIS. Power is below P-6. RX trip on SR/IR Hi flux
D. Incorrect-above P-7 & below P-8 requires 2/4 RCP's to trip

Technical Reference(s): OTO-NN-00001, Loss of SR Instrument Power, R06
OTG-ZZ-00002, Reactor Startup, R033

(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: A T61.003B 6, LP-45, CBC Mod B

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** _____ **55.43** 5

Comments:

Outline #: S080 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	N/A	1
Group #		1
K/A #	065G2.4.48	
Importance Rating	N/A	3.8

Proposed Question:

The plant is operating at 97% power. The following plant conditions exist:

- ANN 91A, Inst Air Dryer Press Low — LIT
- ANN 92A, Compress Air Press Low — LIT
- ANN 91E, 92E, & 93E Air Cmpsr A, B, & C Trouble — LIT
- KAPV0011, Compress Air Sys Serv Air Sply PCV — CLOSED
- KA PI-40, Instrument Air Header Press Ind — 85 psig decreasing

Which ONE of the following describes the required direction to be provided to the Reactor Operator for these conditions?

A. CLOSE BGHV8105 or BGHV8106, CVCS Charging CTMT isolation valves, to minimize Pressurizer level increase.

B. CLOSE BGHV8357A and B, CCP to RCP Seal Injection Flow Control Valve, to minimize Pressurizer level increase.

C. OPEN BGFCV0121, CCP Discharge Flow Control Valve, to maintain Pressurizer level.

D. OPEN BGFCV0149, NCP Discharge Flow Control Valve, to maintain Pressurizer level.

Proposed Answer: A

Explanation:

I. Correct-BGHCV180 FO therefore 8105 or 8106 are closed to reduce chg flow
J. Incorrect-Seal Injection flow is to be maintained
K. Incorrect-Letdown valves have failed closed
L. Incorrect-Letdown valves have failed closed

Technical Reference(s): OTO-KA-00001, Loss of Instrument Air, R007
(Attach if not previously provided) TCN 01-0480, Add steps to min PZR level increase, CATS 80371

Proposed references provided to applicants during examination: N/A

Learning Objective: C T61.003B 6, LP-33, CBC Mod B

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** _____ **55.43** 5

Comments:

Outline #: S081 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	N/A	1
Group #	N/A	1
K/A #	W/E04EA2.1	
Importance Rating	N/A	4.3

Proposed Question:

The following plant conditions exist:

- Reactor Trip and Safety Injection ACTUATED
- Auxiliary Building Radiation Level HIGH

The crew has completed the valve alignment verification and isolation steps of ECA-1.2, LOCA Outside Containment. The crew has determined that RCS pressure is NOT increasing.

To which ONE of the following procedures would a transition be made?

A. OTG-ZZ-00006, Plant Cooldown Hot Standby to Cold Shutdown

B. E-1, Loss of Reactor or Secondary Coolant

C. ES-1.2, Post LOCA Cooldown and Depressurization

D. ECA-1.1, Loss of Emergency Coolant Recirculation

Proposed Answer: D

Explanation:

A. Incorrect-Plant cooldown is not performed with recovery actions still in progress.
B. Incorrect-The LOCA outside of containment has NOT been isolated. E-1 is used for SI termination following leak isolation.
C. Incorrect-Plant cooldown is not performed with recovery actions still in progress.
D Correct-This procedure is used if the leak is not isolated since there would be no water in the recirculation sumps.

Technical Reference(s): ECA-1.2, LOCA Outside Containment, R1B1
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: C T61.003D 6, LP-14, CBC Mod D

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** ____ **55.43** 5

Comments: Modified from Callaway bank. Parent question attached.

Outline #: S082 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	N/A	1
Group #	N/A	2
K/A #	003G2.2.22	
Importance Rating	N/A	4.1

Proposed Question:

The plant was initially at 100% when Control Bank Rod D12 drops to the bottom of the core.

Which ONE of the following describes the status of Control Rod D12 and which initial condition assumed in the Safety Analysis is challenged?

A. INOPERABLE-Upon a reactor trip, the assumed reactivity will be available and will be inserted

B. MISALIGNED-The correct power distribution is maintained

C. MISALIGNED-Upon a reactor trip, the assumed reactivity will be available and will be inserted

D. INOPERABLE-The correct power distribution is maintained

Proposed Answer: B

Explanation:

A. Incorrect-The rod is misaligned and this is the operability basis
B. Correct-The rod is misaligned and power distribution is affected
C. Incorrect-The rod is misaligned, but the operability basis is separate
D Incorrect- The rod is misaligned

Technical Reference(s): TS 3.1.4 and bases, Amendment No. 133
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: U T61.0110 6, LP-54, Systems

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** _____ **55.43** 2

Comments: _____

Outline #: S083 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	N/A	1
Group #	N/A	2
K/A #	033AA2.09	
Importance Rating	N/A	3.7

Proposed Question:

The turbine is being prepared for loading with reactor power at approximately 8%. MCB Annunciator 77B, IR HI VOLT FAIL, alarms and it is determined that Intermediate Range channel N36 has failed.

Which ONE of the following actions should be taken?

A. Place the N36 level trip switch in the bypass position and raise power above 10% within 24 hours

B. Trip bistables for channel N36 and restore to operable status prior to increasing power above 10%

C. Place the N36 level trip switch in the bypass position and reduce power to less than 5% within 24 hours

D. Suspend positive reactivity changes and reduce power to less than the P-6 setpoint within 2 hours

Proposed Answer: A

Explanation:

A. Correct-Recommended action from Off Normal procedure
B. Incorrect-tripping bistables will cause a RX trip
C. Incorrect-Must reduce power to < P-6 within 24 hours
D. Incorrect-Action for two inoperable channels

Technical Reference(s): OTO-SE-00002, Loss of IR NIS, R004
(Attach if not previously provided) TS 3.3.1, Amendment No.s 133, 149 and 151

Proposed references provided to applicants during examination: N/A

Learning Objective: C T61.003B 6, LP-50, CBC Mod B

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** _____ **55.43** 2

Comments: Callaway Bank

Outline #: S084 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	N/A	1
Group #	N/A	2
K/A #	036G2.4.10	
Importance Rating	N/A	3.1

Proposed Question:

The plant is in MODE 1 at 100% power.

In preparation for the upcoming refueling outage, a fuel assembly shuffle is in progress in the Spent Fuel Pool.

HI HI RAD alarms are received on Fuel Building Process Radiation Monitors, GG-RE-27 and GG-RE-28 gas channels.

Which ONE of the following is the required response to these alarms?

A. Verify Fuel Building Ventilation and Containment Purge Isolation. Close at least one door in the Containment Personnel Hatch

B. Close at least one door in the Containment Personnel Hatch. Store any fuel assembly in transfer in a SFP rack

C. Evacuate unnecessary personnel from the Fuel Building. Verify Fuel Building and Control Room Ventilation Isolation.

D. Ensure the Fuel Building roll-up door is closed. Verify Fuel Building Ventilation and Containment Purge Isolation

Proposed Answer: C

Explanation:

A. Incorrect-No CPIS actuation
B. Incorrect-Containment Isolation not required
C. Correct-FBIS and CRVIS actuate on FB high rad. FB evacuation required
D. Incorrect- No CPIS actuation

Technical Reference(s): OTO-KE-00001, Fuel Handling Accident, R006
(Attach if not previously provided) OTA-SP-RM011, Annunciator Response, R024

Proposed references provided to applicants during examination: N/A

Learning Objective: I T61.003E 6, LP-5, CBC Mod E

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** ____ **55.43** 5

Comments: Modified Callaway bank. Parent question attached.

Outline #: S085 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	N/A	1
Group #	N/A	2
K/A #	068AA2.05	
Importance Rating	N/A	4.3

Proposed Question:

The Control Room has been evacuated due to a fire. Plant control is being established from the Auxiliary Shutdown Panel (ASP).

You are performing the Shift Supervisor Immediate Actions per attachment 5 of OTO-ZZ-00001, Control Room Inaccessibility.

The following plant conditions exist:
- Mode 3
- All S/G WR Levels 40%
- All RCS Cold Leg Temperatures 562 degrees F

Which ONE of the following directions should be given to the Reactor Operator to establish a Heat Sink?

A. Start MDAFP ‘A’ and increase ‘B’ S/G level

B. Start MDAFP ‘B’ and increase ‘D’ S/G level

C. Start the TDAFP and increase ‘A’ S/G level

D. Start the TDAFP and increase ‘C’ S/G level

Proposed Answer: B

Explanation:

A. Incorrect-‘A’ train is not isolated from the CR fire
B. Correct-Both components are from the isolated (B) train
C. Incorrect-‘A’ train is not isolated from the CR fire
D. Incorrect-‘A’ train is not isolated from the CR fire

Technical Reference(s): OTO-ZZ-00001, Control Room Inaccessibility, R019
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: C T61.003B 6, LP-59, CBC Mod B

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** _____ **55.43** 5

Comments: _____

Outline #: S086 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	N/A	1
Group #	N/A	2
K/A #	W/E08EA2.01	
Importance Rating	N/A	4.2

Proposed Question:

The crew has implemented FR-P.1, Response to Imminent Pressurized Thermal Shock, due to a RED path on the INTEGRITY status tree.

Under which ONE of the following conditions would the crew exit FR-P.1?

A. A CONTAINMENT path turns RED while INTEGRITY path remains RED

B. The INTEGRITY path turns GREEN while the crew is performing FR-P.1

C. A HEAT SINK path turns RED while INTEGRITY path remains RED

D. A SUBCRITICALITY path turns ORANGE while INTEGRITY path remains RED

Proposed Answer: C

Explanation:

A. Incorrect-Containment is a lower priority status tree
B. Incorrect-FR-P.1 must be performed to the point of a defined transition
C. Correct-Heat Sink is a higher priority
D. Incorrect-Orange path makes Subcriticality a lower priority

Technical Reference(s): CSF-1, Critical Safety Function Status Trees, R1B0
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: T T61.003D 6, LP-1, CBC Mod D

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** ____ **55.43** 5

Comments: Modified from Callaway bank. Parent question attached.

Outline #: S087 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	N/A	2
Group #	N/A	1
K/A #	003A2.02	
Importance Rating	N/A	3.9

Proposed Question:

The Callaway Plant is operating at 40% power.

The 'A' Reactor Coolant Pump (RCP) must be secured due to high vibration per OTO-BB-00002, Reactor Coolant Pump Off-Normal.

Which ONE of the following actions is required to be taken to mitigate the consequences of this abnormal RCP shutdown?

A. Declare RCS Loop #1 RTD channel inoperable and perform the actions of OTO-BB-00004, RTD Channel Failure

B. Trip the Reactor, Turbine, and 'A' RCP. Transition to E-0, Reactor Trip or Safety Injection.

C. Close the #1 Seal Leakoff for the 'A' Reactor Coolant Pump after it has come to a stop.

D. Declare Pressurizer Spray Valve 'A' inoperable. Control RCS pressure with Pressurizer PORV's.

Proposed Answer: A

Explanation:

A. Correct-Loss of forced RCS flow in the loop makes the temperature instrument inoperable
B. Incorrect-Not required below 48% power
C. Incorrect-Only required for RCP seal failure
D. Incorrect- Pressurizer Spray Valve 'B' is still available

Technical Reference(s): OTO-BB-00002, RCP Off-Normal, R019
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: C T61.003B 6, LP-15, CBC Mod B

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** _____ **55.43** 5

Comments: _____

Outline #: S088 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	N/A	2
Group #	N/A	1
K/A #	005A2.02	
Importance Rating	N/A	3.7

Proposed Question:

Which ONE of the following can be used to satisfy COMS (Cold Overpressure Mitigation System) while in Mode 5?

A. One RHR Suction Relief valve with a lift setpoint of 450 psig and one RCS vent of greater than or equal to 1 square inch

B. Two RHR Suction Relief valves with lift setpoints within the limits of the Pressure and Temperature Limits Report (PTLR)

C. One PZR PORV with a lift setpoint within the limits of the Pressure and Temperature Limits Report (PTLR)and one RCS vent of greater than or equal to 1 square inch

D. One RHR Suction Relief valve with a lift setpoint of 450 psig and one PZR PORV with a lift setpoint within the limits of the Pressure and Temperature Limits Report (PTLR)

Proposed Answer: D

Explanation:

A. Incorrect-2 square inch vent required. No combination with relief valve specified
B. Incorrect-450 psig lift setpoint specified. Not in PTLR
C. Incorrect-2 square inch vent required. No combination with relief valve specified
D. Correct-Combination specifically allowed

Technical Reference(s): OSP-BB-00003, PORV/RHR COMS Alignment Verification, R009
(Attach if not previously provided) T/S LCO 3.4.12, COMS, Amendment No.133

Proposed references provided to applicants during examination: N/A

Learning Objective: B T61.003A 6, LP-17, CBC Mod A

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** _____ **55.43** 5

Comments: _____

Outline #: S089 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	N/A	2
Group #	N/A	1
K/A #	062G2.2.22	
Importance Rating	N/A	4.1

Proposed Question:

The plant is operating at 75% power. All Technical Specification Limiting Conditions for Operation are satisfied.

Train 'B' Emergency Diesel Generator (NE02) becomes INOPERABLE when the oil is inadvertently drained from the Rocker Lube Oil reservoir.

Which ONE of the following statements describes the required action?

A. Enter Conditions and Required Actions for NE02 and Supported Systems

B. Enter Conditions and Required Actions for Supported Systems ONLY

C. Enter Conditions and Required Actions for NE02 ONLY

D. Enter Conditions and Required Actions for NE02 and ESW Train 'B'

Proposed Answer: C

Explanation:

A. Incorrect-Supported systems is only inoperable if redundant system is inoperable
B. Incorrect-Supported systems is only inoperable if redundant system is inoperable
C. Correct-Supported systems is only inoperable if redundant system is inoperable
D. Incorrect-ESW makes NE02 inoperable. The reverse is not true.

Technical Reference(s): ODP-ZZ-00027, Safety Function Determination, R003
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: G T61.0110 6, LP-6, Systems

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** ____ **55.43** 2

Comments: Modified Callaway bank. Parent question attached.

Outline #: S090 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	N/A	2
Group #	N/A	1
K/A #	103A2.04	
Importance Rating	N/A	3.6

Proposed Question:

Callaway Plant is preparing for Reactor Core Offload. The polar crane operator inadvertently lifts the Reactor Vessel Upper Internals out of the water and causes a HI HI alarm on Containment Building Area Radiation Monitor SDRE0040.

Which ONE of the following is a required action for this situation?

A. Actuate the Containment Evacuation Alarm

B. Close ECV0995, Fuel Transfer Tube Isolation Valve

C. Evacuate personnel from the Fuel Building

D. Increase Charging flow and reduce RHR letdown flow

Proposed Answer: A

Explanation:

A. Correct-Evacuate any area with a HI HI Area Rad alarm
B. Incorrect-Only required if Refueling Pool level is abnormal
C. Incorrect-Only required if HI radiation is in the Fuel Building
D. Incorrect-Only required if Refueling Pool level is decreasing

Technical Reference(s): OTO-KE-00001, Fuel Handling Accident, R006
(Attach if not previously provided) OTA-RL-RK062A, Alarm Response Procedure, R006

Proposed references provided to applicants during examination: N/A

Learning Objective: I T61.003E 6, LP-5, CBC Mod E

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** _____ **55.43** 5

Comments: _____

Outline #: S091 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	N/A	2
Group #	N/A	2
K/A #	002G2.1.32	
Importance Rating	N/A	3.8

Proposed Question:

OTN-BB-00001, Reactor Coolant System, cautions the operator to maintain Reactor Coolant Pump Seal Injection flow to prevent crud migration into the No. 1 seal area.

Which ONE of the following plant conditions would allow securing Reactor Coolant Pump Seal Injection flow without this concern?

A. RCS pressure is 8 IN HgA in preparation for system fill

B. RCPs are secured with RCS pressure at 70 psig

C. RCS is being drained to Mid-Loop to backseat RCPs

D. RCP's are backseated with RCS level above 27 inches

Proposed Answer: D

Explanation:

E. Incorrect-RCS is at a vacuum
F. Incorrect-RCS is above atmospheric pressure
G. Incorrect-RCS level is being changed
H. Correct-Seals are isolated for maintenance

Technical Reference(s): OTN-BB-00001, Reactor Coolant System, R017
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: B T61.003A 6, LP-20, CBC Mod A

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** _____ **55.43** 5

Comments: CAR 199500644

Outline #: S092 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	N/A	2
Group #	N/A	2
K/A #	041G2.4.49	
Importance Rating	N/A	4.0

Proposed Question:

Reactor power is at 15% with the following plant indications:

- ANN 93A, PCS PWR FAIL — LIT
- Computer alarm point PCS RP043 PWRSUPPLY — FAIL
- ANN 108C, 109C, 110C, and 111C, S/G A, B, C, and D LVL DEV — LIT
- ANN 108D, 109D, 110D, and 111D, S/G A, B, C, and D FLOW MISMATCH — LIT
- ABPI0507, Steam Header Pressure — 0 psig
- SG pressure indicators — 1085 psig
- Main Feedwater Regulating Valves — Full Open
- Main Feedwater Pump speed — Decreasing
- Condenser Steam Dumps — Closed
- Condenser Steam Dumps are in the Steam Pressure mode

Which ONE of the following is the Off Normal procedure that should be entered?

A. OTO-AB-00004, Steam Header Pressure Channel Failure

B. OTO-AB-00001, Steam Dump Malfunction

C. OTO-AE-00003, Steam Generator Level Channel Failure

D. OTO-RJ-00001, Loss of Plant Computer

Proposed Answer: A

Explanation:

I. Correct-ABPT0507 has failed low
J. Incorrect- Steam Dumps are not controlled from steam generator pressure
K. Incorrect-all levels are decreasing
L. Incorrect-the plant computer does not control feedwater

Technical Reference(s): OTO-AB-00004, Steam Header Press Channel Failure, R003
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: B T61.003B 6, LP-5, CBC Mod B

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** _____ **55.43** 5

Comments: CARS 199803324

Outline #: S093 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	N/A	3
Group #		
K/A #	G2.1.8	
Importance Rating	N/A	3.6

Proposed Question:

You are the SRO conducting a pre-evolution briefing for placing a tagout in panel SJ143, Auxiliary Building Sample Station. The tagout will require an Independent Verification.

Which ONE of the following correctly describes how Operations and Chemistry Departments COORDINATE installing HOLD OFF tags on the sampling station?

A. The Chemistry Technician and Equipment Operator should hang the tags together, and the Chemistry Technician or Equipment Operator performs the independent verification.

B. The Chemistry Technician installs the tags, and an Equipment Operator performs the independent verification.

C. The Equipment Operator installs the tags, and a Chemistry Technician performs the independent verification.

D. The Chemistry Technician and Equipment Operator should hang the tags together, and another Chemistry Technician or Equipment Operator performs the independent verification.

Proposed Answer: D

Explanation:

A. Incorrect-A individual not involved with installation IV's the tags
B. Incorrect-Tags should be hung by a Chem Tech and an EO
C. Incorrect- Tags should be hung by a Chem Tech and an EO
D. Correct-Tags should be hung together and IV'd by another Chem Tech or EO

Technical Reference(s): ODP-ZZ-00310, WPA and Caution Tagging, R018

Proposed references provided to applicants during examination: N/A

Learning Objective: B. 4 T61.003A 6, LP-33, CBC Mod A

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

Question History: **Last NRC Exam** N

(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** ____ **55.43** 5

Comments: Modified from Callaway bank. Parent question attached.

Outline #: S094 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	N/A	3
Group #		
K/A #	G2.1.12	
Importance Rating	N/A	4.0

Proposed Question:

Consider the following information to complete the question.

- The Callaway plant was originally in MODE 1
- It was determined that a Technical Specification LCO could NOT be met
- The condition of the unit is not specifically addressed by the associated action
- The LCO Applicability is MODES 1 - 4

It took 6 hours to place the unit in MODE 3

Which ONE of the following describes the REMAINING TIME allowed to reach MODE 5?

A. 30 hours

B. 31 hours

C. 36 hours

D. 37 hours

Proposed Answer: B

Explanation:

Place the plant in MODE 5 within 37 hours. There are 31 (37-6) hours remaining. There is no penalty for reaching MODE 3 in less than the required 7 hours.

Technical Reference(s): Technical Specification LCO 3.0.3 basis, R00

Proposed references provided to applicants during examination: N/A

Learning Objective: F T61.003A 6, LP-1, CBC Mod A

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** _____ **55.43** 2

Comments: _____

Outline #: S095 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	N/A	3
Group #		
K/A #	G2.2.6	
Importance Rating	N/A	3.3

Proposed Question:

Answer the following in accordance with the direction given in APA-ZZ-00101, Preparation, Review and Approval of Written Instructions

Which ONE of the following individuals is responsible for ensuring performance of the Qualified Review (10CFR50.59) applicability?

A. Procedure Group Supervisor

B. Cognizant Department Head

C. Senior Reactor Operator

D. Superintendent, Administration

Proposed Answer: C

Explanation:

M. Incorrect-Not a listed responsibility
N. Incorrect- Not a listed responsibility
O. Correct-Must be a licensed SRO
P. Incorrect- Not a listed responsibility

Technical Reference(s): APA-ZZ-00101, Preparation, Review and Approval of Written Instructions, R036

Proposed references provided to applicants during examination: N/A

Learning Objective: D T61.003A 6, LP-29, CBC Mod A

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** _____ **55.43** 5

Comments: _____

Outline #: S096 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	N/A	3
Group #		
K/A #	G2.2.26	
Importance Rating	N/A	3.7

Proposed Question:

The Callaway plant is in a refueling outage and it is desired to hang Workman Protection tags to start work on one of the Residual Heat Removal (RHR) trains.

You are the OS who authorizes the placement of WPA tags.

Which ONE of the following plant conditions will allow reducing the number of OPERABLE RHR loops to ONE?

A. MODE 6, RFP level >23' above the Rx Vessel flange during core off-load

B. MODE 5, following CETC Nozzle Assemblies disassembly

C. MODE 6, RFP level >23' above the Rx Vessel flange with Upper Internals installed

D. MODE 5, following Mid-Loop operations, prior to RCS vacuum fill

Proposed Answer: A

Explanation:

Q. Correct-Upper Internals not installed
R. Incorrect-2 required with Loops not filled
S. Incorrect-2 required with Upper Internals installed
T. Incorrect-2 required with Loops not filled

Technical Reference(s): OTG-ZZ-00007, Refueling Preparation, Performance and Recovery, R017
ODP-ZZ-00310, WPA and Caution Tagging, R018

Proposed references provided to applicants during examination: N/A

Learning Objective: B T61.003E 6, LP-1, CBC Mod E

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** ____ **55.43** 4

Comments: CARS 199803476

Outline #: S097 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	N/A	3
Group #		
K/A #	G2.3.1	
Importance Rating	N/A	3.0

Proposed Question:

Which ONE of the following describes the FSAR limit for the quantity of radioactive material contained in the Refueling Water Storage Tank (RWST) and the basis for the limit?

A. 50 Curies to assure that the radiation levels in the accessible areas surrounding the tank are less than 100 MRem / hour.

B. 150 Curies to assure that an uncontrolled release of the tank's contents would be less than the limits of 10CFR20.

C. 50 Curies to assure that an uncontrolled release of the tank's contents would be less than the limits of 10CFR20.

D. 150 Curies to assure that the radiation levels in the accessible areas surrounding the tank are less than 100 MRem / hour.

Proposed Answer: B

Explanation:

U. Incorrect-150 Curie limit
V. Correct
W. Incorrect-150 Curie limit
X. Incorrect-Based on spill of the contents

Technical Reference(s): FSAR 16.11.1.5. ROL-13
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: C T61.003A 6, LP-23, CBC Mod A

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** ____ **55.43** 4

Comments: Modified from Callaway bank. Parent question attached.

Outline #: S098 **Author:** RAN

Examination Outline Cross-reference:	**Level**	**RO**	**SRO**
	Tier #	N/A	3
	Group #		
	K/A #	G2.4.1	
	Importance Rating	N/A	4.6

Proposed Question:

The plant is in Mode 1 at 100% reactor power when a loss of off-site power occurs.

- NB01 and NB02 are NOT reenergized by the Emergency Diesel Generators
- Both Reactor Trip Breakers are CLOSED
- Reactor power is 2% and DECREASING

Which ONE of the following describes the required operating crew response?

A. Immediately enter ECA-0.0, Loss of ALL AC Power. At step 1, transition to FR-S.1, Response to Nuclear Power Generation.

B. Enter E-0, Rx Trip or Safety Injection. Initiate emergency boration and manually insert the control rods.

C. Immediately enter ECA-0.0, Loss of ALL AC Power and manually trip the Reactor.

D. Enter E-0, Rx Trip or Safety Injection. Initiate emergency boration and dispatch an operator to locally open the Reactor Trip Breakers

Proposed Answer: C

Explanation:

Y. Incorrect-AC power required to implement FR-S.1
Z. Incorrect-AC power required to emergency borate
AA. Correct-Required immediate action
BB. Incorrect-AC power required to emergency borate

Technical Reference(s): ECA-0.0,Loss of All AC Power, R1B2
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: A T61.003D 6, LP-22, CBC Mod D

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** _____ **55.43** 5

Comments: Callaway bank

Outline #: S099 **Author:** RAN

Examination Outline Cross-reference:

Level	RO	SRO
Tier #	N/A	3
Group #		
K/A #	G2.4.10	
Importance Rating	N/A	3.1

Proposed Question:

The plant is in Mode 1 at 90% reactor power.

MCB Annunciator 120A, MFP 'A' TRIP, actuates and is verified to be VALID.

Which ONE of the following describes the required operating crew response?

A. Quickly reduce turbine generator load to less than 60% or 750 MWe

B. Manually trip the reactor and enter E-0, Reactor Trip or Safety Injection

C. Quickly increase the 'B' MFP speed to the Hi Speed stop (5700 RPM)

D. Manually insert control rods until Annunciator 65E, TREF/ TAUCT LO is received

Proposed Answer: B

Explanation:

CC. Incorrect-Action if power is <80%
DD. Correct-Required immediate action
EE. Incorrect-Action if power is <80%
FF. Incorrect-Action if power is <80%

Technical Reference(s): OTO-AE-00001, Feedwater System Malfunction, R005
(Attach if not previously provided)

Proposed references provided to applicants during examination: N/A

Learning Objective: A T61.003B 6, LP-10, CBC Mod B

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

Question History: **Last NRC Exam** N
(Optional - Questions validated at the facility since 10/95 will generally undergo less rigorous review by the NRC; failure to provide the information will necessitate a detailed review of every question.)

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

10 CFR Part 55 Content: **55.41** ____ **55.43** 5

Comments: Modified from Callaway bank. Parent question attached.

Outline #: S100 **Author:** RAN