

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	062	K1.03
	Importance Rating	3.5	

Knowledge of the physical connections and/or cause-effect relationships between the ac distribution system and the following systems: DC distribution

Proposed Question: RO Question # 1

Given the following:

- The plant is operating at 81% power.
- A bus fault causes a trip and lockout of the normal feeder to 480 volt bus 14.
- The cause of the fault has not been determined.

Which ONE of the following describes the effect on the power supplied to Instrument Bus 1A?

- Energized from inverter 1A by DC bus 1A, which is energized by battery A.
- Energized from inverter 1A by DC bus 1A, which is energized by Battery Charger A1.
- Energized from the alternate AC power supply from MCC 1C.
- De-energized until manually transferred to the alternate AC power supply; from MCC 1C.

Proposed Answer: A

Explanation (Optional):

- Correct. 480 Volt bus 14 powers MCC-1C which powers the battery charger. Charger will be deenergized and Battery will supply power through inverter
- Incorrect. Normal alignment, which is not available with charger de-energized.
- Incorrect. Did not lose DC to inverter.
- Incorrect. No need for manual swap, DC power is auctioneered to inverter.

Technical Reference(s): R0901C

(Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: R0901C, 1.05 (As available)

Question Source: Bank # WTSI 18794
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2003

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

10 CFR Part 55 Content: 55.41 7
55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:

Indian Point Unit 3

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	012	K1.05
	Importance Rating	3.8	

Knowledge of the physical connections and/or cause effect relationships between the RPS and the following systems: ESFAS

Proposed Question: RO Question # 2

Which ONE of the following plant parameters provides a direct input to BOTH reactor trip actuation AND Engineered Safety Feature actuation?

- A. Pressurizer Level
- B. Steam Generator Pressure
- C. Containment Pressure
- D. Steam Generator Level

Proposed Answer: D

Explanation (Optional):

- A. Incorrect. Provides a reactor trip but none of the ESFAS signals are generated by PZR level
- B. Incorrect. SG Pressure does not provide a direct signal to reactor trip. It does provide direct input to ESFAS, such as steam line isolation
- C. Incorrect. Containment pressure is an input to ESFAS for Containment isolation, SI, and steam line isolation. Although an SI signal itself will cause a reactor trip, the Containment pressure signal that caused SI is not a direct input to reactor trip circuitry
- D. Correct. SG level provides input to reactor trip on low SG level, and also provides input to FWI on high SG level

Technical Reference(s): R3501C

(Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: R3501C, 1.07 (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41 7
55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	064	K2.01
	Importance Rating	2.7	

Knowledge of bus power supplies to the following: Air compressor

Proposed Question: RO Question # 3

Which ONE of the following identifies the location of the circuit breakers for 'A' and 'B' EDG Air Start Compressors?

- A. MCC M and MCC L
- B. MCC J and MCC H
- C. MCC P and MCC N
- D. MCC D and MCC C

Proposed Answer: B

Explanation (Optional):

- A. Incorrect. Plausible because the MCCs are paired in same way as correct MCCs and also because the MCCs are located in Aux Building, where safety related equipment is located
- B. Correct.
- C. Incorrect. Plausible because the MCCs are paired in same way as correct MCCs and also because the MCCs are located in the relay room annex, where safety related equipment is located
- D. Incorrect. Plausible because the MCCs are paired in same way as correct MCCs and also because the MCCs are located in Aux Building, where safety related equipment is located

Technical Reference(s): P-12

(Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: R0801C, Obj 1.05 (As available)

Question Source: Bank # WTSI 67626
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41 8
55.43

Components, capacity, and functions of emergency systems.

Comments:

Calling a bank question because distractors were unchanged (only shuffled) from a question relating to fuel oil pumps. The stem was changed to reflect air compressors. KA topic was changed during exam development process to avoid overlap with a test item that was on original 2010 exam

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	061	K2.01
	Importance Rating	3.2	

Knowledge of bus power supplies to the following: AFW system MOVs

Proposed Question: RO Question # 4

Which ONE (1) of the following identifies the location of the circuit breakers for SAFW discharge valves 9701A and 9701B?

- A. MCC A and MCC B
- B. MCC C and MCC D
- C. MCC E and MCC F
- D. MCC L and MCC M

Proposed Answer: D

Explanation (Optional):

- A. Incorrect. These are power supplies for RHR components
- B. Incorrect. These are power supplies for RCS Makeup components
- C. Incorrect. These are power supplies for SAFW room heaters
- D. Correct

Technical Reference(s): P-12 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: R4202S, Obj 1.05 (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41 8
55.43

Components, capacity, and functions of emergency systems.

Comments:

Objective for power supplies only covers pumps

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	073	K3.01
	Importance Rating	3.6	

Knowledge of the effect that a loss or malfunction of the PRM system will have on the following: Radioactive effluent releases

Proposed Question: RO Question # 5

Plant conditions:

- The plant is in Mode 1.
- A Liquid Waste release is in progress.
- The following radiation monitor alarm is received in the control room:
 - o R-18, WASTE LIQUID
- R-18 spiked high and now indicates 0 CPM with FAIL light lit.

Which ONE of the following describes the effect on the release and associated actions that are required?

- A. The release is automatically terminated. Resample the tank and initiate A-52.12 (ODCM)
- B. The release is automatically terminated. Contact RP and I & C to determine the cause and initiate repair. Resample is NOT required.
- C. The release does NOT automatically terminate. Manually terminate the release and initiate A-52.12 (ODCM).
- D. The release does NOT automatically terminate. The release may continue uninterrupted from the start of the release provided that 2 independent samples are obtained. Contact RP and I & C to determine the cause and initiate repair.

Proposed Answer: A

Explanation (Optional):

- A. Correct. The release will terminate on high radiation. The liquid effluent PRM losing power will also cause valve closure
- B. Incorrect. The release will terminate automatically on high radiation. However, a resample will be required due to the initial radiation spike
- C. Incorrect. This would be action required if R-14 failed, but different response for R-18
- D. Incorrect. The release is terminated when the alarm is received

Technical Reference(s): AR-RMS-18 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: R3801C, R4.03 (As available)

Question Source: Bank #
 Modified Bank # WTSI 69407 (Note changes or attach parent)
 New

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41 11
 55.43

Purpose and operation of radiation monitoring systems, including alarms and survey equipment.

Comments:

Mod from 2010 exam, different answer based on different conditions

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	022	K3.01
	Importance Rating	2.9	

Knowledge of the effect that a loss or malfunction of the CCS will have on the following:
Containment equipment subject to damage by high or low temperature, humidity, and pressure

Proposed Question: RO Question # 6

Given the following:

- A reactor trip has occurred.
- All Containment Cooling has been lost.
- Containment temperature has risen from 96°F to 115° over the last 15 minutes.

If this trend continues, which ONE of the following describes the potential effect on Containment instrumentation readings?

- PZR level indication will be higher than actual level; SG level indication will be higher than actual level
- PZR level indication will be higher than actual level; SG level indication will be the same as actual level
- PZR level indication will be the same as actual level; SG level indication will be higher than actual level
- PZR level indication will be the same as actual level; SG level indication will be the same as actual level

Proposed Answer: A

Explanation (Optional):

- Correct. Reference leg density will decrease due to exposure to Containment temperature rise, resulting in higher DP, since variable leg density is unaffected
- Incorrect. 2nd part wrong. SG level is exposed to the same atmosphere and level indication is the same basic idea as PZr level, using a reference leg outside of the vessel

- C. Incorrect. Same reason as B but 1st part wrong instead of second part
- D. Incorrect. There is no compensation for temperature variations in Containment as there is on systems such as RVLIS. If large temperature changes occur, errors are introduced to level indication and at some point, adverse values must be used based upon those errors

Technical Reference(s): GF Components Description (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: R1901C, 1.09 (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41 14
 55.43

Principles of heat transfer, thermodynamics and fluid mechanics.

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	007	K4.01
	Importance Rating	2.6	

Knowledge of PRTS design feature(s) and/or interlock(s) which provide for the following:
Quench tank cooling

Proposed Question: RO Question # 7

Which ONE of the following describes how Pressurizer Relief Tank (PRT) temperature is restored to normal operating band following a pressurizer safety valve actuation?

- A. Recirculate the PRT through the Reactor Coolant Drain Tank heat exchanger, using Component Cooling Water to cool the heat exchanger.
- B. The PRT is sized to accept a safety valve discharge based on a complete loss of load without rupture disc failure and is returned to normal temperature by ambient cooling.
- C. Make up to the PRT from the Reactor Makeup Water Tank while draining the PRT to the Reactor Coolant Drain Tank.
- D. Make up to the PRT from the Reactor Makeup Water Tank while draining the PRT to the Waste Holdup Tank.

Proposed Answer: C

Explanation (Optional):

- A. Incorrect. This is plausible because it is a common way to cool the PRT, and the actual process involves draining to the RCDDT
- B. Incorrect. This is plausible because the PRT is sized to accept a safety valve discharge based on loss of load. Eventually it could return to ambient but that is not how it would be cooled if temperature was above the alarm setpoint based on SV discharge
- C. Correct
- D. Incorrect. Drain to Waste Holdup would be from RCDDT, not directly from PRT. PRT only drains to the RCDDT

Technical Reference(s): AR-F-1 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: R1401C, 1.03 (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41 10
55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.

Comments:

Similar to WTSI 70009 but components and descriptions are different

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	003	K4.02
	Importance Rating	2.5	

Knowledge of RCPS design feature(s) and/or interlock(s) which provide for the following:
Prevention of cold water accidents or transients

Proposed Question: RO Question # 8

O-1.1, Plant Heatup Cold Shutdown to Hot Standby, is in progress.

RCS cold leg temperatures are 315°F.

If a Reactor Coolant Pump will be started at this temperature, the associated Steam Generator temperature must be within 50°F of RCS temperature to prevent.....

- A. rapid depressurization of the RCS and loss of RCP NPSH.
- B. a reactivity excursion when the RCP is started.
- C. pressurized thermal shock of the Reactor Vessel and/or Steam Generators.
- D. a low temperature overpressure event due to a thermal transient when an RCP is started.

Proposed Answer: D

Explanation (Optional):

- A. Incorrect. If SG temperature is higher, the concern is heatup of cold stagnant loop water. This is plausible because the applicant may believe that the cold water will cause a loss of RCS pressure
- B. Incorrect. With boron concentration at cold shutdown, there will be adequate SDM for RCP start
- C. Incorrect. PTS would be at higher temperatures and pressures, and SGs do not have neutron embrittlement required for PTS to occur
- D. Correct . RCP starting limitations include the following:
A reactor coolant pump should NOT be started with any RCS Cold Leg temperature less than or equal to LTOP ENABLE temperature in the PTLR, UNLESS the secondary

side water temperature of each steam generator < 50°F above each of the RCS cold leg temperatures.

3.4.6 Basis - Note 2 requires that the secondary side water temperature of each SG be ≤50°F above each of the RCS cold leg temperatures before the start of a reactor coolant pump (RCP) with any RCS cold leg temperature = 325°F. This restriction is to prevent a low temperature overpressure event due to a thermal transient when an RCP is started.

Technical Reference(s): O-1.1, Plant Heatup from Cold Shutdown to Hot Shutdown, TS 3.4.6 and TS bases 3/4.4.6 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: R1301C, 1.13 (As available)

Question Source: Bank # WTSI 62973
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2009

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

10 CFR Part 55 Content: 55.41 4
55.43

Secondary coolant and auxiliary systems that affect the facility.

Comments:
Callaway 2009

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

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

Proposed Question: RO Question # 9

Given the following:

- The plant is in Mode 4.
- A bubble is being drawn in the pressurizer.
- Letdown Pressure Control Valve PCV-135 is set in AUTO to maintain RCS pressure at 325 psig.
- Current PZR temperature is 370 degrees F.
- PZR temperature is rising at 1.2 degrees F per minute.

Assuming the current trends continue, which ONE (1) of the following describes the approximate time before a bubble is formed, and the indication that a bubble has been formed?

- 50 minutes; large increase in pressurizer pressure for a given change in temperature
- 50 minutes; letdown flow greater than charging flow with stable or slightly increasing pressure
- 40 minutes; large increase in pressurizer pressure for a given change in temperature
- 40 minutes; letdown flow greater than charging flow with stable or slightly increasing pressure

Proposed Answer: B

Explanation (Optional):

- incorrect but plausible because time is correct, but saturation for 325 psig is 430 degrees F. Indication of large pressure increase is for solid plant, no bubble
- Correct

- C. incorrect because the time is too short, but credible because the applicant may make a mistake using PSIG instead of PSIA while using steam tables, and choose an incorrect response
- D. incorrect because the time is too short, but credible because the applicant may make a mistake using PSIG instead of PSIA while using steam tables, and choose an incorrect response

Technical Reference(s): Steam Tables, O-1.1 (Attach if not previously provided)

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

Learning Objective: R1001C, 1.09 (As available)

Question Source: Bank #
 Modified Bank # WTSI 64853 (Note changes or attach parent)
 New

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41 14
 55.43

Principles of heat transfer, thermodynamics and fluid mechanics.

Comments:

Modified from 2007 Wolf Creek (Attached)

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	006	K5.05
	Importance Rating	3.4	

Knowledge of the operational implications of the following concepts as they apply to ECCS:
Effects of pressure on a solid system

Proposed Question: RO Question # 10

Given the following:

- A unit startup is in progress in accordance with O-1.1, Plant Heatup from Cold Shutdown to Hot Shutdown
- RCS Tcold - 120°F
- RCS pressure - 350 psig
- RCS heatup rate - 25°F per hour
- "A" and "B" RCS Loops are Operable, but only "A" RCP is running
- The RHR system is aligned for core cooling with "A" and "B" RHR pumps running
- "B" Charging Pump is Operable and providing normal charging flow

Which ONE of the following describes the operational concern associated with these conditions?

- A. ONE SI Pump must be operable and available for RCS makeup
- B. ALL SI Pumps must be aligned for ECCS injection
- C. ONLY ONE SI Pump is allowed to be operable and available due to RCS low temperature overpressure concerns
- D. ALL SI Pumps must be in PULL STOP due to RCS low temperature overpressure concerns

Proposed Answer: D

Explanation (Optional):

- A. Incorrect. All pumps will be in PULL STOP because the unit is in Mode 5. See TS 3.4.12. This is plausible because SI Pumps may be used in Mode 5 if there was a loss of RCS inventory

- B. Incorrect. This would be true if the unit was in Mode 3, but unit is in Mode 5
- C. Incorrect. No ECCS pumps are required in Mode 5. Applicant may think that since SI Pump is lower volume, and that they may possibly be used in case of a shutdown LOCA, that one would be available
- D. Correct. Concern in Mode 5 is that start of an SI Pump will overpressurize RCS at low temperatures

Technical Reference(s): ITS 3.4.12
 O-1.1, Plant Heatup from Cold Shutdown to Hot Shutdown, pg. 92 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: Given a set of plant conditions for the Reactor Coolant System, perform the following in accordance with Technical Specifications, TS Bases, TRM: a. (As available)
 Identify action statements of less than one hour

Question Source: Bank # WTSI 66021
 Modified Bank # (Note changes or attach parent)
 New

Question History: Last NRC Exam: 2008

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

10 CFR Part 55 Content: 55.41 5
 55.43

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

Comments:
Ginna NRC Exam 2008

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	013	K6.01
	Importance Rating	2.7	

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

Proposed Question: RO Question # 11

Given the following:

A Containment Pressure transmitter that feeds both SI and Containment Spray fails LOW.

Action has been taken in accordance with Technical Specifications to place the failed channel in TRIP.

Which ONE of the following identifies the correct ESF actuation logic for the **remaining** Containment pressure channels?

- A. Safety Injection - 1/2; Containment Spray - 1/2 plus 2/3
- B. Safety Injection - 1/2; Containment Spray - 2/3 plus 2/3
- C. Safety Injection - 1/3; Containment Spray - 1/2 plus 1/3
- D. Safety Injection - 1/3; Containment Spray - 2/3 plus 1/3

Proposed Answer: A

Explanation (Optional):

- A. Correct. SI is normally 2 of 3 logic for Containment Pressure and CS is 2 of 3. When a protection channel that feeds both actuations is removed from service, bistables are tripped in all cases.
AUTO SI will occur if either of the two remaining bistables trip, and AUTO CS needs one of the two remaining channels to trip.
- B. Incorrect. Would be correct if Containment Spray was placed in BYPASS rather than trip
- C. Incorrect. SI is 1 of 2. CS is 1 of 2. Plausible because PZR Pressure SI actuation is 2 of 3 logic, and the applicant may confuse the logic with the 2 of 4 logic provided by other

RPS actuations. All bistables, including CS actuation, are tripped when a channel has failed.

- D. Incorrect. SI is 1 of 2 after removing a channel from service, because Containment Pressure High-1 provides 3 channel inputs to SI actuation. Plausible because Low PZR Pressure SI input would be 1 of 3. Also, Spray is not bypassed, it is tripped

Technical Reference(s): TS 3.3.2, Actions J, K (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: R3501C, Obj 1.06 (As available)

Question Source: Bank # WTSI 65052
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2009

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

10 CFR Part 55 Content: 55.41 7
55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	004	K6.05
	Importance Rating	2.5	

Knowledge of the effect of a loss or malfunction on the following CVCS components: Sensors and detectors

Proposed Question: RO Question # 12

Plant conditions:

- The plant is in Mode 5.
- Solid plant operations are in progress.
- HCV-133, Letdown from RHR system, has been adjusted to the FULL OPEN position.
- HCV-142, Charging Line Hand Control Valve, is FULL OPEN.
- PCV-135, Low Pressure Letdown Control Valve, is in AUTO.
- The pressure input to PCV-135 fails to ZERO.

Assuming NO action by the crew, which ONE of the following describes the effect on PCV-135, Letdown PCV, and RCS pressure?

PCV-135 throttles (1), RCS pressure (2).

- A. (1) OPEN (2) INCREASES
- B. (1) CLOSED (2) INCREASES
- C. (1) OPEN (2) DECREASES
- D. (1) CLOSED (2) DECREASES

Proposed Answer: B

Explanation (Optional):

- A. incorrect- PCV-135 WILL close to increase pressure when the input to the controller fails to zero. Due to the location of the valve in the system and with HCV-133 fully open when PCV-135 is closed RCS pressure will rise
- B. Correct - The valve will close because pressure is sensed upstream of the valve. If the controller is set at 150 psig and the pressure input fails low, then the valve will close to

attempt to raise upstream pressure

- C. Incorrect. PCV-135 WILL close to increase pressure when the input to the controller fails to zero.
- D. incorrect - Distracter is credible because changing demand does change valve position, and it is easy to associate lowering demand with valve closure

0% demand on the controller = lower system pressure and the valve will open
100% demand on the controller = higher system pressure and the valve will close

Technical Reference(s): R1601C Rev 24 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: R1601C Obj 2 (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41 7
55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	005	A1.02
	Importance Rating	3.3	

Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the RHRS controls including: RHR flow rate

Proposed Question: RO Question # 13

Given the following:

- A plant cooldown is in progress in accordance with O-2.2, Plant Shutdown from Hot Shutdown to Cold Conditions.
- 'A' RHR cooling loop is in service.
- 'B' RHR cooling loop is in Standby

Which ONE of the following identifies the limit on RHR flow for this condition?

- A. 1200 GPM.
- B. 1500 GPM.
- C. 2900 GPM
- D. 4900 GPM.

Proposed Answer: B

Explanation (Optional):

- A. Incorrect. Plausible because the maximum flow allowed with 2 RHR Pumps operating with discharge header cross-ties open is 1200 GPM
- B. Correct. Limited to 1500 GPM with only 1 RHR Pump operating
- C. Incorrect. 2900 plausible because it is the setpoint for the RHR low flow alarm when RHR is placed in service. It is subsequently adjusted to 400 GPM with one pump operating
- D. Incorrect. 4900 GPM is the flow limit for CCW

Technical Reference(s): O-2.2 section 6.4.8 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: R2501C, 1.07 (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41 10
55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.
Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	063	A1.01
	Importance Rating	2.5	

Ability to predict and/or monitor changes in parameters associated with operating the dc electrical system controls including: Battery capacity as it is affected by discharge rate

Proposed Question: RO Question # 14

Given the following conditions:

- A loss of all AC power has occurred.
- The crew is performing actions of ECA-0.0, Loss of All AC Power.
- The crew stops the Main Feedwater Pump DC Lube Oil Pumps, and stops other DC loads.

Which ONE of the following describes the design capacity of the Class 1E batteries, and the effect of stopping the Main Feedwater Pump DC Lube Oil Pumps while performing ECA-0.0?

- A. 2 hours; ensures that the 2 hour requirement will be met.
- B. 2 hours; extends the life of the batteries up to 4 hours.
- C. 4 hours; ensures that the 4 hour requirement will be met.
- D. 4 hours; extends the life of the batteries up to 8 hours

Proposed Answer: C

Explanation (Optional):

- A. Incorrect. Plausible because the ITS action time for DC Bus is 2 hours. Applicant must also know the purpose of load shedding and the design of the batteries to answer correctly.
- B. Incorrect. Plausible for same reason as option A, and the actual 4 hour time is referred to
- C. Correct.
- D. Incorrect. Stopping these loads ensure that 4 hours requirement can be met. Battery life may be extended beyond 4 hours by evaluating other DC loads and stopping them if

required

Technical Reference(s): ECA-0.0, step 17 and ATT 8 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: REC00C, 1.09 (As available)

Question Source: Bank # WTSI 64989
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2009

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

10 CFR Part 55 Content: 55.41 10
55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.

Comments:

Wolf Creek 2009

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	026	A2.04
	Importance Rating	3.9	

Ability to (a) predict the impacts of the following malfunctions or operations on the CSS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Failure of spray pump

Proposed Question: RO Question # 15

Given the following:

- A LOCA has occurred.
- The crew is performing actions of E-0, Reactor Trip or Safety Injection.
- RCS pressure is 200 psig.
- Containment pressure is 32 psig.
- Containment Spray Pumps are both TRIPPED.
- Attempts to manually start the Spray Pumps have failed.

Which ONE of the following describes the condition of the Containment Critical Safety Function Status Tree, and the procedural guidance available to mitigate the condition?

- A. Status Tree is RED; BOTH ATT 27.0, Attachment Automatic Action Verification AND FR-Z.1, Response to High Containment Pressure provide guidance to limit Containment pressure
- B. Status Tree is RED; ONLY FR-Z.1 contains guidance to limit Containment pressure
- C. Status Tree is ORANGE; BOTH ATT 27.0, Attachment Automatic Action Verification AND FR-Z.1, Response to High Containment Pressure provide guidance to limit Containment pressure
- D. Status Tree is ORANGE; FR-Z.1 contains the ONLY available guidance to limit Containment pressure

Proposed Answer: C

Explanation (Optional):

- A. Incorrect. Containment Pressure is too low for a Red path. Second part of answer is correct.

- B. Incorrect. Attachment 27 does provide action to limit or reduce containment pressure for conditions where automatic actuation should have occurred. Attachment 27 requires verification of Ctmt Recirc Cooler operation
- C. Correct. Both procedures ensure containment recirc coolers are operating
- D. Incorrect. Although Orange path exists, both procedures provide guidance to limit or reduce containment pressure

Technical Reference(s): E-0, Att 27 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41 10
 55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	076	A2.02
	Importance Rating	2.7	

Ability to (a) predict the impacts of the following malfunctions or operations on the SWS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Service water header pressure

Proposed Question: RO Question # 16

Plant conditions:

- The plant is operating at 100% power
- All systems are in a normal configuration
- Service Water Pumps A, C & D are running

Event occurs:

- Computer Point P2160, SERVICE WATER PUMP A & B HEADER, alarms LOW
- PI-2160, SW LOOP A HEADER PRESS, is indicating 44 psig.
- PI-2161, SW LOOP A HEADER PRESS, is indicating 56 psig.
- NO other Annunciators are currently LIT
- The crew has taken action in an attempt to raise Service Water pressure but has been unsuccessful.

Which ONE of the following describes the event in progress and the action required if the condition cannot be corrected and parameters remain the same?

- A. Service Water Pump trip; initiate a plant shutdown due to loss of cooling to plant components
- B. Service Water Pump trip; trip the reactor and enter E-0, Reactor Trip or Safety Injection
- C. Service Water System leak; initiate a plant shutdown due to loss of cooling to plant components
- D. Service Water System leak; trip the reactor and enter E-0, Reactor Trip or Safety Injection

Proposed Answer: C

Explanation (Optional):

- A. Incorrect. There would be another annunciator lit if a SW pump tripped. Action is correct.
- B. Incorrect. Action incorrect as trip not required unless header pressure is below 40 psig
- C. Correct.
- D. Incorrect. Correct failure but reactor trip will not be required

Technical Reference(s): AP-SW.1 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: RAP19C, 1.02, 2.01 (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41 10
55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.

Comments:

Used combination of previous questions to develop a new question

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	008	A3.05
	Importance Rating	3.0	

Ability to monitor automatic operation of the CCWS, including: Control of the electrically operated, automatic isolation valves in the CCWS

Proposed Question: RO Question # 17

Given the following:

- The reactor has tripped.
- The crew has entered E-0, Reactor Trip or Safety Injection.
- Plant conditions as follows:
 - RCS pressure 1810 psig and slowly lowering.
 - PZR level 5% and lowering.
 - RCS temperature 550°F and lowering.
 - Containment pressure 5 psig and rising.
 - SG NR levels off-scale low.
 - All equipment has operated as designed.

Which ONE of the following describes the status of Component Cooling Water system valves for the current plant conditions?

- A. MOV-813 and MOV-814, CCW to and from Reactor Support Coolers, are OPEN; MOV-817, CCW to Containment Isolation valve, is OPEN.
- B. MOV-813 and MOV-814, CCW to and from Reactor Support Coolers, are OPEN; MOV-817, CCW to Containment Isolation valve, is CLOSED.
- C. MOV-813 and MOV-814, CCW to and from Reactor Support Coolers, are CLOSED; MOV-817, CCW to Containment Isolation valve, is OPEN.
- D. MOV-813 and MOV-814, CCW to and from Reactor Support Coolers, are CLOSED; MOV-817, CCW to Containment Isolation valve, is CLOSED.

Proposed Answer: C

Explanation (Optional):

- A. Incorrect. Conditions presented in stem will have resulted in SI and CI actuation. Therefore MOV-813 and MOV-814 will have closed
- B. Incorrect. The opposite of the valve positions. It is confusing because MOV-817 title is a containment isolation valve
- C. Correct. MOV-813 and MOV-814 receive an automatic isolation signal (T). This isolates Reactor Support Cooling pad only. MOV-817 receives no CI signal. Containment pressure will have actuated SI
- D. Incorrect. The CI valves in this system are MOV-813 and MOV-814. MOV-817 is not a CI valve and does not receive an auto signal to close

Technical Reference(s): 33013-1246, sheet 2 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: R2801C, Obj 1.04 (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41 7
55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:

Significantly modified from 2010 item

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	078	A3.01
	Importance Rating	3.1	

Ability to monitor automatic operation of the IAS, including: Air pressure

Proposed Question: RO Question # 18

Given the following:

- The plant is at 100% power.
- Instrument Air Compressor "C" is running.
- "A" and "B" Instrument Air Compressors have both automatically started.
- Instrument Air pressure is 97 psig and slowly rising.

Which ONE of the following describes the Air Compressor configuration when MCB Instrument Air pressure rises to 110 psig?

- Instrument Air Compressor "C" running loaded. "A" and "B" IAC running loaded
- Instrument Air Compressor "C" running loaded. "A" and "B" IAC running unloaded
- Instrument Air Compressor "C" running unloaded. "A" and "B" IAC running loaded
- Instrument Air Compressor "C" is running unloaded. "A" and "B" IAC running unloaded

Proposed Answer: A

Explanation (Optional):

- Correct. 105 psig starts backup (standby) compressors, and all compressors will remain running loaded until 123 psig is reached
- Incorrect. A and B start at 105 psig. Normally they load at 110 psig lowering if they are running in AUTO
- Incorrect. C IAC will cycle between 110-123 psig. At this pressure it is running loaded
- Incorrect. When running all compressors will unload at 123 psig, so they will all be loaded

Technical Reference(s): R4701C IA/SA (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: R4701C, 1.07 (As available)

Question Source: Bank #
Modified Bank # WTSI 66195 (Note changes or attach parent)
New

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41 7
55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:

Modified from 2007 Ginna NRC Exam.

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	039	A4.04
	Importance Rating	3.8	

Ability to manually operate and/or monitor in the control room: Emergency feedwater pump turbines

Proposed Question: RO Question # 19

Which ONE of the following identifies the indication available in the control room that the TDAFW pump turbine was overspeeding and has tripped?

- A. Discharge pressure indicated 1500 psig and rising prior to steam supply valves MOV-3504A and MOV-3505A automatically closing
- B. Discharge pressure indicated 1500 psig and rising prior to stop valve 3652 automatically closing
- C. Pump RPM indication rising to approximately 4850 RPM followed by steam supply valves MOV-3504A and MOV-3505A automatically closing
- D. Pump RPM indication rising to approximately 4850 RPM followed by stop valve 3652 automatically closing

Proposed Answer: B

Explanation (Optional):

- A. Incorrect. Discharge pressure rising is an indication of overspeed, but steam supply valves only receive an auto open signal, not auto close
- B. Correct.
- C. Incorrect. The pump runs at 4800 RPM, so 4850 rpm is higher than normal but not high enough to cause an overspeed. Additionally, steam supply valves do not automatically close, the steam stop valve does
- D. Incorrect. The pump runs at 4800 RPM, so 4850 rpm is higher than normal but not high enough to cause an overspeed. Valve position is correct for this option

Technical Reference(s): R4201C (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: R4201C, 1.02, 1.07 (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41 7
55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	059	A4.12
	Importance Rating	3.4	

Ability to manually operate and monitor in the control room: Initiation of automatic feedwater isolation

Proposed Question: RO Question # 20

The plant is operating at 98% power with all systems in AUTO when a Reactor Trip occurs.

With regard to the Main Feedwater Control valves,

- A. If Tavg increases to >554°F, the FRVs will snap open.
- B. If Tavg is < 554°F, the FRVs will modulate open on ADFCS level error
- C. If Tavg is > 554°F, the FRVs will modulate open on ADFCS steam/feed flow error
- D. If Tavg is < 554°F, the FRVs will close.

Proposed Answer: D

Explanation (Optional):

- A. Incorrect. AFDCS will control valve position on a reactor trip when Tavg > 554°F. Valves do not snap open although it is a common term used for steam dump
- B. Incorrect. If Tavg is < 554°F the FRV's do not respond to ADFCS demand.
- C. Incorrect. FRV's respond to an AFDCS level error signal not a flow error post trip.
- D. Correct. Post trip when Tavg is less than 554°F, the logic commands the FRVs to close.

Technical Reference(s): R4401C

(Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: R4401C 3.03 (As available)

Question Source: Bank # WTSI 66494
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2006

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

10 CFR Part 55 Content: 55.41 7
55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:

Ginna 2006 (Not one of last 2)

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	103	2.2.42
	Importance Rating	3.9	

Equipment Control:: Ability to recognize system parameters that are entry-level conditions for Technical Specifications.

Proposed Question: RO Question # 21

Given the following:

- The plant is operating at 100% power.
- A loss of Containment Cooling has occurred.
- Current Containment conditions are as follows:
 - Containment pressure 0.9 psig
 - Containment temperature 121°F

Which ONE of the following identifies the Technical Specification implications of this condition?

- A. All Technical Specification LCOs related to Containment are currently satisfied
- B. Technical Specification Action is required based on Containment temperature ONLY
- C. Technical Specification Action is required based on Containment pressure ONLY
- D. Technical Specification Action is required based on BOTH Containment temperature AND pressure

Proposed Answer: B

Explanation (Optional):

- A. Incorrect. Temperature is above the TS LCO limit
- B. Correct. TS temperature must be below 120. Pressure must be between (-)2 psig and +1 psig
- C. Incorrect. Although pressure is near the limit, it is not above. Temperature is above the limit

D. Incorrect. Action is only required on temperature at the current time

Technical Reference(s): TS 3.6.5 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: R2101C, 1.13 (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41 8
55.43

Components, capacity, and functions of emergency systems.
Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	063	2.4.6
	Importance Rating	3.7	

Emergency Procedures / Plan: Knowledge of EOP mitigation strategies.

Proposed Question: RO Question # 22

Given the following:

- The plant is operating at 100% power.
- The following alarm is received:
- J-21, 1A or 1B BATTERY UNDERVOLTAGE
- L-31, SAFEGUARD DC FAILURE
- Battery Bus 'A' voltage indication is 0 volts.

Which ONE of the following describes the effect on the plant and the actions required?

- A. Reactor will trip;
stabilize the plant using E-0, Reactor Trip or Safety Injection, and refer to the appropriate ER procedure to locally swap control power to 'B' Train'.
- B. Reactor will trip;
stabilize the plant using E-0, Reactor Trip or Safety Injection, and refer to the appropriate ER procedure to place EDG "B" in LOCAL/MANUAL due to loss of field flash capability.
- C. The reactor will remain at power;
EDG "B" must be placed in LOCAL/MANUAL in accordance with the appropriate ER procedure due to loss of field flash capability.
- D. The reactor will remain at power;
refer to the appropriate ER procedure to locally swap control power to 'B' Train'.

Proposed Answer: A

Explanation (Optional):

- A. Correct. See ER-ELEC.2
- B. Incorrect. Loss of DC does not cause loss of field flash because DC control power is supplied by both trains to DGs
- C. Incorrect. Reactor trips on loss of RTB UV coil power. DGs not affected as shown in option B
- D. Incorrect. Reactor will trip. However, second part is correct

Technical Reference(s): ER-ELEC.2 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: R0901C, 1.06 (As available)

Question Source: Bank # WTSI 64987
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2009

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

10 CFR Part 55 Content: 55.41 7
55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:

Wolf Creek 2009, although actions are different, stem conditions are essentially the same

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	012	2.2.36
	Importance Rating	3.1	

Equipment Control: Ability to analyze the effect of maintenance activities, such as degraded power sources, on the status of limiting conditions for operations.

Proposed Question: RO Question # 23

Given the following:

- The plant is at 100% power.
- Reactor Trip Breaker 'B' control power voltage is erratic.
- Troubleshooting is required and the control power supply must be removed from service during the troubleshooting
- The crew is aligning Reactor Trip and Bypass Breakers in preparation for performing the required maintenance.

Which ONE of the following describes the Technical Specification implications of this evolution?

A Technical Specification LCO Action Statement is...

- A. entered because 1 required train of Reactor Trip Breakers is INOPERABLE
- B. entered because there is a loss of 1 channel of each required Reactor Trip System Instrumentation is INOPERABLE
- C. NOT entered because minimum channels are available with Reactor Trip Bypass Breakers aligned as required
- D. NOT entered because there is no loss of Reactor Protection System function with only ONE Reactor Trip Breaker power supply unavailable

Proposed Answer: A

Explanation (Optional):

- A. Correct
- B. Incorrect. Plausible because the LCO is entered, but not from loss of capability from

channels, but there is only 1 train of power

- C. Incorrect. Plausible because it is true that minimum channels are available, but incorrect because even though minimum channels are available, there is loss of 1 train trip capability due to inoperable power supply.
- D. Incorrect. Plausible because RPS will perform it's intended function with a RTBB closed instead of a RTB, but incorrect because an action statement must be entered with less than 2 trains of power to RTBs

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

Proposed References to be provided to applicants during examination: None

Learning Objective: R3501C, 1.12, 1.13 (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41 7
55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	061	K5.02
	Importance Rating	3.2	

Knowledge of the operational implications of the following concepts as they apply to the AFW:
Decay heat sources and magnitude

Proposed Question: RO Question # 24

Which ONE of the following sets of conditions will result in the MOST Auxiliary Feedwater System flow required to maintain SG levels constant 3 minutes following a reactor trip?

- | | <u>Core Burnup</u> | <u>Initial Power Level</u> |
|----|--------------------|----------------------------|
| A. | 1,000 MWD/MTU | 10% |
| B. | 1,000 MWD/MTU | 100% |
| C. | 10,000 MWD/MTU | 10% |
| D. | 10,000 MWD/MTU | 100% |

Proposed Answer: D

Explanation (Optional):

- A. incorrect. BOL, low power, less AFW flow required
- B. incorrect. BOL, high power, less decay heat than EOL
- C. incorrect. EOL low power, less decay heat than high power
- D. Correct

Technical Reference(s): Reactor Trip T&AA

(Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: Need Obj don't have TAA LPs (As available)

Question Source: Bank # WTSI 58401
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2007

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

10 CFR Part 55 Content: 55.41 14
55.43

Principles of heat transfer, thermodynamics and fluid mechanics.

Comments:
Callaway 2007

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	006	A2.12
	Importance Rating	4.5	

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

Proposed Question: RO Question # 25

Given the following:

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

The following conditions develop:

- RCS pressure is 1750 psig and lowering slowly.
- Charging Pumps "A" and "B" are RUNNING.
- Charging flow is offscale HIGH.
- Letdown is isolated.
- RCS temperature is 542°F and slowly lowering.
- PZR level is 1% and lowering.

Which ONE of the following actions is required?

- Initiate SI and CI and continue in ES-0.1
- Initiate SI and CI and return to E-0, Reactor Trip Or Safety Injection
- Start SI pumps as required to maintain PZR level and continue in ES-0.1
- Start SI pumps as required to maintain PZR level and return to E-0

Proposed Answer: B

Explanation (Optional):

- Incorrect. Requires transition back to E-0

- B. Correct. Applies at any time in ES-0.1. (Foldout Criteria is either PZR level <5% with loss of 20 degrees subcooling, any SI actuation setpoint reached (1750 psig) or loss of subcooling (0 degrees)
- C. Incorrect. Below SI initiation setpoint for PZR pressure, so ES-0.1 would be the incorrect procedure. SI must be actuated
- D. Incorrect. Must initiate SI and CI because in ES-0.1, SI and CI are not actuated. Would operate SI as necessary if a procedure was being perormed that had SI operating already

Technical Reference(s): ES-0.1 Foldout (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: RES01C, 2.01 (As available)

Question Source: Bank # WTSI 58352
 Modified Bank # (Note changes or attach parent)
 New

Question History: Last NRC Exam: 2007

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

10 CFR Part 55 Content: 55.41 10
 55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.

Comments:
 Callaway 2007 NRC Exam

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	076	K4.01
	Importance Rating	2.5	

Knowledge of SWS design feature(s) and/or interlock(s) which provide for the following:
 Conditions initiating automatic closure of closed cooling water auxiliary building header supply return valves.

Proposed Question: RO Question # 26

Given the following:

- Plant trip from 100% power.
- Loss of off-site power has occurred.
- RCS pressure is 1700 psig and lowering.
- Containment pressure is 2.8 psig and rising.
- All equipment has operated as designed.

Which ONE of the following identifies the current position of Service Water supply to Auxiliary Building, MOVs 4616 and 4735, and Service Water Supply to Turbine Plant MOVs 4614 and 4664?

	<u>MOV-4616/4735</u>	<u>MOV-4614/4664</u>
A.	OPEN	OPEN
B.	OPEN	CLOSED
C.	CLOSED	OPEN
D.	CLOSED	CLOSED

Proposed Answer: D

Explanation (Optional):

- A. Incorrect. Conditions presented indicate SI is actuated coincident with LOOP, so both sets of valves would have automatically closed.
- B. Incorrect. Plausible because it is logical to believe that one building would be isolated and the other would not, since this is the only condition that would cause all of these valves to be closed. A LOOP or an SI by itself would not cause valve closure

- C. Incorrect. Plausible because it is logical to believe that one building would be isolated and the other would not, since this is the only condition that would cause all of these valves to be closed
- D. Correct. All 4 valves close on LOOP with coincident SI signal to ensure flow to Ctmt coolers and EDGs

Technical Reference(s): R5101C (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: R5101C, 1.02b (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41 7
 55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	010	A3.02
	Importance Rating	3.6	

Ability to monitor automatic operation of the PZR PCS, including: PZR pressure

Proposed Question: RO Question # 27

Given the following:

- The plant is at 93% power after a brief transient.
- All control systems are operating in their normal alignments.
- Pressurizer Spray valves indicate partial open.
- Proportional Heaters are energized.
- All Backup Heaters are off with control switches in AUTO.

Based on these conditions, which ONE of the following is the current value of Pressurizer pressure?

- A. 2180 psig
- B. 2210 psig
- C. 2250 psig
- D. 2310 psig

Proposed Answer: C

Explanation (Optional):

- A. Incorrect. At this pressure Backup heaters will be on because pressure is below the setpoint for automatic backup heater operation
- B. Incorrect. At this pressure Backup heaters will be on because pressure is below the setpoint for automatic backup heater operation. This pressure is close to the pressure where backup heaters will turn off if they are operating in AUTO
- C. Correct. A and B would have backup heaters on. D would have sprays full open
- D. Incorrect. At this pressure, PZR spray valves would be fully open in an attempt to lower

pressure and maintain it below PORV setpoints

Technical Reference(s): R1901C (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: R1901C, 1.07 (As available)

Question Source: Bank # WTSI 53119
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2007

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

10 CFR Part 55 Content: 55.41 7
55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:
2007 North Anna

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	078	K1.04
	Importance Rating	2.6	

Knowledge of the physical connections and/or cause-effect relationships between the IAS and the following systems: Cooling water to compressor

Proposed Question: RO Question # 28

Which ONE of the following describes how Service Water is supplied to Instrument Air Compressor "A", and how the compressor is reset if it trips on High Service Water Outlet Temperature?

Service Water...

- A. is continuously supplied to compressor whether running or off; the compressor will automatically restart when temperature returns to below the trip setpoint
- B. is continuously supplied to compressor whether running or off; compressor is locked out upon tripping and must be manually reset prior to operation
- C. is supplied via a solenoid operated valve upon compressor start signal; compressor will automatically restart when temperature returns to below the trip setpoint
- D. is supplied via a solenoid operated valve upon compressor start signal; compressor is locked out upon tripping and must be manually reset prior to operation

Proposed Answer: D

Explanation (Optional):

- A. Incorrect. Cooling water is not continuously supplied. It is supplied via solenoid operated valve when the compressor receives a start signal. If a compressor trips, it must be manually reset
- B. Incorrect. Plausible because second half is correct. Incorrect because first half is incorrect.
- C. Incorrect. First half is correct but second part is incorrect. Manual reset will be required
- D. Correct.

Technical Reference(s): R4701C (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: R4701C, 1.07 (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41 8
55.43

Components, capacity, and functions of emergency systems.

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	056	K1.03
	Importance Rating	2.6	

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

Proposed Question: RO Question # 29

The plant is operating at 100% power with all systems normally aligned.

Condensate Bypass Valve V3959 fails OPEN.

Which ONE of the following identifies the effect on plant operation?

- A. Feedwater inlet temperature to the Steam Generators will LOWER.
- B. Main Feed Pump Suction flow will RISE.
- C. Main Feed Pump Suction pressure will LOWER.
- D. Condensate Storage Tank level will RISE.

Proposed Answer: A

Explanation (Optional):

- A. Correct.
- B. Incorrect. Flow will not change because it is determined by SGWLC.
- C. Incorrect. This would be true if a Condensate Pump tripped or the Recirc valves failed open.
- D. Incorrect. This would be true if the bypass around the normal condensate pump reject MOV was failed open.

Technical Reference(s): R4301C, pg 18

(Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: R4301C, 1.02 (As available)

Question Source: Bank # WTSI 65340
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2009

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

10 CFR Part 55 Content: 55.41 14
55.43

Principles of heat transfer, thermodynamics and fluid mechanics.

Comments:
BVPS-2 2009 NRC Exam

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	034	A1.02
	Importance Rating	2.9	

Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with Fuel Handling System operating the controls including: Water level in the refueling canal

Proposed Question: RO Question # 30

Given the following:

- The plant is in Mode 6.
- Refueling Activities are in progress.
- Containment Sump 'A' level is rising with both Containment Sump "A" Pumps operating continuously.
- Spent Fuel Pool Low Level alarm is received in the Control Room.

Which ONE of the following describes actions that will be performed in accordance with RF-601, Fuel handling Accident Instructions?

If conditions permit, consider aligning...

- A. Containment Sump "A" to the RWST to minimize flooding; Move the Fuel Transfer Cart to Containment
- B. Containment Sump "A" to the RWST to minimize flooding; Move the Fuel Transfer Cart to the Spent Fuel Pool
- C. Containment Sump "B" to the RWST to minimize flooding; Move the Fuel Transfer Cart to Containment
- D. Containment Sump "B" to the RWST to minimize flooding; Move the Fuel Transfer Cart to the Spent Fuel Pool

Proposed Answer: D

Explanation (Optional):

- A. Incorrect. RF-601 directs pumping sump B, not sump A. Also, transfer cart is moved to SFP to facilitate isolating the refueling pool from containment if required

- B. Incorrect. First part incorrect as in option A, but second half is correct IAW RF-601
- C. Incorrect. First part is correct but 2nd part wrong for same reason as Option A
- D. Correct.

Technical Reference(s): RF-601 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41 10
 55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.
 Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	086	A3.01
	Importance Rating	2.9	

Ability to monitor automatic operation of the Fire Protection System including: Starting mechanisms of fire water pumps

Proposed Question: RO Question # 31

Given the following:

- With the plant at power, a fire is reported in the Turbine Building.
- Turbine Building sprinkler system actuates.
- Fire Protection System header pressure indicates 100 psig and lowering slowly.
- NO action has been taken by the crew.

Which ONE of the following describes the status of the Motor Driven and Diesel Driven Fire pumps?

- A. All Fire pumps are in Standby; the Motor Driven Fire Pump will automatically start first if system pressure lowers to 95 psig
- B. All Fire pumps are in Standby; the Motor Driven Fire Pump will automatically start first if system pressure lowers to 85 psig
- C. Motor Driven Fire Pump is running; Diesel Driven Fire Pump is in Standby but will automatically start if system pressure lowers to 85 psig
- D. Both Motor and Diesel Driven Fire Pumps have automatically started and are supplying the Fire System header

Proposed Answer: D

Explanation (Optional):

- A. Incorrect. Pressure is correct for auto start of the MD Fire Pump but the pumps also start on Fire Suppression system actuation, so even though pressure has not reached the setpoint, they will be running
- B. Incorrect. Pressure is correct for auto start of the Diesel Fire Pump but the pumps also start on Fire Suppression system actuation, so even though pressure has not reached

the setpoint, they will be running

- C. Incorrect. MD Fire Pump will be running as stated. Pressure is correct for auto start of the Diesel Fire Pump but the pump also starts on Fire Suppression system actuation, so even though pressure has not reached the setpoint, they will both be running
- D. Correct. Both pumps start on suppression system actuation. Setpoints are valid for auto start

Technical Reference(s): R5901C (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: R5901C, 1.07 (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41 8
55.43

Components, capacity, and functions of emergency systems.

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	029	K3.02
	Importance Rating	2.9	

Knowledge of the effect that a loss or malfunction of the Containment Purge System will have on the following: Containment entry

Proposed Question: RO Question # 32

Given the following:

- The plant is operating in Mode 3, Normal operating temperature and pressure.
- Containment Mini-Purge is in progress prior to Containment entry to investigate a potential leak.
- The Mini-Purge blower trips, and cannot be restarted.

Which ONE of the following identifies how the Containment entry is impacted by the trip?

Containment entry...

- may proceed as long as RWP requirements are met.
- may proceed ONLY after the purge is completed using the normal Purge system.
- must be delayed until the Mini-Purge blower is returned to operable status.
- must be delayed until the plant is placed in Mode 5.

Proposed Answer: A

Explanation (Optional):

- Correct.
- Incorrect, cannot use Main Purge in Mode 3
- Incorrect. As long as other requirements are met, Ctmt entry may proceed with additional operation of mini-purge
- Incorrect because entries may be made in other circumstances where the facility is in a Mode higher than mode 5

Technical Reference(s): CV Atmosphere Radiological environmental evaluation (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41 12
55.43

Radiological safety principles and procedures.
Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	045	A4.06
	Importance Rating	2.8	

Ability to manually operate and/or monitor in the control room: Turbine stop valves

Proposed Question: RO Question # 33

Following a reactor trip, which ONE of the following indications is used to determine the Main Turbine is tripped, and what action is taken if the turbine CANNOT be tripped from the control room?

- A. Verify Turbine Stop Valve GREEN lights illuminated; close MSIVs
- B. Verify Turbine Stop Valves GREEN lights illuminated; manually run back the Main Turbine
- C. Verify Turbine Control Valves RED lights illuminated; close MSIVs
- D. Verify Turbine Control Valves RED lights illuminated; manually run back the Main Turbine

Proposed Answer: A

Explanation (Optional):

- A. Correct
- B. Incorrect. Plausible because indication is correct and because manual runback will also shut down the turbine but it is not performed by procedure
- C. Incorrect. Red lights mean that the valves are open. Easily confused light indication. Second half correct.
- D. Incorrect. See comments on options B and C

Technical Reference(s): E-0 step 2

(Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: REP00C, 1.03 (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41 10
55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.
Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	016	A2.03
	Importance Rating	3	

Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the NNIS controls including: Interruption of transmitted signal

Proposed Question: RO Question # 34

Given the following:

- PT-469, Steam Generator Pressure Loop A, has failed and has been removed from service.
- While I&C was collecting comparison data from PT-468, Steam Generator Pressure Loop A, an inadvertent short caused PT-468 output to fail low.

Which ONE of the following describes the expected crew response to this failure?

- Place SG 'A' MFRV Controller, SG 'A' MFRV Bypass controller and HC-468, SG 'A' Atmospheric Controller, in manual. Remove PT-468 from service.
- Enter E-0, Reactor Trip or Safety Injection, and subsequently transition to ES-0.1, Reactor Trip Response.
- Enter E-0, Reactor Trip or Safety Injection, and subsequently transition to ES-1.1, SI Termination.
- Initiate a Power Reduction to prevent overpower from excessive steam and feed flow.

Proposed Answer: C

Explanation (Optional):

- Incorrect, this would be the correct action if the other channel (P-469) was in service.
- Incorrect, ES-0.1 would not be entered, since SI would occur on this failure.
- Correct, Inadvertent SI and reactor trip would occur under these conditions, thus the appropriate recovery procedure would be ES-1.1, SI Termination, since SI has actuated but is not required.

D. Incorrect, If a single channel of SG pressure failed high, the ADV on the affected SG would open, which might require power reduction to prevent overpower.

Technical Reference(s): R4001C (Attach if not previously provided)

Proposed References to be provided to applicants during examination: N

Learning Objective: R4001C, 1.04 (As available)

Question Source: Bank # WTSI 68229
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2005

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

10 CFR Part 55 Content: 55.41 7
55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:
Point Beach 2005 NRC Exam

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	035	K4.01
	Importance Rating	3.6	

Knowledge of S/GS design feature(s) and/or interlock(s) which provide for the following: S/G level control

Proposed Question: RO Question # 35

With ADFCS operating in the LOW POWER Mode, which ONE of the following inputs is NOT used to provide automatic control of SG level?

- A. Program Level
- B. Main Steam Flow
- C. SG Pressure
- D. Feedwater Pressure

Proposed Answer: B

Explanation (Optional):

- A. Incorrect. Program level will remain an input to DFWCS in low power operations, even though program level will be at the low limit.
- B. Correct. During low power operation, steam flow is blocked from control
- C. Incorrect. SG pressure is used in both cases to provide flow compensation
- D. Incorrect. Feedwater pressure provides input to program DP in all modes of operation

Technical Reference(s): R4401C

(Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: R4401C, 1.08 (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41 7
55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.
Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	027	K2.01
	Importance Rating	3.1	

Knowledge of bus power supplies to the following: Fans

Proposed Question: RO Question # 36

Given the following:

- The plant is in Mode 5.
- A Containment Purge is in progress with Containment Purge Supply and Exhaust Fans "A" in operation.
- A loss of 480V Bus 13 occurs.

Which ONE of the following describes the operation of the Containment Purge system for this condition?

- Containment Purge continues; Containment Purge Supply and Exhaust Fan "B" is unavailable.
- BOTH Containment Purge Fans continue to operate; Instrumentation required for automatic Containment Purge isolation is lost
- BOTH Containment Purge Fans trip on loss of power; Instrumentation required for automatic Containment Purge isolation is lost
- BOTH Containment Purge Fans trip on loss of power; Instrumentation required for automatic Containment Purge isolation remains available

Proposed Answer: D

Explanation (Optional):

- Incorrect. Bus 13 supplies MCC A which supplies Train A purge fans, not train B
- Incorrect. Purge Fans lose power since they are supplied by MCC A. Instrumentation is not lost because it is supplied by vital instrumentation power
- Incorrect. First part is correct but second part is wrong because instrumentation will have DC supply through Train A inverter

D. Correct. Instrumentation power is not lost with loss of bus 13. Train A Purge Fans are supplied by MCC A which is fed from Bus 13

Technical Reference(s): P-12 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: R2201C, 1.05 (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41 7
55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	001	K5.73
	Importance Rating	2.7	

Knowledge of the following operational implications as they apply to the CRDS: Need for maintenance of stable plant conditions during rod exercising

Proposed Question: RO Question # 37

Given the following:

- The plant is operating at 100% power.
- Rod Bank testing is in progress in accordance with STP-O-1, Rod Control System.
- The HCO is exercising Shutdown Bank A.
- A transient occurs causing Tave to lower approximately 6 degrees F.

Assuming rod motion is required, which ONE of the following describes the effect and the action taken to initially stabilize the plant?

- Shutdown Margin is reduced; Place rod control in AUTO and verify that rod motion is correct and Tave is stabilizing
- Minimum temperature for Criticality has been exceeded; Place rod control in MANUAL and stabilize Tave as required
- Shutdown Margin is reduced; Restore Shutdown Bank A by withdrawing to its full out position and verify that Tave stabilizes
- Minimum temperature for Criticality has been exceeded; Restore Shutdown Bank A by withdrawing to its full out position and verify that Tave stabilizes

Proposed Answer: A

Explanation (Optional):

- Correct. For initial stabilization, they will be placed in AUTO, Later, they would be in manual after restoring the shutdown bank
- Incorrect. From 100% power, Tave lowering by 6 degrees will not challenge minimum temperature for criticality. Rod Control is allowed to operate automaticall in an attempt

to stabilize tave

- C. Incorrect. First part is correct, but plant would not be stabilized by operation of Shutdown Banks. Auto or manual operation must be performed on control banks
- D. Incorrect. See description on Options B and C

Technical Reference(s): STP-O-1 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41 10
55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.
Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	071	2.4.46
	Importance Rating	4.2	

Emergency Procedures / Plan: Ability to verify that the alarms are consistent with the plant conditions.

Proposed Question: RO Question # 38

Given the following:

- The plant is operating at 100% power.
- Gas Decay Tank release is in progress.
- The following radiation monitor alarm is received:
 - R14 VENT GAS

Which ONE of the following describes ALL of the automatic actuations that occur?

- A. ONLY RCV-14 closes. NO other actuations occur
- B. RCV-14 closes AND Aux Building Ventilation Isolation occurs ONLY
- C. Aux Building Ventilation Isolation occurs ONLY. NO other actuations occur
- D. RCV-14 closes; Aux Building Ventilation Isolation occurs; Waste Gas Compressors trip if running

Proposed Answer: B

Explanation (Optional):

- A. Incorrect. This actuation does occur, but whether in Filter-In or Filter-Out, the Aux Building fans will also trip
- B. Correct.
- C. Incorrect. If the R-14 alarm is received, RCV-14 will also close due to high radiation.
- D. Incorrect. Plausible because the first 2 actuations do occur. Applicant may consider WG Compressor operation as a contributor towards the alarm. WG compressor trips

typically on low pressure, not hi rad

Technical Reference(s): R3801C (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: R3801C, 6.05 (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41 7
55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	029	EK1.05
	Importance Rating	2.8	

Knowledge of the operational implications of the following concepts as they apply to the ATWS: definition of negative temperature coefficient as applied to large PWR coolant systems

Proposed Question: RO Question # 39

During an ATWS at 100% Power, EOL conditions, which ONE of the following actions will insert the MOST negative reactivity within the FIRST 30 seconds of the ATWS?

- A. Manual Control Rod Insertion
- B. Manual Turbine Trip
- C. Initiation of Emergency Boration
- D. Automatic Control Rod Insertion

Proposed Answer: B

Explanation (Optional):

- A. Incorrect. Manual control rod insertion will be at 48 steps per minute. Plausible because it is in the first step of FR-S.1 and it does insert negative reactivity.
- B. Correct. When the turbine is tripped, RCS temperature and fuel temperature will rise rapidly, and cause reactor power to be sharply reduced.
- C. Incorrect. Initiation of Emergency Boration will also cause negative reactivity insertion, but will not reach the RCS until several minutes have elapsed in the event.
- D. Incorrect. Auto rod insertion maximum speed is 66 steps per minute. Plausible because it inserts reactivity and is the first control system response to the ATWS, but does not insert as much negative reactivity as a turbine trip.

Technical Reference(s): FR-S.1 BD

(Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: RFRS1C, 1.06, 1.07 (As available)

Question Source: Bank # WTSI 64054
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2008

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

10 CFR Part 55 Content: 55.41 10
55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.
Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	027	AK1.02
	Importance Rating	2.8	

Knowledge of the operational implications of the following concepts as they apply to Pressurizer Pressure Control Malfunctions: Expansion of liquids as temperature increases

Proposed Question: RO Question # 40

Given the following:

- Unit 1 is at 100% power.
- The SETPOINT for the Pressurizer Pressure Controller, PC-431K, has failed high.

Which ONE of the following describes the PZR Pressure Control System response, and the INITIAL effect on PZR Surge Line temperature due to this failure?

- Spray Valves will open; PZR Surge Line temperature will RISE.
- Spray Valves will open; PZR Surge Line temperature will LOWER.
- Backup Heaters will energize; PZR Surge Line temperature will RISE.
- Backup heaters will energize; PZR Surge Line temperature will LOWER.

Proposed Answer: C

Explanation (Optional):

- Incorrect. If transmitter failed high, spray would open, but setpoint failing high will order pressure to increase, so heaters will energize. Second half is correct
- Incorrect. Same as Option A, and surge line temperature will rise because hotter PZR water will go through the surge line based on the heater energization
- Correct.
- Incorrect. First part correct and second part incorrect for same reason as B

Technical Reference(s): R1901C

(Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: R1901C, Obj 1.06 (As available)

Question Source: Bank # WTSI 57107
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2007

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

10 CFR Part 55 Content: 55.41 14
55.43

Principles of heat transfer, thermodynamics and fluid mechanics.

Comments:
McGuire 2007 NRC Exam

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	E04	EK1.3
	Importance Rating	3.5	

Knowledge of the operational implications of the following concepts as they apply to the (LOCA Outside Containment) Annunciators and conditions indicating signals, and remedial actions associated with the (LOCA Outside Containment).

Proposed Question: RO Question # 41

Given the following:

- A reactor trip and an SI have occurred.
- Containment pressure is reading 2 psig.
- RCS pressure is reading 1755 psig.
- All systems have operated as required.
- Aux Building radiation monitors are alarming.
- The crew transitions to ECA-1.2, LOCA Outside Containment.

Which ONE of the following describes 1) the FIRST operator action to attempt to isolate the leak; **AND** 2) the parameter monitored to determine whether the actions were successful?

- A. 1) Isolate the RHR Pump discharge to ONE train of Reactor Vessel Deluge;
2) RCS pressure
- B. 1) Isolate the RHR Pump discharge to ONE train of Reactor Vessel Deluge;
2) Pressurizer level
- C. 1) Isolate the discharge to BOTH trains of Reactor Vessel Deluge;
2) RCS pressure
- D. 1) Isolate the discharge to BOTH trains of Reactor Vessel Deluge;
2) Pressurizer level

Proposed Answer: A

Explanation (Optional):

- A. Correct.
- B. Incorrect. Correct action, wrong parameter. Plausible because if the leak is isolated,

PZR level will eventually rise if it is low.

- C. Incorrect. Only 1 train is isolated at a time but plausible because RCS pressure is the parameter monitored
- D. Incorrect. Only 1 train is isolated at a time but plausible because PZR level will eventually rise if it is low.

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

Proposed References to be provided to applicants during examination: None

Learning Objective: REC12C, 2.01 (As available)

Question Source: Bank # WTSI 63460
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2007

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

10 CFR Part 55 Content: 55.41 10
55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.

Comments:

Farley 2007 but alot of modification due to plant design

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	E11	EK2.1
	Importance Rating	3.6	

Knowledge of the interrelations between the (Loss of Emergency Coolant Recirculation) and the following: Components, and functions of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Proposed Question: RO Question # 42

Which of the following actions are directed by ECA-1.1, Loss of Emergency Coolant Recirculation?

1. Provide guidance on aligning Safety Injection Pump suction directly to the Containment Sump
2. Continue attempts to restore emergency coolant recirculation capability and restore Charging
3. Provide makeup to the RWST from SFP or CVCS HUT
4. Cooldown, then depressurize the RCS to minimum subcooling and allow RHR to be placed in service

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

Proposed Answer: D

Explanation (Optional):

- A. Incorrect. SI pumps are not aligned directly to sump in ECA-1.1, although SI flow is reduced to one train running
- B. Incorrect. 2 and 4 are both performed but 3 is performed as well as part of the procedure
- C. Incorrect. 3 and 4 are performed but 2 is also performed as part of the procedure

D. Correct.

Technical Reference(s): ECA-1.1 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: REC11C, 1.04 (As available)

Question Source: Bank # WTSI 45557
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2003

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

10 CFR Part 55 Content: 55.41 10
55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.

Comments:

Used actions (manual features) of the procedure. Other questions available would result in overlap with items recently used.

Salem 2003 NRC Exam

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	077	AK2.02
	Importance Rating	3.1	

Knowledge of the interrelations between Generator Voltage and Electric Grid Disturbances and the following: Breakers, relays

Proposed Question: RO Question # 43

Given the following:

- The plant is operating at 100% power.
- RG&E Energy Control Center reports that disturbances have resulted in degraded grid frequency and voltage.
- The crew is referring to AP-ELEC.2, Safeguard Busses Low Voltage or System Abnormal Frequency.
- Grid frequency is currently 59.7 Hz.
- The crew starts 'A' and 'B' EDGs.

Which ONE of the following identifies the grid frequency at which the Safeguards Busses must be transferred to the EDGs, and the method used to transfer?

- A. 59.5 Hz; parallel the EDG with its associated bus and then open the normal bus feeder breaker when the EDG has assumed load.
- B. 59.5 Hz; open the normal bus feeder breaker and verify that the EDG output breaker has closed and the EDG is supplying the bus.
- C. 58.5 Hz; parallel the EDG with its associated bus and then open the normal bus feeder breaker when the EDG has assumed load.
- D. 58.5 Hz; open the normal bus feeder breaker and verify that the EDG output breaker has closed and the EDG is supplying the bus.

Proposed Answer: D

Explanation (Optional):

- A. Incorrect. Frequency too high and in this condition you would not parallel the busses because of the low frequency

- B. Incorrect. Correct way to energize bus but frequency too high. Frequency is only at the level where EDGs are started, not connected to the bus
- C. Incorrect. Frequency is correct but method is not. Would not parallel EDGs at this low frequency
- D. Correct

Technical Reference(s): AP-ELEC.2 steps 2-5 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: RAP08C, 1.02, 2.01 (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41 10
 55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.
 Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	E05	EK2.2
	Importance Rating	3.9	

Knowledge of the interrelations between the (Loss of Secondary Heat Sink) and the following: Facility's heat removal systems, including primary coolant, emergency coolant, the decay heat removal systems, and relations between the proper operation of these systems to the operation of the facility.

Proposed Question: RO Question # 44

Given the following:

- A Loss of Feedwater has occurred.
- The crew is performing actions of FR-H.1, Response to Loss of Secondary Heat Sink.

Which ONE of the following indicates that a loss of secondary heat sink has occurred, and Bleed and Feed cooling of the RCS may be required?

- A low core Delta T because Tcold is rising
- A high core Delta T because Tcold is lowering
- A low core Delta T because Thot is lowering
- A high core Delta T because Thot is rising

Proposed Answer: A

Explanation (Optional):

- Correct. Low Core Delta T indicates heat is not being removed. Lack of Heat removal due to high Tc means SG no longer acting as a heat sink.
- Incorrect. High Delta T indicates natural circulation exists or is setting up. Tcold lowering would indicate heat removal does exist.
- Incorrect. Low core Delta T due to Th lowering could mean that heat sink is adequate and decay heat load is low.
- Incorrect. Classic symptoms of natural circulation initiation

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

Proposed References to be provided to applicants during examination: None

Learning Objective: RFRH1C, Obj 1.0 (As available)

Question Source: Bank # WTSI 63683
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2007

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

10 CFR Part 55 Content: 55.41 5
55.43

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

Comments:

Harris 2007 NRC Exam

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	065	AK3.03
	Importance Rating	2.9	

Knowledge of the reasons for the following responses as they apply to the Loss of Instrument Air: Knowing effects on plant operation of isolating certain equipment from instrument air

Proposed Question: RO Question # 45

The plant is at 100% power with all control systems in normal automatic alignments.

A leak on the Instrument Air System results in a loss of air to the normal letdown and excess letdown valves.

Assuming no operator action, which ONE of the following Rx Trip signals (if any) will occur first over the next several hours?

- A. High PRZR Level Reactor Trip
- B. High PRZR Pressure Reactor Trip
- C. Low Pressure PRZR Reactor Trip
- D. No Reactor Trip

Proposed Answer: A

Explanation (Optional):

- A. Correct. With letdown isolated pressurizer level will rise until the high level trip setpoint is reached.
- B. Incorrect. V7069 does not isolate air to the PRZR Spray valves. These valves will be available to maintain pressure below the high pressure trip.
- C. Incorrect. With letdown isolated an surge into the pressurizer will cause pressure to rise, not lower.
- D. Incorrect. The reactor should trip on high pressurizer level.

Technical Reference(s): AP-IA. 1 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: RAPI0C 2.01 (As available)

Question Source: Bank # WTSI 66510
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2006

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

10 CFR Part 55 Content: 55.41 7
55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:

Knowledge of reason is implied

Ginna 2006 NRC (NOT last 2 exams)

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	E12	EK3.1
	Importance Rating	3.5	

Knowledge of the reasons for the following responses as they apply to the (Uncontrolled Depressurization of all Steam Generators) Facility operating characteristics during transient conditions, including coolant chemistry and the effects of temperature, pressure, and reactivity changes and operating limitations and reasons for these operating characteristics.

Proposed Question: RO Question # 46

Given the following:

- Following an accident, ECA-2.1, Uncontrolled Depressurization of Both Steam Generators is being performed.
- The operators have reduced AFW flow to both steam generators (SG) to minimum as they continue attempts to isolate the SGs.

Which ONE of the following describes the expected plant response to the AFW flow reduction and what actions are to be taken as SG pressures decrease?

- RCS hot leg temperatures will eventually begin to increase due to reduction of SG pressure and steam flow; the crew must transition to another procedure to mitigate the temperature rise.
- RCS hot leg temperatures will eventually begin to increase due to reduction in SG pressure and steam flow; the crew may then increase AFW flow as required to stabilize temperature while continuing in ECA-2.1
- The SGs will eventually become completely depressurized due to inadequate secondary heat sink; the crew must immediately transition to FR-H.1 to mitigate the temperature rise.
- The SGs will eventually become completely depressurized due to inadequate secondary heat sink; AFW flow must remain at minimum until all actions of ECA-2.1 are complete and transition to another procedure is directed.

Proposed Answer: B

Explanation (Optional):

- A. Incorrect. Guidance is provided in ECA-2.1 to raise AFW flow or raise steaming rate
- B. Correct. When AFW flow is reduced, eventually hot leg temperatures will rise when SG as steam pressure and steam flow lower and inventory is depleted. The purpose of minimizing AFW flow is to minimize cooldown and inventory loss.
- C. Incorrect. Since operator action caused the low AFW flow, actions of FR-H.1 will not be performed
- D. Incorrect. ECA-2.1 is performed until transition is specified, but AFW flow may be raised if hot leg temperatures rise

Technical Reference(s): ECA-2.1 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: REC21C, 1.05, 2.01 (As available)

Question Source: Bank # WTSI 69893
 Modified Bank # (Note changes or attach parent)
 New

Question History: Last NRC Exam: 2006

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

10 CFR Part 55 Content: 55.41 10
 55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.

Comments:
 Wolf Creek 2006 NRC Exam

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	057	AK3.01
	Importance Rating	4.1	

Knowledge of the reasons for the following responses as they apply to the Loss of Vital AC Instrument Bus: Actions contained in EOP for loss of vital ac electrical instrument bus

Proposed Question: RO Question # 47

Given the following:

- The plant is at 100% power with all systems operating in automatic.
- The following indications are observed:
 - All Channel 2 Bistable Status lights are Extinguished.
- The HCO determines that 120 VAC Instrument Bus B has been lost.

Which ONE of the following identifies why the crew places Rod Control in Manual?

- A. A Rod Block was generated preventing automatic rod control because Intermediate Range N36 has failed low.
- B. A Rod Block was generated preventing automatic rod control because the associated Loop A Tavg has failed low.
- C. Rods will continue to insert in AUTO because Turbine First Stage Channel PI485 has failed low.
- D. Rods will continue to insert in AUTO because Turbine First Stage Channel PI486 has failed low.

Proposed Answer: B

Explanation (Optional):

- A. Incorrect. While it is true that Intermediate Range Channel 36 does fail on loss of Instrument Bus B (Indicated by Channel 2 Status lights LIT), the IR Rod Stop is bypassed at high power. This failure will have no affect on Rod Movement.
- B. Correct. This failure will affect Rod Movement in AUTO because there is a rod block

associated with Tave/Average Tave deviation.

- C. Incorrect. A failure of Instrument Bus B (Indicated by Channel 2 Status lights LIT) would cause Turbine Impulse Pressure to fail low. Since this input is used to compare Turbine power to Reactor power in the rod control circuitry, rod control would inappropriately think turbine power has gone down, and drive rods in an attempt to match reactor power, IF a rod block wasn't already present.
- D. Incorrect. PI486 is powered by Instrument Bus C and will be unaffected for this event, but could potentially provide the same response as option C if selected

Technical Reference(s): ER-INST.3 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: R0901C, 1.06 (As available)

Question Source: Bank # WTSI 59476
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2008

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

10 CFR Part 55 Content: 55.41 7
55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:

McGuire 2008 NRC Exam. Changed distractors for plant design differences

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	007	EA1.04
	Importance Rating	3.6	

Ability to operate and monitor the following as they apply to a reactor trip: RCP operation and flow rates

Proposed Question: RO Question # 48

Given the following:

- Plant has tripped from 100% power due to the loss of 'B' RCP.
- All other equipment is operating as expected.
- The crew has entered ES-0.1, Reactor Trip Response.

Which ONE of the following describes the resulting RCS flow in 'A' and 'B' loops?

	<u>'A' Loop'</u>	<u>'B' Loop</u>
A.	<100% indicated	Forward
B.	<100% indicated	Reverse
C.	>100% indicated	Forward
D.	>100% indicated	Reverse

Proposed Answer: D

Explanation (Optional):

- A. Incorrect. With no loop check valves and 1 RCP running, flow in the idle loop will reverse. Additionally, flow in the operating loop will rise due to less resistance (Pumps pumping against each other if both operating)
- B. Incorrect. 2nd half correct but first half wrong as described in option A
- C. Incorrect. 1st part correct but 2nd part wrong as described in Option A
- D. Correct. Loop flow in the operating loop will be higher due to less resistance to flow and slightly higher water density as Tave goes to no load. Flow in idle loop is reversed because there are no loop check valves

Technical Reference(s): R1301C (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: R1301C, 1.06a (As available)

Question Source: Bank # WTSI 60859
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2007

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

10 CFR Part 55 Content: 55.41 3
55.43

Mechanical components and design features of reactor primary system.

Comments:

Point Beach 2007 NRC. Modified distractors for plant design differences

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	011	EA1.05
	Importance Rating	4.3	

Ability to operate and monitor the following as they apply to a Large Break LOCA: Manual and/or automatic transfer of suction of charging pumps to borated source

Proposed Question: RO Question # 49

Given the following:

- The plant is at 100% power.
- VCT Level Transmitter LT-112 is failed LOW.
- Prior to any action by the crew, a Large Break LOCA occurred.
- All equipment operated as designed.

Which ONE of the following describes the Charging Pump suction alignment?

Both Charging Pumps are...

- A. operating with suction aligned to the VCT
- B. operating with suction aligned to the RWST
- C. tripped with suction aligned to the VCT
- D. tripped with suction aligned to the RWST

Proposed Answer: C

Explanation (Optional):

- A. Incorrect. LT-112 failing low would not cause a swapover to RWST on low VCT level, requires 2 channels low
- B. Incorrect. Charging pumps are tripped on Safety Injection signal
- C. Correct. Charging pumps are tripped, status of LT-112 will have suction aligned to RWST only if other VCT level channel is low as well

D. Incorrect. See above

Technical Reference(s): R1601C (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: R1601C, 1.10 (As available)

Question Source: Bank #
Modified Bank # WTSI 58372 (Note changes or attach parent)
New

Question History: Last NRC Exam: 2007

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

10 CFR Part 55 Content: 55.41 7
55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:

Modified because plant design is different than original question, resulting in different response. Also failed transmitter low instead of high

Modified from Callaway 2007

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	026	AA1.01
	Importance Rating	3.1	

Ability to operate and / or monitor the following as they apply to the Loss of Component Cooling Water: CCW/nuclear service water temperature indications

Proposed Question: RO Question # 50

Given the following:

- The plant is operating at 100% power.
- Component Cooling Water flow was degraded due to a component failure in the system.
- The crew is performing AP-CCW.2, Loss of CCW During Power Operation.
- The RO reports the following temperature indications:
 - RCP 'A' and 'B' Motor Bearing temperatures 205°F and rising slowly.
 - CCW Heat Exchanger Outlet Temperature 125°F and rising slowly.
 - A-12, Non-Regen HX Letdown Outlet High Temp, is illuminated.
 - A-7, RCP 1A (1B) CCW Return Hi Temp or Low Flow 165 GPM 125°F is illuminated.

Which ONE of the following describes the action required, and the reason?

- A. Initiate a plant shutdown due to high RCP temperatures
- B. Trip the reactor due to high RCP temperatures
- C. Initiate a plant shutdown due to high CCW Heat Exchanger Outlet temperature
- D. Trip the reactor due to high CCW Heat Exchanger Outlet temperature

Proposed Answer: B

Explanation (Optional):

- A. Incorrect. Because RCP bearing temperatures have reached 200, a reactor trip is required. Shutdown would be required if RCP seal problem occurred
- B. Correct. RCP bearings over 200 requires a reactor trip

- C. Incorrect. CCW outlet temperature is above the point where shutdown is required, but since RCPs must be tripped, a reactor trip takes precedence
- D. Incorrect. Plausible because a trip is required, but incorrect because high HX outlet temperature would only require a plant shutdown

Technical Reference(s): AP-CCW.2 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: RAP02C, 2.01 (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41 10
 55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.
 Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	056	AA2.43
	Importance Rating	3.9	

Ability to determine and interpret the following as they apply to the Loss of Offsite Power:
Occurrence of a turbine trip

Proposed Question: RO Question # 51

Given the following:

- The plant was operating at 55% power.
- A loss of offsite power and Main Generator Trip occur concurrently.
- Reactor trip occurs.
- All equipment operated as designed.
- The crew has entered E-0, Reactor Trip or Safety Injection.

Which ONE of the following describes the operation of the Main Generator output breaker for this event, and indication that the turbine has tripped?

- A. Main Generator output breaker opens after a time delay following the trip; steam header pressure approximately 1050 psig with first stage pressure 0 psig.
- B. Main Generator output breaker opens immediately due to loss of the grid; steam header pressure approximately 1050 psig with first stage pressure 0 psig.
- C. Main Generator output breaker opens after a time delay following the trip; steam header pressure approximately 0 psig with first stage pressure 1050 psig.
- D. Main Generator output breaker opens immediately due to loss of the grid; steam header pressure approximately 0 psig with first stage pressure 1050 psig.

Proposed Answer: B

Explanation (Optional):

- A. Incorrect. Generator trip on time delay is associated with initiation of a turbine trip signal. In this case, the Main Generator output breaker is opened immediately due to loss of the grid. 2nd part is correct.
- B. Correct. 1st part is correct due to loss of grid, and steam dumps control at

approximately 1050 psig, with turbine first stage pressure at 0 because the main steam stop valves close upstream of HP turbine first stage.

- C. Incorrect. See option A for description of why first half is wrong. First stage pressure will be 0 because the main steam stop valves close upstream of HP turbine first stage.
- D. Incorrect. First part is correct due to loss of grid. First stage pressure will be 0 because the main steam stop valves close upstream of HP turbine first stage.

Technical Reference(s): **NEEDED** (Attach if not previously provided)

Proposed References to be provided to applicants during examination: **None**

Learning Objective: (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41 7
55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	058	AA2.01
	Importance Rating	3.7	

Ability to determine and interpret the following as they apply to the Loss of DC Power: That a loss of dc power has occurred; verification that substitute power sources have come on line

Proposed Question: RO Question # 52

Given the following:

- The plant is operating at 100% power.
- The following alarms are received in the Control Room:
 - J-21, 1A or 1B Battery Under Voltage
 - J-5, Battery Chrgr Failure or PA inverter Trouble
- DC Bus 'A' voltage indicates 113 VDC and lowering slowly.

Which ONE of the following identifies the MINIMUM voltage at which the batteries may supply the 120 VAC inverter, and how 1A Instrument Bus will remain energized on **loss** of Battery 'A'?

- A. 109 VDC; Inverter 1A will automatically transfer to the regulated supply
- B. 109 VDC; Inverter 1A must be manually transferred to the regulated supply
- C. 95 VDC; Inverter 1A will automatically transfer to the regulated supply
- D. 95 VDC; Inverter 1A must be manually transferred to the regulated supply

Proposed Answer: A

Explanation (Optional):

- A. Correct. 109 VDC is minimum, and inverter 1A has a static switch
- B. Incorrect. Correct voltage but iverter 1A will automatically swap. Other inverters must be manually swapped
- C. Incorrect. Voltage is too low and the inverter will have automatically swapped.

D. Incorrect. Voltage is below the operability limit for the DC bus. Manual swap relates to the inverters, not 1A

Technical Reference(s): R0901C (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: R0901C, 1.06 (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41 7
55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	022	AA2.02
	Importance Rating	3.2	

Ability to determine and interpret the following as they apply to the Loss of Reactor Coolant Makeup: Charging pump problems

Proposed Question: RO Question # 53

The plant is operating at 100% power.

The crew has entered AP-CVCS.3, Loss of All Charging Flow.

Which ONE of the following parameters provides indication that gas binding of the operating Charging Pump(s) is occurring?

- A. VCT pressure alarm with pressure and level indicating HIGH
- B. VCT pressure alarm with pressure and level indicating LOW
- C. Pressurizer level lowering with the Charging flow control valve throttling closed
- D. Pressurizer level lowering with Letdown Isolation valves closed.

Proposed Answer: B

Explanation (Optional):

- A. Incorrect. High pressure provides more NPSH to avoid gas binding. The applicant may believe that higher pressure results in excessive hydrogen that may cause binding
- B. Correct.
- C. Incorrect. This is indication of a CVCS failure most likely caused by failure of the Charging flow control valve. Plausible because Charging pump operation would be checked based upon PZR level lowering
- D. Incorrect. This is indication of an RCS leak. Plausible because Charging pump operation would be checked based upon PZR level lowering

Technical Reference(s): AP-CVCS.3 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: R1601C, 1.11.b (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41 7
55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	055	2.1.19
	Importance Rating	3.9	

Conduct of Operations: Ability to use plant computers to evaluate system or component status.

Proposed Question: RO Question # 54

Given the following:

- A Station Blackout is in progress.
- The crew is performing actions contained in ECA-0.0, Loss of All AC Power.
- RCS Subcooling is less than the value required per FIG Minimum Subcooling.
- Core Exit TCs are 655°F and rising slowly.
- RVLIS indication is 38%.

Which ONE of the following describes the status of the Core Cooling Critical Safety Function status tree, and how the status may be determined?

- RED Path; may be accessed using PPCS
- RED Path; must be determined using MCB indications and CSFST F.02 because PPCS is unavailbale
- ORANGE Path; may be accessed using PPCS
- ORANGE Path; must be determined using MCB indications and CSFST F.02 because PPCS is unavailable

Proposed Answer: C

Explanation (Optional):

- Incorrect. Conditions presented indicate an orange CSF Status.
- Incorrect. Conditions presented indicate an orange CSF Status. Even with blackout in progress, SPDS is available because it is powered from inverters
- Correct. SPDS is available during a station blackout as the PPCS remains available as well

D. Incorrect. Orange status is correct. Even with blackout in progress, SPDS is available because it is powered from inverters

Technical Reference(s): R3402T (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: R3402T, 1.04, 1.05 (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41 10
55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.
Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	009	2.4.3
	Importance Rating	3.7	

Emergency Procedures / Plan: Ability to identify post-accident instrumentation.

Proposed Question: RO Question # 55

Given the following:

- The plant tripped from 100% power.
- RCS pressure is 1250 psig.
- Containment pressure is 5.5 psig.
- The crew is performing E-1, Loss of Reactor or Secondary Coolant.

Which ONE of the following radiation monitoring channels is qualified for post-accident conditions during this event?

- A. R-10B, Plant Vent Iodine
- B. R-11, Containment Particulate Radiation Monitor
- C. R-12, Containment Gaseous Radiation Monitor
- D. R-29, Containment Area Radiation

Proposed Answer: D

Explanation (Optional):

- A. Incorrect. Plausible because rad monitor does provide auto function inside containment
- B. Incorrect. Plausible because rad monitor does provide auto function inside containment
- C. Incorrect. Plausible because iodine release to environment is a concern during accidents
- D. Correct. Refer to TS 3.3.3

Technical Reference(s): TS 3.3.3 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: R3901C, 1.02 (As available)

Question Source: Bank # 66174
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2007

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

10 CFR Part 55 Content: 55.41 11
55.43

Purpose and operation of radiation monitoring systems, including alarms and survey equipment.

Comments:

Ginna 2007 NRC (1 of last 2)

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	038	2.4.8
	Importance Rating	3.8	

Emergency Procedures / Plan: Knowledge of how abnormal operating procedures are used in conjunction with EOP's.

Proposed Question: RO Question # 56

Given the following:

- A Steam Generator Tube Rupture has occurred.
- The crew is performing E-3, Steam Generator Tube Rupture.
- When restoring Instrument Air to Containment in Step 15, it is determined that Instrument Air has been lost.

Which ONE of the following describes the procedure use for this condition?

- Stop at this step in E-3; Go to AP-IA.1, Loss of Instrument Air to restore air pressure; when air pressure is restored, continue in E-3. Steps of APs and EOPs may NOT be performed concurrently for this condition.
- Continue in E-3; refer to AP-IA.1, Loss of Instrument Air to restore air pressure; when Instrument Air pressure is restored, return to the steps in E-3 to restore Instrument Air to Containment. Steps of APs and EOPs MAY be performed concurrently for this condition.
- Continue in E-3; refer to AP-IA.1, Loss of Instrument Air to restore air pressure; when Instrument Air pressure is restored, continue in the EOP network without performing previous steps in E-3. Steps of APs and EOPs MAY be performed concurrently for this condition, but steps already bypassed may NOT be considered steps in effect.
- Continue in E-3 without referring to AP-IA.1; Instrument Air header pressure will NOT be restored in subsequent recovery steps. EOPs take priority over APs and may NOT be performed concurrently.

Proposed Answer: B

Explanation (Optional):

- Incorrect. E-3 does not require a hold while restoring air pressure. The step indicates that proceeding with E-3 is the correct response

- B. Correct
- C. Incorrect. There are procedures that would be performed this way but for restoration of air pressure, steps to restore air to CTMT would be performed
- D. Incorrect. Specific to E-3, this AP would be performed

Technical Reference(s): E-3 step 15d (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: REP03C, 2.01 (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41 10
 55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.
 Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	2	
	K/A #	E09	EK1.1
	Importance Rating	3.0	

Knowledge of the operational implications of the following concepts as they apply to the (Natural Circulation Operations) Components, capacity, and function of emergency systems.

Proposed Question: RO Question # 57

Given the following:

- A loss of off-site power has occurred.
- The crew is performing ES-0.2, Natural Circulation Cooldown.
- TWO (2) CRDM Shroud Fans have tripped upon starting and **cannot** be restarted.

Which ONE of the following describes the effect on the subsequent RCS cooldown?

The crew will..

- remain in ES-0.2 and RCS cooldown rate will be limited to 50 degrees F per hour
- remain in ES-0.2 and RCS cooldown rate will be limited to 25 degrees F per hour
- transition to ES-0.3, Natural Circulation Cooldown with Steam Void in Vessel, and RCS cooldown rate will be limited to 50 degrees F per hour
- transition to ES-0.3, Natural Circulation Cooldown with Steam Void in Vessel, and RCS cooldown rate will be limited to 25 degrees F per hour

Proposed Answer: B

Explanation (Optional):

- Incorrect. Cooldown rate will remain at 25 degrees F per hour
- Correct. No reason to transition, although head cooling is lost
- Incorrect. No reason for transition, although a void is more likely if RCS cooldown rate limit is exceeded
- Incorrect. Correct rate, but transition will not be required unless a void develops or RCS cooldown rate must be higher

Technical Reference(s): ES-0.2 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: RES02C, 2.01 (As available)

Question Source: Bank # 66226
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2007

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

10 CFR Part 55 Content: 55.41 10
55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.

Comments:

2007 Ginna (1 of last 2 NRC exams)

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	2	
	K/A #	036	AK2.01
	Importance Rating	2.9	

Knowledge of the interrelations between the Fuel Handling Incidents and the following: Fuel handling equipment

Proposed Question: RO Question # 58

Given the following:

- The plant is in Mode 6.
- Fuel Off-Load is in progress.
- An assembly is removed from the core and bubbles come to the surface of the Refueling Pool, causing Containment Radiation monitors to alarm.
- Visual inspection indicates mechanical distortion of the assembly.

Which ONE of the following describes the action to be taken in regard to the damaged assembly in accordance with RF-601, Fuel Handling Accident Instructions?

- A. Insert in the nearest open fuel rack in the core and disengage the handling tool
- B. Insert in the nearest open fuel rack in the core and leave the assembly latched
- C. Position the manipulator crane over the emergency location in the transfer slot, lower to the bottom of the transfer slot, and disengage the handling tool
- D. Position the manipulator crane over the emergency location in the transfer slot, lower to the bottom of the transfer slot, and leave the assembly latched.

Proposed Answer: D

Explanation (Optional):

- A. Incorrect. Condition precludes placing in an open fuel rack, and for a damaged assembly, the tool will remain engaged. For an assembly that is not distorted, this would be correct
- B. Incorrect. The assembly will remain latched but will not be placed in an open rack
- C. Incorrect. The location is correct but the assembly will remain latched. Assembly may

be unlatched only if there is no physical distortion

D. Correct IAW RF-601

Technical Reference(s): RF-601 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: needed (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41 10
55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.
Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	2	
	K/A #	068	AK3.17
	Importance Rating	3.7	

Knowledge of the reasons for the following responses as they apply to the Control Room Evacuation: Injection of boric acid into the RCS

Proposed Question: RO Question # 59

Given the following:

- The plant was tripped from 100% power.
- Control Room Evacuation was performed in accordance with AP-CR.1, Control Room Inaccessibility.
- The crew has local control of Charging Pumps and PZR level is being maintained.

Which ONE of the following describes the primary method used to initiate RCS boration, and the condition required to terminate boration, including the reason?

- Manually open Emergency Boration Valve, MOV-350; borate until Hot Shutdown boron concentration is reached because it is unknown how long the Control Room will remain inaccessible
- Manually open Emergency Boration Valve, MOV-350; borate until Cold Shutdown boron concentration is reached because it is unknown how long the Control Room will remain inaccessible
- Manually open Charging Pump Suction from RWST, V-358; borate until Hot Shutdown boron concentration is reached because Technical Specifications require the unit to be placed in Hot Shutdown when the Control Room is unavailable
- Manually open Charging Pump Suction from RWST, V-358; borate until Cold Shutdown boron concentration is reached because Technical Specifications require the unit to be placed in Cold Shutdown when the Control Room is unavailable

Proposed Answer: B

Explanation (Optional):

- Incorrect. Boron concentration must be at Cold Shutdown conditions in order to terminate the boration.

- B. Correct.
- C. Incorrect. Boron concentration must be at Cold Shutdown conditions in order to terminate the boration, and this is the backup method of initiating boration. Plausible because this is performed from outside the control room. There is no TS requirement for HSD
- D. Incorrect. Cold Shutdown is correct but as in Option C, manipulation of this valve is the alternate method. Also, there is no TS requirement for CSD

Technical Reference(s): AP-CR.1 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: RAP04C, 2.01 (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41 10
 55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.
 Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	2	
	K/A #	003	AA1.01
	Importance Rating	2.9	

Ability to operate and / or monitor the following as they apply to the Dropped Control Rod:
Demand position counter and pulse/analog converter

Proposed Question: RO Question # 60

Given the following:

- Reactor Power is 20%
- Bank D rods are at 55 steps
- ONE Control Bank D rod was dropped and recovered
- The P/A Converter was NOT reset per ER-RCC.1, Retrieval of a Dropped RCC.

Which ONE of the following identifies components or indications affected by failure to reset the P/A converter?

- A. ROD INSERTION LO-LO Limit Alarm will be received at a higher rod position than actual
- B. Bank Overlap Sequence will be non-conservative for fuel design
- C. Control Bank D withdrawal can possibly exceed the full withdrawn position
- D. Group Demand Counters will NOT reflect actual rod position

Proposed Answer: D

Explanation (Optional):

- A. Incorrect. Lo-Lo Limit would be received at a lower than actual position if the P/A converter was not reset during dropped rod withdrawal. P/A converter would 'think' rods are higher
- B. Incorrect. Bank overlap will be unaffected because the demand counters will determine when overlap occurs
- C. Incorrect. Indication may be above full withdrawn, but actual rod position will be at 225 steps

D. Correct.

Technical Reference(s): ER-RCC.1 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: RER11C, 3.0 (As available)

Question Source: Bank # WTSI 53124
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2007

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

10 CFR Part 55 Content: 55.41 6
55.43

Design, components, and function of reactivity control mechanisms and instrumentation.

Comments:

North Anna 2007 NRC Exam. Distractors modified

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	2	
	K/A #	E03	EA2.1
	Importance Rating	3.4	

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

Proposed Question: RO Question # 61

Given the following:

- A LOCA has occurred
- The crew is performing E-1, Loss of Reactor or Secondary Coolant
- The following parameters exist:
 - All SG pressures - 880 psig and slowly trending down
 - All SG levels - being controlled at 42% NR
 - PZR level - off-scale low
 - RVLIS indication 80% lowering
 - Containment Pressure - 9 psig
 - RWST level - 74% and decreasing slowly
 - RCS pressure - 800 psig and decreasing slowly

Based on these indications, which ONE of the following procedures will the crew enter next?

- A. ES-1.2, Post-LOCA Cooldown and Depressurization
- B. ES-1.1, SI Termination
- C. ES-1.3, Transfer to Cold Leg Recirculation
- D. E-2, Faulted Steam Generator Isolation

Proposed Answer: A

Explanation (Optional):

- A. Correct. While performing E-1, ES-1.2 conditions are met because conditions indicate a vapor space break. RWST level is not low enough to go to ES-1.3 and parameters are not stable to go to ES-1.1 and E-2 entry is not performed because SG pressure

reduction is due to RCS pressure reduction

- B. Incorrect. RVLIS lowering and RCS pressure lowering
- C. Incorrect. RWST level 28% is the setpoint
- D. Incorrect. SG pressure reduction due to RCS pressure reduction

Technical Reference(s): E-1 transition; ES-1.2 entry (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: RES12C, R1.05 (As available)

Question Source: Bank # WTSI 53058
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2006

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

10 CFR Part 55 Content: 55.41 10
55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.

Comments:
North Anna 2006 Retake

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	2	
	K/A #	E07	2.1.27
	Importance Rating	3.9	

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

Proposed Question: RO Question # 62

While performing actions of FR-C.3, Response to Saturated Core Cooling, which ONE of the following identifies the condition that the PZR PORVs are required to be in?

(Assume no previous PZR PORV failures)

- A. BOTH PORVs manually closed with block valves closed to minimize RCS leakage.
- B. ONE PORV manually closed and ONE PORV in AUTO with associated block valve open for RCS pressure control.
- C. BOTH PORVs in AUTO and closed with at LEAST ONE block valve open for RCS pressure control.
- D. ONE PORV in AUTO with ONE PORV open to depressurize the RCS to facilitate SI Accumulator Injection.

Proposed Answer: C

Explanation (Optional):

- A. Incorrect. Logical to prevent RCS inventory loss since core cooling is degraded already
- B. Incorrect. Logical to reduce potential for RCS inventory loss
- C. Correct.
- D. Incorrect. This action could be performed in FR-C.1 or FR-H.1 to depressurize RCS but not performed for yellow condition

Technical Reference(s): FR-C.3

(Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: RFRC3C, Obj 2.01 (As available)

Question Source: Bank # WTSI 64962
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2006

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

10 CFR Part 55 Content: 55.41 10
55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.

Comments:

2006 Wolf Creek with info revised and removed for RO job level

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	2	
	K/A #	001	AA1.02
	Importance Rating	3.6	

Ability to operate and / or monitor the following as they apply to the Continuous Rod Withdrawal: Rod in-out-hold switch

Proposed Question: RO Question # 63

Given the following:

- The plant is at 100% power.
- Rod Control is in MANUAL
- The HCO initiates rod withdrawal for Tavg control.
- Control Bank D rods continue to step out after the In-Hold-Out switch is released.

Which ONE of the following describes the FIRST action that will be required in accordance with AP-RCC.1, Continuous Control Rod Withdrawal/Insertion?

- A. Move the In-Hold-Out switch to the IN position
- B. Place the Rod Control Mode Select Switch in AUTO
- C. Place the Rod Control Mode Select Switch in Bank Control
- D. Trip the reactor, and enter E-0, Reactor trip or Safety Injection

Proposed Answer: D

Explanation (Optional):

- A. Incorrect. Although logical, the procedure requires placing rod control in manual, and tripping reactor if rods continue to move
- B. Incorrect. If rods were in auto, they would be placed in manual. However, if they are already in manual, the reactor is tripped
- C. Incorrect. This is logical because it would be essentially the same as an OFF position on rod control
- D. Correct. Action is to place rods in Manual, but they are already in manual, so RNO is

trip reactor

Technical Reference(s): AP-RCC.1 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: RAP12C, 2.01 (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41 10
55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.

Comments:

This is new but very similar to available bank items

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	2	
	K/A #	051	AA2.02
	Importance Rating	3.9	

Ability to determine and interpret the following as they apply to the Loss of Condenser Vacuum: Conditions requiring reactor and/or turbine trip

Proposed Question: RO Question # 64

Given the following:

- The plant is at 90% power.
- The CO reports lowering condenser vacuum.
- The following alarm is received:
 - H-7, CONDENSER HI PRESSURE 25.5" Hg
- Main generator output is slowly lowering.
- The CRS directs entry to AP-TURB.4, Loss of Condenser Vacuum.
- Condenser Circulating Water System is operating normally.
- The CO determines that Turbine Backpressure has entered the DO NOT OPERATE region of Figure 13.0, Condenser Backpressure.

Which ONE of the following actions is required in accordance with AP-TURB.4?

- A. Immediately trip the turbine and go to AP-TURB.1, Turbine Trip Without Rx Trip Required.
- B. Immediately trip the reactor and enter E-0, Reactor Trip or Safety Injection
- C. Continue attempts to locate the cause of vacuum loss; if the condition lasts for 5 minutes or more, trip the turbine and go to AP-TURB.1, Turbine Trip Without Rx Trip Required.
- D. Continue attempts to locate the cause of vacuum loss; if the condition lasts for 5 minutes or more, trip the reactor and enter E-0, Reactor Trip or Safety Injection.

Proposed Answer: D

Explanation (Optional):

- A. Incorrect. This refers to AP-TURB.4, step 2 RNO (Continuous action), power is >P-9, reactor trip is required if operating in DNO region for 5 minutes
- B. Incorrect. Plausible because this action is correct if operating in the DO NOT OPERATE region for greater than 5 minutes, but not performed immediately
- C. Incorrect. First part will always be correct but since power is >P-9, reactor trip is required
- D. Correct.

Technical Reference(s): AP-TURB.4, Rev 20 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: RAP23C, Obj 2.01 (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41 10
 55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.

Comments:

Similar to several WTSI Bank items Changed conditions to change answer from an item that had a different KA

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	2	
	K/A #	067	AK3.02
	Importance Rating	2.5	

Knowledge of the reasons for the following responses as they apply to the Plant Fire on Site Steps called out in the site fire protection plan, FPS manual, and fire zone manual

Proposed Question: RO Question # 65

Given the following:

- A fire has been reported in the Auxiliary Building Basement.
- The crew is responding per ER-FIRE.3, Alternate Shutdown for Aux Building Basement/Mezzanine Fire.
- The CO is directed to close MOV-856 on the west side of the RWST.

Which ONE of the following describes the reason for this action?

- A. Prevent RWST from potentially draining to Containment Sump B due to spurious operation of RHR Pump suction valves MOV-850A or 850B.
- B. Prevent inadvertent RCS boration due to spurious operation of RWST to Charging Pump suction valves LCV-112D and 112E.
- C. To ensure RWST suction to RHR Pumps is maintained in case of spurious operation of RHR system valves due to a hot short in the control circuitry.
- D. To align a boration flowpath to the suction of the Charging Pumps in case of Emergency Boration Valve MOV-350 failure to operate due to a hot short in the control circuitry.

Proposed Answer: A

Explanation (Optional):

- A. Correct. ER-FIRE.3 Contains actions to locally close MOV 856 to prevent backflow to the sump in the event that the 850 valve were to inadvertently open due to a fire in this location.
- B. Incorrect. MOV 856 isolates RHR, not LCV-112 valves, but plausible because spurious operation is a concern and the VCT makeup valves are part of the concern

- C. Incorrect. MOV-856 is used for isolation purposes, not maintaining operational flowpaths. Plausible because control room evacuation procedure does require manipulation of components to maintain conditions rather than to prevent conditions
- D. Incorrect. MOV-856 is used for isolation purposes, not maintaining operational flowpaths. Plausible because control room evacuation procedure does require manipulation of components to maintain conditions rather than to prevent conditions

Technical Reference(s): ER-FIRE.3 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: RER22C 10.00 (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41 10
 55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.

Comments:

Taken from 2006 exam but modified so much it is new

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	
	Group #	1	
	K/A #	G1	2.1.3
	Importance Rating	3.7	

Conduct of Operations: Knowledge of shift or short-term relief turnover practices.

Proposed Question: RO Question # 66

Given the following:

- The time and date is 0630, January 27, 2011.
- You are the on-coming HCO performing shift turnover.
- The last shift you worked was January 25, 2011 from 0600 to 1800.

In accordance with CNG-OP-1.01-2002, prior to assuming the shift, you must review shift logs (official records) back to AT LEAST..

- A. 0630, January 26
- B. 1800, January 26
- C. 0630, January 25
- D. 1800, January 25

Proposed Answer: D

Explanation (Optional):

- A. Incorrect. This represents 24 hours, which is logical
- B. Incorrect. This represents 12 hours, or one shift
- C. Incorrect. This represents 48 hours, which is one criteria for review
- D. Correct. Either review to the end of your last shift, or 48 hours, whichever is less

Technical Reference(s): CNG-OP-1.01-2002

(Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: (As available)

Question Source: Bank #
Modified Bank # WTSI 67544 (Note changes or attach parent)
New

Question History: Last NRC Exam: 2010

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

10 CFR Part 55 Content: 55.41 10
55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.

Comments:

This is modified in time and in criteria from previous NRC exam. Answer options and answer are different, as well as time for shift changes

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	
	Group #	1	
	K/A #	G1	2.1.31
	Importance Rating	4.6	

Conduct of Operations: Ability to locate control room switches, controls, and indications, and to determine that they correctly reflect the desired plant lineup.

Proposed Question: RO Question # 67

Given the following:

- One Shutdown Bank-A, Group 2 Rod has dropped into the core.
- While the crew is recovering the dropped rod, the following alarm is received in the control room:
 - C-30, ROD CONTROL URGENT FAILURE ROD STOP

Which ONE of the following describes (1) the reason for the alarm and (2) the effect on dropped rod withdrawal?

- A. (1) Oscillator Failure.
(2) Rod withdrawal is inhibited until the alarm is reset.
- B. (1) Regulation Failure.
(2) Rod withdrawal is inhibited until the alarm is reset.
- C. (1) Oscillator Failure.
(2) Rod withdrawal is unaffected and recovery may continue.
- D. (1) Regulation Failure.
(2) Rod withdrawal is unaffected and recovery may continue.

Proposed Answer: D

Explanation (Optional):

- A. incorrect. Incorrect reason and requirement for alarm reset. Credible because the reason for the alarm may not be readily apparent; it requires system knowledge to determine why the alarm occurred. Therefore, the alarm will occur while the rods are being withdrawn

- B. incorrect. Credible because failure is correct. Wrong because the alarm does not have to be reset for withdrawal
- C. incorrect. Credible because rod withdrawal is unaffected. Wrong because failure is incorrect.
- D. Correct. Urgent failure occurs when opposite group does not respond to command. The alarm freezes rod motion in auto or manual but not in bank select.

Technical Reference(s): C-30 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: R3001C, 1.06 (As available)

Question Source: Bank # WTSI 62792
 Modified Bank # (Note changes or attach parent)
 New

Question History: Last NRC Exam: 2007

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

10 CFR Part 55 Content: 55.41 7
 55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:
 BVPS-1 2007 NRC Exam

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	
	Group #	2	
	K/A #	G2	2.2.18
	Importance Rating	2.6	

Equipment Control: Knowledge of the process for managing maintenance activities during shutdown operations, such as risk assessments, work prioritization, etc.

Proposed Question: RO Question # 68

With the plant in Mode 5, which ONE of the following identifies the document that provides equipment check measures of Defense in Depth so that a single active component failure will not result in a challenge to a safety function?

- A. Technical Specifications
- B. Minimum Essential Equipment List (MEEL)
- C. Technical Requirements Manual
- D. Shutdown Safety Summary Schedule (S4)

Proposed Answer: B

Explanation (Optional):

- A. Incorrect. TR has requirements for minimum equipment operable in accordance with Mode and condition, but does not provide guidance for equipment availability for defense in depth
- B. Correct.
- C. Incorrect. TRM provides same function as TS but for equipment that has been removed for TS or has a safety significance similar to that required by TS
- D. Incorrect. S4 provides a schedule of work flow and critical path, and is the governing document for which equipment is protected by the MEEL, but does not provide Defense in depth measures

Technical Reference(s): IP-OUT.2

(Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41 10
55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.
Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	
	Group #	2	
	K/A #	G2	2.2.43
	Importance Rating	3.0	

Equipment Control: Knowledge of the process used to track inoperable alarms.

Proposed Question: RO Question # 69

A Control Room Annunciator window has a Black Dot sticker placed on it.

Which ONE of the following identifies the status of this alarm window in accordance with CNG-OP-1.01-2003, Alarm Response and Control?

- A. The alarm annunciator is a nuisance alarm with approval of the CRS.
- B. The alarm annunciator is removed from service.
- C. The alarm is part of a tagout.
- D. One or more inputs to the alarm are out of service.

Proposed Answer: A

Explanation (Optional):

- A. Correct. Black dot
- B. Incorrect. A blue dot would be placed on the window for this condition
- C. Incorrect. Red dot would be placed on the window for this condition
- D. Incorrect. Yellow Dot would be placed on the window for this condition

Technical Reference(s): CNG-OP-1.01-2003 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective:

(As available)

Question Source: Bank #

Modified Bank #

(Note changes or attach parent)

New

X

Question History:

Last NRC Exam:

Question Cognitive Level: Memory or Fundamental Knowledge X

Comprehension or Analysis

10 CFR Part 55 Content: 55.41 10

55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	
	Group #	3	
	K/A #	G3	2.3.15
	Importance Rating	2.9	

Radiation Control: Knowledge of radiation monitoring systems, such as fixed radiation monitors and alarms, portable survey instruments, personnel monitoring equipment, etc.

Proposed Question: RO Question # 70

Plant conditions:

- R-5 indicates a RANGE Alarm
- Detector Display indicates 0.00
- Monitor Bar Graph display is extinguished

Which ONE of the following describes the reason for this indication, and the condition required to reset the alarm?

- A. Detector power loss; alarm must be manually reset once the condition is clear
- B. Detector power loss; alarm will automatically reset if the condition clears
- C. Radiation field is below the instrument range; alarm will automatically reset once the condition is clear
- D. Radiation field is above the instrument range; alarm must be manually reset once the condition is clear

Proposed Answer: C

Explanation (Optional):

- A. Incorrect. Alarm automatically resets
- B. Incorrect. Power loss will cause a fail alarm, not a range alarm, but it is correct that auto reset occurs
- C. Correct.
- D. Incorrect. Plausible because there is an E-Value for over-range, (EEEE) but if the detector was over-ranged, it would automatically reset once the detector returned to scale

Technical Reference(s): R3901C, Rev 23 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: R3901C, Obj 1.07 (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41 11
55.43

Purpose and operation of radiation monitoring systems, including alarms and survey equipment.

Comments:

Modified from 2010 test item. Provided for different failure resulting in different answer

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	
	Group #	3	
	K/A #	G3	2.3.11
	Importance Rating	3.8	

Radiation Control: Ability to control radiation releases.

Proposed Question: RO Question # 71

Per S-4.2.5, Release of Gas Decay Tank what precautions (if any) are taken to release a Gas Decay Tank if the activity in the tank is identified as being elevated?

- A. Increase the setpoint of R-14 prior to releasing and initially throttle RCV 14 open to 50%
- B. Initiate release slowly, make small adjustments to RCV 14 allowing time for R-14 to stabilize prior to further adjustment.
- C. Initiate release by first opening RCV-14 to approximately 50%, R-14 reading should monitor the release in less than 1 minute.
- D. Open RCV- 14 fully to release as much of the tank as possible, record R-14 reading every 5 minutes for the RP's to calculate release dose rates.

Proposed Answer: B

Explanation (Optional):

- A. Incorrect. R-14 setpoint is based on not exceeding release limits, raising the setpoint will cause more activity to be released. RCV-14 is throttled to maintain a constant release rate not a constant position.
- B. Correct. Procedure S-4.2.5, step 4.4 describes allowing time for R-14 to stabilize.
- C. Incorrect. RCV-14 position is base on maintaining a constant release rate and bill be varied during a release.
- D. Incorrect. RCV-14 position is based on maintaining a constant release rate. The valve may be fully opened; however, this occurs near the end of the release when the WDT pressure is low.

Technical Reference(s): S-4.2.5

(Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: R3801C 3.01 (As available)

Question Source: Bank # WTSI 66460
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2006

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

10 CFR Part 55 Content: 55.41 12
55.43

Radiological safety principles and procedures.

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	
	Group #	4	
	K/A #	G4	2.4.34
	Importance Rating	4.2	

Emergency Procedures / Plan: Knowledge of RO tasks performed outside the main control room during an emergency and the resultant operational effects.

Proposed Question: RO Question # 72

The Control Room is being evacuated due to a minor fire in accordance with AP-CR.1, Control Room Inaccessibility.

Control Room actions are complete.

Which ONE of the following describes the actions of the HCO after the Control Room has been evacuated?

Proceed to...

- A. the Screenhouse to ensure 1 Service Water Pump is running in each loop
- B. the AFW pump area to transfer equipment to local control
- C. the local operating station in the Charging Pump Room for manual control of RCS inventory
- D. the D/G A room to ensure busses 14 and 18 are energized prior to proceeding to the AFW pump area to provide assistance

Proposed Answer: B

Explanation (Optional):

- A. Incorrect. The CRF performs this function
- B. Correct
- C. Incorrect. The CO performs this task
- D. Incorrect. The STA performs this task

Technical Reference(s): AP-CR.1 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: RAP04C, 2.01 (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41 10
 55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.
 Comments:
 There are similar items in the exam bank for other facilities

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	
	Group #	4	
	K/A #	G4	2.4.39
	Importance Rating	3.9	

Emergency Procedures / Plan: Knowledge of the RO's responsibilities in emergency plan implementation.

Proposed Question: RO Question # 73

Given the following:

- You are a licensed RO reviewing work orders in the work control center during one of your normally scheduled days off.
- A Site Area Emergency is declared.
- The Emergency Coordinator has initiated a Site Evacuation.

Which ONE of the following describes where you are required to report for this event?

- A. Control Room
- B. Operational Support Center
- C. Remain in the Work Control Center
- D. Report to the designated Off-Site assembly area

Proposed Answer: D

Explanation (Optional):

- A. Incorrect. If the applicant was on shift, he would report to the control room
- B. Incorrect. If the applicant was an AO, report to the OSC
- C. Incorrect. WCC has no function during an emergency so it will not be staffed as such
- D. Correct. Report for accountability

Technical Reference(s): EPIP 1-3, 1-6, 1-7

(Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41 10
55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.
Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	
	Group #	3	
	K/A #	G3	2.3.7
	Importance Rating	3.5	

Radiation Control: Ability to comply with radiation work permit requirements during normal or abnormal conditions.

Proposed Question: RO Question # 74

Which ONE of the following identifies the MINIMUM radiation level at which a High Radiation Area must be locked, and assuming an individual is performing work covered by a valid RWP, additionally meets the minimum requirement for entry into a High Radiation Area in accordance with A-1, Radiation Control Manual?

- A. 500 mr/hr; there is an RP Technician with a dose rate monitoring device providing positive control over the work area and performing surveys at the frequency required by the RWP
- B. 500 mr/hr; has a monitoring device set to alarm at 75% of the MAXIMUM allowable total dose for the task being performed
- C. 1000 mr/hr; there is an RP Technician with a dose rate monitoring device providing positive control over the work area and performing surveys at the frequency required by the RWP
- D. 1000 mr/hr; has a monitoring device set to alarm at 75% of the MAXIMUM allowable total dose for the task being performed

Proposed Answer: C

Explanation (Optional):

- A. Incorrect. 1st part is incorrect. Plausible because it may be confused with 500 R/hr for VHRA. Second part is correct.
- B. Incorrect. Same plausibility as in option A for first part. Second part incorrect because alarming dosimeters normally set at 80% of allowed dose
- C. Correct.
- D. Incorrect. Same as B. Alarming dosimeters are set higher than 75%

Technical Reference(s): RP Manual A-1
TS 5.7 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: Needed (As available)

Question Source: Bank #
Modified Bank # WTSI 69340 (Note changes or attach parent)
New

Question History: Last NRC Exam: 2010

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

10 CFR Part 55 Content: 55.41 12
55.43

Radiological safety principles and procedures.

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	
	Group #	1	
	K/A #	G1	2.1.28
	Importance Rating	4.1	

Conduct of Operations: Knowledge of the purpose and function of major system components and controls.

Proposed Question: RO Question # 75

The plant is in Mode 1, 100% power.

Reactor Protection System Train 'A' is undergoing trip testing.

Which ONE of the following describes how an inadvertent reactor trip is prevented during the breaker testing?

- A. Reactor Trip Bypass Breaker 'A' is racked in and closed. It will open on a reactor trip signal from Train 'A' RPS.
- B. Reactor Trip Bypass Breaker 'A' is racked in and closed. It will open on a reactor trip signal from Train 'B' RPS.
- C. Reactor Trip Bypass Breaker 'B' is racked in and closed. It will open on a reactor trip signal from Train 'A' RPS.
- D. Reactor Trip Bypass Breaker 'B' is racked in and closed. It will open on a reactor trip signal from Train 'B' RPS.

Proposed Answer: B

Explanation (Optional):

- A. Incorrect because the RTBB for Train A gets its trip signal from Train B
- B. CORRECT
- C. Incorrect. Wrong Bypass Breaker. Right Train.
- D. Incorrect. Wrong breaker. Wrong Train. Function of breaker is correct. Just not answer to question posed. These distractors are plausible because the alignment of the RTBBs must be understood as well as the logic of cross-train trips and purpose of the component for testing.

Technical Reference(s): R3501C (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: R3501C, 1.02 (As available)

Question Source: Bank # WTSI 69822
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2006

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

10 CFR Part 55 Content: 55.41 7
55.43

Design, components, and function of control and safety systems, including instrumentation, signals, interlocks, failure modes, and automatic and manual features.

Comments:
Wolf Creek 2006 NRC Exam

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
	Group #		1
	K/A #	008	AA2.12
	Importance Rating		3.7

Ability to determine and interpret the following as they apply to the Pressurizer Vapor Space Accident: PZR level indicators

Proposed Question: SRO Question # 76

Given the following:

- 100% power
- An automatic reactor trip and safety injection occurs.
- The following conditions exist:
 - RCS Pressure 700 psig and stable
 - RCS Subcooling 0°F
 - PZR Level 93% and slowly rising
 - Containment Pressure 4 psig and slowly rising
 - RVLIS indicates 88% and slowly lowering
 - RWST Level 92% and lowering
- The crew has just transitioned from E-1, Loss of Reactor or Secondary Coolant, to ES-1.2, Post-LOCA Cooldown and Depressurization.

Which ONE of the following describes whether Pressurizer level indication is an accurate indication of RCS inventory, and the procedure(s) that will be required for this event?

- A. PZR level is an accurate indication of RCS inventory for the current conditions; perform ES-1.2, Post-LOCA Cooldown and Depressurization ONLY.
- B. PZR level is an accurate indication of RCS inventory for the current conditions; Implement FR-I.3, Response to Voids in the Reactor Vessel; THEN perform ES-1.2, Post-LOCA Cooldown and Depressurization
- C. PZR level is an inaccurate indication of RCS inventory for the current conditions; Implement ES-1.2, Post-LOCA Cooldown and Depressurization; THEN perform FR-I.1, Response to High Pressurizer Level.
- D. PZR level is an inaccurate indication of RCS inventory for the current conditions; Implement ES-1.2, Post-LOCA Cooldown and Depressurization ONLY.

Proposed Answer: D

Explanation (Optional):

- A. Incorrect. If there is a vapor space break, PZR level will indicate 100% even though RCS inventory is lowering as observed on RVLIS. Second part is correct.
- B. Incorrect. Same as Option A, but FR yellow paths would not be performed, as they have either the same actions as the recovery procedures in progress, or they are performed only on discretion of SRO
- C. Incorrect. First part correct but second part incorrect as described in Option B
- D. Correct.

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

Proposed References to be provided to applicants during examination: None

Learning Objective: (As available)

Question Source: Bank # WTSI 70082
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2009

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

10 CFR Part 55 Content: 55.41
55.43 5

Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Comments:
VC Summer 2009 NRC Exam

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
	Group #		1
	K/A #	027	AA2.15
	Importance Rating		4.0

Ability to determine and interpret the following as they apply to the Pressurizer Pressure Control Malfunctions: Actions to be taken if PZR pressure instrument fails high

Proposed Question: SRO Question # 77

Given the following:

- The plant is at 90% power.
- All systems are operating in normal automatic alignments.
- The following alarm is received:
 - F-2, PRESSURIZER HI PRESS 2310 PSI
- PT-449 indicates 2320 psig and rising
- PT-429 indicates 2210 psig and lowering
- PT-430 indicates 2220 psig and lowering
- PT-431 indicates 2220 psig and lowering

Which ONE of the following identifies the action that will be taken in accordance with the applicable procedures, and the TS/TRM implications of the event?

- A. Place Pressurizer Pressure Controller HK-431K in MANUAL with output at approximately 50%; TRM 3.4.3 action must be entered for loss of ATWS mitigation capability
- B. Place Pressurizer Pressure Controller HK-431K in MANUAL with output at approximately 50%; TS 3.4.11 action must be entered for loss of PZR PORV operability
- C. Place PORV 431C control switch in CLOSE; TRM 3.4.3 action must be entered for loss of ATWS mitigation capability
- D. Place PORV 431C control switch in CLOSE; TS 3.4.11 action must be entered for loss of PZR PORV operability

Proposed Answer: A

Explanation (Optional):

- A. Correct.
- B. Incorrect. Actions are correct but TS requirements are met because PORV operability is not lost, the PORV is just operated in manual. Only auto operation is defeated with master controller in manual
- C. Incorrect. The PORV control switch isn't placed in close if it is not inadvertently opened yet. Placing controller in manual will prevent it from automatically opening. Second part is correct.
- D. Incorrect. Same description as C, and second part same as B

Technical Reference(s): TRM 3.4.3 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41
55.43 2

Facility operating limitations in the technical specifications and their bases.

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
	Group #		1
	K/A #	038	EA2.16
	Importance Rating		4.6

Ability to determine or interpret the following as they apply to a SGTR: Actions to be taken if S/G goes solid and water enters steam line

Proposed Question: SRO Question # 78

Given the following:

- A Steam Generator Tube Rupture has occurred.
- The crew is performing E-3, Steam Generator Tube Rupture.
- RCS cooldown and depressurization in E-3 are complete.
- Charging and Letdown are aligned.
- 'A' SG is isolated.
- Current conditions as follows:
 - The crew is attempting to maintain stable conditions prior to selecting a recovery procedure.
 - 'A' SG narrow range level off scale HIGH
 - PZR level is 18%
 - RCS pressure is 1000 psig.
 - Containment pressure is 0.3 psig.

Which ONE of the following describes the actions required, and the preferred recovery procedure that will be used to cool down the ruptured SG?

- A. Depressurize RCS; ES-3.1, Post-SGTR Cooldown Using Backfill
- B. Depressurize RCS; ES-3.3, Post-SGTR Cooldown Using Steam Dump
- C. Raise Charging flow and Maintain RCS/SG pressures equal; ES-3.1, Post-SGTR Cooldown Using Backfill
- D. Raise Charging flow and Maintain RCS/SG pressures equal; ES-3.3, Post-SGTR Cooldown Using Steam Dump

Proposed Answer: C

Explanation (Optional):

- A. Incorrect. Pressurizer level is too low to depressurize the RCS, and with SG level unknown, the appropriate action is to make sure pressures are equal, and make up to raise PZR level.
- B. Incorrect. Pressurizer level is too low to depressurize the RCS, and with SG level unknown, the appropriate action is to make sure pressures are equal, and make up to raise PZR level. Additionally, the preferred method of SGTR cooldown will be using backfill to minimize contamination of secondary components
- C. Correct.
- D. Incorrect. First part is correct but second part is incorrect as described in Option B

Technical Reference(s): E-3, step 36 and E-3 BD (Attach if not previously provided)

Proposed References to be provided to applicants during examination: E-3 Step 36

Learning Objective: (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41
55.43 5

Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Comments:

This is new but similar to other questions in the exam bank

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
	Group #		1
	K/A #	026	2.4.47
	Importance Rating		4.2

Emergency Procedures / Plan: Ability to diagnose and recognize trends in an accurate and timely manner utilizing the appropriate control room reference material.

Proposed Question: SRO Question # 79

Given the following:

- The plant is operating at 100% power.
- A loss of Component Cooling Water has occurred.
- The crew is performing actions of AP-CCW.2, Loss of CCW During Power Operation.
- CCW Heat Exchanger Outlet temperature is 131°F and rising at 3°F per minute
- A-12, Non-Regen HX Out Hi Temp 145°F, is illuminated. Temperature indicates 148°F and rising at 1°F per minute

Which ONE of the following identifies the Technical Specification implications of these indications, and additional action required?

- The plant must be shut down due to CCW Loop Header Inoperability; PZR level will be controlled by placing Excess letdown in service while attempting to locate and isolate the leak.
- The plant must be shut down due to CCW Loop Header Inoperability; PZR level will be controlled by closing HCV-142 and adjusting Charging Pump speed as necessary while attempting to locate and isolate the leak.
- The plant may remain at power for up to 6 hours while restoring CCW Loop Header operability; PZR level will be controlled by placing Excess letdown in service while attempting to locate and isolate the leak.
- The plant may remain at power for up to 6 hours while restoring CCW Loop Header operability; PZR level will be controlled by closing HCV-142 and adjusting Charging Pump speed as necessary while attempting to locate and isolate the leak.

Proposed Answer: B

Explanation (Optional):

- A. Incorrect. For these conditions, Excess Letdown is not placed in service because it is also cooled by CCW and the leak has not been located. Additionally,
- B. Correct
- C. Incorrect. Plant is required to be in Mode 3 in 6 hours. Operation is not allowed for the next 6 hours. Action required for CCW loop inoperability with temperature >120 IAW TS basis and AP-CCW.2. Second part wrong as described in Option A
- D. Incorrect. Same description as Option C but action is correct

Technical Reference(s): AP-CCW.2 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41
 55.43 5

Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
	Group #		1
	K/A #	077	2.2.39
	Importance Rating		4.5

Equipment Control: Knowledge of less than or equal to one hour technical specification action statements for systems.

Proposed Question: SRO Question # 80

Given the following:

- The plant is operating at 50% power following severe thunderstorms.
- RG&E ECC has informed the Control Room that a Ginna Post Contingency Low Voltage Early Warning Alarm exists.
- Station 115 KV system voltage is 111 KV
- 'B' EDG is subsequently declared inoperable

Which ONE of the following describes the Technical Specification implications of this condition?

- Off-Site power is currently inoperable; Technical Specification action is required within a maximum of 1 hour and initiation of plant shutdown is immediately required
- Off-Site power is currently inoperable; Technical Specification action is required within a maximum of 4 hours to address inoperability of 'B' EDG. Plant shutdown will be required if it is determined that required redundant features are inoperable
- Off-Site power is currently operable; Technical Specification action is required within a maximum of 1 hour to address inoperability of 'B' EDG. No other action is currently required
- Off-Site power is currently operable; Technical Specification action is required within a maximum of 4 hours to address inoperability of 'B' EDG. Plant shutdown will be required if it is determined that required redundant features are inoperable

Proposed Answer: C

Explanation (Optional):

- Incorrect. The early warning alarm does not make off-site power inoperable. the low voltage alarm at 109 KV makes it inoperable. TS action is required within 1 hour

- B. Incorrect. The early warning alarm does not make off-site power inoperable. the low voltage alarm at 109 KV makes it inoperable. TS action is required within 1 hour, but the 4 hour time is plausible because it is included in the TS for determining if redundant features are inoperable
- C. Correct.
- D. Incorrect. Off-Site is operable but action is required with 1 hour, not 4 hours, and shutdown is not required at this time

Technical Reference(s): TS 3.8.1.1 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41
 55.43 2

Facility operating limitations in the technical specifications and their bases.
 Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
	Group #		1
	K/A #	015	2.4.8
	Importance Rating		4.5

Emergency Procedures / Plan: Knowledge of how abnormal operating procedures are used in conjunction with EOP's.

Proposed Question: SRO Question # 81

Given the following:

- The plant is operating at 100% power.
- The crew has entered AP-RCP.1 due to problems with 'B' RCP seal package.
- Total #1 seal flow is approximately 8.4 GPM.
- Seal DP is lowering slowly.
- Seal Inlet and Outlet temperatures are rising slowly.

Which ONE of the following describes the procedural action required for this condition?

- Initiate a plant shutdown to have the RCP secured within the next 8 hours
- Monitor 'B' RCP using ATT 15.1, Attachment RCP Diagnostics, and refer to S-2.1, RCP Operation prior to determining if reactor trip is required
- Trip the reactor, perform immediate actions, trip 'B' RCP, then isolate seal return when 4 minutes have elapsed. No additional actions of AP-RCP.1 will be performed while in E-0.
- Trip the reactor, perform immediate actions, trip 'B' RCP, then continue with AP-RCP.1 in parallel with E-0 until directed to transition.

Proposed Answer: C

Explanation (Optional):

- Incorrect. The conditions presented are a failure of #1 seal. This option describes the actions taken for failure of #2 or #3 seal
- Incorrect. This option describes actions taken for seal degradation that does not yet require a reactor trip IAW AP-RCP.1

- C. Correct
- D. Incorrect. Correct with the exception of the performance of AP-RCP.1. In this case, only the required steps are performed as listed in Option C

Technical Reference(s): AP-RCP.1 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41
 55.43 5

Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Comments:

Similar questions exist in bank

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
	Group #		2
	K/A #	E13	EA2.1
	Importance Rating		3.4

Ability to determine and interpret the following as they apply to the (Steam Generator Overpressure) Facility conditions and selection of appropriate procedures during abnormal and emergency operations.

Proposed Question: SRO Question # 82

Given the following:

- A reactor trip has occurred.
- The crew is preparing to transition from E-0, Reactor Trip or Safety Injection
- "A" SG level is 5% NR
- "B" SG level is 61% NR
- AFW flow indicates 180 GPM
- "A" SG pressure indicates 1100 psig
- "B" S/G pressure indicates 1160 psig

Which ONE of the following describes the status of the Heat Sink CSF Status Tree, and the procedure that applies?

- A. Red; FR-H.1, Response to Loss of Secondary Heat Sink
- B. Yellow; FR-H.2, Response to S/G Overpressure
- C. Yellow; FR-H.3, Response to High Steam Generator Level
- D. Yellow; FR-H.4, Response to Normal Steam Release Capability

Proposed Answer: B

Explanation (Optional):

- A. Incorrect. Not red because 1 SG NR level is above 7%
- B. Correct. FR-H.2 is correct based on SG pressure greater than 1140 psig.
- C. Incorrect. High SG level in 1 SG, but not high enough to meet the entry conditions for

FR-H.3

D. Incorrect. Transition will be made to FR-H.2 prior to determining whether entry to FR-H.4 will be made

Technical Reference(s): Heat Sink CSF Status Tree, F-0.3 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: RFRH2C, 1.05 (As available)

Question Source: Bank # WTSI 48176
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2004

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

10 CFR Part 55 Content: 55.41 10
55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.

Comments:

Harris 2004 NRC Exam

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
	Group #		2
	K/A #	037	AA2.01
	Importance Rating		3.4

Ability to determine and interpret the following as they apply to the Steam Generator Tube Leak: Unusual readings of the monitors; steps needed to verify readings

Proposed Question: SRO Question # 83

Given the following:

- The plant is operating at 100% power.
- PPCS is temporarily UNAVAILABLE.
- The following alarms are received in the control room within several minutes of each other:
 - RMS-15, R15 Air Ejector
 - RMS-19, R19 Steam Gen Blowdown
 - RMS-31, R31 Steam Line A

The leak rate has risen from 28 GPD to 122 GPD in the last 30 minutes.

Which ONE of the following identified the method used to estimate the leak rate, and the action required for these conditions in accordance with AP-SG.1, Steam Generator Tube Leak?

Estimate leak rate by...

- A. R15 indication and trend; Initiate plant shutdown to be less than 50% power in one hour and in Mode 3 within 3 hours
- B. R15 indication and trend; Maintain plant conditions stable and initiate increased monitoring
- C. R47 drawer indication with a conversion table; Initiate plant shutdown to be less than 50% power in one hour and in Mode 3 within 3 hours
- D. R47 drawer indication with a conversion table; Maintain plant conditions stable and initiate increased monitoring

Proposed Answer: C

Explanation (Optional):

- A. Incorrect. R15 indication and trend will tell the crew that a leak >5 gpd exists, but the size of the leak cannot be quantified using this indication, as it will be off-scale high quickly for larger leaks. Action is correct.
- B. Incorrect. R15 indication and trend will tell the crew that a leak >5 gpd exists, but the size of the leak cannot be quantified using this indication, as it will be off-scale high quickly for larger leaks. Plausible because this action is contained in the AP, but the leak size and rate has exceeded the limit for this action
- C. Correct
- D. Incorrect. First part correct. Second part plausible because this action is contained in the AP, but the leak size and rate has exceeded the limit for this action

Technical Reference(s): AP-SG.1 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41
55.43 5

Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
	Group #		2
	K/A #	E07	2.4.1
	Importance Rating		3.6

Emergency Procedures / Plan: Knowledge of EOP entry conditions and immediate action steps.

Proposed Question: SRO Question # 84

Given the following:

- A Steam Generator Tube Rupture has occurred.
- Due to equipment failures, the crew is performing actions contained in ECA-3.2, SGTR WITH LOSS OF REACTOR COOLANT - SATURATED RECOVERY DESIRED.

The STA informs you that all CSF Status Trees are GREEN with the exception of the following:

- Core Cooling - YELLOW path for FR-C.3, RESPONSE TO SATURATED CORE CONDITIONS
- Inventory - YELLOW path for FR-I.2, RESPONSE TO LOW PRESSURIZER LEVEL

Which ONE of the following describes the required implementation of procedures for this event, and the reason?

- Transition from ECA-3.2 to FR-I.2 to restore the Inventory CSF to a green condition
- Transition from ECA-3.2 to FR-C.3 to restore the Core Cooling CSF to a green condition
- Remain in ECA-3.2. The actions contained in FR-C.3 and FR-I.2 conflict with ECA-3.2 actions
- Remain in ECA-3.2. Implementation of Yellow Path procedures is not allowed when using Emergency Contingency procedures.

Proposed Answer: C

Explanation (Optional):

- Incorrect. If ECA-3.2 is in progress, this procedure will provide conflicting actions and caution at beginning of procedure says do not perform

- B. Incorrect. Same description and condition as A
- C. CORRECT
- D. Incorrect. Guidance does not prohibit use of yellow path in ECA procedures, only allows for CRS discretion

Technical Reference(s): ECA-3.2
 FR-C.3
 FR-I.2 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: REC32C 2.01 (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41
 55.43 5

Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Comments:

Various WTSI Bank questions support this topic

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
	Group #		2
	K/A #	076	2.1.32
	Importance Rating		4.0

Conduct of Operations: Ability to explain and apply all system limits and precautions.

Proposed Question: SRO Question # 85

Given the following:

- A load reduction from 100% to 60% was performed in the last 30 minutes due to a Feedwater Control problem.
- The following alarm is received:
 - R-9 LETDOWN MONITOR
- Chemistry sample indicates that the high activity is due to failed fuel.
- Dose-Equivalent Iodine-131 is approximately 62 microcuries per gram.
- Gross degassed activity indicates 87 microcuries per gram.
- The crew enters AP-RCS.3, High Reactor Coolant Activity.

Which ONE of the following describes the action(s) that will be performed in accordance with AP-RCS.3, and identifies the required Technical Specification actions?

- A. Raise Letdown flow to 60 GPM;
Plant shutdown and cooldown to less than 500°F must be performed
- B. Raise Letdown flow to 60 GPM;
Plant operation may continue with increased RCS sampling frequency.
- C. Isolate Letdown;
Plant shutdown and cooldown to less than 500°F must be performed.
- D. Isolate letdown;
Plant operation may continue with increased RCS sampling frequency

Proposed Answer: A

Explanation (Optional):

- A. Correct. Failed Fuel is indicated by iodine activity. TS shutdown is required if activity was above 60 microcuries per gram or above steady state limit for 7 days
- B. Incorrect. Letdown flow is raised. Failed Fuel is indicated by iodine activity, as described by conditions presented. However, this action is for activity less than the transient limit
- C. Incorrect. Plausible because it is logical to believe Letdown would be isolated with High activity on the Letdown line. This condition is below the 60 microcurie per gram limit required for shutdown, unless the steady state limit was exceeded for 7 days
- D. Incorrect. See descriptions above and AP-RCS.3 and TS 3.4.16 Condition

Technical Reference(s): AP-RCS.3
TS 3.4.16 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: RAP17C, Obj 2.01 (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41
55.43 4

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

Comments:

Previous 2010 Audit Exam Modified activity levels to change actions required, and therefore correct answer was changed

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		2
	Group #		1
	K/A #	010	A2.01
	Importance Rating		3.6

Ability to (a) predict the impacts of the following malfunctions or operations on the PZR PCS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Heater failures

Proposed Question: SRO Question # 86

Given the following:

- The plant is at 100% power.
- PZR pressure was lowering due to 12 GPM leakage through PORV 430.
- The HCO isolates the leak using the associated block valve and PZR pressure stabilizes.
- The following alarm is received:
 - F-6, Pressurizer Heater Breaker Trip
- The HCO reports that Backup heaters are OFF
- Proportional Heaters are ON
- PZR pressure is currently stable at 2215 psig.

Which ONE of the following describes the Technical Specification impact and the procedural action required?

- A. Immediately initiate Shutdown to be in Hot Standby within 6 hours; AP-PRZR.1 directs resetting the heater breaker and returning to ON to verify load rise on Bus 16.
- B. Immediately initiate Shutdown to be in Hot Standby within 6 hours; AP-PRZR.1 directs initiation of plant shutdown with the heater breaker tripped and PZR pressure below 2220 psig.
- C. Remove power from the closed block valve within 1 hour; AP-PRZR.1 directs resetting the heater breaker and returning to ON to verify load rise on Bus 16.
- D. Remove power from the closed block valve within 1 hour; AP-PRZR.1 directs initiation of plant shutdown with the heater breaker tripped and PZR pressure below 2220 psig.

Proposed Answer: C

Explanation (Optional):

- A. Incorrect. The TS action would be correct if PZR heater capacity was less than 100KW, but with cycling heaters available, there is 400 KW. Second action is correct.
- B. Incorrect. The TS action would be correct if PZR heater capacity was less than 100KW, but with cycling heaters available, there is 400 KW. Second answer is logical if sufficient heater capacity is not available to raise pressure to above the backup heater energization setpoint
- C. Correct.
- D. Incorrect. First part is correct. Second answer is logical if sufficient heater capacity is not available to raise pressure to above the backup heater energization setpoint

Technical Reference(s): AR-F-6 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41
55.43 5

Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		2
	Group #		1
	K/A #	076	A2.01
	Importance Rating		3.7

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

Proposed Question: SRO Question # 87

Given the following:

- The plant is operating at 100% power
- All systems are in a normal configuration
- Service Water Pumps A & D are running

Event occurs:

- J-9, Safeguards Breaker Trip
- H-6, CCW Service Water Low Flow 1000 GPM
- C-10, Containment Recirc Clrs Water Outlet LO Flow 1050 GPM
- Computer Point P2160, SERVICE WATER PUMP A & B HEADER, alarms LOW
- PI-2160, SW LOOP A HEADER PRESS, is indicating 30 psig and lowering.
- PI-2161, SW LOOP A HEADER PRESS, is indicating 35 psig and lowering.

Which ONE of the following describes the procedure that will be addressed for this event, and the FIRST action required?

- AP-SW.1, SERVICE WATER LEAK;
Attempt to isolate the leak. Pull stop any affected running EDGs if adequate cooling cannot be restored.
- AP-SW.2, LOSS OF SERVICE WATER;
Trip the reactor and enter E-0, REACTOR TRIP OR SAFETY INJECTION.
- AP-SW.1, SERVICE WATER LEAK;
Trip the reactor and enter E-0, REACTOR TRIP OR SAFETY INJECTION.
- AP-SW.2, LOSS OF SERVICE WATER;
Attempt to restart any tripped Service Water Pumps. Pull stop any affected running EDGs if adequate cooling cannot be restored.

Proposed Answer: D

Explanation (Optional):

- A. INCORRECT. Plausible because most indications of low pressure indicate that a service water leak is occurring. Annunciator J-9 is the key to determining that this is incorrect for this item. Strategy would be true if this procedure was picked
- B. INCORRECT. Correct procedure but pressure has not reached a point where the reactor must be tripped
- C. INCORRECT. Plausible because most indications of low pressure indicate that a service water leak is occurring. Annunciator J-9 is the key to determining that this is incorrect for this item. Strategy would be true if this procedure was picked and the leak could not be isolated
- D. CORRECT. Alarms indicate trip of service water pumps

Technical Reference(s): AP-SW.2 step 1 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: RAP33C 1.02 (As available)
RAP33C 2.01

Question Source: Bank #
Modified Bank # WTSI 66482 (Note changes or attach parent)
New

Question History: Last NRC Exam: 2006

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

10 CFR Part 55 Content: 55.41
55.43 5

Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Comments:

Modified by adding alarms to change failure, which also changed actions required

GINNA 2006. Also similar 2010 but this item is different

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		2
	Group #		1
	K/A #	061	2.4.46
	Importance Rating		4.1

Emergency Procedures / Plan: Ability to verify that the alarms are consistent with the plant conditions.

Proposed Question: SRO Question # 88

Given the following:

- The plant is operating in Mode 3.
- MDAFW Pumps are feeding steam generators.
- The following alarm is received in the control room:
 - H-9, Auxiliary Feed Pump Clg Wtr Fltr Hi Diff Press
- The alarm subsequently clears approximately 10 seconds later.
- The AO sent to investigate reports the following:
 - MDAFW Pump 'A' DP indicates 11 psi
 - MDAFW Pump 'B' DP indicates 3 psi

Which ONE of the following identifies the affected MDAFW pump, and the affect of the alarm, if any, on pump operability?

- A. 'A' MDAFW Pump; the cooling water filter must be manually bypassed and the pump is inoperable with the filter bypassed.
- B. 'A' MDAFW Pump; the cooling water filter must be manually bypassed and the pump remains operable with the filter bypassed.
- C. 'B' MDAFW Pump; the cooling water filter was automatically bypassed and the pump is inoperable with the filter bypassed.
- D. 'B' MDAFW Pump; the cooling water filter was automatically bypassed and the pump remains operable with the filter bypassed.

Proposed Answer: D

Explanation (Optional):

- A. Incorrect. Although 'A' pump has a higher DP, it is not high enough to cause bypass of the strainer. The strainer that has been bypassed will have a lower DP because there is no longer resistance to flow. Pump is not inoperable solely because the strainer is bypassed, and manual bypass is not required, as indication is the system responded correctly
- B. Incorrect. Same description as A, except that the pump remaining operable is true
- C. Incorrect. Statement is correct with exception of inoperability
- D. Correct. When the filter is bypassed, DP will lower to nearly zero after a short time, since there is no longer any resistance to flow. Loss of the strainer does not immediately make the AFW pump inoperable.

Technical Reference(s): AR H-9 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41
55.43 2

Facility operating limitations in the technical specifications and their bases.
Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		2
	Group #		1
	K/A #	064	2.4.4
	Importance Rating		4.7

Emergency Procedures / Plan: Ability to recognize abnormal indications for system operating parameters which are entry-level conditions for emergency and abnormal operating procedures.

Proposed Question: SRO Question # 89

Given the following:

- The plant is operating at 100% power.
- EDG B is out of service and is expected to return to service in two (2) hours.
- Subsequently, the following events occur:
- A loss of offsite power occurs.
- The reactor is tripped and the crew enters E-0, REACTOR TRIP OR SAFETY INJECTION.
- SI is NOT actuated.
- The crew made a transition to FR-H.1, LOSS OF SECONDARY HEAT SINK, based on a CSFST RED Path.
- Subsequently, EDG A output breakers trip on a bus fault.

Which ONE of the following describes the actions that will be taken?

- A. Immediately transition to ECA-0.0, LOSS OF ALL AC POWER
- B. Restore feed in accordance with FR-H.1, and then return to E-0 to restore EDG A
- C. Remain in FR-H.1 until directed to return to procedure in effect, and then transition to ECA-0.0
- D. Remain in FR-H.1 unless a higher priority RED condition is observed. When directed to return to procedure in effect, return to E-0. Restore EDG A or B in ES-0.1, REACTOR TRIP RESPONSE.

Proposed Answer: A

Explanation (Optional):

- A. CORRECT

- B. Incorrect. No AC power is available, therefore transition to ECA-0.0 is required.
- C. Incorrect. Transition to ECA-0.0 immediately, even if a RED condition exists.
- D. Incorrect. This would be correct if only one EDG was tripped.

Technical Reference(s): ECA-0.0 entry conditions
 WOG EOP User's Guide (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: REC00C, 1.02, 2.01 (As available)

Question Source: Bank # WTSI 69844
 Modified Bank # (Note changes or attach parent)
 New

Question History: Last NRC Exam: 2006

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

10 CFR Part 55 Content: 55.41 10
 55.43

Administrative, normal, abnormal, and emergency operating procedures for the facility.
 Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		2
	Group #		1
	K/A #	073	2.1.7
	Importance Rating		4.7

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

Proposed Question: SRO Question # 90

Given the following:

- Due to a Fuel Handling Accident, radiation levels throughout the plant are trending up.
- Control Room (CR) Radiation Monitor alarms were received as follows:

(ARM = Area Radiation Monitor and PRM = Process Radiation Monitor)

0800 - R-1, CR ARM Warning Alarm comes in.
0803 - R-45, CR PRM Warning Alarm comes in.
0806 - R-46, CR PRM Warning Alarm comes in.
0809 - R-46, CR PRM High Alarm comes in.
0812 - R-1, CR ARM High Alarm comes in.
0815 - R-45, CR PRM High Alarm comes in.

Assuming no action by the crew, which ONE of the following identifies the **FIRST** time that **BOTH** Trains of CREATS system will be in the Emergency mode, and the event(s) for which CREATS instrumentation must be operable in this plant condition in accordance with Technical Specifications?

- A. 0804; Fuel Handling Accident and Waste Gas Decay Tank Rupture
- B. 0810; Fuel Handling Accident and Waste Gas Decay Tank Rupture
- C. 0813; Fuel Handling Accident ONLY
- D. 0816; Fuel Handling Accident ONLY

Proposed Answer: D

Explanation (Optional):

- A. Indication only. May choose if unclear on which PRM alarm causes CREATs to go into the Emergency mode
- B. As per P-9 and AR-E-11. Takes R45 and R-46 to be in High alarm for both trains of CREATs to go to Emergency mode.
- C. Indication only. CREATs goes into the Emergency mode on R-45 or 46 not on R-1
- D. Correct. Each train in alarm will start its related train of CREATS

Technical Reference(s): AR-E-11, Cont. Rm. HYVAC Isol. pg. 1
 P-9, Radiation Monitor System (Attach if not previously provided)
 pgs. 5,13

Proposed References to be provided to applicants during examination: No

Learning Objective: Given system conditions, describe the design features of the Radiation Monitoring System, to include set points, interlocks, and the related automatic action(s) for the following components, instrumentation and/or processes. a. R-1 i. R-45, R-46 (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41
 55.43 4

Radiation hazards that may arise during normal and abnormal situations, including

maintenance activities and various contamination conditions.

Comments:

Modified from 2008 Ginna RO question. Changed times to change correct answer.

Need to add something for SRO possibly related to operability

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		2
	Group #		2
	K/A #	035	A2.02
	Importance Rating		4.4

Ability to (a) predict the impacts of the following mal-functions or operations on the GS; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Reactor trip/turbine trip

Proposed Question: SRO Question # 91

Given the following:

- The plant was at operating at 33% power during a downpower in accordance with O-2.1, Normal Shutdown to Hot Shutdown.
- 'A' RCP is experiencing high vibration.
- During a check of vibration, 'A' RCP trips on overcurrent.

Which ONE of the following describes the procedure that will be performed, and the effect on Steam Generator Feed requirements from steady state to steady state?

- Continue plant shutdown using O-2.1; SG 'A' feed requirements will be lower than SG 'B'.
- Continue plant shutdown using O-2.1; SG 'A' feed requirements will be higher than SG 'B'.
- Enter E-0, Reactor Trip or Safety Injection; SG 'A' feed requirements will be lower than SG 'B'.
- Enter E-0, Reactor Trip or Safety Injection; SG 'A' feed requirements will be higher than SG 'B'.

Proposed Answer: C

Explanation (Optional):

- Incorrect. Power is above P-8, so reactor trip will occur based on RCP trip. Second part is correct
- Incorrect. Power is above P-8, so reactor trip will occur based on RCP trip. Second part is incorrect post trip

- C. Correct. With no heat input, feed requirements will be lower
- D. Incorrect. Post trip, feed requirements are higher for the loop with the RCP operating

Technical Reference(s): R3501C (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: R3501C Obj (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41
 55.43 5

Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		2
	Group #		2
	K/A #	034	2.4.3
	Importance Rating		3.9

Emergency Procedures / Plan: Ability to identify post-accident instrumentation.

Proposed Question: SRO Question # 92

Which ONE of the following identifies instrumentation required to be OPERABLE in the event of a Fuel Handling Accident in accordance with Technical Specifications?

- A. SI Automatic Actuation Relays ONLY
- B. CREATS Automatic Actuation Relays ONLY
- C. SI Automatic Actuation Relays AND Containment Ventilation Isolation Automatic Actuation Relays
- D. CREATS Automatic Actuation Relays AND Containment Ventilation Isolation Automatic Actuation Relays

Proposed Answer: D

Explanation (Optional):

- A. Incorrect. Required in Modes 1-4
- B. Incorrect. Not the only relays among the choices given
- C. Incorrect. Same as A
- D. Correct.

Technical Reference(s): TS 3.3.5 and 3.3.6

(Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41
55.43 2

Facility operating limitations in the technical specifications and their bases.
Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		2
	Group #		2
	K/A #	014	2.2.22
	Importance Rating		4.7

Equipment Control: Knowledge of limiting conditions for operations and safety limits.

Proposed Question: SRO Question # 93

Given the following:

- The plant is at 100% power.
- One Control Bank D Group 2 MRPI becomes extinguished and is declared inoperable.
- While taking action in accordance with Technical Specifications, the other Control Bank D Group 2 MRPI becomes inoperable.

Which ONE of the following describes the most restrictive action required in accordance with Technical Specifications?

- Immediately enter TS LCO 3.0.3
- Be in Mode 2 with $K_{eff} < 1.0$ within 6 hours
- Determine position of affected rod within 4 hours or reduce power to $< 50\%$ within 4 hours
- Determine position of affected rod within 8 hours or reduce power to $< 50\%$ within 8 hours

Proposed Answer: A

Explanation (Optional):

- Correct.
- Incorrect. This would be correct if initial action could not be performed or time was exceeded
- Incorrect. This is correct if condition C of the TS could not be satisfied
- Incorrect. This is the correct action if another group or bank was inoperable

Technical Reference(s): TS 3.1.7 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41
55.43 2

Facility operating limitations in the technical specifications and their bases.

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		3
	Group #		1
	K/A #	G1	2.1.42
	Importance Rating		3.4

Conduct of Operations: Knowledge of new and spent fuel movement procedures.

Proposed Question: SRO Question # 94

Given the following:

- The plant is in Mode 6.
- Core Off-Load is in progress.
- The New Fuel Elevator is being used for temporary storage of an irradiated fuel assembly.

Which ONE of the following describes the restrictions placed on refueling activities in this condition?

- A. Fuel movement in Containment may continue with the exception of placing irradiated assemblies on the Fuel Transfer Cart; Fuel movement in the SFP must be pre-approved by a Fuel Handling Deviation
- B. Fuel movement in the Spent Fuel Pool is NOT allowed with an irradiated fuel assembly in the New Fuel Elevator; Refueling activities in Containment may continue
- C. ALL movement of irradiated fuel within the SFP AND Containment must be pre-approved by a Fuel handling Deviation while the irradiated assembly is in the New Fuel Elevator
- D. All fuel handling activities must be discontinued in the SFP AND Containment until the irradiated assembly has been removed from the New Fuel Elevator

Proposed Answer: B

Explanation (Optional):

- A. Incorrect. Plausible because having an assembly is an abnormal condition and the applicant may believe that the transfer cart may not be sent to the SFP
- B. Correct.

- C. Incorrect. Plausible because this is an abnormal condition, and abnormal movements would normally be approved with a deviation
- D. Incorrect. Plausible because activities may not proceed in SFP, and it is logical to assume that all fuel movement would be stopped

Technical Reference(s): RF-301 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41
 55.43 7

Fuel handling facilities and procedures.

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		3
	Group #		2
	K/A #	G2	2.2.14
	Importance Rating		4.3

Equipment Control: Knowledge of the process for controlling equipment configuration or status.

Proposed Question: SRO Question # 95

Given the following:

- The plant is in Mode 5.
- Train 'B' RHR is isolated for heat exchanger work.
- A worker manipulating a valve inadvertently operates the wrong valve, resulting in approximately 500 gallons of RHR flow into the tagged boundary.
- NO injuries occurred.
- A small amount of RHR fluid was spilled near 'B' RHR Heat Exchanger.
- Radioactivity and contamination levels are slightly elevated.

Which ONE of the following describes the classification of this event, and the action that will be taken following the event?

- A. Consequential mispositioning; the responsible individual is suspended from work assignments until the prompt investigation is complete and compensatory measures are established for each lesson learned
- B. Consequential mispositioning; the responsible individual is suspended from work assignments until completion of the Apparent Cause Evaluation
- C. Non-Consequential Mispositioning; the responsible individual is suspended from work assignments until the prompt investigation is complete and compensatory measures are established for each lesson learned
- D. Non-Consequential Mispositioning; the responsible individual is suspended from work assignments until completion of the Apparent Cause Evaluation

Proposed Answer: A

Explanation (Optional):

- A. Correct. See IP-OPS-5

- B. Incorrect. The individual involved must be suspended from work activities, but not as long as it takes to do an apparent cause evaluation.
- C. Incorrect. This is classified as consequential because of energy transfer into a tagged boundary
- D. Incorrect. See reasons for B and C. These are plausible because there are several aspects of the event that would be considered non-consequential by themselves

Technical Reference(s): IP-OPS-5 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41
 55.43 3

Facility licensee procedures required to obtain authority for design and operating changes in the facility.

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		3
	Group #		3
	K/A #	G3	2.3.4
	Importance Rating		3.7

Radiation Control: Knowledge of radiation exposure limits under normal or emergency conditions.

Proposed Question: SRO Question # 96

You are the Emergency Coordinator (EC) during a LOCA outside containment.

A worker is critically injured and unconscious in the RHR pit.

The Duty RP Tech estimates that each of the two proposed rescue team members will receive 30 REM while rescuing the injured person.

Which of the following describes the authorization required in accordance with EPIP 1-8, SEARCH AND RESCUE, and EPIP 2-8, VOLUNTARY ACCEPTANCE OF EMERGENCY RADIATION EXPOSURE?

- A. You may authorize only volunteers to rescue the injured person. They must understand that they may receive in excess of 25 Rem.
- B. You may assign personnel to rescue the injured person, but only for dose rates up to 25 Rem.
- C. You must receive the Radiation Protection and Chemistry Manager's permission to authorize exceeding the 4 REM dose limit for the volunteer rescuers.
- D. You may not authorize the entry with this expected dose. Plant Manager's approval is required to allow volunteers to use emergency dose limits.

Proposed Answer: A

Explanation (Optional):

- A. EPIP 2-8, Attachment 1 authorization is by Emergency Coordinator.
- B. INCORRECT. Emergency Exposure is voluntary. EC can not assign
- C. INCORRECT. RP & Chemistry Manager controls dose up to 4 REM. Above 4 REM the EC is the approval authority.

D. INCORRECT. EC can authorize this exposure.

Technical Reference(s): EPIP-2.8 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: RSCO2C 17.00
Using appropriate procedures, state the emergency radiation exposure guidelines for immediate entry into high radiation areas for lifesaving actions and for termination of radiation releases --- -- or to prevent further degradation of vital equipment. (As available)

Question Source: Bank # WTSI 66461
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2006

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

10 CFR Part 55 Content: 55.41
55.43 4

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

Comments:
Ginna 2006. Not one of last 2

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		3
	Group #		4
	K/A #	G4	2.4.29
	Importance Rating		4.4

Emergency Procedures / Plan: Knowledge of the emergency plan.

Proposed Question: SRO Question # 97

Given the following:

- The plant is in Mode 6.
- Core Alterations were in progress.
- Fuel movements were taking place in Containment and the Auxiliary Building.
- The Refueling SRO reported one of the spent fuel assemblies dropped on to the core and damaged several fuel assemblies.
- R-2, Containment Area Monitor is in alarm and reading off scale high.
- R-29/30, Containment Radiation Monitors are reading 125 R/hr and slowly trending up.

Which ONE of the following emergency classifications would apply for the current plant conditions?

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

Proposed Answer: B

Explanation (Optional):

- A. Incorrect. Meets the requirements of 5.3.1 but conditions are given for an Alert
- B. Correct. Required per EAL 2.4.2.
- C. Incorrect. Meets the requirements of 2.3.2 but only applicable in Modes 1-4 not in Mode 6
- D. Incorrect. May select GE due to dropped fuel and rad levels. Incorrect EAL call at this

time. Meets rad requirements for 4.1.6, but 4.1.6 only applies in Modes 1-4.

Technical Reference(s): EPIP-1.0, Ginna Station Event Evaluation and Classification Pgs. 7,8,14,19 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: EPIP-1.0

Learning Objective: Using the appropriate EPIP procedure and a given set of plant conditions: Classify the event (As available)

Question Source: Bank # WTSI 69822 Modified Bank # (Note changes or attach parent) New

Question History: Last NRC Exam: 2008

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

10 CFR Part 55 Content: 55.41 55.43 5

Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Comments:

Ginna 2008 (1 of last 2)

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		3
	Group #		1
	K/A #	G1	2.1.39
	Importance Rating		4.3

Conduct of Operations: Knowledge of conservative decision making practices.

Proposed Question: SRO Question # 98

Given the following:

- You are the Control Room Supervisor.
- An explosion occurs resulting in significant damage in the unit.
- The Shift Manager was seriously injured in the explosion and is incapacitated.
- No other senior managers are available.
- A significant radioactive release is occurring from the Aux Building.
- To regain control of the unit and stop the release, the crew must cross-tie power supplies NOT allowed by Technical Specifications.
- The cross-tie operation is NOT defined in EOPs or APs
- Immediate action is required.

Which ONE of the following describes the requirement for performing this action?

- A. You may approve this action in accordance with 10CFR50.54(x).
- B. You must obtain concurrence from one other SRO prior to performing the action.
- C. The Plant Manager must be notified and should concur prior to taking the action.
- D. The NRC must be notified prior to the action and must approve the action to be taken.

Proposed Answer: A

Explanation (Optional):

- A. Correct.
- B. Incorrect. Typically required for procedure changes
- C. Incorrect. Plant Manager will be notified either before or after, but no concurrence required

D. Incorrect. NRC notified after. No concurrence required

Technical Reference(s): 10CFR50.549X0, (y) (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: (As available)

Question Source: Bank # WTSI 59317
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2008

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

10 CFR Part 55 Content: 55.41
55.43 1

Conditions and limitations in the facility license

Comments:
McGuire 2008 NRC Exam

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		3
	Group #		3
	K/A #	G3	2.3.5
	Importance Rating		2.9

Radiation Control: Ability to use radiation monitoring systems, such as fixed radiation monitors and alarms, portable survey instruments, personnel monitoring equipment, etc.

Proposed Question: SRO Question # 99

Given the following:

- The plant is in Mode 6.
- Fuel Handling activities are NOT scheduled for another 2 days.
- A Containment Purge is being prepared for this shift in accordance with S-23.2.2, Containment Purge Procedure.

Which ONE of the following describes (1) an acceptable ventilation alignment, and (2) the radiation monitor(s) required to be operable for the release to proceed as scheduled?

- A. (1) 2 Purge Supply Fans running; 1 Purge Exhaust Fan running;
(2) R-11 and R-12 MUST be operable for the release to proceed for all conditions
- B. (1) 2 Purge Supply Fans running; 1 Purge Exhaust Fan running;
(2) R-12A MAY be used to satisfy the requirements for the release since Fuel Handling activities are NOT in progress
- C. (1) 1 Purge Supply Fan running; 2 Purge Exhaust Fans running;
(2) R-11 and R-12 MUST be operable for the release to proceed for all conditions
- D. (1) 1 Purge Supply Fan running; 2 Purge Exhaust Fans running;
(2) R-12A MAY be used to satisfy the requirements for the release since Fuel Handling activities are NOT in progress

Proposed Answer: D

Explanation (Optional):

- A. Incorrect. Not acceptable to have 2 supply and 1 exhaust fan. Negative pressure in containment is required. R-11 and R-12 are not required in Mode 6, the applicability is for modes 1-4 and procedure allows use of R-12A for this evolution in Mode 5 or 6

- B. Incorrect. Not acceptable to have 2 supply and 1 exhaust fan. Negative pressure in containment is required. Correct application of radiation monitor use
- C. Incorrect. Because refueling is not yet in progress, R-11 and R-12 are not required to be operable
- D. Correct. R-12A can satisfy requirements for release as long as core alterations are not in progress

Technical Reference(s): S-23.2.2 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: (As available)

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

Question History: Last NRC Exam:

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

10 CFR Part 55 Content: 55.41
 55.43 4

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

Comments:

The conditions were modified to remove refueling activities from being in progress, changing the correct answer

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		3
	Group #		4
	K/A #	G4	2.4.25
	Importance Rating		3.7

Emergency Procedures / Plan: Knowledge of fire protection procedures.

Proposed Question: SRO Question # 100

Given the following:

- The plant is operating at 100%
- All systems are in a normal configuration.
- The following indications are noted:
- Annunciator K-31 Alarms
 - Zone-01, AUX BUILDING 235-8 BSMT CABLE TRAYS, on FCP-1
 - First and Second Alarms are LIT
 - Flow Alarm is NOT LIT
- An AO reports a fire in one of the cable trays in the Aux Building Basement.

Which ONE of the following correctly identifies the potential impact (if any) of this condition on the MCB Controls and Indications, and the procedure used to address this impact?

- A. The fire DOES NOT HAVE the potential to significantly impact MCB controls and indications. ER-FIRE.0, CR RESPONSE TO FIRE ALARMS AND REPORTS, is entered first. If the fire is not controlled then refer to SC-3, FIRE EMERGENCY PLAN, for guidance on plant control.
- B. The Fire HAS the potential to significantly impact MCB controls and indications. ER-FIRE.3, ALTERNATE SHUTDOWN FOR AUX BUILDING BASEMENT/MEZZANINE FIRE., is entered first then refer to ER-FIRE.0, CR RESPONSE TO FIRE ALARMS AND REPORTS
- C. The fire DOES NOT HAVE the potential to significantly impact MCB controls and indications. FRP-4.0, AUXILIARY BUILDING BASEMENT, is entered first. If the fire is not controlled then refer to SC-3, FIRE EMERGENCY PLAN, for guidance on plant control.
- D. The Fire HAS the potential to significantly impact MCB controls and indications. ER-FIRE.0, CR RESPONSE TO FIRE ALARMS AND REPORTS, is entered first. If the fire is not controlled then go to ER-FIRE.3, ALTERNATE SHUTDOWN FOR AUX BUILDING BASEMENT/MEZZANINE FIRE

Proposed Answer: D

Explanation (Optional):

- A. INCORRECT. This fire location presents a significant potential for MCB impact.
- B. INCORRECT. ER-FIRE.0 is the first procedure entered and then ER-FIRE.3 is directed from ER-FIRE.0.
- C. INCORRECT. This fire location presents a significant potential for MCB impact. **The** FRP is entered after ER-FIRE.0 and is used to provide information to the Fire Brigade captain for local actions. It contains control room responsibilities and provides guidance to refer to ER-FIRE.3 if Safe shutdown equipment is affected. SC-3 provides a description of the site Fire Protection contingency plans and does not provide operator actions directly.
- D. Correct.

Technical Reference(s): ER-FIRE.0, ER-FIRE.3 (Attach if not previously provided)

Proposed References to be provided to applicants during examination: None

Learning Objective: RER22c 10.00
RER22C 4.00 (As available)

Question Source: Bank # WTSI 69822
Modified Bank # (Note changes or attach parent)
New

Question History: Last NRC Exam: 2006

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

10 CFR Part 55 Content: 55.41

55.43 5

Assessment of facility conditions and selection of appropriate procedures during normal, abnormal, and emergency situations.

Comments:

Ginna 2006; Not one of last 2 NRC exams