U.S. Nuclear Regulatory Commission

Site-Specific SRO Written Examination

Applicant Information			
Name:			
Date:		Facility/Unit:	R.E. Ginna
Region:	I	Reactor Type:	Westinghouse
Start Time:		Finish Time:	

Instructions

Use the answer sheets provided to document your answers. Staple this cover sheet on top of the answer sheets. To pass the examination you must achieve a final grade of at least 80.00 percent overall, with a 70.00 percent or better on the SRO-only items if given in conjunction with the RO exam; SRO-only exams given alone require a final grade of 80.00 percent to pass. You have 8 hours to complete the combined examination, and 3 hours if you are only taking the SRO portion.

Applicant Certification

All work done on this examination is my own. I have neither given nor received aid.

_____
Applicant's Signature

Results				
RO/SRO-Only/Total Examination Values	_____	/ _____	/ _____	Points
Applicant's Score	_____	/ _____	/ _____	Points
Applicant's Grade	_____	/ _____	/ _____	Percent

Site-Specific Written Examination
Ginna
Senior Reactor Operator
Answer Key

1.	D	26.	A	51.	C	76.	A
2.	C	27.	D	52.	B	77.	D
3.	D	28.	B	53.	D	78.	A
4.	C	29.	C	54.	B	79.	D
5.	C	30.	A	55.	C	80.	B
6.	A	31.	B	56.	D	81.	C
7.	A	32.	C	57.	A	82.	C
8.	C	33.	B	58.	D	83.	D
9.	C	34.	A	59.	C	84.	B
10.	C	35.	B	60.	C	85.	B
11.	B	36.	B	61.	B	86.	B
12.	B	37.	B	62.	D	87.	B
13.	A	38.	C	63.	D	88.	D
14.	C	39.	C	64.	B	89.	D
15.	D	40.	A	65.	D	90.	C
16.	C	41.	B	66.	C	91.	D
17.	B	42.	A	67.	C	92.	D
18.	A	43.	C	68.	D	93.	A
19.	C	44.	B	69.	C	94.	D
20.	C	45.	C	70.	B	95.	A
21.	C	46.	B	71.	D	96.	C
22.	B	47.	A	72.	B	97.	C
23.	A	48.	D	73.	D	98.	C
24.	C	49.	D	74.	D	99.	C
25.	C	50.	D	75.	C	100.	A

1.	A	B	C	D	26.	A	B	C	D
2.	A	B	C	D	27.	A	B	C	D
3.	A	B	C	D	28.	A	B	C	D
4.	A	B	C	D	29.	A	B	C	D
5.	A	B	C	D	30.	A	B	C	D
6.	A	B	C	D	31.	A	B	C	D
7.	A	B	C	D	32.	A	B	C	D
8.	A	B	C	D	33.	A	B	C	D
9.	A	B	C	D	34.	A	B	C	D
10.	A	B	C	D	35.	A	B	C	D
11.	A	B	C	D	36.	A	B	C	D
12.	A	B	C	D	37.	A	B	C	D
13.	A	B	C	D	38.	A	B	C	D
14.	A	B	C	D	39.	A	B	C	D
15.	A	B	C	D	40.	A	B	C	D
16.	A	B	C	D	41.	A	B	C	D
17.	A	B	C	D	42.	A	B	C	D
18.	A	B	C	D	43.	A	B	C	D
19.	A	B	C	D	44.	A	B	C	D
20.	A	B	C	D	45.	A	B	C	D
21.	A	B	C	D	46.	A	B	C	D
22.	A	B	C	D	47.	A	B	C	D
23.	A	B	C	D	48.	A	B	C	D
24.	A	B	C	D	49.	A	B	C	D
25.	A	B	C	D	50.	A	B	C	D

51.	A	B	C	D
52.	A	B	C	D
53.	A	B	C	D
54.	A	B	C	D
55.	A	B	C	D
56.	A	B	C	D
57.	A	B	C	D
58.	A	B	C	D
59.	A	B	C	D
60.	A	B	C	D
61.	A	B	C	D
62.	A	B	C	D
63.	A	B	C	D
64.	A	B	C	D
65.	A	B	C	D
66.	A	B	C	D
67.	A	B	C	D
68.	A	B	C	D
69.	A	B	C	D
70.	A	B	C	D
71.	A	B	C	D
72.	A	B	C	D
73.	A	B	C	D
74.	A	B	C	D
75.	A	B	C	D

76.	A	B	C	D
77.	A	B	C	D
78.	A	B	C	D
79.	A	B	C	D
80.	A	B	C	D
81.	A	B	C	D
82.	A	B	C	D
83.	A	B	C	D
84.	A	B	C	D
85.	A	B	C	D
86.	A	B	C	D
87.	A	B	C	D
88.	A	B	C	D
89.	A	B	C	D
90.	A	B	C	D
91.	A	B	C	D
92.	A	B	C	D
93.	A	B	C	D
94.	A	B	C	D
95.	A	B	C	D
96.	A	B	C	D
97.	A	B	C	D
98.	A	B	C	D
99.	A	B	C	D
100.	A	B	C	D

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	003 K1.03	
	Importance Rating	3.3	

Knowledge of the physical connections and/or cause-effect relationships between the RCPS and the following systems: RCP seal system

Proposed Question: Common 1

Given the following:

- The crew has entered AP-RCP.1, RCP Seal Malfunction.
- The following conditions exist for RCP 'A'.
    - RCP seal #1 leakoff indicates 1.8 GPM and lowering.
    - RCP seal #2 leakoff to the RCDT is 2.2 GPM.
    - RCP "A" STANDPIPE HIGH LEVEL alarm is lit.
    - Labyrinth seal DP is approximately 18 inches.
    - Seal Injection flow is approximately 9 GPM.
    - Containment radiation levels are normal and stable.

Which ONE (1) of the following failures is indicated, and describes the normal leak off for the associated seal?

A. RCP #1 seal has failed. 5 Gallons Per Minute.

B. RCP #2 seal has failed. 5 Gallons Per Hour.

C. RCP #1 seal has failed. 3 Gallons Per Minute.

D. RCP #2 seal has failed. 3 Gallons Per Hour.

Proposed Answer: D

Explanation (Optional):

A. Incorrect. #1 seal failure would be indicated by >8 gpm total seal flow or <0.8 gpm flow, or lab seal DP lowering. % GPM is plausible because it is the actual flow through the #2 seal. An applicant may confuse seal flow with seal leakoff flow

B. Incorrect. Correct seal but incorrect flow

C. Incorrect. Incorrect seal, correct flow for that seal

D. Correct.

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

Proposed references to be provided to applicants during examination: None

Learning Objective: EO-1.07A (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 7,10

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	004 K6.17	
	Importance Rating	4.4	

Knowledge of the operational implications of the following concepts as they apply to the CVCS: Flow paths for emergency boration

Proposed Question: Common 2

Given the following:

- Crew has entered FR-S.1, RESPONSE TO REACTOR RESTART/ATWS
- Emergency boration via MOV-350 is not working (MOV jammed)
- The RO aligns the normal boration flowpath, but **no** boric acid flow is indicated
- 1 Charging pump and 1 Boric Acid pump are running

Which ONE (1) of the following is the next method to be used to establish boric acid injection?

A. Open RWST to Charging pumps (LCV-112B)

B. Open the bypass around MOV-350

C. Open Blender outlet to Charging Pump suction AOV-110B and manually open boric acid flow control valve HCV-110A

D. Open the Immediate Borate Manual Valve V-356

Proposed Answer: C

Explanation (Optional):

A. Incorrect. Would be performed if 110A/110B did not work
B. Incorrect. Would be performed if control room actions did not succeed
C. Correct. Would be performed if normal boration did not work
D. Incorrect. The 'normal boration' flowpath is considered the preferred alternate flowpath if the emergency flowpath is unavailable during the performance of FR-S.1 and ER-CVCS.1. This path is a last alternate

Technical Reference(s) FR-S.1 (Attach if not previously provided)
ER-CVCS.1

Proposed references to be provided to applicants during examination: None

Learning Objective: _____ (As available)

Question Source: Bank # C000.1016
Modified Bank # _____ (Note changes or attach parent)
New _____

Question History: Last NRC Exam 2004 Ginna RO 21

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

10 CFR Part 55 Content: 55.41 10
_____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	005 K4.11	
	Importance Rating	3.5	

Knowledge of RHRS design feature(s) and/or interlock(s) which provide or the following: Lineup for low head recirculation mode (external and internal)

Proposed Question: Common 3

Following a small break LOCA, ECCS will be aligned for high head recirculation.

Which ONE (1) of the following describes the MINIMUM action(s) necessary to open MOV-857B, RHR Discharge to SI Pump Suction?

A. Place MOV-857B control switch in OPEN.

B. Close MOV-896A, or B, RWST Outlet to CNMT Spray and SI Pumps, then place MOV-857B control switch in OPEN.

C. Reduce RHR pressure to less than 250 psig, open MOV-897 or 898, SI Recirc to RWST, and then place MOV-857B control switch in OPEN.

D. Reduce RHR pressure to less than 250 psig, close MOV-897 or 898, SI Recirc to RWST, and MOV-896A or B, then place MOV-857B in OPEN.

Proposed Answer: D

Explanation (Optional):

A. Incorrect. Other valves are interlocked and must be closed first.
B. Incorrect. Only partially fulfills requirements.
C. Incorrect. RHR discharge head is below 250 psig but not an interlock to open the valve
D. Correct.

Technical Reference(s) ES-1.3 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: EO (As available)

Question Source: Bank # X

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

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 5
_____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	005 G2.4.49	
	Importance Rating	4.0	

Emergency Procedures / Plan Ability to perform without reference to procedures those actions that require immediate operation of system components and controls.

Proposed Question: Common 4

Given the following:

- The plant is in Mode 5, Reduced Inventory Operations in progress currently at 12".
- RHR Loop "A" is operating with total flow of 800 GPM.
- FCV-626 is in auto control
- Instrument Air is lost to FCV-625, RHR Heat Exchanger "A" Outlet Valve.

The following conditions now exist:

- RHR Pump "A" discharge pressure and flow are oscillating.
- RHR flow indicates approximately 800 to 1500 GPM.
- RCS level is 2".
- The CRS has entered the appropriate AP.

Of the following choices, which ONE (1) of the following describes the effect on the plant due to the failure and the preferable mitigation strategy?

A. RCS temperature will rise; Stop the "A" RHR Pump

B. RCS temperature will rise; Attempt to throttle RHR flow

C. RCS temperature will lower; Stop the "A" RHR Pump

D. RCS temperature will lower; Attempt to throttle RHR flow

Proposed Answer: C

Explanation (Optional):

A. Incorrect. Incorrect temperature indication, incorrect action

B. Incorrect. Temperature will lower because more water is going through the heat

exchanger

C. Correct.

D. Incorrect. Indications of vortexing with cavitation and RCS low level requires trip of operating pump

Technical Reference(s) AP-RHR.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 10

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	006 K6.02	
	Importance Rating	3.4	

Knowledge of the effect of a loss or malfunction on the following will have on the ECCS: Core flood tanks (accumulators)

Proposed Question: Common 5

Given the following:

The plant is in Mode 1.
SI Accumulator parameters are as follows:

- "A" SI Accumulator pressure – 690 psig
- "A" SI Accumulator boron concentration – 2560 ppm
- "B" SI Accumulator pressure – 785 psig
- "B" SI Accumulator boron concentration – 3035 ppm

Which ONE (1) of the following describes the impact on the ability of the ECCS to perform its design function?

The inoperability of...

A. "A" SI Accumulator affects the long term cooling capability of the ECCS.

B. "B" SI Accumulator affects the long term cooling capability of the ECCS.

C. "A" SI Accumulator affects the ability of ECCS to maintain a coolable core geometry.

D. "B" SI Accumulator affects the ability of ECCS to maintain a coolable core geometry.

Proposed Answer: C

Explanation (Optional):

A. Incorrect. "A" SI accumulator is inoperable because pressure is below the TS required value
B. Incorrect. "B" SI Accumulator is within limits, although close to high out of spec
C. Correct. Coolable geometry is affected by the SI Accumulator ability to reflood following a

LBLOCA

D. Incorrect. "B" SI Accumulator is in spec

Technical Reference(s) TS 3.5.1 and basis (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 5
55.43 2

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	007 K5.02	
	Importance Rating	3.1	

Knowledge of the operational implications of the following concepts as the apply to PRTS: Method of forming a steam bubble in the PZR

Proposed Question: Common 6

Given the following:

- The plant is in Mode 4.
- RCS temperature is 335°F.
- A bubble is being formed in the PRZR.

Which ONE (1) of the following describes a plant restriction while forming a bubble, and the method(s) used to ensure the conditions are met?

A. RCS pressure is maintained less than 350 psig to prevent operation of the Overpressure Protection system; Letdown Backpressure control is maintained automatically at the setpoint.

B. RCS pressure is maintained greater than 350 psig to ensure the bubble does not form under the reactor vessel head; Letdown Backpressure control is maintained automatically at the setpoint.

C. RCS pressure is maintained less than 350 psig to prevent operation of the Overpressure Protection system; Charging flow and/or PRZR spray are manually adjusted as the bubble is forming.

D. RCS pressure is maintained greater than 350 psig to ensure continued RCP operation; Charging flow and/or PRZR spray are manually adjusted as the bubble is forming.

Proposed Answer: A

Explanation (Optional):

A. Correct.
B. Incorrect. Correct action but pressure is maintained below 350 psig
C. Incorrect. Incorrect action but correct restriction. Actions are for maintaining Letdown

flow below 70 GPM

D. Incorrect. Incorrect restriction and incorrect action

Technical Reference(s) O-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 10

Comments:

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

Ability to (a) predict the impacts of the following malfunctions or operations on the CCWS, and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: High/low surge tank level.

Proposed Question: Common 7

Given the following:

- The plant is at 100% power.
- RCS gross activity is at the technical specification limit.
- The following annunciator is received:
    - A-5, CCW Surge Tank Hi Level 58.8%
- The HCO determines that the alarm is valid.
- Normal charging and letdown is in service.
- CCW Surge Tank is at 59% and raising slowly.
- R-17, CCW Radiation Monitor, is stable, and NOT in alarm.

Which ONE (1) of the following describes a potential cause of the alarm, and the action(s) required to mitigate the consequences?

A. The CCW Surge Tank Fill Valve is leaking by its seat; ensure the valve is closed and stop RMW pumps.

B. There is a tube leak in the Sealwater Heat Exchanger; close the seal water return isolation valve.

C. There is a tube leak in the RCP Thermal Barrier Heat Exchanger; close CCW return valve from the affected pump.

D. There is a tube leak in the Non-Regenerative Heat Exchanger; isolate normal letdown and initiate Excess Letdown.

Proposed Answer: A

Explanation (Optional):

A. Correct. If valve is leaking by seat makeup water will enter CCW system when RMW pumps are started. Step 13 of AP-CCW.1 provides mitigation steps.

B. Incorrect. If there is a tube leak in the SW HX the flow would be from CCW to Sealwater return flow and CCW Tank level would decrease.

C. Incorrect. If there is a tube leak in the RCP TBHX, radiation levels would be rising. Plausible because the actions are correct for a TBHX leak.

D. Incorrect. A NRHX tube leak would result in increased inventory in the CCW system, however, R017 would also be in alarm. Plausible because actions are correct if this was the cause

Technical Reference(s) AP-CCW.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 7, 10

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	010 A1.08	
	Importance Rating	3.2	

Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the PZR PCS controls including: Spray nozzle DT

Proposed Question: Common 8

Given the following conditions:

- A reactor trip and loss of off-site power have occurred.
- The crew is performing ES-0.2, Natural Circulation Cooldown.
- The HCO is preparing to initiate Auxiliary Spray to depressurize the RCS.
- PRZR pressure is 2235 psig.
- PRZR level is 24%.

Of the following choices, which ONE (1) of the following describes the MINIMUM allowable RHX Outlet temperature for initiating Auxiliary Spray in accordance with ES-0.2?

A. 355°F

B. 345°F

C. 335°F

D. 325°F

Proposed Answer: C

Explanation (Optional):

A. Incorrect. May go 20 degrees lower
B. Incorrect. May go 10 degrees lower
C. Correct.
D. Incorrect. This would violate the limit by 10 degrees

Technical Reference(s) ES-0.2 (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 10

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	010 G2.1.2	
	Importance Rating	3.0	

Conduct of Operations: Knowledge of operator responsibilities during all modes of plant operation.

Proposed Question: Common 9

Given the following:

- The plant is at 90% power.
- The following annunciators are lit:
  - (F-18) PRZR Safety Valve Outlet High Temperature 145 degrees F
  - (AA-13) PRZR Safety Valve Position
- PRZR pressure is 2210 psig and trending DOWN at approximately 5 psig/min.

Which ONE (1) of the following describes the required mitigating strategy?

A. Trip the reactor and go to E-0, Reactor Trip or Safety Injection.

B. Place the PRZR Pressure Controller, 431K, in MANUAL and raise output.

C. Energize Heaters and ensure the PRZR Spray valves closed.

D. Reduce load to maintain RCS temperature and pressure within limits while attempting to correct the problem.

Proposed Answer: C

Explanation (Optional):

A. Incorrect. Incorrect because a trip setpoint has not been exceeded
B. Incorrect. Output is checked at 50%, controller would not be placed in manual unless it indicated malfunction
C. Correct.
D. Incorrect.

Technical Reference(s) AP-PRZR.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 # B010.0022 (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
_____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	012 K5.01	
	Importance Rating	3.3	

Knowledge of the operational implications of the following concepts as the apply to the RPS: DNB

Proposed Question: Common 10

Which ONE (1) of the following reactor trip signals provides protection against DNB (Departure from Nucleate Boiling)?

A. Over Power Delta T

B. High Pressurizer Level

C. Bus 11A Underfrequency

D. Steam Generator LO-LO Water Level

Proposed Answer: C

Explanation (Optional):

A. Incorrect. Fuel Integrity is protected by OPDT
B. Incorrect. Backup for High PZR Pressure
C. Correct. Bus supplies RCPs, which provide the flow input for DNBR calculation
D. Incorrect. SG Low Low Level is a backup for High Pressure

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

Proposed references to be provided to applicants during examination: None

Learning Objective: (As available)

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

Question History: Last NRC Exam

Question Cognitive Level: Memory or Fundamental Knowledge X

Comprehension or Analysis

10 CFR Part 55 Content: 55.41 5
55.43 2

Comments:
WTSI Westinghouse Generic

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: Common 11

Given the following:

- The plant is at 100% power.
- All control systems are in their normal alignments.
- Pressurizer Pressure Transmitter PT-429 has failed LOW.
- All actions have been taken to remove the transmitter from service in accordance with the appropriate plant procedures.

Which ONE (1) of the following describes the logic required from the remaining operable pressurizer pressure channels to initiate (1) a Low Pressurizer Pressure Reactor Trip, and (2) a Low Pressurizer Pressure Safety Injection actuation?

A. (1) 1 out of 2
   (2) 1 out of 3

B. (1) 1 out of 3
   (2) 1 out of 2

C. (1) 1 out of 2
   (2) 1 out of 2

D. (1) 1 out of 3
   (2) 1 out of 3

Proposed Answer: B

Explanation (Optional):

A. Incorrect. Opposite of actual
B. Correct.
C. Incorrect. Reactor Trip receives inputs from 4 channels
D. Incorrect. Safety Injection receives input from 3 channels

Technical Reference(s): R1901C, R3501C (Attach if not previously provided)
ER-INST.1

Proposed references to be provided to applicants during examination: None

Learning Objective: EO 1.07D (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

Comments:
Have similar in WTSI Bank for different failures

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	013 A1.09	
	Importance Rating	3.4	

Ability to predict and/or monitor changes in parameters (to Prevent exceeding design limits) associated with operating the ESFAS controls including: T-hot

Proposed Question: Common 12

Given the following:

- ECA-2.1, Uncontrolled Depressurization of All Steam Generators is being performed.
- The crew has reduced AFW flow to both steam generators (SG) to 50 gpm as they continue attempts to isolate the SGs.

Which ONE (1) of the following describes the expected plant response to the AFW flow reduction and what actions will be taken to mitigate the effect?

A. RCS hot leg temperatures will eventually begin to increase due to reduction of SG inventory and the crew will then transition to FR-H.1, Response to Loss of Secondary Heat Sink.

B. RCS hot leg temperatures will eventually begin to increase due to reduction in SG inventory and the crew will then raise AFW flow while continuing in ECA-2.1, Uncontrolled Depressurization of All Steam Generators.

C. The SGs will eventually become completely depressurized due to inadequate secondary heat sink and the crew will then transition to E-2, Faulted Steam Generator Isolation.

D. The SGs will eventually become completely depressurized due to inadequate secondary heat sink and the crew will then transition to FR-H.1, Response to Loss of Secondary Heat Sink.

Proposed Answer: B

Explanation (Optional):

A. Incorrect. Will not go to FR-H.1 as long as capability for AFW is maintained

B. Correct. AFW remains throttled until Thot begins to increase, then it is raised to stabilize Thot

C. Incorrect. The SGs depressurize because of the event. E-2 is not used until 1 SG represurizes

D. Incorrect. Do not go to FR-H.1 if capability to feed remains

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

Proposed references to be provided to applicants during examination: None

Learning Objective: _____ (As available)

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

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 10

Comments:
Previous NRC VC Summer 2006. E12 test item

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	022 K4.03	
	Importance Rating	2.8	

Knowledge of CCS design feature(s) and/or interlock(s) which provide for the following: Automatic Containment Isolation.

Proposed Question: Common 13

Given the following:

- The plant is in Mode 1.
- Containment Mini-Purge is in operation.
- All other ventilation systems are in their normal alignments.
- Subsequently, the following events occur:
    - RCS pressure lowering.
    - PRZR level lowering.
    - Main Steam pressure lowering.
    - Containment pressure stable.
    - The crew manually initiates a reactor trip and safety injection.

Which ONE (1) of the following correctly describes the operation of the Containment Ventilation System?

A. Containment Mini-Purge will isolate. All other ventilation will remain running as prior to the safety injection.

B. Containment Mini-Purge will isolate. CRDM cooling fans and Containment compartment cooling fans will stop.

C. Containment Mini-Purge will remain running until Containment pressure or radiation levels exceed the trip setpoint. All other ventilation will remain running as prior to the safety injection.

D. Containment Mini-Purge will remain running until Containment pressure or radiation levels exceed the trip setpoint. CRDM cooling fans and Containment compartment cooling fans will stop.

Proposed Answer: A

Explanation (Optional):

A. Correct. Containment Ventilation Isolation will stop the mini-purge (Any SI)

B. Incorrect. CVI does not trip these fans

C. Incorrect. SI will stop the mini-purge, but plausible because these other signals also stop it, and if the applicant thinks that CIA is required on High Cnmt pressure, this is a credible choice

D. Incorrect. SI will stop the mini-purge, but plausible because these other signals also stop it. If the applicant believes that a High Cnmt pressure is required to give the containment isolation signal to mini-purge, then this is credible.

Technical Reference(s) R2101C (Attach if not previously provided)
EOP Att 3

Proposed references to be provided to applicants during examination: None

Learning Objective: EO-1.04 (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 5
____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	026 G2.2.22	
	Importance Rating	3.4	

Equipment Control Knowledge of limiting conditions for operations and safety limits.

Proposed Question: Common 14

Given the following:

The plant is in Mode 1.

TIME	EVENT
1310	Containment Spray Pump "A" declared INOPERABLE due to a failed surveillance.
1339	Containment Spray Pump "B" also declared INOPERABLE due to the results of a common cause failure analysis.
1406	Plant Shutdown to Mode 3 commenced.
1421	Containment Spray Pump "A" returned to OPERABLE status.
1449	Containment Spray Pump "B" returned to OPERABLE status.

Which ONE (1) of the following describes the Technical Specification requirements for operation of the plant?

Plant conditions...

A. require that the Shutdown to Mode 3 is completed no later than 1939.

B. require that the Shutdown to Mode 3 is completed no later than 2006.

C. allowed the plant shutdown to be terminated no earlier than 1421.

D. allowed the plant shutdown to be terminated no earlier than 1449.

Proposed Answer: C

Explanation (Optional):

A. Incorrect. Represents 6 hours from inoperability of 2nd pump. Applicant must recognize that TS 3.0.3 has been entered, and the requirements and restrictions of operating in TS 3.0.3

B. Incorrect. Represents 6 hours from initiation of plant shutdown, which would be the normal time to be in Mode 3

C. Correct. When the condition requiring entry to 3.0.3 no longer applies, shutdown may be terminated

D. Incorrect. Condition requiring entry to 3.0.3 was cleared when first pump was returned to operable status.

Technical Reference(s) TS 3.6.6, TS 3.0.3 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: _____ (As available)

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

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 10
55.43 2

Comments:
Modified from WTSI Bank but credit as bank

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	039 K3.04	
	Importance Rating	2.5	

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

Proposed Question: Common 15

Given the following:

- A reactor trip has occurred.
- All equipment is operating as designed.
- The crew is performing E-0, Reactor Trip or Safety Injection.
- Plant conditions as follows:
    - RCS pressure is 1600 psig and lowering slowly.
    - RCS temperature is 500°F.
    - "A" SG pressure is 680 psig and stable.
    - "B" SG pressure is 380 psig and lowering.
    - Containment pressure is 6.5 psig and rising.

Which ONE (1) of the following describes the status of feedwater, and the required action based on plant conditions?

A. Main Feedwater Pumps are running; when directed by the EOPs, Feedwater flow must be throttled to each SG to maintain RCS cooldown rate within limits.

B. Main Feedwater Pumps are running; when directed by the EOPs, Feedwater flow must be isolated to SG "B".

C. Main Feedwater Pumps are tripped; when directed by the EOPs, Aux Feedwater flow must be throttled to each SG to maintain RCS cooldown rate within limits.

D. Main Feedwater Pumps are tripped; when directed by the EOPs, Aux Feedwater flow must be isolated to SG "B".

Proposed Answer: D

Explanation (Optional):

A. Incorrect. SI has actuated with the conditions presented. MFPs would be tripped

B. Incorrect. SI has actuated with the conditions presented.
C. Incorrect. AFW to a faulted SG must be isolated, so the fault is not fed
D. Correct.

Technical Reference(s) E-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 10

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	039 K1.01	
	Importance Rating	3.1	

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

Proposed Question: Common 16

Given the following:

- The plant was at 100% power.
- "A" SG Atmospheric Relief Valve (ARV) is in Manual.
- A load rejection is occurring.
- SG pressures are currently 1090 psig and stable.
- NO action has been taken.

Which ONE (1) of the following describes the status of "A" Steam Generator?

"A" SG ARV is...

A. open; all SG Safety Valves are closed.

B. closed; all SG Safety Valves are closed.

C. open; ONE (1) SG Safety Valve is open.

D. closed; ONE (1) SG Safety Valve is open.

Proposed Answer: C

Explanation (Optional):

A. Incorrect. The ARV is snapped open because the controller is in manual
B. Incorrect. The ARV receives a snap open signal at 1060 psig when the controller is in manual
C. Correct. Low set SV is 1085 psig. The other 3 SVs open at 1140 psig
D. Incorrect. ARV is open

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

Proposed references to be provided to applicants during examination: None

Learning Objective: EO 1.07B, C (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 5,7

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	059 K1.04	
	Importance Rating	3.4	

Knowledge of the physical connections and/or cause-effect relationships between the MFW and the following systems: S/GS water level control system

Proposed Question: Common 17

Given the following:

- The Plant is operating at 35% Power.
- All systems are in a normal configuration.
- ADFCS is deenergized.

Which ONE (1) of the following describes the impact this failure will have on the Main Feedwater System?

A. The Feedwater Regulating Valves will fail as is; the running Main Feedwater Pump will trip.

B. The Feedwater Regulating Valves will fail closed; the running Main Feedwater Pump will continue to run.

C. The Feedwater Regulating Valves will transfer to manual; the running Main Feedwater Pump will trip.

D. The Feedwater Regulating Valves will transfer to manual; the running Main Feedwater Pump will continue to run.

Proposed Answer: B

Explanation (Optional):

A. Incorrect. Valves fail closed and pump does not receive a trip signal
B. Correct.
C. Incorrect. Valves will close on loss of power to ADFCS
D. Incorrect.

Technical Reference(s) R4401C (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: EO 1.05A, B (As available)

Question Source: Bank # C000.1377
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
_____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	061 A1.05	
	Importance Rating	3.6	

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

Proposed Question: Common 18

Given the following:

Following a reactor trip, the CO is throttling the TDAFW Pump discharge flow control valve closed when the following annunciator is received:

- AR H-10, AUXILIARY FEEDWATER PUMP LIGHT LOAD

Which ONE (1) of the following describes the status of the TDAFW flowpath at the time the alarm is received?

A. TDAFW flow has reached a setpoint of 100 GPM.

B. TDAFW flow has reached a setpoint of 80 GPM.

C. TDAFW discharge pressure has reached a setpoint of 1350 psig.

D. TDAFW discharge pressure has reached a setpoint of 1085 psig.

Proposed Answer: A

Explanation (Optional):

A. Correct.

B. Incorrect. The recirc valve will open at 80 gpm and close at 100 gpm flow. If the flow has just dropped below 100 gpm and has not reached the Valve Open setpoint of 80 gpm, then the valve could be closed with the lo flow alarm setpoint of < 100 gpm realized.

C. Incorrect. MDAFW discharge pressure at >1350 used to cause the alarm

D. Incorrect. MDAFW discharge pressure at >1350 will cause the alarm. 1085 is plausible because it is the design pressure of the TDAFW pump, and makes pressure contrast of options C and D similar to flow contrasts of options A and B

Technical Reference(s) R4201C (Attach if not previously provided)
AR-H-10

Proposed references to be provided to applicants during examination: NONE

Learning Objective: EO 1.11A (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 5
_____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	061 A2.09	
	Importance Rating	TBD	

Ability to(a) predict the impact of the following malfunctions or operations on the AFW system; and (b) based on those predictions use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Total loss of feedwater

Proposed Question: Common 19

Initial conditions:

- A reactor trip has occurred due to a loss of feedwater.
- Subsequent failures required the crew to enter FR-H.1, Response to Loss of Secondary Heat Sink.
- RCS pressure is 2280 psig.
- Containment pressure is 2 psig.

Current conditions:

- The crew has started the TDAFW Pump.
- Current conditions are as follows:
    - "A" SG WR level has decreased to 58 inches
    - "B" SG WR level has decreased to 45 inches
    - RCS pressure has increased to 2330 psig.
- The crew is referring to Attachment 22, Attachment Restoring Feed Flow.

For the current plant conditions, which ONE (1) of the following describes the action required to restore AFW flow in accordance with Attachment 22?

A. Feed BOTH SGs at any flow rate as desired to raise level.

B. Feed BOTH SGs at no greater than 100 GPM per SG.

C. Feed "A" SG at any flow rate as desired to raise level. Feed "B" SG at no greater than 100 GPM.

D. Feed "B" SG at any flow rate as desired to raise level. Feed "A" SG at no greater than 100 GPM.

Proposed Answer: A

Explanation (Optional):

A. Incorrect. With "B" SG <50 inches, rate is restricted to 100 GPM
B. Incorrect. May feed both, but since "A" is above 50 inches, there is no restriction on flow rate
C. Correct. 100 GPM is for hot/dry SG, and the conditions are not presented here
D. Incorrect. Opposite of correct, the SG >50 inches has no restriction on flow

Technical Reference(s) FR-H.1, Att. 22 (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

Comments:

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

Knowledge of bus power supplies to the following: Major system loads

Proposed Question: Common 20

Given the following:

- A loss of all AC power occurred 10 minutes ago.
- The crew is performing actions of ECA-0.0, Loss of All AC Power.
- Power has NOT been restored.

Which ONE (1) of the following describes the status of the 120 VAC Instrument Buses?

A. 1A, 1B, 1C, 1D energized.

B. 1A, 1B, 1C, 1D de-energized.

C. 1A and 1C energized. 1B and 1D de-energized.

D. 1A and 1C de-energized. 1B and 1D energized.

Proposed Answer: C

Explanation (Optional):

A. Incorrect.
B. Incorrect.
C. Correct. Power will be maintained to 1A and 1C IB's. IB 1B and 1D must be manually re-energized on loss of all AC power. (MCC-1B and MCC-1C will be de-energized)
D. Incorrect.

Technical Reference(s) R0901C (Attach if not previously provided)
P-10

Proposed references to be provided to applicants during examination: None

Learning Objective: EO 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 5

Comments:
Lower Cog Bank item

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	062 A4.07	
	Importance Rating	3.1	

Ability to manually operate and/or monitor in the control room: Synchronizing and paralleling of different ac supplies

Proposed Question: Common 21

Given the following:

- EDG "B" is being synchronized to its associated bus for surveillance.

Which ONE (1) of the following conditions would result in a higher likelihood of a reverse power trip when the EDG is synchronized?

A. EDG frequency is too high

B. EDG voltage is too high

C. EDG frequency is too low

D. EDG voltage is too low

Proposed Answer: C

Explanation (Optional):

A. Incorrect. Would result in more load than intended to be picked up; the opposite of reverse power
B. Incorrect. Would result in VARS OUT; reactive load and high current flow across breaker when closed
C. Correct. If frequency (speed) is set too low, then the EDG will not pick up enough load and may act as a motor (load on the grid) Reverse power trip prevents this
D. Incorrect. Would result in VARS IN

Technical Reference(s) R0801C (Attach if not previously provided)
PT-12.1, 12.2

Proposed references to be provided to applicants during examination: None

Learning Objective: _____ (As available)

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

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 5
_____

Comments:
Numerous similar bank items

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	063 A4.03	
	Importance Rating	3.0	

Ability to manually operate and/or monitor in the control room: Battery discharge rate

Proposed Question: Common 22

Given the following:

- A loss of all AC Power has occurred.
- The crew has entered ECA-0.0, Loss of All AC Power.

Which ONE (1) of the following describes the MINIMUM time (by design) that battery "A" will remain operable if DC Bus "A" load shedding is NOT performed, and the MINIMUM voltage required for the bus to remain available?

A. 4 Hours; 120 VDC

B. 4 Hours; 105 VDC

C. 8 Hours; 120 VDC

D. 8 Hours; 105 VDC

Proposed Answer: B

Explanation (Optional):

A. Incorrect. Correct time but voltage incorrect. Voltage is nominally the DC low volt alarm setpoint

B. Correct.

C. Incorrect. Plausible because at 150 amps discharge rate, it will be 8 hours to full discharge based on the rating of the battery. Incorrect due to wrong voltage

D. Incorrect. Plausible because at 150 amps discharge rate, it will be 8 hours to full discharge based on the rating of the battery.

Technical Reference(s) ECA-0.0, R0901C (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: EO 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, 10
_____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	064 K2.03	
	Importance Rating	3.2	

Knowledge of bus power supplies to the following: Control power

Proposed Question: Common 23

Which ONE (1) of the following describes the effect of a loss of Battery "A" on the operation of EDG "A"?

A. EDG "A" will automatically start if required, but control power to the "A" Fuel Transfer System is lost.

B. EDG "A" will automatically start if required, but remote operation from the MCB is lost.

C. EDG "A" will NOT automatically start if required, due to loss of power to the Start Relay.

D. EDG "A" will NOT automatically start if required, due to loss of power to the Air Start Valve

Proposed Answer: A

Explanation (Optional):

A. Correct.
B. Incorrect. The transfer panel loses control power, resulting in inability to transfer to LOCAL operation
C. Incorrect. Battery "B" supplies alternate power to a redundant start relay
D. Incorrect. Battery "B" supplies power to a redundant air start valve solenoid

Technical Reference(s) R0801C (Attach if not previously provided)
ER-ELEC.2

Proposed references to be provided to applicants during examination: None

Learning Objective: EO 1.10B (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

Comments:

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: Common 24

Given the following:

- The plant is in Mode 1.
- A Gas Decay Tank release is in progress.
- R-14 indicates low with range light lit.
- The crew responds in accordance with the alarm response
    - AR-RMS-14.1, PLANT VENT GAS FAIL

Which ONE (1) of the following describes the effect on the release and associated actions that are required?

A. The release is automatically terminated. Initiate A-52.12 (ODCM)

B. The release is automatically terminated. The release may be reinitiated provided that 2 independent samples are obtained and 2 qualified personnel perform valve alignments. Contact RP and I & C to determine the cause and initiate repair.

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 provided that 2 independent samples are obtained and 2 qualified personnel perform valve alignments. Contact RP and I & C to determine the cause and initiate repair.

Proposed Answer: C

Explanation (Optional):

A. Incorrect. The release will only terminate on high radiation, not on detector failure. Plausible because the liquid effluent PRM losing power will cause valve closure

B. Incorrect. The release will not terminate automatically. Plausible because the liquid effluent PRM losing power will cause valve closure
C. Correct. IAW AR-RMS-14.1, also contact RP and I&C
D. Incorrect. The release must be terminated when the alarm is received

Technical Reference(s) AR-RMS-14.1 (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 10, 12

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	076 A3.02	
	Importance Rating	3.7	

Ability to monitor automatic operation of the SWS, including: Emergency heat loads

Proposed Question: Common 25

Given the following conditions:

- A reactor trip has occurred.
- The crew has entered E-0, Reactor Trip or Safety Injection.
- RCS pressure indicates 1720 psig.
- Containment pressure indicates 4.5 psig.
- PZR level indicates 5%.
- All equipment is running as designed.

Which ONE (1) of the following describes the alignment of the Service Water system?

	SW Outlets from CNMT Coolers	SW Supply to CCW Heat Exchangers
A.	Throttled	Open
B.	Throttled	Closed
C.	Tripped Open	Open
D.	Tripped Open	Closed

Proposed Answer: C

Explanation (Optional):

A. Incorrect. SI signal has been generated, and CNMT Cooler valves will trip open.
B. Incorrect. SI signal has been generated, and CNMT Cooler valves will trip open. CCW valves will remain open, a SW isolation does not exist
C. Correct.
D. Incorrect. SW isolation does not exist

Technical Reference(s) R5101C (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 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	078 A4.01	
	Importance Rating	3.1	

Ability to manually operate and/or monitor in the control room: Pressure gauges

Proposed Question: Common 26

The plant is at 100% power.

- Service Air Compressor is running loaded following maintenance.
- Instrument Air Compressor "C" is running unloaded due to Instrument Air System demand.
- Instrument Air pressure is lowering.
- "A" and "B" Instrument Air Compressors in Standby.

Which ONE (1) of the following describes the Air Compressor configuration when MCB Instrument Air pressure gauge PI-2086 lowers to 103 psig?

A. The Service Air Compressor AND Instrument Air Compressor "C" are running loaded. "A" and "B" IAC running loaded.

B. The Service Air Compressor AND Instrument Air Compressor "C" are running loaded. "A" and "B" IAC remain in Standby.

C. The Service Air Compressor is running loaded; the C Instrument Air Compressor is running unloaded. "A" and "B" IAC running loaded.

D. The Service Air Compressor is running loaded; the C Instrument Air Compressor is running unloaded. "A" and "B" IAC remain in Standby.

Proposed Answer: A

Explanation (Optional):

A. Correct. 105 psig starts backup (standby) compressors
B. Incorrect. SA Compressor as the backup would have started and loaded at 105. Would load if running unloaded prior to reaching 105 pig
C. Incorrect. C IAC will cycle between 110-123 psig. At this pressure it is running loaded.
D. Incorrect. When running both compressors will unload at 123 psig, so they will both still be loaded.

Technical Reference(s) 4701C IA/SA (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 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	1	
	K/A #	103 A2.03	
	Importance Rating	3.5	

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

Proposed Question: Common 27

Given the following:

- With the plant at 100% power, the following annunciator is received:
    - AR A-26, CONTAINMENT ISOLATION
- No other alarms are received.

Which ONE (1) of the following describes the effect on the plant, and the action that will be required?

A. A reactor trip signal is generated; perform actions of E-0, Reactor Trip or Safety Injection. SI and CI must be reset prior to restoring Letdown.

B. A reactor trip signal is generated; perform actions of E-0, Reactor Trip or Safety Injection. Verify Containment Isolation using Attachment 3.0, Attachment CI/CVI.

C. A reactor trip signal is NOT generated; SI and CI must be reset prior to restoring Letdown.

D. A reactor trip signal is NOT generated; Verify Containment Isolation using Attachment 3.0, Attachment CI/CVI.

Proposed Answer: D

Explanation (Optional):

A. Incorrect. Trip generated by SI, this is only CI. If there was a trip, action would be correct
B. Incorrect. Trip generated by SI, this is only CI. Actions correct for actual event
C. Incorrect. Actions would be correct if SI was generated
D. Correct. AR-A-26 directs verification of CI/CVI if no SI has occurred

Technical Reference(s) AR-A-26 (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

Comments:

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

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

Proposed Question: Common 28

Given the following:

An RCS leak resulted in the following conditions:

TIME	EVENT
0815	Manual Reactor Trip.
0818	Manual Safety Injection.
0826	Pressurizer Pressure 1750 psig and lowering.
0827	Containment Pressure 4 psig and rising.
0831	Containment Pressure 29 psig and rising.
0833	RCS Pressure 220 psig and stable.

Assuming NO additional actions were taken, which ONE (1) of the following choices describes the EARLIEST time a Containment Isolation signal was generated?

A. 0818

B. 0826

C. 0827

D. 0831

Proposed Answer: B

Explanation (Optional):

A. Incorrect. CI not actuated on Manual SI
B. Correct. SI signal generated on Low PZR pressure
C. Incorrect. Low PZR pressure was actuated prior to Ctmt pressure
D. Incorrect. Setpoint for Containment Spray is 28 psig

Technical Reference(s) P-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 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	002 K1.07	
	Importance Rating	3.5	

Knowledge of the physical connections and/or cause-effect relationships between the RCS and the following systems: Reactor vessel level indication system

Proposed Question: Common 29

Which ONE (1) of the following describes the purpose of the Tcold input to the Reactor Vessel Level Indicating System? (RVLIS)

Provides density compensation and measurement of specific gravity for RCS fluid for RVLIS indication...

A. during all modes of operation.

B. ONLY for operation with RCPs off.

C. ONLY for operation with NO SI or RHR Flow, and when CETs NOT > Tsat.

D. ONLY for operation with RCPs running with NO SI or RHR Flow, and when CETs NOT > Tsat.

Proposed Answer: C

Explanation (Optional):

A. Incorrect. Defeated with RCPs on or off if SI or RHR flow exists
B. Incorrect. Active for RCPs on or off
C. Correct.
D. Incorrect. Active also for RCPs off

Technical Reference(s) R6701C (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 5
_____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	011 K1.04	
	Importance Rating	3.8	

Knowledge of physical connections and/or cause-effect relationships between the PZR LCS and the following: RPS

Proposed Question: Common 30

Given the following:

- The plant is at 100% power.
- PRZR Pressure Master Controller 431K is in MANUAL.
- The controlling PRZR level channel fails LOW.

Assuming no action by the crew, which ONE (1) of the following describes the effect on OT Delta T setpoint and PRZR level?

A. OT Delta T setpoint will rise. PRZR level will rise until the reactor trips.

B. OT Delta T setpoint will rise. PRZR level will lower until letdown isolates.

C. OT Delta T setpoint will lower. PRZR level will rise until the reactor trips.

D. OT Delta T setpoint will lower. PRZR level will lower until letdown isolates.

Proposed Answer: A

Explanation (Optional):

A. Correct. Failing low will cause letdown to isolate. Charging flow will rise and PRZR level will continue to rise until the trip setpoint is reached. If PRZR level rises to the trip setpoint, PRZR pressure will also be higher due to the bubble being squeezed. OTDT setpoint will be higher at the higher pressure, assuming no reactor trip on High PRZR pressure

B. Incorrect. PRZR level would lower if failure was controlling channel in opposite direction

C. Incorrect. OTDT setpoint would lower if pressure was reduced

D. Incorrect. OTDT setpoint would lower with reduced pressure, and PRZR would lower if failure was controlling channel in opposite direction

Technical Reference(s) R1901C (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 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	016 G2.2.22	
	Importance Rating	3.4	

Equipment Control Knowledge of limiting conditions for operations and safety limits.

Proposed Question: Common 31

Which ONE (1) of the following transmitters will require entry into the technical specification action statement for Reactor Trip System Instrumentation if it fails low?

A. Loop "B" Wide Range Thot

B. Loop "A" Narrow Range Tcold

C. SG "B" Main Steam Pressure

D. SG "A" Main Steam Flow

Proposed Answer: B

Explanation (Optional):

A. Incorrect. WR temperature not input to RPS, input to post accident monitoring
B. Correct. NR temperature inputs to OTDT reactor trip instrumentation
C. Incorrect. Input to ESFAS but no RPS function
D. Incorrect. Input to ESFAS but not RPS

Technical Reference(s) TS 3.3.1 (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 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	017 A4.02	
	Importance Rating	3.8	

Ability to manually operate and/or monitor in the control room: Temperature values used to determine RCS/RCP operation during inadequate core cooling (i.e., if applicable, average of five highest values)

Proposed Question: Common 32

Given the following:

- A LOCA has occurred.
- SG narrow range levels are 10%.
- Due to equipment failures, the crew has transitioned to FR-C.1, response to Inadequate Core Cooling.

Which ONE (1) of the following describes the operation of RCPs for this event?

A. Any available RCPs are run for the entire event.

B. Any available RCPs are started prior to performing secondary depressurization.

C. Only one RCP at a time is started if it is available, only if secondary depressurization is ineffective.

D. Only one RCP is started prior to performing secondary depressurization.

Proposed Answer: C

Explanation (Optional):

A. Incorrect. Plausible because forced circulation of the RCS is always desirable
B. Incorrect. Plausible because procedure provides for a second depressurization step after RCP start
C. Correct. If secondary depressurization is ineffective and CETs >1200 degrees F, RCP will be started
D. Incorrect. SG level is desired but not required, and RCP start is after depressurization is ineffective

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

Proposed references to be provided to applicants during examination: None

Learning Objective: _____ (As available)

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

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 10
_____

Comments:
WTSI Bank

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	034 A3.01	
	Importance Rating	2.5	

Ability to monitor automatic operation of the Fuel Handling System, including: Travel limits

Proposed Question: Common 33

Which ONE (1) of the following describes the Fuel Handling System interlock that prevents the Manipulator Crane Mast from colliding with the South Guide stud?

A. Bridge Travel is restricted by a zone interlock to the south end of the core if the Trolley is aligned with the Refueling Canal centerline.

B. Bridge Travel is restricted by a zone interlock to the south end of the core if the Trolley is NOT aligned with the Refueling Canal centerline.

C. Limit switches prevent ANY Bridge movement in the south direction if the Trolley is aligned with the Refueling Canal centerline.

D. Limit switches prevent ANY Bridge movement in the south direction if the Trolley is NOT aligned with the Refueling Canal centerline.

Proposed Answer: B

Explanation (Optional):

A. Incorrect. Travel will not be restricted if aligned with cavity centerline
B. Correct. Zone interlock for south travel unless aligned with Cavity centerline
C. Incorrect. Limit switches prevent collision with north guide stud as well as south, but bridge movement to the south is allowed until reaching the edge of the core
D. Incorrect. Limit switches prevent collision with the north guide stud, as well as south, but bridge movement to the south is allowed until reaching the edge of the core

Technical Reference(s) R3701C (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 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	035 K5.03	
	Importance Rating	2.8	

Knowledge of operational implications of the following concepts as the apply to the S/GS: Shrink and swell concept

Proposed Question: Common 34

Which ONE (1) of the following describes the function of the Feedwater Temperature input to the ADFCS?

A. Provides a gain adjustment to the level error signal in Low Power mode to minimize effects of shrink and swell.

B. Provides a gain adjustment to the level error signal in High Power mode to minimize effects of shrink and swell.

C. Provides density compensation to the Feedwater flow signal in Low Power Mode to provide ADFCS stability.

D. Provides density compensation to the Feedwater flow signal in High Power Mode to provide ADFCS stability.

Proposed Answer: A

Explanation (Optional):

A. Correct. At low power, effects shrink and swell are more severe

B. Incorrect. At high power provides for stability, the effects of shrink and swell are minimal at high power. Plausible because it does provide a gain adjustment

C. Incorrect. Provides a gain adjustment to level error, not density compensation for feed flow

D. Incorrect. Provides a gain adjustment to level error, not density compensation for feed flow

Technical Reference(s) R4401C (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 5
_____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	041 K3.04	
	Importance Rating	3.5	

Knowledge of the effect that a loss or malfunction of the SDS will have on the following: Reactor power

Proposed Question: Common 35

Given the following:

- A load rejection has occurred.
- Reactor power is currently 75%.
- Main Turbine control is in IMP IN.
- Generator load is approximately 380 MWe.
- Group "A" Steam Dump Valves are full open.
- The arming solenoid to Group "A" Steam Dump Valves fails, losing power.

Which ONE (1) of the following describes the effect on reactor power?

Reactor power is reduced by approximately...

A. 3.5%.

B. 7%.

C. 10.5%.

D. 21%.

Proposed Answer: B

Explanation (Optional):

A. Incorrect. Valves fail closed. 2 valves in Group A, each with a capacity of 3.5%
B. Correct. Capacity of 2 valve
C. Incorrect. Capacity of 1 SG Safety valve
D. Incorrect. Capacity of 2 SG Safety valves

Technical Reference(s) R4501C (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

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	045 A1.05	
	Importance Rating	3.8	

Ability to predict and/or monitor changes in parameters (to prevent exceeding design limits) associated with operating the MT/G system controls including: Expected response of primary plant parameters (temperature and pressure) following T/G trip

Proposed Question: Common 36

Given the following plant conditions:

- An ATWS has occurred from 100% power.
- The crew is performing actions in accordance with FR-S.1, Response to Reactor Restart/ATWS.
- The HCO determines that the following occurs in rapid succession:
    - RCS temperature and pressure increasing
    - PZR PORVs indicate OPEN
    - PRT temperature, level, and pressure increasing

Which ONE (1) of the following has occurred?

A. SI has actuated.

B. The turbine has tripped.

C. The TDAFW Pump has tripped.

D. A PZR Pressure Controller malfunction has occurred.

Proposed Answer: B

Explanation (Optional):

A. Incorrect. Parameters would decrease
B. Correct. Characteristic of a large loss of load
C. Incorrect. Parameters would change, but not as severe as turbine trip
D. Incorrect. Indications are similar, but would not be preceded by temperature increasing.

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

Proposed references to be provided to applicants during examination: None

Learning Objective: _____ (As available)

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

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 7
_____

Comments:
Robinson 2006 Audit Exam

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	015 K6.02	
	Importance Rating	2.6	

Knowledge of the effect of a loss or malfunction on the following will have on the NIS : Discriminator/Compensation circuits

Proposed Question: Common 37

Which ONE (1) of the following contains BOTH conditions that will result in indicated reactor power being LOWER than actual reactor power?

A. Source Range pulse height discrimination set too LOW
Intermediate Range Compensating voltage set too LOW

B. Source Range pulse height discrimination set too HIGH
Intermediate Range Compensating voltage set too HIGH

C. Source Range pulse height discrimination set too LOW
Intermediate Range Compensating voltage set too HIGH

D. Source Range pulse height discrimination set too HIGH
Intermediate Range Compensating voltage set too LOW

Proposed Answer: B

Explanation (Optional):

A. Incorrect. Both of these would result in a higher indicated power
B. Correct. With Pulse height discrimination or IR compensation set too high, actual power would be higher than indicated (non-conservative)
C. Incorrect. SR is incorrect, IR is correct.
D. Incorrect. SR is correct, IR is incorrect

Technical Reference(s) R3301C (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: _____ (As available)

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

Question History: Last NRC Exam

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

10 CFR Part 55 Content: 55.41 11

Comments:
WTSI Bank, used on BVPS-1 2002 exam

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	2	
	Group #	2	
	K/A #	079 K4.01	
	Importance Rating	2.9	

Knowledge of SAS design feature(s) and/or interlock(s) which provide for the following: Cross-connect with IAS

Proposed Question: Common 38

Given the following:

- A loss of Instrument Air is occurring.
- Instrument Air Header pressure is 80 psig and lowering.

Which ONE (1) of the following describes the position of the Service Air/Instrument Air Cross-Tie Isolation valve, V-7000, and the Service Air/Instrument Air Cross Tie valve, AOV-5251?

A. V-7000 open; AOV-5251 open.

B. V-7000 open; AOV-5251 closed.

C. V-7000 closed; AOV-5251 open.

D. V-7000 closed; AOV-5251 closed.

Proposed Answer: C

Explanation (Optional):

A. Incorrect. At 100 psig, V-7000 closes. At 90 psig, AOV-5251 opens
B. Incorrect. Opposite of actual
C. Correct.
D. Incorrect. AOV-5251 is open at this pressure

Technical Reference(s) 4701C (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 5
_____

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	008 AK2.02	
	Importance Rating	3.8	

Knowledge of the interrelations between the Pressurizer Vapor Space Accident and the following: Sensors and detectors.

Proposed Question: Common 39

Given the following:

- Pressurizer pressure is 985 psig.
- Pressurizer Relief Tank pressure is 5 psig.
- PRT temperature is 90°F.
- The reactor is shut down.

If a pressurizer safety valve begins to leak, which ONE (1) of the following is the temperature seen downstream of the leaking valve?

A. 230°F

B. 270°F

C. 300°F

D. 340°F

Proposed Answer: C

Explanation (Optional):

A. Incorrect. Reasonable because temperature will be lower than the temperature in the PZR, and answer is within range of correct answer if an error is made on the diagram

B. Incorrect. Normal temperature seen if valve were to leak at 100% power

C. Correct. Constant enthalpy process, saturation temperature for 5 psig (20 psia) is approximately 300°F

D. Incorrect. Reasonable because temperature will be lower than the temperature in the PZR, and answer is within range of correct answer if an error is made on the diagram

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

Proposed references to be provided to applicants during examination: None

Learning Objective: _____ (As available)

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

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 14
_____

Comments:
IP3 2003 NRC

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	015 AK3.01	
	Importance Rating	2.5	

Knowledge of the reasons for the following responses as they apply to the Reactor Coolant Pump Malfunctions (Loss of RC Flow) : Potential damage from high winding and/or bearing temperatures

Proposed Question: Common 40

Given the following:

- The plant is at 60% power.
- CCW was lost to "A" RCP 1 minute ago.
- "A" RCP motor bearing temperatures are 180°F and rising at 5°F per minute.
- The crew is attempting to restore CCW flow to "A" RCP.

Assuming CCW CANNOT be restored to "A" RCP and the current trends continue, which ONE (1) of the following is the MAXIMUM time that "A" RCP may continue to operate from this point?

A. 1 minute

B. 2 minutes

C. 3 minutes

D. 4 minutes

Proposed Answer: A

Explanation (Optional):

A. Correct. Can only operate for 2 minutes without CCW or 200 degrees on bearings
B. Incorrect. Credible if they apply 2 minute rule without accounting for 1 minute passed
C. Incorrect. Credible if they believe that 4 minutes would be too long
D. Incorrect. Credible if they apply 5 degrees per minute and 20 degrees total

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

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 10
_____

Comments:
Have written similar for other exams different KAs

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	022 AA1.09	
	Importance Rating	3.2	

Ability to operate and / or monitor the following as they apply to the Loss of Reactor Coolant Pump Makeup: RCP seal flows, temperatures, pressures, and vibrations.

Proposed Question: Common 41

Given the following:

- The plant is at 100% power.
- (B-9) RCP 1A Labyrinth Seal Low Diff Press 15" H2O, alarms.
- (B-10) RCP 1B Labyrinth Seal Low Diff Press 15" H2O alarms.
- (A-4) Regenerative Letdown Outlet Hi Temp 395°F, alarms.
- Letdown line flow erratic.
- Low pressure letdown line pressure is erratic.
- "A" RCP seal injection = 0 gpm.
- "B" RCP seal injection = 0 gpm.
- Charging line flow = 0 gpm.
- Charging Pump Discharge Pressure = 1900 psig.
- R-4, R13 and R14 are trending up.
- Auxiliary Building Sump Level High Alarms frequency has increased.

Based upon these symptoms, which ONE (1) of the following describes the initiating condition?

(HCV-142, Charging Flow to Regenerative Heat Exchanger)

Charging Line leak...

A. inside containment downstream of the regenerative heat exchanger

B. outside containment upstream of HCV-142

C. inside containment downstream of HCV-142 but upstream of the regenerative heat exchanger

D. outside containment downstream of HCV-142

Proposed Answer: B

Explanation (Optional):
A. Incorrect. Flow would be indicated if the leak was downstream of RHX and letdown would not be erratic
B. Correct. AP-CVCS.3 Step 2 provides guidance for checking for Charging Pump Leaks. Discharge

pressure < RCS pressure with no flow and indications of increased leakage into the Aux Building (sump levels and rad monitors) are indication of a Charging Line Leak in the Aux building. The leak is upstream of HCV-142 because a leak downstream of HCV-142 would be downstream of the flow indicator and result in the leak flow being indicated on the Flow indicator.
C Incorrect. No indication of leakage in containment are given and leak has to be upstream of HCV-142 as discussed above.
D. Incorrect. See above

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

Proposed references to be provided to applicants during examination: None

Learning Objective: _____ (As available)

Question Source: Bank # C000.1346
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

Comments:
Bank item changed 1 distractor

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	025 AK3.01	
	Importance Rating	3.1	

Knowledge of the reasons for the following responses as they apply to the Loss of Residual Heat Removal System: Shift to alternate flowpath

Proposed Question: Common 42

Given the following conditions:

- The plant is cooling down in Mode 4.
- RHR Loop "A" is in service.
- RCS temperature is 305°F.
- Both RCPs are secured.

Subsequently, "A" RHR Pump trips on overcurrent.
The crew enters the appropriate AP for the event.

Which ONE (1) of the following describes the method of restoring core cooling, in order of preference?

A. Start "B" RHR Pump.
Start an RCP and steam SGs.
Verify Natural Circulation and steam SGs.

B. Start an RCP and steam SGs.
Verify Natural Circulation and steam SGs.
Start an RCDT Pump to provide cooling.

C. Start "B" RHR Pump.
Verify Natural Circulation and steam SGs.
Start an RCP and steam SGs.

D. Verify Natural Circulation and steam SGs.
Start an RCP and steam SGs.
Start an RCDT Pump to provide cooling.

Proposed Answer: A

Explanation (Optional):

A. Correct. With just an overcurrent trip of the RHR Pump, the procedure directs action IAW step10, which will start another pump
B. Incorrect. These actions are correct, with the exception that the RHR pump would be started first
C. Incorrect. Correct first action but 2nd 2 are reversed
D. Incorrect. 1st 2 actions are reversed

Technical Reference(s) AP-RHR.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 10

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	026 G2.1.30	
	Importance Rating	3.9	

Conduct of Operations: Ability to locate and operate components, including local controls.

Proposed Question: Common 43

Given the following:

- A Loss of CCW has occurred.
- The crew is performing AP-CCW.2, Loss of CCW During Power Operation.
- An AO has been directed to verify normal CCW flows in accordance with ATT. 1.1, Attachment Normal CCW Flow

Which ONE (1) of the following describes the local CCW flow indications that would be considered normal for the RCPs, and the location where flow would be manually throttled if required?

A. 100 GPM; Containment Mezzanine.

B. 100 GPM; Auxiliary Building Middle Level.

C. 200 GPM; Containment Mezzanine.

D. 200 GPM; Auxiliary Building Middle Level.

Proposed Answer: C

Explanation (Optional):

A. Incorrect. Flow too low but location is correct
B. Incorrect. Flow too low and incorrect location, but plausible because it is the location where flow is read from
C. Correct.
D. Incorrect. Location is incorrect.

APE 026 is Loss of CCW

Technical Reference(s) ATT 1.1 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: _____ (As available)

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

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	027 AK2.03	
	Importance Rating	2.6	

Knowledge of the interrelations between the Pressurizer Pressure Control Malfunctions and the following: Controllers and positioners

Proposed Question: Common 44

Given the following:

- The plant is operating at 100% power.
- A failure of the controlling input to the PRZR Pressure Controller (431K) caused actual pressurizer pressure to increase to 2280 psig.
- The PRZR Pressure Controller has been placed in MANUAL at 50% demand.

Which ONE (1) of the following describes the action required to return pressure to normal?

A. Decrease the controller output

B. Increase the controller output.

C. Raise the pressure setpoint adjustment

D. Lower the pressure setpoint adjustment

Proposed Answer: B

Explanation (Optional):

A. Incorrect. Decreasing the output would cause pressure to rise, as a lower output will turn on heaters
B. Correct.
C. Incorrect. Setpoint adjustment will not work in manual
D. Incorrect. See C

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

Proposed references to be provided to applicants during examination: None

Learning Objective: _____ (As available)

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

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 7
_____

Comments:
Previous other NRC Exams, (2005 and prior) WTSI Westinghouse Generic

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	029 G2.1.14	
	Importance Rating	2.5	

Conduct of Operations: Knowledge of system status criteria which require the notification of plant personnel.

Proposed Question: Common 45

Given the following:

- An ATWS is in progress.
- The CRS has entered FR-S.1, Response to Reactor Restart/ATWS.
- The reactor will NOT trip.

Which ONE (1) of the following actions is required NEXT to shut the reactor down in accordance with FR-S.1?

A. Immediately initiate RCS boration; then initiate manual rod insertion while dispatching an AO to open Reactor Trip Breakers OR MG Set Breakers.

B. Immediately initiate RCS boration; allow rods to insert automatically while dispatching an AO to open Reactor Trip Breakers OR MG Set Breakers.

C. Immediately initiate manual rod insertion, then initiate RCS boration; dispatch an AO to open Reactor Trip Breakers OR MG Set Breakers if the reactor is not tripped when immediate actions are complete.

D. Immediately initiate manual rod insertion, then dispatch an AO to open Reactor Trip Breakers AND MG Set Breakers; initiate RCS boration when the immediate actions are complete.

Proposed Answer: C

Explanation (Optional):

A. Incorrect. Do not borate or send an AO until rod insertion
B. Incorrect. See A
C. Correct.
D. Incorrect. Boration performed first

For RO Knowledge, notification is interpreted to be dispatch of the associated AO

Technical Reference(s) FR-S.1 Step 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

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	038 EA2.02	
	Importance Rating	4.5	

Ability to determine or interpret the following as they apply to a SGTR: Existence of an S/G tube rupture and its potential consequences

Proposed Question: Common 46

Given the following conditions:

- Reactor trip and safety injection have actuated due to a steam line break upstream of "A" MSIV.
- The crew is performing E-2, Faulted SG Isolation.
- "A" SG is isolated.
- "A" SG pressure is 50 psig.
- "A" SG WR level is 60 inches and rising slowly.
- Containment pressure is 0.2 psig and stable.
- RCS pressure is 1350 psig and stable.
- SI flow is 200 GPM and stable.

Which ONE (1) of the following describes the operational impact of these indications?

A. The faulted SG has blown down and steam dump should be adjusted to minimize RCS heatup.

B. A SGTR is occurring and actions must be taken to minimize radiological release in accordance with E-3, Steam Generator Tube Rupture.

C. The faulted SG has blown down and SI Termination will be performed after verifying SI not required in E-1, Loss of Reactor or Secondary Coolant.

D. A SGTR is occurring and will be verified by rising radiation levels in containment and by Chemistry sample.

Proposed Answer: B

Explanation (Optional):

A. Incorrect. SG has already blown down. WR level is rising because of the primary water being admitted through a tube

B. Correct. Break is upstream of MSIV but outside of containment, since containment pressure is 0.2 psig
C. Incorrect. Would be correct if a SGTR was not apparent
D. Incorrect. Fault is outside of containment. Chemistry sample will be performed to check for SGTR

Technical Reference(s) E-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 7,10

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	040 AK1.01	
	Importance Rating	4.1	

Knowledge of the operational implications of the following concepts as they apply to Steam Line Rupture: Consequences of PTS

Proposed Question: Common 47

Given the following:

- SI was initiated due to a steam line break on "A" SG.
- The crew completed E-0, Reactor Trip or Safety Injection, and initially responded to an ORANGE condition on the Integrity CSF Status Tree.
- The crew completed FR-P.1, Response to Imminent Pressurized Thermal Shock Condition.
- A soak is in progress.

Which ONE (1) of the following actions is permitted?

A. Stop "B" SI Pump

B. Start a Charging Pump

C. Energize PRZR heaters

D. Increase AFW flow to "B" SG

Proposed Answer: A

Explanation (Optional):

A. Correct. Will not cause cooldown or raise pressure
B. Incorrect. Would potentially raise RCS pressure
C. Incorrect. Would raise pressure
D. Incorrect. Would cooldown the RCS further

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

Proposed references to be provided to applicants during examination: None

Learning Objective: _____ (As available)

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

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 10

Comments:
Most recent – McGuire 2007 similar item

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	054 AK1.01	
	Importance Rating	4.1	

Knowledge of the operational implications of the following concepts as they apply to Loss of Main Feedwater (MFW): MFW line break depressurizes the S/G (similar to a steam line break)

Proposed Question: Common 48

Given the following:

- The plant is operating at 100% power.
- A Feedwater Line Break occurs at the piping connection to "A" SG inside containment.

Which ONE (1) of the following describes the effect of this event?

A. RCS temperature lowers prior to reactor trip. SG "A" pressure stabilizes after FWIV closure.

B. RCS temperature lowers prior to reactor trip. SG "A" continues to depressurize after FWIV closure.

C. RCS temperature rises prior to reactor trip. SG "A" pressure stabilizes after FWIV closure.

D. RCS temperature rises prior to reactor trip. SG "A" continues to depressurize after FWIV closure.

Proposed Answer: D

Explanation (Optional):

A. Incorrect. Temperature would lower if it was a steam break being fed. A feed break will rob the SG of water, causing it to heat up prior to the trip. No check valve keeping the SG from depressurizing, so after the trip, the SG will stabilize. Plausible because this is the symptom of a SLB downstream of MSIV

B. Incorrect. Temperature would lower if it was a steam break being fed. A feed break will rob the SG of water, causing it to heat up prior to the trip. Plausible because this is the symptom of a SLB upstream of the MSIV. The location of the feed break makes it easy to confuse with a SLB post trip.

C. Incorrect. No check valve keeping the SG from depressurizing

D. Correct.

Technical Reference(s): Feed Break Transient Analysis E-2 BD (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: _____ (As available)

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

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 14

Comments:
WTSI Westinghouse Generic (56884)
Most recent use VCS Audit 3/2007 Previous NRC Salem 7/02

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	055 G2.4.31	
	Importance Rating	3.3	

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

Proposed Question: Common 49

Given the following:

- A loss of all AC power has occurred.
- The crew is performing ECA-0.0, Loss of All AC Power.
- Power has NOT been restored.
- The following annunciators were lit 60 seconds **prior** to the loss of power:
    - A-25, CONTAINMENT VENTILATION ISOLATION
    - A-26, CONTAINMENT ISOLATION

Which ONE (1) of the following describes the indication of the status of the components affected by these alarms, and the action performed to verify the status?

A. Valve Status lights have lost power. Manually initiate both CI and CVI and determine component status by their MCB valve position indication.

B. Valve Status lights have lost power. Component status must be verified using ATT 3.0, Attachment CI/CVI.

C. Valve Status lights will be BRIGHT. Verification of position must also be performed using MCB valve position indication.

D. Valve Status lights will be BRIGHT. Component status may also be verified using ATT 3.0, Attachment CI/CVI.

Proposed Answer: D

Explanation (Optional):

A. Incorrect. Valve status lights should have DC power supplied
B. Incorrect. Valve status lights should have DC power supplied
C. Incorrect.
D. Correct. IAW both ARPs

Technical Reference(s) ECA-0.0, A-25, A-26 (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 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	057 AA2.15	
	Importance Rating	3.8	

Ability to determine and interpret the following as they apply to the Loss of Vital AC Instrument Bus: That a loss of ac has occurred

Proposed Question: Common 50

Given the following:

- The plant is at 100% power.
- All equipment is in service.
- The following conditions exist:
    - All RPS Channel I status lights are illuminated.
    - NI Cabinet N-41 indication is extinguished.
    - Multiple control room annunciators are received.
    - The crew is performing appropriate actions in accordance with plant procedures.

Which ONE (1) of the following describes the event that has occurred, and the initial response of the plant?

A. Loss of DC Distribution Panel 1A; a reactor trip will occur.

B. Failure of Instrument Bus 1A; a reactor trip will occur.

C. Loss of DC Distribution Panel 1A; a reactor trip will NOT occur.

D. Failure of Instrument Bus 1A; a reactor trip will NOT occur.

Proposed Answer: D

Explanation (Optional):

A. Incorrect. Loss of DC Distribution panel would only lose the normal input to the inverter, and it would swap to alternate
B. Incorrect. Correct failure but a trip will not automatically occur on loss of 1 inverter. (2/4 logic for RPS)
C. Incorrect. Correct plant response but incorrect failure
D. Correct.

Technical Reference(s) E-3, E-6, ER-INST.3 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: _____ (As available)

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

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 7

Comments:
North Anna 2006 NRC

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	058 AK3.02	
	Importance Rating	4.0	

Knowledge of the reasons for the following responses as they apply to the Loss of DC Power: Actions contained in EOP for loss of dc power

Proposed Question: Common 51

Given the following:

- The crew is performing actions of ECA-0.0, Loss of All AC Power.
- The CO places the MFW Pump AC Oil Pump control switches to OFF.

Which ONE (1) of the following describes the reason for this action?

A. Prevent auto start of the pumps when power is restored.

B. The subsequent operation of secondary plant equipment will be unnecessary.

C. Extend the time until depletion of Station Batteries by starting the time delay for auto trip of the DC oil pumps.

D. Extend the time until depletion of Station Batteries by reducing load on the 120 VAC inverters.

Proposed Answer: C

Explanation (Optional):

A. Incorrect. Pumps will not auto start on restoration of power because they are not class 1E powered.
B. Incorrect. True statement but not the reason for turning pumps off in this procedure
C. Correct. Stopping AC pumps allows a timer to stop the DC Pumps
D. Incorrect. AC pumps are not powered by the inverters, but plausible because minimizing inverter load would extend battery life

Technical Reference(s) ECA-0.0 (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

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	062 AA2.03	
	Importance Rating	2.6	

Ability to determine and interpret the following as they apply to the Loss of Nuclear Service Water: The valve lineups necessary to restart the SWS while bypassing the portion of the system causing the abnormal condition

Proposed Question: Common 52

Given the following:

- The plant is at 80% power.
- A Service Water System Leak is occurring.
- The crew is performing actions of AP-SW.1, Service Water Leak.
- Service Water Pumps A, B, and D are running.
- A controlled plant shutdown is in progress.
- Service Water Loop "A" pressure is 42 psig.
- Service Water Loop "B" pressure is 50 psig.
- The CRS directs splitting Service Water loops.

Which ONE (1) of the following choices describes the operability of the Service Water System, and contains MINIMUM actions for isolating components for the current plant conditions?

Entry to a Technical Specification action statement is...

A. Required; BOTH SW loop cross-ties in the Screenhouse basement must be closed. NO other actions are required.

B. Required; EITHER D/G SW cross-tie may be closed, and EITHER SW loop cross-tie in the Screenhouse basement may be closed.

C. NOT required; BOTH SW loop cross-ties in the Screenhouse basement must be closed. NO other actions are required

D. NOT required; EITHER D/G SW cross-tie may be closed, and EITHER SW loop cross-tie in the Screenhouse basement may be closed.

Proposed Answer: B

Explanation (Optional):

A. Incorrect. Both valves in each line not required. Either valve will split headers
B. Correct.
C. Incorrect. Both valves in each line not required. Either valve will split headers. TS 3.7.8 must be entered
D. Incorrect. TS 3.7.8 must be entered

Technical Reference(s) AP-SW.1, ATT 2.5 (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 10
55.43 2

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	065 AA1.03	
	Importance Rating	2.9	

Ability to operate and / or monitor the following as they apply to the Loss of Instrument Air: Restoration of systems served by instrument air when pressure is regained

Proposed Question: Common 53

Given the following:

- The plant is at 50% power.
- A loss of Instrument Air required the crew to perform actions of AP-IA.1, Loss of Instrument Air.
- Instrument Air was isolated to the Aux Building.
- Subsequently, the leak was isolated to a small section of piping.
- Instrument Air to the Aux Building has been restored.
- The crew is preparing to restore Letdown in accordance with AP-IA.1.

Which ONE (1) of the following describes the sequence of actions required for restoration of Letdown in accordance with AP-IA.1?
(Assume all Letdown orifice and isolation valves are closed)

A. Ensure Charging to Loop B Cold Leg isolation valve, AOV-294, is open;
open Letdown orifice isolation valves;
then open Letdown isolation valves (AOV-427 and AOV-371).

B. Open Letdown isolation valves (AOV-427 and AOV-371);
open Letdown orifice isolation valves;
ensure Charging to Loop B Cold Leg isolation valve, AOV-294, is open;.

C. Open Letdown orifice isolation valves;
open Letdown isolation valves (AOV-427 and AOV-371);
ensure Charging to Loop B Cold Leg isolation valve, AOV-294, is open;.

D. Ensure Charging to Loop B Cold Leg isolation valve, AOV-294, is open;
open Letdown isolation valves (AOV-427 and AOV-371);
then open Letdown orifice isolation valves.

Proposed Answer: D

Explanation (Optional):

A. Incorrect. Wrong sequence for letdown valves due to letdown valve interlock. Orifice isolations will not open if letdown isolation valves are not open
B. Incorrect. Correct sequence for letdown valves but AOV-294 must be open first
C. Incorrect. Incorrect sequence for letdown valves
D. Correct.

Technical Reference(s) AP-IA.1, ATT 9.0 (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

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	E04 EK1.2	
	Importance Rating	3.5	

Knowledge of the operational implications of the following concepts as they apply to the (LOCA Outside Containment) Normal, abnormal and emergency operating procedures associated with (LOCA Outside Containment).

Proposed Question: Common 54

Given the following:

- The plant was in Mode 1.
- Reactor trip and safety injection have occurred.
- Due to high Aux Building radiation levels, the crew has entered ECA-1.2, LOCA Outside Containment.
- Actions have been taken in an attempt to isolate the break.
- The current conditions exist:
    - Aux Building Radiation Monitors are in alarm
    - PRZR level is off-scale low
    - SI flow is 0 GPM.
    - RCS pressure is 1600 psig and rising.

Which ONE (1) of the following describes the status of the leak based on the requirements of ECA-1.2?

A. The leak is isolated based on SI flow of 0 GPM

B. The leak is isolated based on RCS pressure rising.

C. The leak is NOT isolated based on PRZR level indication not rising.

D. The leak is NOT isolated based on Aux Building radiation monitor indication.

Proposed Answer: B

Explanation (Optional):

A. Incorrect. SI flow could be 0 if RCS pressure never got below shutoff head of the SI pumps

B. Correct. RCS pressure is the required parameter for determination of isolation

C. Incorrect. PRZR level is not used, but it will rise after awhile when RCS inventory is restored

D. Incorrect. Aux Building radiation is used as an entry condition to the procedure

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

Proposed references to be provided to applicants during examination: None

Learning Objective: _____ (As available)

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

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 10

Comments:
WTSI Bank

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	E05 EK2.1	
	Importance Rating	3.7	

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

Proposed Question: Common 55

Given the following conditions:

- A Loss of Heat Sink has occurred.
- The crew is establishing RCS 'Bleed and Feed' in accordance with FR-H.1, Loss of Secondary Heat Sink.
- The RO opens one PRZ PORV. He reports that the other PORV will NOT open.

Which ONE (1) of the following describes the consequences of the PORV failure?

A. A Red Path on the Core Cooling CSF will develop due to loss of RCS Inventory.

B. RCS 'Feed and Bleed' cooling must be established to ensure sufficient SI flow at the operable PORV setpoint.

C. The RCS may not depressurize quickly enough to ensure sufficient SI flow to provide RCS heat removal, and other RCS openings may have to be established.

D. RCS 'Bleed and Feed' cooling must be terminated and secondary depressurization to inject Condensate pump flow must be immediately initiated.

Proposed Answer: C

Explanation (Optional):

A. Incorrect. Red path on core cooling would not exist solely due to this failure

B. Incorrect. Feed and Bleed is not established on LP plants. The symptoms of feed and bleed would exist but the PORV is NOT allowed to cycle at its setpoint This is plausible because it is part of the discussion for initiation of bleed and feed. If 1 PORV will not open, and the other is allowed to cycle at setpoint, then there is concern for adequate SI flow to cool the core.

C. Correct.

D. Incorrect. Bleed and feed is not terminated for Condensate flow. It is performed when Condensate flow is ineffective or not established

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

Proposed references to be provided to applicants during examination: None

Learning Objective: (As available)

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

Question History: Last NRC Exam

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

10 CFR Part 55 Content: 55.41 10,7

Comments:
2002 BVPS-1 NRC

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	1	
	K/A #	E11 EA1.3	
	Importance Rating	3.7	

Ability to operate and / or monitor the following as they apply to the (Loss of Emergency Coolant Recirculation) Desired operating results during abnormal and emergency situations.

Proposed Question: Common 56

Which ONE (1) of the following describes two major action categories of procedure ECA-1.1, Loss of Emergency Coolant Recirculation?

A. Maximize SI flow to ensure core cooling and initiate makeup to the RWST to ensure RCS inventory can be maintained.

B. Reduce SI flow to delay depletion of the RWST and stabilize RCS temperature to minimize RCS inventory requirements.

C. Perform necessary system alignments to restore emergency coolant recirculation capability and stabilize RCS temperature to minimize RCS inventory requirements.

D. Reduce SI flow to delay depletion of the RWST and perform necessary system alignments to restore emergency coolant recirculation capability

Proposed Answer: D

Explanation (Optional):
A Incorrect. SI is reduced to the minimum required for heat removal.
B Incorrect. Stabilizing RCS temperature is not an action or priority
C Incorrect. Stabilizing RCS temperature is not an action or priority
D Correct. The procedure has 3 objectives: Minimizes depletion of RWST, depressurize RCS to minimize break flow and cause accumulator injection, and continue attempts to restore recirculation capability

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

Proposed references to be provided to applicants during examination: None

Learning Objective: _____ (As available)

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

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 10
_____

Comments:
WTSI Bank (W Generic)

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
	Group #		2
	K/A #	001 AA2.03	
	Importance Rating		4.5

Ability to determine and interpret the following as they apply to the Continuous Rod Withdrawal: Proper actions to be taken if automatic safety functions have not taken place

Proposed Question: Common 57

Given the following:

- The plant is at 98 % power.
- Rod Control is operating in AUTOMATIC.
- Control Bank D is at 206 steps.
- Following a 10 gallon boration, Control Bank D is withdrawing at a rate of 8 steps per minute.
- Tavg is verified to be approximately 2 degrees higher than Tref.

Based on these conditions, which ONE (1) of the following actions is required next?

A. Place Rod Control in MANUAL.

B. Ensure that RCS boration is terminated.

C. Stop any turbine load changes in progress.

D. Trip the reactor and enter E-0, Reactor Trip or Safety Injection.

Proposed Answer: A

Explanation (Optional):

A. Correct. First action is to place rods in manual
B. Incorrect. May have started from a boration, but this action not required for condition
C. Incorrect. Will check turbine load stable
D. Incorrect. Not unless placing rods in manual does not stop rod motion

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

Proposed references to be provided to applicants during examination: None

Learning Objective: (As available)

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

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 10
_____

Comments:
WTSI Westinghouse generic Salem 2002

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	2	
	K/A #	032 AK3.01	
	Importance Rating	3.2	

Knowledge of the reasons for the following responses as they apply to the Loss of Source Range Nuclear Instrumentation: Startup termination on source-range loss

Proposed Question: Common 58

Given the following:

- A reactor startup is in progress.
- Control Bank "A" is at 50 steps.
- Both Intermediate Range channels indicate approximately 1 E -11 amps.
- Source Range Channel N-31 fails DOWNSCALE.

Which ONE (1) of the following describes the required response and the reason for the response?

A. Continue the reactor startup; with only one source range channel operable; 48 hours is allowed to restore two channels to service.

B. Suspend the reactor startup; source range channels are not required to trip the reactor; however, the source range monitoring functions must be available.

C. Continue the reactor startup; the Intermediate Range Neutron Flux Trip and the Power Range Neutron Flux-Low Trip provide the necessary core protection.

D. Suspend the reactor startup; with only one source range channel operable, the minimum required Source Range High Flux Trip protection is not met.

Proposed Answer: D

Explanation (Optional):

A. Incorrect. Cannot continue to Mode 1 or go above P-6. 48 hours is normal action time, but in a startup, 2 are required to continue

B. Incorrect. Source Range is required for Rx Trip at the current power level. Applicant must know power below P-6.

C. Incorrect. May not continue, and PR High Flux Low Setpoint is not enabled because P-6 is not satisfied.

D. Correct

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

Proposed references to be provided to applicants during examination: None

Learning Objective: (As available)

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

Question History: Last NRC Exam

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

10 CFR Part 55 Content: 55.41 10
55.43 2

Comments:
BVPS-1 2002

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	2	
	K/A #	033 AA1.03	
	Importance Rating	3.0	

Ability to operate and / or monitor the following as they apply to the Loss of Intermediate Range Nuclear Instrumentation: Manual restoration of power

Proposed Question: Common 59

Given the following:

- The plant is at 100% power.
- Intermediate Range Channel IR-N36 is being returned to service.

When the channel has been restored to service, which ONE (1) of the following describes the indication of the LEVEL TRIP BYPASS lamp, and why?

A. Illuminated because power is above the P-10 setpoint.

B. Illuminated because the IR High Flux trip is bypassed.

C. Extinguished because the testing of IR-N36 will be complete.

D. Extinguished because power is above the P-10 setpoint.

Proposed Answer: C

Explanation (Optional):

A. Incorrect. P-10 enables 'at power' trips. Plausible because the name of the lamp implies that the level trip is bypassed, and because P-10 enables/disables at power trips, it is a plausible misconception that the status of P-10 can control the status of the light
B. Incorrect. The trip for IR High flux is blocked using pushbuttons not related to the switch
C. Correct. Switch is used for calibration and testing of the channel. When testing is complete, the switch is returned to normal
D. Incorrect. P-10 relate to blocking trips but not the switch. Also see A description

Technical Reference(s) P-6, R3301C (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 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	2	
	K/A #	059 AK2.01	
	Importance Rating	2.7	

Knowledge of the interrelations between the Accidental Liquid Radwaste Release and the following: Radioactive-liquid monitors

Proposed Question: Common 60

Which ONE (1) of the following Radiation Monitor System monitors could cause an accidental radioactive liquid release if its alarm setpoint is set higher than required to isolate its flowpath?

A. Component Cooling Water, R-17

B. R-20A and R-20B, Service Water from SFP Heat Exchangers

C. R-21, Retention Tank Monitor

D. R-16, Service Water from Containment Fan Coolers

Proposed Answer: C

Explanation (Optional):

A. Incorrect. CCW monitor closes tank vent valve. Will not prevent CCW surge tank contents from causing a radioactive spill regardless of setpoint
B. Incorrect. Monitors have no automatic function
C. Correct. Discharge valve will close at a higher rad level than required, resulting in potentially exceeding limits of 10CFR20
D. Incorrect. Valve has no automatic closure feature

Technical Reference(s) R3901C (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: _____ (As available)

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

Question History: Last NRC Exam

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

10 CFR Part 55 Content: 55.41 11

Comments:
WTSI Bank item, not previously used on any NRC exam

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	2	
	K/A #	060 EA2.06	
	Importance Rating	3.6	

Ability to determine and interpret the following as they apply to the Accidental Gaseous Radwaste: Valve lineup for release of radioactive gases

Proposed Question: Common 61

Which ONE (1) of the following Gas Decay Tank alignments will assist in preventing an accidental gaseous waste release?

A. A release of the in-service tank cannot commence unless tank pressure is less than 5 psig.

B. Outlet valves of the in-service and standby Gas Decay Tanks are verified locked closed prior to opening RCV-014, GDT Release AOV to Plant Vent.

C. RCV-014 is set to maintain a constant differential release header pressure during the gas release.

D. RCV-014 is closed when tank pressure reaches 5 psig.

Proposed Answer: B

Explanation (Optional):

A. Incorrect. Tank is released until it reaches 5 psig. Plausible because a lower pressure would theoretically result in a lower release rate

B. Correct. All other GDT outlet valves are locked close to prevent releasing those tanks inadvertently

C. Incorrect. RCV-014 is set to release at a certain rate controlled at the WD Panel. DP is maintained by V-1040

D. Incorrect. Valve is closed at 5 psig but purpose is to prevent drawing a vacuum on the gas analyzer when the tank is placed in service

Technical Reference(s) R3801C, S-4.2.5 (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 10

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	2	
	K/A #	E02 G2.1.23	
	Importance Rating	3.9	

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

Proposed Question: Common 62

Given the following:

- ES-1.1, SI Termination, is in progress.
- Normal letdown has just been established.
- Charging Pumps are operating at maximum flow.
- The following conditions exist:
    - Containment Pressure - 4 psig
    - RCS Pressure - 1600 psig and decreasing slowly
    - Core Exit TCs - 540°F
    - Pressurizer Level - 22% and decreasing slowly

Which ONE (1) of the following is required in accordance with ES-1.1?

A. Reinitiate Safety Injection and return to E-0, Reactor Trip or Safety Injection.

B. Reinitiate Safety Injection and return to E-1, Loss of Reactor or Secondary Coolant.

C. Manually operate SI pumps as necessary and go to E-0, Reactor Trip or Safety Injection.

D. Manually operate SI pumps as necessary and go to E-1, Loss of Reactor or Secondary Coolant.

Proposed Answer: D

Explanation (Optional):

A. Incorrect. Manual SI is not required, SI has already been reset
B. Incorrect. Manual SI is not required
C. Incorrect. Transition to E-0 would be made from ES-0.1, but ES-1.1 directs transition to E-1
D. Correct.

Technical Reference(s) ES-1.1 Foldout Page (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: _____ (As available)

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

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 10
_____

Comments:
Various similar in Bank. This was significantly modified from Ginna Bank B000.0333, but we have others from other exams that are similar

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	2	
	K/A #	E03 EK1.1	
	Importance Rating	3.4	

Knowledge of the operational implications of the following concepts as they apply to the (LOCA Cooldown and Depressurization) Components, capacity, and function of emergency systems.

Proposed Question: Common 63

Given the following:

- A SBLOCA has occurred.
- ES-1.2, Post LOCA Cooldown and Depressurization is in progress.
- Both RCPs are running.
- RCS pressure is 1120 psig.
- An RCS cooldown has been initiated by dumping steam to the atmosphere.

Which ONE (1) of the following describes the optimum RCP configuration, and the reason for this configuration?

A. Both RCPs should be stopped; minimizes RCS inventory loss when the break uncovers.

B. One RCP should be stopped; minimizes RCS inventory loss and provides boron mixing for RHR operations.

C. Both RCPs should be left running; ensures symmetric heat transfer to the S/Gs and prevents steam voiding in the Reactor vessel head.

D. One RCP should be stopped; minimizes RCS heat input, and produces effective heat transfer and RCS pressure control.

Proposed Answer: D

Explanation (Optional):

A. Incorrect. Reason for initially tripping RCPs on low RCS to SG DP
B. Incorrect. RHR operations are not considered for RCP operation in ES-1.2
C. Incorrect. Both RCPs will provide too much heat input and potentially delay the depressurization
D. Correct.

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

Proposed references to be provided to applicants during examination: None

Learning Objective: _____ (As available)

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

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 10

Comments:
Surry NRC Exam 2003

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	2	
	K/A #	E09 EK2.2	
	Importance Rating	3.6	

Knowledge of the interrelations between the (Natural Circulation Operations) 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: Common 64

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 (1) of the following describes the effect on the subsequent RCS cooldown?

The crew will...

A. remain in ES-0.2 and RCS cooldown rate will be limited to 50 degrees F per hour.

B. remain in ES-0.2 and RCS cooldown rate will be limited to 25 degrees F per hour.

C. 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.

D. 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):

A. Incorrect. Cooldown rate will remain at 25 degrees F per hour
B. Correct. No reason to transition, although head cooling is lost
C. Incorrect. No reason for transition, although a void is more likely if RCS cooldown rate limit is exceeded
D. 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: _____ (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

Comments:
Unused Bank question

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	1	
	Group #	2	
	K/A #	E06 EK1.2	
	Importance Rating	3.5	

Knowledge of the operational implications of the following concepts as they apply to the (Degraded Core Cooling) Normal, abnormal and emergency operating procedures associated with (Degraded Core Cooling).

Proposed Question: Common 65

Which ONE of the following describes the reason that a RED condition on the Integrity CSF Status Tree may develop while performing actions of FR-C.2, Response to Degraded Core Cooling?

A. Core Exit Thermocouple temperature will decrease rapidly when SI or RHR Pumps are started and flow is initiated.

B. Core Exit Thermocouple temperature will decrease rapidly when SG depressurization and SI Accumulator injection occur.

C. RCS Cold Leg temperature will decrease rapidly when SI or RHR Pumps are started and flow is initiated.

D. RCS Cold Leg temperature will decrease rapidly when SG depressurization and SI Accumulator injection occur.

Proposed Answer: D

Explanation (Optional):
D. Correct. SG depressurization will cause Tc to rapidly decrease. Note in FR-C.2 warns of red condition on integrity.
A. Incorrect. Core Exit thermocouples will decrease when SI started, but CETs do not input to the Integrity CSF ST.
B. Incorrect. Core Exit Thermocouples do not input Integrity CSFST, but condition would exist
C. Incorrect. Starting SI or RHR would raise inventory and cause transition to procedure in effect. It will not cause a cooldown that would result in Integrity CSFST red path

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

Proposed references to be provided to applicants during examination: None

Learning Objective: _____ (As available)

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

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 10
_____

Comments:
WTSI bank – North Anna 2006

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	
	Group #	1	
	K/A #	G2.1.22	
	Importance Rating	2.8	

Ability to determine Mode of Operation.

Proposed Question: Common 66

Which ONE (1) of the following describes the plant condition required for declaring entry to Mode 6?

A. RCS temperature is less than 200°F.

B. RCS temperature is less than 140°F.

C. The FIRST Reactor Vessel Head stud is detensioned.

D. The LAST Reactor Vessel Head stud is detensioned.

Proposed Answer: C

Explanation (Optional):

A. Incorrect. Plausible because it is Mode 5 entry
B. Incorrect. Plausible because core alterations typically are not performed unless temperature is below this value
C. Correct. Mode 6 declared when first vessel head stud is detensioned IAW TS
D. Incorrect. Plausible because the vessel head will be ready for lift prior to refueling when the last stud is removed

Technical Reference(s) TS Definitions (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: _____ (As available)

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

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content:	55.41	10
	55.43	2

Comments:
North Anna Audit Exam 2007

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	
	Group #	1	
	K/A #	G2.1.23	
	Importance Rating	3.9	

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

Proposed Question: Common 67

Which ONE (1) of the following describes the major action categories for ECA-2.1, Uncontrolled Depressurization of Both Steam Generators, in the correct order?

A. Terminate SI Flow, Control Feed Flow, Reestablish any Secondary Pressure Boundary.

B. Terminate SI Flow, Reestablish any Secondary Pressure Boundary, Control Feed Flow.

C. Reestablish any Secondary Pressure Boundary, Control Feed Flow, Terminate SI Flow.

D. Reestablish any Secondary Pressure Boundary, Terminate SI Flow, Control Feed Flow.

Proposed Answer: C

Explanation (Optional):

A. Incorrect. Termination of SI flow is after controlling feed flow
B. Incorrect. Termination of SI flow is after controlling feed flow
C. Correct.
D. Incorrect. Termination of SI flow is after controlling feed flow

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

Proposed references to be provided to applicants during examination: None

Learning Objective: _____ (As available)

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

Question History: Last NRC Exam

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

10 CFR Part 55 Content: 55.41 10

Comments:
WTSI Westinghouse Generic

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	
	Group #	2	
	K/A #	G2.2.27	
	Importance Rating	2.6	

Knowledge of the refueling process.

Proposed Question: Common 68

The Plant is in Mode 6 with movement of irradiated fuel in progress in CNMT and the Auxiliary building.

Initially, all administrative requirements for moving fuel are satisfied.

Which ONE (1) of the following conditions, if it subsequently develops, would require fuel movement to be stopped per O-15.1 Administrative Requirement Checklist for Entry into Mode 6 and Refueling Conditions?

A. The Refueling Cavity level is 23' 7" and is decreasing by 1/2 inch per hour.

B. Containment Purge has automatically been secured while performing ESFAS testing.

C. One of the 2 available RHR pumps has been determined to be inoperable.

D. Reactor Cavity Boron Concentration is 2290 ppm.

Proposed Answer: D

Explanation (Optional):

A. Incorrect. Cavity level required to be 23 feet
B. Incorrect. Purge may be stopped; not required for operation
C. Incorrect. As long as 1 is in operation and operable with cavity >23 feet, minimum requirement is met
D. Correct. Less than minimum boron concentration (2300)

Technical Reference(s) TS 3.9.1, COLR (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: (As available)

Question Source: Bank # C000.1408
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 10
55.43 6

Comments:

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

Knowledge of surveillance procedures.

Proposed Question: Common 69

The crew is preparing to perform a portion of PT-1, Rod Control System.

Which ONE (1) of the following describes a condition where the use of "N/A" is acceptable?

A. To modify the conditions of a portion of the PT.

B. To designate precautions or limitations that are not applicable.

C. To designate components or sections not being used as part of the PT.

D. To designate steps that cannot be performed as written but do not change the intent of the PT.

Proposed Answer: C

Explanation (Optional):

A. Incorrect. Modification of conditions would be a change of intent, requiring a procedure change
B. Incorrect. Not acceptable to N/A precautions or limitations
C. Correct. PT-1 specifically calls out N/A for sections not performed. Some procedures do not allow use of NA, this surveillance has specific requirements for using NA
D. Incorrect. Procedure change is required for this

Technical Reference(s): PT-1, CNG-PR-1.01-1009 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: _____ (As available)

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

Question History: Last NRC Exam

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

10 CFR Part 55 Content: 55.41 10

Comments:
Editorial mods to similar bank items BV-2, IP-3

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

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

Proposed Question: Common 70

Given the following:

- A high activity exists in the RCS.
- The crew is performing AP-RCS.3, High Activity in Reactor Coolant.
- The CRS has directed a Unit shutdown based on RCS activity exceeding TS limits.

Which ONE (1) of the following actions is designed to reduce RCS activity and limit potential radioactive release in accordance with AP-RCS.3?

A. MSIVs are closed.

B. Letdown flow is raised to 60 GPM.

C. SG Atmospheric Relief valve setpoints are raised.

D. Maximum condensate polishing demineralizers are placed in service.

Proposed Answer: B

Explanation (Optional):
A incorrect. If a SGTR were to occur, MSIV closure would allow for the SG ARV or SV to lift
B correct.
C incorrect. Setpoints are set IAW E-3, but not in this AP
D incorrect. Demins may be placed in service on the primary side if required, but not secondary

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

Proposed references to be provided to applicants during examination: None

Learning Objective: _____ (As available)

Question Source: Bank # X

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

Question History: Last NRC Exam 2004 Ginna 72 different answer

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

10 CFR Part 55 Content: 55.41 10

Comments:
WTSI various

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

Knowledge of 10 CFR: 20 and related facility radiation control requirements

Proposed Question: Common 71

Which ONE (1) of the following parameters is maintained within limits to prevent exceeding 10CFR20 radiation release limits?

A. RCS Primary to Secondary Leakage

B. Primary System Activity

C. Secondary System Activity

D. Liquid Waste Effluent Discharge Activity

Proposed Answer: D

Explanation (Optional):

A. Incorrect. Assists in preventing 10CFR100 limits from being exceeded in the event of an accident
B. Incorrect. Assists in preventing 10CFR100 limits from being exceeded in the event of an accident
C. Incorrect. Assists in preventing 10CFR100 limits from being exceeded in the event of an accident
D. Correct.

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

Proposed references to be provided to applicants during examination: None

Learning Objective: _____ (As available)

Question Source: Bank # X

Modified Bank # _____ (Note changes or attach parent)

New _____

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 13
_____

Comments:
WTSI Bank

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	
	Group #	4	
	K/A #	G2.4.27	
	Importance Rating	3.0	

Knowledge of fire in the plant procedure.

Proposed Question: Common 72

Given the following:

- The Shift Supervisor orders control room evacuation because of an uncontrollable main control board fire.
- After verifying the reactor is tripped and the turbine stop valves are closed, the ARVs are set to 1005 psig and the PORVs are closed.

Which ONE (1) of the following describes the additional action required prior to leaving the control room?

A. Manual Containment Isolation.

B. RCPs tripped and pull-stopped.

C. Turbine Driven AFW pump is started.

D. MDAFW pump pull-stopped.

Proposed Answer: B

Explanation (Optional):

A. Incorrect. Manual CI not performed
B. Correct.
C. Incorrect. TDAFW is disabled in CR for this event
D. Incorrect. MDAFW may be operated remotely when the control room is evacuated

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

Proposed references to be provided to applicants during examination: None

Learning Objective: Need AP LPs (As available)

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

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 10
_____

Comments:
Editorial mods and cleanup. Intended for audit, suitable for NRC

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	
	Group #	4	
	K/A #	G2.4.3	
	Importance Rating	3.5	

Ability to identify post-accident instrumentation.

Proposed Question: Common 73

In accordance with Technical Specification, which ONE (1) of the following radiation monitoring channels is identified as a Post Accident Monitoring Instrument?

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: _____ (As available)

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

Question History: Last NRC Exam

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

10 CFR Part 55 Content: 55.41 11
55.43

Comments:
IP3 2003 similar

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	
	Group #	4	
	K/A #	G2.4.17	
	Importance Rating	3.1	

Knowledge of EOP terms and definitions.

Proposed Question: Common 74

Which ONE (1) of the following terms is a continuous action term used in Emergency Operating Procedures that directs an operator to operate appropriate components to control a specific parameter within the bounds of a procedure?

A. Adjust

B. Implement

C. Establish

D. Maintain

Proposed Answer: D

Explanation (Optional):

Incorrect.
Incorrect.
Incorrect.
Correct. See A503.1 for description of each action

Technical Reference(s) A503.1 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: _____ (As available)

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

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 10

Comments:
Farley 2004

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #	3	
	Group #	4	
	K/A #	G2.4.29	
	Importance Rating	2.6	

Knowledge of the emergency plan.

Proposed Question: Common 75

Given the following:

- A Site Area Emergency has been declared.
- The Emergency Response Organization is staffed.
- A repair team consisting of 1 AO, 1 mechanic, and 1 HP technician must be sent to the Aux Building to isolate a leak.

Which ONE (1) of the following Emergency Response Facilities is responsible for assembly and preparation of the team?

A. Control Room

B. Technical Support Center (TSC)

C. Operational Support Center (OSC)

D. Emergency Operations Facility (EOF)

Proposed Answer: C

Explanation (Optional):

A. Incorrect.
B. Incorrect.
C. Correct. See EPIP-1.0 for description of each responsibility
D. Incorrect.

Technical Reference(s) EPIP 1-10 (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
_____

Comments:
New, but we have similar in style

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
	Group #		1
	K/A #	009 EA 2.14	
	Importance Rating		4.4

Ability to determine or interpret the following as they apply to a small break LOCA: Actions to be taken if PTS limits are violated

Proposed Question: SRO 76

Given the following:

- A LOCA has occurred.
- The crew is performing E-1, Loss of Reactor or Secondary Coolant.
- The following conditions exist:
    - RCS pressure is 1150 psig.
    - Containment Pressure is 6 psig.
    - RCS Cold Leg temperature has decreased to from 547°F to 225°F in the last hour.

Which ONE (1) of the following describes the status of the Integrity CSF Status Tree, and the action required?

A. Red; Enter FR-P.1, Response to Imminent Pressurized Thermal Shock Condition to stabilize RCS temperature and reduce RCS pressure.

B. Orange; Enter FR-P.1, Response to Imminent Pressurized Thermal Shock Condition to stabilize RCS temperature and reduce RCS pressure.

C. Orange; Enter FR-P.2, Response to Anticipated Pressurized Thermal Shock Condition, verify the operation of SI and RHR and return to E-1.

D. Yellow; Enter FR-P.2, Response to Anticipated Pressurized Thermal Shock Condition, verify the operation of SI and RHR and return to E-1.

Proposed Answer: A

Explanation (Optional):

A. Correct. RCS temperature is to the left of limit A
B. Incorrect. Orange path
C. Incorrect. Orange Path leads to FR-P.1, Yellow Path leads to FR-P.2. Action would be

correct if RCS pressure was lower

D. Incorrect. Yellow Path would be correct if RCS Cold Leg Temperatures were >315 degrees F. Action would be correct if RCS pressure was lower

Technical Reference(s) F-0.4 CSFST (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

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
	Group #		1
	K/A #	022 G2.4.49	
	Importance Rating		4.0

Emergency Procedures / Plan Ability to perform without reference to procedures those actions that require immediate operation of system components and controls.

Proposed Question: SRO 77

Given the following:

- A large leak in the Auxiliary Building exists on the normal Charging line.
- The crew performed actions of AP-CVCS.1, CVCS Leak, before being directed to AP-CVCS.3, Loss of All Charging Flow.

Current conditions:

- Charging and Letdown are isolated.
- VCT level is 5% and lowering.
- PRZR level is 5% and lowering.
- The crew is attempting to isolate the leak prior to restoring Charging flow.

Which ONE (1) of the following actions will be required next?

A. Remain in CVCS.3 and prepare to initiate a load reduction to Hot Standby due to Charging Pump suction swapover to the RWST.

B. Refer to ER-CVCS.1, Reactor Makeup Control Malfunction, to initiate manual VCT makeup.

C. Refer to AP-RCS.1, Reactor Coolant Leak, to perform additional leak isolation actions

D. Trip the reactor and enter E-0, Reactor Trip or Safety Injection.

Proposed Answer: D

Explanation (Optional):

A. Incorrect. Will not remain in CVCS.3 but plausible because these conditions do exist

B. Incorrect. Incorrect because a reactor trip is required, but plausible because conditions exist for this action

C. Incorrect. This would be directed in CVCS.1, and conditions do exist that make this action plausible because PRZR level is dropping with Charging and Letdown isolated, but it could be seal leakoff

D. Correct. 5% PRZR level is a 'monitor' step

Technical Reference(s) AP-CVCS.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 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
	Group #		1
	K/A #	027 G2.2.25	
	Importance Rating		3.7

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

Proposed Question: SRO 78

Given the following:

- The plant is operating at 80% power.
- The Pressurizer Pressure controller (431K) controlling channel fails to 2325 psig.

Which ONE (1) of the following describes the most restrictive Technical Specification implications of the event, prior to any action taken by the crew?

A. DNB design criteria may not be met in the case of an unplanned loss of forced coolant flow.

B. The safety limit for RCS pressure could be challenged in the case of a 100% loss of load event.

C. DNB design criteria may not be met in the case of a loss of normal feedwater event.

D. The safety limit for the reactor core could be challenged in the case of a DBA Main Steam Line break.

Proposed Answer: A

Explanation (Optional):

A. Correct. TS 3.4.1 basis describes DNB events and limits for pressure, temperature, and flow.
B. Incorrect. Pressure would be lower to start with
C. Incorrect. Loss of feed is not a DNB limiting event
D. Incorrect. Main Steam Line break will result in overpower, but lower temperature. Therefore, this event would be less restrictive, and also not a DNB limiting event

Technical Reference(s) TS Basis 3.4.1 (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

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
	Group #		1
	K/A #	029 G2.4.30	
	Importance Rating		3.6

Emergency Procedures / Plan Knowledge of which events related to system operations/status should be reported to outside agencies.

Proposed Question: SRO 79

Given the following:

The plant was at 100% power.

TIME	EVENT
0600	Main Generator trip resulted in a turbine trip. The reactor did NOT trip.
0603	The Reactor Trip Breakers were opened locally.
0607	The crew determined that ONE (1) PRZR Safety Valve was stuck open.
0608	Safety Injection was manually initiated.
0609	The Shift Manager declares the event.

Which ONE (1) of the following describes the Emergency Classification for this event, and the LATEST time that the NRC must be notified?

A. Alert; 0700

B. Alert; 0709

C. Site Area Emergency; 0700

D. Site Area Emergency; 0709

Proposed Answer: D

Explanation (Optional):

A. Incorrect. Alert if the reactor will trip from the Main Control Board. One hour from time of event, not classification
B. Incorrect. Alert is incorrect, but correct time
C. Incorrect. Correct classification, incorrect time
D. Correct.

Technical Reference(s) EALs, 10CFR50.72 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: EALs

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

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
	Group #		1
	K/A #	038 EA2.17	
	Importance Rating		4.4

Ability to determine or interpret the following as they apply to a SGTR: RCP restart criteria

Proposed Question: SRO 80

Given the following:

- A SGTR has occurred.
- RCPs were secured due to RCP Trip Criteria being met.
- Ruptured SG has been IDENTIFIED and ISOLATED.
- RCS cooldown to target temperature is COMPLETE.
- RCS depressurization is COMPLETE.
- Normal charging and letdown are IN SERVICE.
- Pressurizer Level is 35%.
- RCS Subcooling is 43°F.
- Ruptured SG (NR) level is 56% and STABLE.

Which ONE (1) of the following describes what action(s) is (are) are performed regarding RCP status in accordance with E-3, Steam Generator Tube Rupture?

A. Conditions for RCP restart are satisfied; refer to S-2.1, Reactor Coolant Pump Operation, to determine if RCPs meet the conditions for restart.

B. Conditions for RCP restart are satisfied; continue in E-3 and evaluate RCPs to determine if they may be started.

C. Conditions for RCP restart are NOT satisfied; Select an appropriate cooldown procedure and initiate cooldown on natural circulation.

D. Conditions RCP restart are NOT satisfied; Engineering guidance must be obtained prior to any subsequent RCP restart.

Proposed Answer: B

Explanation (Optional):

A. Incorrect. Restart conditions will be determined by attachment 15 when in the EOPs
B. Correct.
C. Incorrect. RCP restart is desired

D. Incorrect. RCP restart is desired

Technical Reference(s) E-3, step 42 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: _____ (As available)

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

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 _____
55.43 5

Comments:
Used on a 2007 Audit Exam(SQN); Was new, has not been used on an NRC exam

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
	Group #		1
	K/A #	E12 EA2.2	
	Importance Rating		3.9

Ability to determine and interpret the following as they apply to the (Uncontrolled Depressurization of all Steam Generators) Adherence to appropriate procedures and operation within the limitations in the facility's license and amendments.

Proposed Question: SRO 81

Initial conditions:

- A Steam Line Break occurred.
- The crew has entered ECA-2.1, Uncontrolled Depressurization of Both Steam Generators, due to stuck open safety valves on BOTH SGs.

Current conditions:

- RCS temperature has decreased from 547°F to 422°F in the last hour.
- SG NR levels are both off-scale low.
- The crew has taken the appropriate action regarding AFW flow.
- Maintenance reports that "A" SG Safety Valve has a gagging device installed.

Which ONE (1) of the following describes the status of AFW flow and the action that will be taken by the crew for procedure transition?

A. AFW flow is 50 GPM per SG; immediately transition to E-2, Faulted SG Isolation.

B. AFW flow is a minimum of 200 GPM; immediately transition to E-2, Faulted SG Isolation.

C. AFW flow is 50 GPM per SG; transition to E-2, Faulted SG isolation, upon observing a pressure increase in "A" SG.

D. AFW flow is a minimum of 200 GPM; transition to E-2, Faulted SG isolation, upon observing a pressure increase in "A" SG.

Proposed Answer: C

Explanation (Optional):

A. Incorrect. AFW reduction is correct because RCS temperature has dropped by more than

100 degrees in the last hour. Transition not made until pressure increase observed. Plausible because 1 condition of SG isolation is met

B. Incorrect. AFW flow should be reduced, but plausible because this is normal flow for SG NR level below 7%

C. Correct.

D. Incorrect. Incorrect flow, but correct transition. Plausible because 200 GPm is normal flowrate and would be required based on RCS cooldown rate <100 degrees per hour. The applicant must determine that the requirement was exceeded

Technical Reference(s) ECA-2.1 (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

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		
	Group #		2
	K/A #	032 AA2.02	
	Importance Rating		3.9

Ability to determine and interpret the following as they apply to the Loss of Source Range Nuclear Instrumentation: Expected change in source range count rate when rods are moved

Proposed Question: SRO 82

Given the following:

- A reactor startup is in progress in accordance with O-1.2, Plant Startup From Hot Shutdown To Full Load.
- Estimated Critical Rod Position is Bank "D" at 130 steps.
- A log of stable Source Range Count rate is as follows:

Control Bank Position	SR N-31	SR N-32
"B" at 0 steps	2450 CPS	2500 CPS
"B" at 50 steps	2600 CPS	2650 CPS
"B" at 100 steps	2950 CPS	3000 CPS
"C" at 0 steps	3200 CPS	3350 CPS
"C" at 50 steps	3600 CPS	3700 CPS
"C" at 100 steps	4050 CPS	4600 CPS
"C" at 150 steps	4900 CPS	9500 CPS

Based upon current plant conditions, which ONE (1) of the following actions will be taken?

A. Initiate rod withdrawal to 200 steps on Bank "C" at a startup rate not to exceed 0.5 DPM.

B. Stop the reactor startup and determine the reason that Source Range N-31 is not responding as expected prior to continuing.

C. Stop the reactor startup and determine the reason that Source Range N-32 is not responding as expected prior to continuing.

D. Ensure that both Intermediate Range channels indicate higher than the P-6 Defeat Permissive, and then initiate rod withdrawal to 200 steps on Bank "C".

Proposed Answer: C

Explanation (Optional):

A. Incorrect.

B. Incorrect.

C. Correct. Count rate more than doubled on 1 rod withdrawal, O-1.2 requires evaluation prior to continuing. Must diagnose which channel is responding improperly, and other choices describe actions that can be taken during the startup, if the anomaly is either not recognized or not considered serious enough

D. Incorrect.

Technical Reference(s) O-1.2 (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

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
	Group #		2
	K/A #	061 G2.4.4	
	Importance Rating		4.3

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 83

Given the following:

- Refueling is in progress.
- During Fuel shuffle in Containment with an assembly in transit to the upender, the following annunciator is received in the Control Room: "E-24, "RMS Area Monitor Hi Activity."
- The HCO determines that R2 is above its alarm setpoint.
- R-11 and R-12 are rising slowly.
- The Refueling SRO reports that Refueling Cavity level is lowering slowly.

Which ONE (1) of the following describes the action required?

A. In accordance with the annunciator response, direct HP to perform surveys to determine if background radiation from the reactor head is causing the elevated radiation levels.

B. Enter RF-601, Fuel Handling Accident Instructions, evacuate Containment and place the fuel assembly in the upender and place the upender in a horizontal position in Containment.

C. In accordance with the annunciator response, refer to AP-RCS.1, RCS Leak, to determine and correct the source of the leak.

D. Enter RF-601, Fuel Handling Accident Instructions, evacuate Containment and place the fuel assembly in the bottom of the transfer slot area, in the emergency location, and leave latched with power removed from the crane.

Proposed Answer: D

Explanation (Optional):

A. Incorrect. Would be performed if cavity level was normal and R-11/R-12 were not rising
B. Incorrect. Would not maintain upender in horizontal position with fuel assembly if cavity is lowering.
C. Incorrect. Would be performed if not in Mode 6 refueling
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 _____
- 55.43 5,6

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
	Group #		2
	K/A #	074 EA2.08	
	Importance Rating		4.6

Ability to determine or interpret the following as they apply to a Inadequate Core Cooling: The effect of turbine bypass valve operation on RCS temperature and pressure

Proposed Question: SRO 84

Given the following:

- A LOCA has occurred.
- All SI Pumps have failed.
- RCPs are secured.
- The crew is performing E-0, Reactor Trip or Safety Injection.
- When performing diagnostic actions, the current conditions exist:
    - RCS Pressure is 675 psig.
    - Core Exit temperatures are 710 degrees F
    - RVLIS indicates 48%

Which ONE (1) of the following describes the procedure that will be entered and of the choices, the first action that is required?

A. FR-C.1; start RCPs to establish forced circulation flow.

B. FR-C.1; dump steam from SGs to cooldown and depressurize the RCS.

C. FR-C.2; start RCPs to establish forced circulation flow.

D. FR-C.2; dump steam from SGs to cooldown and depressurize the RCS.

Proposed Answer: B

Explanation (Optional):

A. Incorrect. RCPs are started if secondary depressurization is ineffective. Plausible because it is an action that can be taken. Additionally, with no SI pumps it is reasonable to believe that forced circulation is desired, and RCPs are checked available prior to performing depressurization, they are just not started at that time

B. Correct. Red path because RVLIS is below 52%

C. Incorrect. Red path, and RCPs will be started later if secondary depressurization is ineffective. Plausible because the action may be taken. Additionally, with no SI pumps it is reasonable to believe that forced circulation is desired

D. Incorrect. Incorrect procedure. A red condition exists, not orange

Technical Reference(s) F.02, FR-C.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

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		1
	Group #		2
	K/A #	E03 G2.1.2	
	Importance Rating		4.0

Conduct of Operations: Knowledge of operator responsibilities during all modes of plant operation.

Proposed Question: SRO 85

Given the following:

- A LOCA has occurred.
- The crew is performing E-1, Loss of Reactor or Secondary Coolant.
- The following parameters exist:
    - Both SG pressures – 830 psig and slowly trending down.
    - Both SG levels – being controlled at 56% NR.
    - PRZR level – off-scale high.
    - RVLIS indicates 80%.
    - Containment Pressure – 13 psig.
    - RWST level – 74% and decreasing slowly.
    - RCS pressure – 750 psig and decreasing slowly.

Based on these indications, which ONE (1) of the following procedures will the crew be required to perform next?

A. ES-1.1, SI Termination

B. ES-1.2, Post LOCA Cooldown and Depressurization

C. ES-1.3, Transfer to Cold Leg Recirculation

D. E-2, Faulted Steam Generator Isolation

Proposed Answer: B

Explanation (Optional):

A. Incorrect. Reasonable because parameters meet SI termination with exception of RCS pressure trend. (Subcooling not given, but would not meet criteria)
B. Correct. RWST level too high for transfer, next procedure is ES-1.2
C. Incorrect. RWST level too high
D. Incorrect. SG pressures dropping due to SI flow dragging down RCS pressure (Primary is leading)

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

Proposed references to be provided to applicants during examination: None

Learning Objective: _____ (As available)

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

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 _____
55.43 5

Comments:
WTSI Westinghouse generic

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		2
	Group #		1
	K/A #	004 A2.26	
	Importance Rating		3.0

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

Proposed Question: SRO 86

Given the following conditions:

- The plant is at 100% power.
- The following annunciator is received:
    - AR-A-10, VCT PRESSURE 15 PSI 65
- The HCO determines VCT pressure is 15 psig.
- VCT level is 22%.

Which ONE (1) of the following describes the potential impact on the plant, and the action required for the impact?

A. Charging Pump cavitation; initiate manual blended makeup to the VCT in accordance with the annunciator response.

B. Charging Pump cavitation; go to AP-CVCS.3, Loss of All Charging Flow.

C. RCP #1 seal leakoff flow will exceed the maximum limit; initiate manual blended makeup to the VCT in accordance with the annunciator response.

D. RCP #1 seal leakoff flow will exceed the maximum limit; go to AP-RCP.1, RCP Seal Malfunction.

Proposed Answer: B

Explanation (Optional):

A. Incorrect. Correct impact but if Charging Pump is cavitating, go to CVCS.3. Action supplied is for low pressure caused by low level. Level is normal

B. Correct.

C. Incorrect. RCP seal leakoff will rise based on the conditions. Action is for low pressure caused by low level. Level is normal

D. Incorrect. RCP seal leakoff will rise. Action would be correct for a seal failure

Technical Reference(s) AR-A-10 (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

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		2
	Group #		1
	K/A #	005 A2.04	
	Importance Rating		2.9

Ability to (a) predict the impacts of the following malfunctions or operations on the RHRS, and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: RHR valve malfunction

Proposed Question: SRO 87

Given the following:

- RCS temperature is 190 degrees F.
- RHR Loop "A" is in service.
- Drain Down to mid-loop is in progress.
- PRZR Wide Range level indicates 15 inches.
- RCS Loop Level Indicator is at 80 inches.

Subsequently, the following indications are observed:

- RCS temperature is 196 degrees F and rising.
- RHR Pump "A" flow is 0 GPM.
- RHR Pump "A" discharge pressure is 300 psig.
- RHR Pump current is stable at approximately 40 amps.
- PRZR Wide Range level indicates 17 inches.
- RCS Loop Level Indicator is at 82 inches.

Which ONE (1) of the following describes (1) the event in progress, and (2) the procedure entry that will be required?

A. RHR Pump sheared shaft; AP-RHR.1, Loss of RHR

B. RHR system valve failure; AP-RHR.1, Loss of RHR

C. RHR Pump sheared shaft; AP-RHR.2, Loss of RHR While Operating at Reduced RCS Inventory Conditions

D. RHR system valve failure; AP-RHR.2, Loss of RHR While Operating at Reduced RCS Inventory Conditions

Proposed Answer: B

Explanation (Optional):

A. Incorrect. A sheared shaft would not indicate discharge pressure of 300 psig.
B. Correct. Pump is operating against closed valve, RCS is heating up, resulting in small volume change
C. Incorrect. Wrong procedure, the RCS is not considered in RIO at this level. Also incorrect failure
D. Incorrect. Wrong procedure; RIO is below 10 inches PRZR WR

Technical Reference(s) AP-RHR.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

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		2
	Group #		1
	K/A #	006 G2.2.25	
	Importance Rating		3.7

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

Proposed Question: SRO 88

Which ONE (1) of the following describes one of the accident analysis assumptions made for the operability of the ECCS, as defined in technical specification bases?

A. Large Break LOCA; Off-Site power available; single failure of 1 EDG that disables ECCS and Containment Spray

B. Large Break LOCA; Loss of Off-Site power; single failure of 1 EDG that disables ECCS and Containment Spray

C. Small Break LOCA; Off-Site power available; single failure disabling 1 train of ECCS

D. Small Break LOCA; Loss of Off-Site power; single failure disabling 1 train of ECCS

Proposed Answer: D

Explanation (Optional):

A. Incorrect. EDG assumed to operate for spray. Loss of off-site power is one assumption made
B. Incorrect. EDG assumed to operate for spray
C. Incorrect. Loss of off-site power is one assumption made
D. Correct.

Technical Reference(s) TS 3.5.2 basis (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

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		2
	Group #		1
	K/A #	013 G2.1.12	
	Importance Rating		4.0

Conduct of Operations: Ability to apply technical specifications for a system.

Proposed Question: SRO 89

Given the following:

- The plant is at 100% power.
- One SG Narrow Range level channel on SG "B" Fails LOW.
- Actions to stabilize the plant have been taken in accordance with appropriate procedures.

Which ONE (1) of the following describes the technical specification requirements for this event?

Enter TS LCO(s)...

A. 3.3.2, Engineered Safety Features Actuation System ONLY. Trip the associated bistable within 1 hour.

B. 3.3.2, Engineered Safety Features Actuation System ONLY. Trip the associated bistable within 6 hours.

C. 3.3.1, Reactor Trip System Instrumentation AND 3.3.2, Engineered Safety Features Actuation System. Trip the associated bistables within 1 hour.

D. 3.3.1, Reactor Trip System Instrumentation AND 3.3.2, Engineered Safety Features Actuation System. Trip the associated bistables within 6 hours.

Proposed Answer: D

Explanation (Optional):

A. Incorrect. Even though channel failed low and already tripped, 3.3.1 entry is required. Incorrect time
B. Incorrect. Correct time, incorrect entry
C. Incorrect. Correct entry but incorrect time
D. Correct.

Technical Reference(s) TS 3.3.1, 3.3.2 (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 2

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		2
	Group #		1
	K/A #	064 G2.1.33	
	Importance Rating		4.0

Conduct of Operations: Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications.

Proposed Question: SRO 90

Given the following conditions:

- The plant is at 100% power.
- At 1030, EDG "A" is declared inoperable due to discovery of a cracked linkage on one of the fuel racks. Technical Specification actions are in effect.
- At 1200, RHR Pump "B" is removed from service and declared inoperable due to flange leakage.

Which ONE (1) of the following describes the MOST limiting Technical Specification action for this condition if the components CANNOT be restored to operable status?

Technical Specification 3.0.3 must be entered...

A. immediately

B. at 1430.

C. at 1600.

D. at 2230

Proposed Answer: C

Explanation (Optional):

A. Incorrect. The redundant component does not have to declared inoperable until 4 hours after the condition exists

B. Incorrect. This time is for the initial condition of RHR Pump inoperability. The clock does not start until the DG is also inoperable.

C. Correct. 4 hours after the RHR Pump is declared inoperable

D. Incorrect. 12 hours after the initial inoperability is plausible because that is the action if 1 off-site source is lost with a redundant function also lost. Credible because it is an action that may be taken under the same LCO as the one listed above, just for a different

parameter in the LCO

Technical Reference(s) TS 3.8.1.1 and basis (Attach if not previously provided)

Proposed references to be provided to applicants during examination: TS 3.5.2, TS 3.8.1

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

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		2
	Group #		2
	K/A #	029 A2.03	
	Importance Rating		3.1

Ability to (a) predict the impacts of the following mal- functions or operations on the Containment Purge System; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those malfunctions or operations: Startup operations and the associated required valve lineups

Proposed Question: SRO 91

Given the following:

- The plant is in Mode 6.
- Core alterations are in progress.
- A Containment Purge is being prepared in accordance with S-23.2.2, Containment Purge Procedure.
- * o THE Rolly Door IS Closed JSL

Which ONE (1) of the following describes (1) an acceptable ventilation alignment, and (2) the reason for the alignment, under these conditions?

A. (1) 2 Purge Supply Fans running; 1 Purge Exhaust Fan running; Containment Recirc Fans stopped.
(2) Minimize radioactive release to the environment

B. (1) 2 Purge Supply Fans running; 1 Purge Exhaust Fan running; 1 Containment Recirc Fan running.
(2) Provide for adequate Containment Cooling

C. (1) 1 Purge Supply Fan running; 2 Purge Exhaust Fans running; Containment Recirc Fans stopped.
(2) Provide for adequate Containment Cooling

D. (1) 1 Purge Supply Fan running; 2 Purge Exhaust Fans running; 1 Containment Recirc Fan running.
(2) Minimize radioactive release to the environment

* NOTE: This was Added during Exam Administration to Add Clarity & to Ensure "D" is Correct If the Rolly Door was Open there would be no Correct Answer JSL

Proposed Answer: D

Explanation (Optional):

A. Incorrect. Not acceptable to have 2 supply and 1 exhaust fan. Negative pressure in

containment is required.

B. Incorrect. Not acceptable to have 2 supply and 1 exhaust fan. Negative pressure in containment is required. Wrong reason for the alignment

C. Incorrect. Wrong reason but correct fan alignment

D. Correct. Recirc fan required with Fuel Handling 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 # _____ (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 4

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		2
	Group #		2
	K/A #	068 G2.1.23	
	Importance Rating		4.0

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

Proposed Question: SRO 92

Given the following:

- At 0138 during a release of the 'A' monitor tank, R-18 alarms at 6.7E5 cpm.
- The HCO determined from the R-18 recorder that the monitor alarm setpoint was set too high and that the R-18 reading had exceeded the required alarm setpoint from the start of the release at 0010 until the spike.

Which ONE (1) of the following describes the correct actions for this situation?

A. Increase circulating water flow for maximum dilution; refer to S-4.1U, Velocity Flush of R-18; Refer to the ODCM.

B. Verify RCV-018 closed; reset R-18 to the correct setpoint; refer to the ODCM; refer to S-4.1U, Velocity Flush of R-18.restart release.

C. Increase circulating water flow for maximum dilution; refer to EPIP 1-0 for potential event classification; re-sample the "A" monitor tank.

D. Verify RCV-018 closed; re-sample the "A" monitor tank; refer to S-4.1U, Velocity Flush of R-18; Refer to the ODCM; Refer to EPIP 1-0 for potential event classification.

Proposed Answer: D

Explanation (Optional):

A. Incorrect. Increasing flow is plausible but for the current condition, would not be performed. Plausible because a flush would be performed

B. Incorrect. Plausible because the valve must be closed. Incorrect because reset not required

C. Incorrect. Increasing flow is plausible but for the current condition, would not be performed. Plausibility is enhanced because the EPIP is referred to

D. Correct.

Technical Reference(s) ODCM 3.1,AR-RMS-18 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: _____ (As available)

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

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 _____
55.43 4, 5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		2
	Group #		2
	K/A #	075 G2.1.32	
	Importance Rating		3.8

Conduct of Operations: Ability to explain and apply all system limits and precautions

Proposed Question: SRO 93

Given the following:

- A Liquid Waste Release has been in progress for 2 hours.
- Reactor power has been reduced from 60% to 49% in the last 60 minutes due to a Circulating Water Pump vibration problem.
- "A" Circulating Water Pump is being removed from service in accordance with T-8A, Startup and Shutdown of Circulating Water Pumps A and B.

Based upon these conditions, which ONE (1) of the following describes the action(s) required?

A. Notify RP to update release rate calculations or stop the release.

B. Notify Chemistry to sample the RCS for Iodine and Gross Activity.

C. Notify Chemistry to sample the RCS for Iodine and Gross Activity AND notify RP to update release rate calculations or stop the release.

D. Direct that the liquid Waste release flow rate be throttled to within the capacity of 1 Circulating Water Pump, and refer to the ODCM.

Proposed Answer: A

Explanation (Optional):

A. Correct. If Circ Water Flow Rate is changed, RP must recalculate release rate
B. Incorrect. Power changes >15% in 1 hour require sample
C. Incorrect. Power changes >15% in 1 hour require sample
D. Incorrect. Flow rate will be terminated, not throttled.

Technical Reference(s) T-8A (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 4,5

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		3
	Group #		1
	K/A #	G2.1.25	
	Importance Rating		3.1

Ability to obtain and interpret station reference materials such as graphs, monographs, and tables which contain performance data.

Proposed Question: SRO 94

Given the following conditions:

- The plant was operating at 100% power when a reactor trip occurred on low pressurizer pressure.
- "B" S/G Tube Rupture was diagnosed, and E-3, Steam Generator Tube Rupture, was entered.
- RCS Cooldown and Depressurization is complete.

Given the following control room indications:

- SG "B" level is 32% and decreasing.
- SG "A" level is 52% and stable.
- PRZR level is 63% and increasing.

Which ONE (1) of the following describes the required operator action IAW E-3, and which ONE (1) of the following procedures will subsequently be used for the ruptured SG Cooldown if radioactive release and contamination must be minimized?

A. Raise Charging Flow; ES-3.1, Post SGTR Cooldown Using Backfill.

B. Raise Charging Flow; ES-3.2, Post SGTR Cooldown Using Blowdown.

C. Energize PRZR Heaters; ES-3.2, Post SGTR Cooldown Using Blowdown.

D. Energize PRZR Heaters; ES-3.1, Post SGTR Cooldown Using Backfill.

Proposed Answer: D

Explanation (Optional):

A. Incorrect. Incorrect action, correct procedure
B. Incorrect. May perform if SG level was lowering, but wrong procedure
C. Incorrect. Would perform if PRZR level was high, but wrong procedure
D. Correct.

Technical Reference(s) E-3 Step 36 (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 # 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

Comments:
Probably qualifies as modified, first time item has been written in this manner. Just call Bank

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		3
	Group #		1
	K/A #	G2.1.5	
	Importance Rating		3.4

Ability to locate and use procedures and directives related to shift staffing and activities.

Proposed Question: SRO 95

Given the following:

- The plant is in Mode 1.
- The shift is manned to the minimum complement.
- The shift has 4 hours remaining.
- The HCO has become ill and must leave the site for emergency medical treatment.

Which ONE (1) of the following describes the requirements regarding the shift complement and the MINIMUM required action in this situation?

A. The HCO may leave the site immediately after turnover of responsibilities to another qualified person on shift. A replacement must arrive within 2 hours.

B. Responsibilities of the HCO may be turned over to the CO for the remainder of the shift.

C. The HCO may leave the site immediately after turnover of responsibilities to another qualified person on shift. Action to call in a replacement must be initiated within 2 hours.

D. The CRF may assume the responsibilities of the HCO. The Shift Manager may perform duties of CRF until normal shift relief.

Proposed Answer: A

Explanation (Optional):

A. Correct. OPS-SHIFT-ORG and TS Section 5
B. Incorrect. Cannot be less than minimum for greater than 2 hours due to emergency
C. Incorrect. Action must be initiated immediately with a replacement arriving within 2 hours
D. Incorrect. Cannot be less than minimum for greater than 2 hours

Technical Reference(s) OPS-SHIFT-ORG, TS 5 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: _____ (As available)

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

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 _____
55.43 1,5

Comments:
From recent audit. Others similar

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		3
	Group #		2
	K/A #	G2.2.10	
	Importance Rating		3.3

Knowledge of the process for determining if the margin of safety, as defined in the basis of any technical specification is reduced by a proposed change, test or experiment.

Proposed Question: SRO 96

With the plant in Mode 3, The SI system engineer has requested that SI Pump "B" be started with the discharge valve throttled to 75% open to determine starting current and flow rate under these conditions.

This evolution is NOT described in current procedures, nor the Updated Final Safety Analysis Report.

The system engineer has developed a Limited Use Change to the Engineering Surveillance Test procedure for performing the evolution.

Which ONE (1) of the following describes under what conditions the Shift Manager may approve the evolution?

A. Only upon completion of PORC review.

B. With concurrence of one additional SRO.

C. Upon completion of a written safety evaluation in accordance with 10CFR50.59.

D. When the SI pump is NOT required to be operable in accordance with Technical Specifications.

Proposed Answer: C

Explanation (Optional):

A. Incorrect. PORC may review but 10CFR50.59 evaluation must be performed
B. Incorrect. Normal process for temporary procedure changes
C. Correct.
D. Incorrect. The test may be done under this condition but not required if safety evaluation is performed

Technical Reference(s) CNG-PR-1.01-1011 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: _____ (As available)

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

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 _____
55.43 3

Comments:
Various similar previous NRC other facilities

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

Knowledge of new and spent fuel movement procedures.

Proposed Question: SRO 97

Which ONE (1) of the following describes the MINIMUM approval required for bypassing electrical interlocks on the Refueling Manipulator Crane in accordance with RF-301, Refueling Operations (Offload, Reload, Shuffle)?

A. Refueling Shift Supervisor AND Reactor Engineer.

B. Refueling SRO AND Refueling Coordinator.

C. Refueling SRO AND Refueling Shift Supervisor.

D. Refueling Coordinator AND Reactor Engineer.

Proposed Answer: C

Explanation (Optional):

A. Incorrect.
B. Incorrect.
C. Correct. Direct from RF-301, Att 3
D. Incorrect.

Technical Reference(s) RF-301 Att 3 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: _____ (As available)

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

Question History: Last NRC Exam _____

Question Cognitive Level:	Memory or Fundamental Knowledge	X
	Comprehension or Analysis	
10 CFR Part 55 Content:	55.41	
	55.43	6

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		3
	Group #		3
	K/A #	2.3.9	
	Importance Rating		3.4

Knowledge of the process for performing a containment purge.

Proposed Question: SRO 98

Given the following:

- The plant is in Mode 5.
- A Containment Purge is planned.
- Containment was sampled at 0600 this morning.
- The current time is 0900.

Which ONE (1) of the following describes the LATEST time that the purge may be initiated without re-sampling Containment?

A. 1000 today

B. 1400 today

C. 1800 today

D. 0600 tomorrow

Proposed Answer: C

Explanation (Optional):

A. Incorrect.
B. Incorrect.
C. Correct. 12 hours is allowed prior to re-sample
D. Incorrect.

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 # _____ (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 4

Comments:

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		3
	Group #		4
	K/A #	G2.4.6	
	Importance Rating		4.0

Knowledge of symptom based EOP mitigation strategies.

Proposed Question: SRO 99

Given the following conditions:

- An ATWS has occurred.
- The crew is performing FR-S.1, Response to Reactor Restart/ATWS.
- RCS Boration is in progress.
- SI has actuated.
- Both SG pressures are approximately 550 psig and trending down.
- RCS Temperature is approximately 460 degrees F and trending down.
- Reactor Power indicates approximately 4% and trending down slowly.

Which ONE (1) of the following describes the mitigation strategy for the current conditions and the event in progress?

A. Remain in FR-S.1 and isolate the faulted SGs. Transition to E-0, Reactor Trip or Safety Injection when isolation is complete.

B. Remain in FR-S.1 and isolate the faulted SGs. Transition to E-0, Reactor Trip or Safety Injection when adequate Shutdown Margin is verified.

C. Exit FR-S.1; Transition to E-0, Reactor Trip or Safety Injection, and subsequently isolate the faulted SG using E-2, Faulted Steam Generator Isolation.

D. Exit FR-S.1; Transition to E-2, Faulted Steam Generator Isolation, and isolate the faulted SG. Perform steps of subsequent EOPs that do not contradict the actions taken in FR-S.1.

Proposed Answer: C

Explanation (Optional):

A is incorrect. FR-S.1 has guidance to isolate a faulted SG, but transitionwhen power is below 5%
B is incorrect. Would go to E-0 after FR-S.1 is complete and directed by FR-S.1 (Power <5%)
C is Correct.
D is incorrect. Would not transition to E-2 directly from FR-S.1

Technical Reference(s) CSF STs, FR-S.1 (Attach if not previously provided)

Proposed references to be provided to applicants during examination: None

Learning Objective: _____ (As available)

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

Question History: Last NRC Exam _____

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

10 CFR Part 55 Content: 55.41 _____
55.43 5

Comments:
McGuire 2007 NRC Exam

Examination Outline Cross-reference:	Level	RO	SRO
	Tier #		3
	Group #		4
	K/A #	G2.4.34	
	Importance Rating		3.6

Knowledge of RO tasks performed outside the main control room during emergency operations including system geography and system implications.

Proposed Question: SRO 100

Given the following conditions:

- The plant is in Mode 1.
- An uncontrollable fire is in progress in the Control Room Complex.
- Heavy smoke requires evacuation of the Control Room.

Which ONE (1) of the following describes the procedure usage for the event and the responsibility of the Head Control Operator?

A. Perform ER-FIRE.0, CR Response to Fire Alarms and Reports, concurrently with AP-CR.1, Control Room Inaccessibility, then go to ER-FIRE-1, Alternate Shutdown for Control Complex Fire; Go to AFW Pump Area and transfer equipment to local control

B. Discontinue use of ER-FIRE.0, CR Response to Fire Alarms and Reports; Perform action in accordance with ER-FIRE-1, Alternate Shutdown for Control Complex Fire, and AP-CR.1, Control Room Inaccessibility; Go to AFW Pump Area and transfer equipment to local control.

C. Perform ER-FIRE.0, CR Response to Fire Alarms and Reports, concurrently with AP-CR.1, Control Room Inaccessibility; Go to Screenhouse to ensure 1 Service Water Pump is running in each SW loop.

D. Discontinue use of ER-FIRE.0, CR Response to Fire Alarms and Reports; Perform action in accordance with ER-FIRE-1, Alternate Shutdown for Control Complex Fire, and AP-CR.1, Control Room Inaccessibility. Go to Screenhouse to ensure 1 Service Water Pump is running in each SW loop.

Proposed Answer: A

Explanation (Optional):

A. Correct. ER-FIRE.0 directs concurrent use of the 2 procedures

B. Incorrect. Would not discontinue ER-FIRE.0, but credible because it is normal to transition to another procedure, which in this case, is controlling the actions
C. Incorrect. CRF goes to Screenhouse
D. Incorrect. Would not discontinue use of ER-FIRE.0, but credible because it is normal to transition to another procedure, which in this case is controlling the actions taken

Technical Reference(s) ER-FIRE.0, AP-CR.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

Comments: