

Question #

RO 1

SRO 30

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	1	1
	Group #	1	1
	K/A #	295005	295005
		2.1.33	2.1.33
	Importance Rating	3.4	4.0

Ability to recognize indications for system operating parameters which are entry-level conditions for technical specifications.

Proposed Question:

While operating at 100% power an electrical transient in the 345 KV Scriba Switchyard caused a full load reject at NMP2. After the initial actions were taken the STA determined the reactor was shutdown by the Alternate Rod Insertion function of RRCS.

Which one of the following states the safety significance of this event?

- A reactivity anomaly has occurred.
- An engineered safety feature has failed to actuate.
- The Generator output breakers R-925 and R-230 failed to trip open.
- Control Valve fast closure failed and the turbine tripped on overspeed.

Proposed Answer: b.

Explanation (Justification of Distractors):

- A reactivity anomaly would not result in a RPS failure.
- This would not cause this event to be significant.
- This would be expected for a failure of the low ETS oil pressure trip.

Technical Reference(s): Technical Specifications 2.2.1 and 3.3.1

Proposed references to be provided to applicants during the examination:

None

Learning Objective: 02-OPS-001-245-2-01, EO-11.0

Question Source: Bank #
Modified Bank #
New New

Question History: Previous NRC Exam
Previous Test / Quiz

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 2

10CFR Part 55 Content: 43.2 / 45.3 / 45.2

Comments:

NRC Comment : Stem focus. Add "safety"
Why is "a" not correct?

NMPC Response: Added "safety" to stem

Distracter "a" is not correct because a "reactivity anomaly" is a Tech Spec term associated with the difference between actual and predicted rod density, determined by Reactor Engineering surveillance testing. If a reactivity anomaly existed it would NOT result in an RPS failure and Alternate Rod Insertion to shutdown the reactor.

Question #

RO 2

SRO 3

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	1	1
	Group #	1	1
	K/A #	295006	295006
		AA2.06	AA2.06
	Importance Rating	3.7	3.8
Ability to determine and/or interpret the following as they apply to SCRAM: Cause of reactor SCRAM.			

Proposed Question:

The following plant conditions exist:

- The plant is operating at 100% power.
- An operator initiated scram becomes necessary.
- The reactor mode switch is taken from RUN to SHUTDOWN.
- All plant protective systems respond as designed.

Select the FIRST Reactor Protection System scram signal generated.

- IRM Upscale Trip
- APRM Flow Biased
- Mode Switch in SHUTDOWN
- APRM Upscale Neutron Flux (Setdown)

Proposed Answer: d. Leaving the RUN position places the 15% APRM scram in the circuit, since the reactor is at 100% power the reactor scrams on APRM Upscale.

Explanation (Justification of Distractors):

- IRMs are withdrawn and on Range 10 will not see flux high enough to reach it's scram setpoint.
- APRM Flow biased scram level has not been exceeded, this scram is only active in RUN.
- The APRM Upscale, 15%, is activated when the mode switch leaves RUN, the Mode Switch in SHUTDOWN is delayed until the Mode Switch gets to SHUTDOWN.

Technical Reference(s): O2 -OPS -001-212-2-00

Proposed references to be provided to applicants during the examination:

None

Learning Objective: 02-OPS-001-212-2-00, EO-5.0

Question Source: Bank # Q13586
Modified Bank #
New

Question History: Previous NRC Exam Yes
Previous Test / Quiz

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 1

10CFR Part 55 Content: 41.10 / 43.5 / 45.13

Comments:

Question 19 from the July 1996 NRC exam.

Question #

SRO 2

Examination Outline	Level	SRO
Cross-Reference	Tier #	1
	Group #	1
	K/A #	295003
		2.2.22
	Importance Rating	4.1
Knowledge of limiting conditions for operations and safety limits		

Proposed Question:

The plant is at 70% power and continuing to raise power following a refueling outage. The following events occur:

Day 1, 1100 hours - A fault occurs on the 115KV Offsite Line 6. LCO entered on one offsite circuit inoperable.

Day 1, 1400 hours - 2ENS*SWG103 was transferred to the Auxiliary Boiler Service Transformer, 2ABS-X1.

Day 1, 2200 hours - Diagnosis of the fault determined it was caused by the wrong contacts (undersized) installed in Motor Operated Disconnect 2YUL-MDS2.

Day 2, 0100 hours - Further investigation reveals that these same contacts were installed in 115KV Offsite Line 5 Motor Operated Disconnect 2YUL-MDS1.

Which one of the following Technical Specifications actions is required?

- a. Restore Line 6 to service by Day 4, 1100 hours, then remove Line 5 from service, then enter the LCO for one offsite circuit inoperable.
- b. Remove Line 5 from service, then enter the LCO for two offsite circuits inoperable, restore Line 6 within 24 hours of removing Line 5 from service.
- c. Declare Line 5 inoperable at Day 2, 0100 hours, restore Line 6 by Day 3, 0100 hours, then remove Line 5 from service and restore Line 5 by Day 4, 1100.
- d. Enter the LCO for two offsite circuits inoperable at Day 2, 0100 hours, Return Line 5 to operability by Day 3, 1100 hours, and Line 6 by Day 8, 0100 hours.

Proposed Answer: c. Line 5 must be declared inoperable per the guidance in Sect 3.8 of the Conduct of Ops this places the plant in a 24 hour LCO until one line can be restored.

Explanation (Justification of Distractors):

- a. Line 5 must be declared inoperable for a common mode failure, so the situation becomes a 24 hour LCO.
- b. Can't remove Line 5 from service with Line 6 already out, and Line 5 is considered inoperable at Day 2, 0100.
- d. Line 5 and/or Line 6 must be returned to operable by Day 4, 1100 provided one is restored to operable by Day 3, 0100.

Technical Reference(s): Technical Specifications 3.8.1
Conduct of Operations Manual, Section 3.8

Proposed references to be provided to applicants during the examination:

Technical Specifications 3.8.1

Learning Objective: 02-OPS-001-262-2-01, EO-10.0

Question Source: Bank #
Modified Bank #
New New

Question History: Previous NRC Exam
Previous Test / Quiz

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 2

10CFR Part 55 Content: 43.2 / 45.2

Comments:

SRO Only: Technical Specification application.

Question #

RO 3

SRO 5

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	1	1
	Group #	1	1
	K/A #	295007	295007
		AK3.03	AK3.03
	Importance Rating	3.4	3.5
Knowledge of the reasons for the following responses as they apply to High Reactor Pressure: RCIC operation: Plant-Specific.			

Proposed Question:

The EOP's have been entered following a plant trip due to an inadvertent containment isolation. The following conditions exist:

- Group 1 isolation signal has occurred.
- Group 8 isolation signal has occurred.
- Drywell pressure is 1.71 psig.
- RPV pressure is 1050 psig and rising.

Which one of the following systems is used for reactor pressure control?

- a. Turbine Bypass Valves
- b. Main Steam Line Drains
- c. Reactor Core Isolation Cooling
- d. Steam Condensing mode of RHR

Proposed Answer: c. RPV CONTROL, Step P-5, RCIC is an alternate system that can be used.

Explanation (Justification of Distractors):

- a. Bypass Valves are NOT available following MSIV closure
- b. Main steam line drains also isolate with Group 1 isolation
- d. Steam Condensing mode is automatically isolated on LOCA signal

Technical Reference(s): N2-EOP-RPV, RPV CONTROL
N2-EOP-PC, PRIMARY CONTAINMENT CONTROL

(Attach if not previously provided)

Proposed references to be provided to applicants during the examination:

N2-EOP-RPV, RPV CONTROL
N2-EOP-PC, PRIMARY CONTAINMENT CONTROL

Learning Objective: 02-OPS-006-344-2-01, TO-13.0, TO-15

Question Source: Bank #
Modified Bank #
New New

Question History: Previous NRC Exam
Previous Test / Quiz

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 2

10CFR Part 55 Content: 41.5 / 45.6

Comments:

NRC Comment: Stem focus, change "should be used" and distractor "a" is not credible.

NMPC Response: Changed stem to "is used". Replaced Shutdown Cooling a to Steam Condensing as a distractor. Had to change stem to provide conditions that prevent the Steam Condensing mode of RHR (LOCA signal, drywell pressure above 1.68 psig). This isolates the Steam Condensing valves to the RHR heat exchangers.

Question #

RO 4

SRO 7

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	1	1
	Group #	1	1
	K/A #	Generic	Generic
		295009	295009
		2.4.4	2.4.4
	Importance Rating	4.0	4.3
Ability to recognize abnormal indications for system operating parameters that are entry-level conditions for emergency and abnormal operating procedures.			

Proposed Question:

Lightning strikes have caused a permanent loss of lines 5 and 6. Following a scram the Emergency Diesel Generator (EDG) status is:

- EDG 101 running, EMER SWGR ACB 101-1 will NOT close.
- EDG 102 running, EMERG DIESEL GEN2 OUTPUT BREAKER 102-1 is closed
- EDG 103 will NOT start

Which one of the following describes the SOP(s) entered and immediate actions performed for these conditions?

- a. Enter N2-SOP-03, LOSS OF AC POWER and cross-connect buses 101 and 103.
- b. Enter N2-SOP-01, STATION BLACKOUT, trip EDGs 101 and 102 and recover off-site power.
- c. Enter N2-SOP-03, LOSS OF AC POWER, Shutdown EDGs 101 and 102, then enter N2-SOP-01, STATION BLACKOUT.
- d. Enter N2-SOP-01, STATION BLACKOUT, trip EDG 101 then cross-connect buses 102 and 103 and enter N2-SOP-03, LOSS OF AC POWER.

Proposed Answer: c. Entry into N2-SOP-01 is directed by N2-SOP-03 after EDG 102 is tripped.

Question #

SRO 4

Examination Outline	Level	SRO
Cross-Reference	Tier #	1
	Group #	1
	K/A #	295006
		AK2.07
	Importance Rating	4.1
Knowledge of the interrelations between SCRAM and the following: reactor pressure control.		

Proposed Question:

The plant is operating at 100% power when a feedwater control malfunction causes an RPV high level that trips the reactor feedwater pumps.

Which one of the following describes how reactor pressure is controlled for the next few minutes? **ASSUME NO OPERATOR ACTIONS**

- a. **No** SRVs open, turbine bypass valves fully open then throttle to maintain reactor pressure.
- b. **No** SRVs open, turbine bypass valves fully open and remain open to control reactor pressure.
- c. Several SRVs open then sequentially close, one or two SRVs remain open to control reactor pressure.
- d. Several SRVs open then close as turbine bypass valves fully open then throttle to maintain reactor pressure.

Proposed Answer: d. TCVs Close , SRVs open initially open then close as BPV control pressure.

Explanation (Justification of Distractors):

See justification for proposed answer above.

Technical Reference(s):

USAR, 15.2.3.2
N2-SOP-21, TURBINE TRIP

Proposed references to be provided to applicants during the examination:

None

Learning Objective: 02-OPS-001-245-2-01, EO-4a, EO-5, EO-8, EO-10

Question Source: Bank #
Modified Bank #
New NEW

Question History: Previous NRC Exam
Previous Test / Quiz

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 1

10CFR Part 55 Content: 41.7/ 45.8

Comments:

NRC Comment: Not SRO only.

NMP2 Response: We agree. We had not credited this question as SRO only.

Question #

RO 5

SRO 8

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	1	1
	Group #	1	1
	K/A #	295010	295010
		AA1.02	AA1.02
	Importance Rating	3.6	3.6

Ability to operate and/or monitor the following as they apply to high drywell pressure: Drywell floor and equipment drain sumps.

Proposed Question:

The unit is operating at 80% power. The last drywell floor drain pump to operate was pump 2DFR-P1A. Both the 2DFR-P1A and 2DFR-P1B pump control switches are in the NORMAL-AFTER-STOP position. The following annunciators are received:

- 873111, DRWL FLR DRN TANK 1 LEVEL HI-HI
- 603140, DRYWELL PRESSURE HIGH/LOW

Which one of the following describes the status of the Drywell Floor Drain System as drywell pressure rises from 0.75 psig to 1.8 psig?

- Both** the P1A and P1B pumps will be off and remain off.
- Only** the P1B pump will pump the sump until the system isolates.
- Both** the P1A and P1B pumps will pump the sump until the system isolates.
- Only** the P1B pump will pump the sump and it will continue to pump until manually stopped.

Proposed Answer: c.

Explanation (Justification of Distractors):

When the hi-hi level alarm is received, the P1B pump is already running and the P1A pump starts. They will pump the sump until the LOCA signal (1.68 psig drywell pressure) automatically isolates the system.

Technical Reference(s): N2-OP-67, Rev 02, Section B.2, Section H.1.0
N2-ARP-01, Rev 00, 873111

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-001-291-2-01, EO-4b, EO-4c

Question Source: Bank #
Modified Bank #
New New

Question History: Previous NRC Exam
Previous Test / Quiz

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 2

10CFR Part 55 Content: 55.41.7
55.45.6

Comments:

NRC Comment: Add "is" to first sentence.

NMPC Response: Added.

Question # RO 6 SRO 10

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	1	1
	Group #	1	1
	K/A #	295014	295014
		AA1.02	AA1.03
	Importance Rating	3.6	3.8

Ability to operate and/or monitor the following as they apply to INADVERTENT REACTIVITY ADDITION: Recirculation flow control system

Proposed Question:

During a power ascension the reactor is at 82% power while raising power with Recirculation Flow. The operator is attempting to manually open the Recirculation Loop "A" FCV with the 602 Panel Flow Controller, but is unable because the servo valve at the HPU is stuck. After numerous attempts to open the FCV, the servo valve becomes free and rapidly moves to the open position and sticks there. The FCV begins to fully open.

Which one of the following actions will remedy this situation?

- a. Startup the standby HPU.
- b. Secure and isolate the HPU.
- c. Place the Loop Controller in AUTO and close the FCV.
- d. Lower the Loop Controller in MANUAL until the FCV is closed.

Proposed Answer: b.

Explanation (Justification of Distractors):

- a. This will have no effect on a stuck servo valve
- c. This will have no effect on a stuck servo valve
- d. With the stuck servo valve this will have no effect

Technical Reference(s): N2-SOP-08, UNPLANNED POWER CHANGES

Proposed references to be provided to applicants during the examination:

None

Learning Objective: 02-OPS-001-202-2-02, EO-2.0, 3.0, 8.0

Question Source: Bank #
Modified Bank #
New New

Question History: Previous NRC Exam
Previous Test / Quiz

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 2

10CFR Part 55 Content: 41.7 / 45.6

Comments:

NRC Comment: Comma's missing in stem.

NMPC Response: Comma's added.

Question #

SRO 6

Examination Outline	Level	SRO
Cross-Reference	Tier #	1
	Group #	1
	K/A #	295007
		AA1.04
	Importance Rating	3.9
Ability to operate and/or monitor the following as they apply to High Reactor Pressure: Safety/relief valve operation: Plant-Specific.		

Proposed Question:

The plant is operating at full power when all MSIVs close. All control rods fully insert into the reactor. Reactor pressure rises to 1128 psig.

Assume that the Safety Relief Valves (SRVs) function at their design set point (± 0.0 psig).

Which one of the following describes how many SRVs will open?

- a. Two (2)
- b. Six (6)
- c. Ten (10)
- d. Fourteen (14)

Proposed Answer: c.

Explanation (Justification of Distractors):

1128 causes SRV Groups 1,2 & 3 to lift, 10 SRVs

SRV GROUP	NO. of SRVs	SETPOINT
1	2	1103 psig
2	4	1113 psig
3	4	1123 psig
4	4	1133 psig
5	4	1143 psig

Technical Reference(s): N2-OP-34, NUCLEAR BOILER, AUTOMATIC DEPRESSURIZATION AND SAFETY RELIEF VALVES, Section B.2.0

Proposed references to be provided to applicants during the examination:

N/A

Learning Objective: 02-OPS-001-239-2-00, H. EO-1.0

Question Source:	Bank #	New
	Modified Bank #	New
	New	New

Question History:	Previous NRC Exam	New
	Previous Test / Quiz	New

Question Cognitive Level:	Memory of Fundamental Knowledge	
	Comprehension or Analysis	2

10CFR Part 55 Content: 41.7 / 45.6

Comments:

Question # RO 7 SRO 11

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	1	1
	Group #	1	1
	K/A #	295015	295015
		AK2.11	AK2.11
	Importance Rating	3.5	3.7

Knowledge of the interrelations between INCOMPLETE SCRAM and the following: Instrument Air

Proposed Question:

During a reactor startup a Scram Discharge Volume (SDV) High Level Scram occurred. The following conditions exist:

- 53% of the control rods remain in the core at various positions
- Some movement was observed on all control rods
- Scram solenoid power lights are OFF
- Scram Valves have been verified Open at the HCUs

Based on these conditions EOP-6, Attachment 14, directs manually initiating additional scrams. Which one of the following is the basis for this action?

- Allows additional scrams at lower reactor pressures.
- Provides another scram to totally vent the scram air header.
- Closes the scram valves to allow recovery of the CRD pumps.
- Resets the scram to establish air to the SDV vent and drain valves.

Proposed Answer: d. Eliminates the hydraulic lock by opening the SDV vent and drain valves to drain the SDV.

Explanation (Justification of Distractors):

- There is no basis for scrambling at lower pressure.
- The Scram air header is vented now.
- The CRD pumps are operating.

Technical Reference(s):

N2-EOP-6, Attachment 14, Sect 3.3
EOP Basis

Proposed references to be provided to applicants during the examination:

None

Learning Objective: 02-OPS-006-344-2-01, EO-3.0

Question Source: Bank #
Modified Bank #
New New

Question History: Previous NRC Exam
Previous Test / Quiz

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 2

10CFR Part 55 Content: 41.7 / 45.8

Comments:

Question #

RO 8

SRO 12

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	1	1
	Group #	1	1
	K/A #	295015	295015
		AA1.02	AA1.02
	Importance Rating	4.0	4.2

Ability to operate and/or monitor the following as they apply to Incomplete Scram:
RPS

Proposed Question:

The plant is operating at 100% power when a failure of an RPS relay occurs causing the following conditions to exist on the 2CEC*PNL603:

- Only 3 out of 4 solenoid lights are **ON** for the "A" RPS Trip System
- All 4 solenoid lights for the "B" RPS Trip System are **ON**

Which one of the following describes the control rod movement, if any, that results from an RPS "B" System trip?

- a. All control rods will insert.
- b. No control rods will insert.
- c. One quarter of the control rods will insert.
- d. Three quarters of the control rods will insert.

Proposed Answer: c.

Explanation (Justification of Distractors):

- a. Three quarters of the A scram solenoids are energized and these rods will NOT scram.
- b. One quarter of the rods will have both scram solenoids de-energized and will scram.
- d. Three quarters of the A scram solenoids are energized and these rods will NOT scram.

Technical Reference(s): 02-OPS-001-212-2-00, Figures 5, 6A, 6B
N2-OP-97, REACTOR PROTECTION SYSTEM
GE DWG 807166TY Sheet 9 and 10.

(Attach if not previously provided)

Proposed references to be provided to applicants during the examination:

N/A

Learning Objective: 02-OPS-001-212-2-00, EO-2.0, EO-8.0

Question Source: Bank #
Modified Bank # Q8154
New

Question History: Previous NRC Exam No
Previous Test / Quiz No

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 2

10CFR Part 55 Content: 41.7 / 45.6

Comments:

NRC Comment: Stem focus is technically invalid. Relationship between solenoid lights and RPS relays was questioned.

NMPC Response: Changed "immediate plant impact" to "the control rod movement that results from an..." to improve stem focus.

The stem provides information which allows the candidate to assess that one (of four) groups of RPS A scram pilot solenoids has become de-energized as a result of a failure in RPS circuitry.

An actual plant event occurred several years ago where an RPS (K14) relay burnt up and de-energized. This resulted in de-energizing one group of RPS solenoids and only 3 of four solenoid lights for that RPS trip system being energized. See GE DWG 807166TY Sheet 9 and 10 to illustrate the relationship between relays and lights.

Question #

RO 9

SRO 16

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	1	1
	Group #	1	1
	K/A #	295024	295024
		EK3.04	EK3.04
	Importance Rating	3.7	4.1

Knowledge of the reasons for the following responses as they apply to high drywell pressure: emergency depressurization.

Proposed Question:

A reactor scram due to a LOCA has occurred. The following conditions exist:

- Reactor pressure 400 psig
- Reactor water level (actual) 0 inches stable
- Drywell pressure 16 psig
- Drywell temperature 250°F
- Suppression chamber pressure 17 psig
- Suppression pool temperature 135°F
- Suppression pool water level 201 feet

Which one of the following is assured by performing an RPV Blowdown under the current plant conditions?

- a. Ensure the suppression chamber design temperature is not exceeded.
- b. Ensure that steam does not accumulate in the suppression chamber air space.
- c. Ensure that containment vent valves can be opened and closed to reject heat from and to vent the containment.
- d. Ensure opening an SRV will not result in exceeding the capability of the SRV tail pipe, quencher, or associated supports.

Proposed Answer: b.

Explanation (Justification of Distractors):

The Pressure Suppression Pressure is being challenged.

- a. Reason for depressurizing prior to exceeding the HCTL.
- c. Reason for depressurizing prior to exceeding the PCPL.
- d. Reason for depressurizing prior to exceeding the SRVTPL.

Technical Reference(s): N2-EOP-PC, Rev 8
NMP2-EOP Bases Document, Section C

Proposed references to be provided to applicants during the examination:

All the EOP Graphs (full size) and ruler.

Learning Objective: O2-OPS-006-344-2-04, # 3

Question Source: Bank #
Modified Bank #
New New

Question History: Previous NRC Exam New
Previous Test / Quiz New

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 2

10CFR Part 55 Content: 55.41.5
55.45.6

Comments:

Question #

RO 10

SRO 17

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	1	1
	Group #	1	2
	K/A #	295025	295025
		EK1.05	EK1.05
	Importance Rating	4.4	4.7

Knowledge of the operational implications of the following concepts as they apply to HIGH REACTOR PRESSURE: Exceeding Safety Limits.

Proposed Question:

During the conduct of N2-OSP-RPV-@002, REACTOR PRESSURE VESSEL AND ALL CLASS 1 SYSTEMS LEAKAGE TEST, reactor pressure is raised to 1375 psig.

Which one of the following describes the safety significance of this event?

- a. The reactor pressure vessel warranty has been voided.
- b. A Technical Specification safety limit has been exceeded.
- c. Conditions exist that are outside of the station safety analysis.
- d. Violates the thermal limits in the Core Operating Limits Report.

Proposed Answer: b. 1325 psig in the steam dome safety limit has been violated

Explanation (Justification of Distractors):

- a. This does not have safety significance
- c. This is within the safety analysis
- d. This does not violate fuel thermal limits

Question #

RO 11

SRO 22

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	1	1
	Group #	1	1
	K/A #	295031	295031
		EK2.08	EK2.08
	Importance Rating	4.2	4.3
Knowledge of the interrelations between reactor low water level and the following: Automatic depressurization system.			

Proposed Question:

A LOCA has occurred and NO operator action has been taken. The following conditions have been present for 2 minutes:

- RPV level indicates -100 inches on the Fuel Zone range
- Reactor pressure is 300 psig
- Drywell pressure is 22 psig

Assume ALL equipment operates as designed. Which one of the following describes the current status of the ADS valves, and the actions necessary to close or maintain them closed?

The ADS valves are ...

- open.**
Div. I and Div. II DISABLE key lock switches placed in ON.
- closed.**
Div. I and Div. II DISABLE key lock switches placed in ON.
- closed.**
Div. I and Div. II SEAL-IN RESET pushbuttons depressed every 90 seconds.
- open.**
Div. I and Div. II DISABLE key lock switches placed in ON and then Div. I and Div. II SEAL-IN RESET pushbuttons are depressed.

Proposed Answer: d.

Explanation (Justification of Distractors):

- a. The automatic initiation circuit bypasses the key lock switches.
- b. The valves are open. IF the valves were closed, the action indicated would maintain them closed.
- c. The valves are open. IF the valves were closed, the action indicated would maintain them closed.

Technical Reference(s): N2-OP-34, Rev 07, Section B.2.3

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-001-218-2-01, EO-4b,4d

Question Source: Bank # Q15787
Modified Bank #
New

Question History: Previous NRC Exam
Previous Test / Quiz (wk 15 exam)

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 2

10CFR Part 55 Content: 55.41.7
55.45.8

Comments:

Question #

RO 12

SRO 24

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	1	1
	Group #	1	1
	K/A #	295037	295037
		EK1.02	EK1.02
	Importance Rating	4.1	4.3

Knowledge of the operational implications of the following concepts as they apply to scram condition present and reactor power above APRM downscale or unknown: Reactor water level effects on reactor power.

Proposed Question:**Note: Reactor water levels are indicated.**

An ATWS is in progress. Following the actions to terminate and prevent all RPV injection the following conditions existed:

- Reactor water level –10 inches
- Reactor power 3%
- Reactor pressure 1000 psig and lowering slowly
- Suppression pool temperature 120°F and rising slowly
- Suppression pool level 200.6 feet and steady
- 2 SRVs are open
- Control rod insertion has NOT been established
- SLS failed to inject and CANNOT be started
- No alternate boron system is injecting

When APRM's are downscale, RPV injection is re-established. One (1) minute later reactor water level has risen to +30 inches. Which one of the following describes the effects of this change and the required operator actions?

- a. Terminate and prevent injection except for boron, CRD, and RCIC because reactor power has risen to above 4%.
- b. Perform an RPV Blowdown because the suppression pool has exceeded the Heat Capacity Temperature Limit.
- c. Lower level using the preferred ATWS systems to the assigned reactor water level band to suppress power oscillations.
- d. Assign a new level band and maintain reactor water level between +30 inches and –45 inches using alternate ATWS systems for improved control.

Proposed Answer: a.

The rise in reactor water level will cause reactor power to rise above 4%. The conditions of the override step for terminate and prevent injection are met and must be performed.

Explanation (Justification of Distractors):

- b. HCTL has not been exceeded. Emergency depressurization is NOT required.
- c. Suppressing power oscillations is not a consideration, per step 8.1 of the level step in EOP-C5.
- d. Changing the level band is not required, but terminating and preventing and lowering level are for power >4%

Technical Reference(s): N2-EOP-C5, Rev 8

Proposed references to be provided to applicants during the examination:

N2-EOP-C5, Failure to Scram.

Learning Objective: O2-OPS-006-344-2-17, EO-2

Question Source:	Bank #	
	Modified Bank #	
	New	New

Question History:	Previous NRC Exam	New
	Previous Test / Quiz	New

Question Cognitive Level:	Memory of Fundamental Knowledge	
	Comprehension or Analysis	3

10CFR Part 55 Content:	55.41.6
	55.41.7
	55.45.8

Comments:

NRC Comments: Stem focus needs to be improved.
Credible distractors, b blowdown logic is missing
Distractor c, adequate core cooling is not an issue.

NMPC Response: Distractor c, changed reason to "to suppress power oscillations".

Distractor b modified to provide reason for RPV blowdown as exceeding HCTL. Added SPL condition to stem.

Question #

RO 13

SRO 26

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	1	1
	Group #	1	1
	K/A #	500000	500000
		EK1.01	EK1.01
	Importance Rating	3.3	3.9

Knowledge of the operational implications of the following concepts as they apply to high containment hydrogen concentrations: Containment integrity.

Proposed Question:

A LOCA has occurred and the following conditions exist:

- Drywell H₂ concentration is 7%
- Suppression Chamber H₂ concentration is 4%

- Drywell O₂ concentration is 4%
- Suppression chamber O₂ concentration is 6%

In accordance with the EOPs, which one of the following describes the Primary Containment H₂/O₂ deflagration limit status and required actions?

The Primary Containment H₂/O₂ concentration is ...

- below** the deflagration limit. A Reactor scram and emergency depressurization is required.
- below** the deflagration limit. A Reactor scram and emergency depressurization is **NOT** required.
- above** the deflagration limit. A Reactor scram and emergency depressurization is required.
- above** the deflagration limit. A Reactor scram and emergency depressurization is **NOT** required.

Proposed Answer: c.

Explanation (Justification of Distractors):

The limits, 6%, H₂ and 5%, O₂ in either the suppression chamber or drywell are the limits for the primary containment. Combustible limit exceeded requires a reactor scram and emergency depressurization.

Technical Reference(s): N2-EOP-PCH, Rev 0
NMP2 EOP Bases, EOP-PCH

Proposed references to be provided to applicants during the examination:

N2-EOP-PCH, Rev 0
N2-EOP-PC, Rev 8

Learning Objective: O2-OPS-006-344-2-23, EO-2, EO-3,

Question Source:	Bank #	
	Modified Bank #	
	New	New

Question History:	Previous NRC Exam	New
	Previous Test / Quiz	New

Question Cognitive Level:	Memory of Fundamental Knowledge	2
	Comprehension or Analysis	

10CFR Part 55 Content:	55.41.8, 41.9, 41.10
	55.45.5

Comments:

Question #

SRO 13

Examination Outline	Level	SRO
Cross-Reference	Tier #	1
	Group #	1
	K/A #	295016
		2.4.11
	Importance Rating	3.6
Knowledge of abnormal condition procedure.		

Proposed Question:

With the plant operating at 100% power, a Control Room evacuation becomes necessary. Following the evacuation the Control Room E operator implements the immediate actions of N2-SOP-78, CONTROL ROOM EVACUATION, to lineup Reactor Core Isolation Cooling (RCIC). The Control Room E operator reports that RCIC injection can **NOT** be established.

Which one of the following is directed to maintain reactor water level?

- a. Locally start HPCS and feed the RPV as necessary.
- b. Locally start the second CRD Pump and maximize injection.
- c. Lower RPV pressure with the SRVs and establish makeup with the RHR System.
- d. Take local control of Turbine Bypass Valves and lower pressure and establish injection with the feedwater system.

Proposed Answer: c.

Explanation (Justification of Distractors):

- a. Per N2-SOP-78, if RCIC is not available, a contingency for the use of LPCI as an injection source is provided. The use of HPCS as an injection source during control room evacuation is not permitted.
- b. Per N2-SOP-78, if RCIC is not available, a contingency for the use of LPCI as an injection source is provided. The use of CRD as an injection source during control room evacuation is not permitted.
- d. Per N2-SOP-78, if RCIC is not available, a contingency for the use of LPCI as an injection source is provided. The MSIVs are closed when performing the operator actions before leaving the control room. The turbine bypass valves are not available.

Technical Reference(s): N2-SOP-78, sect. 3.5

Proposed references to be provided to applicants during the examination:

None

Learning Objective: O2-OPS-001-296-2-00, TO 3

Question Source: Bank #
Modified Bank # Q15831
New

Question History: Previous NRC Exam
Previous Test / Quiz

Question Cognitive Level: Memory of Fundamental Knowledge 1
Comprehension or Analysis

10CFR Part 55 Content: 55.41 10
55.43.5
55.45.13

Comments:

SRO Only: N2-SOP-78 requires entry into N2-OP-78 to establish level control using the LPCI Pseudo Mode. This evolution is performed concurrent with N2-OP-78 sections for "Reactor Pressure Control" and "Reactor Pressure Vessel Cooldown". These actions are directed and controlled by the SSS from the Remote Shutdown Panel because of the multiple tasks being performed concurrently.

NRC Comment: Change "should be" in the stem.
Need better justification for distractors.

NMP2 Response: Changed "should be" to is.
Provided justification for distractors.

Question #

RO 14

SRO 27

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	1	1
	Group #	2	2
	K/A #	295001	295001
		AA2.01	AA2.01
	Importance Rating	3.5	3.8

Ability to determine and/or interpret the following as they apply to partial or complete loss of forced core flow circulation: Power/flow map.

Proposed Question:

The plant is operating at 85% power above the 100% rod line. A fault occurs causing a trip of the "A" RCS pump.

- The resulting core flow is 44×10^6 lbm/hr.

In accordance with N2-SOP-29, Sudden Reduction in Core Flow, which one of the following is the required immediate actions?

- a. Raise recirc flow to at least 50×10^6 lbm/hr in accordance with N2-SOP-29.
- b. Place the Reactor Mode Switch in Shutdown and follow the actions of N2-SOP-101C.
- c. Monitor APRMs and LPRMs for indication of thermal hydraulic oscillations and scram the reactor if oscillations exist.
- d. Reduce power to less than 70%, Notify I&C Dept. & Reactor Engineering, verify RCS pump A speed is zero and shut FCV 17A.

Proposed Answer: b.

If above the 100% rod line and total core flow is $\leq 45\%$ (49 mlb/hr), then scram the reactor per N2-SOP-101C.

Explanation (Justification of Distractors):

- a. Raising flow to exit the Restricted Zone is a subsequent action, only applicable if Rod line is between 70% and 100%. Stem gives rodline as being > 100% for this transient.
- c. Monitoring for oscillations is a subsequent action only applicable if Rod line is between 70% and 100% or in the Heightened Awareness Zone. Stem gives rodline as being > 100% for this transient.
- d. Reducing power below 70% is a single loop tech spec action with a 4 hour completion time. Other actions are subsequent N2-SOP-29 actions that would be completed if the plant were to continue operation in single loop.

Technical Reference(s): N2-SOP-29, Rev 00, Section 3.0

Proposed references to be provided to applicants during the examination:

Power to flow map (Ref dwg EM-950A/B)

Learning Objective: O2-OPS-006-SOP-2-01-29, TO-12, EO-2

Question Source: Bank #
Modified Bank # Q8211
New

Question History: Previous NRC Exam
Previous Test / Quiz

Question Cognitive Level: Memory of Fundamental Knowledge 1
Comprehension or Analysis

10CFR Part 55 Content: 55.41.10
55.43.5
55.45.13

Comments:

NRC Comments: More than one distractor is partially correct and unstated assumption is not contradicted by stem.

NMPC Response: Given the conditions in the stem, N2-SOP-29 **requires an immediate reactor scram**. See modified Explanation of Distractors.

Question #

SRO 14

Examination Outline	Level	SRO
Cross-Reference	Tier #	1
	Group #	1
	K/A #	295017
		AA2.01
	Importance Rating	4.2

Ability to determine and/or interpret the following as they apply to HIGH OFF-SITE RELEASE RATE: off-site release rate: plant specific.

Proposed Question:

The plant is operating at 100% power when a drain line breaks off the "C" Main Steam line immediately upstream of the Turbine Control Valves. Operators in the Control Room manually initiate a Group 1 isolation but the isolation fails to stop the leak. The following conditions exist:

- A **Site Area Emergency** has been declared
- Turbine building full of steam and evacuated
- Measured release rates have **NOT** risen above normal
- Several turbine building ARMs have alarmed
- Wind direction is **from 295°**
- Wind speed is **3 mph**

Which one of the following methods is used to make an initial off-site dose assessment?

- a. Direct RP to calculate off-site dose rates based on the stack release.
- b. Send RP to South East side of the site boundary to take dose rate readings.
- c. Dispatch on-site monitoring teams to monitor the North side of the site fence.
- d. Request a monitoring team be sent to the first population center located 115° from the site.

Proposed Answer: b.

Explanation (Justification of Distracters):

- a. The dose rate must be calculated after the ground release is determined
- c. The release is unmonitored and outside the secondary containment. With the wind from the North the release would be from the South East side, NOT the North.
- d. The release is outside the secondary containment. The dose rate must be determined at the boundary to determine the release rate.

Technical Reference(s): EPIP-EPP-08

Proposed references to be provided to applicants during the examination:

EPIP-EPP-08, Attachment 1 and Table 1.1

Learning Objective:

Question Source:	Bank # Modified Bank # New	new
Question History:	Previous NRC Exam Previous Test / Quiz	
Question Cognitive Level:	Memory of Fundamental Knowledge Comprehension or Analysis	3
10CFR Part 55 Content:	41.10 / 43.4 / 43.5 / 45.13	

Comments:

SRO Only: Site Emergency Director responsibilities and application of the emergency plan.

NRC Comment: If the correct answer is "b", then there is no justification for response "c".

NMP2 Response: Justification "b" is incorrectly and should be "c". This has been corrected. The correct answer is "b" as indicated.

Question #

RO 15

SRO 28

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	1	1
	Group #	1	1
	K/A #	295002	295002
		AA1.07	AA1.07
	Importance Rating	3.1	2.9
Ability to operate and/or monitor the following as they apply to a LOSS OF MAIN CONDENSER VACUUM: condenser circulating water system			

Proposed Question:

With the plant operation at 100% power the following conditions exist:

- Circulating Water Pumps "A", "B", "C", "E", "F" are in operation.
- Circulating Water Pump "C" TRIPs on Electric Fault.

Which one of the following immediate actions are required?

- Scram and trip the Main Turbine.
- Verify Circulating Water system in Mode 1.
- Immediately re-start the tripped Circulating Water Pump.
- Confirm delta vacuum between any two condensers is <4" Hg.

Proposed Answer: a.

Main turbine must be tripped if a condenser is NOT receiving CW. When the C pump trips the center (B) condenser has no CW (C & D are secured).

Explanation (Justification of Distractors):

- Mode 1 is the normal Cooling Tower lineup a pump trip does not effect this lineup.
- This pump cannot be IMMEDIATELY restarted someone must determine and correct the cause of the trip.
- The delta vacuum between condensers is only allowed to be <2" Hg.

Technical Reference(s):

N2-ARP-01, 851301

Proposed references to be provided to applicants during the examination:

None

Learning Objective: 02-OPS-001-275-2-00, EO-3.0

Question Source: Bank #
Modified Bank #
New New

Question History: Previous NRC Exam
Previous Test / Quiz

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 2

10CFR Part 55 Content: 41.7 / 45.6

Comments:

NRC Comments: Add "immediate" to stem.
Why is answer "c" not correct.

NMPC Response: Added "immediate" to stem. Also added to stem, cause of pump trip to be by Electrical Fault. Changed answer "c" to an immediate restart of the tripped CW pump. With an Electric Fault trip, this would prevent immediate restart of the pump, making distractor "c" incorrect.

Question #

RO 16

SRO 1

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	1	1
	Group #	2	1
	K/A #	295003	295003
		AK2.03	AK2.03
	Importance Rating	3.7	3.9

Knowledge of the interrelations between Partial or Complete Loss of A.C. power and the following: A.C. electrical distribution system.

Proposed Question:

The plant is operating at 100% power with the normal AC distribution lineup. An overcurrent condition occurs on the **Reserve Transformer B** resulting in actuation of its protective relaying.

Which one of the following states the plant AC busses immediately de-energized as a result of the automatic fault isolation?

- a. 2ENS*SWG103 (Div. II)
- b. 2ENS*SWG101 (Div. I)
- c. 2ENS*SWG103 (Div. II) and 2NPS-SWG003
- d. 2ENS*SWG101 and 2ENS*SWG102 (Div. I & III)

Proposed Answer: a.

Explanation (Justification of Distractors):

- b. SWG101 is supplied by Reserve Trans. A, SWG001 is NOT affected
- c. SWG003 is NOT affected
- d. SWG101 is supplied by Reserve Trans. A, SWG102 is NOT affected

Technical Reference(s): N2-OP-70, Sect. B and Attachment 2
N2-OP-71A, Sect. B

(Attach if not previously provided)

Proposed references to be provided to applicants during the examination:

None

Learning Objective: NMPC, LP, N2, O2-OPS-001-262-2-01, 0,
EO-8

Question Source: Bank # Q8094
Modified Bank #
New

Question History: Previous NRC Exam
Previous Test / Quiz

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 2

10CFR Part 55 Content: 55.41
55.43

Comments:

Question #

RO 17

SRO 29

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	1	1
	Group #	2	2
	K/A #	295004	295004
		AK1.02	AK1.02
	Importance Rating	3.2	3.2

Knowledge of the operational implications of the following concepts as they apply to Partial or Complete Loss of D.C. Power: Redundant D.C. power supplies: Plant-Specific

Proposed Question:

The plant is operating at 75% power when a fault in the Division I 125 VDC Battery, 2BYS*BAT2A, causes the following:

- Battery Breaker to Division I DC Switchgear, 2BYS*SWG002A, trips **OPEN**.
- Charger 2BYS*CHGR2A1, Output Breaker to Division I DC Switchgear, 2BYS*SWG002A, trips **OPEN**.

What is the effect on plant operation **and** what must be done to restore power to the Division I 125 VDC Bus or loads?

- a. Immediate scram is required, DC power can be restored using the standby charger.
- b. Orderly plant shutdown is required until DC power can be restored using the standby charger.
- c. Orderly plant shutdown is required, DC power can **NOT** be restored until the battery is available.
- d. Stop all activity that could result in a plant trip, DC power can **NOT** be restored until the battery is available.

Proposed Answer: a. Plant must be scrammed because both recirculation pumps tripped (SOP-29 and SOP-4)). Power can be restored by placing the alternate charger in service (SOP-4).

Explanation (Justification of Distractors):

- b. Plant must immediately be scrammed due to the trip of both recirc pumps.
- c. Plant must be scrammed because both recirculation pumps tripped (SOP-29 and SOP-4)). Power can be restored by placing the alternate charger in service (SOP-4).
- d. Plant must be scrammed because both recirculation pumps tripped (SOP-29 and SOP-4)). Power can be restored by placing the alternate charger in service (SOP-4).

Technical Reference(s): N2-SOP-04, and N2-SOP-29.

Proposed references to be provided to applicants during the examination:

None

Learning Objective: 02-OPS-001-263-2-01, EO-8.0

Question Source: Bank # New
Modified Bank #
New

Question History: Previous NRC Exam
Previous Test / Quiz

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 2

10CFR Part 55 Content: 55.41
55.43

Comments:

NRC Comment: Why is distractor "b" incorrect.

NMPC Response: Distractor "b" is incorrect because the stem conditions result in loss of both Recirc Pumps and an immediate scram is required by N2-SOP-29. Original version of this distractor allowed the starting of a plant shutdown. This is an incorrect action. We did modify distractor "b" from its' original version to remove the ambiguity so that it was clear that an "orderly shutdown" was to be started.

Question #

RO 18

SRO 31

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	1	1
	Group #	2	2
	K/A #	295008	295008
		AK1.03	AK1.03
	Importance Rating	3.2	3.2

Knowledge of the operational implications of the following concepts as they apply to high reactor water level: Feed flow / steam flow mismatch.

Proposed Question:

Given the following conditions:

- Reactor power is steady at **50%**
- Reactor water level is 182 inches
- Reactor Vessel Level Control System is in 3-element control
- Reactor level detector channel "A" is selected

The Channel "B" feedwater flow **SIGNAL** fails to ZERO.

Which one of the following describes the result?

- Scram on Main Turbine trip.
- Scram on reactor water level trip.
- Reactor water level stabilizes at a lower level.
- Reactor water level stabilizes at a higher level.

Proposed Answer: d.

Explanation (Justification of Distractors):

- Level rises but should not reach the high level setpoint at this steam flow.
- Level rises
- Level rises

Technical Reference(s): N2-OP-03, Rev 13, Section B

Proposed references to be provided to applicants during the examination:

02-OPS-001-259-2-02, Figure 1, Rev 0

Learning Objective: 02-OPS-001-259-2-02, EO-8.0

Question Source:	Bank #	
	Modified Bank #	New
	New	New
Question History:	Previous NRC Exam	New
	Previous Test / Quiz	New
Question Cognitive Level:	Memory of Fundamental Knowledge Comprehension or Analysis	3
10CFR Part 55 Content:	55.41.8 55.41.10	

Comments:

Question #

SRO 18

Examination Outline	Level	SRO
Cross-Reference	Tier #	1
	Group #	1
	K/A #	295025
		EA2.04
	Importance Rating	3.9

Ability to determine and interpret the following as they apply to HIGH REACTOR PRESSURE: suppression pool level.

Proposed Question:

The plant is operating at 100% power when an improper valve lineup drains CST water into the suppression pool. As suppression pool level rises the crew enters N2-SOP-101C, REACTOR SCRAM. During the scram a Group 1 isolation occurs. The following conditions exist:

- RPV pressure is **1042 psig** and rising
- RPV level is **223 inches**
- Suppression Pool Level is **210 feet** and rising

Which one of the following actions should be taken?

- Immediately open all 7 ADS valves and blowdown.
- Open an SRV to lower pressure to less than 870 psig.
- Position turbine bypass valves to depressurize the reactor.
- Place RHS in steam condensing and RCIC in full flow test lineup.

Proposed Answer: a. PC control 16/5

Explanation (Justification of Distractors):

- SRVs will NOT restore SP level or RPV pressure to within the SRV tailpipe level limit
- This would take time while pressure and SP level are rising.
- RCIC is NOT available because of high RPV level.

Technical Reference(s): PC Control SPL leg, step 16/5

Proposed references to be provided to applicants during the examination:

EOPs without entry conditions

Learning Objective: N2-OPS-006-344-2-04, EO-2.0

Question Source: Bank #
Modified Bank #
New NEW

Question History: Previous NRC Exam
Previous Test / Quiz

Question Cognitive Level: Memory of Fundamental Knowledge 2
Comprehension or Analysis

10CFR Part 55 Content: 41.10 / 43.5 / 45.13

Comments:

Question #

RO 19

SRO 32

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	1	1
	Group #	2	2
	K/A #	295012	295012
		AK2.01	AK2.01
	Importance Rating	3.4	3.5

Knowledge of the interrelations between high drywell temperature and the following: Drywell ventilation.

Proposed Question:

The plant is operating at rated power: Drywell temperature is 140°F and slowly rising.

Which one of the following actions is required to stabilize drywell temperature?

- a. Align service water to the drywell unit coolers.
- b. Start the standby RPV top head area unit cooler.
- c. Align alternate drywell cooling to the drywell unit coolers.
- d. Throttle open CCP outlet valves to the DRS unit coolers.

Proposed Answer: b.

Explanation (Justification of Distractors):

- a. The additional cooling is to align CCP to the top head area unit cooler and start it. Cannot lineup service water to the DRS unit coolers.
- c. The additional cooling is to align CCP to the top head area unit cooler and start it. ADC is only permitted in MODE 4 and MODE 5.
- d. The CCP valves are full open and will trip the unit coolers if not full open.

Technical Reference(s): N2-OP-60, H.2.0

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-001-222-2-01, EO-4b, EO-7d, EO-8

Question Source: Bank #
Modified Bank # Q10383
New

Question History: Previous NRC Exam
Previous Test / Quiz

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 1

10CFR Part 55 Content: 55.41.7
55.45.8

Comments:

Question #

SRO 19

Examination Outline	Level	SRO
Cross-Reference	Tier #	1
	Group #	1
	K/A #	295026
		2.2.12
	Importance Rating	3.4

Knowledge of surveillance procedures.

Proposed Question:

The plant is operating at 50% power with the following conditions:

- RHR A is in suppression pool cooling
- RCIC is operating in the CST to CST mode for a surveillance
- During the surveillance, suppression pool temperature reaches 96°F

Which one of the following describes the requirements for entry into and execution of N2-EOP-PC, PRIMARY CONTAINMENT CONTROL.

- a. Technical Specifications allow modification of the EOP entry condition to 105°F while performing this test.
- b. Surveillance allows 4 hours to reduce suppression pool temperature below the EOP entry condition upon completion.
- c. As soon as suppression pool temperature exceeds the EOP entry condition, the EOP must be entered and the actions performed.
- d. EOP actions are deferred for 24 hours after the test if suppression pool temperature can be reduced below the EOP entry condition.

Proposed Answer: c.

Explanation (Justification of Distractors):

There are no provisions in Technical Specifications or other plant procedures that exempt entry into the EOPs under these conditions.

- a. Tech Spec limit is raised when any surveillance test is being performed that adds heat to the Suppression Pool.
- b. Surveillance procedure does NOT alter EOP entry conditions.
- d. Tech Specs allows this for Tech Spec limit, not EOP entry.

Technical Reference(s): Technical Specifications, Section 3.6.2.1
NIP-PRO-01, Rev 06, Section 3.2.1

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-006-344-2-04, EO-1

Question Source:	Bank #	
	Modified Bank #	
	New	New

Question History:	Previous NRC Exam	New
	Previous Test / Quiz	New

Question Cognitive Level:	Memory of Fundamental Knowledge	1
	Comprehension or Analysis	

10CFR Part 55 Content:	55.41.10
	55.43.2
	55.43.5
	55.45.13

Comments:

SRO Only: Technical Specification application. Control of plant testing and requirements associated with the testing.

NRC Comment: "CRS consideration" in the stem is confusing. All answers may be correct based upon this statement.

NMP2 Response: Changed "CRS consideration" to "requirements".

Question #

RO 20

SRO 9

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	1	1
	Group #	2	1
	K/A #	295013	295013
		AK3.01	AK3.01
	Importance Rating	3.6	3.8

Knowledge of the reasons for the following responses as they apply to HIGH SUPPRESSION POOL TEMPERATURE: suppression pool cooling operation.

Proposed Question:

A steam line break has occurred in the Primary Containment. During the scram **several control rods failed to fully insert**. The following conditions exist:

- RPV Level is 167 inches
- RPV Pressure is 420 psig
- Drywell Pressure is 7.0 psig
- Drywell Temperature is 180°F
- Suppression Chamber Pressure is 2 psig
- Suppression Pool Temperature is 106°F

Which one of the following Residual Heat Removal System lineups is to be directed for these conditions?

- a. System "A" and "B" in suppression pool cooling.
- b. System "A" in suppression pool cooling with "B" in LPCI.
- c. System "A" and "B" in drywell and suppression chamber spray.
- d. System "A" in suppression pool cooling and "B" in drywell spray.

Proposed Answer: a. N2-EOP-PC directs starting all available suppression pool cooling.

Explanation (Justification of Distractors):

- b. B loop should also be started in SP cooling, RPV makeup is NOT needed.
- c. Both loops should be in suppression pool cooling
- d. Both loops should be in suppression pool cooling

Technical Reference(s):

N2-EOP-PC
EOP Basis

Proposed references to be provided to applicants during the examination:

EOPs without entry conditions

Learning Objective: 02-OPS-006-344-2-04, EO-2.0

Question Source: Bank #
Modified Bank #
New New

Question History: Previous NRC Exam
Previous Test / Quiz

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 2

10CFR Part 55 Content: 41.5 / 45.6

Comments:

NRC Comment: In stem, change "appropriate" to "directed".

NMPC Response: Changed "appropriate" to "to be directed".

Question #

SRO 20

Examination Outline	Level	SRO
Cross-Reference	Tier #	1
	Group #	1
	K/A #	295026
		EK1.01
	Importance Rating	3.4
<p>Knowledge of operational implications of the following concepts as they apply to SUPPRESSION POOL HIGH WATER TEMPERATURE and the following: Pump NPSH.</p>		

Proposed Question:

The following conditions exist after a LOCA:

- RPV Level +24 inches and rising
- RPV Pressure 29 psig
- Drywell Pressure 12 psig
- Suppression Pool Water Temperature 255°F
- Suppression Pool Pressure 9 psig
- Suppression Pool Level 194 ft
- RHR "B" LPCI Flow 4500 gpm

With regard to the "B" RHR Loop which one of the following is required?

- a. Raise RHR pump flow rate to 7000 gpm to restore reactor water level.
- b. Monitor RHR pump flow rate and do **NOT** allow flow to exceed 6000 gpm.
- c. Enter Attachment 3 of EOP-6, EOP SUPPORT PROCEDURE, and throttle RHR flow to less than 2000 gpm.
- d. Shutdown the RHR Pump and establish injection from sources **NOT** taking a suction from the Suppression Pool.

Proposed Answer: b. The high pressure in the containment ensures NPSH for this temperature; $194 \text{ ft} = 6.5 \text{ psig} + 9 \text{ psig} = 15.5 \text{ psig}$

Explanation (Justification of Distractors):

- a. There is a restriction on RHR flow.
- c. RHR flow does not require throttling
- d. There is no justification to shutdown the pump.

Technical Reference(s): N2-EOP-6, Attachment 29, N2-EOP-RPV and N2-EOP-PC, HEAT CAPACITY TEMPERATURE LIMIT CURVE, CURVE M

Proposed references to be provided to applicants during the examination:

N2-EOP-6, Attachment 29

Learning Objective:

Question Source:	Bank # Modified Bank # New	NEW
Question History:	Previous NRC Exam Previous Test / Quiz	
Question Cognitive Level:	Memory of Fundamental Knowledge Comprehension or Analysis	3
10CFR Part 55 Content:	55.41.8 55.41.10 55.43.5	

Comments:

SRO Only: ECCS pump vortex limits and NPSH determination.

Question #

RO 21

Examination Outline	Level	RO
Cross-Reference	Tier #	1
	Group #	2
	K/A #	295016
		AA1.03
	Importance Rating	3.0

Ability to operate and/or monitor the following as they apply to CONTROL ROOM ABANDONMENT: RPIS

Proposed Question:

A rapidly spreading fire forced evacuation of the control room. During the evacuation it was **NOT** possible to verify **ALL RODS IN**. Which of the following methods is available to determine control rod positions?

- a. Demand an OD-7 at the remote computer.
- b. Verify all HCU accumulator pressures less than 860 psig.
- c. Perform continuity checks at the RPIS termination cabinets.
- d. Determine ALL RODS IN at the RWM Computer Display Chassis.

Proposed Answer: a.

Explanation (Justification of Distractors):

- b. De-pressurized accumulators do NOT insure rods are in.
- c. Termination cabinets are in the control room.
- d. Does not exist

Technical Reference(s): N2-SOP-78, Section 4.1

Proposed references to be provided to applicants during the examination:

None

Learning Objective: 02-OPS-006-SOP-2-01

Question Source: Bank #
Modified Bank #
New New

Question History: Previous NRC Exam
Previous Test / Quiz

Question Cognitive Level: Memory of Fundamental Knowledge 1
Comprehension or Analysis

10CFR Part 55 Content: 41.7 / 45.6

Comments:

Question #

RO 22

Examination Outline	Level	RO
Cross-Reference	Tier #	1
	Group #	2
	K/A #	295017
		AA2.01
	Importance Rating	2.9

Ability to determine and/or interpret the following as they apply to HIGH OFF-SITE RELEASE RATE: off-site release rate: plant specific.

Proposed Question:

The plant is in Mode 5 unloading the reactor core in preparation for refueling. A tornado strikes the site and several of the Reactor Building blowout panels on the refueling floor are torn free and fall from the building.

Which one of the following describes the type of release and the release path from the Refuel Floor?

- a. Monitored release from the secondary containment only.
- b. Unmonitored release from the secondary containment only.
- c. Monitored release from the primary and secondary containment.
- d. Unmonitored release from the primary and secondary containment.

Proposed Answer: d.

Explanation (Justification of Distractors):

- a. The release is unmonitored
- b. The release is outside the secondary containment
- c. The release is unmonitored and outside the secondary containment

Technical Reference(s): N2-OP-79, Rev 07, Section B

Proposed references to be provided to applicants during the examination:

None

Learning Objective: 02-OPS-001-223-2-04, EO-4.0

Question Source: Bank #
Modified Bank #
New NEW

Question History: Previous NRC Exam
Previous Test / Quiz

Question Cognitive Level: Memory of Fundamental Knowledge 1
Comprehension or Analysis

10CFR Part 55 Content: 41.10 / 43.5 / 45.13

Comments:

NRC Comments: LOD 1
Add "wall" to Refuel Floor and add "from the refuel floor" to stem.

NMPC Response: Changed stem to "..... Reactor Building blowout panels....." and added "from the refuel floor" to the stem.

For LOD 1, both RO incumbents validating the exam missed the question by not recognizing in Mode 5 the primary containment and Secondary containment are connecting through open Drywell hatches.

Question #

RO 23

SRO 33

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	1	1
	Group #	2	2
	K/A #	295018	295018
		AK3.07	AK3.07
	Importance Rating	3.1	3.2

Knowledge of the reasons for the following responses as they apply to PARTIAL OR COMPLETE LOSS OF CCW: cross connecting with backup systems.

Proposed Question:

During a long term loss of Reactor Building Closed Loop Cooling Water (CCP) which one of the following lists the loads that can be cooled by backup systems to CCP?

- a. RHR Pump Seal Coolers and Spent Fuel Pool Cooling
- b. Reactor Building Drain Coolers and RHR Motor Coolers
- c. Reactor Building Ventilation and CRD Pump Seal Coolers
- d. CRD Pump Seal and Oil Coolers and Recirc Pump Motor Coolers

Proposed Answer: a.

Explanation (Justification of Distractors):

- b. Drain Cooler cannot be supplied by service water, there are no RHR motor coolers
- c. Reactor Bldg is a SW load
- d. No backup on the CRD pump, there used to be a backup to the Recirc Pumps but it was abandoned.

Technical Reference(s):

N2-OP-13 Attachment 1

Proposed references to be provided to applicants during the examination:

None

Learning Objective: 02-OPS-001-208-2-0, EO-5.0

Question Source: Bank #
Modified Bank #
New New

Question History: Previous NRC Exam
Previous Test / Quiz

Question Cognitive Level: Memory of Fundamental Knowledge 1
Comprehension or Analysis

10CFR Part 55 Content: 41.5 / 45.6

Comments:

Question #

SRO 23

Examination Outline	Level	SRO
Cross-Reference	Tier #	1
	Group #	1
	K/A #	295037
		2.4.8
	Importance Rating	3.7

Knowledge of how the event-based emergency/abnormal operating procedures are used in conjunction with the symptom-bases EOPs.

Proposed Question:

The plant is operating at 100% power. The following annunciators are received:

- 603110, RPS A AUTO TRIP
- 603410, RPS B AUTO TRIP
- 603402, RPS B NMS TRIP
- 603102, RPS A NMS TRIP

Plant parameters are:

- Reactor Power 38% and stable
- RPV Level 166 inches, lowering slowly
- Reactor Pressure 1085 psig, rising slowly

No operator actions have been taken. Which one of the following describes the the **first** actions to be directed?

- a. Arm and depress both Manual Scram pushbuttons on either side of 2CEC*PNL603.
- b. Manually inhibit ADS and override the opening of CSH*MOV107, HPCS INJECTION VALVE.
- c. Place the Reactor Mode switch in SHUTDOWN; verify RPS pilot scram valve solenoid lights are OFF.
- d. Initiate RRCS by Arming and depressing DIVISION I AND II CHANNEL A and B MANUAL INITIATION pushbuttons.

Proposed Answer: c.

Explanation (Justification of Distractors):

- a. 2nd step in SOP 101C after placing Mode Switch in SHUTDOWN
- b. Done after M/S
- d. Done after M/S

Technical Reference(s):

N2-SOP-101C

Proposed references to be provided to applicants during the examination:

EOPs without entry conditions

Learning Objective: N2-OPS-006-SOP-2-01, EO-1.0, EO-2.0

Question Source: Bank #
Modified Bank #
New NEW

Question History: Previous NRC Exam
Previous Test / Quiz

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 2

10CFR Part 55 Content: 41.10 / 43.5 / 45.13

Comments:

NRC Comment: Stem - change "action" to "actions."
Awkward structure.

NMP2 Response: Stem - changed "action" to "actions."
Modified structure by removing unnecessary wording/phrases.
We had not credited this question as SRO only. NRC did not state that the question is not SRO only. We will credit the question as SRO only.

Question #

RO 24

SRO 34

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	1	1
	Group #	2	2
	K/A #	295019	295019
		2.4.48	2.4.48
	Importance Rating	3.5	3.8

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

Proposed Question:

The following annunciators are in alarm:

- 851229, INSTR AIR SYSTEM TROUBLE
- 851218, INST AIR RCVR TK 3 PRESS LOW
- 851208, INST AIR RCVR TK 2 PRESS LOW
- 851239, SER AIR SYS 2IAS-AOV171 CLOSED

The Compressor Selector Switch is in position, **CAB**

Which one of the following states those Air Compressors that will be operating for these conditions?

- a. C and A operating, B off
- b. C and B operating, A off
- c. A and B operating, C off
- d. C, A and B operating

Proposed Answer: d. The Lag Compressors starts at 100 psig, the Backup starts at 85 psig. The Inst Air RCVR #2 alarm comes in and the Service Air isolation valve AOV171 closes at 85 psig so all three compressors should be running.

Explanation (Justification of Distractors):

See above

Technical Reference(s): N2-SOP-19, 0, Sect. 2.0

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: 02-OPS-001-279-2-00, EO-5.0, 8.0

Question Source: Bank #
Modified Bank #
New NEW

Question History: Previous NRC Exam
Previous Test / Quiz

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 2

10CFR Part 55 Content: 55.43.5
55.45.12

Comments:

NRC Comments: Clarify stem so that only "d" is the correct answer. As written, if all are operating, then the various combinations in a, b and c would also be operating.

NMPC Response: Changed stem to read "...states **ONLY those Air Compressors that will be operating for these conditions?**"

Question #

RO 25

Examination Outline	Level	RO
Cross-Reference	Tier #	1
	Group #	2
	K/A #	295020
		2.4.11
	Importance Rating	3.4
Knowledge of abnormal condition procedures.		

Proposed Question:

A relay failure caused a Division I Group 8 isolation. Which one of the following Special Operating Procedures (SOP) is required to be entered?

- a. N2-SOP-11, Loss of Service Water.
- b. N2-SOP-60, Loss of Drywell Cooling.
- c. N2-SOP-13, Total Loss of CCP System.
- d. N2-SOP-30, Control Rod Drive Failures.

Proposed Answer: b.

Explanation (Justification of Distractors):

- a. Service water is not affected by group 8.
- c. CCP is not affected by group 8.
- d. RDS not affected by group 8.

Technical Reference(s): N2-SOP-60, Rev 01, Section 4.4

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-006-SOP-2-01-29, TO-12, EO-3

Question Source:	Bank #	
	Modified Bank #	
	New	New

Question History:	Previous NRC Exam	New
	Previous Test / Quiz	New

Question Cognitive Level:	Memory of Fundamental Knowledge	1
	Comprehension or Analysis	

10CFR Part 55 Content:	55.41.10
	55.43.5
	55.45.13

Comments:

Question #

SRO 25

Examination Outline	Level	SRO
Cross-Reference	Tier #	1
	Group #	1
	K/A #	295038
		EK2.05
	Importance Rating	4.7

† Knowledge of the interrelations between HIGH OFF-SITE RELEASE RATE and the following: Site emergency plan.

Proposed Question:

A primary system leak has occurred in the secondary containment, with a subsequent failure of the secondary containment. All attempts to isolate the leak have failed.

One point at the site boundary has a projected TEDE of 1015 mr/hr. Which one of the following actions is required?

- a. Verify a reactor scram occurred, and open all turbine bypass valves.
- b. Verify a reactor scram occurred, and open all seven ADS valves.
- c. Perform a rapid power reduction, and open all seven ADS valves.
- d. Perform a rapid power reduction, and open all turbine bypass valves.

Proposed Answer: b.

Explanation (Justification of Distractors):

The dose projection is above the General Emergency level, which requires a reactor scram and RPV Blowdown (per N2-EOP-C2). Per N2-EOP-C2, all seven ADS valves are opened to depressurize the reactor. Using the Turbine Bypass Valves to anticipate RPV Blowdown is only appropriate as the condition requiring the RPV Blowdown is approached. Once the condition requiring the RPV Blowdown is reached, anticipating RPV Blowdown is no longer permitted and the ADS valves must be opened. The actions to perform a rapid power reduction (N2-SOP-101D) is incorrect in that this power reduction requires the reduction of recirc flow and the insertion of scram arrays, but does not include the actions to insert a reactor scram.

Technical Reference(s): EPIP-EPP-02
N2-EOP-SC/RR

Proposed references to be provided to applicants during the examination:

EPIP-EPP-02, Attachment 1, and all EOPs with the entry conditions blanked out.

Learning Objective: 03-OPS-006-350-3-01, EO-3
02-OPS-006-344-2-12, EO-2

Question Source: Bank #
Modified Bank #
New NEW

Question History: Previous NRC Exam
Previous Test / Quiz

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 2

10CFR Part 55 Content: 41.7 / 43.5 / 45.8

Comments:

SRO Only: Site Emergency Director responsibilities and application of the emergency plan.

NRC: Credibility of answers "c" and "d". "c" and "d" are not incorrect.
NMP2: Clarified the stem by adding "TEDE" to indicate that the General Emergency EAL is exceeded. Changed the distractors to improve balance and credibility.

Question #

RO 26

Examination Outline	Level	RO
Cross-Reference	Tier #	1
	Group #	2
	K/A #	295022
		AA2.02
	Importance Rating	3.3

Ability to determine and/or interpret the following as they apply to LOSS OF CRD PUMPS: CRD system status.

Proposed Question:

The plant is operating at 100% power. Several annunciators have been received in the last few minutes, including:

- 603309, CRD PUMP 1A SUCTION PRESS LOW
- 603308, CRD PUMP 1A/1B AUTO TRIP
- 603446, CRD PUMP DISCH HEADER PRESSURE LOW
- 603311, CRD CHARGING WTR PRESSURE LOW
- 603441, ROD DRIVE ACCUMULATOR TROUBLE

A check of the full core display on P603 indicates 6 (six) amber accumulator lights for fully withdrawn control rods are **ON**.

Which one of the following actions is required **FIRST**, by N2-SOP-30, Control Rod Drive Failures?

- a. Start the standby CRD pump then restore the CRD system.
- b. Reduce recirculation flow to minimum and scram the reactor.
- c. Dispatch an operator to the accumulators to determine pressure.
- d. Declare associated control rods inoperable and enter Technical Specifications LCO.

Proposed Answer: c. Accumulator pressure must be locally verified >940 psig.

Explanation (Justification of Distractors):

- a. Can't be started until suction filter is swapped.
- b. Not required until CRD accumulator status is determined.
- d. Not required until CRD accumulator status is determined.

Technical Reference(s):

N2-SOP-30, T.S. 3/4.1.3.5

Proposed references to be provided to applicants during the examination:

Attachment 1 of N2-SOP-30, CONTROL ROD DRIVE FAILURES, FLOW
DIAGRAM

Learning Objective: 02-OPS-001-201-2-01, EO-8.0

Question Source: Bank #
Modified Bank #
New NEW

Question History: Previous NRC Exam
Previous Test / Quiz

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 2

10CFR Part 55 Content: 41.10 / 43.5 / 45.13

Comments:

NRC Comments: Add procedure reference to stem.

NMPC Response: Added N2-SOP-30 reference to the stem.

Question #

RO 27

SRO 37

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	1	1
	Group #	2	2
	K/A #	295028	295028
		EK1.01	EK1.01
	Importance Rating	3.5	3.7

Knowledge of the operational implications of the following concepts as they apply to high drywell temperature: reactor water level measurement.

Proposed Question:

A leak into the primary containment atmosphere has developed. As drywell temperatures rise, which one of the following describes the effect on the indicated reactor water level compared to the actual reactor water level?

- a. Indicated level is lower on all level instruments.
- b. Indicated level is higher on all level instruments.
- c. Indicated level is lower on narrow range instruments and higher on all other instruments.
- d. Indicated level is lower on wide range instruments and higher on all other instruments.

Proposed Answer: b.

Explanation (Justification of Distractors):

High drywell temperature effect will be the same for all RPV level instruments. As temperature rises, the indicated level will be higher than the actual reactor water level.

Technical Reference(s): NMP2 EOP Technical Bases for RPV Control

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-001-216-2-01, EO-5

Question Source: Bank # Q8328
Modified Bank #
New

Question History: Previous NRC Exam
Previous Test / Quiz (Week 10 exam)

Question Cognitive Level: Memory of Fundamental Knowledge 2
Comprehension or Analysis

10CFR Part 55 Content: 55.41.5

Comments:

Question #

RO 28

SRO 21

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	1	1
	Group #	2	2
	K/A #	295030	295030
		EK3.06	EK3.06
	Importance Rating	3.6	3.8

Knowledge of the reasons for the following responses as they apply to low suppression pool water level: Reactor scram.

Proposed Question:

Which one of the following is the reason for requiring a plant shutdown and RPV blowdown if suppression pool water level CANNOT be maintained above elevation 192 feet?

- a. Protect the primary containment from over pressurization if a LOCA occurs.
- b. Prevent the loss of HPCS and RCIC as injection sources due to loss of NPSH.
- c. Protect the primary containment from excessive upward pressure on the drywell floor if drywell sprays are initiated.
- d. Prevent exceeding suppression chamber downcomer design differential pressures if suppression chamber sprays are initiated.

Proposed Answer: a.

A loss of pressure suppression function of the suppression chamber, direct pressurization of the suppression chamber air space, and insufficient NPSH for pumps taking a suction on the suppression pool.

Explanation (Justification of Distractors):

- d. This would result from a high suppression pool water level.
- b. RCIC and HPCS suction will not be lost. Condensate storage tank is the normal injection source.
- c. This would result from drywell spray with a high suppression pool water level.

Technical Reference(s): NMP2-EOP-Basis Document, Section E.

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-006-344-2-04, EO-3

Question Source:

Bank #	
Modified Bank #	
New	New

Question History:

Previous NRC Exam	New
Previous Test / Quiz	New

Question Cognitive Level: Memory of Fundamental Knowledge 1
Comprehension or Analysis

10CFR Part 55 Content: 55.41.5
55.45.6

Comments:

Question #

RO 29

Examination Outline	Level	RO
Cross-Reference	Tier #	1
	Group #	2
	K/A #	295033
		EK3.04
	Importance Rating	4.0

Knowledge of the reasons for the following responses as they apply HIGH SECONDARY CONTAINMENT AREA RADIATION LEVELS: personnel evacuation.

Proposed Question:

While operating at 89% power the following events occur:

- 851244, REACTOR BLDG AREA RADN MON ACTIVATED.
- The annunciator is confirmed to be caused by a **red** high alarm on 2RMS-RE105, TIP EQUIP AREA.
- It is confirmed there are **NO** known activities being performed in the TIP area.

Procedure EPIP-EPP-21, RADIATION EMERGENCIES has been entered. A radiation emergency area evacuation of the TIP area is announced.

Which one of the following is the basis for this announcement?

- a. Prevents the spread of contamination.
- b. Directs Radiation Protection to the TIP area.
- c. Initiates an accountability of personnel in the area.
- d. Lowers radiation exposures to personnel in the area.

Proposed Answer: d.

Explanation (Justification of Distractors):

- a. Not used for contamination control.
- b. Directs RP to the Control Room
- c. There is NO accountability for this event

Technical Reference(s):

N2-ARP-01
EOP BASIS
EPIP-EPP-21

Proposed references to be provided to applicants during the examination:

None

Learning Objective:

Question Source:

Bank #
Modified Bank #
New NEW

Question History:

Previous NRC Exam
Previous Test / Quiz

Question Cognitive Level:

Memory of Fundamental Knowledge
Comprehension or Analysis 1

10CFR Part 55 Content:

41.5 / 45.6

Comments:

NRC Comment: LOD 1
Change stem to eliminate "CSO directs...."

NMPC Response: Changed wording in stem.

Question # RO 30 SRO 40

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	1	1
	Group #	2	2
	K/A #	295034	295034
		2.4.17	2.4.17
	Importance Rating	3.1	3.8
Knowledge of EOP terms and definitions.			

Proposed Question:

A plant transient has occurred resulting in the following conditions:

- Reactor Building General Area EI 261 (E31-N638A at panel P632) temperature is 250°F
- N2-EOP-SC, Secondary Containment Control is being executed
- RPV pressure is stable at 50 psig

Based on the above conditions, which one of the following is the concern with Reactor Building temperature at 250°F?

- a. Entry into the E-plan and declaration of a Site Area Emergency is required.
- b. Personnel safety or equipment important to safety is directly threatened.
- c. Some RPV water level instruments are unusable because saturation conditions have been exceeded.
- d. A primary system is discharging into the reactor building and an RPV blowdown is required.

Proposed Answer: b.

Based on the information provided

Explanation (Justification of Distractors):

- a. Only one area is given at > 212°F. For an Emergency Action Level declaration, 2 areas would be required > 212°F and from a "primary system".
- c. Parameters given do not exceed saturation conditions based on the stated conditions.
- d. Only one area is given at > 212°F, RPV blowdown is not required.

Technical Reference(s): NMP2-EOP-Basis Document, Section E.
EPIP-EPP-02, Attachment 1, Rev 8 (Emergency
Action Level Matrix / Unit 2)

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-006-344-2-08, EO-3

Question Source:

Bank #	
Modified Bank #	
New	New

Question History:

Previous NRC Exam	New
Previous Test / Quiz	New

Question Cognitive Level: Memory of Fundamental Knowledge 1
Comprehension or Analysis

10CFR Part 55 Content: 55.41.10
55.45.13

Comments:

NRC Comments: LOD 1.
Distractors "a" and "d" are not credible.
Based on the stem, "c" could be correct.

NMPC Response: Modified stem to provide "conditions" for a MAX SAFE
VALUE being exceeded. Having to assess the conditions in
the stem gives credibility to the distractors (see explanation
of distractors) and raises the level of difficulty.

Question #

RO 31

Examination Outline	Level	RO
Cross-Reference	Tier #	1
	Group #	2
	K/A #	295038
		EK2.05
	Importance Rating	3.7

† Knowledge of the interrelations between HIGH OFF-SITE RELEASE RATE and the following: Site emergency plan.

Proposed Question:

Which one of the following events requires the declaration of an emergency event classification?

- a. A fire is reported in the site warehouse.
- b. Loss of Line 5 or 6 with a loss of the associated EDG.
- c. A radioactivity release with a site boundary TEDE of 15 mr/hr.
- d. A reactor scram where RPV water level lowers to 100 inches.

Proposed Answer: c.

This off-site release rate would require an entry into EPIP-EPP-02, Emergency Action Level matrix. EAL 5.2.3 and Table 4, since TEDE exceeds the ALERT value of 10 mr/hr.

Explanation (Justification of Distractors):

- a. The site warehouse is outside the protected area and is not an area identified in EAL 8.2, Table 5 or 6 of the Emergency Action Level matrix.
- b. None of the EAL 6.1 conditions are met.
- d. None of the EAL 2.1 conditions are met, since 100 inches is above TAF

Technical Reference(s): EPIP-EPP-02

Proposed references to be provided to applicants during the examination:

EPIP-EPP-02, Attachment 1

Learning Objective: 02-OPS-006-344-2-12, EO-1.0

Question Source: Bank #
Modified Bank #
New NEW

Question History: Previous NRC Exam
Previous Test / Quiz

Question Cognitive Level: Memory of Fundamental Knowledge 1
Comprehension or Analysis

10CFR Part 55 Content: 41.7 / 45.8

Comments:

NRC Comments: Stem Focus, the "would require" is not acceptable.

NMPC Response: Removed "would". Also added explanation of the distractors, which did not adequately address why the distractors were wrong.

Question #

RO 32

Examination Outline	Level	RO
Cross-Reference	Tier #	1
	Group #	2
	K/A #	600000
		AA1.08
	Importance Rating	2.7

Ability to operate and/or monitor the following as they apply to plant fire on site:
Fire fighting equipment used on each class of fire.

Proposed Question:

Which one of the following describes the response of the fire protection system if the fire detection system senses a fire in zone 333XL, DIV 1 SWGR ROOM?

- a. Deluge system actuated and the fixed foam system pump is operating.
- b. Fire computer prints an alarm tape and the motor-driven fire pump is running.
- c. Local horn and light actuate, and after 30 seconds carbon dioxide is discharged.
- d. Local alarm and strobe light actuate after halon flow is detected in the zone discharge line.

Proposed Answer: c.

Explanation (Justification of Distractors):

- a. 333XL indicates that this zone uses CO₂ – indicated by the “L”. Foam would not be used for an electrical fire.
- b. 333XL indicates that this zone uses CO₂ – indicated by the “L”. Fire protection water would not be used for an electrical fire.
- d. 333XL indicates that this zone uses CO₂ – indicated by the “L”. Halon is not used in this area. CO₂ has a pre-discharge sequence before discharge but halon does not. The local alarm and light for halon are actuated when the zone discharge line pressure switch detects halon flow.

Technical Reference(s): N2-OP-47, Rev 04, Section B
N2-OP-45, Rev 05, Section B

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-001-286-2-01, EO-4b, EO-4c, EO-4d

Question Source:	Bank #	
	Modified Bank #	
	New	New

Question History:	Previous NRC Exam	New
	Previous Test / Quiz	New

Question Cognitive Level:	Memory of Fundamental Knowledge	1
	Comprehension or Analysis	

10CFR Part 55 Content: 55.41.7

Comments:

Question #

RO 33

SRO 36

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	1	1
	Group #	3	2
	K/A #	295021	295021
		AK2.04	AK2.04
	Importance Rating	3.0	3.1
<p>Knowledge of the interrelations between LOSS OF SHUTDOWN COOLING and the following: component cooling water systems: plant specific.</p>			

Proposed Question:

The plant is making preparations to startup following refueling outage. The following conditions exist:

- The Residual Heat Removal system is **NOT** available.
- The main condenser is **NOT** available.
- The reactor has been shutdown for 10 weeks.

Because of the low core decay heat load that exists, the decision is made to use Alternate Decay Heat Removal. Which one of the following systems will be used in this lineup?

- a. Safety Relief Valves
- b. Condensate/Feedwater
- c. Main Steam Line Drains
- d. Reactor Building Closed Loop Cooling Water

Proposed Answer: d. Used to cool the Non-Regen H/X when WCS is lined up to recirculate reactor coolant.

Explanation (Justification of Distractors):

- a. Cannot be used without RHR
- b. Cannot be used without the condenser
- c. Cannot be used without the condenser

Technical Reference(s): N2-SOP-31, Sect. 4.2
N2-OP-37, Sect. H.5.0

Proposed references to be provided to applicants during the examination:

None

Learning Objective: 02-OPS-001-201-2-01, EO-3.00

Question Source: Bank #
Modified Bank #
New NEW

Question History: Previous NRC Exam
Previous Test / Quiz

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 2

10CFR Part 55 Content: 41.7./45.8

Comments:

Question #

RO 34

SRO 15

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	1	1
	Group #	2	1
	K/A #	295023	295023
		AA1.07	AA1.07
	Importance Rating	3.6	3.6

Ability to operate and monitor the following as they apply to REFUELING ACCIDENTS: Standby Gas Treatment/FRVS

Proposed Question:

The plant is in a refueling outage when a design bases DROPPED FUEL ASSEMBLY ACCIDENT occurs. Standby Gas Treatment (GTS) Train "A" is maintaining Secondary Containment integrity.

Which one of the following describes the consequence of this accident on GTS Train "A" operation?

- a. GTS Fan breaker trips.
- b. Clogging of the HEPA filter.
- c. High charcoal adsorber temperatures.
- d. Moisture builds up in the filters and adsorbers.

Proposed Answer: c.

Explanation (Justification of Distractors):

- a. GTS Fan will not be effected by the iodine.
- b. The HEPA filter will not be effected by the gas
- d. Moisture does not reach the filters or adsorbers

Technical Reference(s): N2-OP-61B, Sect B

Proposed references to be provided to applicants during the examination:

None

Learning Objective: 02-OPS-001-261-2-01, EO-3.0

Question Source: Bank #
Modified Bank #
New NEW

Question History: Previous NRC Exam
Previous Test / Quiz

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 2

10CFR Part 55 Content: 55.41 7 / 45.6

Comments:

Question #

RO 35

SRO 41

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	1	1
	Group #	3	2
	K/A #	295035	295035
		EK3.02	EK3.02
	Importance Rating	3.3	3.5

Knowledge of the reasons for the following responses as they apply to
SECONDARY CONTAINMENT HIGH DIFFERENTIAL PRESSURE: secondary
containment ventilation response.

Proposed Question:

During full power operation a sudden cold spell causes Reactor Building Differential Pressure to lower from -0.47 in WG to -0.35 in WG. Which one of the following actions is required to restore Reactor Building Differential Pressure to the same value that existed before the cold spell?

- a. Throttle closed Manual Supply Damper 2HVR-DMPV72.
- b. Secure one of the Reactor Building Supply Fans, FN 1A(B,C).
- c. Start a second Above Refueling Floor Exhaust Fan, FN 5A(B).
- d. Manually close Vent Supply Air Recirc Dampers 2HVR-MOD17A/B

Proposed Answer: a. Closing DMP72 allow less air into the reactor building making it more negative.

Explanation (Justification of Distractors):

- b. Interlocks prevent stopping a supply fan in this lineup.
- c. Interlocks prevent starting a second fan.
- d. Closing the dampers will make the Rx. Bldg more positive

Technical Reference(s): N2-OP-52, Sect. F.1.0

Proposed references to be provided to applicants during the examination:

None

Learning Objective: 02-OPS-001-288-2-03, EO-3.0, 6.0

Question Source: Bank #
Modified Bank #
New NEW

Question History: Previous NRC Exam
Previous Test / Quiz

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 1

10CFR Part 55 Content: 41.5./45.6

Comments:

Question #

SRO 35

Examination Outline	Level	SRO
Cross-Reference	Tier #	1
	Group #	2
	K/A #	295020
		AA2.02
	Importance Rating	3.4

Ability to determine and/or interpret the following as they apply to inadvertent containment isolation: Drywell containment temperature.

Proposed Question:

The plant is operating at 60% power when an inadvertent group 8 isolation occurs.

Which one of the following describes how to determine containment temperature is below 150°F?

- a. Only method is to monitor SPDS indication.
- b. Align the Post Accident Sampling system to the drywell.
- c. Monitor back panel recorders, process computer, or SPDS.
- d. Only method is to monitor the containment high temperature alarm.

Proposed Answer: c.

Explanation (Justification of Distractors):

- a. Recorders and SPDS can also be used.
- b. Not permitted by procedure. Has no temperature monitoring ability.
- d. Recorders, SPDS, and process computer indications are available.

Technical Reference(s): N2-OP-82, Rev 04, Section B

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-001-223-2-06, EO-4a, EO-4b, EO-5

Question Source:	Bank #	
	Modified Bank #	
	New	New

Question History:	Previous NRC Exam	New
	Previous Test / Quiz	New

Question Cognitive Level:	Memory of Fundamental Knowledge	
	Comprehension or Analysis	1

10CFR Part 55 Content:	55.43.5
	55.45.13

Comments:

Question #

RO 36

SRO 42

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	1	1
	Group #	3	2
	K/A #	295036	295036
		EA2.03	EA2.03
	Importance Rating	3.4	3.8

Ability to determine and/or interpret the following as they apply to SECONDARY CONTAINMENT HIGH SUMP/AREA WATER LEVEL: Cause of the high water level.

Proposed Question:

Following a LOCA, the following plant conditions exist:

- CRD is maximized for RPV injection
- RHR loops "A" and "B" are in suppression pool cooling
- SFC is maintaining fuel pool temperature
- WCS is being used for RPV pressure control

If a Reactor Building sump reaches the **High-High level** setpoint and cannot be restored and maintained below the High-High level, which one of the following systems is to be isolated first.

- CRD
- ~~LPCI~~ RHR *EWS 2/11/00*
- SFC
- WCS

Proposed Answer: c.

Explanation (Justification of Distractors):

- CRD is needed for EOP actions
- LPCI is needed for EOP actions
- WCS is needed for EOP actions

Technical Reference(s): N2-EOP-BASES, SECT F1

Proposed references to be provided to applicants during the examination:

EOPs without entry conditions

Learning Objective: O2-OPS-006-344-2-08, 0, EO-2.0

Question Source: Bank #
Modified Bank #
New NEW

Question History: Previous NRC Exam
Previous Test / Quiz

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 2

10CFR Part 55 Content: 41.10, 43.5, 45.13

Comments:

NRC Comments: Stem focus, change "should be"

NMPC Response: Changed to "is to be isolated first".

Question #

RO 37

SRO 67

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	2	2
	Group #	1	2
	K/A #	201001	201001
		K2.05	K2.05
	Importance Rating	4.5	4.5

Knowledge of electrical power supplies to the following: Alternate rod insertion valve solenoids: Plant-Specific.

Proposed Question:

Which one of the following statements describes how a total loss of power from Div. I 125 VDC will effect the automatic initiation of Alternate Rod Insertion (ARI) during an RRCS initiation?

	Div I Actuates	Div II Actuates	Number of ARI valves that open
a.	No	Yes	4
b.	Yes	No	8
c.	Yes	Yes	4
d.	Yes	Yes	8

Proposed Answer: a. ARI valves are energized to Open and the Logic is energized to actuate. Loss of power will prevent activation of Div I and failure of it's four valves to Open.

Explanation (Justification of Distractors):

See explanation in proposed answer (above)

Technical Reference(s):

Logic from 02-OPS-001-294-2-08, also N2-OP-36B, Sect. B. and Attachment 1

Proposed references to be provided to applicants during the examination:

None

Learning Objective: 02-OPS-001-294-2-08, EO-3.0, 5.0

Question Source: Bank #
Modified Bank #
New NEW

Question History: Previous NRC Exam
Previous Test / Quiz

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 2

10CFR Part 55 Content: 41.7

Comments:

Question #

RO 38

Examination Outline	Level	RO
Cross-Reference	Tier #	2
	Group #	1
	K/A #	201001
		A1.03
	Importance Rating	2.9

Ability to predict and/or monitor changes in parameters associated with operating the CONTROL ROD DRIVE HYDRAULIC SYSTEM controls including: CRD system flow.

Proposed Question:

The plant is operating at 60% power with the Control Rod Drive (CRD) Flow Controller in **AUTO** set for 63 gpm. Which one of the following describes how the CRD Flow Control Valve responds to a reactor scram?

- a. Opens then partially closes to control flow as the SDV is pressurized.
- b. Opens then partially closes to control flow to recharge the accumulators.
- c. Closes then partially opens to control flow when the scram is reset.
- d. Closes then partially opens to control flow when control rods reach position "00".

Proposed Answer: c.

The flow element for the FCV is located upstream of the charging water header and the FCV. On a scram flow through the charging header rises and the FCV closes on sensed high flow. When the scram is reset the FCV will open as the flow directly into the reactor is stopped and the accumulators recharge.

Explanation (Justification of Distractors):

- a. See explanation in proposed answer
- b. FCV will not throttle closed until the scram is reset, which allows the accumulators to recharge.
- d. See explanation in proposed answer.

Technical Reference(s): 02-OPS-001-201-2-01, Figure 1

Proposed references to be provided to applicants during the examination:

None

Learning Objective: 02-OPS-001-201-2-01, EO-3.00

Question Source:	Bank #	
	Modified Bank #	
	New	NEW

Question History:	Previous NRC Exam
	Previous Test / Quiz

Question Cognitive Level:	Memory of Fundamental Knowledge	
	Comprehension or Analysis	2

10CFR Part 55 Content:	55.41.5
	55.45.5

Comments:

Question #

SRO 38

Examination Outline	Level	SRO
Cross-Reference	Tier #	1
	Group #	2
	K/A #	295029
		EK3.01
	Importance Rating	3.9

Knowledge of the reasons for the following responses as they apply to HIGH SUPPRESSION POOL WATER LEVEL: Emergency depressurization.

Proposed Question:

Which one of the following is the basis for maintaining the suppression pool water level within the safe region of the SRV Tail Pipe Level Limit (N2-EOP-PC, Figure N)?

- a. Maintain the capability to vent the suppression chamber.
- b. Prevent damage to the ECCS suction strainers or their supports.
- c. Prevent damage to relief valve steam discharge components in the suppression pool.
- d. Maintain the suppression chamber-to-drywell vacuum breakers uncovered.

Proposed Answer: c.

Explanation (Justification of Distractors):

- a. Not a concern until suppression pool water level is higher.
- b. Not a concern associated with suppression pool water level.
- d. Not a concern until suppression pool water level is higher.

Technical Reference(s): NMP2 EOP Basis Document, Section E

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-006-344-2-04, EO-3

Question Source:	Bank #	
	Modified Bank #	
	New	New

Question History:	Previous NRC Exam	New
	Previous Test / Quiz	New

Question Cognitive Level:	Memory of Fundamental Knowledge	1
	Comprehension or Analysis	

10CFR Part 55 Content:	55.41.5
	55.43.5
	55.45.6

Comments:

NRC Comment: There is a cue used in the question that is only in one answer – tailpipe.

NMP2 Response: Changed to relief valve steam discharge components to remove the cue.

Question #

RO 39

SRO 68

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	2	2
	Group #	1	2
	K/A #	201002	201002
		A2.04	A2.04
	Importance Rating	3.2	3.1

Ability to (a) predict the impacts of the following on the reactor manual control system; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations:
Control rod block.

Proposed Question:

A reactor startup is in progress with thermal power below the LPSP. The RWM and RSCS are both OPERABLE.

The next step requires that a control rod be moved from position 12 (Bank insert limit) to position 24 (Bank withdraw limit). When the control rod is positioned, its final position is 26 because of a double-notch.

Regarding ONLY the RWM, which one of the following describes the actions necessary to return the control rod to its bank withdraw limit (position 24)?

- a. Bypass the RWM, then return the control rod to position 24.
- b. Using the insert pushbutton, returns the control rod to position 24.
- c. Bypass the control rod in the RWM, then return it to position 24.
- d. Using the RWM enter a substitute control rod position, then return it to position 24.

Proposed Answer: b.

Explanation (Justification of Distractors):

The RWM will enforce a withdraw block and indicate an insert error. No insert or select block is actuated. The control rod can be inserted.

Technical Reference(s): N2-OP-95A, Rev 04, Section B

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-001-201-2-02, EO-4b,4d

Question Source: Bank # Q15749
Modified Bank #
New

Question History: Previous NRC Exam
Previous Test / Quiz Week 11 exam

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 2

10CFR Part 55 Content: 55.41.5
55.45.6

Comments:

Question #

SRO 39

Examination Outline	Level	SRO
Cross-Reference	Tier #	1
	Group #	2
	K/A #	295033
		EA1.01
	Importance Rating	4.0

Ability to operate and/or monitor the following as they apply to high secondary containment area radiation levels: Area radiation monitoring system.

Proposed Question:

Which one of the following Radiation Monitoring events requires that you assume the role as Station Emergency Director (SED)?

- a. Lowering fuel pool water level causes an automatic containment isolation.
- b. A coolant leak at one control rod HCU causes the local ARM to indicate yellow on DRMS.
- c. When changing a TIP the general area ARM goes offscale high until the TIP is in the transfer cask.
- d. During LPRM removal, one local ARM goes upscale before the LPRM is lowered and submerged ten feet.

Proposed Answer: a.

Explanation (Justification of Distractors):

- b. This is below the alarm setpoint (indicates RED). Emergency classification is required when value is 100 times the DRMS alarm setpoint.
- c. Must be sustained high, this returns to normal. Must be an uncontrolled process.
- d. Must be sustained high, this returns to normal when the LPRM is lowered. Must be an uncontrolled process.

Technical Reference(s): EPIP-EPP-02, Attachment 1, Rev 8

Proposed references to be provided to applicants during the examination:

EPIP-EPP-02, Attachment 1, Rev 8

Learning Objective: 03-OPS-006-350-3-01, EO-2

Question Source:	Bank #	
	Modified Bank #	
	New	New
Question History:	Previous NRC Exam	New
	Previous Test / Quiz	New
Question Cognitive Level:	Memory of Fundamental Knowledge	
	Comprehension or Analysis	2
10CFR Part 55 Content:	55.41.7	
	55.43.4	
	55.43.5	
	55.45.6	

Comments:

SRO Only: Site Emergency Director responsibilities.

Question #

RO 40

SRO 44

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	2	2
	Group #	1	1
	K/A #	202002	202002
		A3.01	A3.01
	Importance Rating	3.6	3.4

Ability to monitor automatic operations of the recirculation flow control system including: Flow control valve operation.

Proposed Question:

The plant is operating at 100% power. A shutdown of the "B" Recirculation Flow Control Valve Hydraulic Power Unit occurs. The following conditions currently exist:

- Total Core Flow 107.5 mlbs/hr
- Jet Pump Loop "A" Flow 53.5 mlbs/hr
- Jet Pump Loop "B" Flow 54.0 mlbs/hr
- FCV "A" 83% Open
- FCV "B" 84% Open

Which one of the following limits will be challenged if **NO** operator action is taken?

- a. Rated core flow
- b. Rated reactor power
- c. Recirculation pump amperes
- d. Jet pump loop flow mismatch

Proposed Answer: d.

"B" FCV will drift CLOSED causing a mismatch between A and B Recirculation loop Jet Pump flows which are required to be within 5% by T.S. 3.4.1.3.

Explanation (Justification of Distractors):

- a. Core Flow may lower but it is not the primary concern under these conditions.
- b. Rated power may lower due to the B FCV closing, but under these conditions it is not the primary concern.
- c. Not a concern under these conditions.

Technical Reference(s): N2-OP-29, REACTOR RECIRCULATION SYSTEM, SECT D.28.0 and T.S. 3.4.1.3

Proposed references to be provided to applicants during the examination:

None.

Learning Objective:	O2-OPS-001-202-2-02, EO-4c
Question Source:	Bank # Modified Bank # New
Question History:	Previous NRC Exam Previous Test / Quiz
Question Cognitive Level:	Memory of Fundamental Knowledge Comprehension or Analysis
10CFR Part 55 Content:	55.41.7 55.45.7

NEW

2

Comments:

Question #

RO 41

SRO 45

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	2	2
	Group #	1	1
	K/A #	203000	203000
		K5.01	K5.01
	Importance Rating	2.7	2.9

Knowledge of the operational implications of the following concepts as they apply to RHR/LPCI INJECTION MODE: testable check valve operation.

Proposed Question:

Which one of the following methods is used to **confirm** RPV injection flow during an automatic LPCI injection using RHR "A"?

- a. Injection Valve RHS*MOV24A opens.
- b. Minimum Flow Valve RHS*MOV4A opens.
- c. Testable Check Valve RHS*AOV16A opens.
- d. RPV pressure lowers to within 130 psid of RHR pressure.

Proposed Answer: c.

Explanation (Justification of Distractors):

- a. No indication of flow
- b. This indicates flow but not where it's going
- d. Does not indicate flow or flowpath

Technical Reference(s): N2-OP-31, Sect F.2.0

Proposed references to be provided to applicants during the examination:

None

Learning Objective: 02-OPS-001-205-2-00, EO-3.0, 9.0

Question Source: Bank #
Modified Bank #
New NEW

Question History: Previous NRC Exam
Previous Test / Quiz

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 1

10CFR Part 55 Content: 55.41.7
55.45.7

Comments:

Question #

RO 42

SRO 46

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	2	2
	Group #	1	1
	K/A #	209001	209001
		K1.02	K1.02
	Importance Rating	3.4	3.4

Knowledge of the physical connections and/or cause effect relationships between LOW PRESSURE CORE SPRAY and the following: Suppression Pool

Proposed Question:

The plant is operating at 100% power. RHS*MOV30A, RHR A/LPCS RTN TO SUPPR POOL ISOL MOV is determined to be closed. How would this effect the Low Pressure Core Spray (LPCS) during a high drywell pressure condition (1.68 psig)?

- a. After initiation the LPCS pump may overheat because there is no low flow protection.
- b. Initiation of "A" RHR will cause reverse flow through the LPCS pump prior to it receiving a start signal.
- c. LPCS initiation will NOT comply with design analysis flow because the minimum flow valve remains open.
- d. Initiation of "A" RHR pump will pressurize the LPCS piping giving an ADS permissive signal even if LPCS pump did NOT start.

Proposed Answer: a. The minimum flow line is isolated

Explanation (Justification of Distractors):

- b. RHR flow back to the LPCS system is prevented by a check valve in the LPCS minimum flow piping.
- c. The minimum flow valve cannot effect design analysis flow because the downstream isolation valve is closed.
- d. The RHR system cannot pressurize the LPCS piping because there is a check valve downstream of the LPCS minimum flow valve.

Technical Reference(s): NMPC Drawing 12177-PID-32A

Proposed references to be provided to applicants during the examination:

None

Learning Objective: 02-OPS-001-209-2-00, EO-6.0

Question Source: Bank #
Modified Bank #
New NEW

Question History: Previous NRC Exam
Previous Test / Quiz

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 2

10CFR Part 55 Content: 55.41.7 / 45.7 / 45.8

Comments:

NRC Comments: Original question was Backward logic and technical accuracy was questioned.

NMPC Response: Replaced question with a new one.

Question #

RO 43

SRO 47

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	2	2
	Group #	1	1
	K/A #	209001	209001
		K1.09	K1.09
	Importance Rating	3.2	3.4

Knowledge of the physical connections and/or cause-effect relationships between low pressure core spray and the following: Nuclear boiler instrumentation.

Proposed Question:

The plant is operating at 60% power. A high drywell pressure causes a reactor scram. Plant conditions are as follow:

- RPV level 165 inches rising slowly
- RPV pressure 1005 psig and stable
- Drywell pressure 2.3 psig
- Turb. bypass valves available

Which one of the following describes the Low Pressure Core Spray (CSL) system status?

- a. Pump shutdown in the standby lineup.
- b. Pump shutdown with injection valve open.
- c. Pump running with the injection valve open.
- d. Pump running with the injection valve closed.

Proposed Answer: d.

Explanation (Justification of Distractors):

- a. LPCS will be running on minimum flow
- b. LPCS auto starts on high drywell pressure at 1.68 psig.
- c. Injection valve remains closed until RCS pressure lowers to within 88 psig of the LPCS discharge pressure.

Technical Reference(s): N2-OP-32, Rev 06, Section B, Section F.2.0

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-001-209-2-00, EO-4c

Question Source: Bank # Q13325
Modified Bank #
New

Question History: Previous NRC Exam
Previous Test / Quiz

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 2

10CFR Part 55 Content: 55.41.7, 55.41.8
55.45.7

Comments:

Question #

SRO 43

Examination Outline	Level	SRO
Cross-Reference	Tier #	1
	Group #	2
	K/A #	600000
	Importance Rating	AK2.01 2.7

Knowledge of the interrelations between plant fire on site and the following:
Sensors/detectors and valves.

Proposed Question:

The plant is at 100% power. It is determined that two (2) ionization detectors in fire zone 333XL, DIV 1 Switchgear Room, are inoperable at 0800 on 12/1/99. One (1) detector is inoperable in each loop of detection.

Which one of the following describes the required actions in accordance with Section 9.A of the USAR?

- a. A fire watch must be ~~stationed~~^{established} by 0900 and must be ~~stationed~~^{secured} until both detectors are operable.
- b. A fire watch must be established by 0900 but may be secured when one of the detectors is operable.
- c. If both detectors are **NOT** operable by 0800 on 12/15/99, then a fire watch must be ~~stationed~~^{established} within the next hour.
- d. If both detectors are **NOT** operable by 0800 on 12/15/99, then a unit shutdown must be commenced within the next hour.

Proposed Answer: a.

Explanation (Justification of Distractors):

- b. This is an action for Function N* fire detection instruments. The inoperable detection is Function X*.
- c. Securing the fire watch is not permitted until both detectors are operable.
- d. This is an action for Function N* fire detection instruments. The inoperable detection is Function X*.

Technical Reference(s): USAR, Rev 10, Section 9A.3.6.1
USAR, Rev 10, Table 9A.3-18

Proposed references to be provided to applicants during the examination:

USAR, Rev 10, Section 9A.3.6.1
USAR, Rev 10, Table 9A.3-18

Learning Objective: O2-OPS-001-286-2-01, EO-7d, EO-11

Question Source:	Bank #	
	Modified Bank #	
	New	New

Question History:	Previous NRC Exam	New
	Previous Test / Quiz	New

Question Cognitive Level:	Memory of Fundamental Knowledge	
	Comprehension or Analysis	2

10CFR Part 55 Content:	55.41.5
	55.43.1
	55.45.5

Comments:

SRO Only: Use and application of the fire protection system requirements in the USAR for inoperable equipment.

Question #

RO 44

SRO 48

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	2	2
	Group #	1	1
	K/A #	209002	209002
	Importance Rating	A1.03	A1.03

Ability to predict and/or monitor changes in the parameters associated with operating the high pressure core spray system (HPCS) controls including:
Reactor water level.

Proposed Question:

Following a loss of feedwater, High Pressure Core Spray (HPCS) initiated on low reactor water level. When reactor water level is at 190 inches indicated, the operator closes CSH*MOV107, PMP 1 INJECTION VLV, and an AMBER light above the control switch lights.

Subsequently, when RPV water level lowers to 140 inches CSH*MOV107, PMP 1 INJECTION VLV, control switch is placed to OPEN.

Assuming no other HPCS controls are operated, which one of the following describes the reactor water level response?

- a. Rises to 202.3 inches and then lowers.
- b. Lowers to 108.8 inches and then rises.
- c. Rises to 202.3 inches and continues to rise.
- d. Lowers to 108.8 inches and continues to lower.

Proposed Answer: a.

Explanation (Justification of Distractors):

- b. If level lowered to 108.8 inches before the injection valve was manually opened, HPCS would automatically inject. However, HPCS injects when the injection valve is opened at 140 inches.
- c. Although the injection valve is manually overridden, it will still automatically close on high RPV water level.
- d. HPCS injects when the injection valve is opened.

Question #

RO 45

SRO 49

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	2	2
	Group #	1	1
	K/A #	211000	211000
		K4.08	K4.08
	Importance Rating	4.2	4.2
Knowledge of SLC System design feature(s) and/or interlocks which provide for system initiation upon operation of SLC control switch.			

Proposed Question:

During an ATWS, manual initiation of SLC system B is required due to an automatic SLC start failure. The keylock switch for Standby Liquid Control (SLC) pump "B" is turned to the PUMP "B" RUN position. The following system status is observed at P601:

- SLC Pump "B" Suction valve opens
- SLC Pump "B" starts.

Which one of the following additional system responses will occur as a result of the PUMP "B" control switch movement?

- Only the "B" squib valve fires, only WCS INBD isolation valve closes.
- Both "A" and "B" squib valves fire, only WCS OUTBD isolation valve closes.
- Only the "B" squib valve fires, both WCS INBD and OUTBD isolation valves close.
- Both "A" and "B" squib valves fire, both WCS INBD and OUTBD isolation valves close.

Proposed Answer:

- Pump B switch fires only the B squib valve and sends an isolation signal to the WCS inboard containment isolation valve.

Explanation (Justification of Distractors):

- The "A" squib will not fire and the WCS OUTBD valve will not close.
- WCS OUTBD valve will not close.
- The "A" squib will not fire and the WCS OUTBD valve will not close.

Question #

RO 46

SRO 50

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	2	2
	Group #	1	1
	K/A #	212000	212000
		K4.07	K4.07
	Importance Rating	4.1	4.1

Knowledge of REACTOR PROTECTION SYSTEM design feature(s) and/or interlocks which provide for the following: Manual system activation trip

Proposed Question:

During a reactor startup Intermediate Range Monitors (IRM) "C" and "G" become inoperative without causing an RPS trip. It has been decided to continue the startup while I&C makes repairs. You are directed to MANUALLY TRIP the associated RPS trip channel.

In accordance with N2-SOP-97, Reactor Protection System Failures, which one of the following methods is used to place the RPS channel in the tripped condition?

- Arm and depress the A2 Manual Scram Pushbutton.
- Arm and depress the B2 Manual Scram Pushbutton.
- Place "C" or "G" IRM drawer mode switch in Standby.
- Place both "C" and "G" IRM drawers mode switches in Standby.

Proposed Answer: a. C and G IRM channels provide trip signals to the A2 RPS logic trip system.

Explanation (Justification of Distractors):

- This is the wrong channel
- This is not in accordance with N2-SOP-97 and does not result in the RPS channel trip.
- This is not in accordance with N2-SOP-97 and does not result in the RPS channel trip.

Technical Reference(s): N2-SOP-97 SECTION 4.3 and N2-OP-97, Sect H.1.0

Proposed references to be provided to applicants during the examination:

None

Learning Objective: 02-OPS-001-212-2-00, EO-3.0, 5.0

Question Source: Bank #
Modified Bank #
New NEW

Question History: Previous NRC Exam
Previous Test / Quiz

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 2

10CFR Part 55 Content: 55 41.7

Comments:

NRC Comment: Add procedure reference.

NMPC Response: Added reference to N2-SOP-97. Changed reference from the normal OP, even though the actions are the same. Also changed stem to say "failure of RPS channel to trip" instead of "without causing a reactor scram."

Question #

RO 47

Examination Outline	Level	RO
Cross-Reference	Tier #	2
	Group #	1
	K/A #	215003
		K5.03
	Importance Rating	3.0

Knowledge of the operational implications of the following concepts as they apply to INTERMEDIATE RANGE MONITOR (IRM) SYSTEM: changing detector position

Proposed Question:

The Mode Switch is in STARTUP. Control rods are being withdrawn.

- The reactor has just been declared critical
- All IRM's are on Range 1

The "A" Intermediate Range Monitor detector fully withdraws from the core.

Which one of the following describes the plant response?

- Half Scram caused by IRM downscale.
- Half Scram caused by IRM inoperative.
- Control Rod Block caused by IRM downscale.
- Control Rod Block caused by IRM detector position.

Proposed Answer: d. Detector NOT fully inserted causes a rod block, not a scram

Explanation (Justification of Distractors):

- IRM will go lower, possible downscale alarm, no half scram on Range 1.
- IRM will be inoperative but no half scram will occur on Range 1.
- IRM will go lower but no rod block will occur while on Range 1.

Technical Reference(s): N2-ARP-01, Ann 603442

Proposed references to be provided to applicants during the examination:

None

Learning Objective: 02-OPS-001-215-2-04, EO-8.0

Question Source: Bank #
Modified Bank #
New NEW

Question History: Previous NRC Exam
Previous Test / Quiz

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 1

10CFR Part 55 Content: 41.5./45.3

Comments:

NRC Comments: Distractors c and d are not credible.

NMPC Response: Changed "high" response to downscale in c and d. Added condition of being on Range 1 to make c and d incorrect answers, since the downscale functions are bypassed.

Question #

RO 48

Examination Outline	Level	RO
Cross-Reference	Tier #	2
	Group #	1
	K/A #	215004
		K2.01
	Importance Rating	2.6

Knowledge of the electrical power supplies to the following:
SRM channels/detectors.

Proposed Question:

The plant is in Cold Shutdown, following a Refueling outage. The RPS shorting links are removed.

Which one of the following describes the effect of de-energizing 24/48 VDC Panel 2BWS-PNL300B on Neutron Monitoring System (NMS) and Reactor Protection System (RPS)?

- a. Only a half scram because of the power loss to some SRMs.
- b. Only a half scram because of the power loss to some IRMs.
- c. A full scram occurs because of the power loss to some SRMs.
- d. RPS is energized because the battery charger supplies the NMS.

Proposed Answer: c.

Explanation (Justification of Distractors):

- a. Because the shorting links are removed, RPS is in a non-coincident mode. The loss of any SRM or IRM causes a full scram.
- b. Because the shorting links are removed, RPS is in a non-coincident mode. The loss of any SRM or IRM causes a full scram.
- d. The charger will not supply power.

Technical Reference(s): N2-SOP-04, Rev 00, Attachment 7

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-001-215-2-03, EO-4a, EO-8
O2-OPS-001-215-2-04, EO-8

Question Source: Bank # Q13265
Modified Bank #
New

Question History: Previous NRC Exam
Previous Test / Quiz

Question Cognitive Level: Memory of Fundamental Knowledge 2
Comprehension or Analysis

10CFR Part 55 Content: 55.41.7

Comments:

Question #

RO 49

SRO 51

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	2	2
	Group #	1	1
	K/A #	215004	215004
		K3.02	K3.02
	Importance Rating	3.4	3.4

Knowledge of the effect that a loss or malfunction of the source range monitor (SRM) system will have on the following: Reactor manual control: plant-specific.

Proposed Question:

A reactor startup is in progress. All Intermediate Range Monitors (IRMs) are on range 2 except IRM "B" which is on range 3. The Source Range Monitor (SRM) detectors are being withdrawn.

Which one of the following describes the response if SRM "C" count rate lowers to 70 cps while it is being withdrawn?

- a. A half scram on RPS "A" occurs.
- b. A control rod block is generated.
- c. SRM "C" downscale light turns on.
- d. SRM "C" detector drive will deenergize.

Proposed Answer: b.

Explanation (Justification of Distractors):

- a. Scram signal is upscale high high at 2×10^5 cps.
- c. Downscale occurs at 3 cps.
- d. Detector drives normally remain energized until electrical power is removed.

Technical Reference(s): N2-OP-92, Rev 04, Section E.2.0

Proposed references to be provided to applicants during the examination:

None.

Learning Objective:	O2-OPS-001-215-2-02, EO-4c
Question Source:	Bank # Q13173 Modified Bank # New
Question History:	Previous NRC Exam Previous Test / Quiz
Question Cognitive Level:	Memory of Fundamental Knowledge 1 Comprehension or Analysis
10CFR Part 55 Content:	55.41.7 55.45.44

Comments:

Question #

RO 50

SRO 52

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	2	2
	Group #	1	1
	K/A #	215005	215005
		K1.14	K1.14
	Importance Rating	2.8	2.9

Knowledge and the physical connections and/or cause-effect relationships between Average Power Range Monitor / Local Power Range Monitor System and the following: Reactor vessel.

Proposed Question:

To be considered operable, each APRM is required to have a minimum total number of LPRM inputs as well as a minimum number of operable LPRM inputs from each detector level.

Which one of the following describes the basis for this requirement?

- a. Ensure the APRM will provide a good representation of average core power.
- b. Ensure the APRM averaging circuit has enough inputs to provide valid 3D Monicore calculations.
- c. Ensure the combined LPRM signals will provide on scale readings, even at lower power levels.
- d. Ensure the combined LPRM signals will provide automatic protection to prevent exceeding local thermal limits.

Proposed Answer: a.

Explanation (Justification of Distractors):

- b. 3D Monicore uses LPRMS but is not the bases for the inoperative condition.
- c. Not a consideration for the conditions provided.
- d. Local or individual LPRMs provide local power indication to the RBM. The RBM enforces the protective actions.

Technical Reference(s): N2-OP-92, Section B

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-001-215-2-05, EO-1, EO-5

Question Source:	Bank #	
	Modified Bank #	
	New	New
Question History:	Previous NRC Exam	New
	Previous Test / Quiz	New
Question Cognitive Level:	Memory of Fundamental Knowledge	1
	Comprehension or Analysis	
10CFR Part 55 Content:	55.41.2	
	55.45.2	

Comments:

Question #

RO 51

Examination Outline	Level	RO
Cross-Reference	Tier #	-
	Group #	-
	K/A #	216000
		A3.01
	Importance Rating	3.4

Ability to monitor automatic operation of the nuclear boiler instrumentation including the following: Relationship between the meter/recorder readings and actual parameter values. Plant specific.

Proposed Question:

During conduct of the EOPs, the following parameters exist:

- Reactor pressure 40 psig
- Drywell pressure 8 psig
- Drywell temperature (highest) 250°F
- Suppression Pool temperature 105°F
- Rx Building temperature (highest) 150°F

If actual reactor water level is at the top of active fuel (TAF), which one of the following describes the status of RPV level instrumentation?

- a. No level instruments are available.
- b. Fuel Zone level instruments are available.
- c. Wide Range level instruments are available.
- d. Upset Range level instruments are available.

Proposed Answer: b.

Explanation (Justification of Distractors):

- a. In the safe region of the RPV saturation curve (EOP Figure D) and the temperatures are below the maximum allowed. The fuel zone instruments are above the minimum indicated level.
- c. below minimum indicated level
- d. below minimum indicated level

Technical Reference(s): N2-EOP-RPV, Rev 8, Figure A, Figure C
N2-EOP-6, Rev 05, Attachment 28

Proposed references to be provided to applicants during the examination:

N2-EOP-RPV, Rev 8, Figure A, Figure C

Learning Objective: O2-OPS-001-216-2-01, EO-9
O2-OPS-006-344-2-01, EO-2

Question Source: Bank #
Modified Bank #
New New

Question History: Previous NRC Exam New
Previous Test / Quiz New

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 2

10CFR Part 55 Content: 55.41.7
55.45.7

Comments:

Question #

RO 52

SRO 53

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	2	2
	Group #	1	1
	K/A #	216000	216000
		K3.01	K3.01
	Importance Rating	4.0	4.3

Knowledge of the effect that a loss or malfunction of the NUCLEAR BOILER INSTRUMENTATION will have on the following: Reactor Protection System

Proposed Question:

The plant is at 100% power with reactor water level transmitter, **B22-N680A**, (RPS Narrow Range) failed downscale.

Prior to removing the transmitter from service the equalizing valve for reactor water level transmitter, **B22-N680D**, (RPS Narrow Range) is fully opened by I&C.

Assume **NO** operator actions are taken. Which one of the following describes the effects of these failures?

- a. The RFPs and the Main Turbine will trip.
- b. Only a reactor low level alarm is received.
- c. Only a reactor high level alarm is received.
- d. A half scram is received on RPS trip system "A".

Proposed Answer: d. Half scram from A side level

Explanation (Justification of Distractors):

- a. Only one channel is high
- b. This would cause a half scram
- c. This would cause a half scram

Technical Reference(s): N2-OP-34, Attachment 1

Proposed references to be provided to applicants during the examination:

None

Learning Objective: 02-OPS-001-216-2-00, EO-2.0, 5.0, 8.0

Question Source: Bank #
Modified Bank #
New NEW

Question History: Previous NRC Exam
Previous Test / Quiz

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 3

10CFR Part 55 Content: 55 41.7

Comments:

Question #		RO 53	SRO 54
Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	2	2
	Group #	1	1
	K/A #	217000	217000
		K6.03	K6.03
	Importance Rating	3.5	3.5

Knowledge of the effect that a loss or malfunction of the following will have on the REACTOR CORE ISOLATION COOLING (RCIC): Suppression Pool water supply.

Proposed Question:

The Reactor Core Isolation Cooling (RCIC) pump suction is lined up to the Suppression Pool. Following a loss of feedwater RCIC receives an initiation signal. Several seconds later a Suppression Pool low level occurs.

Which one of the following is the expected RCIC response?

- a. RCIC initiates and injects. CST suction valve (MOV129) does **NOT** open.
- b. RCIC initiates but pump discharge to the reactor (MOV126) does **NOT** open.
- c. RCIC initiates then trips on low suction pressure when Suppression Pool suction valve (MOV136) closes.
- d. RCIC initiates and injects. CST suction valve (MOV129) opens and Suppression Pool suction valve (MOV136) closes.

Proposed Answer: a. The only way to swap back to the CST suction is manually, RCIC stays lined up to the SP and injects

Explanation (Justification of Distractors):

- b. Pump Discharge will open and inject SP water.
- c. Suction valves do not change position.
- d. Suction valves do not change position.

Technical Reference(s): N2-OP-35 Sect. F

Proposed references to be provided to applicants during the examination:

None

Learning Objective: 02-OPS-001-217-2-00, EO-3.0

Question Source: Bank #
Modified Bank #
New NEW

Question History: Previous NRC Exam
Previous Test / Quiz

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 2

10CFR Part 55 Content: 41.7 / 45.7

Comments:

Question #

RO 54

Examination Outline	Level	RO
Cross-Reference	Tier #	2
	Group #	1
	K/A #	217000
	Importance Rating	A4.09
		3.7

Ability to manually operate and/or monitor in the control room System Pressure.

Proposed Question:

Following a scram Reactor Core Isolation Cooling (RCIC) was manually initiated and used for RPV level control. As RPV level rose to 180 inches, 2ICS*FV108, TEST BYPASS TO CONDENSATE STOR TK was opened to control RCIC flow.

Currently the following conditions exist:

- RPV Pressure 880 psig
- RPV Level 121 inches
- RCIC Pump Discharge Pressure 520 psig
- RCIC Flow Controller is in MANUAL
- RCIC Flow 600 gpm

Which one of the following actions is necessary to raise RPV water level with RCIC?

- Throttle open 2ICS*FV108, TEST BYPASS TO CONDENSATE STOR TK.
- Place Flow Controller in AUTO, then open 2ICS*MOV126, PMP 1 DISCH TO REACTOR.
- Close 2ICS*FV108, TEST BYPASS TO CONDENSATE STOR TK, then adjust RCIC speed with the Flow Controller.
- Open 2ICS*MOV126, PMP 1 DISCH TO REACTOR and close 2ICS*FV108, TEST BYPASS TO CONDENSATE STOR TK.

Proposed Answer: c.

Closing FV108 to the CST will establish the proper lineup for injection. Since pump discharge pressure is below reactor pressure, the discharge pressure must be raised to inject to the RPV. Raising turbine speed using the flow controller would be required, since the controller is in MANUAL.

Explanation (Justification of Distractors):

- a. With the flow/speed controller in MANUAL, pump discharge pressure being less than reactor pressure is a result of a lower turbine speed than that required to develop sufficient pump discharge pressure to cause injection. If speed was sufficient (pump laws head/speed relationship) to raise discharge pressure above reactor pressure, injection would occur. Opening the CST valve would result in less flow to the vessel because speed will remain the same.
- b. Placing controller in AUTO with flow at 600 gpm will not result in a turbine speed increase, since flow is at 600 gpm. With speed remaining the same, pump discharge pressure remains the same (below reactor pressure) and injection will not occur. Opening the injection valve will not result in level rising, because pump discharge pressure is below reactor pressure.
- d. Opening MOV126 and closing FV108 to the CST, while the controller is in MANUAL would result in the proper valve lineup but will not result in injection because in manual, speed would not rise to a value that would raise pump discharge pressure enough to cause injection to the RPV.

Technical Reference(s): N2-OP-35 Sect. F

Proposed references to be provided to applicants during the examination:

None

Learning Objective: 02-OPS-001-217-2-00, EO-3.0

Question Source: Bank #
Modified Bank #
New NEW

Question History: Previous NRC Exam
Previous Test / Quiz

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 2

10CFR Part 55 Content: 41.7 / 45.5 / 45.6 / 45.7 / 45.8

Comments:

NRC Comments: Stem focus.
How do we know speed is too low?
Distractor "b", opening MOV126 may not be required, but is it wrong?

NMPC Response: Reworded stem to improve focus.
Reworded Explanation of distractors to answer the questions about speed being too low and effect of opening MOV126.

Question #

RO 55

SRO 55

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	2	2
	Group #	1	1
	K/A #	218000	218000
		K2.01	K2.01
	Importance Rating	3.1	3.3

Knowledge of electrical power supplies to the following: ADS logic.

Proposed Question:

The unit is operating at 100% power. ALL high pressure and low pressure ECCS systems are in standby.

Div. 1 DC power from 2BYS*PNL201A is lost.

Which one of the following describes the ability of the SRVs to function in the pressure-relief mode and in the ADS mode?

- NO** SRVs will function in the pressure-relief mode. Actuation of Div. II ADS logic or placing the Div. II ADS valves key lock switches (Panel H13-P631) to open will open the ADS valves.
- NO** SRVs will function in the pressure-relief mode. Actuation of Div. II ADS logic opens the ADS valves. Placing the Div. II ADS valve key lock switches (PNL H13-P631) to open will **NOT** open the ADS valves.
- ALL** SRVs will function in the pressure-relief mode. Actuation of Div. II ADS logic or placing the Div. II ADS valve key lock switches (Panel H13-P631) to open will open the ADS valves.
- ALL** SRVs will function in the pressure-relief mode. Actuation of Div. II ADS logic opens the ADS valves. Placing the Div. II ADS valve key lock switches (Panel H13-P631) to open will **NOT** open the ADS valves.

Proposed Answer: a.

Explanation (Justification of Distractors):

- Placing the Div II keylock switches to open will open the ADS valves.
- No SRVs function in the pressure-relief mode.
- No SRVs function in the pressure-relief mode. Placing the Div II keylock switches to open will open the ADS valves.

Technical Reference(s): N2-OP-34, Rev 07, Section B.2.2, B.2.3
N2-SOP-04, Rev 00, Attachment 1

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-001-218-2-01, EO-4b, EO-4c

Question Source: Bank # Q15788
Modified Bank #
New

Question History: Previous NRC Exam
Previous Test / Quiz Week 15 exam

Question Cognitive Level: Memory of Fundamental Knowledge 1
Comprehension or Analysis

10CFR Part 55 Content: 55.41.7

Comments:

Question #

RO 56

Examination Outline	Level	RO
Cross-Reference	Tier #	2
	Group #	1
	K/A #	223001
		K6.01
	Importance Rating	3.6

Knowledge of the effect that a loss or malfunction of the following will have on the PRIMARY CONTAINMENT SYSTEM AND AUXILIARIES: Drywell Cooling.

Proposed Question:

While operating at full power a loss of circuit 2DRSA04 trips all the drywell coolers. Which one of the following is the immediate concern within the primary containment?

- a. Water level instruments become inaccurate causing a scram.
- b. High temperatures at the drywell head require a manual scram.
- c. The drywell overheats and pressure rises requiring a shutdown.
- d. Recirculation pump motors overheat requiring a power reduction.

Proposed Answer: c.

Explanation (Justification of Distractors):

- a. Inaccuracies would occur only if saturation conditions are exceeded, which would result in instruments reading higher, not lower.
- b. There is no requirement to scram the reactor due to a local drywell high temperature.
- d. Motors are cooled by RBCLCW system and temperatures would not rise significantly, with a rising ambient temperature.

Technical Reference(s): N2-SOP-60, Sect. D.3.0

Proposed references to be provided to applicants during the examination:

None

Learning Objective: 02-OPS-001-222-2-01, EO-6.0

Question Source: Bank #
Modified Bank #
New NEW

Question History: Previous NRC Exam
Previous Test / Quiz

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 1

10CFR Part 55 Content: 41.7 / 45.7

Comments:

NRC Comments: Stem focus, there may be 3 correct answers.
Justification for distractor "b" is weak.

NMPC Response: Changed "principle response" in stem to "immediate concern" to improve stem focus.

Modified Explanation of distractors.

Question #

RO 57

SRO 56

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	2	2
	Group #	1	1
	K/A #	223001	223001
		2.4.45	2.4.45
	Importance Rating	3.3	3.6
Ability to prioritize and interpret the significance of each annunciator or alarm.			

Proposed Question:

The plant is operating at 100% power when the following annunciator is received:

- 602309, RWCU PUMP ROOM A TEMPERATURE HIGH

High temperature is confirmed. Assuming that all systems function as designed, which one of the following describes the primary containment response and the required operator actions?

- Only group 7 isolates. Verify the running WCS pump trips.
- Only group 6 isolates. Establish a leak path for WCS pump seals.
- Group 6 and group 7 isolate. Manually scram the reactor per N2-SOP-101C, Reactor Scram.
- Group 6 and group 7 isolate. Enter N2-EOP-SC, Secondary Containment Control.

Proposed Answer: d.

Explanation (Justification of Distractors):

- Both the inboard WCS isolation valve (group 7) and the outboard WCS isolation valve (group 6) close. A single trip from high area temperature will isolate both valves (groups). Verify the running pump trips is an ARP action.
- Both the inboard WCS isolation valve (group 7) and the outboard WCS isolation valve (group 6) close. A single trip from high area temperature will isolate both valves (groups). Establishing a seal leak path is necessary in response to the annunciator and automatic response.
- A reactor scram is only required if a the primary system discharging into the reactor building cannot be isolated. With the system responding as designed, the leak will be isolated.

Technical Reference(s): N2-ARP-01, Rev 00, 602309
N2-OP-83, Rev 03, Attachment 2, Group 6
N2-OP-83, Rev 03, Attachment 2, Group 7

Proposed references to be provided to applicants during the examination:

None.

Learning Objective:	O2-OPS-001-223-2-02, EO-2, EO-5 O2-OPS-006-344-2-08, EO-1 O2-OPS-001-204-2-01, EO-4a, EO-4b	
Question Source:	Bank # Modified Bank # New	New
Question History:	Previous NRC Exam Previous Test / Quiz	New New
Question Cognitive Level:	Memory of Fundamental Knowledge Comprehension or Analysis	2
10CFR Part 55 Content:	55.43.5 55.45.3 55.45.12	
Comments:		

Question #

SRO 57

Examination Outline	Level	SRO
Cross-Reference	Tier #	2
	Group #	1
	K/A #	223002
		A2.01
	Importance Rating	3.5

Ability to (a) predict the impacts of the following on the primary containment isolation system / nuclear steam supply shut-off; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: A.C. electrical distribution failures.

Proposed Question:

The plant is operating at 100% power when Electrical Protection Assembly (EPA) 2VBS*ACB2A trips. The following group isolations are received:

- Groups 2, 3, 4, 5, 8, and 9

Which one of the following describes the required Technical Specification actions in response to Reactor Coolant System leakage detection?

- Enter T.S. 3.0.3 and start a power reduction within 1 hour.
- Be in MODE 3 within 12 hours and MODE 4 within 36 hours.
- Determine drywell leak rate by other means until group 9 is reset.
- Analyze grab samples of drywell every 12 hours until group 8 is reset.

Proposed Answer: a. There is no T.S. condition for both the particulate and gaseous monitors being inoperable this requires entry into T.S. 3.0.3

Explanation (Justification of Distractors):

- With both the particulate or gaseous monitor is inoperable, there is no action specified requiring entry into T.S. 3.0.3
- This action must continue until the group 8 is reset.
- This is correct if the particulate or gaseous monitor is inoperable, but both are inoperable.

Technical Reference(s): Technical Specification 3.4.3, 3.4.3.1/4.4.3.1

Proposed references to be provided to applicants during the examination:

Technical Specification 3.4.3, 3.4.3.1/4.4.3.1

Learning Objective: O2-OPS-001-233-2-02, EO-11

Question Source:	Bank #	
	Modified Bank #	
	New	New
Question History:	Previous NRC Exam	New
	Previous Test / Quiz	New
Question Cognitive Level:	Memory of Fundamental Knowledge	
	Comprehension or Analysis	2
10CFR Part 55 Content:	55.41.5	
	55.43.2	
	55.45.6	

Comments: SRO only: Technical Specification application

Question #

RO 58

Examination Outline	Level	RO
Cross-Reference	Tier #	2
	Group #	1
	K/A #	223002
		2.1.32
	Importance Rating	3.4
Ability to explain and apply system limits and precautions.		

Proposed Question:

N2-OP-83, PRIMARY CONTAINMENT ISOLATION SYSTEM, contains the following precaution and limitation:

If a system isolation has occurred due to a valid signal, the problem must be determined and corrected prior to resetting or bypassing the isolation signal, unless directed to do otherwise by the Emergency Operating Procedures.

Which one of the following operator actions is allowed by this precaution?

- a. Defeat RPV low pressure isolations to allow injection systems to operate following a LOCA.
- b. Bypass drywell pressure isolations to use reactor water cleanup for RPV level control.
- c. Reset and re-open the MSIVs to relieve RPV pressure when RPV Blowdown is anticipated.
- d. Override the reactor building ventilation isolations to remove smoke from a fire in drywell.

Proposed Answer: a.

Explanation (Justification of Distractors):

- b. WCS isolations may be bypassed for pressure control.
- c. Bypassing MSIVs is not permitted by EOP's for anticipating RPV Blowdown.
- d. There is no trip on smoke, and this is not included in the EOPs and GTS would be used to vent the drywell.

Technical Reference(s): N2-OP-83 and EOPs

Proposed references to be provided to applicants during the examination:

EOPs without entry conditions

Learning Objective: 02-OPS-001-221-2-01, EO-6.0

Question Source: Bank #
Modified Bank #
New NEW

Question History: Previous NRC Exam
Previous Test / Quiz

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 2

10CFR Part 55 Content: 41.10 / 43.2 / 45.12

Comments:

NRC Comments: Delete extra "is" in the stem
Distractors c and d may be correct.

NMPC Response: Stem fixed and Explanation of distractors enhanced to eliminate c and d.

Question #

SRO 58

Examination Outline	Level	SRO
Cross-Reference	Tier #	2
	Group #	1
	K/A #	226001
	Importance Rating	A1.05
		3.4

Ability to predict and/or monitor changes in parameters associated with operating the RHR/LPCI: Containment spray mode controls including: system lineup.

Proposed Question:

A steam leak inside the Drywell is in progress. The following conditions exist:

- Drywell Pressure is 2.5 psig
- The "B" Loop of Residual Heat Removal (RHR) is placed in operation
- Drywell Spray Valves RHS*MOV25B and RHS*MOV15B are stroking open

Which one of the following describes the response of the Drywell Spray Valves if drywell pressure lowers to 1.0 psig before the valves are full open?

- Stroke full open and then close.
- Stroke full open and remain full open.
- Stop stroking at an intermediate position.
- Reverse direction at an intermediate position and close.

Proposed Answer: c.

Explanation (Justification of Distractors):

- Stop at the current position.
- Stop at the current position.
- Stop at the current position.

Technical Reference(s): USAR Section 7.3, Figure 7.3-6

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-001-205-2-00, EO-4b, EO-4c, EO-9

Question Source:

Bank #	Q15822
Modified Bank #	
New	

Question History:

Previous NRC Exam	July 1996 NRC
Previous Test / Quiz	Week 16 exam

Question Cognitive Level: Memory of Fundamental Knowledge 1
Comprehension or Analysis

10CFR Part 55 Content: 55.41.5
55.43.
55.45.5

Comments: SRO only: This question requires systems knowledge beyond that of an RO to insure that the facilities procedures are adhered to and that the limits in its license and amendments are NOT exceeded.

Question #

RO 59

SRO 60

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	2	2
	Group #	2	1
	K/A #	241000	241000
		K6.01	K6.01
	Importance Rating	2.8	2.9

Knowledge of the effect that a loss or malfunction of the following will have on the Reactor Regulating System: A.C. electrical power.

Proposed Question:

Reactor startup in progress. The Main turbine has been rolled to 1800 rpm and is at set speed:

- SET SPEED light is on
- SPEED INCREASING light is off

Before the generator can be synchronized, 2VBB-UPS1A power to the Electro-Hydraulic Control (EHC) system is lost.

Which one of the following describes the effect on the Main Turbine and bypass valves?

- Turbine trip with bypass valves open.
- Turbine trip and bypass valves close.
- Turbine is at 1800 rpm with the bypass valves closed.
- Turbine is at 1800 rpm with bypass valves controlling pressure.

Proposed Answer: d.

Explanation (Justification of Distractors):

The PMG will maintain power to the EHC electrical control circuitry. If turbine speed was lower, then the EHC system would lose power causing an all valves closed signal.

Technical Reference(s): N2-SOP-71, Section 1.0

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-001-248-2-00, EO-5

Question Source:	Bank #	
	Modified Bank #	
	New	New

Question History:	Previous NRC Exam	New
	Previous Test / Quiz	New

Question Cognitive Level:	Memory of Fundamental Knowledge	
	Comprehension or Analysis	2

10CFR Part 55 Content:	55.41.7
	55.45.7

Comments:

Question #

SRO 59

Examination Outline	Level	SRO
Cross-Reference	Tier #	2
	Group #	1
	K/A #	239002
	Importance Rating	A4.06
		3.4

Ability to manually operate and/or monitor in the control room: Reactor water level.

Proposed Question:

During the execution of EOP-C5, Failure to Scram, which one of the following is a concern when Safety Relief Valves (SRVs) are used for pressure control?

- a. Inadequate core cooling.
- b. Reactor power transients.
- c. Loss of preferred injection sources.
- d. Inaccurate reactor pressure indication.

Proposed Answer: b.

Explanation (Justification of Distractors):

- a. & c. Some injection sources could be affected if the level transient causes a group isolation, but all injection will not be lost.
- d. Pressure indication may change, but will be accurate for the reactor pressure being sensed.

Technical Reference(s): NMP2 EOP Technical Bases, N2-EOP-C5,
Step P-5 Stabilize Pressure

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-006-344-2-17, EO-2, EO-3

Question Source:	Bank #	
	Modified Bank #	
	New	New

Question History:	Previous NRC Exam	New
	Previous Test / Quiz	New

Question Cognitive Level:	Memory of Fundamental Knowledge	
	Comprehension or Analysis	2

10CFR Part 55 Content:	55.41.7	
	55.43.5	
	55.45.5, 45.7, 45.8	

Comments: SRO only: CRS (SRO) must understand the benefits and consequences of tasks directed when operating the facility.

Question #

RO 60

SRO 73

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	2	2
	Group #	1	2
	K/A #	259001	259001
		2.4.49	2.4.49
	Importance Rating	4.0	4.0

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

Proposed Question:

The plant is operating at 80% power when one of the two operating Reactor Feedwater Pumps (RFP) trips. Which one of the following describes the immediate operator actions?

- a. If recirculation pumps do not shift to slow speed, then scram the reactor.
- b. If recirculation flow has not lowered automatically, then manually reduce Recirc flow.
- c. Start the standby RFP and if level is NOT stable, then control RPV level in manual.
- d. Perform the actions for a reactor scram and establish RPV level control using the running RFP.

Proposed Answer: b.

Explanation (Justification of Distractors):

- a. The recirc pumps should automatically runback to lower reactor power within the capability of one RFP. The IOA is to verify the automatic action occurs and if not, then to take the action.
- c. There is no requirement to start a reactor feedwater pump. The appropriate action is to establish plant conditions (power) within the capability of one RFP.
- d. This is a subsequent operator action taken after it is determined that the cause is a failure of the feedwater level control system.

Technical Reference(s): N2-SOP-06, Section 3

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-006-SOP-01-29, TO-2, EO-2

Question Source:

Bank #	
Modified Bank #	
New	New

Question History:

Previous NRC Exam	New
Previous Test / Quiz	New

Question Cognitive Level: Memory of Fundamental Knowledge 1
Comprehension or Analysis

10CFR Part 55 Content: 55.41.7

Comments:

Question #

RO 61

Examination Outline	Level	RO
Cross-Reference	Tier #	2
	Group #	1
	K/A #	259002
		K3.05
	Importance Rating	2.8

Knowledge of the effect that a loss or malfunction of the Reactor Water Level Control System will have on the following: Recirculation flow control system.

Proposed Question:

The unit is operating at 100% power when a failure of the FWCS causes reactor water level to rise and keep rising. NO operator action is taken.

Which one of the following describes the status of the RCS system pumps and flow control valves when plant conditions are stable?

- a. Pumps are tripped with their FCVs in loop manual.
- b. Pumps are in fast speed with their FCVs in the motion inhibit.
- c. Pumps are at minimum speed with their FCVs at the 45% open.
- d. Pumps are in slow speed with their FCVs at the 20% valve position.

Proposed Answer: d.

Explanation (Justification of Distractors):

When the RPV high level trip is received, the main turbine RFPs trip. The reactor scrams on turbine SV/CV fast closure. When the RPV level lowers to the RPV low level alarm, the automatic runback circuit is actuated to the FCVs. When RPV level lowers to 159.3" or the RFPs are secured for greater than 15 seconds, the RCS pumps automatically shift to slow speed.

Technical Reference(s): N2-ARP-01, Rev 00, 602226, 602222

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-001-202-2-02, EO-4c, EO-5

Question Source:

Bank #	
Modified Bank #	
New	New

Question History:

Previous NRC Exam	New
Previous Test / Quiz	New

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 2

10CFR Part 55 Content: 55.41.7
55.45.4

Comments:

Question #

SRO 61

Examination Outline	Level	SRO
Cross-Reference	Tier #	2
	Group #	1
	K/A #	259002
	Importance Rating	2.1.6
		4.3

Ability to supervise and assume a management role during plant transients and upset conditions.

Proposed Question:

Following a LOCA reactor water level CANNOT be maintained above the top of active fuel (TAF) using preferred injection systems. Actions are in progress to lineup Alternate Injection Systems for injection. Conditions are:

- RPV Pressure 22 psig
- Drywell Pressure 12 psig
- Drywell Temperature 278°F
- Suppression Chamber Pressure 9 psig
- Suppression Pool Level 204 feet
- Suppression Pool Temperature 131°F

Which one of the following describes the required action?

- a. Enter the RPV Flooding EOP.
- b. Enter the Steam Cooling EOP.
- c. Enter the RPV Blowdown EOP.
- d. Continue in the RPV Control EOP.

Proposed Answer: a.

Explanation (Justification of Distractors):

- b. Not required for these conditions.
- c. The blowdown for RPV flooding is executed in the RPV flooding EOP.
- d. RPV level instrumentation is lost. RPV flooding is entered and RPV Control is exited.

Technical Reference(s): N2-EOP-RPV, Rev 8, Override Statement
NMP2 EOP Technical Bases, Introduction, Step
Execution

Proposed references to be provided to applicants during the examination:

RPV Control EOP.

Learning Objective: O2-OPS-006-344-2-01, EO-1, EO-2

Question Source:	Bank #	
	Modified Bank #	
	New	New

Question History:	Previous NRC Exam	New
	Previous Test / Quiz	New

Question Cognitive Level:	Memory of Fundamental Knowledge	
	Comprehension or Analysis	3

10CFR Part 55 Content:	55.43.5
	55.45.12
	55.45.13

Comments: SRO only question to determine the ability to use the RPV Saturation Curve while in the EOPS and that when the conditions of an override statement are met, the specified conditions must be executed.

Question #

RO 62

SRO 62

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	2	2
	Group #	1	1
	K/A #	261000	261000
		A4.07	A4.07
	Importance Rating	3.1	3.2
Ability to manually operate and/or monitor in the Control Room: system flow			

Proposed Question:

Hi drywell pressure causes a trip of the Reactor Building Ventilation System. Both trains of Standby Gas Treatment (GTS) automatically start.

After verifying both trains of GTS are **NOT** required, Train "A" is left in service and Train "B" is shutdown by placing the Train "B" INITIATION control switch in **AUTO AFTER STOP**. The following conditions are observed:

- GTS*MOV1B, INLET FROM RX BLDG VENTILATION goes closed
- GTS*AOV2B, TRAIN B INLET VLV goes closed
- GTS*AOV3B, FAN 1B DISCHARGE ISOL VLV **fails to close**
- GTS*FN1B, SBGTS FAN stops

With the high drywell pressure condition still present, which one of the following will occur (assuming **NO** operator action)?

GTS train "B"...

- a. restarts and restores Reactor Building differential pressure to -0.25 inches WG or more negative.
- b. restarts with flow less than rated, Reactor Building differential pressure is -0.05 inches WG.
- c. remains off and GTS Train "A" flow raises to 4000 scfm, Reactor Building differential pressure is -0.05 inches WG.
- d. remains off and GTS Train "A" flow raises to 4000 scfm, Reactor Building differential pressure is -0.25 inches WG or more negative.

Proposed Answer: A. The B train restarts because the initiation signal is still present and the A train can not maintain Rx Bldg differential. The valve failure doesn't effect SBGTS flow because both fans are running and no short cycle flow path exists

Explanation (Justification of Distractors):

- b. The B train will auto start and restore d/p to -0.25 in. WG.
- c. Short cycle flow path is eliminated and d/p will be restored.
- d. A short cycle flow path has been created by the B fan discharge isolation valve remaining open there will be no flow and Rx Bldg d/p will lower.

Technical Reference(s): N2-OP-61.B, Sects D.10 and H.2

Proposed references to be provided to applicants during the examination:

None

Learning Objective: 02-OPS-001-261-2-01, EO-6.0, EO-8.0

Question Source: Bank # New
Modified Bank #
New

Question History: Previous NRC Exam
Previous Test / Quiz

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 2

10CFR Part 55 Content: 55.41 8

Comments:

NRC Comment: Stem is not clear. Has the GTS train been shutdown and restarted?

NMPC Response: Clarified stem by adding that Train "A" remains in service.

Train "B" is manually secured. The stem conditions identify that GTS*AOV3B remains open (it should close) after the Train "B" is shutdown. The question asks for the candidate to assess the lineup and determine that a short cycle path exists and that differential pressure will not be maintained. This will auto start the previously running B train.

Question #

RO 63

SRO 64

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	2	2
	Group #	1	1
	K/A #	264000	264000
		A1.03	A1.03
	Importance Rating	2.8	2.9

Ability to predict and/or monitor changes in parameters associated with operating the EMERGENCY GENERATORS (DIESEL/JET) controls including: Operating voltages, currents, and temperatures.

Proposed Question:

Emergency Diesel Generator 1 (EDG1) is running paralleled to the grid for the monthly load test. EDG1 parameters are:

- Voltage 4160 v
- Load 4400 kw
- Frequency 60.0 hz

A LOCA signal is received. Which one of the following describes the EDG1 voltage, load, and frequency one (1) minute later?

- a. Voltage and frequency are lower, load is higher.
- b. Voltage is zero, load is downscale, frequency is upscale.
- c. Voltage is the same, load is zero, frequency is higher.
- d. Voltage and frequency are the same, load is zero.

Proposed Answer: d.

Explanation (Justification of Distractors):

- a. EDG1 is NO longer paralleled to the grid.
- b. EDG1 is NOT tripped.
- c. EDG1 is running unloaded but NOT in the droop mode as indicated.

Technical Reference(s): N2-OP-101A, Section B

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-001-264-2-01, EO-7

Question Source:	Bank #	
	Modified Bank #	
	New	New

Question History:	Previous NRC Exam	New
	Previous Test / Quiz	New

Question Cognitive Level:	Memory of Fundamental Knowledge	
	Comprehension or Analysis	2

10CFR Part 55 Content:	55.41.5
	55.45.5

Comments:

Question #

RO 64

SRO 65

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	2	2
	Group #	1	1
	K/A #	264000	264000
		A3.06	A3.06
	Importance Rating	3.1	3.2

Ability to monitor automatic operations of the EMERGENCY GENERATORS (DIESEL/JET) including: Cooling water system operations.

Proposed Question:

The Division I Emergency Diesel Generator (EDG) has been supplying its loads for ten (10) minutes following a LOCA. The following conditions exist:

- 852118, EDG 1 SERVICE WATER INLET PRESS LOW, alarms
- Pressure sensed at 2SWP*PT66A is 20 psig

Which one of the following describes an effect on EDG1?

- EDG1 trips on high oil temperatures.
- EDG1 trips on low service water flow.
- EDG1 continues to operate with a higher service water flow.
- EDG1 continues to operate with higher jacket water temperature.

Proposed Answer: d.

Explanation (Justification of Distractors):

- Oil temperatures will rise but the trips are bypassed because of the LOCA start.
- There is no trip on a loss of service water. The automatic action that occurs is the 2SWP*MOV66A closes to preserve service water to the other EDG.
- The automatic action that occurs is the 2SWP*MOV66A closes to preserve service water to the other EDG.

Technical Reference(s): N2-ARP-01, Rev 00, 852118

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-001-264-2-01, EO-7.d.2

Question Source:	Bank #	
	Modified Bank #	
	New	New

Question History:	Previous NRC Exam	New
	Previous Test / Quiz	New

Question Cognitive Level:	Memory of Fundamental Knowledge Comprehension or Analysis	2
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10CFR Part 55 Content:	55.41.7 55.45.7
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Comments:

Question # RO 65 SRO 80

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	2	2
	Group #	2	3
	K/A #	201003	201003
		K6.01	K6.01
	Importance Rating	3.3	3.3

Knowledge of the effect that a loss or malfunction of the following will have on the control rod and drive mechanism: Control rod drive hydraulic system.

Proposed Question:

The plant is operating at 50% power with the following CRD system indications:

- Drive water differential pressure 265 psid
- Drive flow 0.0 gpm
- Charging Header pressure 1450 psig
- CRD system flow 50 gpm

When attempting to insert control rod 18-19, drive water flow is observed at 0.0 gpm. When attempting to withdraw control rod 18-19, drive water flow is observed at 2.0 gpm. The control rod does **NOT** move *in either direction.*

*EWB
2/11/00*

Which one of the following describes the cause of the above indications?

Directional Control Valve ...

- a. SOV123, Insert Supply, is stuck open.
- b. SOV123, Insert Supply, is stuck closed.
- c. SOV122, Withdrawal Supply, is stuck open.
- d. SOV122, Withdrawal Supply, is stuck closed.

Proposed Answer: b.

Explanation (Justification of Distractors):

- a. 123 stuck open would provide continuous insert flow
- c. 122 stuck open would provide continuous withdrawal flow
- d. 122 stuck closed would prohibit withdrawal flow but allow insert flow.

Technical Reference(s): N2-OP-30, Section H.1.0

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-001-201-2-01, EO-4a, EO-8

Question Source:	Bank #	
	Modified Bank #	
	New	New

Question History:	Previous NRC Exam	New
	Previous Test / Quiz	New

Question Cognitive Level:	Memory of Fundamental Knowledge	
	Comprehension or Analysis	2

10CFR Part 55 Content:	55.41.7
	55.45.7

Comments:

NRC Comment: Backwards Logic.

NMPC Response: The information provided in the stem ARE indications that an operator would see for a stuck directional control valve. The question does not ask for information that would normally be provided to the candidate, therefore no backward logic.

Question #

RO 66

Examination Outline	Level	RO
Cross-Reference	Tier #	2
	Group #	2
	K/A #	202001
		A4.11
	Importance Rating	3.2

Ability to manually operate and/or monitor in the control room: Seal pressures: plant-specific.

Proposed Question:

The plant is operating at 20% power when the following annunciators alarm:

- 602109, RECIRC PUMP 1A OUTER SL LEAK HIGH
- 602115, RECIRC PUMP 1A SEAL STAGING FLOW HIGH/LOW

The following indications are observed:

- Seal leakage 1.7 gpm
- Seal staging flow 1.9 gpm
- Upper seal staging pressure 250 psig
- Lower seal staging pressure 950 psig

Which one of the following describes the state of the 1A Recirculation Pump seals?

- a. The lower seal failed.
- b. The upper seal failed.
- c. Both the upper and lower seal failed.
- d. The seal staging flow orifice is clogged.

Proposed Answer: b.

Explanation (Justification of Distractors):

- a. Upper cavity pressure will approach lower cavity pressure.
- c. Pressure in both seals would lower. The upper seal pressure is too high.
- d. Will not receive outer seal leak high alarm for this condition.

Technical Reference(s): N2-OP-29, Section H.5.0

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-001-202-2-01, EO-3, EO-4b, EO-8

Question Source: Bank # Q9104
Modified Bank #
New

Question History: Previous NRC Exam
Previous Test / Quiz Week 12 exam

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 2

10CFR Part 55 Content: 55.41.7
55.45.5

Comments:

Question #

SRO 66

Examination Outline	Level	SRO
Cross-Reference	Tier #	2
	Group #	1
	K/A #	290001
		2.4.16
	Importance Rating	4.0

Knowledge of EOP implementation hierarchy and coordination with other support procedures.

Proposed Question:

In accordance with EPIP-EPP-18, Activation And Direction Of The Emergency Plans, which one of the following responsibilities is retained by the Station Shift Supervisor when other responsibilities are transferred to the Site Emergency Director?

- a. Re-classification of the emergency event.
- b. Determining the need for a site evacuation.
- c. Decision to enter the Severe Accident Procedures.
- d. Making the decision to notify off-site emergency management.

Proposed Answer: c. per RPV Control, step L-16 (and others)

Explanation (Justification of Distractors):

- a. This is a duty of the SED that shall not be delegated.
- b. This is a duty of the SED that shall not be delegated.
- d. This is a duty of the SED that shall not be delegated.

Technical Reference(s): RPV Control, step L-16 (and others), EPIP-EPP-18 and EOP Technical Bases

Proposed references to be provided to applicants during the examination:

None.

Learning Objective:

Question Source:	Bank #	
	Modified Bank #	
	New	New
Question History:	Previous NRC Exam	New
	Previous Test / Quiz	New
Question Cognitive Level:	Memory of Fundamental Knowledge	
	Comprehension or Analysis	2
10CFR Part 55 Content:	55.41.5	
	55.43.5	
	55.45.3	

Comments: SRO only: Ability to direct actions within the EOPs

NRC Comments: LOD 1

NMP2 Response: Wrote a new question. This is a new question

Question #

RO 67

Examination Outline	Level	RO
Cross-Reference	Tier #	-
	Group #	-
	K/A #	204000
		K1.05
	Importance Rating	2.7

Knowledge of the physical connections and/or cause-effect relationships between reactor water cleanup system and the following: Plant air systems.

Proposed Question:

The Reactor Water Cleanup (WCS) System is operating with some flow being rejected to the Main Condenser when a complete loss of instrument air occurs. Which one of the following describes the effect on the WCS system?

- a. WCS filter supply and return valves remain as is. WCS continues to operate.
- b. WCS filter demineralizer inlet and outlet isolation valves and the reject flow control valve close.
- c. WCS containment isolation valves fail closed. WCS pumps trip if no action is taken within 15 minutes.
- d. WCS system will continue to operate in the reject mode but the return to the feedwater system will isolate.

Proposed Answer: b.

Explanation (Justification of Distractors):

- a. Filter demin valves fail closed.
- c. Containment isolation valves are not air operated.
- d. The reject mode is isolated because FV-135 closed.

Technical Reference(s): N2-SOP-19, Section 5.0

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-001-204-2-01, EO-5, EO-8
O2-OPS-001-279-2-00, EO-8

Question Source: Bank # Q13207
Modified Bank #
New

Question History: Previous NRC Exam
Previous Test / Quiz

Question Cognitive Level: Memory of Fundamental Knowledge 1
Comprehension or Analysis

10CFR Part 55 Content: 55.41.4
55.41.7
55.43.5
55.45.7

Comments:

Question #

RO 68

SRO 71

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	2	2
	Group #	2	2
	K/A #	214000	214000
		K4.01	K4.01
	Importance Rating	3.0	3.1

Knowledge of the Rod Position Information System design feature(s) and/or interlocks which provide for the following: reed switch locations.

Proposed Question:

An individual rod scram has been performed on control rod 30-31 using the SRI test switches. When the control rod is selected the four-rod display indicates two blank windows for control rod 30-31.

Which one of the following is the reason for the blank indication for control rod 30-31?

- a. The rod is bypassed in the RPIS cabinet.
- b. CRDM magnet for the rod is past position "00".
- c. An odd reed switch position is actuated for the rod.
- d. A substitute rod position is entered in RWM for position "00".

Proposed Answer: b.

Explanation (Justification of Distractors):

- a. "XX" would be indicated.
- c. "- -" would be indicated.
- d. The substituted position numerical value is indicated.

Technical Reference(s): N2-OP-96, Section B.3.0, H.2.0.

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-001-201-2-02, EO-3

Question Source:	Bank #	Q8284
	Modified Bank #	
	New	
Question History:	Previous NRC Exam	
	Previous Test / Quiz	10/99 System exam
Question Cognitive Level:	Memory of Fundamental Knowledge	1
	Comprehension or Analysis	
10CFR Part 55 Content:	55.41.7	

Comments:

NRC Comments: Backwards Logic

NMPC Response: The question provides indications that an operator would see for a scrambled control rod, then asks the candidate the reason for that indication.

Question #

RO 69

Examination Outline	Level	RO
Cross-Reference	Tier #	2
	Group #	2
	K/A #	215002
		A3.05
	Importance Rating	3.2

Ability to monitor automatic operations of the Rod Block Monitor System including: Back panel meters and indicating lights: BWR-3,4,5.

Proposed Question:

A power ascension is in progress. Annunciator 603204, RBM UPSCALE/INOPERABLE alarms.

The following indications are observed on the RBM A NUMAC.

- RBM FLUX 89%
- APRM FLUX 68%
- FLOW 77%

- LPRMS IN RBM AVERAGE 3
- MINIMUM LPRMS ALLOWED 4
- SETUP RANGE PERMITTED HIGH

Which one of the following describes the required operator response?

- a. Inform the CRS that RBM A is inoperable.
- b. Reduce power to below the alarm setpoint.
- c. Select another rod and then reselect the affected rod.
- d. At 2CEC*PNL603, depress the PUSH TO SET UP pushbutton.

Proposed Answer: a.

Explanation (Justification of Distractors):

- b. Power is below the rod block set point.
- c. This will reinitiate the nulling sequence but will not correct the inoperable LPRM inputs.
- d. RBM is already at the HIGH setpoint.

Technical Reference(s): N2-ARP-01, Rev 00, 603204

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-001-215-2-06, EO-4c, EO-5

Question Source: Bank #
Modified Bank #
New New

Question History: Previous NRC Exam New
Previous Test / Quiz New

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 2

10CFR Part 55 Content: 55.41.7
55.45.7

Comments:

Question #

SRO 69

Examination Outline	Level	SRO
Cross-Reference	Tier #	2
	Group #	2
	K/A #	204000
		2.4.49
	Importance Rating	3.8

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

Proposed Question:

During a reactor startup the Reactor Water Cleanup System (WCS) is operating in Flow Rejection (Blowdown Mode). The following WCS lineup exists:

- Reactor Pressure is 890 psig
- WCS-P1A and WCS-P1B are in service
- Four (4) WCS Filter Demineralizers are in service.
- 2WCS-MOV128, REJECT RESTRICTING ORIFICE BYPASS VLV is Closed *108 sub 211100*
- 2WCS-FV135, REJECT FLOW CONTROL MANUAL CONTROL is 100% Open
- WCS-MOV200, CLEANUP RETURN ISOL VLV THROTTLE is Open
- Reject Flowrate is 90 gpm
- Non-Regenerative Heat Exchanger Outlet Temperature is 128°F

Which one of the following will occur if the Control Switch for 2WCS-MOV128 is placed and held in the open position?

- a. Pressure will rise downstream of 2WCS-FV135 initiating an isolation of 2WCS-FV135 and Low Flow trip of both WCS Pumps.
- b. A rising Non-Regenerative Heat Exchanger outlet temperature isolates the Cleanup Outboard Suction Isolation Valve, 2WCS-MOV112, and this causes a trip of both WCS Pumps.
- c. A High Delta Flow condition causes an isolation of the Cleanup Outboard Suction Isolation Valve, 2WCS-MOV112, and a subsequent low flow trip of the WCS Pumps in about 14 minutes.
- d. A rapid pressure reduction upstream of 2WCS-FV135, initiates an isolation of Cleanup Outboard and Inboard Suction Isolation Valves, 2WCS-MOV112, and 2WCS-MOV102, trip of both WCS Pumps on loss of suction flow path.

Proposed Answer: b.

Explanation (Justification of Distractors):

- a. Pressure may rise but not sufficient to cause an isolation of FV135, and FV125 isolating will NOT trip the WCS Pumps.
- c. A high delta flow condition should NOT exist and if one did, the suction isolation valve would trip the pumps NOT low flow.
- d. Pressure will NOT lower above FV135.

Technical Reference(s): N2-OP-37, S ect. H.3.7

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-001-204-2-01, EO-6

Question Source:	Bank #	
	Modified Bank #	
	New	NEW

Question History:	Previous NRC Exam	NEW
	Previous Test / Quiz	NEW

Question Cognitive Level:	Memory of Fundamental Knowledge	
	Comprehension or Analysis	2

10CFR Part 55 Content:	55.41.10
	55.43.2
	55.45.6

Comments: SRO only: Level of knowledge above RO required for control of plant evolutions.

Question #

RO 70

Examination Outline	Level	RO
Cross-Reference	Tier #	2
	Group #	2
	K/A #	219000
		K3.01
	Importance Rating	3.9

Knowledge of the effect that a loss or malfunction of the RHR/LPCI: Torus / Suppression Pool cooling mode will have on the following: Suppression pool temperature control.

Proposed Question:

The plant is at 100% power. The "A" RHR loop is out of service.

- One SRV opens and CANNOT be closed
- The mode switch is placed to SHUTDOWN
- All control rods do NOT insert.
- Reactor power is 35%

Which one of the following describes the limit that will be challenged FIRST if the reactor CANNOT be scrammed and "B" RHR loop CANNOT be started when required?

- a. SRV Tail Pipe level Limit
- b. RPV Saturation Temperature
- c. Pressure Suppression Pressure
- d. Heat Capacity Temperature Limit

Proposed Answer: d.

Explanation (Justification of Distractors):

- a. Cool down rate is not challenged until blowdown is required. After exceeding HCTL.
- b. Not challenged until after the blowdown since there is no LOCA to challenge primary containment parameters.
- c. There is sufficient injection to maintain RPV level in the EOP specified bands including after terminate and prevent.

Technical Reference(s): NMP2 EOP Technical Bases, N2-EOP-C5
N2-EOP-C5, Rev 8

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-006-344-2-17, EO-3

Question Source:	Bank #	
	Modified Bank #	
	New	New

Question History:	Previous NRC Exam	New
	Previous Test / Quiz	New

Question Cognitive Level:	Memory of Fundamental Knowledge	
	Comprehension or Analysis	2

10CFR Part 55 Content:	55.41.7
	55.45.7

Comments:

Question #

SRO 70

Examination Outline	Level	SRO
Cross-Reference	Tier #	2
	Group #	2
	K/A #	205000
		A4.07
	Importance Rating	3.7

Ability to manually operate and/or monitor in the control room: Reactor temperatures (moderator, vessel, flange).

Proposed Question:

The unit is in MODE 5 for a refueling outage. The reactor cavity is flooded and the fuel pool gates are removed.

- Shutdown cooling is lost and CANNOT be restarted
- A reactor recirculation pump CANNOT be started
- Reactor water cleanup is operating

Within one (1) hour, the Alternate Decay Heat (ADH) system is aligned and placed in operation. Which one of the following describes how to determine reactor coolant temperature?

- a. RHR HX 1A Inlet temperature
- b. Recirc Loop B suction temperature
- c. RPV bottom head drain temperature
- d. Spent Fuel Pool Cooling HX inlet temperature

Proposed Answer: c.

Explanation (Justification of Distractors):

- a. No flow to provide accurate indication.
- b. No flow to provide accurate indication.
- d. Used when performing alternate SDC using SFC

Technical Reference(s): N2-OP-115, Rev 02, Section F.1

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-001-231-2-00, EP-4a, EO-4b, EO-5

Question Source:	Bank #	
	Modified Bank #	
	New	New

Question History:	Previous NRC Exam	New
	Previous Test / Quiz	New

Question Cognitive Level:	Memory of Fundamental Knowledge	2
	Comprehension or Analysis	

10CFR Part 55 Content:	55.41.7
	55.43.5
	55.45.5, 45.7

Comments: SRO only: The occurrence or absence of stratification in the reactor vessel must be assessed by the SRO based on current system alignment and time.

Question #

RO 71

SRO 82

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	2	2
	Group #	2	1
	K/A #	239001	239001
		K2-01	K2.01
	Importance Rating	3.2	3.3

Knowledge of electrical power supplies to the following: Main steam isolation valve solenoids.

Proposed Question:

While operating at 50% power, the 2VBS-UPS3A output to its loads is lost. Which one of the following describes the final position of the MSIVs ten (10) seconds following the power loss?

	Inboard MSIVs	Outboard MSIVs
a.	Closed	Open
b.	Open	Closed
c.	Closed	Closed
d.	Open	Open

Proposed Answer: d.

Explanation (Justification of Distractors):

No MSIVs close because only half of the pilot valve solenoids are deenergized.

Technical Reference(s): N2-OP-1, Rev 10, Section B

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-001-239-2-00, EO-3, EO-5, EO-8

Question Source: Bank # Q8264
Modified Bank #
New

Question History: Previous NRC Exam
Previous Test / Quiz Week 14 exam

Question Cognitive Level: Memory of Fundamental Knowledge 1
Comprehension or Analysis

10CFR Part 55 Content: 55.41.5
55.45.5

Comments:

Question #

RO 72

Examination Outline	Level	RO
Cross-Reference	Tier #	2
	Group #	2
	K/A #	239001
		2.2.2
	Importance Rating	4.0

Ability to manipulate the console controls as required to operate the facility between shutdown and designated power levels.

Proposed Question:

The plant is at 75% power with quarterly MSIV Functional Testing in progress. Inboard MSIV, MSS*AOV6A, will be tested first. Operator actions are as follows:

- MSS*AOV6A Close/Auto/Test Control switch is positioned to TEST. The MSIV remains OPEN and NO half scram occurs.
- Then MSS*AOV6A TRIP TEST pushbutton is depressed and is held in the depressed state for one (1) minute.

Which one of the following describes the plant response?

- a. A full reactor scram occurs.
- b. The remaining MSIVs close.
- c. Reactor power stabilizes at a higher power.
- d. Reactor pressure stabilizes at a lower pressure.

Proposed Answer: c.

Explanation (Justification of Distractors):

- a. Half scram occurs on RPS B
- b. Only the affected MSIV closes. Reactor power rises and will be stable at a higher power level.
- d. Reactor pressure may rise but will not lower. Steam flows will change affecting reactor power.

Technical Reference(s): N2-OSP-MSS-Q002, Section 4, Section 8.2
N2-OP-1, Section B.

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-001-239-2-00, EO-8

Question Source:	Bank #	
	Modified Bank #	
	New	New

Question History:	Previous NRC Exam	New
	Previous Test / Quiz	New

Question Cognitive Level:	Memory of Fundamental Knowledge	
	Comprehension or Analysis	2

10CFR Part 55 Content: 55.45.2

Comments:

Question #

RO 73

SRO 72

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	2	2
	Group #	2	2
	K/A #	245000	245000
		K5.02	K5.02
	Importance Rating	2.8	3.1

Knowledge of the operational implications of the following concepts as they apply to Main Turbine Generator and Auxiliary Systems: Turbine operation and limitations.

Proposed Question:

In response to a lowering main condenser vacuum, reactor power is being reduced. Current conditions are:

- Main condenser vacuum is 24.3 inches Hg and slowly lowering
- 603112, RPS A CONT & STOP V CLOSURE BYPASSED, is ON
- 603412, RPS B CONT & STOP V CLOSURE BYPASSED, is ON

Which one of the following describes when the Main Turbine is required to be manually tripped, per N2-SOP-9, Loss Of Condenser Vacuum?

- a. Immediately
- b. After manual reactor scram
- c. Turbine vibration rises by 2 mils
- d. When vacuum lowers to 22.1 inches HG

Proposed Answer: a. N2-SOP-9 contains the "low load/high backpressure" actions. With 603112 and 603412 in alarm (indicating <30%), the required action is to trip the turbine, when below 30% and below 24.6 inches Hg..

Explanation (Justification of Distractors):

- b. Manual reactor scram is required if **above** 30% reactor power, based on alarms 603112, 603412 and SOP-9 step 4.2.2 actions.
- c. Turbine limit (from N2-OP-21) that requires load to remain constant to straighten out a rub, but is not an SOP-9 requirement to trip the turbine.
- d. This is the automatic turbine trip setpoint.

Technical Reference(s): N2-OP-21, Rev 07, Section D.3
N2-SOP-09, Rev 00, Section 4.2

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-006-245-2-01, EO-5, EO-8

Question Source:

Bank #	
Modified Bank #	
New	New

Question History:

Previous NRC Exam	New
Previous Test / Quiz	New

Question Cognitive Level: Memory of Fundamental Knowledge 1
Comprehension or Analysis

10CFR Part 55 Content: 55.41.5
55.45.3

Comments:

NRC Comments: Reference the procedure in stem.
Answer "b" may also be correct.

NMPC Response: Added reference to N2-SOP-9 to stem.

Based on the annunciators provided in the stem, "b" is not required, therefore, it is not correct. Enhanced the Explanation of the distractors to better explain the reason for "b" being an incorrect answer.

Noted that "c" was a possible correct answer, because the low vacuum alarm setpoint is 24.6 inches, which is also the limiting condition that does require the turbine to be tripped. Changed distractor "c".

Question #

RO 74

Examination Outline	Level	RO
Cross-Reference	Tier #	2
	Group #	2
	K/A #	256000
	Importance Rating	A4.10
		3.2

Ability to manually operate and/or monitor in the control room: Feedwater temperature.

Proposed Question:

With the plant operating at 70% reactor power, 2FWS-MOV102, 6th POINT HEATERS BYPASS VALVE, inadvertently opens. The reactor operator is able to close the valve within 30 seconds of opening.

Which one of the following describes the effect on feedwater temperature including why?

- a. Lowers then returns to normal because feedwater heating is restored.
- b. Lowers and remains lower because extraction steam has isolated to the heater.
- c. Remains the same because the extraction steam to the feedwater heaters remains in service.
- d. Remains the same because the 6th point heaters bypass inlet and outlet MOVs are overridden closed.

Proposed Answer: a.

Explanation (Justification of Distractors):

- b. Extraction steam remains in service and will return FW temperature to normal once flow through the high-pressure heaters is reestablished.
- c. Although extraction steam remains in service, flow through the high-pressure heaters is lost and all flow bypasses the heaters causing FW temperature to lower.
- d. These valves do not exist on the bypass line. They are present on the feedwater heater string inlet and outlet lines.

Technical Reference(s): N2-OP-8, Section D.
N2-SOP-8, Section 4.2, Section 5

Proposed references to be provided to applicants during the examination:

None.

Learning Objective:

Question Source:	Bank #	
	Modified Bank #	
	New	New
Question History:	Previous NRC Exam	New
	Previous Test / Quiz	New
Question Cognitive Level:	Memory of Fundamental Knowledge	
	Comprehension or Analysis	2
10CFR Part 55 Content:	55.41.7	
	55.45.5	
	55.45.8	

Comments:

NRC Comment: Stem asks, "including why", but distractor "b" has no "why" included.

NMPC Response: Changed "b" to add the reason.

Question #

RO 75

SRO 63

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	2	2
	Group #	2	1
	K/A #	262001	262001
		A2.03	A2.03
	Importance Rating	3.9	4.3

Ability to (a) predict the impacts of the following on the AC Electrical Distribution System; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations:
Loss of offsite power.

Proposed Question:

The plant is operating at 100% power when a complete loss of offsite power occurs. Emergency Diesel Generator response is as follows:

- Division I EDG failed to start and CANNOT be started
- Division II EDG failed to start and CANNOT be started
- Division III EDG started and energized its bus

Which one of the following describes immediate operator actions for these conditions?

- a. Enter N2-EOP-RPV, RPV Control, and N2-EOP-PC, Primary Containment Control.
- b. Depress the EMERGENCY STOP PUSHBUTTON for EDG III. Enter N2-SOP-01, Station Blackout.
- c. Start one service water pump in each division 2SWP*P1(A,C,E) and 2SWP*P1(B,D,F).
- d. Close service water valves to the reactor and turbine buildings 2SWP*V23 and 2SWP*V17 and align service water to "A" RHS heat exchanger.

Proposed Answer:

b.

EDG III is shutdown because there is no service water available. The unit is in a station blackout requiring entry into N2-SOP-02, Station Blackout.

Explanation (Justification of Distractors):

- a. Required but not immediate operator actions.
- c. IOA if both the DIV I and DIV II EDG energize their respective busses.
- d. IOA if 2ENS*SWG103 power is lost and the EDG energizes the bus.

Technical Reference(s): N2-SOP-02, Section 3

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-006-SOP-01-29, TO-1, EO-2

Question Source:	Bank #	
	Modified Bank #	
	New	New

Question History:	Previous NRC Exam	New
	Previous Test / Quiz	New

Question Cognitive Level:	Memory of Fundamental Knowledge	1
	Comprehension or Analysis	

10CFR Part 55 Content:	55.41.5
	55.45.6

Comments:

Question #

RO 76

SRO 74

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	2	2
	Group #	2	2
	K/A #	262002	262002
		K6.01	K6.01
	Importance Rating	2.7	2.9

Knowledge of the effect that a loss or malfunction of the following will have on the Uninterruptable Power Supply (A.C./D.C.): A.C. electrical power.

Proposed Question:

2VBB-UPS1A is aligned to the inverter with the TRANSFER CONTROL SWITCH positioned to AUTO RESTART when the following occurs:

- 2NJS-US3 to 2VBB-TRS1 becomes deenergized and **remains deenergized**.
- 2VBB-TRS1 transfer to the alternate AC source is complete after 10 seconds.

Which one of the following describes where 2VBB-UPS1A loads are automatically powered from after this event?

- a. 2NJS-US4 through the inverter.
- b. 2NJS-US6 bypassing the inverter.
- c. 2NJS-US5 bypassing the inverter.
- d. 2BYS-SWG001A through the inverter.

Proposed Answer: a.

Explanation (Justification of Distractors):

- b. UPS1A transfers to the alternate AC supply through 2VBB-TRS1 although a slow transfer. Some UPS transfer to the maintenance supply on any loss of power. 2NJS-US6 is the maintenance supply for UPS1B.
- c. UPS1A transfers to the alternate AC supply through 2VBB-TRS1 although a slow transfer. Some UPS transfer to the maintenance supply on any loss of power. 2NJS-US5 is the maintenance supply for UPS1A.
- d. UPS1A transfers to the alternate AC supply through 2VBB-TRS1 although a slow transfer. 2BYS-SWG001A is the battery supply.

Technical Reference(s): N2-OP-71D, Section B

Proposed references to be provided to applicants during the examination:

None

Learning Objective: O2-OPS-001-262-2-03, EO-4.b, EO-6.e

Question Source: Bank # Q15782
Modified Bank #
New

Question History: Previous NRC Exam
Previous Test / Quiz

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 2

10CFR Part 55 Content: 55.41.7
55.45.7

Comments:

Question #

RO 77

SRO 75

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	2	2
	Group #	2	2
	K/A #	263000	263000
		K3.03	K3.03
	Importance Rating	3.4	3.8

Knowledge of the effect that a loss or malfunction of the D.C. electrical distribution will have on the following: Systems with D.C. components.

Proposed Question:

The plant is operating at 100% power. One of the operating service water pumps is 2SWP*P1A. A ground fault results in the loss of 2BYS*SWG002A.

Which one of the following describes the effect of the power loss on the "A" Service Water Pump, 2SWP*P1A?

- a. Trips and CANNOT be restarted until the ground fault is corrected.
- b. Continues to run, but all trips and automatic functions are lost.
- c. Trips and CANNOT be restarted until Division I DC power is restored.
- d. Continues to run, but all protection except for the overcurrent and low suction pressure trips is lost.

Proposed Answer: b.

Explanation (Justification of Distractors):

- a. Ground fault was on DC bus. Pump does not trip.
- c. Ground fault was on DC bus. Pump does not trip.
- d. All protection is lost.

Technical Reference(s): N2-SOP-04, Rev 00

Proposed references to be provided to applicants during the examination:

None

Learning Objective: O2-OPS-001-263-2-01, EO-5, EO-8

Question Source: Bank # Q8438
Modified Bank #
New

Question History: Previous NRC Exam
Previous Test / Quiz Week 13 exam

Question Cognitive Level: Memory of Fundamental Knowledge 1
Comprehension or Analysis

10CFR Part 55 Content: 55.41.7
55.45.4

Comments:

Question #

RO 78

SRO 76

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	2	2
	Group #	2	2
	K/A #	271000	271000
		A3.02	A3.02
	Importance Rating	2.9	2.8

Ability to monitor automatic operations of the Offgas system including: System flows.

Proposed Question:

During power operation, fuel failures have caused the following conditions:

- Process Radiation Monitor **2OFG-RU13A** has exceeded its **High** Setpoint
- Process Radiation Monitor **2OFG-RU13B** has exceeded its **Alert** Setpoint

Which one of the following describes the expected Offgas System flow indications on 2CEC*PNL851?

	Train "A" Flow (SCFM)	Train "B" Flow (SCFM)
a.	0	36
b.	36	0
c.	18	18
d.	0	0

Proposed Answer:

~~d.~~ c

Explanation (Justification of Distractors):

a. b. c.

There should ~~NOT~~ be any flow through either Offgas Trains because RU13A ~~or~~ B monitor reaching a High setpoint ~~should~~ Close the Offgas Outlet Valve, AOV-103, and Trip the Offgas Pumps.

And

EWB 2/18/00

both ARE required to

Technical Reference(s): N2-ARP-01, Rev 00, Ann 851253
02-OPS-001-271-2-01, OFFGAS SYSTEM, Fig 4

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-001-271-2-01, EO-8

Question Source: Bank #
Modified Bank #
New NEW

Question History: Previous NRC Exam NEW
Previous Test / Quiz NEW

Question Cognitive Level: Memory of Fundamental Knowledge 1
Comprehension or Analysis

10CFR Part 55 Content: 55.41.7
55.45.7

Comments:

Question #

SRO 78

Examination Outline	Level	SRO
Cross-Reference	Tier #	2
	Group #	2
	K/A #	290003
		K1.04
	Importance Rating	3.3

Knowledge of the physical connections and/or cause-effect relationships between control room HVAC and the following: Nuclear steam supply shutoff system (NSSSS/PCIS): Plant-specific.

Proposed Question:

One (1) hour following a large break loss of coolant accident, the Control Room "E" operator reports that NO manual alignment changes have been made to the Control Building Ventilation System. Which one of the following describes the concern with the Control Room environment?

- a. Pressure will become negative.
- b. Temperature will rise above 90°F.
- c. Humidity will be higher than expected.
- d. Dose rate will be higher than expected.

Proposed Answer: d.

Explanation (Justification of Distractors):

- a. Pressure will be positive because both special filter trains automatically started.
- b. Temperature will be about room temperature because the HVC chillers continue to run.
- c. Humidity will be lower because of the heaters that are operating in the inlet to the special filter trains.

Technical Reference(s): N2-OP-53A, Rev 08, Section D.19

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-001-288-2-02, EO-6

Question Source:	Bank #	
	Modified Bank #	
	New	New

Question History:	Previous NRC Exam	New
	Previous Test / Quiz	New

Question Cognitive Level:	Memory of Fundamental Knowledge	1
	Comprehension or Analysis	

10CFR Part 55 Content: 55.43.4

Comments: SRO only: Understand the benefits and consequences of operator actions and failure to perform actions – plant is in a condition challenging the design bases.

Question #

RO 79

Examination Outline	Level	RO
Cross-Reference	Tier #	2
	Group #	2
	K/A #	272000
		2.4.46
	Importance Rating	3.5

Ability to verify that alarms are consistent with the plant conditions.

Proposed Question:

The plant is operating at 80% power. The following alarm is received:

- 851256, STACK EFFLUENT RAD MON ACTIVATED

Which one of the following describes how this alarm is verified consistent with plant conditions?

- Review the status of the DRMS monitors.
- Verify the reactor building isolates and Standby Gas starts.
- Compare recorder readings on 2CEC-PNL882 to the posted aid.
- Verify the Offgas discharge valve to the stack (AOV103) closes.

Proposed Answer: c.

Explanation (Justification of Distractors):

- No DRMS indication for these monitors.
- No isolation/actuation signal is generated for secondary containment.
- No isolation signal is generated for Offgas.

Technical Reference(s): N2-ARP-01, Rev 00, 851256

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: N2-OPS-001-272-2-01, EO-4, EO-5

Question Source:	Bank #	
	Modified Bank #	
	New	New

Question History:	Previous NRC Exam	New
	Previous Test / Quiz	New

Question Cognitive Level:	Memory of Fundamental Knowledge	
	Comprehension or Analysis	2

10CFR Part 55 Content:	55.43.5
	55.45.3
	55.45.12

Comments:

Question #

RO 80

SRO 77

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	2	2
	Group #	2	2
	K/A #	286000	286000
		A2.06	A2.06
	Importance Rating	3.1	3.2

Ability to (a) predict the impacts of the following on the fire protection system; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations: Low fire main pressure: plant-specific.

Proposed Question:

Which one of the following describes the pumps that automatically start if the fire protection header pressure lowers from 130 psig to 88 psig?

Assume all components function at their design setpoints.

- Only the lead and lag pressure maintenance pumps.
- Only the motor-driven fire pump and diesel driven fire pumps.
- Only the lead and lag pressure maintenance and the motor-driven fire pumps start.
- Only the lag pressure maintenance, motor-driven, and diesel driven fire pumps start.

Proposed Answer: c.

Explanation (Justification of Distractors):

- The motor-driven fire pump auto starts at 90 psig.
- The lead pressure maintenance pump starts at 120 psig and the lag pressure maintenance pump starts at 110 psig. Diesel driven fire pump does NOT start until 85 psig.
- The lead pump auto starts. The motor-driven fire pump auto starts at 90 psig. The diesel-driven fire pump does NOT start until 85 psig.

Technical Reference(s): N2-OP-43, Rev 05, Section B
N2-ARP-01, Rev 00, 849238

Proposed references to be provided to applicants during the examination:

None

Learning Objective: O2-OPS-001-286-2-01, EO-4b, EO-4c, EO-8

Question Source:	Bank #	New
	Modified Bank #	
	New	

Question History:	Previous NRC Exam	New
	Previous Test / Quiz	New

Question Cognitive Level:	Memory of Fundamental Knowledge	
	Comprehension or Analysis	1

10CFR Part 55 Content:	55.41.5
	55.45.6

Comments:

Question #

RO 81

Examination Outline	Level	RO
Cross-Reference	Tier #	2
	Group #	2
	K/A #	290001
		K1.02
	Importance Rating	3.4

Knowledge of the physical connections and/or cause-effect relationships between SECONDARY CONTAINMENT and the following: Primary containment system: Plant-Specific

Proposed Question:

Which one of the following systems when subjected to a single failure could cause a leak path from the primary containment to the secondary containment when the plant is operating at power?

- a. MSS, Main Steam System
- b. ICS, Reactor Core Isolation Cooling
- c. WCS, Reactor Water Cleanup System
- d. CCP, Reactor Building Closed Loop Cooling

Proposed Answer: b.

Explanation (Justification of Distractors):

- a. MSS does not interface with the secondary containment
- c. WCS does not interface directly with the primary containment, rather the RPV.
- d. CCP does not interface directly with the primary containment. A CCP leak in the drywell would leak into the drywell. Also, two failures to get to secondary containment.

Technical Reference(s): N2-OP-35, Section B, Section D

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-001-217-2-00, EO-8
O2-OPS-001-221-2-00, EO-4
O2-OPS-001-288-2-03, EO-5

Question Source: Bank #
Modified Bank #
New New

Question History: Previous NRC Exam New
Previous Test / Quiz New

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 2

10CFR Part 55 Content: 55.41.4
55.41.8

Comments:

Question #

SRO 81

Examination Outline	Level	SRO
Cross-Reference	Tier #	-
	Group #	-
	K/A #	Generic
	Importance Rating	2.1.4 3.3

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

Proposed Question:

In accordance with the Operations Manual, which one of the following Spent Fuel Pool Cooling and Cleanup (SFC) related events requires notifying the General Supervisor Operations (GSO) when operating in MODE 1?

- a. After a trip of 2SFC*P1A, **NEITHER** SFC pump can be started.
- b. A fire alarm is activated in the vicinity of a SFC pump due to a faulty detector.
- c. 2SFC*P1A is **NOT** returned to service within the scheduled time after maintenance.
- d. The SFC lineup will be changed from the "Cooling Only" Mode to "Filter/Demin Subsystem" Mode.

Proposed Answer: a.

Explanation (Justification of Distractors):

Unexpected entry into the SOPs requires GSO notification. N2-SOP-38 is entered if neither SFC pump is operating and cannot be started.

- b. If the emergency plan is entered due to a fire, the GSO is notified. GSO is not required to be notified for false fire alarms.
- c. There is not requirement to notify the GSO.
- d. This is a lineup approved in N2-OP-38 and does not require notification prior to performance.

Technical Reference(s): Operations Manual, Section 3.6

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-006-343-3-01, EO-2, EO-5

Question Source:	Bank #	
	Modified Bank #	
	New	New

Question History:	Previous NRC Exam	New
	Previous Test / Quiz	New

Question Cognitive Level:	Memory of Fundamental Knowledge	1
	Comprehension or Analysis	

10CFR Part 55 Content:	55.41.10
	55.43.2

Comments: SRO only: SSS/CRS roles and responsibilities during plant operation.

Question #

RO 82

Examination Outline	Level	RO
Cross-Reference	Tier #	2
	Group #	2
	K/A #	290003
		A1.05
	Importance Rating	3.2

Ability to predict and/or monitor changes in parameters associated with operating the CONTROL ROOM HVAC controls including: Radiation monitoring (control room)

Proposed Question:

Following a LOCA, the following conditions exist:

- Drywell pressure is 2.3 psig and slowly rising
- RPV water level is 140 inches and stable
- 2HVC*RE18B and 2HVC*RE18D are in alarm
- 2HVC*RE18A and 2HVC*RE18C are rising but have NOT alarmed

Which one of the following describes the Control Building (HVC) Special Filter Trains (SFT's) automatic response and the required operator actions per N2-OP-53A, Control Building Ventilation System?

- a. Verify the "B" SFT has automatically started. Place the control switch for the non-running SFT to Normal-After-Stop to keep it off.
- b. Verify both the "A" and "B" SFT have automatically started. Ensure that one SFT is secured within 20 minutes of actuation.
- c. Verify the "B" SFT has automatically started. Place the control switch for the "A" SFT to start. Within 8 hours, isolate the more contaminated outside air intake path.
- d. Verify both the "A" and "B" SFT have automatically started. Ensure that the more contaminated outside air intake path automatically isolates.

Proposed Answer: b.

Explanation (Justification of Distractors):

- a. This would be true if LOCA signal was not present
- c. Both trains start on a LOCA signal. The action to isolate the more contaminated intake path is a valid action after 8 hours.
- d. The action to secure the more contaminated air intake path is an 8-hour requirement. This is a manually initiated (no automatic interlock) required action.

Technical Reference(s): N2-OP-53A, Rev 08, Section D.19.0, Section H.1.0

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-001-288-2-02, 00, EO-4b, EO-4c, EO-6.0

Question Source: Bank #
Modified Bank #
New New

Question History: Previous NRC Exam New
Previous Test / Quiz New

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 2

10CFR Part 55 Content: 55.41.5
55.45.5

Comments:

NRC Comment: Stem focus and second part of distractor "d" may be correct later.

NMPC Response: Distractor "d" is not a correct answer at any time. The east and west intake do not have an automatic closure feature. The Explanation of the distractors indicated this as a manual action.

Although we did not see a flaw in the stem focus, we added procedure reference to N2-OP-53A and made some other minor stem wording changes.

Question #

RO 83

SRO 79

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	2	2
	Group #	2	2
	K/A #	300000	300000
	Importance Rating	K5.13 2.9	K5.13 2.9

Knowledge of the operational implications of the following concepts as they apply to the instrument air system: Filters.

Proposed Question:

An Auxiliary Operator reports that the in-service Instrument Air System (IAS) prefilter d/p is 9.2 psid for 2IAS-FLT2A. The operator is directed to change the in-service filter to 2IAS-FLT2B.

The operator reports that 2IAS-V218, PREFILTER 2B INLET, will NOT open.

Assuming NO additional operator actions are taken, which one of the following describes the plant response?

- When pressure downstream of the prefilter reaches 70 psig, the MSIVs close.
- After airflow through the filter lowers to zero, the reactor scrams on RPV low water level.
- When prefilter d/p reaches 10 psid, 2IAS-V298, AIR DRYERS 1A & 1B BYPASS, opens to maintain IAS pressure.
- After airflow through the filter lowers to zero, 2IAS-AOV171, INSTR/SERV AIR CROSSTIE, closes and maintains IAS pressure.

Proposed Answer: b.

Explanation (Justification of Distractors):

- The MSIVs will be maintained open by the accumulators. The reactor will scram on low RPV level when the feedwater minimum flow valves fail open on loss of air.
- This is a manual valve.
- AOV 171 will automatically close, but will not correct the problem since the problem is upstream of the valve.

Technical Reference(s): N2-SOP-19, Rev 00, Section 2.0

Proposed references to be provided to applicants during the examination:

None

Learning Objective:

Question Source:	Bank #	
	Modified Bank #	
	New	New
Question History:	Previous NRC Exam	New
	Previous Test / Quiz	New
Question Cognitive Level:	Memory of Fundamental Knowledge	1
	Comprehension or Analysis	
10CFR Part 55 Content:	55.41.5	
	55.45.3	

Comments:

Question #

RO 84

Examination Outline	Level	RO
Cross-Reference	Tier #	2
	Group #	3
	K/A #	215001
		K4.01
	Importance Rating	3.4

Knowledge of Traversing In-Core Probe design feature(s) and/or interlocks which provide for the following: Primary containment isolation: Mark I&II (Not-BWR1)

Proposed Question:

Reactor Engineering is running TIP traces using the automatic mode. Four (4) TIPs are stowed in their shield chambers.

One TIP is out of its shield chamber and running into the core but has NOT reached the CORE TOP LIMIT. The low speed switch on the running TIP control panel is in the OFF position.

Which one of the following describes the automatic response of the TIP system to a PCIS isolation signal?

- a. The TIP changes direction and retracts at fast speed to the indexer, then shifts to slow speed. When stowed the ball valve closes.
- b. The shear valve fires and the ball valve closes leaving the TIP trapped in its guide tube and isolated from the secondary containment.
- c. The TIP stops moving. When a confirmatory signal is received, it retracts at fast speed until stowed and then the ball valve closes.
- d. The TIP shifts to fast speed and runs to the CORE TOP LIMIT. Then it retracts at fast speed and when stowed the ball valve closes.

Proposed Answer: a.

The TIP will reverse and retract in fast speed until it reaches the indexer, then shift to slow speed. When the TIP is in its shield chamber, the ball valve will close.

Explanation (Justification of Distractors):

- b. The shear valve is a manual valve controlled by a keylock switch at the TIP control unit. The ball valve will not close until the TIP is stowed. The TIP will retract in fast speed until it is in its shield chamber.
- c. The TIP will not stop. It will reverse direction and retract when the PCIS signal is received. No confirmatory signal is needed for the reverse motion and retract at fast speed to be initiated.
- d. The TIP will not continue motion into the core. When the PCIS signal is received, the TIP will reverse direction and retract at full speed until stowed.

Technical Reference(s): N2-OP-83, Rev 03, Attachment 2

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-001-215-2-01, EO-7.0

Question Source: Bank # Q8130
Modified Bank #
New

Question History: Previous NRC Exam
Previous Test / Quiz

Question Cognitive Level: Memory of Fundamental Knowledge 1
Comprehension or Analysis

10CFR Part 55 Content: 55.41.7

Comments:

NRC Comment: Level of difficulty is 1.

NMPC Response: 1 of 2 validating exam incorrectly chose "b", so is it really level of difficulty at 1? We removed the reference to group 2 and group 3 and focused on the response of the system. Knowing that the TIP is group 3 could easily rule out other responses without knowing the actual response to the PCIS signal which is asked in the question.

Question #

SRO 84

Examination Outline	Level	SRO
Cross-Reference	Tier #	-
	Group #	-
	K/A #	Generic
		2.1.4
	Importance Rating	3.4
Knowledge of shift staffing requirements.		

Proposed Question:

The unit is in MODE 3. The CRS is designated to assume the role of the STA if the Site Emergency Plan is activated.

In the absence of the SSS from the control room, which one of the following describes who may be designated to assume the control room command function?

Per Technical Specifications? EWS 2/1/00

- The on-shift CRS if the absence will be less than 10 minutes.
- Any individual with an active SRO license including the on-shift CRS.
- Any individual with an active SRO license other than the on-shift CRS.
- Only an individual with an active SRO license who is qualified as SSS.

Proposed Answer: c.

Explanation (Justification of Distractors):

- The CRS can only fill the control room command function when not in the STA function.
- This would include the CRS who is not permitted to fulfill the function because of being designated to fill the STA function.
- There is no requirement to be qualified as SSS.

Technical Reference(s): Technical Specification Table 6.2.2-1, Note (d)

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-006-343-3-01, EO-4, EO-5

Question Source:	Bank #	
	Modified Bank #	
	New	New

Question History:	Previous NRC Exam	New
	Previous Test / Quiz	New

Question Cognitive Level:	Memory of Fundamental Knowledge	1
	Comprehension or Analysis	

10CFR Part 55 Content:	55.41.10
	55.43.1
	55.43.2

Comments: SRO only: Command and control function.

Question #

RO 85

Examination Outline	Level	RO
Cross-Reference	Tier #	2
	Group #	3
	K/A #	233000
		K1.15
	Importance Rating	2.9

Knowledge of the physical connections and/or cause-effect relationships between FUEL POOL COOLING AND CLEAN-UP and the following: Storage pools.

Proposed Question:

With the plant operating at power, which one of the following is the normal method utilized to maintain the desired SFC pool level?

- a. A low fuel pool level signal causes pneumatic valves to open to provide makeup flow from the Makeup Water.
- b. A low fuel pool level signal causes motor operated valves to open to provide makeup flow from the Condensate Transfer System.
- c. A low skimmer surge tank level causes pneumatic valves to open to provide makeup flow from the Condensate Transfer System.
- d. A low skimmer surge tank level causes motor operated valves to open to provide makeup flow from the Makeup Water System.

Proposed Answer: c.

Explanation (Justification of Distractors):

The normal method is automatic. When SFC skimmer surge tank level lowers pneumatic valves open to raise fuel pool level using makeup from the Condensate Transfer System.

Technical Reference(s): N2-ARP-01, Rev 00, 873317, 875117

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-001-233-2-00, EO-4a, EO-4b, EO-5

Question Source: Bank # Q8833
Modified Bank #
New

Question History: Previous NRC Exam
Previous Test / Quiz Week 13 exam

Question Cognitive Level: Memory of Fundamental Knowledge 1
Comprehension or Analysis

10CFR Part 55 Content: 55.41.7

Comments:

NRC Comment: Stem focus, add "normal" method.

NMPC Response: Added "normal".

Question #

RO 86

Examination Outline	Level	RO
Cross-Reference	Tier #	2
	Group #	3
	K/A #	234000
		A1.01
	Importance Rating	3.1

Ability to predict and/or monitor changes in parameters associated with operating the fuel handling equipment controls including: Spent fuel pool level.

Proposed Question:

Following a complete core offload, LPRMs are being changed out. After disconnecting the LPRM below vessel and installing the water seal cap, the water seal cap drain valve is left full open. The LPRM is removed from the reactor core.

It takes thirty (30) minutes before the water seal cap drain valve is closed. Which one of the following describes the effect on spent fuel pool level?

- a. Lowers and continues to lower until the drain valve is closed.
- b. Lowers and returns to normal after automatic makeup is initiated.
- c. Remains the same because the LPRM guide tube is always dry.
- d. Remains the same since the check valve in the drain line seats.

Proposed Answer: b.

Explanation (Justification of Distractors):

The flow from the reactor vessel to the drywell floor drains will be sufficient to cause the reactor cavity level and fuel pool level to lower.

- a. Skimmer surge tank automatic makeup will restore level.
- c. The SRM and IRM guide tubes are dry tubes. The LPRM guide tube is flooded.
- d. There is no check valve installed when performing this evolution.

Technical Reference(s): N2-FHP-13

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-001-234-2-00, EO-8

Question Source: Bank #
Modified Bank #
New New

Question History: Previous NRC Exam New
Previous Test / Quiz New

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 2

10CFR Part 55 Content: 55.41.5
55.45.5

Comments:

Question #

RO 87

SRO 83

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	2	2
	Group #	3	3
	K/A #	290002	290002
	Importance Rating	A2.04	A2.04
	Importance Rating	3.7	4.1

Ability to (a) predict the impacts of the following on the reactor vessel internals; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of those abnormal conditions or operations:
Excessive heatup/cooldown rate.

Proposed Question:

A unit shutdown is in progress. After placing the B RHR loop into shutdown cooling per N2-OP-31, Residual Heat Removal System, it is determined that the cooldown rate is being exceeded.

Which one of the following describes the required operator action to reduce the cooldown rate?

- Throttle open RHS*MOV40B, SDC B RETURN THROTTLE.
- Throttle open RHS*MOV104, RHS B TO REACTOR HEAD SPRAY.
- Throttle open RHS*MOV8B, HEAT EXCHANGER B INLET BYP VLV THROTTLE.
- Throttle open SWP*MOV33B, HEAT EXCHANGER 1B SVCE WTR OUTLET VLV.

Proposed Answer: c.

Explanation (Justification of Distractors):

a.b.c. Raise cooldown rate.

Technical Reference(s): N2-OP-31, Rev 13, F.6.20, F.6.26, F.6.27

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-001-205-2-00, EO-4a, EO-4b, EO-5

Question Source:	Bank #	
	Modified Bank #	
	New	New

Question History:	Previous NRC Exam	New
	Previous Test / Quiz	New

Question Cognitive Level:	Memory of Fundamental Knowledge	1
	Comprehension or Analysis	

10CFR Part 55 Content:	55.41.5
	55.45.6

Comments:

Question #

RO 88

SRO 85

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	-	-
	Group #	-	-
	K/A #	Generic	Generic
		2.1.17	2.1.17
	Importance Rating	3.5	3.6

Ability to make accurate, clear and concise verbal reports.

Proposed Question:

During your shift the following events occur:

1. "A" Service Water Pump Discharge Strainer requires cleaning due to normal usage.
2. Work on replacing a non-safety related breaker is NOT completed before its' extended late date.
3. Before being used in a surveillance test a pressure test gauge is determined to be out of calibration.
4. Contractors are pulling cable from the turbine building through a penetration into the control building without a Breach Permit.

In accordance with NIP-ECA-01, DEVIATION/EVENT REPORT, which two events require the initiation of Deviation/Event Reports?

- a. 1 and 3
- b. 2 and 4
- c. 3 and 2
- d. 4 and 1

Proposed Answer:

- b. Event 2 because work extended beyond its' late or deferred date requires a DER
Event 4 because failing to get a breach permit is a non-compliance which has safety significance and is a failure to follow procedures and is adverse to fire protection.

Explanation (Justification of Distractors):

Event 1 Is normal wear and tear and does NOT require a DER.
Event 3 As long as the gauge was NOT used no DER is required.

Technical Reference(s): NIP-ECA-01, DEVIATION/EVENT REPORT

Proposed references to be provided to applicants during the examination:

None.

Learning Objective:

Question Source:	Bank # Modified Bank # New	New
Question History:	Previous NRC Exam Previous Test / Quiz	
Question Cognitive Level:	Memory of Fundamental Knowledge Comprehension or Analysis	2
10CFR Part 55 Content:	55.41.10	

Comments:

NRC Comment: Original question was LOD 1 and not an appropriate written test item.

NMPC Response: Selected new generic 2.1 KA and replaced question.

Question #

SRO 88

Examination Outline	Level	SRO
Cross-Reference	Tier #	-
	Group #	-
	K/A #	Generic
	Importance Rating	2.1.12 4.0
Ability to apply Technical Specifications for a system.		

Proposed Question:

The unit is operating at 80% power when the following occur on **2/6/2000**:

- **0810**: Service Water intake tunnel water temperature lowers to 38°F.
- **0810**: It is reported that each intake structure has seven (7) operable heaters in operation. NO other heaters are operable.
- **0830**: SW pumps "A", "B", and "C" are declared inoperable.
- **1200**: SW loop "A" is declared inoperable.

Assume that NO equipment is restored to operable status. In accordance with Technical Specifications, which one of the following describes the latest time and date that the plant shall be in Hot Shutdown without requiring entry into LCO 3.0.3?

- a. 2110 on 2/6/00.
- b. 0830 on 2/7/00.
- c. 2400 on 2/9/00.
- d. 2030 on 2/13/00.

Proposed Answer: Answer: a. T.S. action 3.7.1.1.f becomes applicable at 0810 when it is discovered that the intake structure deicing heater system is inoperable requiring that action be initiated within 1 hour and the plant be in Hot Shutdown in the next 12 hours (13 hours from declaring the LCO statement not met).

Explanation (Justification of Distractors):

- b. T.S. action 3.7.1.1.d could be misread and determined to be applicable at 0830 requiring that the plant be in Hot Shutdown by 0830 on 2/7/00. This is assuming that the LCO statement is understood on that only two (2) SW pumps are required to be operable in a loop for the loop to be operable.
- c. T.S. action 3.7.1.1.c becomes applicable at 1200 requiring that the plant be in Hot Shutdown by 2400 on 2/9/00.
- d. T.S. action 3.7.1.1.b could be misread and determined to be applicable at 0830 requiring that the plant be in Hot Shutdown by 2030 on 2/13/00. This is assuming that the LCO statement is understood on that only two (2) SW pumps are required to be operable in a loop for the loop to be operable.

Technical Reference(s): Technical Specification 3.7.1.1

Proposed references to be provided to applicants during the examination:

Technical Specifications, Section 3.7.1.1

Learning Objective: O2-OPS-001-276-2-00, # 11

Question Source: Bank #
Modified Bank #
New New

Question History: Previous NRC Exam New
Previous Test / Quiz New

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 2 .

10CFR Part 55 Content: 55.43.2
55.43.5
55.45.3

Comments: SRO only: Technical Specification application

NRC: Backwards logic.

NMP2: Wrote a new question eliminating the backwards logic. Evaluated the same technical specification to maintain overall examination balance.

Question #

RO 89

SRO 86

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	-	-
	Group #	-	-
	K/A #	Generic	Generic
		2.1.16	2.1.16
	Importance Rating	2.9	2.8

Ability to operate plant phone, paging system, and two-way radio.

Proposed Question:

The Main Page Party / Public Address System Control Console is aligned as follows:

- MERGE/UNIT 1 & 2 ISOLATE switch ISOLATE
- MERGE/NMP2 & ADMIN ISOLATE switch ISOLATE
- O. D. SPKRS ON/OFF switch OFF

In response to a fire, the CSO positions the MERGE/UNIT 1 & 2 ISOLATE switch to MERGE, and then sounds the fire alarm. After the fire alarm terminates, the CSO announces the fire location.

Regarding the following areas (Unit 2, Unit 1, NMP Admin Bldg, and outside), which one of the following describes where the alarm and announcement are heard?

- a. The alarm and announcement are only heard in Unit 2 and Unit 1.
- b. The alarm and announcement are only heard in Unit 2, Unit 1, and outside areas.
- c. The alarm and announcement are heard in Unit 2, Unit 1, NMP Admin Bldg and outside.
- d. The alarm is only heard in Unit 2. The announcement is heard in Unit 2, Unit 1, and outside areas.

Proposed Answer: c.

Explanation (Justification of Distractors):

The alarm and announcement are heard in each area identified. Placing the Merge/Unit 1 & 2 Isolate switch to MERGE merges Unit 1 and Unit 2. Sounding the alarm automatically merges all system page lines.

Technical Reference(s): N2-OP-76, Rev 02, B.1.1

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-001-285-2-01, # 4a, #4b

Question Source: Bank #
Modified Bank #
New New

Question History: Previous NRC Exam New
Previous Test / Quiz New

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 2

10CFR Part 55 Content: 55.41.10
55.45.12

Comments:

NRC Comment: LOD 1 and add comma after Unit 1 in distractor "c".

NMPC Response: Added comma to choice "c".
Added switch alignment prior to the fire response to raise the level of difficulty. Also changed to comprehension based on adding this information.

Question #

SRO 89

Examination Outline	Level	SRO
Cross-Reference	Tier #	Generic
	Group #	-
	K/A #	2.2.26
	Importance Rating	3.7
Knowledge of refueling administrative requirements.		

Proposed Question:

Preparations have been made to start a full core offload in the next hour (at 0800 on 12/3/99). All requirements of N2-FHP-13.1, Complete Core Offload, are satisfied with the following exception:

- SRM B was declared inoperable at 0700 on 12/3/99.

Which one of the following describes when the core offload can be started and the restrictions that apply?

- The core offload can be started as scheduled, but must be stopped at the completion of **sequence step 33**.
↑ CORE OFF-LOAD EWB 2/11/00
- The core offload can be started as scheduled, but must be stopped at the completion of **sequence step 64**.
↑ CORE OFF-LOAD EWB 2/11/00
- The core offload CANNOT be started until **after** SRM B operability is demonstrated by the SRM Channel Functional Test.
- The core offload CANNOT be started until **after** SRM B is operable and all "prior to fuel movement" checks are performed again.

Proposed Answer: a.

Explanation (Justification of Distractors):

- Proceeding beyond step 33 with SRM B inop is a procedure/Tech Spec violation because steps 34 –37 are in the same quadrant as SRM B.
- The core offload can be started provided it is stopped prior to completing sequence step 34.
- The core offload can be started provided it is stopped prior to completing sequence step 34.

Technical Reference(s): N2-FHP-13.1, Rev 04, 4.2.11, 5.16.4, and 5.16.5
Tech Spec 3.9.2

Attach a copy of N2-FHP-13.1

Proposed references to be provided to applicants during the examination:

N2-FHP-13.1
Tech Spec Section 3.9

Learning Objective: O2-OPS-001-234-2-01, EO-7a, EO-8, EO-11

Question Source: Bank #
Modified Bank #
New New

Question History: Previous NRC Exam New
Previous Test / Quiz New

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 2

10CFR Part 55 Content: 55.43.2
55.43.5

Comments: SRO only: Technical specification application. Control of plant evolutions.

Question #

RO 90

SRO 87

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	-	-
	Group #	-	-
	K/A #	Generic	Generic
		2.1.4	2.1.4
	Importance Rating	4.3	4.2

Ability to execute procedural steps.

Proposed Question:

The "A" RHR loop is being placed into suppression pool cooling to support RCIC Surveillance testing. After opening SWP*MOV90A, HEAT EXCHANGER 1A SVCE WTR INLET VLV, the Control Room E operator reports that the procedure cannot be continued as written, because the next step identifies opening valve RHS*MOV33A instead of SWP*MOV33A.

In accordance with NIP-PRO-01, Use of Procedures, which one of the following actions is required to permit completion of suppression pool cooling?

- Stop and note the deficiency, complete the procedure for pool cooling, and then initiate a procedure change.
- Place RHR back in standby. The procedure shall be changed using the procedure change process prior to placing RHR in pool cooling.
- Stop action, make a pen and ink correction to the procedure, then complete the procedure for pool cooling. Initiate a procedure change after pool cooling is established.
- Discontinue actions and leave all components operated in their current condition. The procedure shall be changed using the procedure change process prior to placing RHR in pool cooling.

Proposed Answer: b.

Explanation (Justification of Distractors):

- A procedure change must be made first.
- Pen and ink changes are initiated through the procedure change process.
- Must be returned to a safe condition.

Technical Reference(s): NIP-PRO-01, Rev ⁰¹06, Section ~~3.3.4~~ 3.4.3 ^{02/07/00} _{8/13}

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-001-276-2-00, # 11

Question Source: Bank #
Modified Bank #
New New

Question History: Previous NRC Exam New
Previous Test / Quiz New

Question Cognitive Level: Memory of Fundamental Knowledge 1
Comprehension or Analysis

10CFR Part 55 Content: 55.41.10
55.43.5
55.45.12

Comments:

NRC Comments: Stem focus, make stem focus specific to the procedure problem and add reference.

NMPC Response: Added a specific procedure deficiency and reference to NIP-PRO-01 to the stem.

Question #

SRO 90

Examination Outline	Level	SRO
Cross-Reference	Tier #	-
	Group #	-
	K/A #	Generic
		2.2.17
	Importance Rating	3.5

Knowledge of the process for managing maintenance activities during power operations.

Proposed Question:

The unit is operating at 100% power. Switchyard maintenance is in progress and will be complete in 24 hours. Maintenance also desires to work on any one of the following this shift: **EDG1, RCIC, LPCS, Div. I Battery.**

To comply with GAP-PSH-03, Control of On-Line Work Activities, which one of the maintenance activities above could be approved to work this shift without introducing a higher than usual risk?

- a. Removal of EDG1 from service.
- b. Removal of RCIC from service.
- c. Removal of LPCS from service.
- d. Removal of Div. I Battery from service.

Proposed Answer: c.

Explanation (Justification of Distractors):

If plant activities introduce a higher than usual risk of an initiating event such as a loss of offsite power, SSCs that perform key safety functions such as diesel generators, RCIC, and batteries, should not be removed from service. 2BYS*PNL204B would make the Div II diesel generator inoperable.

Technical Reference(s): GAP-PSH-03, Rev 02, 3.2.5 and 3.3.1.d.

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-006-343-3-01, EO-3, EO-5

Question Source:	Bank #	
	Modified Bank #	
	New	New

Question History:	Previous NRC Exam	New
	Previous Test / Quiz	New

Question Cognitive Level:	Memory of Fundamental Knowledge	
	Comprehension or Analysis	2

10CFR Part 55 Content:	55.43.5
	55.45.13

Comments: SRO only: Control of maintenance activities.

Question #

RO 91

Examination Outline	Level	RO
Cross-Reference	Tier #	-
	Group #	-
	K/A #	Generic
		2.2.30
	Importance Rating	3.5

Knowledge of RO duties in the control room during fuel handling such as alarms from fuel handling area.

Proposed Question:

The reactor core is being offloaded. Conditions are as follows:

- Reactor Mode Switch is in REFUEL position
- All control rods are fully inserted into the reactor core

Step 213 just unlatched in the fuel pool. The Main Hoist has NOT been raised.

Step 214 removal of a fuel assembly from the reactor, will be performed next.

Which one of the following describes when Annunciator 603442, CONTROL ROD OUT BLOCK is expected to alarm during the performance of **step 214**?

- The Main Hoist is raised to the Normal-Up position in the spent fuel pool.
- The Main Hoist has been lowered from the Normal-Up position over the reactor core location.
- The fuel assembly has been grappled but Main Hoist raise motion has NOT been commanded.
- The fuel assembly has been grappled and raised from its seated position in the reactor core.

Proposed Answer: d.

Explanation (Justification of Distractors):

- a. Rod Block is received when the refueling bridge is over the reactor core and the Main Hoist is loaded.
- b. Rod Block is received when the refueling bridge is over the reactor core and the Main Hoist is loaded.
- c. Rod Block is received when the refueling bridge is over the reactor core and the Main Hoist is loaded.

Technical Reference(s): N2-ARP-01, Rev 00, 603442, e.4
Tech Spec 3.9.2

Proposed references to be provided to applicants during the examination:

None

Learning Objective: O2-OPS-001-234-2-01, EO-4c, EO-7b

Question Source: Bank #
Modified Bank #
New New

Question History: Previous NRC Exam New
Previous Test / Quiz New

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 2

10CFR Part 55 Content: 55.45.12

Comments:

Question #

SRO 91

Examination Outline	Level	SRO
Cross-Reference	Tier #	-
	Group #	-
	K/A #	2.2.6
	Importance Rating	3.3

Knowledge of the process for making changes in procedures as described in the safety analysis report.

Proposed Question:

A Type 1 change to N2-OP-101A, Plant Startup, that does NOT alter the intent of the procedure is requested. Which one of the following satisfies the approval requirements to implement the temporary change?

- a. Only the CRS or SSS approve the change.
- b. The CSO **and** the SSS approve the change.
- c. Any two members of the management staff approve the change.
- d. The CRS **and** a member of management staff approve the change.

Proposed Answer: d.

Explanation (Justification of Distractors):

The intent of the procedure is NOT altered. The change is approved by two members of the unit management staff, at least one of whom holds a Senior Operator license on the unit affected.

The change is documented, reviewed, and approved within 14 days of implementation by the branch manager or higher levels of management. Not required to answer the questions because it asks the approvals to implement the change.

- a. Another member of the management staff must also approve the change.
- b. The CSO is not a member of the management staff.
- c. One of the members of the management staff must be a SRO

Technical Reference(s): Tech Spec 6.8.3

Proposed references to be provided to applicants during the examination:

None

Learning Objective: O2-OPS-006-343-3-01, EO-5, EO-6

Question Source:	Bank #	
	Modified Bank #	
	New	New

Question History:	Previous NRC Exam	New
	Previous Test / Quiz	New

Question Cognitive Level:	Memory of Fundamental Knowledge	1
	Comprehension or Analysis	

10CFR Part 55 Content:	55.43.3
	55.45.12

Comments: SRO only: Change process for procedures described in the USAR. Approval requirements for a temporary procedure change, which is an application of Technical Specification Administrative Requirements.

Question #

RO 92

Examination Outline	Level	RO
Cross-Reference	Tier #	-
	Group #	-
	K/A #	Generic
		2.2.23
	Importance Rating	2.5

Ability to track limiting conditions for operations.

Proposed Question:

A Limiting Condition for Operation (LCO) on RHR loop A is entered to support surveillance testing during the shift. The testing is completed and RHR Loop A is restored to OPERABLE status prior to the end of the shift.

Which one of the following describes where the short term LCO is required to be tracked?

- a. CSO Log
- b. SSS Log
- c. Operability Log
- d. Equipment Status Log

Proposed Answer: b.

Explanation (Justification of Distractors):

- a. LCOs are not tracked in the CSO log.
- c. Operability Checklist is used for determining inoperability, not for tracking LCOs. Operability log is not used.
- d. Equipment Status Log entry is only made for LCOs that have a duration longer than 1 shift.

Technical Reference(s): Conduct of Operations Manual, Section 3.7.5, 3.11.2.c.2

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: 03-OPS-006-343-3-01, EO-6

Question Source:

Bank #	
Modified Bank #	
New	New

Question History:

Previous NRC Exam	New
Previous Test / Quiz	New

Question Cognitive Level: Memory of Fundamental Knowledge 1
Comprehension or Analysis

10CFR Part 55 Content: 55.43.2
55.45.13

Comments:

Question #

SRO 92

Examination Outline	Level	SRO
Cross-Reference	Tier #	-
	Group #	-
	K/A #	Generic
		2.2.23
	Importance Rating	3.8

Ability to track limiting conditions for operations.

Proposed Question:

A short term Limiting Condition for Operation (LCO) on RHR loop A is entered to support surveillance testing during the shift. The testing is completed and RHR Loop A is restored to OPERABLE status prior to the end of the shift.

Which one of the following describes where the short term LCO is tracked including the information that is required to be entered?

- a. Only the date and time of action statement entry are entered in the SSS log.
- b. Only the date and time of action statement entry are entered into the SSS log and the ESL log.
- c. The date and time of action statement entry and the actions taken are only entered in the SSS log.
- d. The date and time of action statement entry and the actions taken are entered into the SSS log and the ESL log.

Proposed Answer: c.

Explanation (Justification of Distractors):

- a. The T.S. actions must also be entered.
- b. Equipment Status Log entry is only made for LCOs that have a duration longer than 1 shift. The T.S. actions must also be entered.
- d. Equipment Status Log entry is only made for LCOs that have a duration longer than 1 shift.

Technical Reference(s): Conduct of Operations Manual, Section 3.7.5, 3.11.2, 4.2
GAP-OPS-01, Rev 11, Section 3.10.3

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-006-343-3-01, EO-3, EO-4, EO-5,

Question Source:

Bank #	
Modified Bank #	
New	New

Question History:

Previous NRC Exam	New
Previous Test / Quiz	New

Question Cognitive Level: Memory of Fundamental Knowledge 1
Comprehension or Analysis

10CFR Part 55 Content: 55.43.2
55.45.13

Comments: SRO only: LCO tracking/logging

Question #

RO 93

Examination Outline	Level	RO
Cross-Reference	Tier #	
	Group #	
	K/A #	Generic
		2.2.1
	Importance Rating	3.7

Ability to perform pre-startup procedures for the facility, including operating those controls associated with plant equipment that could affect reactivity.

Proposed Question:

The following conditions occur during a startup and heatup:

- The reactor is critical on range 5 of the IRMs
- Reactor period is 120 seconds and shortening
- Reactor coolant temperature is 180°F and rising
- As reactor coolant temperature continues to rise reactor period shortens

With CRS concurrence, which one of the following actions is required per GAP-OPS-05, Reactivity Management?

- a. Immediately insert control rods in reverse order to make the reactor subcritical.
- b. If temperature rises above 200°F, position control rods to lower temperature.
- c. Immediately bypass the RWM and insert all control rods in the cram array to position 00.
- d. If reactor period shortens to 59 seconds, insert the last withdrawn control rod to position 00.

Proposed Answer: a.

Control room operators shall take conservative action when any unexpected situation occurs with respect to core reactivity or any other core abnormality as follows: Take immediate action to stabilize the reactor.

Explanation (Justification of Distractors):

- b., d., are not conservative for this situation, because action is delayed until identified conditions are exceeded.
- c. Not permitted for this situation. Deviation from the sequence also requires SSS and Reactor Engineer permission.

Technical Reference(s): GAP-OPS-05, 3.2.3, Rev 002

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: 03-OPS-006-343-3-01, EO-2, EO-5

Question Source:	Bank #	
	Modified Bank #	
	New	New
Question History:	Previous NRC Exam	New
	Previous Test / Quiz	New
Question Cognitive Level:	Memory of Fundamental Knowledge	
	Comprehension or Analysis	3
10CFR Part 55 Content:	55.45.1	

Comments:

NRC Comments: Stem focus, needs more information.
Are "b" and "d" wrong, based on stem?

NMPC Response: Added reference to procedure to the stem. Modified distractor "b" and "d". These distractors now imply corrective action can be delayed until specific conditions are exceeded rather than taking "immediate" action as directed from GAP-OPS-05.

Question #

SRO 93

Examination Outline	Level	SRO
Cross-Reference	Tier #	-
	Group #	-
	K/A #	Generic
	Importance Rating	2.3.4
		3.1

Knowledge of radiation exposure limits and contamination control, including permissible levels in excess of those authorized.

Proposed Question:

A station operator has an accumulated TEDE of 3800 mrem for the year. Because of dose projections during the assigned outage work, the individual is expected to receive an additional TEDE of 300 mrem.

In accordance with S-RAP-RPP-0703, Authorization to Exceed Administrative Dose Limits, which one of the following describes the **final** authorization required for the worker to receive the expected dose?

- a. Plant Manager
- b. Outage Manager
- c. Unit ALARA Manager
- d. Site Vice President – Nuclear

Proposed Answer: a.

Explanation (Justification of Distractors):

The plant manager provides the final review and approval of requests to increase individual dose limits.

Technical Reference(s): S-RAP-RPP-0703

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-006-343-3-01, EO-6

Question Source:	Bank #	
	Modified Bank #	
	New	New

Question History:	Previous NRC Exam	New
	Previous Test / Quiz	New

Question Cognitive Level:	Memory of Fundamental Knowledge	1
	Comprehension or Analysis	

10CFR Part 55 Content:	55.43.4
	55.45.10

Comments: SRO only: Authorization to exceed station administrative dose requirements.

Question #

RO 94

SRO 94

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	-	-
	Group #	-	-
	K/A #	Generic	Generic
		2.3.11	2.3.11
	Importance Rating	2.7	3.2
Ability to control radiation releases.			

Proposed Question:

The plant is at 100% power. Irradiated fuel is being arranged in the fuel pool to support receipt of new fuel when annunciator 851254, PROCESS AIRBORNE RADN MON ACTIVATED, is received.

DRMS indicates "red" for the following:

- 2HVR-CAB14A-1, HVR ABOVE REFUEL FLR
- 2HVR-CAB14B-1, HVR ABOVE REFUEL FLR

Which one of the following describes the required operator action(s)?

- a. Manually isolate the above refuel floor ventilation dampers. Start GTS and unit cooler 2HVR*UC413B.
- b. Manually isolate the above and below refuel floor ventilation dampers. Start GTS and unit cooler 2HVR*UC413B.
- c. Verify the above refuel floor ventilation dampers are isolated and both GTS are operating. Start unit cooler 2HVR*UC413B.
- d. Verify the above and below refuel floor ventilation dampers are isolated, both GTS and unit cooler 2HVR*UC413B are operating.

Proposed Answer: d.

Explanation (Justification of Distractors):

- a. The above and below refuel floor ventilation dampers automatically close, and GTS and unit cooler 2HVR*413A automatically start.
- b. The above and below refuel floor ventilation dampers automatically close, and GTS and unit cooler 2HVR*UC413A automatically start.
- c. The below refuel floor ventilation dampers automatically close and unit cooler 2HVR*UC413A automatically starts.

Question # **RO 95** **SRO 95**

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #		
	Group #		
	K/A #	Generic	Generic
		2.3.9	2.3.9
	Importance Rating	2.5	3.4
Knowledge of the process for performing a containment purge.			

Proposed Question:

Following an accident, it is necessary to purge the suppression chamber with nitrogen using EOP-6, Attachment 25, Containment Purging. Suppression pool level is 203 feet.

Which one of the following describes how the gasses in the drywell atmosphere are vented to the main stack when performing this procedure?

- a. After nitrogen is aligned to the suppression chamber and the suppression chamber is being vented, the drywell purge outlet valves are opened.
- b. After nitrogen is aligned to the suppression chamber and the suppression chamber is being vented, nitrogen is aligned to the drywell and the drywell purge outlet valves are opened.
- c. When drywell pressure is at least 5 psig higher than suppression chamber pressure, the drywell purge outlet valves and then the suppression chamber purge outlet valves are opened.
- d. After the drywell purge inlet and suppression chamber purge outlet valves are open, drywell pressure rises and gasses vent through the downcomers to the suppression chamber.

Proposed Answer: d.

Explanation (Justification of Distractors):

When purging the containment from the suppression chamber, N2 is added to the drywell and the suppression chamber is vented to the main stack through GTS. As N2 is added to the drywell, dryell pressure rises until it is sufficient to overcome the hydrostatic head of water in the downcomers (approximately 5 psig). The drywell atmosphere will then vent to the suppression chamber and out the stack. When performing this procedure, no N2 is added to the suppression chamber and the drywell purge outlet valves are not opened.

Technical Reference(s): N2-EOP-6, Attachment 25, Section 3.3

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-001-223-2-03, EO-4a, EO-4b

Question Source: Bank #
Modified Bank #
New New

Question History: Previous NRC Exam New
Previous Test / Quiz New

Question Cognitive Level: Memory of Fundamental Knowledge 1
Comprehension or Analysis

10CFR Part 55 Content: 55.41.9
55.43.4
55.45.10

Comments:

Question # RO 96 SRO 96

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #		
	Group #		
	K/A #	Generic	Generic
		2.3.1	2.3.1
	Importance Rating	2.6	3.0
Knowledge of 10CFR: 20 and related facility radiation control requirements.			

Proposed Question:

An auxiliary operator receives 28 mrem while performing an on-shift evolution.

Based on the dose received by the operator, which one of the following is the required action in accordance with the Shift Routines and Operating Practices section of the Operations Manual?

- a. Read the operators TLD to confirm the dose.
- b. Survey the area and verify radiological postings.
- c. Assess the task for ways to reduce radiation exposure.
- d. Remove the operator from duties that are performed within the RCA.

Proposed Answer: c. The required action is to perform a self-assessment to identify improvements.

Explanation (Justification of Distractors):

- a. This is not a requirement for this exposure. The daily limit is 50 mrem.
- b. This is not a requirement for this exposure. The daily limit is 50 mrem.
- d. The only requirement is to perform a self-assessment to identify improvements.

Technical Reference(s): Operations Manual, Section 3.2.4

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: 03-OPS-006-343-3-01, EO-4, EO-5

Question Source:

Bank #	
Modified Bank #	
New	New

Question History:

Previous NRC Exam	New
Previous Test / Quiz	New

Question Cognitive Level: Memory of Fundamental Knowledge 1
Comprehension or Analysis

10CFR Part 55 Content:

- 55.41.12
- 55.43.3
- 55.45.9
- 55.45.10

Comments:

NRC Comments: Stem focus
Distractors a, b and d may be correct.

NMPC Response: Added reference to the Operations Manual and made other stem wording changes. Changed distractor "d" to make it consistent with the stem

Question #

RO 97

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	-	-
	Group #	-	-
	K/A #	Generic	-
		2.3.2	-
	Importance Rating	2.5	-

Knowledge of facility ALARA program.

Proposed Question:

Which one of the following meets the requirements for the SSS to waive the independent verification of a markup?

- a. Markup is in a **high radiation area** and can only be applied by a licensed reactor operator.
- b. Markup is in a **high radiation area** and can be applied by either an auxiliary operator or a licensed reactor operator.
- c. Markup is in a **radiation area** with an expected exposure of ≥ 15 mrem and can only be applied by a licensed reactor operator.
- d. Markup is in a **radiation area** with an expected exposure of ≥ 15 mrem and can be applied by either an auxiliary operator or a licensed reactor operator.

Proposed Answer: a.

Explanation (Justification of Distractors):

For high radiation areas, the SSS may waive the independent verification provided a licensed reactor operator applies the markup. Waivers of independent verification are not permitted in a radiation area.

Technical Reference(s): GAP-OPS-02, Rev 10, Section 3.4.2

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: 03-OPS-006-343-3-01, EO-7

Question Source:	Bank #	
	Modified Bank #	
	New	New

Question History:	Previous NRC Exam	New
	Previous Test / Quiz	New

Question Cognitive Level:	Memory of Fundamental Knowledge	1
	Comprehension or Analysis	

10CFR Part 55 Content:	55.41.12
	55.43.4
	55.45.9
	55.45.10

Comments:

Question #

SRO 97

Examination Outline	Level	SRO
Cross-Reference	Tier #	-
	Group #	-
	K/A #	Generic
		2.4.1
	Importance Rating	4.6

Knowledge of EOP entry conditions and immediate action steps.

Proposed Question:

A unit startup is in progress. The first Reactor Feedwater Pump was just placed into service when the "A" CRD pump trips. The initial attempt to start the "B" CRD pump is unsuccessful.

Which one of the following conditions requires that the reactor be scrammed per N2-SOP-101C, Reactor Scram?

- a. Neither CRD pump can be started within 20 minutes.
- b. Seal cooling cannot be aligned to the WCS pumps from CCP.
- c. Reference leg backfill is secured to RPV instrumentation for greater than 20 minutes.
- d. Accumulator pressure is verified at 930 psig for a control rod at position 04.

Proposed Answer: d.

Explanation (Justification of Distractors):

- a. This requires a scram provided that more than one accumulator is inoperable.
- b. This requires that the running WCS pump is tripped and not a reactor scram.
- c. Instrumentation operability becomes a concern when secured for 26 hours. The corrective action is to flush the reference legs.

Technical Reference(s): N2-SOP-30, Rev 00, Section 3.0

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-006-SOP-2-01-29, TO-13, EO-2

Question Source: Bank #
Modified Bank #
New New

Question History: Previous NRC Exam New
Previous Test / Quiz New

Question Cognitive Level: Memory of Fundamental Knowledge
Comprehension or Analysis 2

10CFR Part 55 Content: 55.41.10
55.43.5
55.45.13

Comments: SRO only: SRO actions to direct a plant scram based on Technical Specifications requirements.

NRC Comment: Is the first part of the question needed.

NMP2 Response: Yes it is needed. This information is used to determine the status of the reactor startup. Specifically, reactor pressure at 500 psig. This information is necessary in determining the correct response.

Question #

RO 98

SRO 98

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #	Generic	Generic
	Group #	-	-
	K/A #	2.4.32	2.4.32
	Importance Rating	3.3	3.5
Knowledge of operator response to loss of all annunciators.			

Proposed Question:

Following annunciator testing of control room panel 2CEC*PNL603, its annunciators are locked in the fast flash mode. Which one of the following describes the immediate operator actions?

- a. Station a licensed operator to continuously monitor all control room panels.
- b. Notify the Fire Chief to initiate increased monitoring of the Fire System status.
- c. Station a licensed operator to continuously monitor the affected control room panels.
- d. Direct a licensed operator to start a new set of rounds as another operator is completing the rounds in affected areas of the plant.

Proposed Answer: c.

Explanation (Justification of Distractors):

- a. Monitoring is only required for the panels which have lost annunciators.
- b. This action is only required if annunciators are lost for 2CEC-PNL849.
- d. This is a subsequent operator action.

Technical Reference(s): N2-SOP-91, Rev 00, 3.0

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-006-SOP-2-01-29, # 2

Question Source: Bank #
Modified Bank #
New New

Question History: Previous NRC Exam New
Previous Test / Quiz New

Question Cognitive Level: Memory of Fundamental Knowledge 1
Comprehension or Analysis

10CFR Part 55 Content: 55.41.10
55.43.5
55.45.13

Comments:

Question #

RO 99

Examination Outline	Level	RO
Cross-Reference	Tier #	-
	Group #	-
	K/A #	Generic
		2.4.19
	Importance Rating	2.7
Knowledge of EOP layout / symbols / and icons.		

Proposed Question:

While performing N2-EOP-6, Attachment 14, Alternate Control Rod Insertions, the step to defeat the RPS interlocks is encountered. Which one of the following is indicated by the "T" that is in the left margin adjacent to this step?

- a. Indicates a temporary alteration.
- b. Indicates the use of a jumper for the alteration.
- c. Indicates the time that the alteration is made must be recorded.
- d. Indicates the TSC must authorize performance of the alteration.

Proposed Answer: b.

Explanation (Justification of Distractors):

A "T" within a circle notation in the left margin adjacent to the step or note indicates that a tool or material is required for performance.

Technical Reference(s): N2-EOP-6, Rev 05, Precaution and Limitation 9.0

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: O2-OPS-006-344-2-22, EO-4.0

Question Source: Bank #
Modified Bank #
New New

Question History: Previous NRC Exam New
Previous Test / Quiz New

Question Cognitive Level: Memory of Fundamental Knowledge 1
Comprehension or Analysis

10CFR Part 55 Content: 55.41.10
55.45.13

Comments:

NRC Comments: LOD 1

NMPC Response: Changed the question so that an understanding of the step is required to determine the use of the "T". Removed the step wording and indicated in the question that the RPS interlocks will be defeated.

Question #

SRO 99

Examination Outline	Level	SRO
Cross-Reference	Tier #	-
	Group #	-
	K/A #	Generic
		2.4.19
	Importance Rating	3.7
Knowledge of EOP layout / symbols / and icons.		

Proposed Question:

While executing N2-EOP-C4, RPV Flooding, injection into the reactor is reestablished to maintain six (6) SRVs open. Reactor pressure is being maintained just above the Minimum Alternate Reactor Flooding Pressure.

Which one of the following is the basis for establishing the conditions above?

- a. Ensure core criticality will not occur during RPV Flooding if boron injection is complete.
- b. Ensure RPV injection flow is controlled to flood the RPV without flooding the suppression pool first.
- c. Ensure sufficient decay heat removal to cool the nuclear fuel and maintain adequate core cooling.
- d. Ensure conditions are established to maintain the SRVs open with a mixture of steam and water flow.

Proposed Answer: c.

Explanation (Justification of Distractors):

- a. Complete shutdown (cold shutdown boron weight) only assures the reactor will be shutdown if no core voids exist and RPV water level is at the high level trip setpoint.
- b. Suppression pool high levels are addressed by other methods.
- c. The SRVs are held open by nitrogen pressure independent of system (RPV) pressure.

Technical Reference(s): NMP2 EOP Tech. Bases, N2-EOP-C4, RPV Flooding

Proposed references to be provided to applicants during the examination:

None

Learning Objective: O2-OPS-006-344-2-16, EO-3

Question Source: Bank #
Modified Bank #
New New

Question History: Previous NRC Exam New
Previous Test / Quiz New

Question Cognitive Level: Memory of Fundamental Knowledge 1
Comprehension or Analysis

10CFR Part 55 Content: 55.41.10
55.45.13

Comments: SRO only: SRO knowledge of the basis for EOP actions that are directed/taken.

NRC Comments: Level of Difficulty was 1

NMP2 Response: Wrote a new question

Question #

RO 100

SRO 100

Examination Outline	Level	RO	SRO
Cross-Reference	Tier #		
	Group #		
	K/A #	Generic	Generic
		2.4.21	2.4.21
	Importance Rating	3.7	4.3

Knowledge of the parameters and logic used to assess the status of safety functions including:

1. Reactivity control
2. Core cooling and heat removal
3. Reactor coolant system integrity
4. Containment conditions
5. Radioactivity release control.

Proposed Question:

The Safety Parameter Display System (SPDS) is selected to indicate SAFETY FUNCTION STATUS.

Which one of the following describes how an operator is alerted that drywell pressure is at 2.0 psig?

- a. Only the Level 2 Safety Status Indicator for CONTAINMENT INTEGRITY is **red**.
- b. Only the Level 2 Safety Status Indicator for CONTAINMENT INTEGRITY is **yellow**.
- c. The parameter and the Level 2 Safety Status Indicator for CONTAINMENT INTEGRITY are **red**.
- d. The parameter and the Level 2 Safety Status Indicator for CONTAINMENT INTEGRITY are **yellow**.

Proposed Answer: d.

Explanation (Justification of Distractors):

- a. The parameter is abnormal and will only be yellow.
- b. The parameter is also yellow.
- c. The parameter is abnormal and will only be yellow.

Technical Reference(s): N2-OP-91B, Rev 02, Section B.2, B.3, Attachment 5.

Proposed references to be provided to applicants during the examination:

None.

Learning Objective: 02-OPS-001-226-2-02, EO-4c, EO-9

Question Source:	Bank #	
	Modified Bank #	
	New	New

Question History:	Previous NRC Exam	New
	Previous Test / Quiz	New

Question Cognitive Level:	Memory of Fundamental Knowledge	1
	Comprehension or Analysis	

10CFR Part 55 Content:	55.41.4
	55.43.5
	55.45.12

Comments:

NRC Comments: LOD 1

NMPC Response: During exam validation, 2 of 4 operators missed this question. Is it really LOD 1?

1

2

3