

DRAFT River Bend Station Initial Licensed Operator Exam June 2007

QUESTION NO. 1

The plant was operating at 80% power when Reactor Recirculation Pump A tripped.

Based on this, the operator would expect RPV level to initially _____ because _____.

- A. decrease; forced circulation decreased
- B. increase; voiding increased
- C. decrease; the reactor feedwater pumps runback
- D. increase; feedflow is greater than steam flow

Answer: B
Less forced cooling flow causes increased voiding.

K/A Knowledge of the reasons for reactor water level response as it applies to Partial or Complete
Statement: Loss of Forced Core Flow Circulation.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
295001 AK3.01	3.4	3.6	41.5	FSAR 7.7.1.2	RLP-STM-0051 E.d

Tier/Group:	1/1	LOK: H	LOD: 2
Origin:	NRC		
History:	New NRC		BANK QID: N/A

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QUESTION NO. 2

Standby Diesel Generator 1A is operating in parallel with preferred offsite power during performance of a load run.

While performing maintenance, instrumentation technicians inadvertently cause a LOCA signal to be sent to EDG 1A. One minute later, off-site power is lost.

During this transient, EDG 1A output breaker will _____.

- A. Open on the LOCA signal and remain open on the loss of power
- B. Remain closed throughout the transient
- C. Remain closed on the LOCA signal; and, on the loss of power, open then re-close
- D. Open on the LOCA signal and re-close on the loss of power

Answer: D
Understanding of sequencer operation makes D the only correct answer.

K/A Statement: Ability to operate and/or monitor emergency generators as it applies to Partial or Complete Loss of AC Power.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
295003 AA1.02	4.2	4.3	41.7	STM-309S	RLP-STM-309S J.f

Tier/Group:	1/1	LOK: H	LOD: 2
Origin:	NRC		
History:	New NRC		BANK QID: N/A

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QUESTION NO. 3

The plant was at 100% power with AC and DC electrical distribution systems aligned for normal operation.

Operators note that ENB-SWG01A battery bus voltage is 125VDC.

Based on this, ENB-SWG01A bus voltage indicates _____.

- A. There is a failure of ENB-CHGR1A battery charger
- B. There is a low resistance ground on the battery bus
- C. The battery is on a continuous float charge by ENB-CHGR1A
- D. The battery has been disconnected from ENB-SWG01A battery bus

Answer: A

A failure of the charger would cause DC bus voltage to lower to battery terminal voltage.

B – A low resistance ground would cause bus voltage to read close to ground, and high current, and lower terminal voltage

C – this would cause higher bus voltage

D – disconnecting the battery would have no effect on bus voltage since the voltage is governed by charger output

K/A Statement: Ability to determine and/or interpret battery voltage as it applies to Partial or Complete Loss of DC Power.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
295004 AA2.03	2.8	2.9	41.10 43.5	USAR 8.3.2 AOP-0014 1.2 STM-305	RLP-STM-0305 D.

Tier/Group: 1/1 LOK: H LOD: 3
Origin: NRC
History: New NRC BANK QID: N/A

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QUESTION NO. 4

The main turbine has just tripped while operating at 40% reactor power.

The operator would expect to see _____.

- A. All 8 Scram Pilot Solenoid Valve indicating lights out on H13 P691
- B. Turbine bypass valves indicate they are open on H13 P680
- C. ENS-SWG01A aligned to NNS-SWG1B on H13 P808
- D. The main generator output breakers tripped and the exciter field breaker closed on H13 P680

Answer: B
A – Wrong panel
C – Wrong alignment
D – Wrong alignment

K/A Statement: Ability to locate control room switches, controls and indications; and to determine they are reflecting the correct lineup. (Main Turbine Trip)

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
295005 2.1.31 (generic)	4.2	3.9	41.7	AOP-2	RLP-STM-0310 G.

Tier/Group:	1/1	LOK: H	LOD: 3
Origin:	NRC		
History:	New NRC		
		BANK QID:	N/A

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QUESTION NO. 5

The plant had been at 100 percent power for the last 300 days when all MSIVs close and a scram occurs.

One minute following the SCRAM, decay heat is being removed by automatic operation of the Safety Relief Valves in the _____.

- A. Safety Mode
- B. Low-Low Set Mode
- C. Relief Mode
- D. ADS Mode

Answer: B

The SRVs initially operate in relief mode; however, pressure is maintained and decay is removed by the operation in low-low set.

K/A Statement: Knowledge of the operational implications of decay heat generation and removal as it applies to SCRAM.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
295006 AK1.01	3.7	3.9	41.8-10	SOP-0035 STM-109	RLP-STM-109 E

Tier/Group: 1/1 LOK: H LOD: 2
Origin: NRC
History: New NRC BANK QID:

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QUESTION NO. 6

Which one of the following conditions will require control room abandonment within 1 hour?

- A. Fire in area C-17 (Control Building Ventilation Room)
- B. Fire in area C-16 (Div I Remote Shutdown Room and General Area)
- C. Fire in area C-13W (HVK Chiller West Side)
- D. Fire in area C-7 (Post Accident Rad Monitoring)

Answer: A

All the areas could potentially lead to control room abandonment; however, FSAR denotes C-17 as the area which would require abandonment in 1 hour.

K/A Statement: Knowledge of the interrelations between Control Room Abandonment and control room HVAC.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
295016 AK2.03	2.9	3.1	41.7	FSAR 9A.2.5.2.17.7 AOP-52 Att 2	RLP-STM-402 F.e

Tier/Group	1/1	LOK: F	LOD: 2
Origin:	NRC		
History:	New NRC		BANK QID: N/A

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QUESTION NO. 7

The plant was operating at 100 percent power when a Complete Loss of Reactor Plant Component Cooling Water occurs.

Procedure AOP-11, Loss of RPCCW, directs the reactor be scrammed because:

- A. Recirculation pumps must be tripped and isolated
- B. CCP cooled Div 1 and 2 components will be isolated from the CCP system
- C. Both CRD pumps will automatically trip
- D. CRD charging water pressure will fall below 1540 psig with Reactor Steam Dome pressure greater than 600 psig

Answer: A

B, C and D are all conditions which could lead to reactor shutdown (scram). A is the correct choice for this situation because the next step after scram is tripping of recirculation pumps.

K/A Statement: Knowledge of the reasons for power reduction as it applies to Partial or Complete Loss of Component Cooling Water.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
295018 AK3.02	3.3	3.4	41.5	TS 3.1.5 AOP-0011	RLP-STM-0115 Att4.F

Tier/Group:	1/1	LOK: F	LOD: 3
Origin:	NRC		
History:	New NRC		BANK QID: N/A

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QUESTION NO. 8

The Local Selector Switches for all three Instrument Air Compressors is in SEQ. A leak develops in the Instrument Air Header; however, due to a failure of IAS-SEQ1 (sequence control switch), no Instrument Air Compressor starts. Pressure decays to 105 psig.

What are the positions of the following valves:

- SAS-AOV134, IAS-SAS Cross Tie Valve
- SAS-AOV133, Service Air Header Block Valve
- IAS-AOV300A, IAS Dryer 2 Purge Isolation Valve
- IAS-AOV300B, IAS Dryer 3 Purge Isolation Valve

	SAS-AOV134	SAS-AOV133	IAS-AOV300A	IAS-AOV300B
A.	Closed	Open	Open	Open
B.	Open	Open	Closed	Closed
C.	Open	Closed	Closed	Closed
D.	Closed	Open	Open	Closed

Answer: C
 When pressure falls below the setpoint, IAS is aligned to SAS.

K/A Statement: Ability to operate and/or monitor service air isolation valves as it applies to Partial or Complete Loss of Instrument Air.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
295019 AA1.04	3.3	3.2	41.7	AOP-0008	RLP-STM-0121 Att3.A.a-d

Tier/Group: 1/1 LOK: H LOD: 4
 Origin: NRC
 History: New NRC BANK QID: N/A

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QUESTION NO. 9

The plant is in Mode 4 when the reactor recirculation pumps trip and shutdown cooling is lost. Reactor water level is +45 inches.

The operator is required to monitor RPV metal temperature _____.

- A. On the Emergency Response and Information System (ERIS)
- B. Using the RPV bottom head drain temperature indication
- C. Using steam dome pressure
- D. On recorder R643, Reactor Vessel Temperature Monitoring

Answer: D

A. ERIS provides temperature indications for process systems, but not the metal temperature required by the STP.

B. With recirculation pumps secured, RPV drain temperature is inaccurate.

C. Steam dome pressure does not correlate with gross coolant or metal temperature.

K/A Statement: Ability to determine and/or interpret reactor vessel metal temperature as it relates to Loss of Shutdown Cooling.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
295021 AA2.05	3.4	3.5	41.10 43.5	AOP-0051 STM-051	RLP-STM-51 P.f

Tier/Group:	1/1	LOK: H	LOD: 2
Origin:	NRC		
History:	New NRC		BANK QID: N/A

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QUESTION NO. 10

The plant is in a refueling outage and fuel is being removed from the core. The following conditions exist:

- HVF-FN3A (EXH FLT TRN) is tagged out for repairs, and the maintenance has just been completed. No sign-offs have been performed.
- HVF-FN3B (EXH FLT TRN) is running in emergency mode

A refueling accident occurs, releasing airborne contamination into the fuel building.

Concurrently, HVF-FN03B trips off due to a ground fault.

As part of emergency releasing the tagout on FN03A, which ONE of the following is performed?

- A. Perform a safety evaluation after the tagout has been released
- B. The maintenance supervisor(s) will sign off the Tagout Holders and Work Order Holders
- C. Document the reason for the emergency release on the Work Order Holder
- D. Notify all Tagout Holders and Work Order Holders of the tagout removal

Answer: D

- A. Safety evaluation before release
- B. CRS will sign off
- C. Tagout will receive documentation

K/A
Statement: Knowledge of tagging and clearance procedures. (refueling accidents)

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
295023 2.2.13 (generic)	3.6	3.8	41.10 43.5	EN-OP-102 (5.21)	RLP-STM-055 Att3.G

Tier/Group	1/1	LOK: H	LOD: 4
Origin:	NRC		
History:	New NRC		BANK QID: N/A

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QUESTION NO. 11

An event has just occurred while operating at 100 percent power. The following conditions exist:

- The reactor automatically scrammed
- RMS-RE112, Drywell Atmosphere, gaseous activity is elevated
- RMS-RE111, Containment Atmosphere, gaseous activity is normal

The event is a _____.

- A. Turbine trip with failure of bypass valves to open
- B. Main Steam Line high radiation due to failed fuel
- C. High drywell pressure due to a LOCA
- D. Accidental initiation of High Pressure Core Spray

Answer: C

LOCA in drywell would cause these indications

- A. This will cause containment activity to possibly go up due to SRVs
- B. Failed fuel would cause MSIV isolation and same indications as A
- D. HPCS initiation would not cause any of these

K/A Statement: Ability to determine and/or interpret drywell radiation levels as it applies to High Drywell Pressure.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
295024 EA2.08	3.6	4.0	41.7	SOP-86 STM-511	None

Tier/Group: 1/1 LOK: H LOD: 3
Origin: NRC
History: New NRC BANK QID: N/A

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QUESTION NO. 12

What system provides the message “RPV Alarm” with a red border to alert the operators of high reactor pressure?

- A. TAMARIS
- B. Core Monitoring System (CMS)
- C. Plant Process Computer (PPC)
- D. Emergency Response and Information System (ERIS)

Answer: D

TAMARIS, CMS and PPC do not provide the indications in the stem. They do monitor RPV pressure.

K/A

Statement: Knowledge of the interrelations between High Reactor Pressure and SPDS/ERIS/CRIDS/GDS.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
295025 EK2.10	2.9	3.2	41.7	STM 514	RLP-STM-514Att 3.B.12.a,h
Tier/Group	1/1	LOK: F		LOD: 2	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 13

The crew has entered EOP-2 (Containment Control) due to high suppression pool temperature.

EOP-2 directs the crew to enter EOP-1 (RPV Control) and scram the reactor before suppression pool temperature reaches 110°F because _____.

- A. The Heat Capacity Temperature Limit is in the unsafe zone at 110°F
- B. Scramming assures that, if possible, the reactor will be shut down before the boron injection temperature is reached
- C. Anticipating Emergency Depressurization is required when the Boron Injection Temperature is reached
- D. An Emergency Depressurization is required when suppression pool temperature is 110°F

Answer: B

Basis for entering EOP-1 and scramming the plant. Since the plant uses 110F instead of a graph. This will ensure the plant will be shut down enough prior to reaching BIT.

- A. HCTL is safe at 110F
- C. True, but not the reason for EOP-2 transition to EOP-1
- D. ED is not required at this temperature

K/A Statement: Knowledge of the reasons for reactor SCRAM as it relates to Suppression Pool High Water Temperature.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
295026 EK3.05	3.9	4.1	41.5	EOP 2 Bases	RLP-STM-514 Att3.D.c

Tier/Group	1/1	LOK: H	LOD: 3
Origin:	NRC		
History:	New NRC		BANK QID: N/A

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QUESTION NO. 14

While in Mode 1, containment temperature rises to 91°F and the operators enter EOP 2 “Containment Temperature Control”. An operator notes HVR-UC1A, CONTMT UNIT CLR A is the only running unit cooler.

Operators should _____ to lower containment temperature.

- A. Enter containment and adjust HVR-TIC26A, CONTMT UNIT CLR 1A INTAKE TEMPERATURE INDICATING CONTROLLER
- B. Ensure HVR-FN1A, B, C and D CONTMT DOME RECIRC FANS are running
- C. Start HVR-UC1B, CONTMT UNIT CLR B
- D. Perform a containment high volume purge

Answer: C

A, B, D – Although they may lower temperature, temperature has risen since the required number of coolers (2) was not running. Containment purging is not allowed in mode 1.

K/A Ability to operate and/or monitor containment ventilation/cooling as it applies to High
Statement: Containment Temperature.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
295027 EA1.02	3.5	3.5	41.7	SOP-0059 EOP-2	RLP-STM-57 CC.b

Tier/Group	1/1	LOK: F	LOD: 2
Origin:	NRC		
History:	New NRC		BANK QID: N/A

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QUESTION NO. 15

** EOP Caution #1 is included as a reference **

Following a small break LOCA that occurred while operating in Mode 1, the following conditions exist:

- RPV Pressure = 800 psig and lowering
- DW Temperature = 300°F and rising
- Containment Temperature = 88°F and steady
- RPV Level (NR) = 50 inches and steady
- RPV Level (Upset) = 60 inches and slowly rising

_____ RPV Level indication(s) is(are) unreliable, and actual RPV level is _____.

- A. NR; Rising
- B. Upset; Steady
- C. Both NR and Upset; Indeterminate
- D. Neither NR nor Upset; Steady

Answer: D

From EOP caution 1. With these indications, neither NR nor upset are inaccurate. Drywell temperature is causing upset indication to rise.

K/A Statement: Ability to determine and/or interpret reactor water level as it applies to High Drywell Temperature.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
295028 EA2.03	3.7	3.9	41.10 43.5	EOP Caution 1	None

Tier/Group: 1/1 LOK: H LOD: 3
Origin: NRC
History: New NRC BANK QID: N/A

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QUESTION NO. 16

The plant is in Mode 4, preparing for a refueling outage. The following conditions exist:

- 'A' RHR is in shutdown cooling mode, and can manually be realigned for LPCI
- HPCS is OPERABLE with suction aligned to the CST
- CST level is 13 feet
- The remaining ECCS subsystems are NOT available for ECCS injection or spray

If Suppression Pool water level falls below 13 feet 3 inches, _____ would be considered OPERABLE for ECCS injection/spray.

A. 'A' RHR ONLY

B. RCIC

C. HPCS ONLY

D. NO ECCS subsystems

Answer: C

With SP level <13ft 3in RHR is INOPERABLE

RCIC not required in mode 4. No pressure to run it.

HPCS is operable if aligned to the CST and level is >12ft

K/A Statement: Knowledge of limiting conditions for operations and safety limits. (Low Suppression Pool Water Level)

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
295030 2.2.22 (generic)	3.4	4.1	43.2	TS 3.5.2	None

Tier/Group	1/1	LOK: H	LOD: 4
Origin:	NRC		
History:	New NRC		BANK QID: N/A

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QUESTION NO. 17

Following an ATWS from 100 percent power, the operators entered EOP 1A. Standby Liquid Control is injecting, and RPV level was lowered to -70 inches. Current conditions are as follows:

- Both recirculation pumps are tripped
- Reactor power is < 5 percent
- HPCS injection is prevented
- Makeup to the RPV is RCIC
- 30 pounds of boron have been injected

Raising RPV level before the Hot Shutdown Boron Weight has been injected would:

- A. Increase the void fraction and lower reactor power
- B. Decrease the boron concentration and raise reactor power
- C. Decrease the weight of boron in the RPV and raise reactor power
- D. Increase the concentration of boron in the RPV and lower reactor power

Answer: B

Raising level would decrease the boron concentration. This would cause power to go up if controlling using ATWS level control.

K/A Statement: Knowledge of the operational implications of water level effects on reactor power as it relates to Reactor Low Water Level

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
295031 EK1.03	3.7	4.1	41.8-10	EOP 1A EOP 1A Bases	RLP-STM-0201 A.a

Tier/Group	1/1	LOK: H	LOD: 3
Origin:	NRC		
History:	New NRC	BANK QID: N/A	

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QUESTION NO. 18

According to EOP Enclosure 14 (Defeating RC&IS Interlocks and Emergency Control Rod Insertion Data Sheet), control rods can be manually inserted by _____.

- A. Overriding the Turbine First Stage Pressure input into the Rod Pattern Control System
- B. Bypassing the control rods on the Rod Action Control System
- C. Using the In-Timer Skip method of insertion to override the rod blocks
- D. Draining and venting the Scram Discharge Volume

Answer: A

Enclosure 14 discusses using override of Turb fst stg press and inserting using in-timer skip by group starting at 10.

K/A Statement: Knowledge of the interrelations between "Scram Condition Present and Power Above APRM Downscale or Unknown" and RPIS

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
295037 EK2.14	3.6	3.9	41.7	EOP Enclosure 14 EOP-1A	RLP-STM-0500 C.b

Tier/Group	1/1	LOK: F	LOD: 3
Origin:	NRC		
History:	New NRC		BANK QID: N/A

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QUESTION NO. 19

Operators have entered EOP-3, Radioactive Release, due to a LOCA outside containment.

Emergency Depressurization is required before the off-site release rate reaches the point of declaring a General Emergency because _____.

- A. There will be less energy within the reactor coolant system
- B. Low-pressure ECCS systems will inject into the RPV
- C. This will prevent having to isolate any primary systems
- D. RPV level will rapidly increase

Answer: A

B-D: All true, but not the reason

K/A Statement: Knowledge of the reasons for emergency depressurization as it applies to High Offsite Release Rate.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
295038 EK3.04	3.6	3.9	41.5	EOP 3 Bases	None

Tier/Group	1/1	LOK: F	LOD: 2
Origin:	NRC		
History:	New NRC		BANK QID: N/A

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QUESTION NO. 20

A fire has occurred in the High Pressure Core Spray room.

This would alarm at/on _____.

- A. Emergency Response and Information System (ERIS)
- B. RDAC FPM-PNL 12
- C. H13 P-601
- D. H13 P-861

Answer: D

A. ERIS HPCS status but not fire alarm status

B. Wrong RDAC

C. Wrong panel

K/A

Statement: Ability to operate and/or monitor fire alarm as it applies to Plant Fire on Site.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
600000 AA1.06	3.0	3.0	41.7	SOP-36	RLP-STM-250 C

Tier/Group

1/1

LOK: F

LOD: 2

Origin:

NRC

History:

New NRC

BANK QID: N/A

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QUESTION NO. 21

The basis for the Level 8 RCIC turbine trip is to _____.

- A. Prevent over pressurizing the reactor vessel
- B. Prevent overfilling and flooding the RCIC steam supply line
- C. Prevent damage to the main turbine due to moisture carryover
- D. Prevent an over speed trip of the RCIC turbine

Answer: B
A – Purpose of SRV
C – RCIC basis assumes the RPV is isolated
D – Basis for the keep warm

K/A	Knowledge of the reasons for RCIC turbine trip as it relates to Reactor High Water Level				
Statement:					
<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
295008 AK3.06	3.4	3.5	41.5	STM-209 D.2.a	None
Tier/Group:	1/2	LOK: F		LOD: 3	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 22

While operating at 90 percent power, RCIC surveillance testing is in progress and 'A' RHR is in suppression pool cooling mode. Suppression pool temperature slowly rises toward 100°F.

In accordance with SOP-31 (RHR), suppression pool cooling can be increased by _____.

- A. Opening F048A, RHR HX Bypass Valve
- B. Throttling open F003A, RHR HX Outlet Valve
- C. Throttling closed F048A, RHR HX Bypass Valve
- D. Throttling open F047A, RHR HX Inlet Valve

Answer: C

K/A Statement: Knowledge of the interrelation between High Suppression Pool Temperature and suppression pool cooling.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
295013 AK2.01	3.6	3.7	41.7	SOP-31	None

Tier/Group	1/2	LOK: F	LOD: 3
Origin:	NRC		
History:	New NRC		BANK QID: N/A

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QUESTION NO. 23

The reactor is currently at 40 percent power with the 'B' reactor recirculation pump shut down. While troubleshooting, an I&C technician inadvertently causes the 'B' recirculation pump to start and inject cool water into the reactor causing a reactor scram.

RPS scrambled the reactor on _____.

- A. IRM Upscale
- B. APRM Power to Flow
- C. High RPV Pressure
- D. High RPV Level

Answer: B

- A. IRM bypassed
- C. Pressure would not cause the scram
- D. level would go down

K/A

Statement:

Ability to operate and/or monitor RPS as it relates to Inadvertent Reactivity Addition.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
295014 AA1.01	4.0	4.1	41.7	STM 508	RLP-STM-508 C
Tier/Group	1/2	LOK: F		LOD: 2	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 24

What are the operational implications of starting to cool down during an ATWS when no boron has been injected, RPV level has been lowered, and reactor power is 5×10^4 cps?

- A. The normal cooldown prescribed in EOP-1A may cause a return to criticality.
- B. Reactor behavior is unpredictable when no boron has been injected and a cooldown is commenced.
- C. A return to criticality can not be stopped by stopping the cooldown.
- D. The normal cooldown prescribed in EOP-1A will exceed the RPV metal ductility limits.

Answer: A

- B. Less than shutdown boron weight injected and cooldown commenced with return to criticality
- C. It can be stopped
- D. Normal cooldown rate will not exceed ductility limits

K/A Knowledge of the operational implications of cool down effects on reactor power as it applies to
Statement: Incomplete Scram.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
295015 AK1.02	3.9	4.1	41.8	EOP 1A Bases	None
Tier/Group	1/2	LOK: H		LOD: 4	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 25

Which of the following would result in equipment being inoperable?

- A. 100 psig in the Primary Airlock Seal Air Flask
- B. 2 gallons per minute unidentified leakage
- C. 130°F in the RHR Equipment Area
- D. 10 psig RCIC turbine exhaust diaphragm pressure

Answer: C

A. > 90

B. Less than or equal to 2 gpm

D. < 20 psig

K/A Ability to determine and/or interpret equipment operability as it relates to High Secondary Containment Area Temperature.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
295032 EA2.02	3.3	3.5	41.10 43.5	TS 3.3.6.1 TS 3.1.3 TS 3.4.5 TS 3.6.1.2	None

Tier/Group 1/2 LOK: H LOD: 2
 Origin: NRC
 History: New NRC BANK QID: N/A

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QUESTION NO. 26

LPCS Penetration Area Radiation Monitor, RMS-RE218, has just gone into high alarm and reading 100 mr/hr.

This means that the radiation level _____ referenced in EOP-3 (Secondary Containment Control).

- A. Exceeds the maximum safe operating value
- B. Is below the maximum normal operating value
- C. Is at the maximum normal operating value
- D. Is at the maximum safe operating value

Answer: C

The high alarm is the point at which the rad monitor is at the max normal operating value in the associated ARP.

K/A Statement: Knowledge of the interrelations between High Secondary Containment Area Radiation Levels and area radiation monitoring system.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
295033 EK2.01	3.8	4.0	41.7	EOP-3 SOP-86	None
Tier/Group	1/2	LOK: F		LOD: 3	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 27

Following a LOCA, an operator is directed to line-up to pump DFR-TK5A/B (Aux Building Crescent Area Floor Drain Sumps) to the suppression pool in accordance with SOP-104.

The operator opens DFR-MOV146 (Suppression Pool Pumpback) and verifies that DFR-AOV144/145 (Discharge To Radwaste) fully shut.

The operator places DFR-P5A/B/D/E (DFR-TK5A/B Sump Pumps) in AUTO. After this, DFR-MOV146 (Suppression Pool Pumpback) fails to the mid-position and is indicating intermediate on H13-P870.

Based on this, _____.

- A. The DFR-TK5A/B sump pumps will not start
- B. All water pumped from DFR-TK5A/B will go to radwaste
- C. All water pumped from DFR-TK5A/B will go to the suppression pool
- D. DFR-TK5A/B will be pumped to the suppression pool and radwaste

Answer: D

When MOV 146 comes off the full-open position, 144 and 145 open leaving path for water to radwaste and suppression pool

K/A Statement: Ability to interpret control room indications to verify the status and operation of system, and understand how operator actions directives affect plant and system conditions. (Secondary Containment High Sump/Area Water Level)

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
295036 2.4.48 (generic)	3.5	3.8	41.10 43.2	SOP-104 STM-609	None
Tier/Group	1/2	LOK: H		LOD: 3	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 28

The plant was operating at 100 percent power when a large break loss of coolant accident occurs. RPV pressure transmitters PT-098A and PT-098E which input into the RHR isolation logic fail, as is, at 950 psig.

What effect will this failure have on 'A' RHR?

- A. E12-MOV042A (Div I LPCI Injection Valve) will not open
- B. E12-MOV048A (Div I Heat Exchanger Bypass) will not open
- C. 'A' RHR pump will not auto-start
- D. E12-MOV064A (Min Flow Bypass Valve) will remain shut

Answer: A

MOV 42A is interlocked with pressure transmitters.

B. Bypass valves are open

C. Pump start is not interlocked with pressure

D. If the pump is running, min flow will remain open until the discharge opens and min flow is established

K/A Knowledge of the effect that a loss or malfunction of nuclear boiler instrumentation will have on
Statement: RHR/LPCI: Injection Mode

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
203000 K6.09	3.4	3.4	41.7	STM-204	SLP-STM-204 G, Q.h

Tier/Group	2/1	LOK: F	LOD: 3
Origin:	NRC		
History:	New NRC		BANK QID: N/A

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QUESTION NO. 29

'A' RHR is operating in LPCI Mode following a LOCA. The following conditions exist for the 'A' RHR system:

- E12 MOV F053A (SDC Injection Valve) is throttled open to maintain RPV level
- E12 MOV F064A (Minimum Flow Bypass Valve) is shut

If E12 MOV F064A (Minimum Flow Bypass Valve) fails open, then E12-R603A (RHR A Loop Flow) indication will _____, and 'A' RHR Pump flow will _____.

- A. Increase; increase
- B. Decrease; remain the same
- C. Remain the same; increase
- D. Increase; remain the same

Answer: B

Min flow bypass tap off is before the flow transmitter, therefore indicated flow will decrease, but total flow through the pump will remain the same. It can be argued that pump flow may actually increase due to lower head loss, but that combination of answer is not included.

K/A Statement: Ability to operate and/or monitor system flow in the control room(RHR/LPCI: Injection Mode)

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
203000 A4.04	3.8	3.7	41.7	STM 204	RLP-STM-204 C.d
Tier/Group	2/1	LOK: H		LOD: 4	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 30

The power supply for the 'B' RHR pump is _____.

- A. EHS-MCC2E
- B. EHS-MCC2F
- C. ENS-SWG1B
- D. ENS-SWG1A

Answer: C

K/A Statement: Knowledge of the power supplies to pump motors. (Shutdown Cooling)

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
205000 K2.02	3.1	3.1	41.7	SOP-46	RLP-STM-204 K.c
Tier/Group	2/1	LOK: F		LOD: 2	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 31

The plant is in Mode 1 during a startup. A large fire breaks out in the control room, requiring control room abandonment.

Operators will align 'A' RHR for Shutdown Cooling by _____.

- A. Aligning 'A' RHR for Shutdown Cooling prior to leaving the control room
- B. Using the Remote Shutdown Transfer Switches on C61-P001 to reposition valves
- C. Operating the Remote Shutdown Transfer Switches on RSS-PNL102
- D. Operating the Remote Shutdown Control Switches on RSS-PNL101

Answer: D

Remote shutdown control switches are used for valve manipulation, and transfer switches are used for transfer of control. RHR alignment from the control room is not an action of control room abandonment.

K/A

Statement:

Ability to locate and operate components, including local controls. (Shutdown Cooling)

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
205000 2.1.30 (generic)	3.9	3.4	41.7	STM-200 AOP-31	None
Tier/Group:	2/1	LOK: H		LOD: 3	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 32

Following a Loss of Coolant Accident, Low Pressure Core Spray is being used to maintain level. RPV level and Suppression Pool level are steady.

If the LPCS Minimum Flow Valve, E21 MOVF011, fails open then Suppression Pool level will _____ and RPV level will _____.

- A. Increase; decrease
- B. Increase; increase
- C. Decrease; decrease
- D. Decrease; increase

Answer: A

Min flow is directed to the suppression pool. Total system flow remains the same; therefore, flow out of the RPV is now greater than flow in. RPV level will go down.

K/A Statement: Knowledge of the effect that a loss or malfunction of LPCS will have on reactor water level.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
209001 K3.01	3.8	3.9	41.7	STM-207	None
Tier/Group	2/1	LOK: F		LOD: 2	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 33

The High Pressure Core Spray (HPCS) design feature that will prevent overfilling the reactor vessel is the _____.

- A. HPCS pump trip at Level 8
- B. Automatic closure of E22-MOVF004 (HPCS Pump Discharge Valve) at Level 8
- C. Automatic closure of E22-MOVF001 (HPCS CST Suction Vlv) when CST level reaches 2.4 feet
- D. Manual throttling of E22-MOVF004 (HPCS Pump Discharge Valve) to maintain level less than Level 8

Answer: B

Level 8 pump trip does not exist for HPCS. CST suction does not auto close on high level... low CST or high suppression pool. Manual throttling will maintain level below level 8, but is not a design feature.

K/A Statement: Knowledge of the HPCS design features and/or interlocks which prevent overfilling the reactor vessel.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
209002 K4.02	3.4	3.5	41.7	STM 203	RLP-STM-203 C.d
Tier/Group	2/1	LOK: F		LOD: 2	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 34

Following an ATWS, Standby Liquid Control has been injecting for 5 minutes.

An operator notes that the SLC tank level indication has just failed low.

When Enclosure 15 (Alternate SLC Injection and SLC TK GAL TO LB Conversion) is installed as directed by EOP-1A (RPV Control ATWS), _____.

- A. Hot Shutdown Boron Weight can be estimated by obtaining a tank level sounding
- B. RPV water level can be restored after the tank is empty
- C. Cold Shutdown Boron Weight can be estimated using injection time
- D. Boron Concentration can be measured by sampling reactor coolant

Answer: C

- A. Can be used, but not stated in enclosure 15
- B. Not true
- D. True statement, but does not answer the question

K/A Statement: Knowledge of the [operation implications] of the effects of tank level measurement as it relates to Standby Liquid Control

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
211000 K5.06	3.0	3.2	41.5	EOP Enclosure 15 EOP-1A Basis	None

Tier/Group	2/1	LOK: H	LOD: 3
Origin:	NRC		
History:	New NRC		BANK QID: N/A

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QUESTION NO. 35

The plant is operating at 100 percent power and is in a normal line-up.

If power is lost to the RPS-B Motor Generator Set, then _____.

- A. The backup scram solenoid valves will energize
- B. APRM 'E' will fail downscale
- C. The hydraulic control unit 'B' scram solenoids will de-energize
- D. ADS 'B' logic power will be lost

Answer: C

A scram condition would cause backup scram solenoids to energize only if the logic were present and power.

APRM 'E' is powered from div I

ADS logic is not true

K/A Statement: Knowledge of the effect that a loss or malfunction of AC electrical distribution will have on the Reactor Protection System

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
21200 K6.01	3.6	3.8	41.7	STM-508	RLP-STM-508 K.a

Tier/Group	2/1	LOK: F	LOD: 2
Origin:	NRC		
History:	New NRC		BANK QID: N/A

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QUESTION NO. 36

If IRM 'A' is at the IRM Upscale Alarm setpoint and all others are below the setpoint then ____.

- A. Any other IRM must be at the Upscale Alarm setpoint before a rod withdraw block occurs
- B. A half scram is present on RPS 'A' trip system AND a rod withdraw block is present
- C. A rod withdraw block is present
- D. Operators must range up before a rod withdraw block occurs

Answer: C

A rod withdraw block is present

The IRM must be at the IRM upscale scram setpoint for a half scram

K/A Statement: Knowledge of the physical connection and/or the cause-effect relationship between IRM and RC&IS.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
215003 K1.03	3.1	3.1	41.2-9	STM 503	None
Tier/Group	2/1	LOK: H		LOD: 3	
Origin:	NRC				
History:	New NRC			BANK QID:	

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QUESTION NO. 37

During a startup, IRM 'B' is 90 percent of scale on range 6. The operator inadvertently ranges IRM 'B' down to range 5.

Based on this, _____.

- A. A half scram will be present
- B. The reactor will scram
- C. The Reactor Protection System will cause a rod block
- D. IRM 'B' downscale trip will cause a rod block

Answer: A
IRM B is now upscale scram.
One channel will cause a half scram
RCIS will cause the rod block

K/A Statement: Ability to predict and/or monitor changes in parameters associated with operating the IRM system controls including SCRAM and rod block trip setpoints.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
215003 A1.05	3.9	3.9	41.5	STM-503	None
Tier/Group	2/1	LOK: H		LOD: 2	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 38

During a normal reactor startup, power is increasing, and operators begin retracting SRM detectors to maintain SRM indications within the limits specified in GOP-1. However, the 'A' SRM detector is stuck.

In accordance with SOP-74 (Neutron Monitoring System), operators should _____ to prevent a _____.

- A. Bypass 'A' SRM; reactor scram
- B. Bypass 'A' SRM; rod withdraw block
- C. Pull the 'A' SRM drive motor fuses; damaged drive motor
- D. Abort the startup; damaged SRM detector

Answer: B
To prevent a withdraw block, the SRM is bypassed.
There is no scram without shorting links
C and D: incorrect but plausible

K/A Statement: Ability to (a) predict the impacts of a stuck detector on the SRM system; and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of these abnormal conditions.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
215004 A2.03	3.0	3.3	41.5	SOP-0074	RLP-STM-0503 Att3 A-J
Tier/Group	2/1	LOK: H		LOD: 3	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 39

While in Mode 1, a recirculation pump trip occurs, and reactor power is in the restricted region of the power-to-flow map. The following indications are present:

- Annunciator DIV I PERIOD BASED DETECTION SYSTEM HI-HI DECAY RATIO
- APRM A PBDS HIGHEST CONFIRMED COUNT indicates 13
- APRM A PBDS 2nd HIGHEST CONFIRMED COUNT indicates 9

The control rods are _____.

- A. Blocked, and the PBDS alarm is NOT valid
- B. Automatically scrammed due to APRM Upscale
- C. Not blocked, and the Mode Switch must be placed in Shutdown
- D. Blocked, and the Mode Switch must be placed in Shutdown

Answer: A
 Both indications must be above 11 to be valid.
 APRM upscale comes in at the exclusion region
 Reactor is scrammed when the indication is confirmed valid
 No automatic actions occur from the PBDS

K/A Ability to monitor automatic operation of the LPRM/APRM system including control rod block
 Statement: status.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
215005 A3.08	3.7	3.6	41.7	AOP-0024	RLP-STM-0503 Att3 W.b,c; Z
Tier/Group	2/1	LOK: H		LOD: 3	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 40

Following a loss of all feed water from 100% power, RCIC is in operation from its alternate source of water. The following conditions exist:

- RPV level is being maintained at +30”
- RCIC discharge flow is oscillating and getting worse
- RCIC discharge pressure is oscillating and getting worse

Which ONE of the following will cause these indications?

- A. Low CST Level
- B. Low RPV Level
- C. Low RCIC discharge pressure
- D. Low suppression pool level

Answer: D

Alternate RCIC source is suppression pool, and the indications are of cavitation which means low water level at the suction.

K/A Statement: Knowledge of the operational implications of indications of pump cavitation as it applies to RCIC.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
217000 K5.01	2.6	2.6	41.5	GP BWR Gen Fun 2	
Tier/Group	2/1	LOK: F		LOD: 2	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 41

A LOCA has occurred inside the drywell; however, the 'A' high drywell pressure input into ADS logic channel 'A' failed low. Conditions are as follows:

- Drywell pressure is 5 psid
- RHR 'A', 'B' and 'C' are in LPCI mode and operating
- RPV level is at Level 2 and decreasing

Assume operators take no actions.

Upon reaching Level 1, _____.

- A. The Division II ADS valves will immediately open
- B. All ADS valves will open 105 seconds later
- C. Only the Division II ADS valves will open after a 105 second time delay
- D. All ADS valves will open after a 5 minute + 105 second time delay

Answer: B

Either divisional actuation system will cause all ADS valves to open. The 105 second time delay for Div I will be affected, but not Div II. Therefore, the Div II actuation system will actuate all valves after 105 seconds. The 5 minute low-level override for high drywell pressure affects Div I actuation system only.

K/A Statement: Knowledge of the effect that a loss or malfunction of primary containment instrumentation will have of ADS.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
218000 K6.07	3.4	3.5	41.7	STM 202	RLP-STM-202 Att3.H.6
Tier/Group:	2/1	LOK:	H	LOD:	3
Origin:	NRC				
History:	New NRC			BANK QID:	N/A

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QUESTION NO. 42

Which ONE of the following valves will close once RPV water level reaches Level 2?

- A. RHR Shutdown Cooling Inboard Isolation Valve (E12 MOV F009)
- B. RHR Pump 'A' SDC Injection Valve (E12 MOV F053A)
- C. RWCU Pumps Inboard Suction Valve (G33 MOV F001)
- D. DW H₂ Mix Upstream Supply Valve (CPM MOV 2A)

Answer: C

A, B incorrect due to actuation at Level 3

D – Level 1

K/A Statement: Ability to predict and/or monitor changes in parameters associated with PCIS/NSSSS including valve closures.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
223002 A1.02	3.7	3.7	41.5	SOP-0040 AOP-0003	RLP-STM-0058 Att3.C a-f
Tier/Group	2/1	LOK: F		LOD: 2	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 43

The plant is operating at 100 percent power and is in a normal line-up.

Safety Relief Valve F051D opens.

In accordance with AOP-35 (Stuck Open SRV), operators should immediately _____ to prevent _____.

- A. Place the Mode Switch in SHUTDOWN when suppression pool temperature reaches 100°F; suppression pool temperature from going above 105 °F
- B. Place the SRV control switch at P-601 in OPEN; a reactor Scram before power can be reduced
- C. Cycle the SRV control switch at P-601 to OPEN then CLOSED; prevent suppression pool temperature from rising
- D. Cycle the SRV control switch at P-601 to OPEN then CLOSED; prevent feedwater temperature from dropping and power from going above 100 percent.

Answer: B

When the SRV sticks open, the valve switch is placed in open to prevent the valve closure from inducing a pressure/power transient prior to power reduction.

A. Wrong temperature

C. The switch is cycled from open to closed to prevent energy deposition into the suppression pool, but this does not address the immediate operator response.

D. FW temp may drop and power may go above 100 percent, but the actions are wrong

K/A Statement: Ability to (a) predict the impacts of a stuck open SRV; and (b) based on those predictions, use procedures to correct, control or mitigate the consequences of these abnormal conditions or operations

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
239002 A2.03	4.1	4.2	41.5	AOP-0035	RLP-STM-0109 K

Tier/Group	2/1	LOK: H	LOD: 3
Origin:	NRC		
History:	New NRC		BANK QID: N/A

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QUESTION NO. 44

While operating at 100 percent power with Feedwater Water Level Control in automatic, one feedwater flow transmitter fails low.

Based on this, the Feedwater Level Control will _____.

- A. Increase RPV level and a reactor scram will occur
- B. Decrease RPV level and a reactor scram will occur
- C. Stabilize at a higher RPV level
- D. Stabilize at a lower RPV level

Answer: A

Based on the transient outlined in the STM, this will cause level to rise to the level 8 scram setpoint.

K/A Ability to monitor operations of the RWLCS including changes in feedwater flow.
Statement:

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
259002 A3.04	3.2	3.2	41.7	STM-107 I.D.2(2)	RLP-STM-0107 Att 3B N.e
Tier/Group	2/1	LOK: H		LOD: 3	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 45

Standby Gas Treatment Exhaust Fan GTS-FN1A must be manually started from the control room by _____.

- A. Opening GTS-AOD1A, SGT FILTER A SUCT ISOL valve before depressing the START pushbutton
- B. Opening GTS-AOD3A, SGT EXH FAN A DISCH valve before depressing the START pushbutton
- C. Opening both GTS-AOD1A, SGT FILTER A SUCT ISOL and GTS-AOD3A, SGT EXH FAN A DISCH valves before depressing the START pushbutton
- D. Depressing the START pushbutton until GTS-AOD1A, SGT FILTER A SUCT ISOL valve opens and the fan starts

Answer: D

Depressing the start pushbutton sequences opening the suction damper and starting the fan motor. All the distracters contain actions which will occur in the procedure, but not in the correct order.

K/A Statement: Ability to manually operate and/or monitor ventilation valves/dampers for SGTS in the control room.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
261000 A4.09	2.7	2.7	41.7	SOP-0043	RLP-STM-0257 Att3 E
Tier/Group	2/1	LOK: F		LOD: 3	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 46

A loss of NNS-SWG1C has just occurred while operating at 100 percent power.

Based on this, operators should expect to see _____.

- A. A reduction in feedwater inlet temperature
- B. Div III Emergency Diesel Generator running
- C. A rise in temperature in the Radwaste building
- D. A loss of all three feedwater pumps

Answer: B

A – Heater drain pumps not fed from this bus

C, D – Loss of TPCCW pump 1C will not result in loss of TPCCW

K/A Ability to evaluate plant performance and make operational judgments based on operating characteristics, reactor behavior and instrument interpretations. (AC Electrical Distribution)
Statement:

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
262001 2.1.7 (generic)	3.7	4.4	43.5 41.7	SOP-46 Att. 3 STM-300 I.C.3.b	None

Tier/Group 2/1 LOK: H LOD: 3
Origin: NRC
History: New NRC BANK QID: N/A

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QUESTION NO. 47

** AOP-42 Attachment 5 Included as Reference **

While operating at 90 percent power, Uninterruptible Power Supply ENB-INV01A failed, and power is lost to instrument bus VBS-PNL01A.

A reactor coolant leak develops in the drywell before power is restored to VBS-PNL01A, and drywell pressure rises to 2 psid.

The failed UPS will _____.

- A. Prevent DIV 1 Balance-of-Plant isolation valves/dampers from automatically repositioning on a LOCA signal
- B. Cause DIV 1 Balance-of-Plant isolation valves/dampers to automatically isolate before the LOCA signal is present
- C. Cause DIV 1 Control Building Ventilation system to automatically switch to Filtration Mode before the LOCA signal is present
- D. Prevent DIV 1 Control Building Ventilation system from automatically switching to Filtration Mode

Answer: A

B- Loss of power to VBS-PNL01A will activate the isolation circuit (ISCA03,4,5 & 6) master relays for the BOP isolations; however, the slave relays are also powered from VBS-PNL01A, and will not reposition (normally de-energized)

C,D- CB HVK is activated by BOP isolation logic relays powered from 125VDC

K/A Statement: Knowledge of the physical connections and/or cause-effect relationship between UPS (AC/DC) and containment isolation system.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
262002 K1.08	2.9	3.1	41.2-9	AOP-0042 Att. 5 STM-058 (BOP logic) STM-300	RLP-STM-58 La RLP-STM-300 P

Tier/Group	2/1	LOK: H	LOD: 3
Origin:	NRC		
History:	New NRC		BANK QID: N/A

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QUESTION NO. 48

While operating at 100 percent power, the breaker providing normal power to BYS-INV01B opens due to a fault in the breaker.

Based on this, _____, and operators should _____.

- A. A reactor SCRAM will occur; enter EOP-1 and place the standby UPS (BYS-INV03) in service per SOP-48, 120VAC System
- B. BYS-INV01B static switch will automatically shift to the bypass regulator; open supply breaker to BYS-INV01B in NHS-MCC20B
- C. RPV level will rapidly rise; control feedwater flow in manual control
- D. BYS-INV01B output is supplied from 125VDC through the inverter; manually bypass the BYS-INV01B inverter per SOP-48, 120VAC System

Answer: D

A, C – There will be no effect on recirc flow or RPV level since the output voltage will not change

B – The static switch will not reposition since the inverter output is being supplied from the battery bus

K/A Statement: Ability to (a) predict the impacts of under voltage on the UPS (AC/DC); and (b) based on those predictions, use procedures to correct, control, or mitigate the consequences of these abnormal conditions or operations.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
262002 A2.01	2.6	2.8	41.5	SOP-048	RLP-STM-300 I.d, L.a
Tier/Group	2/1	LOK: H		LOD: 3	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 49

The power supply to E51-C002 (RCIC Turbine Trip Throttle Valve) is _____.

- A. ENB-MCC1
- B. ENB-SWG01B
- C. ENB-CHGR1B
- D. ENB-PNL02A

Answer: A
C powers B
D – incorrect bus

K/A
Statement: Knowledge of electrical power supplies to major DC loads.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
263000 K2.01	3.1	3.4	41.7	AOP-14 Att. 1	RLP-STM-209 M.i
Tier/Group	2/1	LOK: F		LOD: 2	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 50

The station has experienced a Loss of Coolant Accident and Loss of Off-site Power.

In this situation, bus ENS-SWG01A would be lost if the Div I Emergency Diesel Generator has a _____.

- A. Lube oil pressure less than 30 psig
- B. Ground fault on the generator
- C. Jacket water temperature greater than 195°F
- D. Jacket water pressure less than 7 psig

Answer: B – Although not an engine trip, the bus would be lost.
Low lube oil pressure and jacket water parameters are bypassed on a LOCA.

K/A Statement: Knowledge of the effect that a loss or malfunction of the EDG will have on AC electrical distribution.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
264000 K3.02	3.9	4.0	41.7	STM-309S Trips	RLP-STM-300 J.c
Tier/Group	2/1	LOK: F		LOD: 3	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 51

The plant is at 100 percent power. While performing maintenance, I&C technicians inadvertently isolate instrument air to containment.

Following the isolation, which of the following is correct?

- A. Containment Unit Coolers will no longer supply cooling to the containment.
- B. Containment Purge Isolation Dampers will isolate, securing containment purge.
- C. Cooling water to the Drywell Unit Coolers will isolate.
- D. Standby Gas Treatment filter dampers will fail closed, preventing operation of the Standby Gas Treatment System.

Answer: B
Containment purge will isolate (fail safe) on a loss of air.
A, C – MOVs
D – Fail open

K/A Statement: Knowledge of the interconnections or cause/effect relationship between instrument air system and containment air.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
300000 K1.03	2.8	2.9	41.2-9	STM-403	
Tier/Group:	2/1	LOK: H		LOD: 3	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 52

Instrument Air System compressors are currently sequenced A-B-C. The 'A' compressor was running, and has experienced an auto-trip due to loss of lube oil pressure.

Based on this, _____.

- A. Instrument Air pressure will be controlled at the same pressure
- B. Instrument Air pressure will be controlled at a lower pressure
- C. Instrument Air pressure will be controlled at a higher pressure
- D. The Diesel Air Compressor will start to maintain pressure

Answer: B

Sequencer controls the running of the compressors such that they turn on in sequence as pressure is reduced. Therefore, the compressor which controls pressure in this mode of failure will control pressure at a lower value.
D – Manually started

K/A Statement: Knowledge of the instrument air system design features and/or interlocks which provide for manual/automatic transfer of control.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
300000 K4.01	2.8	2.9	41.7	STM-121	RLP-STM-121 C.a
Tier/Group	2/1	LOK: F		LOD: 3	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 53

While operating in Mode 1, Reactor Plant Component Cooling Water (CCP) pumps CCP-P1A and CCP-P1B were running.

CCP-P1B trips on over-current.

Based on this, _____, and CCP-P1B _____ in accordance with SOP-16 (Reactor Plant Component Cooling Water).

- A. CCP-P1C will auto-start on low header pressure (<95psig); stop pushbutton should be depressed
- B. CCP-P1C will auto-start when CCP-P1B auto-trips; should be locked out
- C. CCP-P1C should be manually started; should be locked out
- D. CCP-P1C will auto-start and the start pushbutton should be depressed; stop pushbutton should be depressed

Answer: B

Over-current is an auto-trip, which will cause an auto-start of the standby pump. Precaution says to place the auto-tripped pump in lockout.

A - <95 is an auto-start, but not the cause of the standby pump starting

C – pump will auto start

D – the start pushbutton should be depressed after an auto-start only after the first pump is started during system startup

K/A Statement: Ability to a) predict the impacts of loss of CCW pump on the CCW system; and b) based on those predictions, use procedures to correct, control or mitigate the consequences of these abnormal conditions or operations.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
400000A2.01	3.3	3.4	41.5	SOP-16 2.4 STM-115	RLP-STM-115 Att.3 C.a
Tier/Group	2/1	LOK: H		LOD: 3	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 54

Control Rod Drive flow control valve C11-F002A is in service with CRD hydraulics flow controller C11-R600 in AUTO.

Following a scram, C11-F002A will _____ due to _____.

- A. Fully close; C11-R600 output going to zero demand
- B. Fully open; charging header flow increasing
- C. Throttle open; lower CRD pump discharge pressure
- D. Fully close; failing closed on a loss of air pressure

Answer: A
B – true if chrg tap off were after flow control station
C – true, but sensed flow is going up
D – true, but air pressure doesn't change

K/A
Statement: Ability to operate and/or monitor in the control room: CRD system flow control valve.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
201001 A4.03	2.9	2.8	41.7	STM-52	RLP-STM-52 D.c
Tier/Group	2/2	LOK: F		LOD: 3	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 55

While operating at 100 percent power, a Reactor Water Cleanup strainer backwash was completed. However, operators improperly positioned the isolation ball valves from the strainer, leaving a path open to the backwash collection tank.

While placing the respective filter/demineralizer (f/d) in service, operators place the FILTER/HOLD mode switch in FILTER in accordance with SOP-090 (Reactor Water Cleanup).

After the second f/d inlet valve begins to open, _____.

- A. Condenser vacuum will drop, and the FILTER/HOLD mode switch should be placed in HOLD
- B. RPV level will lower to Level 3; therefore, operators should enter AOP-001 (Reactor Scram)
- C. RWCU will isolate 45 seconds after the RWCU high differential flow alarm is received, and the FILTER/HOLD mode switch should be placed in HOLD
- D. RWCU pumps may trip on low flow; therefore, raise system flow by throttling open the f/d bypass valve F-044

Answer: C – system response is not what is expected and flow through the ball valves causes differential flow alarm
 A – if water were being rejected to the condenser which is not
 B – the cause is unknown
 D – true statement by itself, but N/A for the question

K/A Statement: Ability to a) predict the impacts of valve openings on the RWCU system; and b) based on those predictions, use procedures to correct, control or mitigate the consequences of this abnormal condition or operation.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
204000 A2.05	2.7	2.8	41.5	LER 458-000511-1 SOP-90 STM-601 EN-OP-115	RLP-STM-601
Tier/Group	2/2	LOK: H		LOD: 4	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 56

While operating at 90 percent power, RPS bus 'A' de-energizes.

Based on this, which of the following is the expected immediate MSIV response?

- A. ONLY the inboard MSIVs will close
- B. ONLY the outboard MSIVs will close
- C. ALL MSIVs remain open
- D. BOTH inboard and outboard MSIVs will close

Answer: C

This condition will affect half the solenoid valves, but will not immediately isolate the inboard MSIVs.

K/A Statement: Ability to monitor automatic operation of the main and reheat steam system including isolation of the main steam system.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
239001 A3.01	4.2	4.1	41.7	STM-109	RLP-STM-109 B.o
Tier/Group	2/2	LOK: F		LOD: 2	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 57

Following a large break Loss of Coolant Accident:

- RHR 'A' is in Suppression Pool Cooling Mode
- RHR 'B' is in LPCI injection mode
- LPCS is injecting

A fire develops in EJS-SWG2A, and the bus is de-energized by opening the supply breaker from the respective 4.16kV/480V transformer.

The fire has _____.

- A. Caused a loss of Suppression Pool Cooling flow
- B. Removed control power to RHR 'A' breakers
- C. Caused a loss of LPCI injection from 'B' RHR
- D. Prevented remote electrical operation of RHR 'A' valves

Answer: D
Control Power to breakers is 125VDC (Supplied from battery)
Power to the pumps is 4160VAC

K/A Statement: Knowledge of the effect that a loss or malfunction of AC electrical distribution will have on RHR/LPCI: Suppression Pool Cooling.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
219000 K6.01	3.2	3.3	41.7	STM-204 STM-300	RLP-STM-204 Q.a
Tier/Group	2/2	LOK: H		LOD: 3	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 58

A design basis LOCA has occurred and the following conditions exist:

- RPV Pressure is 20 psig and stable
- Differential pressure between the RPV and Main Steam Lines is 8.5 psid
- MSIV Positive Leakage Control System pressure is >45 psig
- MSIV-PLCS has been operating for 10 minutes

If differential pressure between the RPV and Main Steam Lines falls to 5 psid, then _____.

- A. E33-SOVF014 (PVLCS INBOARD BYPASS VALVE) opens to rapidly re-pressurize the Main Steam Lines
- B. E33-MOVF005 (PVLCS INBOARD INJECTION VALVE) closes
- C. E33-MOVF006 (PVLCS INBOARD DRAIN VALVE) opens
- D. LSV-C1A (Division I PVLCS Compressor) trips

Answer: B

A – Only on initial activation for the first five minutes

C – Only after F007,8 close on 25psig RPV, <45psig PLCS or OFF

D – Low d/p is not a compressor trip

K/A Statement: Ability to predict and/or monitor changes in parameters associated with operating the MSIV Leakage Control System controls including system line-ups.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
239003 A1.05	3.0	2.9	41.5	STM-208 SOP-43	RLP-STM-208 C, D

Tier/Group	2/2	LOK: H	LOD: 3
Origin:	NRC		
History:	New NRC		BANK QID: N/A

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QUESTION NO. 59

While Fuel Pool Cooling is being supplied to the upper and lower pools, inadvertently leaving CCP-V206 (RPCCW TO FUEL POOL AND CLEANUP ISOLATION to the B fuel pool cooling loop) open will _____.

- A. Fill the lower fuel pools
- B. Fill the upper storage pools
- C. Drain the upper storage pools
- D. Fill both upper AND lower fuel pools

Answer: B

Lessons learned in CR 2001-1335 shows that storage pool level will go up due to filling from the RPCCW system if CCP-V206 for B or 208 for A are left open

K/A Statement: Knowledge of the physical connections and/or cause-effect relationship between fuel pool cooling and cleanup: and storage pools.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
233000 K1.15	2.9	2.9	41.2-9	STM-602 SOP-91 RBS-CR-2001-1355	RLP-STM-602 G

Tier/Group	2/2	LOK: F	LOD: 3
Origin:	NRC		
History:	New NRC		BANK QID: N/A

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QUESTION NO. 60

While operating at 100 percent power, the unselected pressure controller output within the EHC pressure control unit failed as-is, at the same output as the selected controller.

One minute later, the selected pressure regulator within the EHC pressure control unit fails high.

Reactor steam flow will _____.

- A. Not change
- B. Go down then return to the 100 percent value
- C. Go down
- D. Go up to 115% and remain

Answer: A

The fault detection circuit will automatically switch regulators, but does not know about the previous failure (Highlighted in STM-509 regulator failures).

B – True if there was a biasing circuit and no fault detection

C – true if failed low and unselected in test

D – true if there were no fault detection or biasing circuit; or unselected in test

K/A Knowledge of the effect that a loss or malfunction of the reactor/turbine pressure regulating system will have on reactor steam flow.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
241000 K3.04	3.8	3.9	41.7	STM-509	RLP-STM-509 W.d
Tier/Group	2/2	LOK: F		LOD: 3	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 61

The power supply to Reactor Feedwater Pump FWS-P1C is _____.

- A. NPS-SWG1C
- B. NPS-SWG1B
- C. NPS-SWG1A
- D. NNS-SWG1B

Answer: B

K/A
Statement: Knowledge of the power supplies to reactor feed pumps.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
259001 K2.01	3.3	3.3	41.7	STM-300 STM-107	RLP-STM-107 D.a

Tier/Group:	2/2	LOK: F	LOD: 2
Origin:	NRC		
History:	New NRC		BANK QID: N/A

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QUESTION NO. 62

The plant has been operating at 80 percent power for three days. During the last two shifts, operators note the following trends on the Radiation Monitoring System:

- Main Steam Line Radiation levels rising
- Offgas pre-treatment radiation level steady

Which ONE of the following will cause these indications?

- A. Failure of fuel pin cladding
- B. CRUD redistribution
- C. Increasing H₂ injection rate
- D. Raising reactor power to 100 percent

Answer: C

– affects NH₃ production

A – Both indications will go up

B – changing hydrogen injection will cause a CRUD redistribution which does not change MSL rad levels

D – changing power will affect both indications due to fission product gas production as well as N-16

K/A Knowledge of the operational implications of the hydrogen injection operation's effect on
Statement: process radiation indications as it applies to Radiation Monitoring System.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
272000 K5.01	3.2	3.5	41.7	STM-127 INPO Report 12/13/97 RBS CR-2002-0216	None

Tier/Group	2/2	LOK: H	LOD: 3
Origin:	NRC		
History:	New NRC		BANK QID: N/A

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QUESTION NO. 63

Halon will initially discharge into the main control room PGCC sub-floor areas _____.

- A. When the products of combustion detector alarms
- B. When the thermal detector alarms
- C. 30 seconds after the cross-zoned smoke detector loop alarms
- D. 7.5 minutes after manual initiation

Answer: B
A – only provides an alarm (audible, visual)
C – Central alarm and aux control room
D – second bottle discharges

K/A Statement: Knowledge of Fire Protection System design features and/or interlocks which provide for automatic system initiation.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
286000 K4.02	3.3	3.4	41.5, 7	STM-250	RLP-STM-250 E
Tier/Group	2/2	LOK:	F	LOD:	2
Origin:	NRC				
History:	New NRC			BANK QID:	N/A

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QUESTION NO. 64

The following conditions exist for the Division I Control Room Ventilation system Backup Air Supply:

- IAS Bank 5A1 pressure is 2400 psig
- IAS Bank 5A2 pressure is 2100 psig

Based on this, Division I control room ventilation is _____; and Backup Air Supply bottles for IAS Bank 5A2 should be _____ in accordance with SOP-22 (Instrument Air System).

- A. Inoperable; repressurized
- B. Operable; replaced
- C. Inoperable; replaced
- D. Operable; repressurized

Answer: D

With one bank below the minimum, the system is operable.(SOP-58) Procedurally, the bank is recharged since replacing would require moving heavy bottles around. (SOP-22)

K/A Statement: Ability to explain and apply system limits and precautions. (Control Room HVAC)

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
290003 generic 2.1.32	3.4	3.8	41.10	SOP-58 precautions SOP-22 precautions	RLP-STM-402 L
Tier/Group	2/2	LOK: H		LOD: 3	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 65

Reactor power is currently 25 percent during a startup. An operator withdraws the next control rod in the sequence, 2 notches beyond the intended position.

In accordance with AOP-61, Mispositioned Control Rod(s), the operator should _____ to prevent _____.

- A. Insert the control rod to the intended position; major fuel damage following a postulated rod drop accident
- B. Ensure turbine bypass valves are closed; non-conservative control rod position enforcement from the Rod Pattern Controller
- C. Ensure turbine bypass valves are closed; non-conservative control rod position enforcement from the Rod Withdraw Limiter
- D. Refer to Technical Specification 3.1.6; non-compliance of operable control rods with the Banked Position Withdraw Sequence

Answer: A
 B – Already done when above 20% and RWL is the concern
 C – same
 D – when less than 10%

K/A Ability to a) predict the impacts of control rod drop accident to the reactor vessel internals; and
 Statement: b) based on those predictions, use procedures to correct, control or mitigate the consequences of these abnormal conditions or operations.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
290002 A2.03	3.6	3.9	41.5	SOP-71 AOP-61 STM-500	RLP-STM-500 K.b

Tier/Group 2/2 LOK: H LOD: 3
 Origin: NRC
 History: New NRC BANK QID: N/A

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QUESTION NO. 66

An operator is preparing to manipulate safety-related equipment during a surveillance. The individual peer checking the operator _____.

- A. Is not required to have formal training on the system as long as the individual has been briefed on the steps to be performed
- B. Can be an electrician for any electric plant manipulation
- C. Should have the experience and training necessary to verify proper actions have been taken
- D. Is competent to verify system response if the individual is only trained at the component level

Answer: C

Should have formal training.

The electrician can supervise breaker manipulations if the manipulation will not have an integrated plant response. If trained at the component level, the individual can't verify system response.

K/A
Statement: Knowledge of the conduct of operations requirements.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
Generic 2.1.1	3.7	3.8	41.10	EN-OP-115 5.8.2.d	None
Tier/Group	3	LOK: F		LOD: 2	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 67

While performing a HPCS flow test using the CST to CST flow path, opening the HPCS test return valves _____.

- A. Is an acceptable two-handed operation required by procedure
- B. Must be completed without stopping until the desired flow rate is achieved
- C. Must be performed one valve at a time to prevent valve seat erosion
- D. Will cause Suppression Pool level to rise during the entire test

Answer: A

Straight out of EN-OP-115 and SOP-30 Caution statement

B – Stopped when min flow valve shuts and >750gpm (Would expect operators to know the basic sequence of opening test return valves, not the expected flow rates)

C – Caution statement and addendum 10.7 to EN-OP-115 states that they should be opened simultaneously

D – Only while min flow is open

K/A Ability to execute procedure steps.
Statement:

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u> EN-OP-115 Addendum	<u>OBJECTIVE REF</u>
Generic 2.1.20	4.3	4.2	41.10	10.7 Sect 4 SOP-30	None

Tier/Group	3	LOK: H	LOD: 2
Origin:	NRC		
History:	New NRC		BANK QID: N/A

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QUESTION NO. 68

The purpose of SWP-AOV599 (Station Blackout Return to Cooling Tower Isolation) is to _____ during a station blackout.

- A. Cross-connect Normal and Standby Service Water systems
- B. Isolate the Standby Cooling Tower from Normal Service Water
- C. Prevent a loss of the Division III Emergency Diesel Generator
- D. Prevent draining the Normal Service Water expansion tank to the Standby Cooling Tower basin

Answer: C

The SWP SBO valve prevents a loss of the DivIII EDG (assumed running in SBO).

- A. Incorrect
- B. Incorrect
- D. Prevents overfilling of the expansion tank

K/A

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

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
Generic 2.1.28	3.2	3.3	41.7	STM-118	None
Tier/Group	3	LOK: F		LOD: 3	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 69

The plant is operating at 95 percent power.

A malfunction in the Fourth Point Heater causes feed water temperature to drop below the “3% Temperature Decrease” line on the Feedwater Temperature VS Core Thermal Power graph.

Operators will immediately _____ in accordance with AOP-7 (Loss of Feedwater Heating).

- A. Monitor reactor power and ensure power does not go above 100 percent by adjusting recirculation flow
- B. Reduce recirculation flow by 20 percent OR until 60 percent core flow is reached
- C. Reduce thermal power by 20 percent using recirculation flow
- D. Reduce thermal power by 20 percent using the Shutdown Control Rod Sequence

Answer: C

A – True most of the time but not an immediate action step

B – 60% core flow is correct

D – decrease by 20% thermal power is correct

K/A Statement: Ability to manipulate the console controls as necessary to operate the plant between startup and shutdown.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
Generic 2.2.2	4.0	3.5	41.10	AOP-7	None
Tier/Group	3	LOK: H		LOD: 3	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 70

Which of the following would require entering a Technical Specification Action Statement?

- A. MCPR is 1.15 at 75 percent reactor power
- B. Operating single loop and thermal power is 80 percent of rated
- C. Reactor pressure is 870 psig at 20 percent reactor power
- D. Reactor power is 20 percent and core flow is 8 percent of rated core flow

Answer: B
A, C and D are incorrect.

K/A
Statement: Knowledge of the limiting conditions for operations and safety limits

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
Generic 2.2.22	3.4	4.1	41.5 43.2	TS LCO	None
Tier/Group	3	LOK: F		LOD: 2	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 71

A 28 year old nuclear worker has been contracted to work during the upcoming refuel outage. His NRC Form 4 is current and his annual whole-body (TEDE) dose to date is 1.25 rem.

What is the MAXIMUM additional radiation dose he can be authorized to receive during the remainder of this year in accordance with NRC limits?

- A. 1.75 rem
- B. 2.75 rem
- C. 3.75 rem
- D. 5.00 rem

Answer: C
NRC limits are higher than the admin limits imposed at RBS. Therefore, 5 rem is max.

K/A Knowledge of radiation exposure limits and contamination control, including permissible levels
Statement: in excess of those authorized.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
Generic 2.3.4	2.5	3.1	41.12	RWT pg 22 EN-RP-201	
Tier/Group:	3	LOK: H		LOD: 2	
Origin:	BANK				
History:	RB 9/04			BANK QID: 434	

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QUESTION NO. 72

While operating at 100 percent power, an Alert is received on the Digital Radiation Monitoring System for the Aux Building HVAC. The crew enters EOP-3 (Secondary Containment Control).

An operator notes that Aux Building HVAC airborne activity has exceeded the HVAC Isolation Setpoint.

Based on this, the operators will _____.

- A. Verify that Aux Building HVAC automatically isolates and STGS starts
- B. Manually isolate the Aux Building HVAC
- C. Shut down the reactor per GOP-2
- D. Scram the reactor by entering EOP-1

Answer: B

Aux building HVAC does not auto isolate. The EOP specifically states to manually isolate HVAC.

C and D are actions required further down in the procedure when 2 areas are in alarm.

K/A
Statement: Ability to control radiation releases

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
Generic 2.3.11	2.7	3.2	41.12	EOP-3 SC	None
Tier/Group	3	LOK: H		LOD: 2	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 73

The crew has entered EOP-2 (Primary Containment Control). The following conditions exist inside containment:

- Containment Temperature is 170°F and stable
- Drywell Temperature is 140°F and stable
- Containment Pressure is 2.5 psig
- Containment Venting is in progress
- Suppression Pool Cooling is operating
- Suppression Pool Level is 19 feet 8 inches

Based on these conditions, the crew will _____.

- A. Secure Containment Venting to prevent damage to HVAC ductwork in the Aux Building
- B. Enter EOP-1 to ensure the reactor is shut down before emergency depressurization commences
- C. Operate all available Drywell Cooling, defeating isolation interlocks as necessary
- D. Open E12 MOV-F009 (RHR Shutdown Cooling Inboard Isolation) to prevent the valve from seizing

Answer: A

B – Containment temperature is not high enough to require emergency depressurization

C – Isolation Interlocks are not defeated until ≥ 145

D – Drywell temperature is < 145

K/A

Statement: Knowledge of symptom-based EOP mitigation strategies.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
Generic 2.4.6	3.1	4.0	41.10	EOP-2 Basis CP-3	None
Tier/Group	3	LOK: H		LOD: 3	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 74

Under which ONE of the following conditions can operators exit EOP-1A (RPV-ATWS control) and enter EOP-1 (RPV control) during an ATWS?

- A. It has been determined the reactor will remain shut down at the present temperature and xenon concentration
- B. It has been determined the reactor will remain shutdown under all conditions without boron
- C. Reactor power is less than 5 percent
- D. No boron has been injected AND the reactor is subcritical

Answer: B
 A – all conditions required
 C – incorrect
 D – this is a transition point to start cooling down

K/A Knowledge of low-power / shutdown implications in accident (LOCA, Loss RHR) mitigation
 Statement:

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
Generic 2.4.9	3.3	3.9	41.10	EOP-1A basis EOP basis App-A	None
Tier/Group	3	LOK: H		LOD: 3	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 75

During a reactor shutdown, all Control Room annunciators are lost. One minute has passed since the loss, and reactor power is still going down.

In accordance with AOP-55, Loss of Control Room Annunciators, the crew will _____.

- A. Scram the reactor to place the reactor in a safe condition
- B. Declare an ALERT per EIP-2-001 EAL 11
- C. Declare a SITE AREA EMERGENCY per EIP-2-001 EAL 10
- D. Stop reducing power and place the plant in stable condition

Answer: D
A – this will destabilize plant conditions
B – No xient and 15 minutes
C – Xient and 15minutes

K/A Statement: Knowledge of operator response to loss of all annunciators.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
Generic 2.4.32	3.3	3.5	41.10	AOP-55	None
Tier/Group	3	LOK: F		LOD: 2	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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**QUESTION NO. 76
SRO**

NPS-SWG1A and NPS-SWG1B are lost due to a fault on NJS-LDC1A while attempts were being made to electrically cross tie NJS-LDC1A.

This will impact the plant by causing _____.

- A. a scram due to an isolation of the MSIVs and EOP-1 'RPV CONTROL' should be entered.
- B. a trip of the running CRD pump and the standby pump should be immediately started by implementing ARP-601-22-A01 'CRD PUMP A OR B AUTO TRIP'.
- C. all emergency diesel generators to start and supply electrical power and AOP-0004 'LOSS OF OFFSITE POWER' should be implemented.
- D. both RPS busses to be lost and EOP-1A 'RPV CONTROL ATWS' should be entered.

Answer: A

- B. Running CRD pump will trip, no procedural guidance to immediately start the standby pump
- C. Diesels will not start, AOP-0004 should not be entered
- D. Both RPS busses will be lost, EOP-001A should not be entered because all rods should insert.

K/A Statement: Partial or Complete Loss of AC: Knowledge of EOP entry conditions or immediate action steps

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
295003 Generic 2.4.1	N/A	4.6	43.5	EOP-1 STM-508	None
Tier/Group	1/1	LOK: H		LOD: 4	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 77 SRO

While operating at 100 percent power, the following conditions develop:

- Running CRD Pump trips off
- CCP-MOV16A (RPCCW Loop A Supply) closes
- CCP-MOV130 (Loop A Downstream Return) closes
- CCP-MOV336 (Loop B Upstream Return) closes
- CCP-MOV169 (CRD Pump Cooling Upstream) closes
- Standby CCP pump starts
- RPCCW expansion tank level has lowered and is now stabilized
- Standby Service Water pumps SWP-P2A, P2B and P2D start
- Normal Service Water and Standby Service Water are split
- Recirculation Pump component temperatures are normal and steady

The SRO should first implement _____ to recover.

- A. EOP-1 (RPV Control)
- B. SOP-16 (Reactor Plant Component Cooling Water)
- C. SOP-2 (Control Rod Drive)
- D. AOP-11 (Loss of Reactor Plant Component Cooling Water)

Answer: D

A condition causing extreme low pressure in loop A has developed, causing a RPCCW Div I isolation. Recovery per loss of RPCCW

A – Since only three SSW pumps start and recirc pump temps are normal, the cause is not Level 1 ECCS Divisional isolation.

B – SOP-16 is referenced to determine cause and restore after AOP-11

C – SOP-02 is referenced to restore CRD pump cooling within AOP-11

K/A

Statement:

Ability to determine and/or interpret the cause of a partial or complete loss of CCW.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
295018 AA2.03	N/A	3.5	43.5	AOP-11	None

Tier/Group	1/1	LOK: H	LOD: 3
Origin:	NRC		
History:	New NRC		BANK QID: N/A

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QUESTION NO. 78 SRO

The plant is in a refueling outage. RPV level is 24 feet above the flange, and irradiated fuel is in the core.

According to procedure FHP-001 (Control of Fuel Handling and Refueling Operations), the actions of TS 3.9.8 (RHR – High Water Level) are required to be met while in this condition.

If shutdown cooling is lost, and an alternate method of decay heat removal is not verified available within 1 hour, then the actions contained in TS 3.9.8 would _____.

- A. Require immediate suspension of all fuel movement within the Containment Pools
- B. Allow continuing to remove irradiated fuel from the RPV
- C. Require immediate evacuation of primary containment
- D. Allow continuing to remove irradiated fuel from the RPV, ONLY after restoring primary containment

Answer: B

Loading of irradiated fuel is not allowed; and removing irradiated fuel is allowed which makes A&D incorrect. Immediate action is required to restore containment to operable which is a distracter for D. C is required in cases of gas bubbles or evidence of fuel damage which threatens worker safety.

K/A
Statement: Knowledge of new and spent fuel movement procedures. (Loss of shutdown cooling)

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
295021 generic 2.2.28	N/A	3.5	43.7	FHP-001 TS 3.9.8	None

Tier/Group	1/1	LOK: H	LOD: 3
Origin:	NRC		
History:	New NRC		BANK QID: N/A

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QUESTION NO. 79 SRO

The plant is in Mode 2 at 5 percent reactor power during a startup. The following conditions exist:

- RPV level is +36 inches
- RPV pressure is 700 psig
- Both recirculation pumps are powered by the LFMGs

The following events occur:

- Reactor power rapidly rises to 25 percent
- During the power increase, operators insert a manual scram and successfully insert all control rods.

In accordance with Technical Specification _____, the following action is now required: _____.

- A. 2.0, Safety Limits; notify the NRC Operations Center within 1 hour
- B. 3.3.8.2, RPS Electrical Power Monitoring; remove inservice power supplies from service within 1 hour
- C. 3.3.1.1, RPS Instrumentation; restore RPS trip capability within 1 hour
- D. 3.4.11, RCS Pressure Temperature Limits; immediately restore pressure to within the specified limits

Answer: A

Safety limit violation due to failure of RPS to scram at 15%

B – Only if both monitors for one or both power supplies are inop

C – RPS trip capability is required for modes 1 and 2. The reactor was scrammed, and is now in mode 3

D – P/T is within limits under saturated conditions. 700 psig correlates to 500F which is outside the bounding conditions for P/T limits... therefore a large pressure spike causing the power increase would not be a factor

K/A Statement: Ability to recognize system operating parameters that are entry conditions for technical specifications.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
295025 generic 2.1.33	N/A	4.0	43.3	TS 2.0 TS 3.4.11 AOP-1 EOP-1A	None
Tier/Group	1/1	LOK: H		LOD: 2	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 80 SRO

The crew has just completed the immediate actions of AOP-1 (Reactor Scram) following a high drywell pressure entry condition into EOP-1, RPV Control. The following plant conditions exist:

- Containment temperature is 165°F and rising 2°F/minute
- All available containment cooling is in operation
- Suppression pool level is 19 feet 10 inches
- Suppression pool temperature is 102°F
- Suppression pool cooling is in operation
- RPV level is +5 inches
- RPV pressure is 800 psig and lowering (20°F/hr cooldown using turbine bypass valves)

Based on this, the SRO should _____.

- A. Continue in EOP-1, RPV Control, and rapidly depressurize the reactor without regards to cooldown rate using the turbine bypass valves
- B. Enter EOP-4, Emergency Depressurization, and rapidly depressurize the reactor
- C. Enter EOP-4, Emergency Depressurization, and prevent injection from LPCS and LPCI
- D. Continue in EOP-1, RPV Control, and depressurize the reactor using SRVs, maintaining the cooldown rate less than 100°F/hr

Answer: A

In accordance with EOP-2, with temperature rising toward 185F and all cooling available, emergency depressurization is required. EOP-1 RP override (ED anticipated) requires rapid reduction in RPV pressure using bypass valves to reject heat to the condenser.

B – Yes, but should anticipate in accordance with EOP-1 RP to preserve suppression pool heat sink

C – First step in ED. ED is anticipated under the current conditions.

D – May already be happening based on scenario, but Bypass valves are preferred method to preserve heat sink

K/A Statement: Ability to determine and/or interpret containment temperature as it applies to High Containment Temperature.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
295027 EA2.01	N/A	3.7	43.5	EOP-2 EOP-1 EOP-4	None

Tier/Group: 1/1 LOK: H LOD: 4
 Origin: NRC
 History: New NRC BANK QID: N/A

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QUESTION NO. 81

SRO

** EOP Attachment 1 Included as Reference **

The plant has experienced a LOCA inside the drywell. Conditions are:

- RPV level is -186 inches and lowering
- RPV pressure is 700 psig and lowering
- Drywell temperature is 250°F and slowly rising
- All methods of injection are unavailable
- One RHR pump is being returned to service, and will be available in 5 minutes

Based on this, the SRO will enter _____.

- A. EOP-4, Emergency Depressurization, to depressurize the reactor
- B. EOP-4, Steam Cooling, to delay depressurizing the reactor
- C. EOP-1, RPV Control, to rapidly depressurize the reactor
- D. EOP-4, RPV Flooding, in order to restore water level

Answer: B

With level at -186 and no low pressure injection sources available, steam cooling is required

A – ED required before -186 if source of water available

C – CF required after ED in Steam Cooling AND level cannot be restored >-186

D – Required if unable to determine water level

K/A

Statement:

Ability to determine and/or interpret reactor water level as it relates to Reactor Low Water Level.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
295031 EA2.01	N/A	4.6	43.5	EOP-1 EOP-4	None

Tier/Group:

1/1

LOK: H

LOD: 3

Origin:

NRC

History:

New NRC

BANK QID: N/A

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**QUESTION NO. 82
SRO**

A general emergency has been declared at the site. The shift manager is responsible for _____.

- A. Directing offsite agencies to evacuate emergency planning zone areas
- B. Authorizing doses in excess of 10CFR100 limits for the public
- C. Authorizing deviations from license conditions
- D. Notifying state and local authorities after 30 minutes of declaration

Answer: C
A – Recommend only
B – 10CFR20
D – 15 minutes

K/A
Statement: Knowledge of the SRO's responsibilities in emergency plan implementation.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
295038 generic 2.4.40	N/A	4.0	43.5	EIP-2-1 EIP-2-2	None
Tier/Group	1/1	LOK: H		LOD: 2	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 83 SRO

The reactor was operating at 100 percent power with all system operating normally. A reactor scram occurs and the recirculation pumps trip. RCIC and HPCS started, and reactor pressure is being maintained by automatic SRV cycling. The following annunciators are noted by the CRS immediately after the scram:

- P680/06A/B04 RPS TRIP RHR ISOL LOW RX WATER LEVEL 3
- P680/06A/A05 RPS TRIP REACTOR VESSEL HIGH PRESSURE
- P680/05A/C01 and C02 CHANNEL A HALF ATWS and Channel B HALF ATWS
- P601/19/A01,A03, B01 and B03 NSSS CHAN A/B/C/D INIT MS TNL HI AMB TEMP

Based on this, the SRO should enter _____.

- A. AOP-4 (Loss of Condenser Vacuum)
- B. AOP-3 (Automatic Isolations)
- C. SOP-11 (Main Steam System)
- D. SOP-22 (Instrument Air System)

Answer: B

Inadvertent MSIV isolation signal

A – Loss of vacuum would give similar outcomes, but not the alarms received

C – SOP-11 is for operation

D – SOP-22 instrument air normal prior to event. A loss of instrument air would require entry into an AOP.

K/A

Statement: Ability to determine/interpret reactor pressure as it applies to inadvertent containment isolation.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
295020 AA2.04	N/A	3.9	43.5	AOP-3 STM-58	None

Tier/Group	1/2	LOK: H	LOD: 2
Origin:	NRC		
History:	New NRC		BANK QID: N/A

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QUESTION NO. 84 SRO

The Technical Specification basis for the RWCU area high temperature trip function is to ____.

- A. Isolate group 2 valves
- B. Serve as a backup to RPV Level 2 trip
- C. Detect 25gpm leaks in the main steam lines
- D. Limit offsite dose rates

Answer: D

Limits offsite dose rates because small leak may not trigger LDS activated RWCU isolation

A – MSL area temperature for RCIC isolation

B – Actually provides diversity to high flow function

C – Actually for the RWCU RCPB

K/A Knowledge of the bases in technical specifications for limiting conditions for operations and
Statement: safety limits. (High Secondary Containment Area Temperatures)

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
295032 generic 2.2.25	N/A	3.7	43.2	TS 3.3.6.1 basis STM-58	None

Tier/Group	1/2	LOK: H	LOD: 3
Origin:	NRC		
History:	New NRC		BANK QID: N/A

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QUESTION NO. 85 SRO

The plant has experienced a LOCA. The following conditions exist:

- RPV pressure is 250 psig
- RPV level is +10 inches and slowly rising
- Containment pressure is 1.5 psig
- Drywell temperature is 200°F
- Drywell hydrogen concentration is 4 percent
- Containment hydrogen concentration is 1 percent

Based on this, the SRO should _____.

- A. Enter EOP-2 at Hydrogen Control and initiate hydrogen mixing
- B. Continue EOP-1 at Pressure Control and initiate shutdown cooling
- C. Enter EOP-2 at Hydrogen Control and operate all hydrogen igniters
- D. Enter EOP-4 Emergency Depressurization, to rapidly reduce plant pressure

Answer: C

With hydrogen concentration below the HDOL (4% is minimum on graph), all igniters can be run

A – Hydrogen mixing not allowed with RPV pressure above 30 psig

B – Shutdown cooling interlock not clear

D – Drywell temperature is not high enough

K/A Statement: Ability to determine and/or interpret the combustible limits for the drywell as it applies to high containment hydrogen concentration.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
500000 EA2.03	N/A	3.8	43.5	EOP-2 EOP-2 basis	None

Tier/Group	1/2	LOK: H	LOD: 4
Origin:	NRC		
History:	New NRC		BANK QID: N/A

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QUESTION NO. 86 SRO

While operating at 100 percent power, the following annunciator alarms: HPCS INJECTION LINE LOW PRESSURE. An operator notes that the HPCS water leg discharge pressure is 0 psig as indicated on H13-P625.

This condition will impact the HPCS system by _____; and the SRO should _____.

- A. Preventing automatic initiation of HPCS; enter Technical Specification LCO 3.5.1 (ECCS) for HPCS
- B. Causing possible damage to the discharge piping when HPCS initiates; reference the ARP and attempt to start the HPCS line fill pump
- C. Preventing HPCS injection in less than 27 seconds; reference the ARP and place HPCS in operation, using min flow to maintain the discharge path full
- D. Draining the HPCS injection line; enter TR TLCO 3.5.1, (Discharge Line pressure alarm action statement) and perform SR 3.5.1.1 every 24 hours to ensure the discharge piping is full.

Answer: B

Line fill pump has tripped off. Attempt to restart. Possible voiding if not corrected, and damage to piping due to water hammer.

A – Will not prevent automatic initiation

C – Using min flow will fill the suppression pool, and not allowed by procedure. The HPCS system will still perform its function in <27 seconds

D – TRM requirement is for failed alarm indication

K/A Statement: Ability to a) predict the impacts of pump trips on HPCS; and b) based on those predictions, use procedures to correct, control or mitigate the consequences of this abnormal condition or operation.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
209002 A2.02	N/A	3.7	43.5 43.3	ARP 601-16 G03 STM-203 SOP-30 TS 3.5.1 and basis	
Tier/Group	2/1	LOK: H		LOD: 3	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 87 SRO

** TS 3.5.3 Included as Reference **

It is June 5, and the reactor is Mode 1. RCIC flow rate surveillance testing began at 1045 with the system aligned CST to CST. At 1100, inadvertent operator action causes the RCIC turbine to trip on over speed during restoration. The RCIC pump discharge pressure peaked at >2000 psig. At 1115, HPCS is verified operable. At 1130, the RCIC over speed trip is reset.

Based on this and the attached technical specification, _____.

- A. RCIC is OPERABLE at 1130 on June 5
- B. RPV pressure must be reduced below 150 psig by 2245 on June 20
- C. RCIC must be restored to OPERABLE status by 1100 on June 19
- D. The plant must be in Mode 3 by 2315 on June 19

Answer: C

Based on precautions of RCIC SOP, the pump is immediately inoperable and special tests must be performed which makes A incorrect. Plant pressure must be reduced below 150 psig 14 days (D incorrect) + 36 hours after declaring RCIC inoperable which makes B incorrect

K/A
Statement: Ability to apply system limits and precautions. (RCIC)

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
217000 generic 2.1.32	N/A	3.8	43.2	TS 3.5.3 and basis SOP-35	None
Tier/Group	2/1	LOK: H		LOD: 4	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 88 SRO

The plant has experienced a loss of offsite power and a small LOCA. Current plant conditions are:

- ADS has been inhibited
- All control rods are fully inserted
- RPV level is -150 inches and lowering
- RPV pressure is 800 psig and slowly rising
- RCIC is injecting
- HPCS failed to start
- RHR and LPCS pumps started

Based on this, the impact on the plant will be _____; and the SRO should _____.

- A. Fuel damage; continue in EOP-1 (Pressure Control) and depressurize the plant using turbine bypass valves
- B. RPV level reaching TAF unless operator action is taken; continue in EOP-4 (Alternate Level Control) and transition to Steam Cooling
- C. RPV level lowering until pressure is reduced below the low-pressure ECCS shutoff head; transition to EOP-4 (Alternate Level Control)
- D. Lowering pressure; transition to Containment Flooding

Answer: C

RPV level will lower until pressure is lowered so that low head injection can inject. With other means of injection available (RHR, LPCS) initiating ADS would impose a severe transient on the RPV and complicate recovery

A – level is going down; MSL isolation at level 1

B – level will reach TAF; Initiating ADS while RCIC is only source of injection may cause core damage when RCIC flow is subsequently lost and low pressure fails to inject

D – Need to transition to alternate level control

K/A Statement: Ability to a) predict the impacts of ADS failure to initiate; and b) based on those predictions, use procedures to correct, control or mitigate the consequences.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
218000 A2.04	N/A	4.2	43.5	EOP-1 EOP-1 basis (RL)	None
Tier/Group	2/1	LOK: H		LOD: 3	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 89 SRO

While operating in the emergency operating procedures, the decision is made to perform a containment high volume purge. The following conditions exist:

- Containment Pressure is .8 psig and slowly rising
- Reactor water level has been rising from -30 inches due to RCIC injection
- Drywell Pressure is 1.25 psid and stable

Based on this, the shift manager will implement _____.

- A. SOP-59 (Containment HVAC) and evaluate the impact on offsite dose
- B. 10CFR50.54(x) and notify the NRC
- C. EOP 5 Encl. 28 (Defeating High Drywell Pressure and Low RPV Water Level Containment Vent and Purge Isolation Interlocks) in order to begin containment venting
- D. SOP-40 (Hydrogen Mixing / Igniter) in order to secure any operating hydrogen igniters

Answer: A

Must evaluate the impact since the SM is acting as the Emergency Director

B – Not applicable

C – Hydrogen control is not a factor

D – In modes 1, 2 or 3 secure H2 mixing

K/A
Statement: Knowledge of the process for performing a containment purge.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
261000 generic 2.3.9	N/A	3.4	43.4 43.5	SOP-59	None

Tier/Group	2/1	LOK: H	LOD: 3
Origin:	NRC		
History:	New NRC		BANK QID: N/A

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**QUESTION NO. 90
SRO**

While operating at 100 percent power, a high current ground fault occurs on bus NNS-SWG1A.

Based on this, the impact on the plant will be _____; and the SRO should enter _____.

- A. A loss of cooling to the main turbine lube oil system; AOP-2 (Main Turbine Trip)
- B. A loss of recirculation pump seal cooling; AOP-1 (Reactor Scram)
- C. An auto-start of the Div II diesel generator; SOP-53 (Standby Diesel Generator)
- D. A rise in APRM power indication; AOP-7 (Loss of Feedwater Heating)

Answer: D

Ground fault causes overcurrent condition. Will lose 2 feedwater heater drain pumps (HDL-P1A & C)

A – standby pump starts

B – CRD provides seal water purge flow, not cooling water

C – ENS-SWG01A normally powered from preferred station xfmr

K/A Statement: Ability to a) predict the impacts of exceeding current limitations on AC electrical distribution; and b) based on those predictions, use procedures to correct, control and/or mitigate the consequences of the abnormal condition.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
262001 A2.10	N/A	3.4	43.5	STM-108 SOP-46 AOP-7	
Tier/Group	2/1	LOK: H		LOD: 3	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 91 SRO

In order to place a procedural change into effect that changes the method of startup of the recirculation flow control system to a more efficient method, _____.

- A. A 10CFR50.59 evaluation is performed and documented
- B. Continued operability is documented in accordance with EN-OP-104, Operability Determination
- C. A license amendment is submitted to the NRC
- D. A condition report is submitted in accordance with EN-LI-102, Condition Reports

Answer: A

50.59 evaluation is performed to effect a procedure change (for systems referenced in the FSAR) which affects the method of startup to verify there is no significant increased risk.

K/A Statement: Knowledge of the process of making changes in procedures described in the safety analysis report.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
202002 generic 2.2.6	N/A	3.3	43.3	EN-OP-104 10CFR50.59	

Tier/Group:	2/2	LOK: H	LOD: 2
Origin:	NRC		
History:	New NRC		BANK QID: N/A

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QUESTION NO. 92 SRO

A new fuel assembly is being lowered into the core. Source range count rate starts to go up, and the source range period is shorter.

The SRO should _____.

- A. Enter AOP-61 (Mispositioned Control Rods) in order to insert any withdrawn control rod
- B. Enter AOP-27 (Fuel Handling Mishaps) in order to fully withdraw the fuel assembly
- C. Enter AOP-27 (Fuel Handling Mishaps) in order to insert a manual reactor scram
- D. Enter EOP-1A (RPV CONTROL ATWS) and initiate SLC in order to shutdown the reactor

Answer: C

A manual scram is inserted as an immediate action in AOP27

A – A control rod is Mispositioned, and rods do need to be inserted, but wrong procedure and method

B – Correct procedure; wrong action

D – Not entry condition into EOP-1A

K/A Statement: Ability to predict and/or monitor changes in core reactivity level associated with operating the fuel handling equipment controls.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
234000 A1.03	N/A	3.9	43.5	AOP-27	
Tier/Group	2/2	LOK: H		LOD: 2	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 93

SRO

The plant is operating per GOP-1, Reactor Startup. Reactor power is currently 8 percent and the main turbine is paralleled to the grid. Offgas adsorber trains are currently bypassed, and the Offgas Adsorber Train Mode Switch is in AUTO.

Reactor power is increased, and operators inadvertently leave the adsorber trains bypassed.

Based on this, as power is increased, the impact to the Offgas system will be ____; and recovery actions are taken per _____.

- A. Post-Treatment Hi-Hi Radiation Level trip; AOP-1 (Reactor Scram) place the reactor mode switch in SHUTDOWN due to impending turbine trip
- B. Post-Treatment Hi Radiation Level trip; SOP-92 (Offgas) and verify adsorber train inlet and outlet valves open and bypass valve shuts
- C. Excessive Offgas system flow; AOP-5 (Loss of Condenser Vacuum) due to loss steam jet air ejector efficiency
- D. Post-Treatment Hi-Hi-Hi Radiation Level trip; AOP-2 (Main Turbine Trip) due to loss of Offgas system flow

Answer: B

With mode switch in AUTO, the adsorber trains will automatically realign when the post-treatment hi-level trip seal in.

K/A Statement: Ability to a) predict the impact that power level changes will have on the off-gas system; and b) based on those predictions, use procedures to correct, control and/or mitigate the consequences.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
271000 A2.15	N/A	3.1	43.5	STM-606 SOP-92	

Tier/Group	2/2	LOK: H	LOD: 2
Origin:	NRC		
History:	New NRC		BANK QID: N/A

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QUESTION NO. 94 SRO

** TS 3.6.1.7 Included as Reference **

The plant is in Mode 1 on June 4, at 0800, when the 'A' primary containment cooler is declared inoperable and disassembly is started for a motor replacement.

On June 5, at 1200, the 'B' primary containment cooler is declared inoperable due to a common cause failure.

On June 5, at 1600, the 'A' primary containment cooler is declared operable.

With regard to TS 3.6.1.7, the current status is: the reactor must be in Mode 3 no later than ____.

- A. June 11 at 2000
- B. June 12 at 2000
- C. June 13 at 0000
- D. June 13 at 0400

Answer: C

Apply completion time rules to Condition A: June 5, at 1200, plus 7 days is more restrictive than June 4, at 0800, plus 7 days plus 24 hours. Add 12 hours to get the Mode 3 completion time. Need to recognize that both pumps were out simultaneously, and the original was restored.

K/A Statement: Knowledge of conditions and limitations in the facility license.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
Generic 2.1.10	N/A	3.9	43.1	TS 3.6.1.7 TS 1.0	
Tier/Group	3	LOK: H		LOD: 2	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 95 SRO

The following plant conditions exist.

- RPV pressure is atmospheric
- RPV temperature is 190°F
- Reactor mode switch is in Shutdown
- GOP-1, Plant Startup is in progress

In accordance with the technical specifications, prior to placing the reactor mode switch in START & HOT STBY, _____.

- A. RCIC does NOT have to be OPERABLE until RPV pressure reaches 150 psig
- B. Primary containment pressure can be +0.4 psig
- C. The minimum required channels of Turbine Stop Valve Closure trip functions must be OPERABLE
- D. The minimum required channels of MSIV Closure trip functions must be OPERABLE

Answer: A

K/A Statement: Ability to determine mode of operation.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
Generic 2.1.22	N/A	3.3	43.1	TS 1.0 TS LCO 3.0.4 TS 3.5.3 TS 3.3.1	
Tier/Group	3	LOK: H		LOD: 3	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 96 SRO

Surveillance testing is being performed. The technicians performing the maintenance contact the control room to notify the control room supervisor they will be temporarily stopping the maintenance and leaving the area.

In accordance with _____, the CRS should direct the technicians to _____.

- A. EN-OP-115 (Conduct of Operations); restore the equipment to the original condition prior to departing the area
- B. ADM-15 (Surveillance Testing); report any deviations in the equipment lineup or initial conditions upon their return
- C. ADM-15 (Surveillance Testing); remove any installed test equipment and restore initial conditions prior to departing the area
- D. The applicable surveillance test procedure; verify initial conditions are satisfied prior to departing the area

Answer: B

Maintenance techs can leave without restoring as long as they report deviations upon their return and inform the CRS of recommencement.

K/A
Statement: Knowledge of surveillance procedures.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
Generic 2.2.12	N/A	3.4	43.5	ADM-15 sect 8.21	
Tier/Group	3	LOK: H		LOD: 3	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 97 SRO

Prior to moving irradiated fuel in the upper fuel pools, the SRO must verify _____.

- A. All control rods are inserted
- B. The all rods in interlock is active
- C. 2 control room fresh air subsystems are OPERABLE
- D. 2 channels of mode switch position in shutdown per trip system are OPERABLE

Answer: C
A, B, D – core alterations

K/A
Statement: Knowledge of SRO fuel handling responsibilities.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
Generic 2.2.29	N/A	3.8	43.6	FHP-001 Att 2	
Tier/Group	3	LOK: H		LOD: 3	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 98 SRO

While the Recovery Sample Tank is being discharged, RMS-RE107 goes into high alarm.

The CRS / OSM should verify that _____.

- A. The chemistry department verifies the alarm valid prior to securing the discharge
- B. The Auxiliary Control Room Operator verifies blowdown flow rate is the value specified in the discharge permit
- C. The blowdown is secured and a new release permit is generated prior to recommencing the release
- D. RMS-RE107 is running to allow chemistry to draw a sample

Answer: C

A the discharge should automatically isolate upon receipt of a high alarm.

B blowdown rate may be verified but that would potentially occur during 'trouble shooting' initial response would be to verify discharge termination

D sample pump should be running prior to discharge commencing

K/A Statement: Knowledge of SRO responsibilities for auxiliary systems that are outside the control room (liquid radwaste).

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
Generic 2.3.3	N/A	2.9	43.4	LWS-PNL187/4/C-4 RMS-DSPL230/1LE107 SOP-113 TR 3.3.11.2	

Tier/Group	3	LOK: H	LOD: 4
Origin:	NRC		
History:	New NRC		BANK QID: N/A

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QUESTION NO. 99 SRO

While operating at 100 percent power, the following conditions develop in sequence:

- Reactor and main generator power rapidly drop to 90 percent of rated
- Recirculation flow control valve positions did not change
- Recirculation loop 'A' flow is 10 percent higher than loop 'B'
- RPV level rapidly rises to level 8, followed by a reactor scram and turbine trip

Based on this, the SRO should enter _____.

- A. AOP-6, Condensate and Feedwater Failures
- B. AOP-9, Loss of Normal Service Water
- C. AOP-42, Loss of Instrument Bus
- D. AOP-62, Jet Pump Failures

Answer: D

A – May cause water level rise, but not trend in power and recirc flow differential

B – Loss of all service water can cause a scram

C – Loss of an instrument bus may cause some of the indications, but not all

K/A

Statement: Knowledge of abnormal condition procedures.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
Generic 2.4.11	N/A	3.6	43.5	AOP-62	
Tier/Group	3	LOK: H		LOD: 3	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	

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QUESTION NO. 100

SRO

** EIP-2-007 Included as Reference **

Following the declaration of a General Emergency, a Shelter protective action recommendation (PAR) can be issued when _____.

- A. The shift manager determines an uncontrolled release from containment will occur 24 hours from the declaration of the General Emergency
- B. The current PAR evacuates to a radius of 2 miles and 5 miles downwind, and shelters the remainder of the 10 mile radius
- C. An uncontrolled radioactive release is in progress, and the public can NOT evacuate before the plume arrives
- D. A short-term, controlled radioactive release from containment is occurring, and the plume will reach the public in 10 minutes

Answer: D

Controlled release which is short in duration and the public cannot be evacuated in time

A – enough time exists for evacuation

B – Do NOT shelter following evacuation

C – Evacuation is preferred for this situation

K/A

Statement: Knowledge of emergency plan protective action recommendations.

<u>K/A</u>	<u>RO</u>	<u>SRO</u>	<u>10 CFR 55</u>	<u>TECHNICAL REF</u>	<u>OBJECTIVE REF</u>
Generic 2.4.44	N/A	4.0	43.5	EIP-2-7 Attachment 3	
Tier/Group	3	LOK: H		LOD: 3	
Origin:	NRC				
History:	New NRC			BANK QID: N/A	