U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 1

The plant is operating at 100 % power.

Main Steam Isolation Valve B21-F022A inadvertently isolates.

Which one of the following describes the response of the reactor to this action?

Reactor power will:

A. rise due to the reactor pressure rising. This causes a collapse of voids in the core which adds positive reactivity. The reactor may scram on either high flux or high pressure.

B. rise due to a rising core water level caused by rising reactor pressure. Power will return to a slightly lower level in response to Reactor Water Level Control and Turbine Control Valve movement.

C. be unaffected due to the Turbine Control Valves quickly opening to reduce any pressure transient on the reactor through the remaining three Steam lines.

D. drop initially due to the void boundary being pushed lower in the core. This adds negative reactivity. As the Turbine Control Valves respond to lower reactor pressure, power rises as the void boundary rises.

QUESTION SRO 1 **NRC RECORD # WRI 201**
ANSWER:. A. **SYSTEM # B21** **K/A 295007** **AA2.02: 4.1/4.1**
LP# GG-1-LP-RO-F1502.00 **AA2.03: 3.7/3.7**
OBJ. 2 **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 1**
REFERENCE: Tech Spec Bases 3.3.1.1 ***NEW*** **CLASS**
FSAR 15.2.4.1.2.2 MODIFIED BANK
DIFF 3, CA 15.2.4.3.3.2
DATE USED: RO SRO ***BOTH*** **CFR 41.7**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 2

The plant is in mode 4.

RHR Shutdown Cooling is lost.

Both Recirculation Pumps are shutdown for repairs.

Which one of the following is the minimum reactor water level above vessel zero that will provide adequate core circulation to provide temperature indication?

A. + 569 inches

B. + 587 inches

C. + 615 inches

D. + 648 inches

QUESTION SRO 2 **NRC RECORD # WRI 202**
ANSWER:. C. **SYSTEM # B13; B21** **K/A 295009** **AK1.05: 3.3/3.4**
LP#
OBJ. **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 1**
REFERENCE: **ONEP 05-1-02-III-1** ***NEW*** **CLASS**
step 3.1.2
Tech Spec Bases MODIFIED BANK
DIFF 2, M **Figure 3.3.1.1-1**
DATE USED: RO SRO ***BOTH*** **CFR 41.2/41.14**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 3

Scram conditions exist. All control rods did NOT fully insert.

Reactor water level is being maintained at –60 inches.

Reactor pressure is being maintained at 910 psig.

Reactor power is 20 %.

The following indications exist:

RPS white lights on H13-P680 are extinguished.

Scram Air Header Pressure low annunciator is illuminated.

Manual Scram annunciator is illuminated.

Which one of the following contains the minimum actions required to drive the control rods to position 00 using Rod Control and Information System?

A. Defeat the RPS scram signal and reset RPS, unisolate the Instrument Air header, defeat Alternate Rod Insertion, bypass Control Rod Drive withdrawal blocks, confirm a CRD pump is operating, select control rods and insert.

B. Defeat the RPS scram signal and reset RPS, unisolate the Instrument Air header, defeat Alternate Rod Insertion, bypass Control Rod Drive withdrawal blocks, confirm a CRD pump is operating, select control rods in sequence and insert.

C. Defeat the RPS scram signal and reset RPS, unisolate the Instrument Air header, defeat Alternate Rod Insertion, bypass Control Rod Drive insert and withdrawal blocks, confirm a CRD pump is operating, select control rods and insert.

D. Defeat the RPS scram signal and reset RPS, unisolate the Instrument Air header, defeat Alternate Rod Insertion, confirm a CRD pump is operating, select control rods in sequence and insert.

QUESTION SRO 3 **NRC RECORD # WRI 203**
ANSWER:. C. **SYSTEM # C11-2** **K/A 295015** **AK3.01: 3.4/3.7**
LP# GG-1-LP-RO-EP02A.02
OBJ. 5 **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 1**
REFERENCE: EP 05-S-01-EP-2A ***NEW*** **CLASS**
Step 48 Att. 18, 19 & 20 MODIFIED BANK
DIFF 3, CA
DATE USED: RO SRO ***BOTH*** **CFR 41.6/43.6**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 4

The plant is performing a reactor startup from cold shutdown. The reactor is at the point of adding heat. The Plant Supervisor instructed the operators to stop the startup for a short duration to perform a surveillance. During this time, the reactor went subcritical and power dropped to range 3 of the IRMs. The At-The-Controls Operator, noting that reactor power had dropped selected the next control rod and withdrew the control rod from 00 to 48 with continuous motion. This resulted in a sustained 20-second period. The following are the plant parameters at present:

Reactor Pressure 80 psig

Reactor Level + 40 inches

Which one of the following describes the next action the At-The-Controls operator should take?

A. Monitor IRMs and range them according to the power increase to keep them on scale.

B. Perform the coupling checks for the Control Rod, and inform the Reactor Engineer of the power rise.

C. Withdraw the next in sequence Control Rod to maintain the power rise to reach the point of adding heat.

D. Insert the Control Rod to a position which causes reactor period to be > 50 seconds.

QUESTION SRO 4 **NRC RECORD # WRI 204**
ANSWER:. D. **SYSTEM # C11-2; C51** **K/A 295014 AK3.01: 4.1/4.1**
LP#
OBJ. **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 1**
REFERENCE: **03-1-01-1** ***NEW*** **CLASS**
Susquehanna reactivity MODIFIED BANK
DIFF 3, CA **Event 7/98**
DATE USED: RO SRO ***BOTH*** **CFR 41.1/41.2/ 41.6/43.6**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 5

The plant is operating at 100 % power with the Electrical Distribution System aligned in the Normal Preferred lineup.

An internal short on BOP Transformer 12B causes a sudden pressure fault on the transformer.

Which one of the following describes the resulting availability of power for the Safe Shutdown Systems?

A. Power to ESF 11 and 21 Transformers is uninterrupted.

B. Power to ESF 11 Transformer is lost, however the diesel generator for the affected ESF buses will assume the load.

C. Power to both ESF 11 and 21 Transformers is lost, however the diesel generators for the ESF buses will assume the loads.

D. Power to ESF 11 and 21 Transformers will be lost and is unavailable until the faulted transformer's incoming disconnects are manually opened.

QUESTION SRO 5 **NRC RECORD # WRI 205**
ANSWER:. A. **SYSTEM # R27** **K/A 295003** **AA2.05: 3.9/4.2**
LP# GG-1-LP-RO-R2700.00 **AA1.03: 4.4/4.4**
OBJ. 3, 8, 13 **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 2**
REFERENCE: E-0001 ***NEW*** **CLASS**
ARI 04-S-02-H13-P807 MODIFIED BANK
DIFF 3, CA 4A-B6
DATE USED: RO SRO ***BOTH*** **CFR 41.7**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 6

Which one of the following describes the basis for the Low-Low Set function of the Safety Relief Valves?

A. Prevent the over pressurization of the reactor caused by the actuation of the SRVs on the Safety Function thus challenging the integrity of the Reactor Coolant Pressure Boundary.

B. Prevent the cyclic stresses on the Reactor Coolant Pressure Boundary by lowering the actuation and reset of the primary operating SRVs.

C. Prevent multiple RPS actuations on high pressure by reducing the actuation setpoints of the primary operating SRVs.

D. Prevent multiple actuations in rapid succession of the SRVs after their initial actuation thus mitigating the effects of pressure loads on Containment.

QUESTION SRO 6 **NRC RECORD # WRI 206**
ANSWER:. D. **SYSTEM # B21** **K/A 295025** **EK2.05: 4.1/4.2**
LP# GG-1-LP-RO-E2202.00
OBJ. 4, 18a **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 1**
REFERENCE: Tech Spec Bases 3.3.6.5 ***NEW*** **CLASS**
MODIFIED BANK
DIFF 2, M
DATE USED: RO SRO ***BOTH*** **CFR 41.3/41.5/41.7**
REFERENCE MATERIAL REQUIRED: None **43.2**

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 7

The plant is shutdown following an order to evacuate the Main Control Room due to a fire in H13-P870 panel. Control has been established at the Remote Shutdown Panel per the Off Normal Event Procedure. The Reactor Operator at the Remote Shutdown Panel is attempting to align RHR 'A' for Shutdown Cooling operation.

Which one of the following describes the status of interlocks or automatic functions that exist in this condition?

A. Interlocks between E12-F004A (RHR A Supp Pool Suction) and E12-F006A (RHR A SDC Suction) are disabled.

B. Interlocks requiring the enable/disable handswitches for E12-F004A (RHR A Supp Pool Suction) and E12-F006A (RHR A SDC Suction) are removed.

C. Auto Open capability for E12-F064A (RHR A Minimum Flow) on low flow conditions is functional when the RHR A Pump is operated.

D. Operation of E12-F009 (RHR SDC INBD Isolation) closed on a Low Reactor Water Level is still functional.

QUESTION SRO 7 **NRC RECORD # WRI 207**
ANSWER:. D. **SYSTEM # C61; E12** **K/A 295016** **AK2.01: 4.4/4.5**
LP# GG-1-LP-RO-C61.00
OBJ. 18, 19 **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 2**
REFERENCE: 05-1-02-II-1 Att III & IV ***NEW*** **CLASS**
MODIFIED BANK
DIFF 3, CA
DATE USED: RO SRO ***BOTH*** **CFR 41.7**
REFERENCE MATERIAL REQUIRED: 05-1-02-II-1 Att. III & IV

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 8

The plant is in a Refueling Outage moving irradiated fuel in the Spent Fuel Pool.

The fuel handling operator moving the Fuel Handling Bridge has a spent fuel bundle on the grapple. The bundle is NOT raised high enough to clear the gate from the Transfer Canal to the Spent Fuel Pool.

The spent fuel bundle hits the Transfer Canal gate causing a large bubble to rise from the fuel bundle. The Fuel Handling Area Radiation Monitor is in alarm.

Which one of the following describes actions to be taken and their reason?

A. Stop all movement of fuel inside the Containment to allow personnel working inside Containment to have a pathway for evacuation of the Containment.

B. Isolate the Containment to prevent any airborne radiation from entering the Containment and have the Refueling Floor Health Physicist determine if respirators are required.

C. Place bundle in safe condition and evacuate the Fuel Handling Area personnel to prevent overexposure to fission products released into the Auxiliary Building atmosphere.

D. Move the fuel bundle to the Horizontal Fuel Transfer Mechanism in preparation to move it back to Containment to limit release of radioactive material into the Auxiliary Building.

QUESTION SRO 8 **NRC RECORD # WRI 208**
ANSWER:. C. **SYSTEM # F11** **K/A 295023** **AK3.01: 3.6/4.3**
LP# OP-LOR-ONEP-LP-001.04
OBJ. 1 **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 3**
REFERENCE: 05-1-02-II-8 sect. 2.1 ***NEW*** **CLASS**
01-S-06-2 sect 6.7.14 MODIFIED BANK
DIFF 2, M
DATE USED: RO SRO ***BOTH*** **CFR 41.2/41.10/**
REFERENCE MATERIAL REQUIRED: None **41.12/43.4/43.5/**
43.6/43.7

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 9

An ATWS has occurred. The MSIVs are open with the Turbine Bypass Valves closed.

The following parameters exist:

Reactor Power	45 %
Reactor Pressure	1000 psia
Reactor Level	- 100 inches Fuel Zone
Suppression Pool Level	16.5 feet
Suppression Pool Temperature	150 °F
Drywell Pressure	+ 1.0 psig

Which one of the following describes actions to be taken?

A. Maintain RPV water level between -192 and + 53.5 inches and RPV pressure < 1064.7 psig.

B. Maintain RPV water level between -192 and + 53.5 inches and confirm SPMU has initiated.

C. Terminate and prevent all injection into the RPV except for CRD and Boron, and lower RPV water level to the top of active fuel.

D. Terminate and prevent all injection into the RPV except for Boron, CRD and RCIC and emergency depressurize the RPV.

QUESTION SRO 9 **NRC RECORD # WRI 209**
ANSWER:. D. **SYSTEM # M41; B21** **K/A 295026** **EK2.01: 3.9/4.0**
LP# GG-1-LP-RO-EP03
OBJ. 2, 3
LP# GG-1-LP-RO-EP02A
OBJ. 7, 10h **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 2**
REFERENCE: 05-S-01-EP2 EP2A Step 33 ***NEW*** **CLASS**
05-S-01-EP3 Step 15 and HCTL MODIFIED BANK
DIFF 3, CA
DATE USED: RO SRO ***BOTH*** **CFR 41.7/41.9/**
REFERENCE MATERIAL REQUIRED: EP-2A and EP-3 **41.10/41.14/43.5**

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 10

A plant startup is in progress.

The following parameters exist:

Reactor Power	range 4 of IRMs
Reactor Level	+ 46 inches
Reactor Pressure	0 psig
Reactor Temperature	180 °F

The operating Control Rod Drive Pump trips. The Control Room Operator attempted to start the standby CRD Pump and the pump failed to start. Control Rod movement has been suspended.

Which one of the following describes the response of Reactor water level?
(ASSUME NO OPERATOR ACTION)

Reactor Water level will:

A. remain stable due to water expansion from heating overcoming any losses to steam.

B. remain stable due to water expansion from heating overcoming any losses to RWCU.

C. rise due to the reactor being at the point of adding heat.

D. drop due to RWCU rejecting water for level control.

QUESTION SRO 10 **NRC RECORD # WRI 210**
ANSWER:. D. **SYSTEM # B21; C11; G33; IOI** **K/A 295022** **AK2.04: 2.5/2.7**
LP#
OBJ. **SRO TIER 1 GROUP 2 / RO TIER 1 GROUP 2**
REFERENCE: 03-1-01-1 sect 2.2.5; 3.3.1.d; 3.3.3.a ***NEW*** MODIFIED BANK **CLASS**
DIFF 3, CA
DATE USED: RO SRO ***BOTH*** **CFR 41.5**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 11

A Reactor scram resulted in water level dropping to – 46 inches on Wide Range Level.
Reactor level has since recovered to + 10 inches on Narrow Range. Reactor Pressure is being maintained with the Turbine Bypass Valves. The maximum Reactor Pressure during the transient was 1080 psig.
The Roving Control Room Operator has noticed Suppression Pool Temperature is rising.
Which one of the following could be the cause of rising Suppression Pool parameters?

A. Cooling down of SRV tailpipes following SRV actuation.

B. Steam from Reactor Core Isolation Cooling operation.

C. Water drained from the Scram Discharge Volume to the Suppression Pool.

D. LPCI Pumps operating on minimum flow to the Suppression Pool.

QUESTION SRO 11 **NRC RECORD # WRI 211**
ANSWER:. B. **SYSTEM # E51; B21; C11** **K/A 295013 AA1.02: 3.9/3.9**
LP# GG-1-LP-RO-E51.00
OBJ. 9; 18a; 21 **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 2**
REFERENCE: ARI 04-1-02-H13-P601 ***NEW*** **CLASS**
21A-C5, 19A-B6; 16A-A4 MODIFIED BANK
DIFF 2, CA P870 3A-E3
DATE USED: RO SRO ***BOTH*** **CFR 41.9/41.10**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 12

A Reactor scram resulted in water level dropping to – 46 inches on Wide Range Level.

Which one of the following systems would be completely shutdown?
(ASSUME NO OPERATOR ACTION)

A. Plant Chilled Water System

B. Plant Service Water System

C. Standby Service Water System

D. Component Cooling Water System

QUESTION SRO 12 **NRC RECORD # WRI 212**
ANSWER:. A. **SYSTEM # P71** **K/A 295031** **EK2.12: 4.5/4.5**
LP# GG-1-LP-RO-P71.00
OBJ. 7, 8, 15, 18 **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 1**
REFERENCE: 05-1-02-III-5 isolations ***NEW*** **CLASS**
04-1-02-H13-P870-5A-A1 MODIFIED BANK
DIFF 2, M **5A-A4 P601-16A-A4**
DATE USED: RO SRO ***BOTH*** **CFR 41.7/41.10**
REFERENCE MATERIAL REQUIRED: None **43.5**

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 13

A loss of coolant accident through a rupture in a flange on the RWCU Regenerative Heat Exchanger inlet has caused RWCU to isolate.

The following conditions exist in the plant:

Reactor level	has remained stable at +36 inches
Reactor pressure	1000 psig and stable
Drywell pressure	+ 1.0 psig
Drywell temperature	110 °F
Containment pressure	+ 6.5 psig
Containment temperature	188 °F
Suppression Pool Temperature	91 °F
Suppression Pool Level	18.6 feet

Which one of the following describes the heat removal method to be used to remove heat from the Containment?

A. Containment Coolers and Containment Steam Tunnel Coolers in operation.

B. Containment Coolers, Containment Steam Tunnel Coolers in operation, however, chilled water is isolated.

C. Containment Coolers, Containment Steam Tunnel Coolers in operation and Containment Spray with RHR A and B initiated.

D. Containment Coolers, Containment Steam Tunnel Coolers in operation without chilled water and Containment Spray with RHR A and B initiated.

QUESTION SRO 13 **NRC RECORD # WRI 213**
ANSWER:. C. **SYSTEM # M71; M41/M41-1** **K/A 295027** **EK2.03: 3.5/3.7** **EK2.01: 3.2/3.4**
LP# GG-1-LP-RO-EP03.00
OBJ. 3 **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 2**
REFERENCE: GGNS PSTG app B ***NEW*** **CLASS**
05-S-01-EP-3 step 23 MODIFIED BANK
DIFF 4, CA M-1079
DATE USED: RO SRO ***BOTH*** **CFR 41.5/41.9/**
REFERENCE MATERIAL REQUIRED: EP-3 **41.10/43.5**

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 14

A LOCA has occurred.

The following conditions exist in the plant:

Reactor			
Wide Range Level	- 140 inches	Fuel Zone Level	- 190 inches
Upset Range Level	0 inches	Shutdown Range Level	0 inches
Pressure	50 psig	Narrow Range Level	0 inches
Drywell			
Pressure	+ 5.2 psig		
Temperature 166 ft.	220 °F	Temperature 139 ft	190 °F
Containment			
Pressure	+ 1.0 psig		
Temperature 166 ft.	155 °F	Temperature 139 ft.	150 °F

Which one of the following Reactor Level Instruments is usable?

A. Fuel Zone Range

B. Wide Range

C. Upset Range

D. No level instruments are accurate RPV Flooding Required

QUESTION SRO 14 **NRC RECORD # WRI 214**
ANSWER:. A. SYSTEM # B21 **K/A 295028 EA2.03: 3.7/3.9**
LP# GG-1-LP-RO-EP02.01 **2.4.20: 3.3/4.0**
OBJ. 4 SRO TIER 1 GROUP 2 / RO TIER 1 GROUP 2
REFERENCE: 05-S-01-EP-2 Caution 1 NEW CLASS
MODIFIED **BANK**
DIFF 3, CA **NRC EXAM 1998** **WRI 1**
DATE USED: RO SRO ***BOTH*** **CFR 41.5/41.10/**
REFERENCE MATERIAL REQUIRED: EP-2 Caution 1 **41.14/43.5**

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 15

An ATWS has occurred.
The following conditions exist in the plant:

Reactor level	- 100 inches
Reactor pressure	900 psig
Reactor Power	30 %
Drywell pressure	+ 1.1 psig
Drywell temperature	130 °F
Containment pressure	+ 1.5 psig
Containment temperature	100 °F
Suppression Pool Temperature	116 °F
Suppression Pool Level	24.8 feet
Suppression Pool Makeup has actuated.	

Which one of the following describes the basis for Emergency Depressurization of the Reactor?

Suppression Pool Level:

A. can result in exceeding the maximum pressure suppression pressure preventing Minimum RPV Flooding Pressure from being reached before the Primary Containment Pressure Limit is reached.

B. with the RPV heat load will cause excessive steam generation in Containment that will rapidly challenge Containment Temperature Limits.

C. results in a higher pressure in the SRV Tailpipes and the challenge to the integrity of the tailpipes by exceeding the SRV Tailpipe Level Limit.

D. will cause the loss of equipment located in the Drywell 93 foot elevation required for control of Drywell conditions and removal of fission products from the Drywell.

QUESTION SRO 15 **NRC RECORD # WRI 215**
ANSWER:. A. **SYSTEM # M41** **K/A 295029** **EK3.01: 3.5/3.9**
LP# GG-1-LP-RO-EP03.00 **2.4.18: 2.7/3.6**
OBJ. 6 **SRO TIER 1 GROUP 2 / RO TIER 1 GROUP 2**
REFERENCE: 05-S-01-EP-3 step 52&53 ***NEW*** **CLASS**
GGNS PSTG App C PSP MODIFIED BANK
DIFF 3, CA App A EPG Step SP/L-3
DATE USED: RO SRO ***BOTH*** **CFR 41.7**
REFERENCE MATERIAL REQUIRED: EP-3

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 16

An ATWS has occurred. Actions of EP-2A are being taken.

Which one of the following describes an allowance to terminate injection of Standby Liquid Control?

A. Control rods have been inserted to the equivalent of the first banked position with RPV temperature at < 200°F making the reactor subcritical.

B. All control rods are inserted to the Maximum Subcritical Banked Withdrawal Position, which assures the reactor will remain subcritical under all conditions.

C. RPV temperature has been reduced to < 200 °F and indicated reactor power on all IRMs is downscale on range 1, which indicates a subcritical reactor.

D. Standby Liquid Control has been injected such that Hot Shutdown Boron Weight (HSBW) has been injected and confirmed by chemical analysis.

QUESTION SRO 16 **NRC RECORD # WRI 216**
ANSWER:. B. **SYSTEM # C41; C11; C71** **K/A 295037** **EA1.04: 4/4.5**
EK1.04: 3.4/3.6
EK1.05: 3.4/3.6
LP# GG-1-LP-RO-EP02A.03 **EA2.03: 4.3/4.4**
OBJ. 2, 3, 5 SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 1
REFERENCE: 05-S-01-EP-2A ***NEW*** **CLASS**
step 2 & 4 MODIFIED BANK
DIFF 3, CA GGNS PSTG App B RC/Q-1
DATE USED: RO SRO ***BOTH*** **CFR 41.1/41.2/**
REFERENCE MATERIAL REQUIRED: EP-2A **41.6/43.6**

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 17

Which one of the following describes basis for tripping the Reactor Recirculation Pumps on High Reactor Pressure?

A. Excessive reactor pressure above a scram setpoint results in the collapse of voids adding positive reactivity.

B. Excessive reactor pressure could result in damage to both seals in both Recirculation Pumps resulting in an uncontrolled loss of coolant accident.

C. Excessive reactor pressure results in reduced core flow, which causes the margin to the MCPR limits to be reduced.

D. Excessive reactor pressure could result in the unwanted operation of the Safety Relief Valves causing undesired voiding of the core.

QUESTION SRO 17 **NRC RECORD # WRI 217**
ANSWER:. A. **SYSTEM # B33** **K/A 295025** **EK3.02: 3.9/4.1**
LP# GG-1-LP-RO-B3300.00
OBJ. 26 **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 1**
REFERENCE: **GGNS Tech Spec Bases 3.3.4.2** ***NEW*** MODIFIED **CLASS** BANK
DIFF 2, M **ARI 04-1-02-H13-P680 2A-E15**
DATE USED: RO SRO ***BOTH*** **CFR 41.5/43.2**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 18

Which one of the following describes basis for Emergency Depressurizing the Reactor on low Suppression Pool Level?

Excessively low Suppression Pool Level will:

A. result in the SRV Tailpipes being exposed and transmitting the heat of steam inside the pipes to the Containment atmosphere.

B. cause Suppression Pool Level to become undetermined from uncovering the variable leg to the level transmitters.

C. result in inadequate submergence of horizontal vents which could allow Containment pressure limits to be challenged.

D. result in loss of the Net Positive Suction Head requirements for the ECCS Pumps causing chugging of the flow from systems such as LPCS and HPCS.

QUESTION SRO 18 **NRC RECORD # WRI 218**
ANSWER: C. **SYSTEM # M41; B21** **K/A 295030** **EK3.01: 3.8/4.1**
2.4.18: 2.7/3.6
LP# GG-1-LP-RO-EP03.00
OBJ. 6 **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 2**
REFERENCE: GGNS PSTG App A & B ***NEW*** **CLASS**
Step SP/L-2 MODIFIED BANK
DIFF 2, M **05-S-01-EP-3 step 42/43**
DATE USED: RO SRO ***BOTH*** **CFR 41.9**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 19

A LOCA has occurred. The Plant Supervisor has ordered the Hydrogen Recombiners started for Hydrogen removal in Containment.

Determine the final Hydrogen Recombiner Power Setting and the time to final Recombiner power.

Pre-LOCA Containment Temperature was 85 °F.
Post LOCA Containment Pressure +1.0 psig.

A. 47.73 kw after 20 minutes

B. 47.73 kw after 25 minutes

C. 49.02 kw after 20 minutes

D. 49.02 kw after 25 minutes

QUESTION SRO 19 **NRC RECORD # WRI 219**
ANSWER: B. **SYSTEM # E61** **K/A 500000 EA1.03: 3.4/3.2**
2.4.20: 4.3/4.2
LP# GG-1-LP-RO-E61.01
OBJ. 13 SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 1
REFERENCE: 04-1-01-E61-1 sec. 5.4.2 ***NEW*** **CLASS**
Figure 1 MODIFIED BANK
DIFF 3, CA
DATE USED: RO SRO ***BOTH*** **CFR 41.10/43.5**
REFERENCE MATERIAL REQUIRED: 04-1-01-E61-1 & Calculator

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 20

Which one of the following describes the reason for isolating the Main Steam Isolation Valves on a Low Main Condenser Vacuum?

A. Prevent erosion damage to the Main Steam Isolation Valve and Main Steam Bypass Valve seats due to steam condensation in the Main Steam Lines that would prevent their complete isolation in an emergency.

B. Prevent erosion damage to turbine blading in the Low Pressure Turbine due to steam condensation in the Main Steam Lines.

C. Prevent over-pressurization of low pressure piping on the suction of the Condensate pumps that could result in a rupture introducing steam outside Secondary Containment.

D. Prevent rupture of the turbine rupture diaphragms or damage to the turbine exhaust hood that could lead to leakage of radiation to the environment.

QUESTION SRO 20 **NRC RECORD # WRI 220**
ANSWER: D. **SYSTEM # B21; N11; N62** **K/A 295002** **AK3.05: 3.4/3.4** **AA1.04: 3.3/3.4**
LP# GG-1-LP-RO-B13.00
OBJ. 6 **SRO TIER 1 GROUP 2 / RO TIER 1 GROUP 2**
REFERENCE: GGNS Tech Spec Bases 3.3.6.1-1d ***NEW*** MODIFIED **CLASS** BANK
DIFF 2, M
DATE USED: RO SRO ***BOTH*** **CFR 41.4/43.2/43.4**
REFERENCE MATERIAL REQUIRED:

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 21

The plant is operating at rated conditions.

A crane moving down heavy haul road turns over causing a complete loss of power to the Radial Wells.

Which one of the following describes the affect on the Reactor Water Cleanup System?
(ASSUME NO OPERATOR ACTION)

A. RWCU will operate normally due to the minimal heat load from the RWCU Non-Regenerative Heat Exchangers.

B. RWCU F/Ds will automatically go into hold and bypass the filter demineralizers upon receipt of any high temperature signals.

C. Component Cooling Water temperature will rise and eventually the RWCU system will isolate and trip the RWCU pumps.

D. Standby Service Water will automatically start on the loss of power and align for supplying cooling water to CCW allowing RWCU to operate normally.

QUESTION SRO 21 **NRC RECORD # WRI 221**
ANSWER: C. **SYSTEM # P44; P42; G33** **K/A 295018 AK1.01: 3.5/3.6**
LP# GG-1-LP-RO-G3336.01
OBJ. 9, 10, 16, 21
LP# GG-1-LP-RO-P4447.00
OBJ. 11, 12, 25, 27
LP# GG-1-LP-RO-P4200.00
OBJ. 9, 10, 15, 19 **SRO TIER 1 GROUP 2 / RO TIER 1 GROUP 2**
REFERENCE: 05-1-02-V-1 ***NEW*** **CLASS**
05-1-02-V-11 MODIFIED BANK
DIFF 3, CA
DATE USED: RO SRO ***BOTH*** **CFR 41.4**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 22

The plant was operating at rated conditions when a valve on the Main Steam Lines had a packing rupture in the Auxiliary Building Steam Tunnel.

Security has reported the blowout shaft open on the Auxiliary Building Steam Tunnel and steam is coming out of the top of the Auxiliary Building.

Indicated radiation levels are below alarm setpoints.

The Main Steam Isolation Valves have been isolated, however Steam Tunnel temperatures are not lowering.

Which one of the following describes how this release of steam is being monitored?
(NO OTHER OPERATOR ACTIONS HAVE BEEN TAKEN.)

A. The only way to monitor the radioactive release is to perform manual monitoring by chemistry and health physics personnel.

B. A combination of Standby Gas Treatment Radiation Monitors and manual personnel monitoring give an estimate of the radioactive release.

C. Fuel Handling Exhaust System Radiation Monitors will provide a complete monitoring of any radioactive release.

D. Fuel Handling Exhaust System and Standby Gas Treatment Radiation Monitors will provide a complete monitoring of any radioactive release.

QUESTION SRO 22 **NRC RECORD # WRI 222**
ANSWER: A. **SYSTEM # T48; T42** **K/A 295017** **AK2.04: 3.1/3.3**
LP#
OBJ. **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 2**
REFERENCE: **M-1102A E-1 1102B E-2** ***NEW*** **CLASS**
M-1104B E-3/4 MODIFIED BANK
DIFF 2, CA **10-S-01-12 sect 6.1.4.a**
DATE USED: RO SRO ***BOTH*** **CFR 41.11**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 23

The plant is operating at rated conditions.

Bus 11DB DC Bus has a ground fault resulting in the supply circuit breakers from the Battery and both Battery Chargers tripping.

Electricians and Operators have attempted to reset and close the breakers and have not been able to get the breakers to close.

Which one of the following describes status of ECCS Systems?

A. All ECCS will function normally.

B. Division I and III ECCS will function normally. Division II must be manually started and aligned from the Control Room for any ECCS operations.

C. Division III ECCS will function normally. Division I and II logics will NOT function to initiate ECCS, the systems can be operated manually locally.

D. Division I and III ECCS will function normally. Division II logics will NOT function to initiate ECCS, the systems can be operated manually locally.

QUESTION SRO 23 **NRC RECORD # WRI 223**
ANSWER: D. **SYSTEM # L11; E12; E21; E22** **K/A 295004 AA2.04: 3.2/3.3**
LP# GG-1-RO-LP-E2200.00
OBJ. 6, 13, 16
LP# GG-1-RO-LP-E2100.00
OBJ. 6, 13, 16
LP# GG-1-RO-LP-L1100.00
OBJ. 13 **SRO TIER 1 GROUP 2 / RO TIER 1 GROUP 2**
REFERENCE: E-1181-65; E-1182-23 ***NEW*** **CLASS**
E-1183-21 MODIFIED BANK
DIFF 2, CA 04-1-02-H13-P601
17A-H2 & H3
DATE USED: RO SRO ***BOTH*** **CFR 41.7**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 24

The plant was operating at power.

A transient caused the Recirculation Pump B trip to OFF.

Electricians are investigating the cause of the Recirculation Pump B trip.

The following parameters are indicated:

Reactor power	65 %	
Core Flow		54 Mlbm/hr
Recirc A Flow		40,000 gpm
Recirc B Flow		0 gpm

Which one of the following describes the actions to be taken for present plant conditions?

A. Immediately Scram the Reactor.

B. Monitor core power for thermal hydraulic instability and scram the reactor if any is noted.

C. Immediately reduce thermal power by only inserting control rods to exit the region.

D. Immediately exit the region by reducing thermal power by inserting control rods, or raising core flow by opening Recirc FCV A.

QUESTION SRO 24 **NRC RECORD # WRI 224**
ANSWER: D. **SYSTEM # B33** **K/A 295001** **AA2.01: 3.5/3.8**
2.4.1: 4.3/4.6
LP# GG-1-RO-LP-B3300.00 **2.4.11: 3.4/3.6**
OBJ. 45, 46, 47, 49 **SRO TIER 1 GROUP 2 / RO TIER 1 GROUP 2**
REFERENCE: 05-1-02-III-3 sect NEW CLASS
Figure 1 ***MODIFIED*** **BANK**
DIFF 3, CA **03-1-01-2 sect 2.26.1** **NRC 3/98 q 26**
DATE USED: March 1998 RO SRO ***BOTH*** **CFR 41.10/41.5/**
REFERENCE MATERIAL REQUIRED: 05-1-02-III-3 w/o Immediate actions **43.5**

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 25

The power was lost to bus 15AA.

The Division I Diesel Generator restored power.

All systems responded as normal, however upon re-sequencing loads on 15BA3 the LCC tripped and is NOT able to be restored.

The following are plant parameters:

Reactor power	70 %
Reactor level	+ 36 inches
Drywell Pressure	0.5 psig

Which one of the following identifies a system capable of being placed in operation?

A. Drywell Chilled Water

B. Plant Service Water

C. Residual Heat Removal 'A'

D. Fire Protection

QUESTION SRO 25 **NRC RECORD # WRI 225**
ANSWER: A. **SYSTEM # P72; P44; E12; P64** **K/A 295020 AA1.01: 3.6/3.6**
LP# GG-1-RO-LP-M5100.00
OBJ. 7, 14, 21, 22 SRO TIER 1 GROUP 2 / RO TIER 1 GROUP 2
REFERENCE: 05-1-02-III-5 ***NEW*** **CLASS**
05-1-02-V-9 MODIFIED BANK
DIFF 3, CA **M0035E, M1119A, M1072B & E**
DATE USED: RO SRO ***BOTH*** **CFR 41.9**
REFERENCE MATERIAL REQUIRED: 04-1-01-R21-15 Attachment I 15BA3, 15B31, 15P31 Load Lists

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 26

The plant is in mode 5 for RF11. Core Alterations in progress.

RHR 'A' is operating in Shutdown Cooling. HPCS and LPCS are the ECCS pumps available.

RHR 'B' is tagged out with a motor winding phase to phase short. RHR 'C' injection valve E12-F042C is disassembled for valve disc replacement.

The power is lost to bus 15AA. Reactor coolant temperature is 150 °F and rising.

Which one of the following identifies an allowable decay heat removal method?

A. HPCS injection with at least two (2) Safety Relief Valves open

B. Alternate Decay Heat Removal using both pumps.

C. CRD makeup to the RPV with both pumps and RWCU draining the RPV to radwaste.

D. HPCS injection with the Division II SPMU valves open after tags removed.

QUESTION SRO 26 **NRC RECORD # WRI 226**
ANSWER: D. **SYSTEM # B21 Decay Heat Removal** **K/A 295021 AA1.04: 3.7/3.7**
LP#
OBJ. **SRO TIER 1 GROUP 2 / RO TIER 1 GROUP 3**
REFERENCE: **05-1-02-III-1 Section 3.2.3e** ***NEW*** MODIFIED **CLASS** BANK
DIFF 3, CA
DATE USED: RO SRO ***BOTH*** **CFR 41.5/43.5**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 27

The plant has experienced a LOCA (Drywell Pressure 2.8 psig) in the Drywell. The reactor is shutdown and systems functioned as normal. A transient on the 500 KV distribution system resulted in a complete loss of the offsite power grid (This included the 115 KV Port Gibson line.).

The diesel generators responded and are supplying power to the ESF buses.

No operator actions have been taken.

Which one of the following identifies the method of heat removal from the Drywell under the present plant conditions?

A. The 'A' Drywell Cooler fans are circulating air but the coolers are without cooling water flow.

B. The 'B' Drywell Cooler fans are circulating air but the coolers are without cooling water flow.

C. Heat removal from the Drywell is from ambient losses without air circulation.

D. Drywell Coolers and Drywell Chilled Water System 'B' are operating on SSW 'B'.

QUESTION SRO 27 **NRC RECORD # WRI 227**
ANSWER: B. **SYSTEM # R21; M51; P72; P41** **K/A 295012** **AA1.02: 3.8/3.8** **AA1.01: 3.5/3.6**
LP# GG-1-LP-RO-M5100.00
OBJ. 13, 14, 19, 21 SRO TIER 1 GROUP 2 / RO TIER 1 GROUP 2
REFERENCE: 04-1-01-R21-1 Table 1 ***NEW*** **CLASS**
04-1-01-R21-16 Att I MODIFIED BANK
DIFF 3, CA M-1101, E1120-04, E1225-02
DATE USED: RO SRO ***BOTH*** **CFR 41.9**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 28

The plant is in RF11. Spent fuel is being moved in the Spent Fuel Pool.

A spent fuel bundle is dropped on top of several other spent fuel bundles. Large gas bubbles are emanating from the spent fuel bundles. All of the 208 ft elevation radiation monitors are in alarm and Fuel Handling Area and Fuel Pool Sweep Ventilation have shutdown and Standby Gas Treatment has started.

The Control Room Radiation Monitors are reading 7 mr/hr.

Which one of the following describes the response of the Control Room Ventilation System?

A. The Control Room Ventilation System will operate to maintain a negative pressure in the Control Room envelope and Standby Fresh Air Filter Trains will start to filter the Control Room Atmosphere.

B. The Control Room Ventilation System will operate to maintain a positive pressure in the Control Room envelope and Standby Fresh Air Filter Trains will start to filter the Control Room Atmosphere.

C. The Control Room Ventilation System will shift to the isolate mode and the Control Room Air Conditioning System and Standby Fresh Air Units will operate to maintain a habitable environment.

D. The Control Room Ventilation System will shift to the isolate mode and the Control Building Purge System will purge the Control Room Atmosphere through the Standby Fresh Air Units to maintain a habitable environment.

QUESTION SRO 28 **NRC RECORD # WRI 228**
ANSWER: C. **SYSTEM # Z51; D17** **K/A 295038** **EK3.03: 3.7/3.9**
LP# GG-1-LP-RO-Z5100.00
OBJ. 6, 7, 13 15 **SRO TIER 1 GROUP 2 / RO TIER 1 GROUP 2**

REFERENCE:	**04-S-02-H13-P855**	***NEW***	**CLASS**
	1A-A5; 2A-A5	MODIFIED	BANK
DIFF 3, M	**04-1-02-H13-P601**		
	19A-A10; 19A-A11		
	Tech Spec 3.3.7.1		
	FSAR 9.4.1.2		
DATE USED:		RO SRO ***BOTH***	**CFR 41.7/43.4**

REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 29

The plant is operating at rated conditions.

The following indications of Secondary Containment temperatures were just obtained by the Roving Nuclear Operator 'A':

Main Steam Tunnel	150 °F	RWCU Pump Room A	150 °F	
RHR A Pump Room	170 °F	RWCU Pump Room B	140 °F	
RHR A HX Room	130 °F	RCIC Pump Room		130 °F
RHR B Pump Room	150 °F			
RHR B HX Room	100 °F			

Which one of the following describes the systems that will receive an isolation signal?

A. RHR A ONLY.

B. RHR A & RCIC.

C. RHR A & B.

D. RHR A & B & RCIC.

QUESTION SRO 29 **NRC RECORD # WRI 229**
ANSWER: B. **SYSTEM # E31; E12; E51** **K/A 295032 EA1.05: 3.7/3.9**
LP# GG-1-LP-RO-E5100.00
OBJ. 14
LP# GG-1-LP-RO-M7101.00
OBJ. 7, 17 **SRO TIER 1 GROUP 2 / RO TIER 1 GROUP 3**
REFERENCE: 04-1-02-H13-P601 ***NEW*** **CLASS**
20A-B1 MODIFIED BANK
DIFF 2, M **05-1-02-III-5**
Isolation Checklist
DATE USED: RO SRO ***BOTH*** **CFR 41.4/41.9/**
REFERENCE MATERIAL REQUIRED: None **41.10/43.5**

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 30

The plant is in RF11.

The following are the indications of plant radiation levels:

Containment Vent	1.0 mr/hr	Control Building Vent	0.1 mr/hr
Fuel Handling Area Vent	3.2 mr/hr	Turbine Building Vent	4.0 mr/hr
Fuel Pool Sweep Vent	32 mr/hr	Radwaste Building Vent	0.2 mr/hr

Which one of the following describes the Ventilation Systems configuration?
(ASSUME ALL CHANNELS OF THE SAME INSTRUMENTS ARE READING THE SAME.)

ANS.	CTMT	AUX BLDG	FHA	FPS	SBGT	TURB	RW	CR
A.	RUN	ISOL	ISOL	RUN	STBY	RUN	RUN	ISOL
B.	ISOL	ISOL	ISOL	ISOL	RUN	RUN	RUN	RUN
C.	RUN	ISOL	RUN	ISOL	RUN	ISOL	ISOL	ISOL
D.	ISOL	RUN	RUN	RUN	STBY	ISOL	RUN	RUN

QUESTION SRO 30 **NRC RECORD # WRI 230**
ANSWER: B. **SYSTEM # D17; M41; T41; T42; T48; U41; V41** **K/A 295033 EK3.03: 3.8/3.9**
LP# GG-1-LP-RO-D1721.00
OBJ. 13 SRO TIER 1 GROUP 2 / RO TIER 1 GROUP 2
REFERENCE: 04-1-02-H13-P601 ***NEW*** **CLASS**
18A-D6; 19A-A8; A10; B9; MODIFIED BANK
C10; F11
04-1-02-H13-P870
2A-A3; 8A-A3
DIFF 3, M 05-1-02-III-5
Isolation Checklist
DATE USED: RO SRO ***BOTH*** **CFR 41.11/41.12/**
REFERENCE MATERIAL REQUIRED: None **43.4**

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 31

The plant is operating at rated conditions.

Auxiliary Building pressure has become the same as outside air pressure.

Which one of the following describes a possible cause of this and the corrective action to be taken?

A. More Fuel Handling Area Exhaust Fans operating than Fuel Handling Area Supply Fans, requiring securing of at least one Fuel Handling Area Exhaust Fan.

B. More Fuel Pool Sweep Exhaust Fans operating than Fuel Pool Sweep Supply Fans, requiring securing of at least one Fuel Pool Sweep Exhaust Fans.

C. Failure of controller T42-PDK-R600, closing T42-F021, Fuel Handling Area Pressure Control Valve, requiring manual control of T42-PDK-R600 to open T42-F021.

D. Failure of controller T42-PDK-R600, opening T42-F021, Fuel Handling Area Pressure Control Valve, requiring manual control of T42-PDK-R600 to close T42-F021.

QUESTION SRO 31 **NRC RECORD # WRI 231**
ANSWER: D. **SYSTEM # T42** **K/A 295035** **EK3.02: 3.3/3.5**
LP#
OBJ. **SRO TIER 1 GROUP 2 / RO TIER 1 GROUP 3**
REFERENCE: **04-1-01-T42-1 sect 3.1** ***NEW*** **CLASS**
04-1-02-H13-P842 1A-E3 MODIFIED BANK
DIFF 3, M **FSAR 9.4.2 & 7.7.1.9.3.1**
M-1104A
DATE USED: RO SRO ***BOTH*** **CFR 41.7/41.13/**
REFERENCE MATERIAL REQUIRED: None **43.4**

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 32

The plant is in mode 2 after a normal refueling outage.

The following parameters are indicated in the Main Control Room:

IRMs (range/reading)

A	B	C	D	E	F	G	H
R2/ 100	R3/ 30	R2/ 39	R3/ 39	R2/ 80	R3/ 15	R3/ 18	R3/ 36

SRMs (cps)

A	B	C	D	E	F
2.0×10^3	3.0×10^2	2.5×10^4	Bypassed	2.5×10^4	3.0×10^2

With present plant conditions, which one of the following is correct with regard to the status of the Reactor?

A. No RPS actuation and no Control Rod Blocks

B. Control Rod Block only.

C. Half scram and Control Rod Block.

D. Full scram and Control Rod Block.

QUESTION SRO 32 **NRC RECORD # WRI 232**
ANSWER: C. **SYSTEM # C51; C71; C11-2** **K/A 215003** **K3.01: 3.9/4.0**
K3.03: 3.7/3.7
LP# GG-1-LP-RO-C5102.00 **A1.03: 3.6/3.7**
OBJ. 8 **A1.04: 3.4/3.6**
LP# OP-LO-SYS-LP-C51-1-05
OBJ. 7 **SRO TIER 2 GROUP 2 / RO TIER 2 GROUP 1**
REFERENCE: 04-1-02-H13-P680 ***NEW*** **CLASS**
7A-A9; B8; B9; B10 MODIFIED BANK
DIFF 2, CA
DATE USED: RO SRO ***BOTH*** **CFR 41.6**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 33

The plant is operating at rated conditions.

The following indications are present in the Main Control Room:

Reactor Power stable Reactor Level stable
Reactor Pressure stable
Annunciator HCU TROUBLE (P680-4A2-D4) is illuminated.
Pushbutton HCU FAULT is back lit amber.
The white light for group 3A is extinguished in section 5 of H13-P680.

When the HCU FAULT pushbutton is depressed HCU 28-05 red led blinks.

An operator reports a red led at 28-05 is illuminated.

Which one of the following is correct with regard to the status of the Reactor?

A. HCU 28-05 has water in the instrument block.

B. HCU 28-05 is the monitored HCU for RPS power that has been lost to half of the RPS solenoids for a group of control rods.

C. HCU 28-05 has scrammed and is past the full inserted position and HCU accumulator pressure is less than 1600 psig.

D. HCU 28-05 is low on nitrogen pressure in its accumulator, but is above 1520 psig.

QUESTION SRO 33 **NRC RECORD # WRI 233**
ANSWER: B. **SYSTEM # C71; C11-2** **K/A 212000** **A2.19: 3.8/3.9**
2.1.31: 4.2/3.9
LP# GG-1-LP-RO-C1102.02 **2.4.48: 3.5/3.8**
OBJ. 22
LP# GG-1-LP-RO-C7100.00
OBJ. 11, 18 **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
REFERENCE: **04-1-02-H13-P680 4A2-D4** ***NEW*** MODIFIED **CLASS** BANK
DIFF 3, CA **04-1-01-C11-2 section 4.7.2f**
E-1173-020
DATE USED: RO SRO ***BOTH*** **CFR 41.6**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 34

A plant startup is in progress. The Operator at the Controls has just withdrawn a gang of control rods to position 48.

The following indications have been received in the Main Control Room:

Reactor Power 8 % and lowering
Reactor Pressure stable Reactor Level stable
Annunciator CONT ROD DRIFT (P680-4A2-E4) is illuminated.
Pushbutton ROD DRIFT; is back lit red.
Status lights INSERT BLOCK; WITHDRAW BLOCK; INSERT INHIBIT; WITHDRAW INHIBIT are illuminated.

Which one of the following is correct with regard to the status of the Reactor?
(No other alarms or indicating lights have been received.)

A. A control rod has scrammed individually.

B. The Operator at the Controls has utilized the IN TIMER SKIP pushbutton to insert a control rod.

C. An out of sequence control rod has drifted inward.

D. The last withdrawn control rod when it reached full out (position 48) picked up the over-travel reed switch.

QUESTION SRO 34 **NRC RECORD # WRI 234**
ANSWER: C. **SYSTEM # C11-2** **K/A 201005** **A2.13: 2.9/3.8**
LP# GG-1-LP-RO-C1102.02
OBJ. 6, 7, 10 11, 22 SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1
REFERENCE: 04-1-02-H13-P680 ***NEW*** **CLASS**
4A2-E4 MODIFIED BANK
DIFF 3, CA 04-1-01-C11-2 section 4.7.2j;
4.9.2a&b; 4.10.2a&b
DATE USED: RO SRO ***BOTH*** **CFR 41.6**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 35

A plant startup is in progress.

The Operator at the Controls has just shifted the 'A' Recirculation Pump to fast speed. The 'B' Recirculation pump is running in slow speed with its flow control valve at 100% open.

The following indications have been received in the Main Control Room:

Reactor Power 34 % and stable.
Reactor level dropped to + 32 inches.
Annunciator RECIRC FCV A PARTIAL CLOSE/ RFP TRIP (P680-3A-D1) is illuminated.

Which one of the following would be the expected response of the Recirculation System?
(No other alarms or indicating lights have been received.)

A. The 'A' Recirc Flow Control Valve will remain at present position and will require resetting via the RECIRC PUMP A CAV INTLK RESET pushbutton.

B. The 'A' Recirc Flow Control Valve Hydraulic Power Unit will require resetting from the Control Room Back Panels and then the valve opened to 15 – 20 % valve position.

C. The 'A' Recirc Flow Control Valve runback to 0 % valve position and 'B' Recirc Flow Control valve will runback to 15 – 20 % valve position and then both valves will be reset via the RECIRC PUMP A CAV INTLK RESET pushbutton.

D. The 'A' Recirc Flow Control Valve will remain at present position and 'B' Recirc Flow Control Valve will runback to 15 – 20 % valve position and then both valves will be reset via the RECIRC PUMP A CAV INTLK RESET pushbutton

QUESTION SRO 35 **NRC RECORD # WRI 235**
ANSWER: A. **SYSTEM # B33** **K/A 202002** **A3.01: 3.6/3.4**
LP# GG-1-LP-RO-B3300.00
OBJ. 10, 18, 20, 33, 51 **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
REFERENCE: 04-1-02-H13-P680 ***NEW*** **CLASS**
3A-D1 MODIFIED BANK
DIFF 3, M **04-1-01-B33-1 section 6.6**
DATE USED: RO SRO ***BOTH*** **CFR 41.6**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 36

A DBA LOCA has occurred.

ECCS systems are injecting into the reactor.

Suppression Pool Level is at 14.8 feet and lowering. Suppression Pool Makeup has failed to actuate.

Which one of the following would be the expected response of the Low Pressure Coolant Injection (RHR)?

A. The RHR pumps will ALL trip when Suppression Pool Level drops to 14.5 feet which is the vortexing limit.

B. The RHR pumps will sequentially trip starting with the 'C' RHR pump on low discharge flow as a result of cavitation.

C. The RHR pumps will ALL close their Suppression Pool Suction valves and trip the pumps due to NO suction flowpath.

D. The RHR pumps will continue to operate regardless of Suppression Pool Level until the pumps trip on motor overload.

QUESTION SRO 36 **NRC RECORD # WRI 236**
ANSWER: D. **SYSTEM # E12** **K/A 203000** **K1.02: 3.9/3.9**
LP# **K6.06: 3.8/3.9**
OBJ. **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
REFERENCE: 04-1-01-E12-1 ***NEW*** **CLASS**
Section 3.2.6 MODIFIED BANK
DIFF 3, M E-1181-043,44,45,67,68
DATE USED: RO SRO ***BOTH*** **CFR 41.7**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 37

A LOCA has occurred.

ECCS systems injected into the reactor.

Reactor level was restored to normal level and ECCS pumps were secured.

Drywell pressure is 3.5 psig.

Subsequently, Reactor level dropped to the top of active fuel.

Which one of the following describes the operation of the Low Pressure Core Spray (LPCS) pump?

A. The LPCS pump will automatically restart and inject into the core to raise level.

B. The LPCS pump will automatically restart on minimum flow, however the LPCS injection valve will require manual opening from the control room.

C. The LPCS system will require manual restarting of the pump and realignment of the LPCS injection valve.

D. The LPCS system will require re-initiation from the Division I Manual Initiation pushbutton.

QUESTION SRO 37 **NRC RECORD # WRI 237**
ANSWER: C. **SYSTEM # E21** **K/A 209001** **A4.01: 3.8/3.6**
A4.03: 3.7/3.6
LP# GG-1-LP-RO-E2100.01 **A4.05: 3.8/3.6**
OBJ. 14 **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
REFERENCE: 04-1-01-E21-1 ***NEW*** **CLASS**
Section 3.3 MODIFIED BANK
DIFF 2, CA E-1182-006, 026
DATE USED: RO SRO ***BOTH*** **CFR 41.7/41.8**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 38

A LOCA has occurred.
Drywell pressure is 1.84 psig.
Reactor water level is –11.6" and stable.
High Pressure Core Spray Pump has been overridden to STOP.
High Pressure Core Spray initiation logic was reset.
Offsite power was lost and the ESF buses re-energized by their respective Diesel Generators.

Which one of the following describes the condition of the HPCS?

A. HPCS will immediately re-initiate on High Drywell Pressure signal.

B. HPCS will align the system for injection, but require a manual pump start.

C. HPCS will require manual operation to inject to the vessel in any condition.

D. HPCS will initiate on a Low Reactor Water Level or Manual initiation only.

QUESTION SRO 38 **NRC RECORD # WRI 238**
ANSWER: D. **SYSTEM # E22** **K/A 209002** **K2.03: 2.8/2.9**
LP# GG-1-LP-RO-E2201.00 **K2.01: 3.3/3.2**
OBJ. 6, 13, 16 **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
REFERENCE: 04-1-01-E22-1 NEW CLASS
Section 3.7, 3.10 Elect lu ***MODIFIED*** **BANK**
DIFF 3, M **E-1183-023; E-1188-019** **NRC 3/98 WRI 19**
DATE USED: March 1998 RO SRO ***BOTH*** **CFR 41.7/41.8**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 39

The plant was operating at 100 % power.
A Standby Liquid Control (SLC) surveillance was being lined up to the SLC Test Tank.
(Boron Tank isolated. The operator evacuated Containment with the SLC Test Tank outlet valve C41-F031 50 % open.)

A transient occurred causing a reactor scram. Multiple control rods failed to fully insert resulting in Reactor power of 45 %.

Standby Liquid Control injection was ordered.

Which one of the following describes the response of SLC for initiation?

A. Both trains of SLC will NOT start.

B. Both trains of SLC will align the SLC Boron Tank and inject to the reactor.

C. Both trains of SLC will inject the contents of the SLC Test Tank to the reactor.

D. Both trains of SLC will align to the SLC Boron Tank and start drawing contents from both the Boron Tank and Test Tank.

QUESTION SRO 39 **NRC RECORD # WRI 239**
ANSWER: A. **SYSTEM # C41** **K/A 211000** **K4.02: 3.0/3.2**
A2.06: 3.1/3.3
LP# GG-1-LP-RO-C4100.00 **A2.07: 2.9/3.2**
OBJ. 8, 19, 21 **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
REFERENCE: 04-1-01-C41-1 section 3.5 ***NEW*** **CLASS**
06-OP-1C41-Q-0001 MODIFIED BANK
DIFF 3, M **Section 2.2**
DATE USED: RO SRO ***BOTH*** **CFR 41.6/41.7**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 40

The plant is in mode 2.

The following parameters are indicated in the Main Control Room:

IRMs are all high on range 2.

SRMs (cps)

A	B	C	D	E	F
2.0×10^3	3.0×10^2	2.5×10^4	INOP Bypassed	2.5×10^4	3.0×10^5

Reactor period has dropped to 400 seconds.

The Reactor Engineer has requested additional control rods be withdrawn to raising power toward the point of adding heat.

With present plant conditions, which one of the following is correct with regard to the status of the Reactor?

A. Control rods may be withdrawn in single notch motion using individual control rods.

B. Control rod motion is allowed in gang as limited by the Rod Pattern Controller.

C. Control rod motion is allowed after the Division II SRM 'F' has been bypassed.

D. Control rods have a rod block signal from RCIS which is unable to be bypassed at this time.

QUESTION SRO 40 **NRC RECORD # WRI 240**
ANSWER: D. **SYSTEM # C51-1; C11-2** **K/A 215004** **A2.02: 3.4/3.7** **A2.03: 3.0/3.3**
LP# OP-LO-SYS-LP-C51-1-00
OBJ. 7, 9 **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
REFERENCE: 04-1-01-C51-1 section 3.8 ***NEW*** **CLASS**
04-1-02-H13-P680- MODIFIED BANK
DIFF 3, M **7A-B10**
DATE USED: RO SRO ***BOTH*** **CFR 41.6**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 41

Which one of the following describes the withdrawal sequence of a single control rod?
(Hydraulic Control Unit Schematic is attached,)

A. One stabilizing valve closes as F423 opens to divert flow from the Drive Water Header to the CRD while F421 opens to exhaust water to the Exhaust Water header, then F423 and F421 close and F422 and F420 open to withdraw the control rod. When at its desired position F422 closes and the stabilizing valve opens then F420 closes once the control rod has settled into position.

B. Two stabilizing valves close as F423 opens to divert flow from the Drive Water Header to the CRD while F421 opens to exhaust water to the Exhaust Water header, then one stabilizing valve opens and F423 and F421 close and F422 and F420 open to withdraw the control rod. When at its desired position F422 closes and the stabilizing valve opens then F420 closes once the control rod has settled into position.

C. Two stabilizing valves close as F423 opens to divert flow from the Drive Water Header to the CRD while F421 opens to exhaust water to the Exhaust Water header. When at its desired position F423 and F421 close and the stabilizing valves open then F420opens and then closes once the control rod has settled into position.

D. One stabilizing valve closes as F422 opens to divert flow from the Drive Water Header while F420 opens to exhaust water to the Exhaust Water header. When at its desired position F422 closes and the stabilizing valve opens then F420 closes once the control rod has settled into position.

QUESTION SRO 41 **NRC RECORD # WRI 241**
ANSWER: B. **SYSTEM # C11-1** **K/A 201001** **A1.03: 2.9/2.8**
LP# GG-1-LP-RO-C111A.00
OBJ. 14, 18 **SRO TIER 2 GROUP 2 / RO TIER 2 GROUP 1**
REFERENCE: FSAR 4.6.1.1.2.5.2 ***NEW*** **CLASS**
4.6.1.1.2.4.3 MODIFIED BANK
DIFF 3, M **M-1081B**
DATE USED: RO SRO ***BOTH*** **CFR 41.6**
REFERENCE MATERIAL REQUIRED: HCU Schematic

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 42

The plant is in mode 2 at 12 % of rated power.

APRM G is bypassed due to failed power supply.
The following is the present status of the APRMs versus LPRM inputs and indicated power:

APRM	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**
LPRM LVL D	5	5	5	2	3	2	4	5
LPRM LVL C	5	4	3	5	4	4	3	4
LPRM LVL B	3	2	2	4	4	3	3	3
LPRM LVL A	2	4	4	4	4	4	5	3
INDICATED POWER	12%	13%	14%	10%	10%	11%	0% byp	14%

LPRM 42-43B has failed downscale and must be bypassed to allow troubleshooting.

With present conditions would this action be allowed?
Attached is the LPRM vs APRM assignments table.

A. Yes, conditions are satisfactory.

B. Yes, however the associated APRM would have to be left bypassed.

C. No, this action would result in a half scram and LCO requirements NOT to be met.

D. No, this action would result in a full reactor scram.

QUESTION SRO 42 **NRC RECORD # WRI 242**
ANSWER: D. **SYSTEM # C51-2; C71** **K/A 215005** **A2.04: 3.8/3.9; A1.02: 3.9/4.0 A1.03: 3.6/3.6; A1.04: 4.1/4.1 A2.03: 3.6/3.8**
LP# GG-1-LP-RO-C5104.00
OBJ. 4, 9, 10, 11 **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
REFERENCE: **17-S-02-40 sect 6.3 Att. V** NEW ***MODIFIED*** CLASS **BANK**
DIFF 3, CA **Tech Spec Bases B3.3.1.1 04-1-01-C51-1 sect 3.3** **NRC 3/98 – WRI15**
DATE USED: March 1998 RO SRO ***BOTH*** **CFR 41.6**
REFERENCE MATERIAL REQUIRED: 17-S-02-40 Att. V

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 43

The plant was operating at full power when a failure of the Reactor Feedwater System caused a reactor scram due to lowering reactor water level.

During the transient, workers in Containment caused the reference leg of condensing pot D004B to rupture.

Which one of the following describes the response of the ECCS Systems as reactor water level drops?

Answer:	Division I	Division II	Division III	RCIC
A.	Will initiate	Manual initiation	Will initiate	Will initiate
B.	Will initiate	Will initiate	Will initiate	Will initiate
C.	Manual initiation	Manual initiation	Will initiate	Manual initiation
D.	Will initiate	Manual initiation	Manual initiation	Will initiate

QUESTION SRO 43 **NRC RECORD # WRI 243**
ANSWER: A. **SYSTEM # E12; E21; E22; E51** **K/A 216000 K4.05: 3.9/4.1**
LP# GG-1-LP-RO-B2101.00
OBJ. 5, 8, 14, 15
LP# GG-1-LP-RO-E2201.00
OBJ. 9, 16
LP# GG-1-LP-RO-E2100.00
OBJ. 9, 16 **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
REFERENCE: E-1181-68, 82; M-1077B ***NEW*** **CLASS**
E-1182-26, 29 MODIFIED BANK
DIFF 3, M **E-1183-23, 27**
E-1185-34, 42, 44
DATE USED: RO SRO ***BOTH*** **CFR 41.7**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 44

The plant is operating at 45% power.

An incident at the Front Standard of the Main Turbine resulted in a local manual trip of the Main Turbine.

Which one of the following describes the response of the plant?

A. The reactor will scram on Turbine Valve position and the Turbine Bypass Valves will open.

B. The reactor will scram on high reactor flux and the Turbine Bypass Valves will open.

C. The reactor will scram on Turbine Valve position, the Turbine Bypass Valves will open, and 9 Safety Relief Valves will open.

D. The reactor will scram on high reactor flux, the Turbine Bypass Valves will open, and Safety Relief Valves will open.

QUESTION SRO 44 **NRC RECORD # WRI 244**
ANSWER: A. **SYSTEM # N32; C71** **K/A 241000** **K6.11: 3.4/3.4**
A1.01: 3.9/3.8
A1.02: 4.1/3.9
LP# GG-1-LP-RO-C7100.00 **A1.07: 3.8/3.7**
OBJ. 9, 13, 18 **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
REFERENCE: FSAR 15.2.3.2.2.1 ***NEW*** **CLASS**
Table 15.2-4 MODIFIED BANK
DIFF 3, CA **Tech Spec 3.1.1 and bases**
DATE USED: RO SRO ***BOTH*** **CFR 41.5**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 45

Maintenance in the H13-P628 panel resulted in a short circuit causing a loss of DC power to the Division I SRVs.

Which one of the following describes the functionality of the Safety Relief Valves?

A. The ADS SRVs are disabled for the Division I system, but will actuate in Relief and Low –Low Set mode from both divisions.

B. The ADS SRVs are disabled for automatic operation from both divisions, but will operate manually and actuate in the Relief and Low-Low Set mode.

C. The SRVs will actuate in ADS, Relief and Low-Low Set modes only from the Division II system, Division I is completely disabled.

D. The SRVs will actuate in ADS, Relief and Low-Low Set modes from the Division II system, and Low-Low Set valves can be manually actuated from the Division I Remote Shutdown Panel.

QUESTION SRO 45 **NRC RECORD # WRI 245**
ANSWER: D. **SYSTEM # B21; E22-2** **K/A 239002** **K2.01: 2.8/3.2**
LP# GG-1-LP-RO-E2202.00
OBJ. 7, 18, 21 **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
REFERENCE: 04-1-01-B21-1 Att. III ***NEW*** **CLASS**
E-1161-11 & 14 & 04 MODIFIED BANK
DIFF 3, M **E-1023**
DATE USED: RO SRO ***BOTH*** **CFR 41.3**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

~~**QUESTION 46**~~

(Question deleted as a result of licensee postexamination review comments)

A LOCA has occurred twenty minutes ago.

The following Containment Parameters exist:

Reactor Level	- 30 inches rising
Suppression Pool Temperature	105°F
Suppression Pool Level	17.5 feet
Containment Temperature	180°F
Containment Pressure	2.8 psig
Containment Hydrogen Concentration	0.8 %
Drywell Hydrogen Concentration	0.4 %

Which one of the following describes the allowances for the use of Containment Spray and its expected effects, if used?

A. Containment Spray is NOT allowed because initiation of spray would result in an extreme negative pressure in Containment.

B. Containment Spray may be initiated. Suppression Pool Temperature, Level and Containment Temperature are expected to drop due to heat removed from Containment.

C. Containment Spray may be initiated. Suppression Pool and Containment Temperatures are expected to drop and Suppression Pool Level should rise due to heat absorbed in the Suppression Pool.

D. Containment Spray may be initiated. Containment Temperature should drop and Suppression Pool Temperature and Level should rise due to heat absorbed in the Suppression Pool.

QUESTION SRO 46 **NRC RECORD # WRI 246**
ANSWER: B. **SYSTEM # E12; M41** **K/A 226001** **A1.02: 3.4/3.5**
A1.04: 3.3/3.6
LP# GG-1-LP-RO-EP03.00 **A1.08: 3.1/3.4**
OBJ. 2, 6 **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 2**
REFERENCE: 05-1-01-EP-3 steps 6 & 32 ***NEW*** **CLASS**
PSTG App B third PC MODIFIED BANK
DIFF 3, CA override
DATE USED: RO SRO ***BOTH*** **CFR 41.9**
REFERENCE MATERIAL REQUIRED: 05-1-01-EP-3

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 47

RCIC was operating following an initiation when a RCIC turbine trip was received.

The Control Room Operator attempts a RCIC turbine reset by closing the RCIC TURB TRIP/THROT VLV actuator (motor) then placing the handswitch to OPEN.

The following are the indications of RCIC:

RCIC TURB TRIP/THROT SUPV	green light on	red light off
RCIC TURB TRIP/THROT VLV	green light on	red light off
RCIC TURB GOV VLV	green light on	red light on

Which one of the following describes the operation of RCIC?

A. RCIC should be operating at a speed based on governor demand.

B. RCIC is reset awaiting opening of the E51-F045, RCIC Steam Supply to RCIC Turbine.

C. RCIC is tripped requiring local mechanical linkage to be reset.

D. RCIC is tripped requiring the RCIC Division I and II Isolation Reset pushbuttons to be depressed.

QUESTION SRO 47 **NRC RECORD # WRI 247**
ANSWER: C. **SYSTEM # E51** **K/A 217000** **K5.06: 2.7/2.7**
A2.02: 3.8/3.7
LP# GG-1-LP-RO-E5100.00 **A4.02: 3.9/3.9**
OBJ. 13, 14, 15, 21 **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
REFERENCE: 04--1-01-E51-1 ***NEW*** **CLASS**
Section 3.6 & 4.1.2c MODIFIED BANK
DIFF 2, M
DATE USED: RO SRO ***BOTH*** **CFR 41.7/41.10**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 48

A LOCA has occurred. High Pressure Core Spray is inoperable.

ADS Inhibit Switches are in INHIBIT.

Drywell pressure is 1.05 psig.

Reactor pressure is 890 psig and falling.

Reactor water level is – 160 inches on Fuel Zone indication.

RCIC and RFPTs are operating and injecting into the Reactor.

Which one of the following describes the operation of the Automatic Depressurization System (ADS) valves?

A. ADS valves can ONLY be opened using their handswitches.

B. ADS will automatically initiate after the ADS 105 second timer has timed out.

C. ADS can be manually initiated using the ADS Manual Initiation pushbuttons.

D. ADS will automatically initiate after both the 9.2 minute and 105 second timers have timed out.

QUESTION SRO 48 **NRC RECORD # WRI 248**
ANSWER: A. **SYSTEM # E22-2** **K/A 218000** **K5.01: 3.8/3.8**
K4.02: 3.8/4.0
LP# GG-1-LP-RO-E2202.00 **K4.03: 3.8/4.0**
OBJ. 10, 21 **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
REFERENCE: 04--1-02-H13-P601-18A ***NEW*** **CLASS**
A1, A2, B2, C2, E2, H2 MODIFIED BANK
DIFF 2, CA E-1161-005
DATE USED: RO SRO ***BOTH*** **CFR 41.7/41.8**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 49

The Electrical line up is normal.

A steam leak in the Drywell caused Drywell pressure to rise to 1.23 psig.

A switching error causes 500 KV voltage to decrease.

The voltage to ALL ESF busses drop to 3000 volts.

The voltage transient duration is 7 seconds and then voltage returns to normal.

Which one of the following statements is the condition of the ESF busses after this transient?

A. 15AA is being supplied from ESF 11; D/G 11 NOT operating.
16AB is being supplied from ESF 21; D/G 12 NOT operating.
17AC is being supplied from ESF 21; D/G 13 NOT operating.

B. 15AA is being supplied from D/G 11.
16AB is being supplied from D/G 12.
17AC is being supplied from D/G 13.

C. 15AA is being supplied from ESF 11; D/G 11 NOT operating.
16AB is being supplied from ESF 21; D/G 12 NOT operating.
17AC is being supplied from D/G 13.

D. 15AA is being supplied from D/G 11.
16AB is being supplied from D/G 12.
17AC is being supplied from ESF 21; D/G 13 operating unloaded.

QUESTION SRO 49 **NRC RECORD # WRI 249**
ANSWER: C. **SYSTEM # R21-1; P75; P81** **K/A 264000 A3.01: 3.0/3.1**
LP# GG-1-LP-RO-R2100.00
OBJ. 11, 12, 20, 22, 28 **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
REFERENCE: 04--1-01-P81-1 sect 3.22.1 ***NEW*** **CLASS**
04-1-01-R21-1 sect 5.1.1 MODIFIED BANK
DIFF 4, CA
DATE USED: RO SRO ***BOTH*** **CFR 41.8**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 50

The plant was operating at 60 % power when a transient on the power grid caused the Main Generator to trip.

Which one of the following describes the response of the Recirculation System?

A. The Recirculation Pumps will downshift to slow speed by opening CB-5, and starting the LFMG, the Recirc Flow Control Valves will close to minimum valve position.

B. The Recirculation Pumps will downshift to slow speed by opening CB-3 and CB-4, and starting the LFMG, the Recirc Flow Control Valves will remain at present positions.

C. The Recirculation Pumps will trip to OFF by opening CB-3 and CB-4, placing the Reactor on natural circulation because the LFMG is unable to start with CB-5 closed.

D. The Recirculation Pumps will trip to OFF by opening CB-5 and CB-1 and 2 cannot close because the Recirc Flow Control Valves are greater than minimum valve position.

QUESTION SRO 50 **NRC RECORD # WRI 250**
ANSWER: B. **SYSTEM # B33** **K/A 202001** **K5.05: 3.0/3.1**
LP# GG-1-LP-RO-B3300.00
OBJ. 16, 17 24, 25, 51 **SRO TIER 2 GROUP 2 / RO TIER 2 GROUP 2**
REFERENCE: 04--1-02-H13-P680 ***NEW*** **CLASS**
3A-D4; D10 MODIFIED BANK
DIFF 3, CA 04-1-01-B33-1 sect 4.3.2
DATE USED: RO SRO ***BOTH*** **CFR 41.5/41.6/**
REFERENCE MATERIAL REQUIRED: None **43.6**

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 51

An ATWS has occurred.

Standby Liquid Control Pump 'A' is tagged out.

The Control Room Operator Starts Standby Liquid Control Pump 'B'.

Which one of the following describes the response of the Reactor Water Cleanup System?

A. RWCU will isolate the Filter Demineralizers and open G33-F044, RWCU F/D Byp to continue circulation of reactor water for level control and sampling purposes.

B. RWCU will isolate G33-F004, RWCU Pmp Suct Isol causing both RWCU pumps to trip and the Filter Demineralizers to lock in hold.

C. RWCU will isolate G33-F001, RWCU Pmp Suct Isol and G33-F251, RWCU Sply to RWCU Hxs causing both RWCU pumps to trip and the Filter Demineralizers to lock in hold.

D. RWCU will isolate G33-F004 and G33-F001, RWCU Pmp Suct Isol and G33-F251, RWCU Sply to RWCU Hxs causing both RWCU pumps to trip and the Filter Demineralizers to lock in hold.

QUESTION SRO 51 **NRC RECORD # WRI 251**
ANSWER: C. **SYSTEM # G33; C41** **K/A 204000** **K6.07: 3.3/3.5**
LP# GG-1-LP-RO-G3336.01
OBJ. 8, 9, 10, 16, 21 **SRO TIER 2 GROUP 2 / RO TIER 2 GROUP 2**
REFERENCE: 04--1-01-C41-1 ***NEW*** **CLASS**
Sect 5.3.2b4 MODIFIED BANK
DIFF 2, M
DATE USED: RO SRO ***BOTH*** **CFR 41.6**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 52

The plant is in mode 4 with RHR 'A' in Shutdown Cooling.

A leak in the Drywell causes Reactor water level to begin to lower. The Control Room Operator begins to lineup RHR 'A' for LPCI injection. As E12-F006A begins to stroke closed power is lost to the valve. The operator closes E12-F008 and F009 to isolate the Reactor.

Which one of the following describes the ability to inject with RHR 'A' in LPCI mode?

A. RHR 'A' is unable to be aligned to inject to the Reactor through E12-F053A, SDC 'A' Rtn to Feedwater.

B. RHR 'A' can be aligned from the Control Room with a suction from the Suppression Pool and inject to the Reactor through E12-F042A, LPCI 'A' Injection Valve.

C. RHR 'A' can be aligned for LPCI injection by depressing the Division I LPCS\LPCI 'A' Manual Initiation pushbutton.

D. RHR 'A' is unable to be aligned because E12-F004A, RHR Pmp 'A' Suct fm Supp Pool will NOT open.

QUESTION SRO 52 **NRC RECORD # WRI 252**
ANSWER: D. **SYSTEM # E12** **K/A 205000** **K2.02: 3.2.5/2.7**
A2.10: 2.9/2.9
A3.01: 3.2/3.1
LP# **K6.01: 3.3/3.4**
OBJ. **SRO TIER 2 GROUP 2 / RO TIER 2 GROUP 2**
REFERENCE: **E-1181-01 & 04** ***NEW*** **CLASS**
04-1-01-E12-1 sect 3.6.2 MODIFIED BANK
DIFF 3, CA
DATE USED: RO SRO ***BOTH*** **CFR 41.7**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 53

The plant is operating at rated conditions.

Which one of the following conditions will result in an automatic Main Generator Trip?

A. Generator Primary Water Tank Level 83 %.

B. Generator Stator Primary Water Flow 480 gpm.

C. Generator Hydrogen Gas Pressure 54 psig.

D. Generator Hydrogen Gas Purity 89 %.

QUESTION SRO 53 **NRC RECORD # WRI 253**
ANSWER: B. **SYSTEM # N41; N43; N44** **K/A 245000** **K6.05: 2.9/2.9**
K6.04: 2.6/2.7
LP# GG-1-LP-RO-N4300.00
OBJ. 7
LP# GG-1-LP-RO-N4400.00
OBJ. 16 **SRO TIER 2 GROUP 2 / RO TIER 2 GROUP 2**
REFERENCE: 04-1-02-H22-P148-2A B3; B4; C6; C7 ***NEW*** MODIFIED **CLASS** BANK
DIFF 3, M 04-1-02-H13-P680 9A-A11; B14 CR 1998-1076
DATE USED: RO SRO ***BOTH*** **CFR 41.4**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 54

DC Control Power is lost to Bus 15AA (4160 volt).

Which one of the following describes the operation of circuit breakers supplying loads from 15AA?

A. The circuit breakers can be closed from the Main Control Room but opened only at the local cubicle.

B. The circuit breakers can only be manually closed and opened at the local cubicle.

C. The circuit breakers can only be closed locally however, all circuit breaker trips are available local and remote.

D. The circuit breakers can be closed and opened from the Main Control Room however, all automatic breaker closures and trips are disabled.

QUESTION SRO 54 **NRC RECORD # WRI 254**
ANSWER: B. **SYSTEM # L11; R21** **K/A 263000** **K3.02: 3.5/3.8**
LP# GG-1-LP-RO-L1100.00
OBJ. 4, 10, 13
LP# GG-1-LP-RO-R2700.00
OBJ. 14 **SRO TIER 2 GROUP 2 / RO TIER 2 GROUP 2**
REFERENCE: E-0111-01 ***NEW*** **CLASS**
MODIFIED BANK
DIFF 2, M
DATE USED: RO SRO ***BOTH*** **CFR 41.4**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 55

The plant is operating at 100% power.

Containment Recirc Filter Train 'B' is being operating.

The Auxiliary Building Operator reports smoke coming from the 'B' Containment Recirc Filter Train and the filter train case is glowing red.

Which one of the following describes the method to combat a fire in the Containment Recirc Filter Train?

A. The Fire Protection System will initiate the automatic deluge system and fill the filter train with water.

B. The Fire Protection System at the filter train must be manually valved into the deluge system, then the Deluge Valve will automatically open admitting water to the filter train.

C. The Fire Protection System Deluge Valve is manually initiated using the local pull station to admit water to the filter train.

D. The Fire Protection System at the filter train must be manually valved into the deluge system, then the Deluge Valve opened using the local pull station to admit water to the filter train.

QUESTION SRO 55 **NRC RECORD # WRI 255**
ANSWER: D. **SYSTEM # P64; M41** **K/A 286000** **A3.01: 3.2/3.3**
2.1.30: 3.9/3.4
2.4.25: 2.9/3.4
LP# **2.4.27: 3.0/3.5**
OBJ. **SRO TIER 2 GROUP 2 / RO TIER 2 GROUP 2**
REFERENCE: E-0231-34 ***NEW*** **CLASS**
M-0035B MODIFIED BANK
DIFF 2, M 04-S-01-P64-1 Att I
04-1-02-H13-P842-1A-B9
DATE USED: RO SRO ***BOTH*** **CFR 41.4**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 56

The plant is operating at 100% power.

Hydrogen Water Chemistry is in service.

Personnel in the plant inadvertantly cause the HWC SHUTDOWN pushbutton on H13-P845 to become depressed and remain depressed.

Which one of the following describes the affects of this action on the plant?

Hydrogen Water Chemistry will under go a(n):

A. normal shutdown allowing for the, excessive amounts of residual Hydrogen to be purged from the plant systems through Offgas.

B. immediate Hydrogen Trip with a normal Oxygen shutdown allowing for the excessive amounts of Hydrogen to be purged from the plant systems through Offgas.

C. immediate Oxygen Trip with a normal Hydrogen shutdown preventing the buildup of Oxygen in the Reactor which promotes oxidation of Reactor components.

D. Emergency Trip of the system, allowing excessive amounts of Hydrogen to buildup in Offgas creating a fire hazard.

QUESTION SRO 56 **NRC RECORD # WRI 256**
ANSWER: D. **SYSTEM # P73** **K/A 271000** **K4.04: 3.3/3.6**
A2.07: 2.7/3.3
A1.14: 2.7/3.0
LP# GG-1-LP-RO-P7300.01 **K6.06: 2.5/2.5**
OBJ. 13, 16, 17 **SRO TIER 2 GROUP 2 / RO TIER 2 GROUP 2**
REFERENCE: 04-1-01-P73-1 sect 3.9 ***NEW*** **CLASS**
MODIFIED BANK
DIFF 2, M
DATE USED: RO SRO ***BOTH*** **CFR 41.7/41.13**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 57

The plant is operating at 100 % power in a preferred alignment on the electrical buses.

Division II Diesel Generator is in Maintenance for repairs.

ESF Transformer 21 trips due to a sudden pressure fault on the transformer.

Which one of the following describes the method of power restoration to Bus 16AB?

A. The LSS panel will automatically energize the bus from ESF Transformer 11 since the Diesel Generator is in Maintenance and unavailable.

B. The breaker control switch for either ESF Transformer 11 or 12 can be taken to close to re-energize the bus.

C. The bus must be manually paralleled to ESF 11 or 12 by taking the Sync Switch for the Transformer Breaker to ON, then the breaker may be closed from the Control Room.

D. The Bus Lockout for16AB must be reset, then the Sync Switch for either ESF Transformer 11 or 12 is taken to ON, then the LSS panel will automatically energize the bus from the selected Transformer.

QUESTION SRO 57 **NRC RECORD # WRI 257**
ANSWER: B. **SYSTEM # R21** **K/A 262001** **A2.07: 3.0/3.2**
2.1.30: 3.9/3.4
LP# GG-1-LP-RO-R2100.00 **2.1.31: 4.2/3.9**
OBJ. 7, 8, 10 **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 2**
REFERENCE: 04-1-01-R21-16 sect 5.2.2 NEW CLASS
E-1109-05 MODIFIED ***BANK***
DIFF 3, M **LOT Re-exam C4** **Question 27**
DATE USED: May 1999 RO SRO ***BOTH*** **CFR 41.4**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 58

Drywell pressure has risen to 3.6 psig as a result of a LOCA.

Which one of the following identifies the significance of this pressure?

A. The Drywell to Containment Suppression Pool vents have cleared relieving pressure to the Containment.

B. The Safety Relief Valve Tailpipe check valves are unable to open due to excessive disc differential pressure.

C. The internal pressure on the Drywell Airlock door is such that the door is unable to be opened.

D. The differential pressure is above the limit for opening the Post-LOCA Vacuum Relief Valves.

QUESTION SRO 58 **NRC RECORD # WRI 258**
ANSWER: A. & D. **SYSTEM # M41** **K/A 295010** **AK1.02: 2.8/3.1**
LP# GG-1-LP-RO-M4101.00
OBJ. 6 **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 1**
REFERENCE: FSAR Table 6.2-1 ***NEW*** **CLASS**
MODIFIED BANK
DIFF 3, CA
DATE USED: RO SRO ***BOTH*** **CFR 41.4/41.9**
REFERENCE MATERIAL REQUIRED: None

There are two correct answers. Accept answers "A" and "D" as correct in accordance with licensee postexamination comments

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 59

Which one of the following identifies the significance of exceeding the maximum Drywell pressure?

A. The Drywell Purge Compressor discharge valve differential pressure limit would be exceeded preventing the operation of the Drywell Purge Compressors and the combustible gas control function.

B. The Drywell structure could be breached resulting in the loss of the pressure suppression function resulting in the direct pressurization of Containment in a DBA that would result in a failure of Containment.

C. The resultant Suppression Pool surge upon depressurization of the Drywell would cause the structures inside the Drywell to exceed the maximum loading and could result in a compounded failure.

D. The Suppression Pool surge upon depressurization of the Drywell would result in the overflowing of the Weir Wall and the degradation of equipment in the lower elevation of the Drywell required for accident mitigation.

QUESTION SRO 59 **NRC RECORD # WRI 259**
ANSWER: B. **SYSTEM # M41** **K/A 295024** **EK1.01: 4.1/4.2**
LP# GG-1-LP-RO-M4101.00
OBJ. 4, 5 **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 1**
REFERENCE: FSAR sect 3.8; 6.2.1.1.1j ***NEW*** **CLASS**
Table 6.2-1 MODIFIED BANK
DIFF 3, M
DATE USED: RO SRO ***BOTH*** **CFR 41.9**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 60

The plant is in a reactor startup.
The following parameters exist:

Reactor Water Level	+ 36 inches
Reactor Power	3 %
Reactor Pressure	500 psig

Reactor Pressure is being controlled on the Turbine Bypass Valves set at 500 psig. Reactor Water Level is being controlled on the Startup Level Control Valve in Automatic with the 'A' RFPT in service 'B' RFPT in standby.

Personnel in the plant inadvertently trip the 'A' RFPT.

Which one of the following describes the response of the Reactor?
(ASSUME NO OPERATOR ACTION.)

A. The Reactor Water Level will slowly lower causing a Scram followed by HPCS and RCIC initiation to recover water level.

B. The Reactor Water Level will slowly lower causing Reactor Pressure to lower resulting in the Turbine Bypass Valves closing stabilizing water level at a lower level above the scram.

C. The Reactor Water Level will remain constant with the Condensate and Condensate Booster Pumps supplying water through the 'B' RFPT.

D. The Reactor Water Level will remain constant due to the heat up of the moderator causing expansion which overcomes any inventory lost through the Turbine Bypass Valves intermittently opening.

QUESTION SRO 60 **NRC RECORD # WRI 260**
ANSWER: C. **SYSTEM # N21; N19; C34** **K/A 259001** **K3.01: 3.9/3.9**
LP#
OBJ. **SRO TIER 2 GROUP 2 / RO TIER 2 GROUP 1**
REFERENCE: **04-1-01-N21-1 Section 4.3 & 4.4** ***NEW*** MODIFIED **CLASS** BANK
DIFF 3, CA **03-1-01-1 sect 6.2.4; 6.2.5; 6.2.12b & d**
DATE USED: RO SRO ***BOTH*** **CFR 41.4**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 61

The plant is performing the Reactor Vessel In-Service Leak Test after 14 EFPY of operation.
The following parameters existed during the test:

Time	Rx Pressure	Rx Metal Temp
1000	**100 psig**	**160 °F**
1030	**200 psig**	**158 °F**
1100	**250 psig**	**158 °F**
1130	**500 psig**	**157 °F**
1200	**600 psig**	**150 °F**
1230	**800 psig**	**140 °F**
1300	**1025 psig**	**140 °F**
1330	**1025 psig**	**135 °F**
1400	**1025 psig**	**135 °F**
1430	**1025 psig**	**130 °F**
1500	**1025 psig**	**130 °F**

Which one of the following statements is correct concerning the Reactor Coolant System?

A. RPV pressure vs temperature limits are within specifications.

B. RPV pressure vs. temperature limits are satisfied, but the reactor requires heatup to complete the test.

C. RPV pressure vs. temperature limits have been violated and the reactor requires pressure reduction within 30 minutes.

D. RPV pressure vs. temperature limits have been violated and the reactor requires pressure reduction immediately.

QUESTION SRO 61 **NRC RECORD # WRI 261**
ANSWER: D. **SYSTEM # B13** **K/A 290002** **K5.05: 3.1/3.3**
LP# **2.1.25: 2.8/3.1**
OBJ. **SRO TIER 2 GROUP 3 / RO TIER 2 GROUP 3**
REFERENCE: **Tech Spec 3.4.11 Cond C** ***NEW*** **CLASS**
Figure 3.4.11-1 curve A MODIFIED BANK
DIFF 3, CA **03-1-01-6 Note**
DATE USED: RO SRO ***BOTH*** **CFR 41.3/41.14/**
REFERENCE MATERIAL REQUIRED: Tech Spec 3.4.11 & curves **43.2**

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 62

A discharge of the Equipment Drain Sample Tank is in progress to the River.

Which one of the following conditions will allow the discharge to continue?
Assume no operator action.

A. The effluent radiation monitor HI radiation setpoint is reached.

B. The Circ Water Blowdown flow rate LO setpoint is reached.

C. The Equipment Drain Sample flow rate HI setpoint is reached.

D. Instrument Air pressure to the Radwaste Building is lost.

QUESTION SRO 62 **NRC RECORD # WRI 262**
ANSWER: A. SYSTEM # G17 **K/A 268000 A1.02: 2.6/3.6**
LP# GG-1-LP-RO-G1718.00 **2.4.21: 3.7/4.3**
OBJ. 6, 10 11, 15 SRO TIER 2 GROUP 3 / RO TIER 2 GROUP 3
REFERENCE: 04-1-02-H13-P870-6A-F3 ***NEW*** **CLASS**
04-1-02-H13-P601 MODIFIED BANK
DIFF 2, M 19A-H7 & H8
04-S-02-H22-P089 1B-D9
05-1-02-V-9
sect 5.27 & 5.45
DATE USED: RO SRO ***BOTH*** **CFR 41.13/43.4**
REFERENCE MATERIAL REQUIRED:

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 63

A Loss of Offsite Power occurs with the Reactor in Mode 3.

A Spent Fuel Pool temperature is 120 °F and rising slowly from decay heat.

Which one of the following should be used for Spent Fuel Pool decay heat removal?

A. Align SSW 'A' or 'B' to the Fuel Pool Heat Exchangers and operate Fuel Pool Cooling.

B. Draining the Spent Fuel Pool to the Refueling Water Storage Tank with makeup from the Condensate Transfer Pumps.

C. RHR 'A' in Spent Fuel Pool Cooling Backup mode operation.

D. Use Fire Water makeup to the Spent Fuel Pool while draining the Spent Fuel Pool through G41-F032 and F033, Cask Storage Pool Drain Valve.

QUESTION SRO 63 **NRC RECORD # WRI 263**
ANSWER: A. **SYSTEM # G41** **K/A 233000** **K5.01: 2.5/2.7**
LP# GG-1-LP-RO-G4146.00 **K6.01: 2.5/2.7**
OBJ. 8, 9, 10, 19 **SRO TIER 2 GROUP 3 / RO TIER 2 GROUP 3**
REFERENCE: 04-1-01-G41-1 sect 6.1 ***NEW*** **CLASS**
05-1-02-III-1 sect 3.3.1 MODIFIED BANK
DIFF 2, M
DATE USED: RO SRO ***BOTH*** **CFR 41.4/41.10**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 64

A station blackout has occurred.

A fire has broken out in the Division II ESF Switchgear Room on 119 ft elevation area 10.

Which one of the following describes the ability to combat the fire?

A. Fire fighting will be limited to the use of portable fire extinguishers.

B. The CO2 fire suppression system can be overridden open and the Auxiliary Building Isolation Valves opened using the Aux Bldg Isolation Bypass Switch.

C. The Fire Water System Auxiliary Building Isolation Valves can be opened using the Aux Bldg Iso Bypass Switch to provide fire water to hoses.

D. The Fire Water System Auxiliary Building Isolation Valves can be bypassed by manually opening the motor operated bypass valves.

QUESTION SRO 64 **NRC RECORD # WRI 264**
ANSWER: D. **SYSTEM # T10; P64; M71; R21** **K/A 290001 K6.09: 3.4/3.6**
A2.06: 3.7/4.0
LP# GG-1-LP-RO-M7101.00 **286000 A2.09: 2.7/2.8**
OBJ. 11, 12, 17 SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 2
REFERENCE: 05-1-02-V-9 5.47 ***NEW*** **CLASS**
Sect 3.13 & 5.47 MODIFIED BANK
DIFF 3, M 05-1-02-III-5 sect 3.4.3 Note M-0035E
DATE USED: RO SRO ***BOTH*** **CFR 41.9**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 65

Standby Gas Treatment Trains 'A' and 'B' have received an initiation signal on Reactor Water Level.

Which one of the following describes the response of the Radiation Monitoring System?

A. The SBGT Radiation Monitors are in standby until a High Radiation signal is received by SBGT logic.

B. The SBGT Radiation Monitors are in service continuously requiring NO further action.

C. The SBGT Radiation Monitor Sample Pumps will automatically start on SBGT initiation.

D. The SBGT Radiation Monitor Sample Pumps require an operator to be dispatched to start the pumps locally.

QUESTION SRO 65 **NRC RECORD # WRI 265**
ANSWER: C. **SYSTEM # T48; D17** **K/A 261000** **K1.08: 2.8/3.1**
K4.01: 3.7/3.8
LP# GG-1-LP-RO-D1721.00
OBJ. 18, 22 **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
REFERENCE: 04-1-01-T48-1 sect 5.2.2d ***NEW*** **CLASS**
04-1-01-D17-1 MODIFIED BANK
DIFF 2, M **Sect 3.4, 4.5, Att V**
DATE USED: RO SRO ***BOTH*** **CFR 41.7/41.11**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 66

A rupture of the Instrument Air header in the Water Treatment Building has resulted in a complete loss of Instrument Air.

The plant has been manually scrammed from 100 % power. All control rods fully inserted.

Which one of the following describes the ability to inject water into the Reactor using the Condensate and Feedwater System?

A. **Feeding of the Reactor is NOT available with Condensate and Feedwater due to the Startup Level Control Valve failing closed.**

B. **Feeding of the Reactor is NOT available due to all of the Condensate and Feedwater Minimum Flow Valves failing open diverting all flow to the Condenser.**

C. **Feeding of the Reactor is available from the Feedwater system while steam is available to the RFPTs and afterwards at lower reactor pressures using the Condensate system.**

D. **Feeding of the Reactor is available, as long as reactor pressure is immediately reduced to < 200 psig to allow the Condensate Pumps to inject through the Condensate Cleanup Bypass valves.**

QUESTION SRO 66 **NRC RECORD # WRI 266**
ANSWER: C. **SYSTEM # N19; N21; N22; P53** **K/A 300000 K3.02: 3.3/3.4**
LP#
OBJ. **SRO TIER 2 GROUP 2 / RO TIER 2 GROUP 2**
REFERENCE: **05-1-02-V-9** NEW CLASS
Sect 5.22, 5.23, 5.24 ***MODIFIED*** **BANK**
DIFF 2, CA **NRC 3/98 WRI 42**
DATE USED: March 1998 RO SRO ***BOTH*** **CFR 41.4**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 67

The plant is operating at rated conditions.

Control Room HVAC 'A' is operating with 'B' in Standby.

The Control Room receives an alarm on H13-P855 "Cont Rm HVAC Freon HI".

Which one of the following describes the alignment/operation of the Control Room HVAC System?

A. Control Room Air Conditioner 'A' will trip.
Control Room HVAC will isolate.
Control Room Standby Fresh Air Units will initiate.

B. Control Room Air Conditioner 'A' will trip.
Control Room Air Conditioner 'B' will start on low flow.
Control Building Purge System will initiate.

C. Control Room Air Conditioner 'A' will trip.
Control Room Air Conditioner 'B' will start on low flow
Control Room Standby Fresh Air Units will initiate.

D. Control Room Air Conditioner 'B' will auto start.
Control Room Standby Fresh Air Units will initiate.
Control Building Purge System will initiate.

QUESTION SRO 67 **NRC RECORD # WRI 267**
ANSWER: B. **SYSTEM # Z51** **K/A 290003** **A4.01: 3.2/3.2**
LP# GG-1-LP-RO-Z5100.00 **A3.01: 3.3/3.5**
OBJ. 6, 8, 9, 10, 15 **SRO TIER 2 GROUP 2 / RO TIER 2 GROUP 2**
REFERENCE: 04-S-01-Z51-1 sect 3.2 ***NEW*** **CLASS**
04-S-02-H13-P855 MODIFIED BANK
DIFF 3, M **1A-B4; 1A-A5; 1A-C3**
DATE USED: RO SRO ***BOTH*** **CFR 41.4**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 68

The plant is operating at rated conditions.

A rupture of the Plant Service Water header at Radial Well 5 has resulted in all Radial Well pumps tripping.

Which one of the following describes the actions to be taken in the plant with regard to Component Cooling Water?

A. Trip both Reactor Recirculation pumps within 5 minutes and isolate the Reactor Water Cleanup Filter Demineralizers because of the complete loss of CCW cooling.

B. Low PSW header pressure will automatically initiate Standby Service Water 'B' and align cooling to the CCW heat exchangers and Drywell Chillers.

C. Standby Service Water 'B' will require manual initiation and alignment to the CCW heat exchangers and Drywell Chillers.

D. Low PSW header pressure will automatically initiate Standby Service Water 'B', however the CCW heat exchangers and Drywell Chillers will require manual realignment.

QUESTION SRO 68 **NRC RECORD # WRI 268**
ANSWER: C. **SYSTEM # P44; P41; P42** **K/A 400000** **A1.02: 2.8/2.8** **K1.01: 3.2/3.3**
LP# GG-1-LP-RO-P4447.00
OBJ. 12, 26, 27 **SRO TIER 2 GROUP 2 / RO TIER 2 GROUP 2**
REFERENCE: 05-1-02-V-11 sect 3.2 ***NEW*** **CLASS**
05-1-02-V-1 sect 2.0 & 3.0 MODIFIED BANK
DIFF 2, CA
DATE USED: RO SRO ***BOTH*** **CFR 41.4**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 69

The plant has scrammed.

Main Condenser Vacuum is 15 inches Hg.

Which one of the following identifies the status of the Main and Reheat Steam System?
(ASSUME NO OPERATOR ACTION.)

	RFP High Press Steam	RFP Low Press Steam	Main Steam Bypass Valves	Combined Main Stop & Control Valves
A.	Closed	Closed	Open	Closed
B.	Open	Open	Closed	Open
C.	Open	Closed	Open	Closed
D.	Closed	Open	Closed	Open

QUESTION SRO 69 **NRC RECORD # WRI 269**
ANSWER: A. **SYSTEM # N11; N62** **K/A 239001** **A3.01: 4.2/4.1**
LP# GG-1-LP-RO-N6200.00
OBJ. 7, 17 **SRO TIER 2 GROUP 3 / RO TIER 2 GROUP 2**
REFERENCE: 05-1-02-V-8 sect 5.0 ***NEW*** **CLASS**
MODIFIED BANK
DIFF 2, M
DATE USED: RO SRO ***BOTH*** **CFR 41.4**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 70

The plant was operating at 27 % power when a loss of the Baxter Wilson and Franklin 500 KV transmission lines occurs.

The following are the present plant parameters:

Reactor water level -50 inches wide range
Reactor pressure 880 psig
Main Condenser Vacuum 13 inches Hg
Main Steam Line Radiation Monitors are all reading upscale.
Reactor Mode switch is in RUN.

The Roving Operator has restored the Containment and Auxiliary Building isolations per the Automatic Isolations ONEP, and reset EPA Breakers and transferred RPS 'A' (Division I) to Alternate power.

Which one of the following identifies the status of the Group I isolation valves?
(ASSUME NO FURTHER OPERATOR ACTIONS OCCUR.)

	Inboard Isolation Valves	**Outboard Isolation Valves**
A.	Closed	Open
B.	Open	**Closed**
C.	Open	Open
D.	Closed	Closed

QUESTION SRO 70 **NRC RECORD # WRI 270**
ANSWER: C. **SYSTEM # B21; M71; C71** **K/A 223002** **A1.01: 3.5/3.5**
A2.01: 3.2/3.5
A3.01: 4.2/4.1
2.4.46: 3.5/3.6
2.4.48: 3.5/3.8
LP# GG-1-LP-RO-C7100.00 **2.4.49: 4.0/4.0**
OBJ. 8, 18 **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
REFERENCE: 04-1-01-B21-1 Att III ***NEW*** **CLASS**
04-1-02-H13-P601 MODIFIED BANK
DIFF 4, CA 19A-E4
DATE USED: RO SRO ***BOTH*** **CFR 41.7/41.9/**
REFERENCE MATERIAL REQUIRED: None **43.5**

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 71

The following are the present plant parameters:

Reactor water level - 140 inches
Reactor pressure 880 psig
Drywell pressure 1.75 psig
Containment pressure 2.95 psig
2 minutes after the LOCA occurred.

Which one of the following describes the operation of the Drywell Vacuum Relief System?
(ASSUME NO FURTHER OPERATOR ACTIONS OCCUR.)

A. Post-LOCA Vacuum Relief Valves will be open; they will close when Drywell pressure rises to greater than 0.86 psid above Containment Pressure.

B. Post-LOCA Vacuum Relief Valves will be open; they will close when Drywell pressure rises to within 0.86 psid of Containment Pressure.

C. Post-LOCA Vacuum Relief Valves will be closed; they will open when Containment pressure drops to within 0.87 psid of Drywell Pressure.

D. Post-LOCA Vacuum Relief Valves will be closed; and will remain closed until LOCA signals are reset.

QUESTION SRO 71 **NRC RECORD # WRI 271**
ANSWER: B. **SYSTEM # E61** **K/A 223001** **A4.07: 4.2/4.1**
A4.06: 4.0/4.0
LP# GG-1-LP-RO-E6100.00 **A3.02: 3.4/3.4**
OBJ. 7, 13 **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
REFERENCE: **04-1-01-E61-1 sect 5.1.2** NEW CLASS
E-1186-08 & 13 ***MODIFIED*** **BANK**
DIFF 4, CA **J-1237-19 & 22** **LOT 9/99 ESF Ex.** **Q 10**
DATE USED: November 1998 RO SRO ***BOTH*** **CFR 41.7**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 72

The plant is in RF11.

RHR 'A' is in Shutdown Cooling.

Refueling operations were in progress when damage occurred to the Reactor Bottom Head Drain line. Water level in the Reactor cavity area is lowering.

Which one of the following describes the operation needed to align RHR 'A' for LPCI injection?

A. Arm and depress the Division I LPCS/LPCI 'A' Manual Initiation Pushbutton and allow RHR 'A' to automatically align itself for LPCI injection.

B. RHR 'A' is NOT allowed to be aligned in the LPCI injection mode with Reactor Cavity water level less than the High Water Level during Refueling operations.

C. RHR 'A' pump is to be secured, close E12-F006A, RHR PMP A SUCT FM SHUTDN CLG, then open E12-F004A, RHR PMP A SUCT FM SUPP POOL, then arm and depress the Division I LPCS/LPCI 'A' Manual Initiation Pushbutton and allow RHR 'A' to automatically align itself for LPCI injection.

D. Arm and depress the Division I LPCS/LPCI 'A' Manual Initiation Pushbutton and allow RHR 'A' to automatically align itself for LPCI injection, while RHR 'A' pump is secured quickly close E12-F006A, RHR PMP A SUCT FM SHUTDN CLG, then open E12-F004A, RHR PMP A SUCT FM SUPP POOL.

QUESTION SRO 72 **NRC RECORD # WRI 272**
ANSWER: C. **SYSTEM # E12** **K/A 203000** **A3.01: 3.8/3.7**
A3.08: 4.1/4.1
A4.02: 4.1/4.1
LP# **K4.01: 4.2/4.2**
OBJ. **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
REFERENCE: 04-1-01-E12-1 ***NEW*** **CLASS**
Sect 3.6.2 & 4.3.2 MODIFIED BANK
DIFF 3, CA M-1085B
DATE USED: RO SRO ***BOTH*** **CFR 41.10**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 73

The plant is operating at 80 % power.

Feedwater Level Control is selected for "Three Element Control".

Feedwater Flow 'A' indicates 6.8 mlbm/hr
Feedwater Flow 'B' indicates 6.5 mlbm/hr

The sensing line for the 'A' Feedwater Flow Transmitter has broken loose.

Which one of the following describes the reaction of the Feedwater Level Control System?

A. A "hard" failure would be registered de-selecting "3-element" control, "3-element" control can be manually reselected that will use an Estimated Flow.

B. A "hard" failure would be registered causing the Feedwater Level Control System to automatically input an Estimated Flow maintaining "3-element" control

C. A "soft" failure would be registered de-selecting "3-element" control and disabling the use of "3-element" control.

D. A "soft" failure would be registered de-selecting "3-element" control, "3-element" control can be manually reselected that will use an Estimated Flow.

QUESTION SRO 73 **NRC RECORD # WRI 273**
ANSWER: A. **SYSTEM # C34** **K/A 259002** **K4.10: 3.4/3.4**
LP# GG-1-LP-RO-C3401.00 **K6.04: 3.1/3.1**
OBJ. 1.9, 1.10; 5.2.2 **SRO TIER 2 GROUP 1 / RO TIER 2 GROUP 1**
REFERENCE: 04-1-02-H13-P680-2A-C9 ***NEW*** **CLASS**
MODIFIED BANK
DIFF 3, M
DATE USED: RO SRO ***BOTH*** **CFR 41.5**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 74

The plant was operating at 80 % power when a Power Grid fluctuation caused the reactor to scram.

The following subsequent events occurred at the times indicated:

Time	**Event/Manipulation**
09:05:56	Reactor Scram reactor level immediately drops to + 8 inches
09:06:12	Actual reactor level bottom peaks at + 2.5 inches
09:06:20	Actual reactor level is + 10.4 inches

Which one of the following is the setpoint of the Master Level Control System at Time 09:06:20?

A. + 12.4 inches

B. + 18.0 inches

C. + 36.0 inches

D. + 54.0 inches

QUESTION SRO 74 **NRC RECORD # WRI 274**
ANSWER: B. **SYSTEM # C34** **K/A 295006 AK2.02: 3.8/3.8**
LP# GG-1-LP-RO-C3401.00 **259002 K4.04: 2.9/2.9**
A3.06: 3.0/3.0
OBJ. 1.8 **SRO TIER 1 GROUP 1 / RO TIER 1 GROUP 1**
REFERENCE: Digital computer logic NEW CLASS
MODIFIED ***BANK***
DIFF 2, M **Lesson Plan question**
DATE USED: RO SRO ***BOTH*** **CFR 41.5/41.14**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 75

The plant was operating at 80 % power.

Reactor Narrow Range Water Level transmitter C34-N004B has failed downscale and brought in annunciator "RX WTR LVL SIG FAIL HI/LO".

The Operator at the Controls notices the Reactor Narrow Range Level indicator C34-LI-R606A indicates + 63.75 inches and annunciator "RFPT/MN TURB LVL 8 TRIP" is in.

Reactor Narrow Range Water Level indicator R606C is reading + 36 inches.
Reactor Upset Range Water Level indicator is reading + 38 inches.
Reactor Wide Range Water Level indicator on P680 is reading + 40 inches.
Reactor Wide Range Water Level indicators A & B on P601 are reading + 40 inches.

Which one of the following describes the actions to be taken?
(NO OTHER ALARMS ARE PRESENT.)

A. Immediately initiate a Reactor Scram and trip the Main Turbine and the Reactor Feed Pump Turbines because they failed to trip.

B. De-select AUTO Level Selection and manually select Reactor Water Level Narrow Range Level C.

C. Select the Master Level Controller to MANUAL to lock the level signals at the present setting to prevent any level perturbations and establish stable level control.

D. Monitor Reactor Water Level on P680 and compare with other indications on P601 and the PDS computer and contact I&C.

QUESTION SRO 75 **NRC RECORD # WRI 275**
ANSWER: D. **SYSTEM # C34; N21; N30** **K/A 295008 AK1.01: 3.0/3.2**
245000 A3.01: 3.6/3.6
LP# GG-1-LP-RO-C3401.00 **259001 K6.07: 3.8/3.8**
OBJ. 1.4, 1.5, 1.7 **SRO TIER 1 GROUP 2 / RO TIER 1 GROUP 2**
REFERENCE: 04-1-02-H13-P680 ***NEW*** **CLASS**
4A2-A2 & D1 MODIFIED BANK
DIFF 3, CA
DATE USED: RO SRO ***BOTH*** **CFR 41.4/41.5**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 76

The Main Control Room has been abandoned. Control has been established at the Remote Shutdown Panel. The Reactor is shutdown.

Plant cooldown is in progress per 03-1-01-3.

Attached is the data taken thus far in the cooldown.

Analyze the data and verify the status of cooldown Tech Spec and Administrative Limits.
SEE ATTACHED DATA SHEET I OF 03-1-01-3.
Figure 3.4.11-1 and Steam Tables are included in Handout material.

Select the correct condition below:

A. Cooldown rates are within Tech Spec and Administrative Limits.

B. Cooldown rates have violated the Administrative Limits, however the Tech Spec Limits are within guidelines.

C. Cooldown rates have violated the Tech Spec and Administrative Limits.

D. Cooldown rates are within Tech Spec and Administrative Limits, however Reactor Temperature has violated the limits of Figure 3.4.11-1.

QUESTION SRO 76 **NRC RECORD # WRI 176**
ANSWER: A. **SYSTEM # B13** **K/A 295016** **AA2.06: 3.5**
2.1.12: 4.0
2.1.25: 3.1
LP# **2.1.32: 3.8**
OBJ. **SRO TIER 1 GROUP 1 / RO TIER GROUP**
REFERENCE: **03-1-01-3 sect 2.5, 2.6, 2.7** ***NEW*** **CLASS**
Data Sheet I & completed MODIFIED BANK
DIFF 3, CA **Data Sheet I**
Tech Spec 3.4.11
DATE USED: RO ***SRO*** BOTH **CFR 41.5/41.10/**
REFERENCE MATERIAL REQUIRED: **Steam Tables or Saturated Steam Temperature Table of 05-1-02-II-1 & completed Data Sheet I of 03-1-01-3 & Figure 3.4.11-1 of Tech Specs** **43.5**

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 77

A leak in the containment has occurred.

The following parameters exist:

Containment Pressure	2.5 psig
Containment Temperature	91 °F
Drywell Pressure	1.0 psig
Drywell Temperature	200 °F
Suppression Pool Level	19.2 feet
Suppression Pool Temperature	95 °F

Which one of the following describes the actions to be taken to reduce Containment Pressure?

A. Purge the Containment using the Containment Purge Compressor.

B. Vent the Containment through the Containment Exhaust Filter Train.

C. Operate all available Containment Coolers defeating the Plant Chilled Water isolation.

D. Initiate those loops of RHR NOT required for adequate core cooling in Containment Spray.

QUESTION SRO 77 **NRC RECORD # WRI 177**
ANSWER: B. **SYSTEM # M41** **K/A 295010** **AA1.07: 3.4**
LP# GG-1-LP-RO-EP03.00
OBJ. 3 **SRO TIER 1 GROUP 1 / RO TIER GROUP**
REFERENCE: 05-1-01-EP-3 step 31 ***NEW*** **CLASS**
EP-2 Attachment 14 MODIFIED BANK
DIFF 3, CA
DATE USED: RO ***SRO*** BOTH **CFR 41.9/41.10/**
REFERENCE MATERIAL REQUIRED: 05-1-01-EP-3 & EP-2 43.5
Attachments (14)

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 78

A fire has engulfed the H13-P601 panel.

The fire has forced the evacuation of the Main Control Room.

The Reactor is shutdown and control has been established at the Remote Shutdown Panel.

Which one of the following describes a function that may be affected by the fire in the Control Room?

A. Cooling of the Suppression Pool with Residual Heat Removal

B. Cooling of Safe Shutdown components with Standby Service Water

C. Makeup to the reactor from Low Pressure Core Spray

D. Opening of up to six Safety Relief Valves for depressurizing the reactor

QUESTION SRO 78 **NRC RECORD # WRI 178**
ANSWER: C. **SYSTEM # C61; B21; E12; P41; E21** **K/A 600000 AA2.17: 3.6**
LP# GG-1-LP-RO-C6100.00
OBJ. 5, 7-10, 18, 19 **SRO TIER 1 GROUP 2 / RO TIER GROUP**
REFERENCE: 05-1-02-II-1 Att III & IV ***NEW*** MODIFIED **CLASS** BANK
DIFF 3,M
DATE USED: RO ***SRO*** BOTH **CFR 41.10/43.5**
REFERENCE MATERIAL REQUIRED: 05-1-02-II-1

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 79

The plant has scrammed on High Drywell Pressure.

The scram has NOT been reset.

Which one of the following describes the operation of the Control Rod Drive System under present conditions?

	Charging Water Header	Drive Water Header	Cooling Water Header	Recirc Pump Seal Purge
A.	165 gpm	0 gpm	5 gpm	3 gpm
B.	100 gpm	0 gpm	60 gpm	0 gpm
C.	165 gpm	16 gpm	5 gpm	0 gpm
D.	100 gpm	16 gpm	60 gpm	3 gpm

QUESTION SRO 79 **NRC RECORD # WRI 179**
ANSWER: A. **SYSTEM # C11-1A** **K/A 295006 AA1.06: 3.6**
LP# GG-1-LP-RO-C111A.00
OBJ. 11, 14, 18 **SRO TIER 1 GROUP 1 / RO TIER GROUP**
REFERENCE: M-1081B ***NEW*** **CLASS**
MODIFIED BANK
DIFF 3,M
DATE USED: RO ***SRO*** BOTH **CFR 41.3/41.6**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 80

An ATWS has occurred.

Reactor power is at 35 %. Reactor water level is at – 20 inches and stable.

The plant is at rated pressure.

Which one of the following describes the affects of reducing Reactor Pressure with present conditions?

When reactor pressure is reduced, :

A. reactor power will drop due to the voiding of the core and remain lower than the original power.

B. reactor power will initially drop due to voiding followed by a rise due to the lowering the moderator temperature.

C. reactor power will rise due to the collapsing of the voids resulting in more neutron thermalization which in turn heats the moderator.

D. reactor power will drop due to the concentration of boron in the core region absorbing fast neutrons.

QUESTION SRO 80 **NRC RECORD # WRI 180**
ANSWER: B. **SYSTEM # J11** **K/A 295015** **AK1.04: 3.8**
LP# GG-1-LP-RO-EP02A.00 **AK1.02: 4.1**
OBJ. 2 **SRO TIER 1 GROUP 1 / RO TIER GROUP**
REFERENCE: PSTG App B RC/P ***NEW*** **CLASS**
MODIFIED BANK
DIFF 3,M
DATE USED: RO ***SRO*** BOTH **CFR 41.1/41.2/**
REFERENCE MATERIAL REQUIRED: None **43.6**

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 81

The plant is operating at rated conditions.

A leak on the Instrument Air header has caused the header pressure to drop to 28 psig in the Auxiliary Building.

The Primary and Secondary Containment air operated isolation valves will close due to low pressure, and a bleed off valve in the Auxiliary Building will automatically open depressurizing the Auxiliary Building air header.

The air leak was repaired.

Which one of the following describes the actions that will occur?

Upon restoration of header pressure, :

A. the Primary and Secondary Containment air operated isolation valves will automatically re-open and the bleed off valve will require manual reclosing.

B. the Primary and Secondary Containment air operated isolation valves will require manual re-opening and the bleed off valve will require manual reclosing.

C. the Primary and Secondary Containment air operated isolation valves will require manual re-opening and the bleed off valve will automatically reclose.

D. the Primary and Secondary Containment air operated isolation valves will automatically re-open and the bleed off valve automatically re-close.

QUESTION SRO 81 **NRC RECORD # WRI 181**
ANSWER: D. **SYSTEM # P53** **K/A 295019** **AA2.02: 3.7**
AK2.14: 3.2
LP# GG-1-LP-RO-P5300.00 **AK2.09: 3.3**
OBJ. 11, 21 **SRO TIER 1 GROUP 2 / RO TIER GROUP**
REFERENCE: M-1067M ***NEW*** **CLASS**
05-1-02-V-9 Note 3.2.2 MODIFIED BANK
DIFF 3,M **FSAR Table 9.3-1 & 9.3-2**
DATE USED: RO ***SRO*** BOTH **CFR 41.4/41.9**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 82

The plant is in a Refueling Outage. Spent fuel in the Spent Fuel Pool is being moved.

The Control Room contacts the Refueling Supervisor that the Fuel Pool Sweep Exhaust Radiation monitor is reading 36mR/hr on all channels.

Which one of the following describes the actions that should occur as a result of these readings?

A. Continue fuel movement until the source of radiation is verified or Health Physics personnel order evacuation.

B. Fuel Pool Sweep Ventilation will operate to sweep the pool surface allowing fuel movement to continue.

C. Place any spent fuel in the fuel racks and suspend fuel movement and evacuate the fuel handling area.

D. Suspend fuel movement as long as any spent fuel is latched to the fuel handling grapple and locate the source of the radiation by moving the Fuel Handling Bridge slowly along the pool.

QUESTION SRO 82 **NRC RECORD # WRI 182**
ANSWER: C. **SYSTEM # F11** **K/A 295034** **EK3.03: 4.4**
LP# GG-1-LP-RO-D1721.00
OBJ. 20 **SRO TIER 1 GROUP 2 / RO TIER GROUP**
REFERENCE: 05-1-02-II-8 sect 2.1 ***NEW*** **CLASS**
04-1-02-H13-P601 MODIFIED BANK
19A-C10
DIFF 3, M **04-1-01-T42-1 sect 3.4**
05-1-02-III-5 Aux Bld Vent
DATE USED: RO ***SRO*** BOTH **CFR 41.4/41.11/**
REFERENCE MATERIAL REQUIRED: None **41.12/41.13/43.4**

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 83

You are the Plant Supervisor. The operations department crews are working a shift rotation that has a normal shift length of 8 hours.

The Control Room Operator informs you that his relief is ill and is throwing up in the bathroom and should NOT be allowed to assume the shift. There are only two Reactor Operators on the on-coming shift. The Off-going Control Room Operator informs you he could remain an extra four hours. All three off-going Reactor Operators have already been on shift for 12 hours. If the Off-going Control Room Operator stays the four hours, he will exceed his maximum working hours delineated in Conduct of Operations.

Which one of the following is NOT an option for relieving the shift for continued plant operation? (Disregard any Union issues.)

A. Have the On-coming Control Room Operator relieve the shift and initiate a call for a replacement Control Room Operator.

B. Have the Off-going Control Room Operator remain on shift and initiate staffing deviation forms and contact the General Manager.

C. Have one of the other two off-going Reactor Operators remain for four hours for a total of 16 hours.

D. Have an off-going Senior Reactor Operator remain for four hours or until a replacement can be found.

QUESTION SRO 83 **NRC RECORD # WRI 183**
ANSWER: A. **SYSTEM # Conduct of Ops** **K/A Generics 2.1.3: 3.4**
LP#
OBJ. **SRO TIER 3 GROUP / RO TIER GROUP**
REFERENCE: **01-S-06-2 sections 5.4 – 5.6; 5.13; 6.2.1b; 6.6** ***NEW*** MODIFIED **CLASS** BANK
DIFF 2,CA **Att I**
10 CFR 50.54m(2)(iii)
DATE USED: RO ***SRO*** BOTH **CFR 41.10/43.2**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 84

You are the Plant Supervisor.

Your shift consists of the following:

Shift Superintendent
Plant Supervisor
Shift Supervisor/STA
3 Reactor Operators
4 Nuclear Operator 'B's
2 Radwaste Operators

The Shift Superintendent has had an apparent heart attack.

Which one of the following is action to be taken for this situation?

A. Notify another Shift Superintendent and have the present Shift Superintendent remain on site until the relief arrives.

B. Shift Supervisor assume the Shift Superintendent duties and send the Shift Superintendent offsite for medical treatment and contact a relief.

C. Send the Shift Superintendent to the Site Medical Facility for observation for up to two (2) hours, if his condition has NOT changed in two hours contact a relief and send the Shift Superintendent offsite for medical treatment.

D. Plant Supervisor assume the Shift Superintendent duties and send the Shift Superintendent to the Site Medical Facility for treatment.

QUESTION SRO 84 **NRC RECORD # WRI 184**
ANSWER: B. **SYSTEM # Conduct of Ops** **K/A Generics 2.1.4: 3.4**
LP#
OBJ. **SRO TIER 3 GROUP / RO TIER GROUP**
REFERENCE: **01-S-06-2 sections 6.1.2e; 6.2.1b; 6.5.1a&d5** ***NEW*** MODIFIED BANK **CLASS**
DIFF 2, CA **Tech Specs 5.1.2 & 5.2.2c**
DATE USED: RO ***SRO*** BOTH **CFR 41.10**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 85

The plant is at rated operating conditions.

Chemistry has delivered the following sample report on Standby Liquid Control.

SLC Tank Temperature	75 °F
SLC Tank Concentration	15.5 %
SLC Tank Level (Volume)	4300 gallons

Which one of the following is the LCO action to be taken for these conditions?

A. Restore concentration of boron in solution to Normal Operation region within 72 hours and perform SR 3.1.7.2 every 4 hours.

B. Restore concentration of boron in solution to Normal Operation region within 72 hours and perform SR 3.1.7.2 every 4 hours or restore at least one SLC subsystem to Operable within 8 hours or be in Mode 3 within the following 12 hours.

C. Restore one SLC subsystem to Operable status within 8 hours or be in Mode 3 within the following 12 hours.

D. Be in Mode 3 within 12 hours.

QUESTION SRO 85 **NRC RECORD # WRI 185**
ANSWER: C. **SYSTEM # Conduct of Ops** **K/A Generics 2.1.12: 4.0**
2.1.10: 3.9
LP# GG-1-LP-RO-C4100.00
OBJ. 16, 22 **SRO TIER 3 GROUP / RO TIER GROUP**
REFERENCE: Tech Specs 3.1.7 ***NEW*** **CLASS**
Figures 3.1.7-1 & 3.1.7-2 MODIFIED BANK
DIFF 3, CA **Conditions C & D**
DATE USED: RO ***SRO*** BOTH **CFR 43.2**
REFERENCE MATERIAL REQUIRED: Tech Spec 3.1.7

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 86

A LOCA has occurred

All control rods have inserted.

Reactor Pressure is at 450 psig. Reactor Water Level is at – 180 inches on Fuel Zone.

Which one of the following describes the status of Safety Limits?

A. Adequate Core Cooling is assured and the Safety Limit is within specifications.

B. Adequate Core Cooling is assured and the Safety Limit has been violated.

C. Adequate Core Cooling is NOT assured and the Safety Limit is within specifications.

D. Adequate Core Cooling is NOT assured and the Safety Limit has been violated.

QUESTION SRO 86 **NRC RECORD # WRI 186**
ANSWER: B. **SYSTEM # Conduct of Ops** **K/A Generics 2.2.22: 4.1**
2.1.10: 3.9
2.1.11: 3.8
LP# GG-1-LP-RO-EP02.00 **2.1.33: 4.0**
OBJ. 4a **SRO TIER 3 GROUP / RO TIER GROUP**
REFERENCE: Tech Specs 2.1.1.3 & Bases ***NEW*** MODIFIED **CLASS** BANK
DIFF 3, CA **01-S-06-2 sect 5.18.2**
PSTG App B Definitions
DATE USED: RO ***SRO*** BOTH **CFR 43.2**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 87

Which one of the following work practices is NOT required to verify the proper grappling of an irradiated fuel assembly with the Fuel Handling Platform, prior to raising the hoist?

A. Attempt to rotate the mast.

B. Attempt to disengage the grapple.

C. Visually observe that the channel fastener is visible, if possible.

D. Obtain independent verification that the fuel assembly is correctly grappled.

QUESTION SRO 87 **NRC RECORD # WRI 187**
ANSWER: B. **SYSTEM # F11** **K/A 295023** **AA1.03: 3.6**
LP# GG-1-LP-RF-F1108.03
OBJ. 5c
LP# GG-1-LP-RF-F1101.05
OBJ. 38
LP# GG-1-LP-RF-F1107.04
OBJ. 1 **SRO TIER 1 GROUP 1 / RO TIER GROUP**

REFERENCE:	**04-1-01-F11-1**	NEW	CLASS
	Sect 4.5.2 Caution	MODIFIED	***BANK***
	Operations Expectation 9		
DIFF 2, M	**GE RICSIL 036**	**EB 11 Fuel Handling**	**Training**
DATE USED:	FHOI 10/6/99	RO ***SRO*** BOTH	**CFR 41.2/41.6/43.6**

REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

~~**QUESTION 88**~~

(Question deleted as a result of licensee postexamination review comments)

The plant is in a refueling outage performing core alterations.

The Fuel Movement Supervisor, discovered that a step involving movement of a fuel bundle out of the core had an error in the designation of the bundle's final location in the upper containment pool..

The Fuel Movement Supervisor wants to change the Special Nuclear Movement (SNM) Tracking Sheets to correct the error and get the fuel in the proper locations for future moves.

Which one of the following identifies WHO at a MINIMUM must approve the changes to the "OFFICIAL COPY" of the SNM Tracking Sheet?

A. Fuel Movement Supervisor and Reactor Engineering Representative only.

B. Nuclear Material Manager and Fuel Movement Supervisor only.

C. Refueling Floor Senior Reactor Operator only.

D. Fuel Movement Supervisor and Refueling Floor Senior Reactor Operator only.

QUESTION SRO 88 **NRC RECORD # WRI 188**
ANSWER: D. **SYSTEM # Equipment Control - Refueling** **K/A Generics 2.2.27: 3.5 2.2.26: 3.7**
LP# GG-1-LP-RF-F1108.03
OBJ. 1 **SRO TIER 3 GROUP / RO TIER GROUP**
REFERENCE: 17-S-02-300 Note 6.1.3b & 6.1.4c1 ***NEW*** MODIFIED BANK **CLASS**
DIFF 2, M
DATE USED: RO ***SRO*** BOTH **CFR 41.10/43.6/ 43.7**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 89

You are the Plant Supervisor.

Your shift consists of the following:

Shift Superintendent
Plant Supervisor
Shift Supervisor/STA
3 Reactor Operators
4 Nuclear Operator 'B's
2 Radwaste Operators

Which one of the following identifies the minimum required persons for the Fire Brigade?

A. Shift Superintendent and 3 Nuclear Operator 'B's and 1 Radwaste Operator.

B. Shift Supervisor and 2 Nuclear Operator 'B's and 2 Radwaste Operators.

C. Plant Supervisor and 2 Nuclear Operator 'B's and 2 Radwaste Operators.

D. Plant Supervisor and 2 Nuclear Operator 'B's and 1 Radwaste Operator.

QUESTION SRO 89 **NRC RECORD # WRI 189**
ANSWER: C. **SYSTEM # Emergency Ops Fire Brigade** **K/A Generics 2.4.25: 3.4**
2.4.26: 3.3
LP#
OBJ. **SRO TIER 3 GROUP / RO TIER GROUP**
REFERENCE: **01-S-06-2 sections 6.5.1d; 6.2.3u; 6.2.4l; 6.2.10b; 6.2.11; 6.2.12b** ***NEW*** MODIFIED **CLASS** BANK
DIFF 2, M **01-S-10-1 Att II**
DATE USED: RO ***SRO*** BOTH **CFR 41.10/43.2**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 90

The Operations Shift Superintendent has declared a General Emergency due to an offsite gaseous release. Field monitoring teams and Chemistry have reported a 5450mRem Thyroid CDE dose commitment at five (5) miles from the plant.

Which one of the following is the Protective Action Recommendation to be issued to the State and Local Agencies?

Evacuate 2 miles all sectors, and

A. evacuate the 5 mile down wind sectors of the plant, and shelter the remainder of the 10 mile Emergency Planning Zone.

B. evacuate the 10 mile down wind sectors of the plant, and shelter the remainder of the 10 mile Emergency Planning Zone.

C. evacuate the 5 mile all sectors, and evacuate the 10 mile down wind sectors, and shelter remainder of the 10 mile Emergency Planning Zone.

D. evacuate the 5 mile all sectors, and shelter the 10 mile Emergency Planning Zone.

QUESTION SRO 90 **NRC RECORD # WRI 190**
ANSWER: B. **SYSTEM # Emergency Ops Protective Action Recommendations** **K/A Generics 2.4.44 4.0**
LP# GG-1-LP-OP-EPTS6
OBJ. **SRO TIER 3 GROUP / RO TIER GROUP**
REFERENCE: 10-S-01-1 section 6.1.4.j1 ***NEW*** MODIFIED **CLASS** BANK
DIFF 3, CA
DATE USED: RO ***SRO*** BOTH **CFR 41.10/43.5**
REFERENCE MATERIAL REQUIRED: 10-S-01-1

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 91

The plant is operating at rated conditions.

A fire has been reported at the Hydrogen Bulk Storage Facility.

The Fire Brigade has been dispatched and Air Products has been notified. The Fire Brigade Leader reports the fire is a straight stream upward from the Pressure Regulator.

WLBT News is on the scene with a live report. Claiborne County Fire Department has responded and has evacuated a ½ mile radius of the facility.

Which one of the following describes the notification requirements and any Emergency Classification?

A. No event; notification of offsite agencies is NOT required because the Hydrogen Bulk Storage Facility is owned by Air Products.

B. No event; notification of State and Local Agencies is NOT required, notification of the NRC is required within twenty four hours.

C. Unusual Event; notification of the State and Local Agencies is required within 15 minutes of declaration and the NRC within one hour.

D. Unusual Event; notification of the State and Local Agencies is required within 15 minutes of declaration and the NRC within four hours.

QUESTION SRO 91 **NRC RECORD # WRI 191**
ANSWER: C. **SYSTEM #** **K/A Generics 2.4.30: 3.6**
Emergency Ops EAL **2.4.40: 4.0**
& Offsite Notification
LP# GG-1-LP-OP-EPTS6
OBJ. **SRO TIER 3 GROUP / RO TIER GROUP**
REFERENCE: 10-S-01-1 sect 6.1.3 ***NEW*** **CLASS**
EAL 18.1.1 Discretion MODIFIED BANK
10-S-01-6
sect 6.1.1c & NOTE
DIFF 4, CA 01-S-06-5
Att III sect III 7
DATE USED: RO ***SRO*** BOTH **CFR 43.5**
REFERENCE MATERIAL REQUIRED: 10-S-01-1 & 01-S-06-5

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 92

The plant is operating at rated conditions.

Subversives have entered the Main Control Room and taken over.

Communication with the Main Control Room has been lost.

You are the Shift Supervisor working in the Work Control Center with the Tagging Group.

Which one of the following describes the actions to be taken and Emergency Classification?

A. Maintain the plant in stable conditions until the security situation is resolved and declare an Unusual Event

B. Maintain the plant in stable conditions until the security situation is resolved and declare a Site Area Emergency.

C. Man the Remote Shutdown Panels, manually scram the plant and cooldown the plant using Division II equipment, declare an Alert.

D. Man and isolate the Remote Shutdown Panels, manually scram the plant and cooldown the plant, declare a Site Area Emergency.

QUESTION SRO 92 **NRC RECORD # WRI 192**
ANSWER: D. **SYSTEM #** **K/A Generics 2.4.40: 4.0**
Emergency Ops SRO 2.4.11: 3.6
Responsibility Security 2.1.2: 4.0
Threat 2.1.49: 4.0
LP# GG-1-LP-OP-EPTS6
OBJ. **SRO TIER 3 GROUP / RO TIER GROUP**
REFERENCE: 10-S-01-1 ***NEW*** **CLASS**
EAL 14.3.1 Security MODIFIED BANK
01-S-06-2
sect 6.1.2a & 6.2.3l
DIFF 4, CA 05-1-02-VI-4
Att III sect III 7
DATE USED: RO ***SRO*** BOTH **CFR 43.5**
REFERENCE MATERIAL REQUIRED: 10-S-01-1 & 05-1-02-VI-4

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 93

The plant has scrammed due to a LOCA causing Drywell pressure to rise to 3.0 psig.

Ten (10) control rods failed to fully insert to 00 and are at various positions greater than 02.

Reactor Power is on the Source Range monitors.

Reactor Pressure is 925 psig being controlled on the Bypass Valves.
Reactor Water Level is + 30 inches being controlled by Feedwater.

All Control Rod HCU faults are illuminated and the Scram Air Header Pressure low annunciator is illuminated.

ARI/RPT has been reset.

Which one of the following completely describes actions that can be taken to insert these control rods?

A. maximize CRD Drive Water Differential Pressure.

B. scram control rods individually at the HCUs.

C. defeat RC&IS and drive the control rods using normal drive pressure.

D. vent overpiston volumes on the affected HCUs.

QUESTION SRO 93 **NRC RECORD # WRI 193**
ANSWER: D. **SYSTEM #** **K/A Generics 2.4.16: 4.0**
Emergency Ops EOP 2.4.21: 4.3
actions 295015 AK2.01: 3.9
LP# GG-1-LP-RO-EP2A. **AA1.01: 3.9**
OBJ. **SRO TIER 3 GROUP / RO TIER GROUP**
REFERENCE: 05-1-01-EP-2A step 48 ***NEW*** **CLASS**
Att 18, 19, 24 MODIFIED BANK
DIFF 4, CA M-1081B
DATE USED: RO ***SRO*** BOTH **CFR 41.10/43.5**
REFERENCE MATERIAL REQUIRED: 05-1-01-EP-2A

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 94

The plant has scrammed due to a LOCA, ECCS is operating.

Reactor Water Level	- 196 inches and lowering
Reactor Pressure	30 psig
Drywell Pressure	5.6 psig
Containment Pressure	3.0 psig
Containment Temperature	115 °F
Drywell Hydrogen concentrations	4.0 %
Containment Hydrogen concentrations	2.2 %

Offsite dose estimates have been projected as less than the limits of TRM 6.11.4.

Which one of the following describes the operations to be taken to control hydrogen concentrations in the Drywell and Containment? (ASSUME ALL OTHER PARAMETERS ARE NORMAL)

	Hydrogen Igniters	Drywell Purge Compressors	CTMT Vent & Purge	CTMT Spray	Hydrogen Recombiners
A.	Operate	Operate	Operate	Operate	Operate
B.	Secure & prevent	Secure & prevent	Operate	Operate	Secure
C.	Operate	Operate	Secure	Secure	Secure
D.	Operate	Operate	Operate	Secure	Operate

QUESTION SRO 94 **NRC RECORD # WRI 194**
ANSWER: D. **SYSTEM # Emergency Ops SAP actions** **K/A Generics 2.4.4: 4.3**
LP#
OBJ. **SRO TIER 3 GROUP / RO TIER GROUP**
REFERENCE: **05-1-01-EP-3 Steps 32, 58 & 61** ***NEW*** MODIFIED **CLASS** BANK
SAP- 3 Hydrogen Control
DIFF 4, CA **Steps 3, 18, 68 – 95**

DATE USED: RO ***SRO*** BOTH **CFR 41.10/43.5**
REFERENCE MATERIAL REQUIRED: 05-1-01-EP-2 and SAP-3

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 95

Radwaste has an Equipment Drain Sample Tank to discharge to the River.

You are the Shift Superintendent. The I&C Technician left the Batch Liquid Radwaste Discharge Permit in the Control Room for approval to release the tank.

The time is 1200 on 3/31/2000.

Which one of the following describes the actions to be taken with regard to the Radwaste tank discharge?

A. The Radwaste discharge may be authorized to proceed.

B. The discharge cannot be authorized until Circ Water blowdown flow is lowered below the minimum setpoint.

C. The discharge cannot be authorized until I & C correctly recalibrates the setpoints for release instruments.

D. The discharge cannot be authorized until Radwaste Monitor background reading has been reduced to < 200 cpm.

QUESTION SRO 95 **NRC RECORD # WRI 195**
ANSWER: A. **SYSTEM # Rad Con Discharge** **K/A Generics 2.3.6: 3.1**
LP#
OBJ. **SRO TIER 3 GROUP / RO TIER GROUP**
REFERENCE: 01-S-08-11 Att I ***NEW*** **CLASS**
MODIFIED BANK
DIFF 3, CA
DATE USED: RO ***SRO*** BOTH **CFR 41.10/43.4**
REFERENCE MATERIAL REQUIRED: 01-S-08-11 and Att I completed

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 96

A standing order is to be issued which involves a change to the intent of an existing procedure.

Which one of the following describes the requirements that must be met prior to issuing the Standing Order?

A. The Standing Order can be issued with Operations Superintendent approval.

B. The Standing Order can be issued with an approved 50.59 Safety Evaluation Review.

C. The Standing Order can be issued with Vice President, Operations – GGNS approval.

D. The Standing Order cannot be issued until NRC approval is obtained for the changes.

QUESTION SRO 96 **NRC RECORD # WRI 196**

ANSWER: B. **SYSTEM # Conduct of Ops - Procedures** **K/A Generics** **2.1.2: 4.0** **2.1.20: 4.2** **2.1.21: 3.8** **2.1.23: 4.0**

LP#

OBJ. **SRO TIER 3 GROUP / RO TIER GROUP**

REFERENCE: **02-S-01-12 sect 6.2.1d** ***NEW*** **CLASS**

MODIFIED BANK

DIFF 3, M

DATE USED: RO ***SRO*** BOTH **CFR 41.10**

REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 97

The plant is at 11 % power during a reactor startup.

Preparations are being made to place the Reactor Mode Switch in RUN.

Reactor Coolant pH has been sampled at 6.9.

Feedwater Iron content has been analyzed at 4.5 ppb.

Attached is the Chemistry Report submitted in preparation for entering power operations.

Which one of the following describes the allowances for continuing the power ascension to full power?

A. Transfer to Run and subsequent power ascension is prohibited by Tech Specs (TRM) requirements.

B. Transfer to Run is allowed with Duty Manager concurrence provided that actions are taken to return Chemistry to within specifications prior to exceeding 15% power.

C. Transfer to Run is allowed with NO restrictions on power ascension provided actions are taken to return Chemistry to within specifications.

D. Transfer to Run and power ascension is prohibited by the EPRI Water Chemistry Guidelines and Off Normal Event Procedure requirements.

QUESTION SRO 97 **NRC RECORD # WRI 197**

ANSWER: B. **SYSTEM # Conduct of Ops - Chemistry** **K/A 2.1.34: 2.9 Generics**

LP#

OBJ. **SRO TIER 3 GROUP / RO TIER GROUP**

REFERENCE: **01-S-08-29 Att I** ***NEW*** **CLASS**

05-1-02-V-12 Tbl Mode 1 MODIFIED BANK

DIFF 3, CA **TRM 6.4.1**
03-1-01-1
sect 6.2.15a(5) & 6.2.15j

DATE USED: RO ***SRO*** BOTH **CFR 43.2**

REFERENCE MATERIAL REQUIRED: **01-S-08-29 & completed Att VI;**
05-1-02-V-12; TRM 6.4.1; Tech Spec 3.0
03-1-01-1 sect 6.2.15

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 98

The plant is operating at rated conditions.

A failure of APRM 'F' combined with APRM 'H' also being inoperative has caused an LCO to be written on RPS.

Which one of the following describes the allowances for trouble shooting of APRM 'F'?

A. A Maintenance Action Item (MAI) shall be completed, approved and authorized for work prior to any troubleshooting.

B. Troubleshooting may take place, if a Safety Evaluation is completed to ensure that plant configuration is unaffected and conditions have been analyzed, and the Shift Superintendent has approved the work.

C. Troubleshooting may take place, if a maintenance alteration of the system will NOT occur, and an impact statement has been prepared. The impact and authorization must be documented in the Shift Superintendents Log and approved by the Shift Superintendent.

D. A Condition Report may be initiated to document the performance of troubleshooting without documentation and the Work Week Manager shall approve the actions taken.

QUESTION SRO 98 **NRC RECORD # WRI 198**
ANSWER: C. **SYSTEM # Equip Control – Troubleshooting** **K/A Generics** **2.2.20: 3.3** **2.2.19: 3.1**
LP#
OBJ. **SRO TIER 3 GROUP / RO TIER GROUP**
REFERENCE: **07-S-01-205 sect 6.5.1** ***NEW*** **CLASS**
07-S-01-228 MODIFIED BANK
DIFF 3, M **Sect 6.1.2 NOTE**
DATE USED: RO ***SRO*** BOTH **CFR 43.3**
REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 99

The plant is operating at rated conditions.

A controller in the plant requires being placed in manual for a few hours.

Which one of the following describes the actions required to temporarily place the controller in manual?

A. A temporary change notice must be issued to the system operating instruction and a new checklist to document the position change must be completed.

B. Temporary Alteration documentation must be completed and an Information Tag installed on the controller with the approval of a SRO.

C. Condition Report may be issued to document the discrepancy between the SOI position and as-is position of the controller.

D. Component Position Control Form may be completed and maintained in the Control Room with the approval of an on shift SRO.

QUESTION SRO 99 **NRC RECORD # WRI 199**

ANSWER: D. **SYSTEM # Equip Control – Configuration Control** **K/A Generics** **2.2.14: 3.0**

LP#

OBJ. **SRO TIER 3 GROUP / RO TIER GROUP**

REFERENCE: **02-S-01-2 sect 6.10.5** ***NEW*** **CLASS**

Sect 6.10.5; 6.15; 6.16 MODIFIED BANK

DIFF 2, M

DATE USED: RO ***SRO*** BOTH **CFR 43.3**

REFERENCE MATERIAL REQUIRED: None

U.S. NUCLEAR REGULATORY COMMISSION
WRITTEN EXAMINATION APRIL 2000
SENIOR REACTOR OPERATOR

QUESTION 100

You are the Shift Superintendent.

A truck driver with Pacific Nuclear has called the Control Room to report that the High Intensity Container of RWCU resin has been involved in an accident in South Vicksburg.

The Vicksburg Fire Department has requested Entergy send personnel to inspect and monitor the container.

The Health Physics Lab has a supervisor and three (3) Health Physics Technicians.

Who is responsible to provide any Health Physics assistance to the accident scene?

A. Shift Superintendent

B. On-Call Radiation Protection Manager

C. General Manager, Plant Operations

D. Vice President, Operations - GGNS

QUESTION SRO 100 **NRC RECORD # WRI 200**

ANSWER: B. **SYSTEM # Rad Con – Rad Material Transport** **K/A 2.3.3: 2.9 Generics**

LP#

OBJ. **SRO TIER 3 GROUP / RO TIER GROUP**

REFERENCE: **10-S-01-32 sect 2.3** ***NEW*** **CLASS**

MODIFIED BANK

DIFF 2, M

DATE USED: RO ***SRO*** BOTH **CFR 41.10/43.4**

REFERENCE MATERIAL REQUIRED: **10-S-01-32**