

Question 1:

Given the following conditions:

- Reactor Power 100%
- Group 6 CEA 23 LEL is lit
- Core mimic light for CEA 23 is lit
- Tcold is 535°F and lowering

Which ONE (1) of the following actions should be taken in accordance with SO23-13-13, Misaligned Control Element Assembly?

Within 15 minutes of discovery initiate Rx Power reduction of 5% by...

- A. inserting Part Length CEAs.
- B. inserting Group 6 CEAs.
- C. commencing RCS boration.
- D. reducing turbine load using CVOL.

Answer: C.

Reference: SO23-13-13, Misaligned or immovable Control Element Assembly

Learning Objective: _____ (As available)

Question Source: Bank # _____
Modified Bank # _____
New X

Examination Outline Cross-reference:	Level	<u> RO </u>	<u> SRO </u>
	K/A #	<u>00005 AK3.05</u>	<u>000005 AK3.05</u>
	Importance Rating	<u> 3.7 </u>	<u> 3.8 </u>
	Tier #	<u> 1 </u>	<u> 1 </u>
	Group #	<u> 1 </u>	<u> 1 </u>

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

10 CFR Part 55 Content: 55.41 _____
55.43 _____

Question 4

After an Excess Steam Demand Event, one of the concerns is the overpressurization of the RCS which could result in a large break LOCA.

Which ONE (1) of the following actions will minimize the chance of this type of loss of pressure control?

- A. Ensure Main Steam Isolation Signal is actuated
- B. Establish maximum Safety Injection flow
- C. Initiate Safety Injection Throttle/Stop
- D. Secure at least 2 Reactor Coolant Pumps

Answer: C

Ref.: SO23-12-5 KA: 000011 EA2.14

Source: SONGS Bank

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

Question 5

Given the following conditions:

- The plant is at 100% Power.
- Pressurizer Pressure Controller, 2PIC-100, is in Automatic.
- All other Pressurizer pressure controls are in their normal configuration.
- In preparation for maintenance, the second and third point Heaters E038 and E040 are bypassed.
- All other systems respond as designed.

Consider only the effects of the above conditions on Pressurizer pressure.

Assuming no action by the crew, which ONE (1) of the following correctly describes the plant response?

- A. There is an outsurge from the Pzr, the spray valves modulate open, steam in the Pzr will expand to mitigate the pressure transient, output from the proportional heaters will increase.
- B. There is an insurge into the Pzr, the spray valves modulate shut, steam in the Pzr will condense to water to mitigate the pressure transient, output from the proportional heaters will decrease.
- C. There is an insurge into the Pzr, the spray valves modulate open, steam in the Pzr will condense to water to mitigate the pressure transient, output from the proportional heaters will increase.
- D. There is an outsurge from the Pzr, the spray valves modulate shut, water in the Pzr will flash to steam to mitigate the pressure transient, output from the proportional heaters will increase.

Answer: D.

References:

Question Source: Bank # _____
Modified Bank # _____
New X

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	000027A1.02	000027A1.02
Importance Rating	2.8	3.1
Tier #	1	1
Group #	1	1

Question 6

Given the following conditions:

- Unit 2 tripped due to an ESDE
- SIAS, CIAS, and MSIS have actuated
- SO23-12-5 Excessive Steam Demand is in progress
- S/G E089 has blown dry
- S/G E089 T-hot is 495° F and STABLE
- S/G E089T-cold is 420° F and TRENDING UP
- S/G E088 pressure is 700 psia and TRENDING DOWN
- S/G E088 T-hot is 485° F and TRENDING DOWN
- S/G E088 T-cold is 472° F and TRENDING DOWN
- Pressurizer Pressure is 1800 psia and TRENDING UP
- Pressurizer Level is 25% and TRENDING UP

Which ONE (1) of the following indicates the target S/G pressure required to stabilize RCS temperature?

- A. 310 psia
- B. 590 psia
- C. 525 psia
- D. 650 psia

Answer: A

References: SO23-12-5

Question Source: Bank # X
Modified Bank #
New

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

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	CE/A11 W/E08 EK2.2	CE/A11 W/E08 EK2.2
Importance Rating	3.6	4.0
Tier #	1	1
Group #	1	1

Question 7

Given the following conditions:

- Reactor power is 10%.
- A main turbine roll to 1800 rpm is in progress.
- Condenser vacuum has begun degrading.
- Annunciator 99B37, VACUUM LO is actuated.
- Condenser Backpressure is 7 inches Hg absolute

Which ONE (1) of the following immediate actions is required?

- A. Reduce turbine speed to stabilize condenser vacuum.
- B. Raise Tcold to reduce SBCS load.
- C. Trip the turbine
- D. Observe the vacuum trend over the next five (5) minutes to determine if the turbine must be tripped.

Answer: C.

References: SO23-

Question Source: Bank # X
Modified Bank #
New

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

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	0051AA2.02	0051AA2.02
Importance Rating	3.9	4.1
Tier #	1	1
Group #	1	1

Question 8

Which of the following is an indication that effective single phase Natural Circulation cooling may be lost?

- A. CET Saturation Margin equal to 25°F
- B. Delta-T (T-hot minus T-cold) of 28°F
- C. Core Exit Thermocouple minus T-hot equal to 10°F
- D. Reactor Vessel Plenum level equal to 82%

Answer: D

Ref.: SO23-12-7

KA: CE EPE A13 AK2.2

Source: SONGS Bank

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis

X

Question 9

Which ONE (1) of the following pairs of Reactor Trip Circuit Breakers would indicate open on a loss of 120V Vital AC bus Y001?

- A. 1 and 5.
- B. 2 and 7.
- C. 3 and 6.
- D. 4 and 8.

Answer: A.

References:

Question Source: Bank # _____
Modified Bank # _____
New X

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	000057AA2.19	000057AA2.19
Importance Rating	4.0	4.3
Tier #	1	1
Group #	1	1

Question 10

Given the following conditions:

- Unit 3 is operating at 100% Power
- Nuclear service water pump P-138 is running in manual and Nuclear Service Water Pump P-139 is secured in AUTO.
- Combined pump discharge header pressure on CR-61 is 137 psig
- Nuclear Service Water Pump P-138 trips on overcurrent.

Assuming no further operator action, which ONE (1) of the following indications as monitored in the control room would indicate that P-139 has started and is operating properly?

- A. Nuclear service water pressure low annunciator window on CR-61 goes out and combined pump discharge header pressure on CR-61 returns to 137 psig.
- B. Nuclear service water pressure low annunciator window on CR-61 starts to slow flash and combined pump discharge header pressure on CR-61 returns to 87 psig.
- C. Nuclear service water pressure low annunciator window on CR-61 goes out and combined pump discharge header pressure on CR-61 returns to 87 psig.
- D. Nuclear service water pressure low annunciator window on CR-61 starts to slow flash and combined pump discharge header pressure on CR-61 returns to 137 psig.

Answer: B

References: SO23-450

Question Source: Bank # _____
Modified Bank # _____
New _____X_____

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	000062AA1.02	000062AA1.02
Importance Rating	3.2	3.3
Tier #	1	1
Group #	1	1

Question 11

Given the following conditions:

- A fire has occurred in the Unit 2 30' Turbine Building switchgear room.
- The Ops Fire Technical Advisor informs the Shift Manager in the Control Room that the Fire Department Incident Commander intends to use water to extinguish the fire.
- Some of the switchgear in the area is still energized.

Which ONE (1) of the following describes the action required?

- A. Prohibit the use of water as an extinguishing agent in the vicinity of all electrical components, whether energized or deenergized.
- B. Inform the Incident Commander an alternate fire suppression agent must be used if any energized switchgear is actively involved in the fire.
- C. Permit the use of water as a fire suppression agent only after all switchgear in the area has been completely deenergized.
- D. Ensure the Incident Commander is aware of the energized switchgear, and let the Incident Commander determine the most appropriate extinguishing agent.

Answer: D

Reference:

Question Source: Bank # X
Modified Bank #
New

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

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	000067AA1.08	000067AA1.08
Importance Rating	3.4	3.7
Tier #	1	1
Group #	1	1

Question 13

Given the following plant conditions:

- The reactor is tripped on Steam Generator low level due to a feed line break inside containment.
- 186 Lockout relay is dropped on normal supply breaker for bus 2A04.
- SIAS/CIAS were manually initiated.

Which ONE (1) of the following statements is correct concerning the remaining design capacity for reducing temperature and pressure in containment, and design capacity for Iodine removal?

- A. Temperature and pressure reducing capability 50%, Iodine removal capability 50%
- B. Temperature and pressure reducing capability 100%, Iodine removal capability 100%
- C. Temperature and pressure reducing capability 150%, Iodine removal capability 200%
- D. Temperature and pressure reducing capability 100%, Iodine removal capability 50%

Answer: B

Reference: SO23-740

Question Source: Bank # _____
Modified Bank # _____
New X

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

Examination Outline Cross-reference:

Level		<u>RO</u>	<u>SRO</u>
	K/A #	000069EK1.2	000069EK1.2
	Importance Rating	3.3	3.6
	Tier #	1	1
	Group #	1	1

Question 14

Given the following conditions:

- The plant tripped due to a Loss of Offsite Power 15 minutes ago.
- A bus lockout occurred on Electrical Bus 2A04 and cannot be reset.
- AFW Pump P-140 trips on over speed and cannot be reset.
- Due to a circuit malfunction EFAS failed to actuate.
- SO23-12-6, Loss of Feed Water, has been entered.
- RCS pressure is 2100 psia and rising.
- Both Steam Generator levels are 35% WR and dropping.

Which ONE (1) of the following describes the action required to restore Feedwater flow?

- A. Establish Low Pressure Alternate Feedwater flow to the S/Gs using Condensate pumps.
- B. Re-establish Main Feedwater flow to the S/Gs.
- C. Establish Feedwater flow to the S/G's using P-141 and P-504.
- D. Establish Feedwater flow to the S/G's using P-504.

Answer: D.

References: SO23-12-6

Question Source: Bank # _____
Modified Bank # _____
New X

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

Examination Outline Cross-reference:

Level		<u>RO</u>	<u>SRO</u>
	K/A #	000074EK3.11	000074EK3.11
	Importance Rating	4.0	4.1
	Tier #	1	1
	Group #	1	1

Question 15

Given the following conditions:

- A LOCA has been identified
- Pressurizer pressure is 1250 psia and steady
- Pressurizer level is 100% and steady
- HPSI injection valves are fully open
- T_{hot} is 552°F
- T_{cold} is 545°F
- REP CET is 562°F
- No RCP's are running
- Containment temperature is 195°F
- Containment pressure is 11 psig
- A cooldown is in progress using steam generators

Which ONE (1) of the following actions will be performed by the crew?

- A. Secure HPSI pumps to allow RCS to depressurize so maximum injection flow with the LPSI system can be achieved.
- B. Throttle HPSI flow to allow depressurization of the primary system and prevent pressurized thermal shock.
- C. Throttle HPSI flow to restore pressurizer level to indicating range.
- D. Continue maximum HPSI injection flow to ensure adequate cooling for the core.

Answer: D

Handout reference material: Steam Tables

Question Source: Bank # _____
Modified Bank # _____
New X

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	E03EK2.1	E03EK2.1
Importance Rating	3.6	4.0
Tier #	1	1
Group #	1	1

Question 16

Given the following conditions:

- Unit 2 has high RCS Activity and is in the process of cooling down on SDC.
- The SDC Purification System is in service.
- It has become necessary to replace the CVCS Purification Filter, 2F-020, cartridge.

Which ONE (1) of the following describes the sources used to fill and vent 2F-020 following filter cartridge replacement?

- A. Nuclear Service Water and returned to the VCT.
- B. Primary Plant Make Up Water and returned to Radwaste.
- C. Primary Plant Make Up Water and returned to the VCT.
- D. Nuclear Service Water and returned to Radwaste

Answer: D

References:

Question Source: Bank # X
Modified Bank #
New

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

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	000076G2.1.32	000076G2.1.32
Importance Rating	3.4	3.8
Tier #	1	1
Group #	1	1

Question 17

Given the following conditions:

- CEA Group 5 is being withdrawn from 108 inches to 123 inches.
- At 112 inches on Group 5 the operator releases the CEDMCS joystick.
- CEA 14 and 15 motion STOPS.
- CEA 16 and 17 CONTINUE to withdraw.
- The CO terminates all CEA motion by placing CEDMCS in OFF.
- CEA 16 and 17 indicate 123 inches.

Which ONE (1) of the following actions is required, and what is the reason for the action?

- A. Restore Group 5 alignment within 1 hour by inserting CEA 16 and 17 using MANUAL INDIVIDUAL to preclude excessive power peaking.
- B. Immediately open all RTCB's to preclude operation outside of design basis.
- C. Reduce thermal power to limits specified in the COLR within 1 hour to preclude operation outside of DNBR limits.
- D. Restore Group 5 alignment within 1 hour by withdrawing CEAs 14 and 15 in MANUAL INDIVIDUAL to prevent exceeding AZTILT limits

Answer: B

References:

Question Source: Bank # _____
Modified Bank # X
New _____

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

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	000001G2.2.25	000001G2.2.25
Importance Rating	2.5	3.7
Tier #	1	1
Group #	2	2

Question 18

Given the following conditions:

- Unit 2 is at 85% power
- Group 6 is at 149 inches withdrawn
- Recovery of a Dropped CEA (#20) is in progress
- CEA # 20 is at 100 inches withdrawn

The following indications occur:

- Pressurizer level begins to drop
- Pressurizer pressure is dropping slowly
- Thot, Tcold, and Tave are dropping
- Reactor power is 80% and dropping

Which ONE (1) of the following is the cause of these conditions?

- A. An ADV on a steam generator has started leaking
- B. There is a small break loss of coolant accident in progress
- C. Another CEA has dropped
- D. These are expected indications during recovery of the dropped CEA.

Answer: C

References:

Question Source: Bank # _____
Modified Bank # _____
New X

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	000003AA1.06	000003AA1.06
Importance Rating	4.0	4.1
Tier #	1	1
Group #	2	2

Question 19

Given the following plant conditions:

- A small break Loss of Coolant Accident has occurred.
- RCPs have been secured
- HPSI Pumps P-018 and P-019 have been secured
- All Three (3) charging pumps are running
- Pressurizer pressure is 1095 psia and steady
- Pressurizer level is 100%
- S/G Levels are E088 62% NR and E089 60% NR
- Thot is 550° F
- Tcold is 540° F
- Core exit thermocouple temperature is 555° F

Which ONE (1) of the following actions is required for these conditions?

- A. Secure two (2) Charging Pumps and energize PZR heaters to restore RCS Pressure and reduce Pzr level.
- B. Commence bleeding steam from the steam generators to establish natural circulation flow.
- C. Secure two (2) Charging Pumps and de energize PZR heaters to prevent over pressurizing the RCS.
- D. Restart RCPs to commence RCS cooldown and lower pressurizer level

Answer: B

References for student: Steam Tables

References: SO23-12-3

Question Source:	Bank #	<u> </u>
	Modified Bank #	<u> </u>
	New	<u> X </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	<u> </u>
	Comprehension or Analysis	<u> X </u>

Examination Outline Cross-reference:

	<u>RO</u>	<u>SRO</u>
Level		
K/A #	000007EK1.06	000007EK1.06
Importance Rating	3.4	3.9
Tier #	1	1
Group #	2	2

Question 20

Given the following plant conditions:

- Safety Injection Actuated
- PZR Pressure is 1700 psig and slowly LOWERING
- RCS Temperature is 545° F and slowly LOWERING
- S/G NR Levels are 1% and slowly RISING
- Quench Tank Pressure is 21 psig and STABLE
- S/G Pressures are 1000 psig and STABLE
- PZR Level is 28% and RISING
- Containment Temperature is 140°F and slowly RISING
- Containment Pressure is 2 psig and RISING
- Containment Humidity is RISING

Which ONE (1) of the following is the cause of the above conditions?

- A. RCS leak from a cold leg.
- B. S/G Safety Valve failed open.
- C. RCS Safety Valve failed open.
- D. Pressurizer steam space leak.

Answer: D

Question Source: Bank # X
Modified Bank #
New

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

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	000008AK2.02	000008AK2.02
Importance Rating	2.7	2.7
Tier #	1	1
Group #	2	2

Question 21

Given the following conditions:

- A Unit 2 shutdown is in progress from 100% power.
- During the shutdown, a reactor trip occurred due to a loss of coolant accident concurrent with a loss of offsite power.

The following plant conditions exist:

- Emergency Diesel Generators are operating normally
- RCS Th 555° F
- Pressurizer Pressure 1200 psia
- Pressurizer Level 34% and stable
- Reactor Vessel Head Level indicates 2 voids
- Steam Generator E089 NR level 25% with auxiliary feedwater flow established
- Steam Generator E088 NR Level 26% with auxiliary feedwater flow established
- Containment Temperature 148° F
- Core Exit Temperatures are 560° F

Which ONE (1) of the following parameters will NOT allow performance of HPSI Throttle/Stop?

- A. Subcooling Margin.
- B. Reactor Vessel Head Level.
- C. Pressurizer Level.
- D. Steam Generator Steam / Feed Flow.

Answer: A

Question Source: Bank # X
Modified Bank #
New

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	00009EA3.26	00009EA3.26
Importance Rating	4.4	4.5
Tier #	1	1
Group #	2	1

Question 22

Given the following conditions:

- A reactor trip has occurred.
- Immediate actions of SO23-12-1, "Standard Post Trip Actions," have been completed.
- The crew is attempting to diagnose the accident.

Plant conditions are as follows:

- Group 6 CEA #28 indicates fully withdrawn
- E088 and E089 levels are 24% narrow range and rising slowly
- E088 and E089 pressures are 1000 psia and stable
- Pressurizer level is 28% and lowering
- Pressurizer pressure is lowering rapidly
- Containment pressure is 0 psig
- Containment area radiation monitors and Main Steam Line radiation monitors are normal

Which ONE (1) of the following events is in progress?

- A. PZR Spray valve stuck open.
- B. LOCA outside Containment.
- C. LOCA inside Containment.
- D. Steam Line Break outside Containment.

Answer: B

References: SO23-12-1

Question Source: Bank # _____
Modified Bank # X
New _____

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	E04EA2.01	E04EA2.01
Importance Rating	3.6	4.2
Tier #	1	1
Group #	2	2

Question 23

Given the following conditions:

- Unit 2 has experienced a Reactor trip from 100% power due to a fault in the turbine control system.
- S/G Levels indicate:
 - E088 - 65% NR
 - E089 - 68% NR
- Pzr level is 30% and slowly lowering
- Pzr pressure is 2240 psia
- Letdown is secured
- SBCS is operating to maintain S/G pressures at 1000 psia
- Quench Tank Press HI, (50A01) has come in and cleared
- Quench Tank Level HI/LO, (50A11) is locked in
- Quench Tank Temp HI, (50A21) is locked in
- PZR Safety Valve outlet Temp HI, (50A31) is locked in
- Containment pressure is 1.8 psia and rising.
- Containment temperature and humidity are rising

Which ONE (1) of the following describes the mitigation strategy for the event in progress?

- A. Initiate a manual Safety Injection to provide makeup water to the RCS.
- B. Commence RCS cooldown using the S/G's and the SBCS.
- C. Commence RCS cooldown at maximum achievable rate using ADV's.
- D. Open PZR normal and auxiliary spray valves to rapidly reduce pressure to less than 1400 psia.

Answer: B

References: SO23-15-50.A1
 SOSO23-360
 SO23-14-3
 SO23-12-11

Question Source: Bank # _____
 Modified Bank # _____
 New X

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	E03EK3.3	E03EK3.3
Importance Rating	3.9	3.9
Tier #	1	1
Group #	2	2

Question 24

Given the following conditions:

- A Large Break LOCA has occurred
- HPSI and LPSI pumps are injecting
- A Recirculation Actuation Signal (RAS) actuates.

Which ONE (1) of the following describes the impact on the long term core cooling if the Safety Injection Pump minimum recirculation flow valves (HV-9306, 9307, 9347, and 9348) **FAIL** to shut?

- A. No impact, system is designed with minimum flow valves to protect the pumps from overheating in a low flow condition.
- B. Cooling flow through the core will be reduced by a small amount, but no other impact.
- C. Cooling flow through the core will be reduced then lost as coolant inventory is lost from the containment emergency sump.
- D. The parallel flow path will result in higher total flow from the pumps with no reduction in flow through the core.

Answer: C

Reference: SO23-740

Question Source: Bank # _____
Modified Bank # _____
New X

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	W/E11EK2.2	W/E11EK2.2
Importance Rating	3.9	4.3
Tier #	1	1
Group #	2	2

Question 25

Given the following conditions:

- Pressurizer pressure is 1250 psia.
- Pressurizer level is 100%.
- HPSI injection is 330 gpm/cold leg.
- Thot is 550° F.
- Tcold is 510° F.
- Core exit thermocouple temperature is 560° F.
- Reactor vessel level monitoring system indicates 100% in plenum and TWO (2) voids in the head.
- All RCPs are TRIPPED.
- Containment temperature is 195° F.
- Containment pressure is 11 psig.
- SIAS, CIAS, and MSIS have actuated.
- A cooldown is in progress using steam generators.

Which ONE (1) of the following identifies the action required in regard to HPSI flow?

- A. Continue maximum injection flow until subcooling is at least 20 degrees F.
- B. HPSI flow may be throttled to restore pressurizer level in control band.
- C. HPSI flow may be throttled to allow depressurization of the primary system.
- D. Continue maximum injection flow until the reactor vessel level monitoring system indicates no voids in the head.

Answer: A

References:

Question Source: Bank # _____
Modified Bank # _____
New X

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	E01/E02EK1.1	E01/E02EK1.1
Importance Rating	3.9	4.3
Tier #	1	1
Group #	2	2

Question 26

Given the following conditions:

- A LOCA has occurred on Unit 2.
- All ECCS equipment is functioning as designed.
- RCS pressure is 1000 psia and STABLE
- Highest Core Exit Thermocouple temperature is 455° F and TRENDING DOWN slowly
- Containment Pressure is 9 psig and rising.
- Containment Temperature is 168° F and TRENDING up slowly
- The crew is performing the actions of SO23-12-3, Loss of Coolant Accident
- The CO trips ALL RCPs.

Which ONE (1) of the following describes the basis for tripping all RCPs at this time?

- A. RCPs are required to be stopped when a loss of subcooling is indicated.
- B. RCPs must be stopped to prevent additional RCS inventory loss.
- C. RCPs must be stopped to prevent damage due to loss of cooling water.
- D. RCPs must be stopped because there is insufficient NPSH to prevent cavitation of the pumps.

Answer: C

Reference:

Question Source: Bank # _____
Modified Bank # _____
New X

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	000022AK3.06	000022AK3.06
Importance Rating	3.2	3.3
Tier #	1	1
Group #	2	2

Question 27

Given the following conditions:

- Unit 2 is shutdown
- Cooldown is in progress at 40° F/hr.
- RCS Temperature is 280° F
- RCS pressure is 300 psia,
- Train B CCW Surge Tank Level has risen from 40% to 55% in 20 minutes.
- Pressurizer Level is 60% and stable.
- VCT level dropped from 77% to 73% in 20 minutes.

Which ONE (1) of the following components is causing the CCW Surge Tank Level rise?

- A. Spent Fuel Pool heat exchanger tube leak.
- B. Shutdown Cooling heat exchanger tube leak
- C. CEDMCS Cooler leak.
- D. Steam Generator sample cooler leak

Answer: B

Reference:

Question Source: Bank # _____
Modified Bank # _____
New X

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	000025AA2.02	000025AA2.02
Importance Rating	3.4	3.8
Tier #	1	1
Group #	2	2

Question 28

WHICH ONE (1) of the following describes how the ATWS Diverse Scram System trips the reactor?

- A. Outputs from logic channels 1 and 3 or 2 and 4 are required to open both M-G set contactors to trip the reactor.
- B. Outputs from logic channels 1 and 2 or 3 and 4 are required to activate the undervoltage relay to trip the M-G set contactors to trip the reactor
- C. Outputs from logic channels 1 or 3 and 2 or 4 are required to open both M-G set contactors to trip the reactor.
- D. Outputs from logic channels 1 or 3 and 2 or 4 are required to activate the undervoltage relay to trip the M-G set contactors to trip the reactor.

Answer: C

Reference: SO23-520

Question Source: Bank # _____
Modified Bank # _____
New X

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	000029EA1.08	000029EA1.08
Importance Rating	4.5	4.5
Tier #	1	1
Group #	2	2

Question 29

Which ONE (1) of the following describes the effect on the Excore Nuclear Instrumentation (NI) Log Safety Channel response if the voltage applied to the fission chamber is too **HIGH**?

- A. The Excore NIs shift from a count rate circuit to a Campbell circuit at a lower indicated power level.
- B. The Excore NIs shift from a Campbell circuit to a count rate circuit at a higher actual nuclear power.
- C. The Excore NIs shift from a count rate circuit to a Campbell circuit at a lower actual nuclear power level.
- D. The Excore NIs shift from a Campbell circuit to a count rate circuit at a higher indicated nuclear power.

Answer: C

Reference: SO23-470

Question Source: Bank # _____
Modified Bank # _____
New X

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	000032AK1.01	000032AK1.01
Importance Rating	2.5	3.1
Tier #	1	1
Group #	2	2

Question 30

The following conditions exist:

- The reactor has tripped
- CEA's 23 and 24 are **NOT** inserted
- Boration is in progress at 41gpm
- Reactor power $1 \times 10^{-2}\%$ and dropping
- SUR is negative
- Standard Post Trip Actions (SPTA) are in progress

The Reactivity Control Safety Function acceptance criteria:

- A. will **NOT** be satisfied until the boration is increased to >44 gpm.
- B. is currently satisfied; boration should continue until adequate shutdown margin is established.
- C. is currently satisfied; boration may be terminated.
- D. will **NOT** be satisfied until at least one (1) of the stuck CEA's is inserted.

Answer: B

Reference:

Question Source: Bank # _____
Modified Bank # X
New _____

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

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	000033AA2.07	000033AA2.071
Importance Rating	3.9	4.2
Tier #	1	1
Group #	2	2

Question 31

Given the following conditions:

- Unit 2 has been operating at 97% power for the last 54 hours after completing maintenance on the MFW pump.
- Turbine load is 1176 MW and steady
- Pzr level is 48% and lowering slowly
- Pressurizer pressure is 2220 psia and lowering slowly
- Thot is 598°F
- Tcold is 538°F
- Tave is 563°F
- Steam Generator E088 parameters are:
 - Pressure: 805psig
 - FW Flow: 15,000 gpm
 - Stm Flow: 7.7 x 10⁶ lbm/hr
- Steam Generator E089 parameters are:
 - Pressure: 805psig
 - FW Flow: 15,360 gpm
 - Stm Flow: 7.5 x 10⁶ lbm/hr
- Feedwater Temperature is 445°F
- Containment pressure is 0 psig, temperature and humidity are stable.

Which ONE (1) of the following events is taking place?

- A. A steam generator tube rupture is in progress on SG E088
- B. The plant is responding to Xenon buildup following the up power.
- C. There is a steam leak on steam generator SG E088
- D. The plant is responding to Xenon burnout following the up power.

Answer: A

References:

Question Source: Bank # _____
 Modified Bank # _____
 New X

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	000038EA1.01	000038EA1.01
Importance Rating	3.5	3.9
Tier #	1	1
Group #	2	2

Question 32

Given the following conditions:

- The plant had been operating at full power conditions for three months.
- The CRS has completed the Standard Post Trip Actions and entered the Station Blackout procedure.
- MSIS has been initiated.
- Auxiliary Feedwater pump P-140 started
- AC power has **NOT** been restored.
- Steaming is being controlled by the ADVs
- E088 level is 22% NR and lowering
- E089 level is 21% NR and lowering
- Thot is 556° F and steady
- Tcold is 495° F and steady
- Core exit thermocouple temp is 585° F

Which ONE (1) of the following describes the condition of the RCS and the action required in accordance with SO23-12-8, Station Blackout?

- A. Single flow natural circulation has been established; minimize steaming on the ADV's to maintain RCS in hot standby. Use the AFW pump to feed S/G's to maximum allowable level but less than 80% NR until main feedwater can be restored.
- B. Single flow natural circulation has **NOT** been established, secure steaming on the ADV's to maintain S/G inventory until normal source of feedwater can be restored
- C. Single flow natural circulation has **NOT** been established. Raise at least one S/G level to maximum allowable level but less than 80% NR or feedwater flow rate of at least 200 GPM and increase the steaming rate on the ADV's
- D. Two-phase flow natural circulation has been established. Maintain the AFW system in automatic to control S/G levels, increase the steaming rate on the ADV's

Answer: C

References: SO23-12-8
SO23-14-8

Question Source: Bank # _____
Modified Bank # _____
New X

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	E04G2.4.14	E04G2.4.14
Importance Rating	3.0	3.9
Tier #	1	1
Group #	2	2

Question 34

Given the following conditions:

- Unit 3 was at 100% power.
- A complete loss of off-site power occurred 15 minutes ago.
- Buses have been re energized from the emergency diesel generators.
- There are no RCP's running
- Letdown flow has been restored
- PZR Level is 68% and slowly lowering
- PZR Pressure is 2320 psia and slowly lowering
- MSIV's are closed

In accordance with SO23-12-7, Loss of Forced Circulation/Loss of Off-Site Power, which ONE (1) of the following actions is required?

- A. Operate the AFW system to establish 200 gpm flow rate to each S/G for at least 5 minutes.
- B. Operate AFW system to establish at least one intact S/G level between 40% and 80% on the narrow range indication.
- C. Operate MFW system to establish at least one intact S/G level between 40% and 80% on the narrow range indication.
- D. Operate the MFW system and use main steam Safety valves to steam the S/G's to establish natural circulation and decay heat removal.

Answer: B

Reference SO 23-12-7 step 9

Question Source: Bank # _____
Modified Bank # _____
New X

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	000056A3.02	000056A3.02
Importance Rating	4.4	4.7
Tier #	1	1
Group #	3	3

Question 35

Given the following Plant Conditions:

- Unit 2 tripped 25 minutes ago
- A Steam Generator Tube Rupture has been diagnosed and RCS cooldown has been initiated
- Hot leg temperature is 529°F
- RCPs 2P001 and 2P004 have been secured
- S/G levels are 27% and slowly rising
- Pressurizer level is 20% and slowly rising
- Pressurizer pressure is 1480 psia

Which ONE (1) of the following actions is required at this time?

- A. Perform HPSI throttle stop
- B. Isolate the affected steam generator
- C. Override and feed both steam generators
- D. Secure 2 charging pumps

Answer: B

Ref.: SO23-12-4

KA: GAPE 037 2.1.7

Source: SONGS Bank

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis

X

Question 37

Given the following conditions:

- Unit 2 in Mode 3, 500° F and 2250 psia
- Three (3) Reactor Coolant Pumps are operating
- Auxiliary Feedwater pump P-141 is supplying feedwater to maintain Steam Generator levels
- Auxiliary Feedwater pump P-504 is out of service
- Reserve Auxiliary Transformer (Unit 2) trips on ground fault on class 1E 4.16KV bus 2A04
- DG "2G002" trips after successfully starting
- Auxiliary Feedwater pump P-140 trips when started
- All other systems are operating as designed

Which ONE (1) of the following identifies the success path for plant stabilization?

- A. SO23-12-6, "Loss of All Feedwater".
- B. SO23-12-7, "Loss of Forced Circulation / Loss of Offsite Power".
- C. SO23-12-9, "Functional Recovery Procedure".
- D. SO23-12-2, "Reactor Trip Recovery".

Answer: A

Ref.: SO23-12-6

KA: APE 054 AA1.01

Source: Bank

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis

 X

Question 38

Given the following conditions:

- Reactor startup is in progress.
- Critical data has just been recorded.
- A 20-second continuous rod withdrawal event now occurs due to the CEDMCS joystick being inadvertently stuck in RAISE.
- The CO is able to unstick the joystick and return it to neutral.

Assuming no other action is taken by the crew, which ONE (1) of the following parameters will stabilize at a value **GREATLY** different from what it was before the event?

- A. Pressurizer level
- B. Steam generator pressures
- C. Nuclear instrumentation power
- D. RCS Hot and Cold leg Temperatures

Answer: C

References:

Question Source: Bank # _____
Modified Bank # _____
New X

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

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	001A3.06	001A3.06
Importance Rating	3.9	3.9
Tier #	2	2
Group #	1	1

Question 39

Given the following conditions:

- Reactor is shutdown following a Station blackout.
- All RCPs are TRIPPED
- Electrical Power has been restored and preparations are under way to restore forced circulation in the Reactor.
- Tave is 530°F
- Tcold is 525°F
- Thot is 535°F
- Pressurizer level is 45%
- Pressurizer pressure is 2200psia
- Steam Generator level is:
 - E088 51% NR
 - E089 48% NR
- Steam Generator pressures are 1000 psia being controlled by ADVs.

In accordance with the appropriate operating procedures and instructions, which ONE (1) of the following actions must be taken before starting reactor coolant pumps?

- A. Reduce steam generator pressures to less than 920 psia.
- B. Energize Pressurizer heaters to raise RCS Pressure to greater than 2235 psia.
- C. Start a charging pump and raise pressurizer level to greater than 53%.
- D. Place both lift oil pumps in normal until at least one Reactor Coolant Pump is running in each loop and RCS temperatures have stabilized.

Answer: A

Student Reference Material required:

Attachments 4 and 5 of OPERATING INSTRUCTION SO23-3-1.7
Steam Tables

Reference: OPERATING INSTRUCTION SO23-3-1.7

Question Source: Bank # _____
Modified Bank # _____
New X

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

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	003K6.14	003K6.14
Importance Rating	2.6	2.9
Tier #	2	2
Group #	1	1

Question 40

Given the following conditions:

- Units 2 & 3 are operating in Mode 1.
- A significant leak is occurring from the instrument air system.
- Location and isolation of leaks has been unsuccessful.
- Air and nitrogen header pressure is rapidly lowering with no sign of recovery.

Which ONE (1) of the following describes the when reactor and turbine trip is required?

- A. When an ESFAS signal is received
- B. When header pressures are less than 40 psig
- C. When header pressures are less than 60 psig
- D. Plant shutdown is not required

Answer: C

Ref.: SO23-13-5

KA: APE 065 AA2.05

Source: NEW

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis

 X

Question 41

Given the following conditions:

- Unit 3 is at 100% power
- Pressurizer level is at 43% and lowering
- Tcold is 539°F
- Power is lost to 480V Bus 3B04
- P-191 is aligned to Train B

Which ONE (1) of the following describes the operation of the CVCS for these conditions?

- A. Charging pumps P-190, P-191, and P-192 running with letdown flow at minimum.
- B. Charging pumps P-190 and P-191 running with letdown flow at maximum.
- C. Charging pumps P-191 and P-192 running with letdown flow at minimum.
- D. Charging pumps P-191 and P-192 running with letdown flow at maximum.

Answer: C

Question Source: Bank # _____
 Modified Bank # _____
 New X

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

Examination Outline Cross-reference:

	<u>RO</u>	<u>SRO</u>
Level		
K/A #	004K2.03	004K2.03
Importance Rating	3.3	3.5
Tier #	2	2
Group #	1	1

Question 42

Given the following conditions:

- Unit 2 is operating at 100% power
- Volume Control Tank (VCT) Level Transmitter 2LT-227 fails **LOW**.

Which ONE (1) of the following describes the effect of this failure on the Chemical and Volume Control System (CVCS)?

- A. A continuous automatic makeup demand signal would be present; high and low level alarms are disabled.
- B. Automatic diversion of the VCT inlet valve on high level is disabled; high and low level alarms are disabled.
- C. Automatic diversion of the VCT inlet valve on high level is disabled; Charging pump suction automatically aligns to the RWST.
- D. A continuous automatic makeup demand signal would be present; Charging pump suction automatically aligns to the Boric Acid Makeup Tanks.

Answer: C

Reference:

Question Source: Bank # _____
Modified Bank # _____
New X

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

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	004K1.04	004K1.04
Importance Rating	3.4	3.8
Tier #	2	2
Group #	1	1

Question 43

Given the following conditions:

- E088 S/G Pressure is 725 psia
- E089 S/G pressure is 1000 psia
- Pressurizer pressure is 1600 psia
- Pressurizer Level is 42%
- Containment pressure is 12 psig
- Containment Hi Range radiation monitor reads 13 R/hr and is rising

Which ONE (1) of the following ESFAS actuations has NOT automatically initiated?

- A. CRIS
- B. SIAS
- C. MSIS
- D. CSAS

Answer: D

Question Source: Bank # X
Modified Bank #
New

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

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	013A1.03	013A1.03
Importance Rating	2.6	2.6
Tier #	2	2
Group #	1	1

Question 44

Given the following conditions:

- An EFAS actuation has occurred.
- S/G-E089 Level = 15% NR
- S/G-E089 Pressure = 580 psia
- S/G-E088 Level = 20% NR
- S/G-E088 Pressure = 710 psia

Which ONE (1) of the following describes the automatic operation of the EFAS System?

- A. AFW is feeding BOTH S/Gs.
- B. AFW is isolated to BOTH S/Gs.
- C. AFW is feeding S/G-E089 ONLY.
- D. AFW is feeding S/G-E088 ONLY.

Answer: D

Question Source:

Bank #	<u> X </u>
Modified Bank #	<u> </u>
New	<u> </u>

Question Cognitive Level:

Memory or Fundamental Knowledge	<u> X </u>
Comprehension or Analysis	<u> </u>

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	013A3.02	013A3.02
Importance Rating	4.1	4.2
Tier #	2	2
Group #	1	1

Question 45

A Reactor Coolant Pump is started in an idle loop.

Which ONE (1) of the following describes the proper response to an unexpected rapid rise in excore power indication?

- A. Stop the RCP and continue monitoring the NI's for approximately one minute following the transient.
- B. Immediately stop the RCP and emergency borate the RCS per SO23-13-11.
- C. Ensure all CEAs are fully inserted into the core and then wait five (5) seconds and trip the RCP.
- D. Immediately stop the RCP and implement Loss of Boron Concentration Control/Inadvertent Dilution procedure.

Answer: B

KA: 003 K6.14

Source: Bank

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis

 X

Question 46

The following plant conditions exist:

- Large Break Loss of Coolant Accident has occurred.
- All Reactor Coolant Pumps are STOPPED.
- NO Safety Injection Flow is available.
- Reactor Coolant in the core region is at saturated conditions.

Which ONE (1) of the following describes the response of the Excore Nuclear Instrumentation System Startup Channels as the coolant in the core region is initially boiled off and level in the core drops?

- A. Count rate lowers because there are fewer neutrons generated.
- B. Count rate rises because there are more neutrons generated
- C. Count rate rises because the level in the down comer drops.
- D. Count rate lowers because the level in the down comer rises.

Answer: C

References:

Question Source: Bank # _____
Modified Bank # X
New _____

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

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	015G2.2.2	015G2.2.2
Importance Rating	4.0	3.5
Tier #	2	2
Group #	1	1

Question 47

Given the following conditions:

- Unit 2 has tripped from full power.
- The following S/G level conditions exist IMMEDIATELY following the reactor trip:

Level Channel	A	B	C	D
E089 S/G	33%	12%	18%	10%
E088 S/G	10%	4%	65%	0%

WHICH ONE (1) of the following describes the EFAS response and the reason for that response?

- A. An EFAS 2 signal would be generated, but NOT an EFAS 1 because EFAS logic uses the auctioneered low level.
- B. EFAS 1 and EFAS 2 signals would NOT be generated because the EFAS circuitry for both S/Gs senses the failed channels, thus sensing both S/Gs as faulted.
- C. An EFAS 2 signal would be generated, but not an EFAS 1 because the setpoint is not exceeded on the E089 S/G.
- D. EFAS 1 and EFAS 2 signals would be generated because both S/Gs have met the logic requirement on low level.

Answer: D

Ref.: SO23-3-2.22

KA: 013 A3.02

Source: INPO Bank

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis

X

Question 48

Given the following conditions:

- Unit 2 is at 100% power.
- ONE (1) Core Exit Thermocouple failed to ZERO (0) output.

Which ONE (1) of the following describes the effect of this failure on the Qualified Safety Parameter Display System (QSPDS) Representative CET (REPCET) reading?

- A. Indicates lower; 0 temp indication is averaged into calculation.
- B. Does not change; input not used in calculation.
- C. Indicates lower; flagged as invalid.
- D. Indication will flash indicating failure of input; Operator can manually delete failed input to restore display.

Answer: B

Reference:

Question Source: Bank # _____
Modified Bank # X
New _____

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

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	017K3.01	017K3.01
Importance Rating	3.5	3.7
Tier #	2	2
Group #	1	1

Question 49

Given the following conditions:

- Unit 3 is operating at 100% full power.
- The following trips and pre-trips are received from the Channel “D” Reactor Protection System:
 - High Linear Power
 - High Local Power Density
 - Low DNBR
- Assume no other failures are present.

Which ONE (1) of the following component failures is indicated on RPS Channel ‘D’?

- A. Upper detector of excore safety channel fails LOW.
- B. CPC RCS pressure input failed HIGH
- C. Upper detector of excore safety channel fails HIGH.
- D. CPC RCS pressure input failed LOW

Answer: C

Ref.: SO23-470

KA: 015 A3.03

Source: Modified INPO Bank

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis

 X

Question 51

Given the following plant conditions:

- Unit 2 is at 100% power when an inadvertent SIAS occurs
- Reserve Auxiliary Transformer 2XR1 relays on sudden pressure
- Diesel Generator 2G002 started and is loaded on bus 2A04
- Diesel Generator 2G003 started and tripped 15 seconds later

Which ONE (1) of the following is performing the containment cooling function?

- A. Containment Normal and Emergency Coolers.
- B. Only Train "A" Containment Emergency Coolers.
- C. Containment Normal and Train "A" Emergency Coolers.
- D. Both Train "A" and "B" Containment Emergency Coolers.

Answer: B

Ref.: SO23-1-4.1; SO23-3-2.22 KA: 022 A3.01

Source: Bank

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis

 X

Question 52

Given the following conditions:

- Unit 3 is at 100% power
- Pzr Level is 53%
- Pzr Pressure is 2250 psia
- Steam generator levels are 65% NR
- A fault causes loss of power to FV-1111 (feed regulating valve for S/G E089)
- Feedwater Control System #1 receives a spurious High Level Override in Steam Generator E089

Which ONE (1) of the following correctly identifies the effects on the plant?

- A. Main Feed Pump Speed will not be affected, Main Feed Reg Valve will go fully closed, and Main Feed Bypass Valve will not be affected.
- B. Main Feed Pump Speed will go to 3600 rpm, Main Feed Reg Valve will remain in its current position, and Main Feed Bypass Valve will go fully closed.
- C. Main Feed Pump Speed will go to 3600 rpm, Main Feed Reg Valve will go fully closed, and Main Feed Bypass Valve will close to 50%.
- D. Main Feed Pump Speed will not be affected, Main Feed Reg Valve will remain in its current position and Main Feed Bypass Valve will go fully closed.

Answer: D

References: SO23-250

Question Source: Bank # _____
Modified Bank # X
New _____

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

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	059A2.12	059A2.12
Importance Rating	3.1	3.4
Tier #	2	2
Group #	1	1

Question 53

The Containment Emergency Cooling system and Containment Spray Systems provide redundant capabilities for all of the following purposes **EXCEPT**:

- A. Remove heat energy from containment
- B. Reduce pressure in containment
- C. Iodine Removal
- D. Assist in maintaining containment integrity during a LOCA

Answer: C

Ref.: SO23-740

KA: 056 A2.04

Source: INPO Bank (Modified)

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis

 X

Question 54

Given the following conditions:

- Unit 2 tripped from 100% power 20 minutes ago.
- P-140 tripped on overspeed and **CANNOT** be reset.
- Both S/G levels lowered to 17% NR and recovered to 27%NR.
- The ACO has depressed the override pushbuttons for the AFW valves and is feeding each S/G at 450 gpm.

Subsequently:

- 4KV bus 2A04 is de-energized due to an overcurrent condition
- S/G E088 pressure decreases to 700psia with level at 25% NR
- S/G E089 pressure decreases to 850psia with level at 27% NR

Which ONE (1) of the following describes the status of the AFW system? (Assume no other operator actions have occurred)

- A. Both S/G's E088 and E089 are being fed
- B. S/G E088 is being fed and S/G E089 is not being fed
- C. Both S/G's E088 and E089 are isolated
- D. S/G E089 is being fed and S/G E088 is not being fed

Answer: B

Reference: SO23-780 Auxiliary Feedwater System

Question Source: Bank # _____
Modified Bank # _____
New X

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

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	061K2.02	061K2.02
Importance Rating	3.7	3.7
Tier #	2	2
Group #	1	1

Question 55.

Given the following conditions:

- Current date and Time are December 10 at 1300 hours.
- Electrical maintenance notifies the control room that SR3.8.4.2, 92 Day Class Battery Surveillance Test, was **NOT** performed on Channel C within the required 1.25 interval.
- The Shift Technical Advisor determines the interval expired at 0700 today.
- Electricians inform the Shift Supervisor the test will take an additional 12 hours to complete.
- All other surveillance tests are current.

Which ONE (1) of the following identifies the Technical Specification required time to declare Channel C INOPERABLE and the action(s) for this condition?

- A. Complete SR3.8.4.2 within 24 hours or declare inoperability at that time and commence plant shutdown.
- B. Immediately declare inoperability and commence plant shutdown.
- C. Immediately declare inoperability and be in Mode 3 within 24 hours.
- D. Complete SR3.8.4.2 within 2 hours or declare inoperability at that time and commence plant shutdown.

Answer: A

Reference: Tech Spec 3.8.4

Source: INPO Bank (modified)

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis

 X

Question 59

Given the following conditions:

- A High Fuel Handling Building (FHB) airborne radiation alarm has been received.
- An Operator dispatched to the FHB to check the status reports that the Spent Fuel Pool cooling line siphon breaker is uncovered and water is **NOT** coming out of the anti siphon hole.

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

- A. Start a second Spent Fuel Pool pump
- B. Lower the Spent Fuel Pool level
- C. Stop all Spent Fuel Pool pumps
- D. Evacuate the Fuel Handling Building

Answer: D

Ref.: SO23-15-60.a1 KA: 072 K1.01

Source: NEW

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

Question 60

Given the following conditions:

- A LOCA has occurred on Unit 2.
- RCS pressure is 600 psia and dropping slowly.
- Pzr level is 12% and lowering slowly.
- S/G levels are 21% NR slowly rising.
- All ECCS equipment is operating as required.

Which ONE (1) of the following describes the ECCS flow indication?

- A. Constant HPSI flow with no LPSI flow.
- B. Rising HPSI flow with no LPSI flow.
- C. Constant HPSI and LPSI flow.
- D. Rising HPSI and rising LPSI flow.

Answer: B

References:

Question Source: Bank # _____
Modified Bank # X
New _____

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

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	002K1.08	002K1.08
Importance Rating	4.5	4.6
Tier #	2	2
Group #	2	2

Question 61

Given the following conditions:

- Reactor has tripped from 100% power.
- Reactor coolant system pressure is 1650 psia and dropping.
- Pressurizer level is 10% and dropping.
- Steam generator levels have turned at 36% wide range and are recovering with auxiliary feedwater.
- Steam Generator pressures are 730 psia and rising.
- Tc is 545°F and steady.
- Containment pressure is 7.4 psig and rising.
- Safety Injection and Containment Isolation actuations have occurred.

Which ONE (1) of the following describes the additional Engineered Safety Features Actuation(s) present assuming all systems functioned as designed?

- A. Auxiliary Feedwater Actuation ONLY
- B. Main Steam Isolation and Auxiliary Feedwater Actuation
- C. Auxiliary Feedwater Actuation and Containment Spray Actuation
- D. Containment Spray Actuation and Main Steam Isolation

Answer: B

Ref.: SO23-12-1

KA: 013 K1.01

Source: INPO Bank (Modified)

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis

 X

Question 62

Given the following conditions:

- Unit 2 is in Mode 3
- LV-0110A, letdown flow control valve in service
- PV-0201A, letdown back pressure control valve in service
- Pressurizer Level Control System master controller in "MANUAL" with letdown flow at 38 gpm.
- Charging pump P-190 is in service
- Pulsation dampener adjustment in progress on pumps P-191 and P-192.
- Backpressure controller PIC-0201A output **FAILS TO ZERO** while in "AUTO".
- Pressurizer level is observed to slowly **DROP**.

Which ONE (1) of the following identifies the reason for the pressurizer level change?

- A. A small void in the reactor vessel upper head is now being compressed.
- B. Zero output from PIC-0201A in "AUTO" corresponds to 30gpm flow.
- C. A small break has developed in the pressurizer steam space.
- D. A pressure relief valve is lifting to the miscellaneous waste tank, T063.

Answer: D

Reference:

Question Source: Bank # X
Modified Bank #
New

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	010K4.03	010K4.03
Importance Rating	3.8	4.1
Tier #	2	2
Group #	2	2

Question 63

Given the following conditions:

- Unit 2 is operating at 100% power.
- Control room is notified that the lift setpoint for one of the pressurizer code safety valves is out of tolerance high due to an error in test calculation.
- The other pressurizer code safety valve is OPERABLE.

Which ONE (1) of the following states the required Technical Specification action for this condition?

- A. Restore within 1 hour or be in MODE 2 in the next 12 hours
- B. Restore within 1 hour or be in MODE 3 in the next 12 hours
- C. Restore within 15 minutes or be in MODE 2 in the next 6 hours
- D. Restore within 15 minutes or be in MODE 3 in the next 6 hours

Answer: D

Ref: Tech. Specs.

KA: 002 K6.12

Source: INPO Bank (Modified)

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis

 X

Question 64

Given the following conditions:

- Unit 2 is operating at 100% power.
- The shaft on RCP P-004 shears
- Due to a fault in the Reactor Protection System circuitry, the Turbine Trip coils fail to energize

Assuming no action by the crew, which ONE (1) of the following describes the effect of this malfunction?

- A. An uncontrolled cool down of the RCS, resulting in less shutdown margin.
- B. A High Linear power trip limit to be exceeded which will trip the reactor.
- C. High local power density limits to be exceeded resulting in fuel damage.
- D. An increase in RCS pressure, possibly resulting in the Pressurizer safety valves lifting.

Answer: A

Question Source: Bank # _____
Modified Bank # X
New _____

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

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	012K3.02	012K3.02
Importance Rating	3.2	3.3
Tier #	2	2
Group #	2	2

Question 65

Which ONE (1) of the following is required by Technical Specifications before a NEW fuel assembly can be moved into an empty (defueled) Reactor Vessel?

- A. Both trains of shutdown cooling operating.
- B. One source range neutron flux monitor operable and operating.
- C. Source Range Neutron Flux Audible Indication in containment is operable.
- D. Refueling cavity level of 23' 2".

Answer: C

Reference: Tech. Spec 3.9.2 KA: G2.2.27

Source: INPO Bank

Question Cognitive Level:	Memory or Fundamental Knowledge	<u> X </u>
	Comprehension or Analysis	<u> — </u>

Question 66

Given the following conditions:

- Unit 3 is at 100% power
- The S/G level selection for both FWCS are in the "BOTH" position
- Control channel level transmitter LT-1111 for FWCS #1 fails to 100%

Assuming no action by the crew, which ONE (1) of the following describes the effect, if any, on the plant?

- A. A Reactor Trip on high E089 S/G level.
- B. A Reactor Trip on low E089 S/G level.
- C. No impact, since selected to the "BOTH" position.
- D. Level initially decreases in E089 S/G, but stabilizes above the Reactor Trip Setpoint.

Answer: B

Reference: SO23-250

Question Source: Bank # _____
Modified Bank # X
New _____

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

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	016A2.03	016A2.03
Importance Rating	3.0	3.3
Tier #	2	2
Group #	2	2

Question 67

An **INCREASE** in which ONE (1) of the following RCS parameters will result in a **REDUCED** margin to a low DNBR reactor trip?

- A. Pressure.
- B. Subcooling margin
- C. Temperature
- D. Flow

Answer: C KA 012 K5.01

Source: New

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis

X

Question 68

Given the following conditions:

- It is currently 0830 8 December 2003
- Unit 2 is at 100% power
- Preparations for commencing a Mini Purge of containment are in progress.
- An entry into containment is planned for 10 December 2003 at 1030.
- When the Wide Range Gas Monitor, (WRGM) 2RE-7865 is aligned to the Containment Purge Stack, annunciator 61A08, "Airborne Radiation Hi" is received due to a fault in the circuitry.

In accordance with SO 23-3-2.34, Containment Access Control, Inspections, and Airlock Operation, which ONE (1) of the following states the **LATEST** time that the purge can commence without impacting the containment entry?

- A. 2230 9 December 2003.
- B. 1030 8 December 2003
- C. 0030 10 December 2003
- D. 1030 9 December 2003.

Answer: D

References: SO 23-3-2.34 Containment access control, Inspections and airlocks operation

Question Source: Bank # _____
Modified Bank # _____
New X

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	029K3.02	029K3.02
Importance Rating	2.9	3.5
Tier #	2	2
Group #	2	2

Question 69

Given the following conditions:

- Unit 2 is in MODE 6 with spent fuel pool (SFP) cooling in operation.
- Annunciator 61C03, SPENT FUEL POOL LO LEVEL, goes into alarm.
- Spent Fuel Pool temperature is stable.

Which ONE (1) of the following describes the response of the Spent Fuel Pool Cooling System?

- A. Spent fuel pool low level alarm will alarm in the Control room and locally and the spent fuel pool makeup pump will start.
- B. Spent fuel pool low level alarm will alarm in the Control room, spent fuel purification pump will stop.
- C. Spent fuel pool low level alarm will alarm in the Control room and an alarm will sound locally.
- D. Spent fuel pool low level alarm will alarm in the Control room and the spent fuel cooling pumps will stop.

Answer: C

References:

Question Source: Bank # _____
Modified Bank # X
New _____

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

Examination Outline Cross-reference:

	<u>RO</u>	<u>SRO</u>
Level		
K/A #	033A1.02	033A1.02
Importance Rating	2.8	3.3
Tier #	2	2
Group #	2	2

Question 70

Given the following conditions:

- Unit 3 Reactor Trip has occurred.
- S/G E089 Level indicates 28% NR.
- S/G E088 Level indicates 36% NR.
- S/G E089 Pressure is 890 psia.
- S/G E088 Pressure is 1100 psia.
- Annunciator "SG 2 > SG 1 PRESS CH TRIP" is received.

If both S/G Levels DECREASED to < 21% NR, which ONE (1) of the following describes the operation of the Auxiliary Feedwater (AFW) System?

AFW would automatically feed...

- A. **ONLY** S/G E089.
- B. **ONLY** S/G E088.
- C. **BOTH** S/Gs because of low S/G levels.
- D. **ONLY** S/G E089 **UNTIL** S/G E088 pressure equals 950 psia, then **BOTH**.

Answer: C

Question Source: Bank # _____
Modified Bank # X
New _____

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

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	035K1.01	035K1.01
Importance Rating	4.2	4.5
Tier #	2	2
Group #	2	2

Question 72

Given the following conditions:

- A loss of offsite power and a reactor trip have occurred.
- SO23-12-7, "Loss of Forced Circulation/Loss of Offsite Power," has been implemented.
- The CO states that he is not sure if natural circulation exists.
- RCS Pressure is 1150 psia

In accordance with SO23-12-7 step 15, which ONE (1) of the following conditions would indicate a problem with natural circulation flow?

- A. T-hot is 527° F. and T-cold is 489° F.
- B. T-hot is 527° F and stable, T-cold is 489° F and stable.
- C. T-hot is 527° F and REP CET is 547° F.
- D. T-hot is 527° F and Pressurizer temperature indicates 561° F.

Answer: C

Ref.: SO23-12-7

KA: 035 K4.01

Source: INPO Bank

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis

 X

Question 73

Given the following conditions:

- A Station Blackout has occurred.
- The diesel generators have both failed to start.
- SO23-12-1 Standard post trip Actions steps 1 through 10 have been completed
- Diagnosis of Station Blackout has been verified
- Actions have been taken to notify the Shift Manager of the situation
- The Emergency plan has been initiated

In accordance with SO 23-12-8, Station Blackout, which ONE (1) of the following describes the **FIRST** action taken by the crew?

- A. Initiate SO23-12-11, Attachment 8, Restoration of Offsite Power.
- B. Restore and maintain at least one (1) S/G level between 30% and 80% NR
- C. Bleed steam as necessary to maintain S/G pressure 1100 psia using ADV's
- D. Attempt to energize 1E 4KV bus A04 or A06 from the other unit.

Answer: A

References: SO23-12-8, Station Blackout Step 4

Question Source: Bank # _____
Modified Bank # _____
New X

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

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	062G2.4.16	062G2.4.16
Importance Rating	3.0	4.0
Tier #	2	2
Group #	2	2

Question 74

Given the following conditions:

- Unit 3 is operating at 100% power.
- Pzr Level is 53%
- Maintenance is in progress in the B001 Battery room.
- Salt Water Cooling (SWC) pumps 3P112 and 3P113 are running
- 125 VDC bus D1 is de energized due to a fault.

Which ONE (1) of the following describes the effect on the Unit 3 SWC system?

- A. SWC pump 3P112 breaker will trip on loss of control power and the standby SWC pump P307 will start.
- B. SWC pump 3P112 breaker will remain shut, but there will be no remote operation or automatic tripping available.
- C. SWC pump 3P113 breaker will trip on loss of control power and the standby SWC pump P114 will start.
- D. SWC pump 3P113 breaker will remain shut, but there will be no remote operation or automatic tripping available.

Answer: B

Reference: SO23-6-15 Attachment 13
SO23-140 125 and 250 VDC Systems

Question Source: Bank # _____
Modified Bank # X
New _____

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	063K2.01	063K2.01
Importance Rating	2.9	3.1
Tier #	2	2
Group #	2	2

Question 75

Given the following conditions:

- An Emergency Diesel Generator surveillance is in progress
- 2G003 is fully loaded on bus 2A06.
- A low voltage alarm is received:
 - Switchyard voltage is 218 kV and steady.

Operator response per SO23-13-4 Operation During Major System Disturbances requires unloading the emergency diesel generator and opening the output breaker.

Which ONE (1) of the following describes the reason for this action in SO23-13-4?

- A. To enable the Degraded Voltage protection circuit
- B. To restore Unit 2 to within the Limiting Condition for Operation (LCO)
- C. To raise bus voltage which prevents damaging permanently connected bus loads
- D. To prevent EDG trip on generator differential voltage

Answer: A

Ref.: SO23-750, SO23-13-4

KA: 064 A1.03

Source: Songs Requal. bank b (modified)

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis

 X

Question 77

Which ONE (1) of the following describes the power supplies for the Nuclear Service Water Pumps P-138 and P-139?

- A. 480V Bus 3B07 and 480V 3B14
- B. 480V Bus 2A06 and 480V 3A06
- C. 480V Bus 2A04 and 480V 3A04
- D. 480V Bus 2B07 and 480V 2B14

Answer: D

Reference: SO23-450

Question Source: Bank # X
Modified Bank #
New

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

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	075K2.03	075K2.03
Importance Rating	2.6	2.7
Tier #	2	2
Group #	2	2

Question 78

The purpose/function of the Respiratory/Service Air System (RSAS) includes all of the following **EXCEPT**:

- A. To provide compressed air to service outlets throughout the plant and Make-up Demineralizer area for operation of pneumatic tools and other service requirements.
- B. To inflate and maintain the spent fuel pool seals.
- C. To provide compressed air at a normal pressure of 115 psig and meet OSHA Class D breathing air requirements.
- D. To provide a backup source of compressed air for the safe shutdown of the plant in the event of a failure of the Instrument air system.

Answer: D

Reference: SO23-570

Question Source:	Bank #	_____
	Modified Bank #	_____
	New	<u> X </u>

Question Cognitive Level:	Memory or Fundamental Knowledge	<u> X </u>
	Comprehension or Analysis	_____

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	079G2.1.27	079G2.1.27
Importance Rating	2.8	2.9
Tier #	2	2
Group #	2	2

Question 79

Given the following conditions:

- Unit 2 is at 100% power
- Unit 3 is at 60% power, increasing to 100%.
- There is a leak in the wet fire protection main system pressure has dropped to 106 psig and is holding steady.

Which ONE (1) of the following statements describes the combination of fire pumps that are running to maintain Fire Protection Header Pressure?

- A. One jockey pump and fire pump P-220
- B. Two jockey pumps and fire pump P-221
- C. Two jockey pumps and fire pump P-222
- D. One jockey pump, fire pump P-221 and P-222

Answer: B

Reference: SO23-590 Fire Protection System

Question Source: Bank # _____
Modified Bank # _____
New X

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

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	086A2.02	086A2.02
Importance Rating	3.0	3.3
Tier #	2	2
Group #	2	2

Question 80

Given the following conditions:

- Unit 2 is in MODE 5
- LPSI Train A is providing Shutdown Cooling using HX ME-003
- Shutdown Cooling Heat Exchanger inlet temperature indicates 152° F on TR-8148
- A 10° F/hr cooldown is in progress.
- The CRS directs that RCS temperature be stabilized.

Which ONE (1) of the following describes the preferred action(s) to stop the cooldown?

- A. Throttle CLOSED the SDC HX ME-003 outlet to RCS Loops IA/1B (HV-9322)
- B. Adjust the SDC HX ME-003 outlet valve (HV-8150)
- C. Fully OPEN the bypass valve (HV-8160) to bypass SDC HX ME-003
- D. Adjust CCW temperature to SDC HX ME-003 using CCW-HCV-6547

Answer: B

References: SO23-3-2.6
SO23-5-1.5

Question Source: Bank # X
Modified Bank #
New

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

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	005A1.01	005A1.01
Importance Rating	3.5	3.6
Tier #	2	2
Group #	3	3

Question 81

Given the following conditions:

- Component Cooling Water (CCW) Pumps P-024 and P-026 are operating
- CCW Pump P-025 is aligned to Train A and is in STANDBY
- Grid instabilities result in a loss of off site power
- The reactor has tripped
- Pzr level is 15% and rising
- Pzr Pressure is 1580 psia and rising slowly
- The Emergency Diesels have started normally.

Assuming NO action by the crew, which ONE (1) of the following correctly describes the status of the CCW pumps?

- A. All CCW pumps are running
- B. CCW Pumps P-024 and P-026 are running, P-025 is off
- C. CCW Pumps P-024 and P-025 are running, P-026 is off
- D. CCW Pumps P-025 and P-026 are running, P-024 is off

Answer: D

Question Source: Bank # _____
Modified Bank # X
New _____

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	008K4.09	008K4.09
Importance Rating	2.7	2.9
Tier #	2	2
Group #	3	3

Question 83

Given the following conditions:

- Core reload is in progress.
- Refueling Machine over core with fuel assembly grappled.

Which ONE (1) of the following states the safe location for placement of the assembly suspended on the Refueling Machine grapple IF the Spent Fuel Handling Machine loses power?

- A. In designated core location.
- B. In most easily accessible core location.
- C. Up-ender in horizontal position.
- D. Lowered into deep area of refueling pool.

Answer: A

Question Source: Bank # X
Modified Bank #
New

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

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	034A2.03	034A2.03
Importance Rating	3.3	4.0
Tier #	2	2
Group #	3	3

Question 84

Given the following conditions:

- Unit 2 is at 100% power.
- PZR pressure is 2250 psia
- Tcold is 539° F
- The selected steam pressure instrument input into SBCS fails HIGH.
- The reactor subsequently tripped.

Assuming NO action by the crew, which ONE (1) of the following is the response of the Atmospheric Dump Valves and Steam Bypass Control Valves over the next ten (10) minutes?

- A. Atmospheric dump valves OPEN.
Steam Bypass Control valves OPEN.
- A. Atmospheric dump valves OPEN.
Steam Bypass Control valves remain CLOSED.
- B. Atmospheric dump valves remain CLOSED
Steam Bypass Control valves remain CLOSED.
- C. Atmospheric dump valves remain CLOSED.
Steam Bypass Control valves OPEN.

Answer: D

References: SO23-175

Question Source: Bank # _____
Modified Bank # X
New _____

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	041K6.03	041K6.03
Importance Rating	2.7	2.9
Tier #	2	2
Group #	3	3

Question 85

Given the following conditions:

- Unit 3 is at 100% power.
- All control systems in AUTO.
- The Main Turbine Generator trips on a voltage regulator card failure.

Assuming no operator action, which ONE (1) of the following describes the secondary plant response immediately following the occurrence?

- A. Main Steam safeties lift and modulate. FWCS 1 and 2 CLOSE the feedwater isolation valves.
- B. SBCS valves modulate open, FWCS 1 and 2 control feedwater isolation valves in Reactor Trip Override. (RTO)
- C. Main Steam Safety valves lift, FWCS 1 and 2 feed the S/G's to high level override setpoint.
- D. SBCS valves modulate open, FWCS I and 2 close the feedwater regulating valves.

Answer: D

References:

Question Source: Bank # _____
Modified Bank # X
New _____

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	045K3.01	045K3.01
Importance Rating	2.9	3.2
Tier #	2	2
Group #	3	3

Question 86

Which one (1) of the following describes the alignment of cooling water to an Instrument Air Compressor when it is secured and the reason for this alignment?

- A. TPCW flow is throttled at 60 gpm to prevent overheating of the compressor cylinders.
- B. TPCW flow is automatically isolated to the compressor by a solenoid valve to prevent overcooling of the compressor cylinders
- C. TPCW flow is throttled to provide an inlet pressure of 60 psig to prevent overheating of the compressor cylinders
- D. TPCW flow remains unchanged so that compressor is aligned for automatic restart.

Answer: B

References:

Question Source: Bank # X
Modified Bank #
New

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

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	078K1.04	078K1.04
Importance Rating	2.6	2.9
Tier #	2	2
Group #	3	3

Question 87

Given the following conditions:

- Reactor has tripped from 100% power.
- Reactor coolant system pressure is 1650 psia and dropping.
- Pressurizer level is 10% and dropping.
- Steam generator levels have turned at 21% NR and are recovering.
- Steam generator pressures are 980 psia and rising.
- Containment pressure is 7.4 psig and rising.
- Safety Injection and Emergency Feedwater actuations have occurred.

Assuming all systems functioned as designed, which ONE (1) of the following states the additional Engineered Safety Features Actuation(s) present?

- A. Containment Spray Actuation.
- B. Containment Isolation actuation
- C. Main Steam Isolation.
- D. Containment Isolation Actuation and Main Steam Isolation.

Answer: B

References:

Question Source: Bank # _____
Modified Bank # X
New _____

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	103 A3.01	103 A3.01
Importance Rating	3.9	4.2
Tier #	2	2
Group #	3	3

Question 89

Toxic gas ingress to the Control Room requires a control room evacuation and plant shutdown from outside the control room

Which ONE (1) of the following identifies the **ORDER** in which the "IMMEDIATE ACTIONS" for AOI SO23-13-2, "Shutdown From Outside the Control Room" are to be completed?

- A. 1) Manually trip the reactor
2) Manually initiate MSIS.
3) Select manual and stop all Charging Pumps.
- B. 1) Manually trip the reactor
2) Manually initiate MSIS.
3) Select manual and stop backup Charging Pumps ONLY.
- C. 1) Select manual and stop all Charging Pumps.
2) Manually trip the reactor
3) Manually initiate MSIS.
- D. 1) Manually trip the reactor
2) Stop all RCPs.
3) Manually initiate MSIS.

Answer: A

Reference: AOI SO23-13-2, "Shutdown From Outside the Control Room"

Question Source: Bank # _____
Modified Bank # X
New _____

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

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	2.1.12	2.1.12
Importance Rating	2.9	4.0
Tier #	3	3
Group #	1	1

Question 90

Given the following conditions:

- 15 minutes post trip from full power operation.
- The crew has completed Standard Post Trip Actions
- Chemistry sample indicates elevated activity in S/G E089.
- RCS pressure is 1650 psia and slowly lowering.
- RCS temperature is 545° F and stable.
- Pzr level 10% and lowering.

In accordance with SO23-12-4, SGTR, which ONE (1) of the following actions is required next?

- A. Isolate S/G E089.
- B. Initiate cooldown to That less than 530°F.
- C. Depressurize RCS by spraying down to backflow from S/G to the RCS.
- D. Start the third charging pump to refill the Pzr.

Answer: B.

References:

Question Source: Bank # _____
Modified Bank # X
New _____

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	2.1.23	2.1.23
Importance Rating	3.9	4.0
Tier #	3	3
Group #	1	1

Question 91

You are preparing a Procedure Modification Permit which could potentially change the intent of the Operating Instruction.

Which ONE (1) of the following is required?

- A. A 50.59 Safety Evaluation must be performed prior to implementation
- B. A 50.59 Safety Evaluation must be performed within 14 days of completion
- C. The Manager Operations approval is required prior to implementation
- D. The Manager Operations approval is required within 14 days of completion

Answer: C

Ref.: SO123-0-20

KA: GKA 2.2.6

Source: SONGS Bank

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis

X

Question 93

Technical Specification 3.4.7 restricts starting a RCP when Tcold is less than 256° F and steam generator secondary water temperature is more than 100° F above each RCS Tcold.

Which ONE (1) of the following is the reason for this limit?

- A. Minimize RCS pressure transient caused by additional heat transfer from the core
- B. Prevent core lift from excessive differential pressure across the core.
- C. Minimize RCS pressure transient caused by reverse heat transfer from a hot S/G.
- D. Prevent excessive RCP starting current due to increased density of the coolant.

Answer: C

Question Source: Bank # _____
Modified Bank # X
New _____

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

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	2.2.25	
Importance Rating	2.5	
Tier #	3	
Group #	2	

Question 95

Given the following plant conditions:

- The plant is operating in a normal 100% power alignment
- Radwaste Secondary Tank, 2/3T-057, is being released through the Unit 2 Outfall
- Two (2) Circulating Water pumps trip causing dilution flow to be less than required per the Release Permit

Which ONE (1) of the following describes how the release is affected?

- A. The release must be terminated and two independent samples must be analyzed prior to reinitiate the release
- B. The release may proceed provided the shift's flow estimate for dilution flow verification is performed
- C. The release may proceed as long as two independent samples are analyzed and the release rate calculations are within ODCM limits
- D. The release must be terminated and may proceed once Chemistry issues a new Release Permit

Answer: D

Ref.: SO23-8-7

KA: GKA 2.3.6

Source: SONGs Bank

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis

 X

Question 96

The Main Purge Isolation Valves do **NOT** receive actuation signals from SIAS and CIAS yet the Mini-Purge Isolation Valves automatically shut on either of these signals.

Which ONE (1) of the following describes why the Main Purge Isolation Valves do **NOT** receive either signal?

- A. The Main Purge Valves are required to be in the closed position in Modes 1-4.
- B. The Main Purge Valves are interlocked with the Mini-Purge Valves and that causes them to automatically shut.
- C. The Main Purge Valves are interlocked with the Mini-Purge Fans and that causes them to automatically shut.
- D. The Main Purge Valves will automatically shut on a CCAS (Containment Cooling Actuation Signal) which actuates due to an SIAS (Safety Injection Actuation Signal).

Answer: A

Question Source: Bank # X
Modified Bank #
New

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

Examination Outline Cross-reference:

Level	<u> RO </u>	<u> SRO </u>
K/A #	2.3.9	
Importance Rating	2.5	
Tier #	3	
Group #	3	

Question 97

Unit 2 was operating at 100% power when a tube rupture occurred on E089.

Which ONE (1) of the following describes the preferred method of cooling down the RCS for SG maintenance?

- A. Dump steam to the condenser using the E088 SG to minimize radiological releases.
- B. Dump steam through the E088 SG's ADVs to minimize contamination of the secondary system for ALARA reasons.
- C. Dump steam through the E089 SG's ADVs to reduce the contamination in the condensate.
- D. Dump steam to the condenser using the E089 SG to minimize radiological releases.

Answer: A

Question Source: Bank # _____
Modified Bank # _____
New X

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

Examination Outline Cross-reference:

Level	<u>RO</u>	<u>SRO</u>
K/A #	2.3.11	
Importance Rating	2.7	
Tier #	3	
Group #	3	

Question 98

Given the following conditions

- A small break LOCA is occurring.
- PZR pressure 1750 psia.
- Thot is 570° F
- Tcold is 552° F
- Core exit thermocouple temperature is 570° F
- P-001 and P-004 RCP's have been manually tripped.

Which ONE (1) of the following describes the reason that two (2) RCPs were left operating under these conditions?

- A. Maintaining forced circulation is desirable and the potential for RCP seal failures is reduced.
- B. Maintaining 2 pumps running minimizes RCP journal bearing wear/damage.
- C. Maintaining 2 pumps running minimizes the potential for the formation of boron crystals in the core.
- D. Maintaining forced circulation is desirable and the plant can remain in a safe condition under these conditions.

Answer: D

Question Source: Bank # _____
Modified Bank # X
New _____

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	2.4.6	
Importance Rating	3.1	
Tier #	3	
Group #	4	

Question 99

Given the following conditions:

- The Reactor has tripped and four (4) full length CEAs are stuck out.
- After opening the Reactor Trip circuit breakers locally, two (2) CEAs fall in.

Which one (1) of the following describes the correct actions in accordance with SO23-12-1, Standard Post Trip Actions?

- A. Emergency Borate the RCS, finish the Standard Post Trip Actions and diagnose a Reactor Trip Recovery event
- B. Emergency Borate the RCS, and immediately go to the Reactor Trip Recovery
- C. Emergency borate the RCS, and immediately go to the Functional Recovery
- D. Emergency borate the RCS, finish the Standard Post Trip Actions and diagnose a Functional Recovery entry

Answer: A

Ref.: SO23-12-1; SO23-12-10; SO23-12-9, Attach. FR-1

KA GKA 2.4.1

Source: SONGS Bank

Question Cognitive Level: Memory or Fundamental Knowledge
 Comprehension or Analysis

 X

Question 100

The fire suppression system is required to be operable:

- A. In Modes 1-2
- B. In Modes 1-4
- C. In Modes 1-6
- D. At all times

Answer: D

Ref.: SO23-7-1, Technical Specifications

KA: GKA 2.4.25

Source: SONGS Bank

Question Cognitive Level: Memory or Fundamental Knowledge
Comprehension or Analysis

X

2PIC-0100 PZR PRESSURE CONTROL

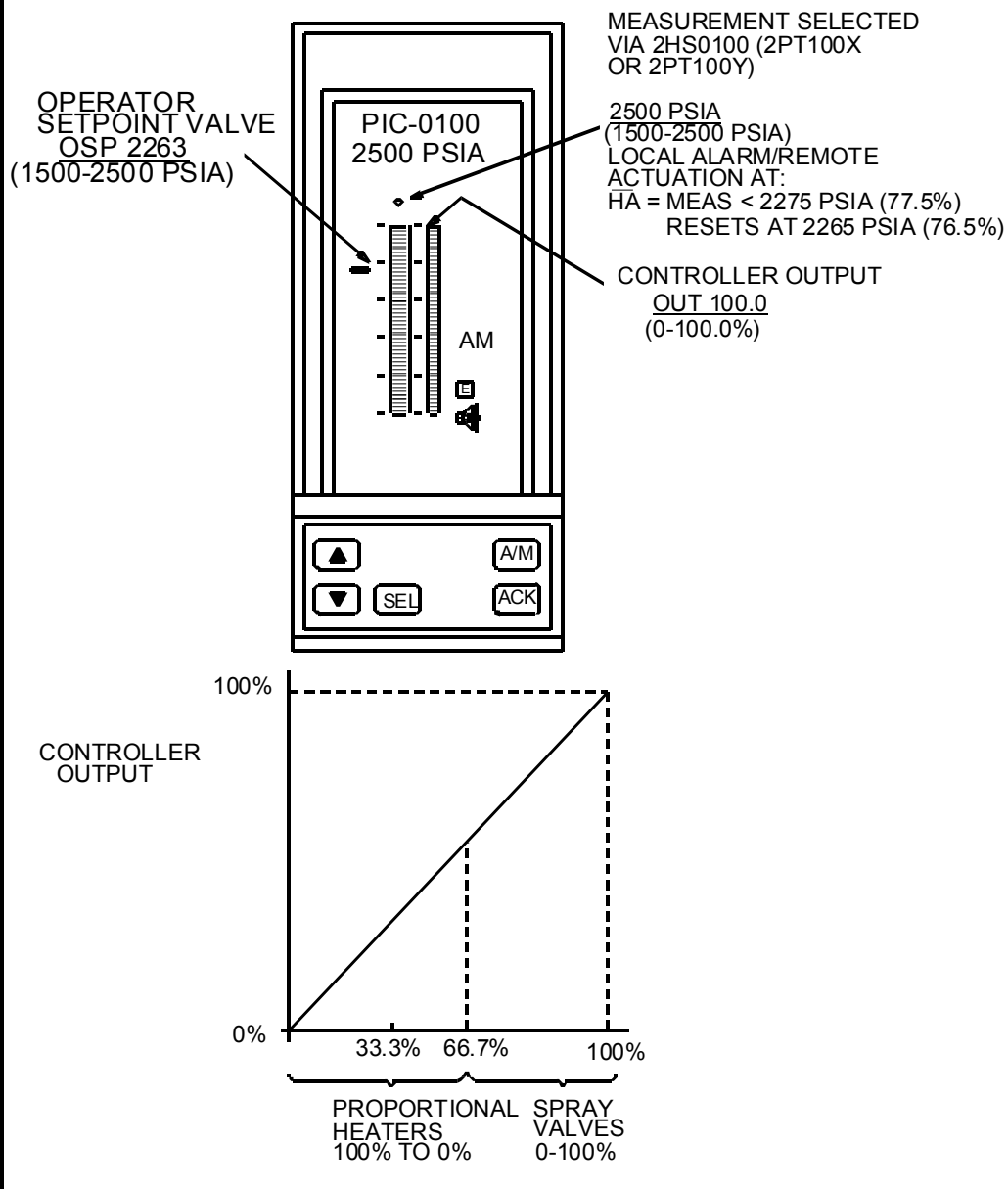
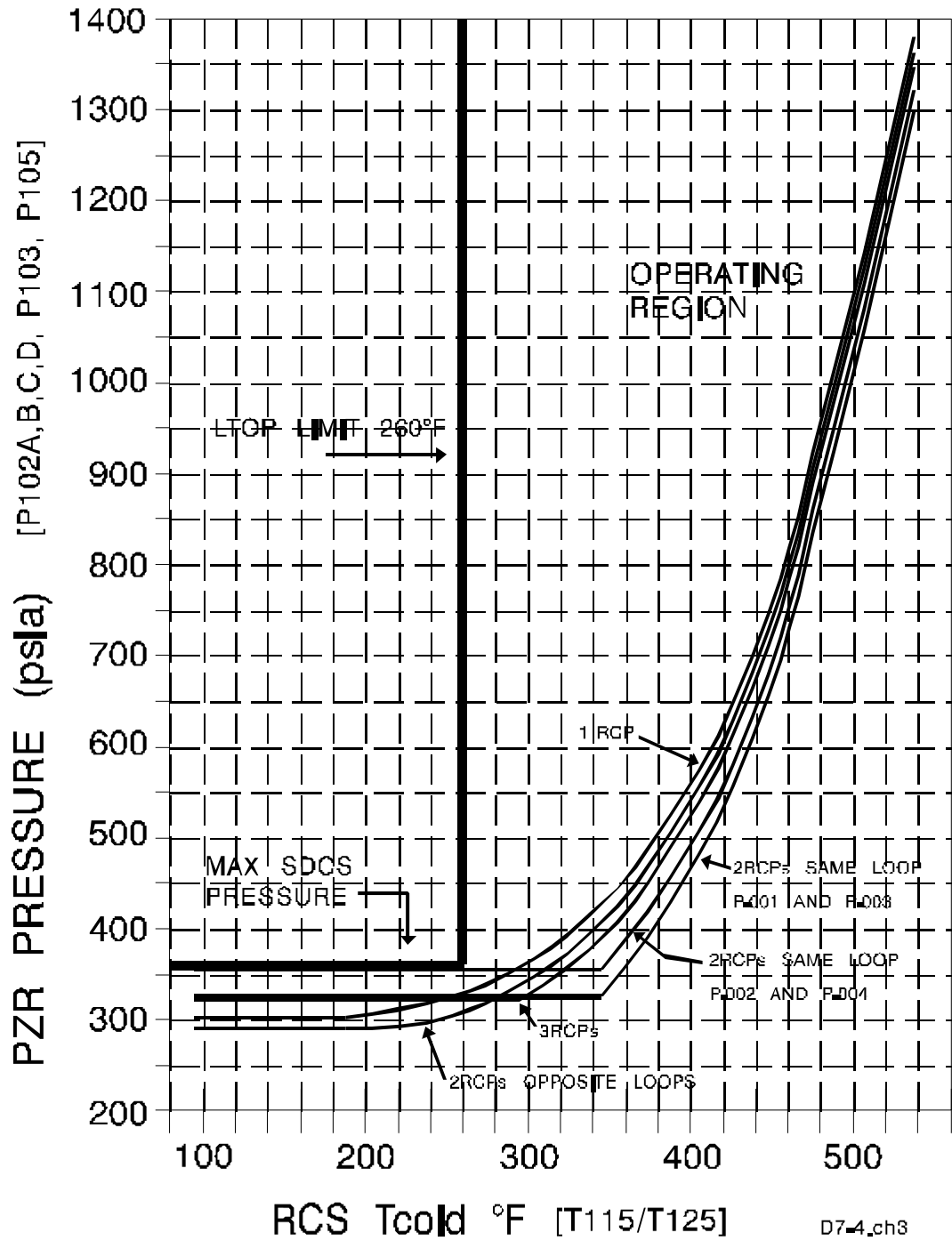


FIGURE III-6: PRESSURIZER PRESSURE CONTROLLER PIC-0100

ATTACHMENT 4
RCP MINIMUM PRESSURE FOR OPERATION



RCP MINIMUM PRESSURE FOR OPERATION - LOW TEMPERATURE/PRESSURE

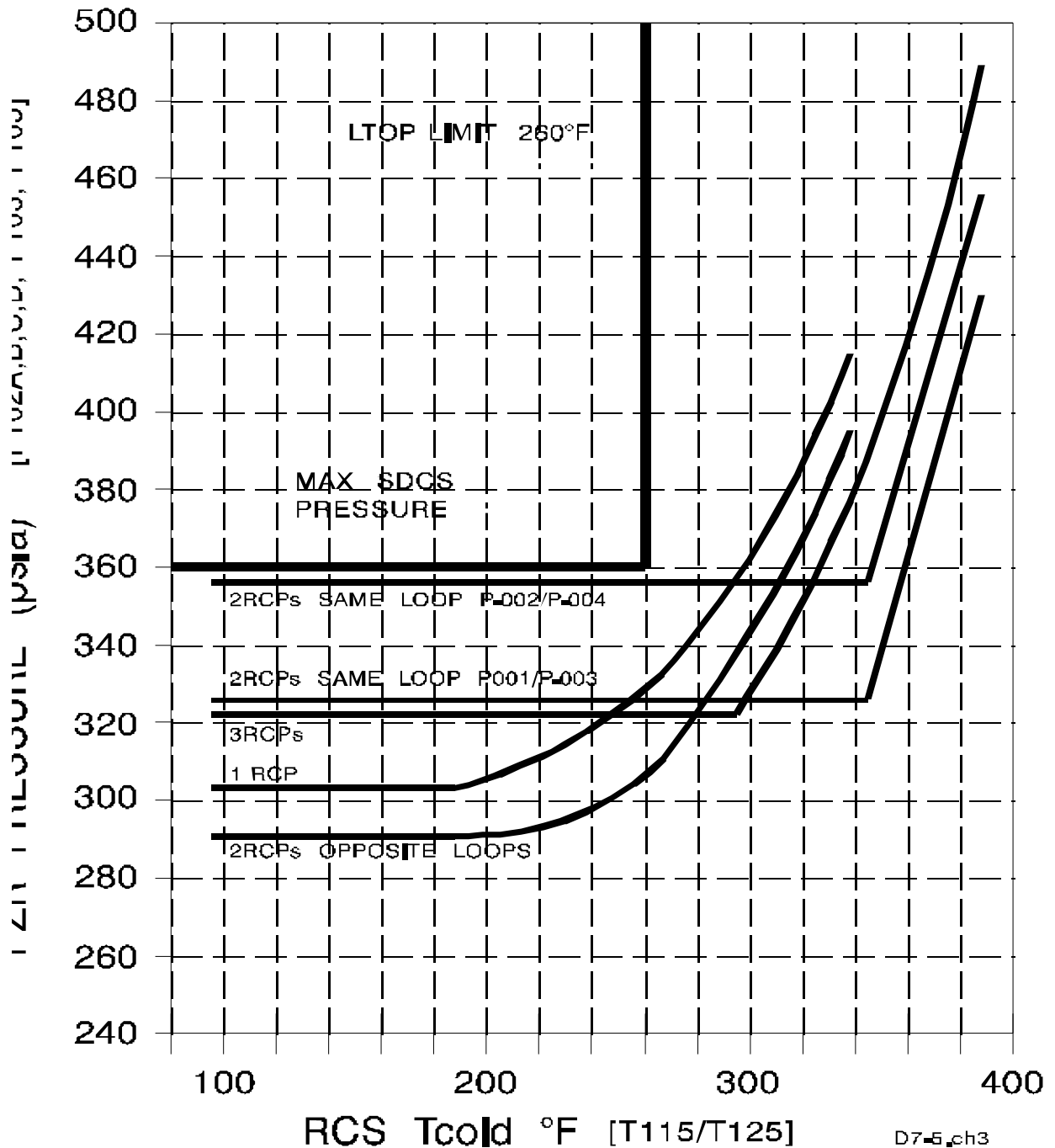


FIGURE III-2A: PRESSURIZER LEVEL CONTROL PROGRAM

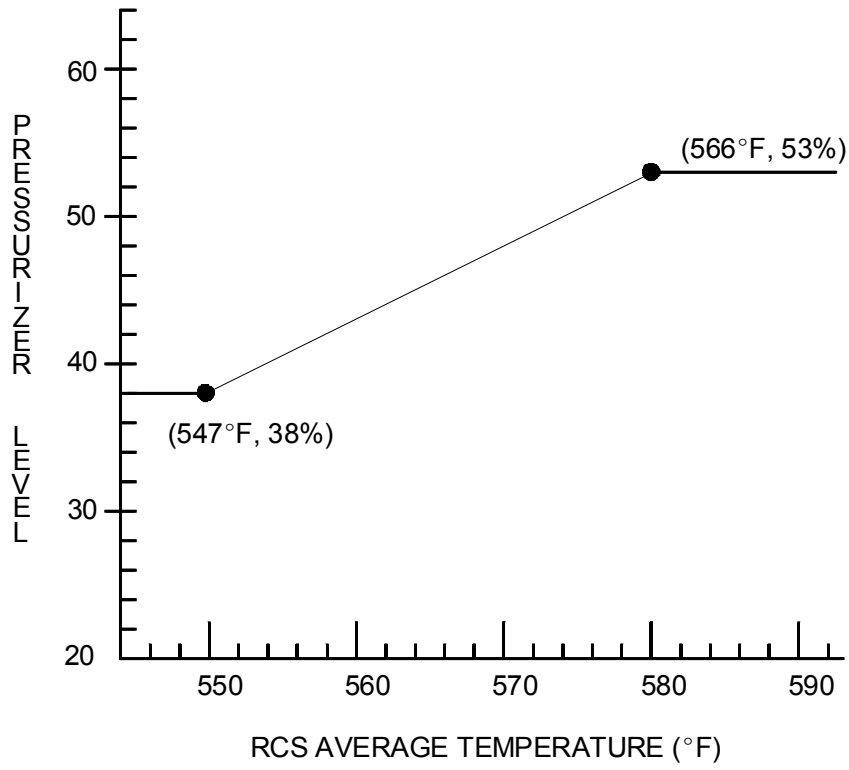


FIGURE III-2B: PRESSURIZER LEVEL CONTROL SETPOINT PROGRAM

