U.S. Nuclear Regulatory Commission
Site-Specific
Written Examination

Applicant Information

Name:	Region: IV
Date: 7/11/03	Facility/Unit: ANO2
License Level: RO	Reactor Type: CE
Start Time:	Finish Time:

Instructions

Use the answer sheets provided to document your answers. Staple this cover sheet on top of the answer sheets. The passing grade requires a final grade of at least 80.00 percent. Examination papers will be collected six hours after the examination starts.

Applicant Certification

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

_____

Applicant's Signature

Results

Examination Value	_____ Points
Applicant's Score	_____ Points
Applicant's Grade	_____ Percent

Question 1

Following the determination that a CEA in Shutdown Bank "A" is misaligned by four (4) inches and mechanically bound, shutdown margin is calculated to be 4.9%.

Which one (1) of the following actions should be taken?

A. Continue plant operation without restriction.

B. Reduce power to less than or equal to 81%.

C. Start a plant shutdown and be in Mode 3 within 6 hours.

D. Initiate Emergency Boration.

Answer: D.

References:
Tech Spec 3.1.3.5, 3.1.3.1, and 3.1.1.1
ANO-2-LP-RO-TS, Rev 06, Obj 3.0
ANO-2-LP-SRO-TS, Rev 06, Obj 3.0
References: Procedure 2202.006
STM 2-15 Section 3.1.6.12

Lesson Plan (As available)

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 #	00005AK3.01	00005AK3.01
Importance Rating	4.0	4.3
Tier #	1	1
Group #	1	1

2.
Question:

During normal power operations, Reactor Coolant Pump 2P32B Upper Oil Reservoir level begins to drop. Annunciators 2K11-F3, RCP "B" UPPER/LOWER OIL RSVR LEVEL LO" and 2K11-B3, RCP "B" UPPER THRUST BEARING METAL TEMPERATURE HI are actuated. Thrust bearing temperature is rising. Which one (1) of the following operator actions is required?

A. Immediately trip the reactor and stop RCP 2P32B.

B. Trip RCP 2P32B if vibration increase noted

C. Trip RCP 2P32B if thrust bearing temperature exceeds 330 degrees F.

D. Immediately trip the reactor and stop ALL RCPs.

Answer: A

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 #	000015AK3.03	000015AK3.03
Importance Rating	3.7	4.0
Tier #	1	1
Group #	1	1

Question 3

Given the following:

* The plant tripped 20 minutes ago due to a Loss of Offsite Power.
* Pressurizer level is 40% and trending up.
* Pressurizer pressure is 2150 psia and trending up.
* T-hot is 580°F and trending up.
* Average CET temperature is 585°F and trending up.
* T-cold is 550°F and trending up.
* Steam Generator levels are 15% NR and trending up.
* 2P7A and 2P7B are feeding each Steam Generator at 300 gpm.

Which ONE (1) of the following diagnosis should be made concerning Natural Circulation heat removal?

A. Natural Circulation is in the process of being established, all indications are normal.

B. Natural Circulation heat removal is inadequate due to increasing RCS temperatures.

C. Natural Circulation heat removal is inadequate due to inadequate feed water flow.

D. Natural Circulation heat removal is adequate because loop Delta-T is adequate.

Answer: B.

References:
ANO-2-LP-SRO-AOP, Revision 7, Objective 16
OP 2203.013, Natural Circulation Operations, Revision 008-00-0, Steps 5 and 6 and Technical Guidance for Step 5.
OP 2202.007, Loss of Offsite Power EOP, Revision 005-00-0, Step 23, and associated technical guidance.

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 #	CE/A13AA2.2	CE/A13AA2.2
Importance Rating	2.9	3.8
Tier #	1	1
Group #	1	1

Question 4

Which of the following combination of actuation signals will isolate Service Water (SW) to the Component Cooling Water (CCW) Heat Exchangers?

A. SIAS and CIAS.

B. SIAS and MSIS.

C. CIAS and RAS.

D. MSIS and CCAS.

Answer: B.

References:
1. STM 2-42 Service Water & ACW Systems, Rev 11 Chg 1, Section 4.0
2. 2202.010, Standard Attachments, Rev 005-01-0, Attachments 2 and 4.

Question Source:	Bank #	___X____
	Modified Bank #	_____
	New	____
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__
	Comprehension or Analysis	_____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	000026AA1.03	000026AA1.03
Importance Rating	3.6	3.6
Tier #	1	1
Group #	1	1

Question 5

Given the following:

* The Plant is at 100% Power.
* All RCS parameters are at the normal 100% values.
* Pressurizer Pressure Controller, 2PIC-4626A, is selected with a setpoint of 2200 psia.
* Spray Valve Select Hand switch 2HS-4651-B is in Auto.
* Pressurizer Spray Valve 2CV-4651 fails Open.
* OP 2203.028, PZR Systems Malfunction AOP, is entered.
* 2CV-4651 is taken to manual and closure attempts fail.
* Next 2203.028 directs the operator to:
  take 2CV-4651 to open for 1 second,
  wait 5 seconds,
  then place the hand switch for 2CV-4651 to Close.

Which ONE (1) of the following is the reason for this open and close action:

A. Reset the open seal in circuit on the MOV to allow the spray valve to close.

B. Allow the hammer assisted closure mechanism some momentum force to close.

C. Remove any open signals coming from the selected pressurizer pressure controller.

D. Remove any open signals coming from the Remote Shutdown Panel 2C80.

Answer: B.

References:
AN0-2-LP-RO-EAOP, Revision 5, Objective 21
OP 2203.028, PZR System Malfunction, Revision 5, Step 1
STM 2-3-1, Pressurizer Pressure and Level Control, Revision 5, Section 2.5.2

Question Source:	Bank #	__X____
	Modified Bank #	_____
	New	_____
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__
	Comprehension or Analysis	_____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	000027AK3.03	
Importance Rating	3.7	
Tier #	1	
Group #	1	

Question 6

WHICH ONE (1) of the following differentiates between an Excess Steam Demand Event and a Loss of Coolant Accident?

A. RCS Margin To Saturation

B. Pressurizer level

C. Containment pressure

D. RCS pressure

Answer: A

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 #	000040AA2.03	000040AA2.03
Importance Rating	4.6	4.7
Tier #	1	1
Group #	1	1

Question 7

Plant conditions are as follows:

* RCS Pressure is 1100 psia and slowly lowering.
* CET Temperature is 465 degrees F and slowly lowering.
* Pressurizer Level is 0%.
* SG "A" pressure is 375 psia and level is 70 inches Wide Range.
* SG "B" pressure is 725 psia and level is 240 inches Wide Range.
* Containment Temperature is 200 degrees F.
* Containment Pressure is 27.5 psia.

Which ONE (1) of the following describes the correct actions for this event?

A. When RCS pressure starts to increase, stabilize pressure by using Main or Aux Spray.

B. When CET temperature starts to rise, fully open SDBCS valve 2CV-0303.

C. Manually initiate EFAS to "A" SG and commence feeding in manual to restore level.

D. Open Aux Spray valve to lower RCS pressure and maximize HPSI flow to restore Pzr level.

Answer: A.

References:
1. 2202.005, Excess Steam Demand, Rev 004-00-0, Step 18.0
2. 2202.010, Standard Attachments, Rev 005-00-0, Attachment 27.

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 #	CE/A11AK2.2	CE/A11AK2.2
Importance Rating	3.2	3.4
Tier #	1	1
Group #	1	1

Question 8

Given the following:

* Reactor power is 10%.
* A main turbine roll to 1800 rpm is in progress.
* Condenser vacuum has begun degrading.
* Annunciators 2K03-A3/A4 "2E11A/B Pressure Hi" are actuated.

Which ONE (1) of the following immediate actions should the Crew take?

A. Reduce turbine speed to stabilize condenser vacuum.

B. Raise Tave to reduce SDBCS load.

C. Trip the turbine before exceeding 7 inches Hg absolute.

D. Observe the vacuum trend to determine if the turbine must be tripped over the next five (5) minutes.

Answer: C.

References:
2203.019, Rev 4, Step 6.0, (Loss of Condenser Vacuum)
STM 2-22, Rev 2, Section 8.1
2203.019, Rev 4, Step 6.0, Technical Guideline
ANO-2-LP-RO-EAOP, Obj 16.0
ANO-2-LP-SRO-AOP, Obj 22.0

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 #	000051AA2.02	000051AA2.02
Importance Rating	3.9	4.1
Tier #	1	1
Group #	1	1

Question 9

The following plant conditions exist:

* Loss of Offsite Power has occurred from full power.
* AACDG is Out of Service.
* 4160 VAC ESF Bus 2A3 has lockout.
* #2EDG has failed.
* Twenty (20) minutes later a loss of Green D.C. occurs.

Which ONE (1) of the following actions should be performed for these conditions?

A. Locally throttle EFW Valves 2CV-1026-2 and 2CV-1076-2.

B. Locally start and manually control EFW Pump 2P7A.

C. Re-open MSIVs and feed SGs with Main Feed water pump.

D. Cross-connect Red and Green Train DC Buses.

Answer: B.

References:
1. Blackout EOP, 2202.008, Rev 004-00-0, Section 1, Step 7.C.6
2. EFW System Operation, 2106.006, Rev 049-04-0, Exhibit 3, Manual Control of 2P7A

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 #	000055EK3.02	000055EK3.02
Importance Rating	4.3	4.6
Tier #	1	1
Group #	1	1

Question 10

Which of the following Reactor Trip Circuit Breakers would indicate open on a loss of 120V Vital AC bus 2RS-1?

A. Breakers 1 and 5.

B. Breakers 2 and 7.

C. Breakers 3 and 6.

D. Breakers 4 and 8.

Answer: A.

References:
STM-2-63, Rev 3, Section 5.0, (Reactor Protection System).
ANO-2-LP-RO-RPS Obj. 5.0

Question Source:	Bank #	___X____
	Modified Bank #	_____
	New	____
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 11

Given the following plant conditions:

* 15 minutes post trip from full power operation.
* "A" Main Steam Radiation Monitor reads 2 R/Hr.
* RCS pressure is 1500 psia and stable.
* RCS temperature is 550 degrees F and stable.

Which One (1) of the following actions will minimize the off-site release for the given conditions?

A. Restore CCW to RCPs.

B. Restore SW to ACW.

C. Isolate SG Blowdown.

D. Isolate RCS Letdown.

Answer: B.

References:
1. 2202.004, Steam Generator Tube Rupture, Rev 004-00-0, Step 7.H.
2. 2202.004, SGTR Tech Guidelines, Rev 04-00-0, Step 7.

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 #	00062G2.1.23	00062G2.1.23
Importance Rating	3.9	4.0
Tier #	1	1
Group #	1	1

Question 12

Given the following:

* Plant 100% steady state.
* Fire in 2A3 switchgear for 20 minutes.
* 2B5 damaged by explosion.
* Fire brigade responding.

Based on the given conditions, which ONE (1) of the following activities is required to be taken?

A. Notify Health Physics (HP) for continuous coverage.

B. Manually trip the reactor and remain in Hot Standby.

C. Perform a plant shutdown and cool down.

D. Reduce plant electrical loads to within S/U #3 capacity.

Answer: C.

References:
AOP 2203.034, Rev 005, Fire Or Explosion, Steps 15 & 16
AOP 2203.045, Rev 000-00-0, Loss of 480 Volt Vital Bus, Step 10
ANO-2-LP-RO-EAOP, Abnormal Operating Procedures, Objective 25

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 #	000067AK1.02	000067AK1.02
Importance Rating	3.1	3.9
Tier #	1	1
Group #	1	1

Question 13

If a fire in the Cable Spreading Room burns for 45 minutes before it is extinguished, which ONE (1) of the following will still be reliable indication for RCS pressure?

A. Safety Parameter Display System (SPDS) point P4624-2.

B. Pressurizer Pressure Control Channel Indicator P4626A.

C. Pressurizer Pressure Safety Channel Indicator 2P4626-1B.

D. Pressurizer Pressure Low Range Pressure Indicator 2P4623-1.

Answer: A.

References:
2203.014, Rev 14, SS Follow-up Actions, Steps 7 & 15 (Alternate Shutdown).
ANO-2-LP-RO-EAOP, Rev 03, Obj. 12.0
ANO-2-LP-SRO-AOP, Obj 17.0

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 #	000068AA1.12	000068AA1.12
Importance Rating	4.4	4.4
Tier #	1	1
Group #	1	1

Question 14

The unit is operating at full power with normal plant temperatures and pressures. Which ONE (1) of the following would represent a loss of containment integrity?

A. Prior to startup, a blank flange was installed to replace a containment isolation valve that failed to pass a surveillance test.

B. One of two normally open redundant containment isolation valves has failed closed, and power has been removed from the failed valve.

C. A mechanic opens the outer containment airlock door to perform 2 hours of maintenance activities on the closed inoperable inner containment door.

D. A manual valve is closed to isolate a penetration where an electrician disconnected the auto close feature of a containment isolation valve.

Answer: C

REFERENCE Technical Specification: 3.6.1.1 and 3.6.1.3

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 #	000069A2.01	000069A2.01
Importance Rating	3.7	4.3
Tier #	1	1
Group #	1	1

Question 15

Given the following:

* The plant has tripped due to a Loss of Offsite Power 1 hour ago.
* A bus lockout occurs on Electrical Bus 2A3 and cannot be reset.
* EFW Pump 2P7A trips on over speed and cannot be reset.
* The Loss of Feed Water ORP, 2202.006 has been entered.
* RCS pressure is 2100 psia and rising.
* RCS T-cold is rising at an uncontrolled rate.
* Both Steam Generator levels are 95 inches and dropping.

The correct action to take based on these conditions would be to:

A. Establish Once Through Cooling with SI flow to remove RCS heat at this time.

B. Establish Once Through Cooling to remove RCS heat at < 70 inches in either SG.

C. Transition to the Functional Recovery Procedure to establish RCS heat removal.

D. Transition to Once Through Cooling for RCS heat removal after SGs are dry.

Answer: A.

References:
ANO-2-LP-RO-ELOSF, Revision 1, Objective 5
OP 2202.006, Loss of Feed water EOP, Revision 005-01-0, Step 19
EOP 2202.006, Technical Guidance, Revision 005-01-0, Step 19

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 #	000074EK3.11	
Importance Rating	4.0	
Tier #	1	
Group #	1	

Question 16

Given the following plant conditions:

Unit is operating at 100% power following a plant startup from a refueling outage.
Normal at power CVCS alignment with 1 Coolant Charging Pump (CCP) operating
Pressurizer level is 60 %
Tave is 580F
Pressurizer pressure is 2200 psia
RCS letdown gross radiation monitor (2RITS-4806A) reads 1E5 CPM and is slowly rising.
Chemistry samples indicate that RCS activity is approaching the technical specification limits.

Which ONE (1) of the following actions should be taken due to the rising RCS activity?

A. Bypass letdown demineralizers and swap the VCT inlet to the Hold Up tanks

B. Minimize letdown flow to allow more dilution inventory from charging into the RCS

C. Increase letdown flow to maximize RCS activity cleanup using demineralizers

D. Isolate letdown flow to minimize radiation levels in the auxiliary building

Answer: C

Reference 2203.020 High Activity in RCS

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	000076A2.02	000076A2.02
Importance Rating	2.8	3.4
Tier #	1	1
Group #	1	1

Question 17

Given the following:

* A Reactor Startup has been completed.
* The Reactor is Critical at 1E-5% power on Group P CEAs.
* Tave is 545°F and being maintained by SDBCS in AUTO LOCAL.
* The CBOR Withdraws Group P CEAs for 3 steps.
* The shim switch sticks in the "Withdraw" position for 30 seconds before it is returned to neutral.
* This CEA group withdrawal causes a constant 0.2 dpm startup rate to be established.
* No other operator action is taken.
* Assume no reactor trip occurs.
* POAH = Point of Adding Heat.

Which ONE (1) of the following describes the response of the reactor parameters at exactly 15 minutes after the shim switch was returned to neutral?

A. Reactor Power above the POAH and Tave rising

B. Reactor Power below the POAH and Tave at 545°F

C. Reactor Power below the POAH and Tave rising

D. Reactor Power above the POAH and Tave at 545°F

Answer: B.

References:
General Physics PWR Reactor Theory - Chapter 8, Revision 2, Objectives 12 and 14.
General Physics PWR Reactor Theory - Chapter 8, Revision 2, Intermediate Range Operations

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 #	00001AK1.03	00001AK1.03
Importance Rating	3.9	4.0
Tier #	1	1
Group #	2	1

Question: 18

Given the following:

Following a dropped Control Rod, Reactor power is required to be reduced to less than or equal to 75% by boration within two (2) hours.

WHICH ONE (1) of the following parameters is the Technical Specification basis for this requirement?

A. Azimuthal Power Tilt

B. DNBR

C. Hot Channel Factors

D. Axial Shape Index

Answer: C

References:

Question Source:	Bank #	__X___
	Modified Bank #	_____
	New	____
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__
	Comprehension or Analysis	_____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	2.1.10	
Importance Rating	2.7	
Tier #	1	
Group #	2	

Question 19

The unit is at 50% power during a ramp to full power, when a reactor and turbine trip occur.

Which one (1) of the following statements describes the immediate response of the atmospheric dump valves (ADVs) and Bypass Control valves?

A. ADVs receive a "quick-open" signal and bypass valves modulate to control main steam pressure.

B. Bypass valves and one ADV receive "quick open" signal then modulate to control main steam pressure.

C. ADVs modulate to control RCS temperature and bypass valves receive a "quick-open" signal.

D. Reactor trip blocks all "quick open" signals then ADVs and bypass valves receive modulate signal from the master controller to control RCS temperature.

Answer: B.

References:
2105.008, Rev 13, Section 3.0 (Steam Dump and Bypass Control System Operations)
AA52002-011, Rev 8, Obj 11.2
STM 2-23, Rev 4, Sections 1.3.2 and 2.3.6 (Steam Dump and Bypass Control System)

Question Source:	Bank #	___X___
	Modified Bank #	_____
	New	____
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__
	Comprehension or Analysis	_____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	00007EA1.10	
Importance Rating	3.7	3.7
Tier #	1	1
Group #	2	2

Question 20

The following plant conditions are given:

* Twenty (20) minutes post trip from full power.
* Pressurizer Level indicates 100%.
* Pressurizer Pressure is 1400 psia.
* RVLMS level 6 wet.
* "A" SG pressure is 860 psia.
* "B" SG pressure is 870 psia.
* CET temperature indicates 580 degree F.
* Auxiliary Spray in service.

Which ONE (1) of the following actions should be performed for the given conditions?

A. Restart RCPs to allow use of normal Pressurizer Spray.

B. Override HPSI to restore Pressurizer Level.

C. Repressurize RCS to restore Margin to Saturation.

D. Depressurize RCS via Reactor Vessel Hi Point vents.

Answer: C.

References:
2202.003, Loss of Coolant Accident, Rev 004-00-0, Step 24
2202.010, Standard Attachments, Rev 005-01-0, Attachment 9, Void Elimination.

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 #	00008AA1.02	00008AA1.02
Importance Rating	4.1	3.9
Tier #	1	1
Group #	2	2

Question 21.

The following conditions exist:

A small break Loss of Coolant Accident has occurred.
High Pressure Safety Injection (HPSI) Pump 2P89A has tripped on over current.
The crew has aligned and started HPSI Pump 2P89C. (Red Power)
Two charging pumps are running.
Pressurizer pressure is 1500 psia and steady.
HPSI Pumps 2P89B and 2P89C have been stopped upon meeting HPSI Termination Criteria.

The CBOR reports that Pressurizer Level is now 20% and slowly dropping.

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

A. Start HPSI Pumps 2P89B and 2P89C and fully open all HPSI Injection valves.

B. Start HPSI Pump 2P89B and throttle open enough HPSI Injection valves to raise Pressurizer level to greater than 29%.

C. Start HPSI Pump 2P89B and the third Charging Pump and fully open all HPSI Injection valves.

D. Start HPSI Pumps 2P89B and 2P89C and fully open enough HPSI Injection valves to raise Pressurizer level to greater than 29%.

Answer: A

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 #	00009EA2.06	00009EA2.06
Importance Rating	3.8	4.3
Tier #	1	1
Group #	2	2

Question 22

Given the following:

The reactor has tripped from 100% power.
Pressurizer pressure 950 psia and decreasing.
Pressurizer level is 3%.
CETS indicate 520F.
All required ESFAS actuation have actuated
All standard post trip actions have been completed
The CRS has diagnosed a LOCA.

Which ONE (1) of the following is the minimum operator action for the above conditions per OP2202.003, Loss of Coolant?

A. De-energize the pressurizer backup heaters and reduce auxiliary spray to less than 165 gpm.

B. Secure pressurizer spray and energize all pressurizer heaters

C. Stop one (1) RCP in each RCS loop.

D. Stop all RCPs.

Answer: D

References: RO-ESPTA
2202.003 Loss of Coolant Accident

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 #	011EA1.03	
Importance Rating	4.0	
Tier #	1	
Group #	2	

Question 23

While operating at power, significant current oscillations (100 amps) are observed on 480V bus 2B5. Charging Pump 2P36A trips on overcurrent and shortly thereafter, Annunciator 2K12-B3, "CHARGING PUMP HEADER FLOW LOW" actuates.

Which ONE (1) of the following actions should be taken?

A. Start an alternate charging pump after verifying its suction and discharge path.

B. Restart Charging Pump 2P36A after resetting the overcurrent trip.

C. Secure letdown and initiate an investigation for the loss of Charging Pump 2P36A.

D. Secure letdown, start an alternate charging pump, then restore letdown.

Answer: A.

References:
2203.012L, Rev 28, 2K12-B3 (Annunciator 2K12 Corrective Actions)
2203.036, Rev 5, Steps 1 and 2. (Loss of Charging)
ANO-2-LP-RO-EAOP Obj. 29.0
ANO-2-LP-SRO-AOP, Obj. 39.0

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 #	000022AK1.03	000022AK1.03
Importance Rating	3.0	3.4
Tier #	1	1
Group #	2	2

Question 24

Given the following plant conditions:

* Plant shutdown and cool down just completed from 100% power.
* Shutdown Cooling has JUST been established.
* A Loss of Instrument Air occurs.

Which ONE (1) of the following describes the Shutdown Cooling System response?

A. All SDC flow is lost.

B. SDC heat removal is lost.

C. SDC flow is degraded.

D. No significant effect.

Answer: B.

References:
2203.029, Rev 10, Steps 8 and 9 (Loss of Shutdown Cooling)
ANO-2-LP-RO-EAOP, Rev 03, Obj 25.0
ANO-2-LP-SRO-AOP, Rev 03, Obj 32.0

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 #	000025AA1.23	000025AA1.23
Importance Rating	2.8	2.9
Tier #	1	1
Group #	2	2

Question 25

Given the following plant conditions:

* Plant operating at full power.
* DNBR indicates 1.1

Which ONE (1) of the following actions should be performed?

A. Enter Loss of COLSS AOP.

B. Commence power reduction until DNBR > 1.25.

C. Depress PPS reset pushbuttons on Panel 2C03.

D. Depress DSS pushbutton on Panel 2C03.

Answer: D.

References:
1. 2202.001, Standard Post Trip Actions, Rev 004-00-0, Step 3.A.1.
2. STM 2-63, Reactor Protection System, Rev 4, Section 4.3.4.
3. 1015.001, Conduct of Operations, Rev 051-03-1, Section 19.1.1.

Question Source:	Bank #	___X___
	Modified Bank #	_____
	New	____
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__
	Comprehension or Analysis	_____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	000029EK2.06	
Importance Rating	2.9	
Tier #	1	
Group #	2	

Question 26

Fuel is being reloaded into the Reactor Vessel when the Shift Supervisor informs you that one startup channel neutron flux monitor has failed.

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

A. Fuel reload may continue provided backup boron samples are taken every four (4) hours.

B. Fuel reload may continue provided the inoperable channel is returned to operable status within four (4) hours.

C. Suspend core alterations until boron sampling has been initiated every twelve (12) hours for 36 hours.

D. Suspend core alterations until the inoperable channel is returned to operable status.

Answer: D.

References:
Tech Spec 3.9.2
2502.001, Rev 27, Steps 6.19 and 7.23 (Refueling Shuffle)
2203.012J, Rev 27, 2K10-K4, (Annunciator 2K10 Corrective Actions)
ANO-2-LP-RO-FHRX, Rev 00, Obj 5.0 & 7.0

Question Source:	Bank #	___X____
	Modified Bank #	_____
	New	____
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__
	Comprehension or Analysis	_____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	000032AK3.02	000032AK3.02
Importance Rating	3.7	4.1
Tier #	1	1
Group #	2	2

Question: 27

During a reactor startup after achieving criticality the Reactor Operator notices the Startup range indication at approximately $1x10^6$ cps on the chart recorder and starting to drop even though CEAs are continuing to be withdrawn.

Which ONE (1) of the following actions to be taken is?

A. This is an indication that the startup range instrument has failed. Since the reactor is already above the point of adding heat, the failed instrument must be reported to the SM, but the startup can continue. The instrument must be repaired within the next 72 hours.

B. Startup range instruments are considered to be accurate and reliable up to only 10^5 cps and the chart output up to 10^6 cps is provided as a convenience. "Pulse pile up" as power is raised above 10^6 cps, causing the indication to drop back below 10^6 cps, this is an expected indication.

C. This is an expected indication; voltage to the detector has been secured to prolong detector lifespan.

D. This is an indication that the startup range instrument has failed. The reactor startup must be halted, CEAs driven in to bring the reactor less than the point of adding heat and the instrument must be repaired within 6 hours. If the instrument cannot be repaired within this time frame, the reactor must be in hot standby within 18 hours.

Answer: B

References:
STM 2-67-1 Rev. 5 section 2.3.3

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 #	000033AA2.01	
Importance Rating	3.0	
Tier #	1	
Group #	2	

Question 28

Which ONE (1) of the following describes why RCS pressure is maintained within 100 psia of RCP NPSH during a primary to secondary leak of 20 gpm?

A. Ensures margin to saturation is greater than 50F.

B. To minimize RCS Break flow.

C. Ensures seal injection can be maintained.

D. Prevents lifting primary code safeties.

Answer: B.

References:
2203.038, Rev 5, Step 16.A (Primary to Secondary Leakage)
2203.038, Rev 5, Step 16 Technical Guidelines.
ANO-2-LP-SRO-AOP, Rev 07, Obj 41.0
ANO-2-LP-RO-EAOP, Rev 03, Obj 31.0

Question Source:	Bank #	___X____
	Modified Bank #	_____
	New	____
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__
	Comprehension or Analysis	_____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	000037AK3.05	000037AK3.05
Importance Rating	3.7	4.0
Tier #	1	1
Group #	2	2

Question 29

Given the following plant conditions:

* Reactor tripped with a SGTR in progress.
* SIAS, CCAS have been actuated.
* The ruptured SG has been isolated in accordance with 2202.010 Att. 10, SG Isolation.
* HPSI has been overridden and SIAS has been reset.
* RCS pressure is 1200 psia.
* Ruptured SG pressure is 900 psia.
* Ruptured SG level is 47%.
* RCS cool down in progress with 'A' and 'C' RCP's running.
* Condenser pressure is atmospheric.

Given the above conditions, Which ONE (1) of the following (assume all procedural steps to accomplish task have been completed unless precluded by above conditions) is the best method to cool down and depressurize the ruptured SG:

A. Open the SG blowdown valves and EFW valves and feed and bleed SG.

B. Steam the SG using the upstream ADV's and feed with EFW.

C. Let the SG cool by ambient heat losses.

D. Lower RCS pressure to allow SG to drain to the RCS and expose SG tubes.

Answer: D.

References:
2202.004, SGTR, rev. 5 technical guidelines
2202.004, SGTR, rev. 5 step 47

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 #	2.1.7	
Importance Rating	3.7	
Tier #	1	
Group #	2	

Question 30

Which ONE (1) of the following describes the effect of a loss of green DC Bus, 2D26 will have on the operation of Emergency Feed water Pump 2P7A?

A. All 2P7A discharge valves to both Steam generators will fail open.

B. All 2P7A discharge valves to both Steam generators will fail closed.

C. 2P7A will over speed.

D. 2P7A will go to minimum speed.

Answer: C.

References:
STM 2-19-2, Rev 1, Page 10, Section 2.1.1.5 (EFW & AFW Systems)
ANO-2-LP-RO-EFW, Rev 04, Obj 1.0

Question Source:	Bank #	___X___
	Modified Bank #	_____
	New	____

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	000058AA2.03	000058AA2.03
Importance Rating	3.5	3.9
Tier #	1	1
Group #	2	2

Question 31

The following conditions exist:
* Plant operating at full power.
* Annunciator 2K11-C10, Process Liq Rad Hi/Lo is actuated.
* 2RITS-5202, Loop II CCW Return is in Hi alarm.
* Loop II CCW Surge Tank Level is 45%.
* Letdown is isolated.
* Pressurizer Level is 60%.

Which ONE (1) of the following actions should be performed for the given conditions?

A. Locally shift CCW Pump Room drains to Auxiliary Building.

B. Locally isolate ESF Pump Room floor drains.

C. Lower Loop II CCW Surge Tank Level to 20%.

D. Raise Loop II CCW Surge Tank Level to 70%.

Answer: A.

References:
2203.016, Excess RCS Leakage, Rev 008-03-0, Attachment A (RCS to CCW Leak Isolation)

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 #	000059AK2.01	
Importance Rating	3.5	
Tier #	1	
Group #	2	

Question 32

Given the following plant conditions:

* Plant is in Mode 5 making preparations to refuel the reactor.
* RCS is in reduced inventory preparing to install SG nozzle dams.
* Containment Purge System is in service.
* When the 1st set of SG Manways are removed, the Control Room receives Annunciator 2K11 D-10 " Process Gas Radiation HI/LO".
* On 2C-25, the Gas Monitor for the Containment Purge System, 2RITS-8233, reading is above setpoint.
* Annunciator Corrective Action directs verification of Containment Purge secured.

Which ONE (1) of the following statements describes the automatic actions that should have secured containment purge?

A. All three (3) Containment purge supply Isolations go closed.

B. Only the Outside-Outside purge supply and exhaust Isolations go closed.

C. Only the Inside-Inside purge supply and exhaust isolations go closed.

D. All three (3) Containment purge exhaust isolations go closed.

Answer: B.

References:
ANO-2-LP-RO-CVENT, Revision 8, Objective 13
OP 2203.012K, ACA for Process Gas Radiation High, Revision 029-04-0, Window 2K11 D-10
STM 2-9, Containment Cooling and Purge Systems, Revision 6, Sections 7.3, 7.5, 7.6 and Purge one line figure.

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 #	000060AA2.05	000060AA2.05
Importance Rating	3.7	4.2
Tier #	1	1
Group #	2	2

Question 33

Given the following plant conditions:

* Five (5) minutes post trip from full power.
* RCS pressure is 1300 psia and stable.
* Pressurizer Level is 8% and rising slowly.
* CAMS readings are 2000 CPM particulate and 850 CPM gaseous.
* Containment Area Radiation Monitors read 60 to 90 mr/hr.
* Containment Wide Range Area Radiation Monitors read 11 R/hr and 9 R/hr.
* Containment Pressure is 27 psia.
* Containment Temperature is 245 degrees F.

Which ONE (1) of the following describes the event in progress for the given conditions?

A. Tcold Small Break LOCA.

B. Thot Large Break LOCA.

C. Excess Steam Demand Event.

D. Pressurizer Steam Space Leak.

Answer: C.

References:
1903.010, Emergency Action Level Classification, Rev 036-00-0, Attachment 6 Caution.
NRC IN 97-45, Environmental Qualification Deficiency for Cables and Cntmt Penetration Pigtails.

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 #	000061AK3.02	000061AK3.02
Importance Rating	3.4	3.6
Tier #	1	1
Group #	2	2

Question 34

The plant is operating at full power with Tave equal to 580 F, when control room annunciator 2K10-J6, "Cntrl CH 1 Level Lo" is received. In response to the annunciator, the operators observed the following indications:

Pzr level Channel A reads 54% and steady
Channel B reads 62%and rising slowly.
All charging pumps are running and the letdown valve is open.

Which ONE (1) of the following identifies the failed channel and corresponding necessary actions?

A. Channel A PZR Level instrument has failed.
Place the PZR level control system in manual
Adjust the local setpoint to value based on the operating TAVE.
Match the letdown flow controller manual and automatic signals

B. Channel B PZR Level instrument has failed.
Place the VCT bypass in the VCT position.
Place the PZR Level Channel Select Switch 2HS-4628 to channel B,
Shift PZR level indication to automatic control

C. Channel B PZR Level instrument has failed.
Place the Letdown Flow Controller 2HIC-4817 in MANUAL
Control letdown flow to restore PZR level,
Manually control the Charging pumps as needed.

D. Channel A PZR Level instrument has failed.
Place Letdown Flow Controller 2HIC-4817 in MANUAL,
Place the PZR Level Channel Select Switch 2HS-4628 to channel B,
Place PZR Low-Low Level Cutoff Select Switch 2HS-4642 to channel B.

Answer: D.

Note:
Provide Procedure 2102.004 ATTACHMENTS C and E to examinee

Reference:
STM2-3-1 Section 3.6.2
AOP 2203.028
Procedure 2103.005

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 #	000028AA1.08	000028AA1.08
Importance Rating	3.7	3.6
Tier #	1	1
Group #	3	3

Question 35

The plant has suffered a Loss of Offsite power as a result of lightening strike damage in the switchyard. Both Emergency Diesel Generators are supplying their 4160V ESF buses. Unit 1 EDG #1 has failed and they have requested AACG to supply 4160V ESF bus A3.

For the above plant conditions,

Which ONE (1) of the following actions would be the preferred method of feeding S/Gs and what level should be maintained during an RCS cool down?

A. EFW Pump 2P7A and maintain S/G levels 40 - 60%.

B. EFW Pump 2P7B and raise S/G levels to 60%.

C. AFW Pump 2P75 and maintain S/G levels 40 - 60%.

D. Condensate Pump 2P2A and raise S/G levels to 60 %.

Answer: B.

References:
2203.013, Natural Circulation Cool down, Rev 007-02-0, Step 8.
Tech Guidelines for 2203.013, Natural Circulation Cool down, Rev 007-02-0, Step 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 #	000056AK1.01	000056AK1.01
Importance Rating	4.2	4.3
Tier #	1	1
Group #	3	3

Question 36

The reactor is at 100% power with RED train maintenance in progress. There are severe thunderstorm warnings in effect until 1900 tonight. The "INSTR AIR PRESS HI/LO" annunciator (2K12-A8) actuates. Instrument Air header pressure is 80 psig and lowering.

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

A. If instrument air pressure lowers to less than 65 psig, the reactor should be tripped since a significant number of critical components begin to shift to their failed position when instrument air pressure fails below 60 psig.

B. Trip the reactor if instrument air pressure falls to less than 35 psig. The reactor is manually tripped to prevent the possibility of exceeding an automatic trip setpoint.

C. Under normal operations Unit 1 and Unit 2 instrument air systems are cross connected. Immediately close the instrument air cross connect with Unit 1.

D. Loss of instrument air results in the loss of the CEDM cooling fans. CEDM coil temperatures will exceeds 450°F. A normal plant shutdown is initiated due to the possibility of a dropped rod.

Answer: B.

References: AOP 2203.021 Step 5
ANO-2-LP-RO-EAOP, Revision 5, Objective 16
OP 2203.012L, Annunciator 2K12 Corrective Action, Revision 030-02-0, Window A-8, IA Press Hi/LO
OP 2203.021, Loss of IA AOP, Revision 008-01-0, Entry Conditions, Step 4, and Step 5.

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 #	000065AA2.05	000065AA2.05
Importance Rating	3.4	4.1
Tier #	1	1
Group #	3	3

Question 37

The following conditions exist:
Unit 2 is at 50% power.
Power escalation in progress.

Which ONE (1) of the following CEDM components is the FIRST component to be energized when the CBOR places the CEA control switch to WITHDRAW?

A. Lift Coil.

B. Upper Gripper Coil.

C. Load Transfer Coil.

D. Lower Gripper Coil.

Answer: A.

References:
STM 2-02, Rev 5, Page 17

Question Source:	Bank #	___X____
	Modified Bank #	_____
	New	____
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__
	Comprehension or Analysis	_____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	001K2.03	001K2.03
Importance Rating	2.7	3.1
Tier #	2	2
Group #	1	1

Question 38

All of the following provide the capability to monitor actual position for an individual CEA using magnetic reed switches EXCEPT the:

A. Upper Electrical Limit light on Panel 2C03.

B. Plant Monitoring System Digital CEA INDV indicator on Panel 2C03.

C. CEAC Channels 1 and 2 on Panel 2C03.

D. Lower Electrical Limit light on Panel 2C03.

Answer: B.

References:
STM 2-02, CEDMCS, Rev 5, Section 3.7.

Question Source:	Bank #	___X___
	Modified Bank #	_____
	New	____

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	001G2.2.1	001G2.2.1
Importance Rating	3.7	3.6
Tier #	2	2
Group #	1	1

Question 39

Given the following plant conditions:
* The plant is at 100% power.
* An inadvertent CIAS occurs.
* Crew has entered 2203.039, Inadvertent CIAS.
* CCW to Reactor Coolant Pumps (RCPs) CANNOT be restored within 10 minutes of event initiation.
* Crew trips the plant and secures all RCPs.

Which ONE (1) of the following is the correct action to take next to prevent RCP seal failures due to heat buildup?

A. Start all available Containment Cooling Units aligned to Service Water.

B. Commence a rapid plant cool down to Shutdown Cooling entry conditions.

C. Verify RCP Controlled Bleedoff is isolated to the VCT and Quench Tank.

D. Make a containment entry and Isolate RCP vapor seal leak off to the RDT.

Answer: C.

References:
ANO-2-LP-RO-EAOP, Objective 29
STM 2-3-2, Rev 5, RCPs, Section 1.5
2203.039, Rev 003-02-0, Inadvertent CIAS, Step 4
2203.039, Rev 003-02-0, Inadvertent CIAS Technical Guide, Step 4

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 #	003K6.04	
Importance Rating	2.8	
Tier #	2	
Group #	1	

Question 40

Which ONE (1) of the following is the reason for preventing the start of the fourth Reactor Coolant Pump until RCS temperature is greater than 500 degrees Fahrenheit?

A. To prevent exceeding RCS heat up rate limits.

B. To prevent excessive RCP starting currents.

C. To limit Steam Generator tube stresses.

D. To limit core uplift.

Answer: D.

References:
STM 2-3-2, Rev 1, Section 1.8.1.2
ANO-2-LO-RO-RCS Obj 8.0

Question Source:	Bank #	__X____
	Modified Bank #	_____
	New	____

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	003A1.05	003A1.05
Importance Rating	3.4	3.5
Tier #	2	2
Group #	1	1

Question: 41.

Given the following plant conditions:

* Plant is operating at 100% Power.
* Charging Pump 2P-36C is running.
* Charging Pump Selector Switch is in "A & B" position.
* Charging Pump 2P-36C trips.

With no operator action, the first automatic action that will occur to protect the CVCS Regen Heat Exchanger from excessive thermal stresses would be:

A. Charging Pump 2P-36A will start immediately to supply cooling flow to the Regen Heat Exchanger.

B. Charging Pump 2P-36B will start immediately to supply cooling flow to the Regen Heat Exchanger.

C. Letdown System Isolation valve (2CV-4820-2) will CLOSE on Regen Heat Exchanger Outlet temperature high.

D. Regen Heat Exchanger Inlet Isolation valve (2CV4821-1) will CLOSE on Regen Heat Exchanger Letdown outlet temperature

Answer: C.

References:
ANO-2-LP-RO-CVCS, Rev 8, Objective 4
STM 2-04, Rev 12, Chemical and Volume Control System, Sections 2.1.2, 2.1.3, 2.1.4, 2.1.6 and 2.1.10
2104.002, Rev 038-06-0, Chemical and Volume Control, Section 6.0
2203.012L, Rev 030-01-0, Annunciator 2J12 Corrective Actions, 2K12-B1.
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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 #	004K4.13	
Importance Rating	3.1	
Tier #	2	
Group #	1	

Question 42

Given the following plant conditions:

* 2203.016, Excess RCS Leakage procedure has been entered due to excessive RCS leakage.
* RCS Tave is 573F and steady.
* Charging Pump 2P36C is Out of Service.
* Charging Pumps 2P36A and 2P36B are running.
* Letdown is secured to determine location of RCS Leak.
* RCS Leakage is calculated to be 90 gpm.

Which ONE (1) of the following is the appropriate action to be performed in accordance with 2203.016?

A. Maintain RCS conditions stable to prevent loss of pressurizer level while attempting to locate the leak.

B. Commence a normal plant shutdown and be in Mode 3 within six (6) hours.

C. Commence a rapid plant shutdown and be in Mode 3 within one (1) hour.

D. Perform a manual reactor trip and go to 2202.001, Standard Post Trip Actions

Answer: D.

References:
2203.016, Excess RCS Leakage, Rev 008-03-0, Step 4.0

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 #	2.4.4	
Importance Rating	4.3	
Tier #	2	
Group #	1	

Question 43

Given the following plant conditions:

* 13 minutes post trip from full power.
* Pressurizer level is 0%.
* Pressurizer pressure is 1300 psia.
* Containment Radiation Monitors indicate 10 Rem/Hr.
* Steam Generator pressures are at 1000 psia.
* RAS is actuated on red train.

Which ONE (1) of the following actions will limit fuel damage for the given conditions?

A. Override and open Containment Sump Isolation valves 2CV-5647-1 and 2CV-5649-1.

B. Override and close Containment Sump Isolation valves 2CV-5647-1 and 2CV-5649-1.

C. Use Auxiliary Spray to depressurize and dump Safety Injection Tanks (SITs).

D. Use Auxiliary Spray to depressurize and maximize HPSI Flow.

Answer: B.

References:
2203.040, Inadvertent RAS, Rev 003-01-0, Step 4.

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 #	013K3.01	013K3.01
Importance Rating	4.4	4.7
Tier #	2	2
Group #	1	1

Question 44

Given the following conditions:

* Mode 3 post trip from full power.
* EFAS signal present with EFW Pumps 2P7A and 2P7B running.
* 2P75 feeding SG's via 2CV-0762 (AFW to EFW).

Which ONE (1) of the following describes why flow should be limited to 1200 gpm for the given conditions?

A. Limit flow velocities.

B. Prevent binding of EFW block valves.

C. Prevent thermal shock to SGs.

D. Limit motor current on AFW pump

Answer: A.

References:
2106.006, Rev 48, Step 5.10 (Emergency Feed water System Operations)
ANO-2-LP-RO-EFW, Rev 4, Obj 17.1
STM 2-19-2, Rev 002, Section 5.1 (EFW & AFW Systems)

Question Source:	Bank #	__X____
	Modified Bank #	_____
	New	____
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__
	Comprehension or Analysis	_____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	013K4.13	
Importance Rating	3.7	
Tier #	2	
Group #	1	

Question 45

While performing a reactor startup, which ONE (1) of the following indicates the EARLIEST time that you should anticipate criticality?

A. When the shutdown banks are being withdrawn.

B. When the first regulating group is being withdrawn.

C. When the 1/M plot indicates criticality within the next 100 inches.

D. When inside the window of five to seven doublings.

Answer: A.

References:
2102.016, Rev 5, Steps 5.12 and 8.1
ANO-2-LP-RO-OPROC Obj. 3.0 and 7.0

Question Source:	Bank #	__X____
	Modified Bank #	_____
	New	____

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	015K5.05	015K5.05
Importance Rating	4.1	4.4
Tier #	2	2
Group #	1	1

Question: 46

Which ONE (1) of the following describes the effect on the source range nuclear instruments if excessive voids are formed in the core due to inadequate core cooling?

A. Count rates would decrease due to more moderation within the core causing less fast neutron leakage.

B. Count rates would decrease due to less moderation within the core inserting negative reactivity to decrease the shutdown power level.

C. Count rates would increase due to less moderation within the core causing more fast neutron leakage.

D. Count rates would increase due to more moderation within the core inserting positive reactivity to increase the shutdown power level.

Answer: C.

References:
ANO-S-LP-RO-CCM09 (AA51006-009) Rev 1, Objective 9.1
(MCD, Source Range Monitors Response to Degraded Core Conditions)

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 #	015A1.03	
Importance Rating	3.7	
Tier #	2	
Group #	1	

Question: 47

Given the following:

* The Reactor has been tripped.
* All RCPs have been secured.
* LOCA Optimal Recovery Procedure has been entered.
* RVLMS level 3 indicates covered.
* RCS pressure equals 1800 PSIA.
* CET temperatures equal 610°F.
* RCS Cold Leg temperature, Tc, equals 582°F and lowering.
* RCS Hot Leg temperature, Th, equals 602°F and constant.

Which ONE (1) of the following statements is correct concerning Natural Circulation?

A. Natural Circulation is not satisfied due to the CET/Th difference.

B. Natural Circulation is not satisfied due to the Th/Tc difference.

C. Natural Circulation is not satisfied due to the RVLMS level.

D. Natural Circulation is not satisfied due to Margin to Saturation.

Answer: D.

References:
Steam Tables
ANO-2-LP-RO-ELOCA, Objective 9
2202.003, Section 2, Step 11A (LOCA Recovery Procedure).

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 #	017A3.01	
Importance Rating	3.6	
Tier #	2	
Group #	1	

Question 48

Which ONE (1) of the following could be an indication of core being uncovered? (Assume instruments are accurate) CET Temperature equal to:

A. 550 degrees Fahrenheit with RCS Pressure equal to 1100 psia.

B. 570 degrees Fahrenheit with RCS Pressure equal to 1300 psia.

C. 590 degrees Fahrenheit with RCS Pressure equal to 1350 psia.

D. 610 degrees Fahrenheit with RCS Pressure equal to 1700 psia.

Answer: C.

References:
Steam Tables
AA51006-001 Obj 1.8 (Mitigating Core Damage - Core Cooling Mechanics)

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 #	017K5.03	017K5.03
Importance Rating	3.7	4.1
Tier #	2	2
Group #	1	1

Question 49

Given the following plant conditions:

- RCS pressure, temperature, power, and inventory stable.
- Steam Generator pressure and levels stable.
- Containment temperature, pressure, and humidity rising rapidly.
- Containment Sump indicates a 150 gpm increase.

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

A. RCS leak in Containment.

B. Main Steam Leak in Containment.

C. CCW leak in Containment.

D. Main Feed water leak in Containment.

Answer: D.

References:
2203.012J, Rev 27, 2K10-A7, Step 2.6.2

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 #	022A4.05	022A4.05
Importance Rating	3.8	3.8
Tier #	2	2
Group #	1	1

Question 50

Which ONE (1) of the following describes why 2CV-0742, Condensate X-Connect prior to MFP suction, is procedurally required to be open during MFP operations?

A. Equalize Condensate flow.

B. Prevent Condensate piping over pressurization.

C. Equalize Main Feed water flow.

D. Ensure MFP NPSH maintained.

Answer: B.

References:
NRC IE Notice 86-106 Supplement 1, Feed water Line Break

Question Source:	Bank #	__X____
	Modified Bank #	_____
	New	____

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	056K1.03	056K1.03
Importance Rating	2.6	2.6
Tier #	2	2
Group #	1	1

Question 51

The plant is operating at full power with the FWCS “A” Master Controller in Manual.

Which ONE (1) of the following describes the Steam Generator level response should a Reactor Trip occur?

A. SG "A" will continuously rise until HLO isolates feed water.

B. SG "A" will continuously rise until FW Blocks isolate feed water.

C. SG "A" will initially shrink then slowly rise until HLO isolates feed water.

D. SG "A" will initially shrink then slowly rise until FW blocks isolate feed water

Answer: C.

References:
STM 2-69, Feed water Control System, Rev 5, Sections 3.3 & 3.4

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 #	059K3.03	059K3.03
Importance Rating	3.5	3.7
Tier #	2	2
Group #	1	1

Question 52

An EFAS 1 signal will be present for which ONE (1) of the following? (consider each answer separately).

A. SG "A" Level = 20% NR & Press = 600 psia SG "B" Level = 26.5% NR & Press = 600 psia.

B. SG "A" Level = 30% NR & Press = 700 psia SG "B" Level = 25% NR & Press = 680 psia.

C. SG "A" Level = 15% NR & Press = 200 psia SG "B" Level = 20% NR & Press = 400 psia.

D. SG "A" Level = 5% NR & Press = 500 psia SG "B" Level = 10% NR & Press = 370 psia.

Answer: D.

References:
STM 2-70, Rev 6, Sections 3.1.2, 3.1.3, 3.1.7 (Engineering Safety Features Actuation System)
ANO-2-LP-RO-ESFAS Obj 2a, 2b
Tech Spec Table 3.3-4, Page 3-18, Amendment 65

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 #	061K4.02	
Importance Rating	4.5	
Tier #	2	
Group #	1	

Question 53

Given the following plant conditions:

* A plant shutdown and cool down is in progress.
* Steam Generators are 60% and being fed with AFW Pump 2P75 only.

To prevent run out on 2P75, maximum flow should not exceed:

A. 600 gpm

B. 800 gpm

C. 1000 gpm

D. 1200 gpm

Answer: C.

References:
ANO-2-LP-RO-EFW, Rev 05, Objective 3
2106.006, Rev. 053-01-0, EFW System Operations, Steps 5.10 and 5.17.

Question Source:	Bank #	__X____
	Modified Bank #	_____
	New	____
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__
	Comprehension or Analysis	_____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	061A2.04	061A2.04
Importance Rating	3.4	3.8
Tier #	2	2
Group #	1	1

Question 54.

The liquid radwaste system and boron management system are designed to provide controlled collection, handling, treatment, and disposal of radioactive wastes from plant operation.

Which ONE (1) of the following describes the principle design criteria of these systems?

A. Allow processing the various potentially radioactive liquid wastes for long term storage on site.

B. Limit releases due to anticipated operational occurrences to annual liquid activity release quantity (five Ci) with an average annual liquid activity release concentration of 2 x 10-8 mCi/cc (excluding tritium and dissolved fission product gases).

C. Provide the removal of radioactivity as soon as feasible in the process, thus preventing the buildup of excessive activity in the remainder of the systems.

D. Ensure protection of general public from exposure by keeping release levels as low as possible.

Answer: D.

References: STM-2-52 Section 1.4

Lesson Plan ASLP-RO-RADP

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 #	068K5.04	068K5.04
Importance Rating	3.2	3.5
Tier #	2	2
Group #	1	1

Question 55.

The plant is currently at 80% power diluting boron concentration to raise power to 100%. Liquid Radwaste Discharge Radiation Monitor (2RITS-2330) is out of commission, and a discharge from the waste holding tank is necessary to provide sufficient capacity to complete the dilution.

Which ONE (1) of the following are NOT required to perform a discharge from the Waste Condensate Tanks?

A. Obtain and analyze independent samples from the Waste Condensate Tank.

B. Perform an independent verification of discharge valve lineup.

C. Perform an independent verification of proper Unit 1 Circ Water flow.

D. Perform an independent verification of release rate calculation.

Answer: C.

References:
2104.014, Rev 30, Supplement 1, Step 2.9 and Supplement 2, Step 11.0 (LRW & BMS Operations)
ANO-2-LP-WCO-BMS Obj 17.5n

References: Procedure 2104.014 Section 5.0

Lesson Plan ASLP-RO-RADP

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 #	068K4.01	
Importance Rating	3.4	
Tier #	2	
Group #	1	

Question 56

Given the following plant conditions:

The Plant is in the process of escalating Rx Power from 40% to 100% following completion of a refueling outage. Both the N-16 monitor and the condenser off-gas radiation monitors alarm.
Assuming both alarms are valid (not due to instrument malfunction).

Which ONE (1) of the following describes the plant condition regarding these alarms:

A. primary to secondary leak.

B. Fuel clad failure.

C. Temperature inversion

D. CRUD Burst in the RCS.

Answer: A

References:
ANO-2-LP-RO-EAOP, Revision 5, Objective 28
OP 2203.038, Primary to Secondary Leakage AOP, Revision 006-00-0, Entry Conditions
STM 2-62, Radiation Monitoring System, Revision 6, Section 2.3

Lesson Plan

Question Source:	Bank #	_____
	Modified Bank #	___X____
	New	___ __
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__
	Comprehension or Analysis	____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	071K1.06	
Importance Rating	3.1	
Tier #	2	
Group #	1	

Question 57

Which ONE (1) of the following describes the effect of a Waste Gas Decay Tank pressure increasing to 400 psig?

A. A rupture disc will relieve pressure to Containment.

B. A rupture disc will relieve pressure to the Waste Gas Surge Tank.

C. A rupture disc will unisolate a relief valve and relieve pressure to Containment.

D. A rupture disc will unisolate a relief valve and relieve pressure to the Waste Gas Surge Tank.

Answer: D.

References:
2104.022, Rev 30, Step 6.2 (Gaseous Radwaste System)
2203.012P, Rev 12, Page 6 (Annunciator 2K16 Corrective Actions)
P&ID M2215, Rev 70, Sheet 1, F-4, (Waste Gas System)
ANO-2-LP-WCO-GRW Obj 5.0

Question Source:	Bank #	___X____
	Modified Bank #	_____
	New	____
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__
	Comprehension or Analysis	_____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	071A3.03	071A3.03
Importance Rating	3.6	3.8
Tier #	2	2
Group #	1	1

Question 58

The plant is operating at 100% power with Green Train maintenance in progress. Unit 2 Control Room Radiation Monitor (2RITS-8750-1A and B) alarms are actuated.

Which ONE (1) of the following immediate actions should be taken?

A. Verify Unit 2 Control Room Supply (2UCD-8683) and return (2PCD-8685) dampers are closed.

B. Direct RP to take air samples and radiation surveys in the vicinity of the detectors.

C. Verify Unit 2 Control Room Supply (2VSF-8A AND 2VSF-8B) and Exhaust (2VEF-43A AND 2VEF-43B) Fans are running

D. Verify Unit 2 Emergency Fan (2VSF-9) is off and the outside damper (2PCD-8607B) closed.

Answer: A.

References: Procedure 2104.007, CR Emergency Air Conditioning and Ventilation Section 7.0

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 #	072A3.01	
Importance Rating	2.9	
Tier #	2	
Group #	1	

Question 59

Which ONE (1) of the following conditions would cause the Steam Generator Tube Leak N-16 Monitor System output to be invalid?

A. Any Startup range NI Power indicates < 20% power.

B. Any Safety range NI Power indicates < 20% power.

C. COLSS Plant Power (CV9000) indicates < 20% Power.

D. Steam Flow signal from FWCS indicates < 20% plant power.

Answer: C.

References: 2105.016 Radiation Monitoring and Evacuation Alarm System, Section 3.0 and 5.2

Lesson Plan

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 #	072A4.01	072A4.01
Importance Rating	3.0	3.3
Tier #	2	2
Group #	1	1

Question 60

Which ONE (1) of the following components/subsystems does NOT discharge into the Quench Tank?

A. RCP Vapor Seal Leak off.

B. Pressurizer Vent.

C. RCP Control Bleed off relief.

D. Reactor Vessel Head Vent.

Answer: A.

References:
2103.007, Rev 14, PC-2, Section 3.0 (Quench Tank and Reactor Drain Tank Ops)
STM 2-3, Rev 3, Section 2.4 (Reactor Coolant System)
ANO-2-LP-RO-RCS Obj 25.0

Question Source:	Bank #	__X___
	Modified Bank #	_____
	New	____
Question Cognitive Level:	Memory or Fundamental Knowledge	_X_
	Comprehension or Analysis	_____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	002K1.05	002K1.05
Importance Rating	3.2	3.4
Tier #	2	2
Group #	2	2

Question 61

Given the following plant conditions:

* Post trip from full power.
* Loss of 4160V Bus 2A2 has occurred.
* Loss Of Coolant Accident (LOCA) in progress.
* #2 Emergency Diesel Generator (EDG) failure has occurred.
* Refueling Water Tank (RWT) Level is 6%.
* HPSI Pump 2P89C is Out of Service.
* HPSI Pump 2P89A Recirc Isolation Valve 2CV-5126-1 breaker trips.

Which ONE (1) of the following actions should be performed for the given conditions?

A. Place HPSI Pump 2P89A in Pull-To-Lock.

B. Cross-tie 2A3 and 2A4 and start HPSI Pump 2P89B.

C. Cross-tie 2Y1 and 2Y2 and close ESF Header Recirc Isolation 2CV-5628-2.

D. Cross-tie 2B5 and 2B6 and close ESF Header Recirc Isolation 2CV-5628-2.

Answer: D.

References:
2107.002, ESF Electrical System Operation, Rev 014-01-0, Attachment D.
2202.003, Loss of Coolant Accident, Rev 004-00-0, Section 1, Step 22; Section 3, step 20.B.
2202.010, Standard Attachments, Rev 005-01-0, Attachment 11, Step F; Attachment 16.

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 #	006K2.04	006K2.04
Importance Rating	3.6	3.8
Tier #	2	2
Group #	2	2

Question 62

Given the following:

* The plant is at 100% Power.
* Pressurizer Pressure Channel Select Switch is selected to "A".
* Pressurizer Pressure Controller, 2PIC-4626A, is in Automatic.
* All other Pressurizer pressure controls are in their normal configuration.
* Selected pressure transmitter 2PT-4626A fails High.
* All other systems respond as designed.
* No operator action is taken.

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

Which ONE (1) of the following correctly describes the response of the plant with no operator action?

A. All backup heaters energize, spray valves stay closed, and the plant trips on RPS trip on high Pressurizer Pressure at 2362 psia.

B. All backup heaters energize, spray valves stay closed, and the plant trips on CPC Aux trip on high Pressurizer Pressure at 2375 psia.

C. All backup heaters remain off, spray valves open, and the plant trips on RPS trip on Low Pressurizer Pressure at 1675 psia.

D. All backup heaters remain off, spray valves open, and the plant trips on CPC Aux trip on Low Pressurizer Pressure at 1860 psia.

Answer: D.

References:

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 #	010K6.01	010K6.01
Importance Rating	2.7	3.1
Tier #	2	2
Group #	2	2

Question 63

During a natural circulation cooldown, which ONE (1) of the following pressurizer level responses would indicate the presence of a void in the reactor vessel upper head?

A. A Pressurizer level increase when charging flow is directed through the auxiliary sprays.

B. A Pressurizer level decrease when charging flow is directed through the auxiliary sprays.

C. A Pressurizer level increase when charging flow is directed into the cold legs.

D. A Pressurizer level decrease when there is an increase in the cooldown rate.

Answer: A.

References:
ANO-2-LP-RO-EAOP, Revision 5, Objective 9
OP 2203.013, Natural Circulation Operations, Revision 008-00-0, Step 25
AOP 2203.013, Technical Guide, Revision 008-00-0, Step 25

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 #	011K5.10	011K5.10
Importance Rating	3.7	4.0
Tier #	2	2
Group #	2	2

Question 64

Which ONE (1) of the following reactor trips protects against an uncontrolled CEA Withdrawal from a subcritical condition? (Assume no operator action is taken)

A. Hi Linear Power.

B. Lo DNBR.

C. Hi LPD.

D. Hi Log Power.

Answer: D.

References:
Tech Spec 2.2.1 Bases
STM 2-63, Rev 3, Section 4.3.2 (Reactor Protection System)
ANO-2-LP-RO-RPS, Rev 07, Obj 11.0
ANO-2-LP-RO-TS, Rev 06, Obj 3.0
ANO-2-LP-SRO-TS, Rev 06, Obj 3.0 and 5.0

Question Source:	Bank #	__X____
	Modified Bank #	_____
	New	____

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	012K4.02	012K4.02
Importance Rating	3.9	4.3
Tier #	2	2
Group #	2	2

Question 65

You are withdrawing Reg Group 6 CEAs when one CEA in the group stops moving while the rest continue to withdraw.

Which ONE (1) of the following conditions will prevent any further group withdrawal when reached?

A. 4.9 inch misalignment detected by CPC target CEAs.

B. 5.0 inch misalignment detected by CEACs.

C. When CPC Target CEA generates a CWP.

D. When PMS pulse counter generates a CWP.

Answer: B.

References:
1. 2203.012J, Annunciator 2K10 Corrective Actions, Rev 027-04-0, 2K10-B1.
2. STM 2-02, CEDMCS, Rev 5 Chg 1, Section 8.2
3. STM 2-065-1, Core Protection Calculator System, Rev 6, Section 2.5.

Question Source:	Bank #	__X____
	Modified Bank #	_____
	New	____
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__
	Comprehension or Analysis	_____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	014K4.06	
Importance Rating	3.4	
Tier #	2	
Group #	2	

Question 66

Following a single channel CPC trip, how can the operator quickly determine if the trip signal is due to an auxiliary trip?

A. By obtaining the CEAC Trip Buffer Report.

B. By observing a trip light without the associated pretrip light.

C. By obtaining the trip TRA report.

D. By observing that Diverse Scram System (DSS) Trouble annunciator has actuated.

Answer: B.

References:

2105.001, Rev 22, Section 6.1 (CPC/CEAC Operations)
STM 2-65-1, Rev 5, Section 2.10.5 (Core Protection Calculator System)
AA52002-024, Rev 7, Obj 24.31

Question Source:	Bank #	___X____
	Modified Bank #	_____
	New	____
Question Cognitive Level:	Memory or Fundamental Knowledge	_X__
	Comprehension or Analysis	_____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	012K6.07	012K6.07
Importance Rating	2.9	3.2
Tier #	2	2
Group #	2	2

Question 67

Given the following plant conditions:

* Mode 5.
* LPSI Pump 2P60B in service through "A" SDC Heat Exchanger.
* All ESF component breakers available.

Which ONE (1) of the following will occur if the hand switch for Cntmt Spray Header Isolation 2CV-5612-1 is taken to the OPEN position on Control Room Panel 2C17?

A. Cntmt Building will be sprayed down with water from Reactor Coolant System (RCS).

B. Cntmt Building will be sprayed down with water from Refueling Water Tank (RWT).

C. Pump interlock will defeat opening of Cntmt Spray Header Isolation 2CV-5612-1.

D. LPSI Pump 2P60B will trip due to contact in Cntmt Spray Header 2CV-5612-1 MOV logic.

Answer: A.

References:
STM 2-08, Containment Spray System, Rev 4, Section 3.6.1.

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 #	026A4.01	
Importance Rating	4.5	
Tier #	2	
Group #	2	

Question 68

Given the following plant conditions:

* Mode 5
* Equipment hatch is to be opened

Which ONE (1) of the following actions should be used to properly align the Containment Purge System?

A. Place Purge Supply Fan, 2VSF-2, in HAND then secure Purge Exhaust Fan, 2VEF-15.

B. Place Purge Exhaust Fan, 2VEF-15, in HAND then secure Purge Supply Fan, 2VSF-2.

C. Manually close one Purge Exhaust Damper, and then secure Purge Exhaust Fan, 2VEF-15.

D. Manually close one Purge Supply Damper, and then secure Purge Supply Fan, 2VSF-2.

Answer: B.

References:
2104.033, Rev 36, Step 5.8 and Section 12.0 (Containment Atmosphere Control)
ANO-2-LP-WCO-CVENT, Rev 07, Obj 12 & 13
STM 2-9, Rev 02, Section 7.0 (Containment Cooling and Purge Systems)

Question Source:	Bank #	___X___
	Modified Bank #	_____
	New	____
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__
	Comprehension or Analysis	_____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	029A3.01	
Importance Rating	4.0	
Tier #	2	
Group #	2	

Question 69

Given the following plant conditions:

* Mode 6 operations with core offload in progress.
* A complete Loss of Offsite Power occurs.
* 2DG1 is supplying 2A3 and 2DG2 failed on startup.
* Alternate AC (AAC) Diesel Generator is NOT available due to maintenance on governor.
* Annunciator 2K11-K5 "Fuel Pool Temp High" is actuated.

For the above plant conditions,

Which ONE (1) of the following would be an available source of makeup for the SF Pool, if makeup were required?

A. Loop 1 Service Water using SW Pump 2P4A.

B. RWT using SFP Purification Pump 2P66.

C. BA Makeup System using BAMT Pump 2P39A/B and RMUW Pump 2P109A/B.

D. BMS Holdup Tanks using Holdup Tank Recirc Pump 2P48

Answer: A.

References:
ANO-2-LP-RO-SFP, Revision 0, Objectives 5,6,and 7
2107.001, Electrical System Operations, Rev 044-06-0, Attachments D & I.
2107.002, ESF Electrical System Operations, Rev 015-01-0, Attachment D.
2104.006, Fuel Pool Systems, Rev 018-05-0, Sections 10, 11, 12, & 14.

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 #	033K1.05	033K1.05
Importance Rating	2.7	2.8
Tier #	2	2
Group #	2	2

Question 70

Which ONE (1) of the following parameters is used to determine when to isolate a ruptured steam generator?

A. Primary Coolant Temperature.

B. Secondary Radiation Levels.

C. Steam Generator Level.

D. Pressurizer Pressure.

Answer: A.

References:
1. 2202.004, Rev 3

Question Source:	Bank #	___X___
	Modified Bank #	_____
	New	____

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	035A2.01	035A2.01
Importance Rating	4.5	4.6
Tier #	2	2
Group #	2	2

Question 71

The 90% limit switch on the MSIVs (2CV-1010A and 2CV-1060A) causes the:

A. Exercise valve (2HS-1011 and 2HS-1061) green light to illuminate.

B. Exercise valve(s) to open to prevent inadvertent MSIV closure.

C. Intermediate position indication on the MSIV hand-switches (2HS-1010-1 and 2HS-1060-2).

D. MSIV bypass valve to close when opening the MSIV.

Answer: A.

References:
2106.016, Rev 34, Supplement 1
ANO-2-LP-RO-STEAM, Obj 8.6.B
STM 2-15, Rev 3, Section 3.6 (Steam Generators and Main Steam System)

Question Source:	Bank #	___X___
	Modified Bank #	_____
	New	____

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	039K4.08	039K4.08
Importance Rating	3.3	3.4
Tier #	2	2
Group #	2	2

Questions 72

Given the following plant conditions:

* The plant is at 100% power.
* Condenser Vacuum Pump 2C-5A is running, 2C-5B is in standby.
* Condenser Vacuum starts to degrade.

Which ONE (1) of the following describes the design of the Condenser Vacuum System that will prevent continued degradation of Condenser vacuum.

A. Condenser Vacuum Pump 2C-5A will shift to the "Hogging" mode of operation at 4" HgA vacuum in the condenser and prevent further loss of vacuum.

B. Condenser Vacuum Pump 2C-5A will shift to the "Holding" mode of operation at 6" HgA vacuum in the condenser and prevent further loss of vacuum.

C. Condenser Vacuum Pump 2C-5B will startup at 4" HgA vacuum in the condenser and will be operating in the "Holding" mode after the inlet diaphragm valves are opened.

D. Condenser Vacuum Pump 2C-5B will startup at 6" HgA vacuum in the condenser and will be operating in the "Hogging" mode after the inlet diaphragm valves are opened.

Answer: C.

References:
ANO-2-LP-AO-VACUM, Revision 8, Objectives 3, 11 and 14
STM 2-22, Revision 6, Sections 2.3, 3.1,3.2 and 3.3
OP 2106.010, Revision 015-05-0, Section 3.0
OP 2203.012C, Revision 021-00-0, ACA for Vacuum Pump 2C-5B Auto Start -2K03 E-4

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 #	055K3.01	055K3.01
Importance Rating	2.5	2.7
Tier #	2	2
Group #	2	2

Question 73
Question:
Given the following plant conditions:

* Twenty (20) minutes post trip from full power.
* Startup Transformer #3 is locked out.
* Alternate AC Diesel Generator (AACG) Out of Service.
* Steam Generator Tube Rupture in progress.
* #1 Emergency Diesel Generator (EDG) has failed.
* 4160 VAC ESF Bus 2A3 crosstied to 2A4.
* #2 Emergency Diesel Generator (EDG) is loaded to 3300 KW.
* Emergency Feed water Pump 2P7A over speed trip device is tripped and will not reset.

Which ONE (1) of the following action should be performed for the given conditions?

A. Un-crosstie 2A3 and 2A4.

B. Reduce #2EDG load to 3000 KW.

C. Reduce #2EDG load to 2800 KW.

D. Cross-tie 2B5 to 2B6.

Answer: C.

References:
2104.036, Emergency Diesel Generator Operations, Rev 043-01-0, Step 5.8

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 #	062A2.11	062A2.11
Importance Rating	3.7	4.1
Tier #	2	2
Group #	2	2

Question 74

Given the following plant conditions:

* The Plant is at 100% power.
* 2DG2 is at 2850 KW for surveillance testing.
* A fault on 2D02 causes the loss of all Green DC.
* All other equipment operates as designed.
* Assume no operator action.

Which ONE (1) of the following statements describes the condition 2DG2 would be in one minute into this event:

A. Running and paralleled with offsite at approximately 2850 KW

B. Secured due to a loss of electrical governor control power

C. Running but unloaded because the output breaker opened

D. Running on the mechanical governor and loaded to 2A4 only

Answer: A.

References:
ANO-2-LP-RO-EDG, Revision 8, Objective 3
STM 2-31, EDGs, Revision 9, Sections 1.1 and 2.4.7

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 #	063K3.01	
Importance Rating	3.7	
Tier #	2	
Group #	2	

Question 75

Given the following plant conditions:

* A Plant trip has occurred due to a loss of offsite power.
* Pressurizer Pressure is 1550 psia and dropping.
* Both EDGs start and their output breakers close as designed.

Which ONE (1) of the following list the major pump starts on the safety busses in the correct order beginning with the first pump start?

A. HPSI pumps, Charging Pumps, Service Water Pumps, LPSI Pumps.

B. Charging Pumps, HPSI Pumps, LPSI Pumps, Service Water Pumps.

C. LPSI Pumps, Service Water Pumps, HPSI Pumps, Charging Pumps.

D. Service Water Pumps, HPSI Pumps, LPSI Pumps, Charging Pumps.

Answer: D.

References:
ANO-2-LP-RO-EDG, Revision 8, Objective 3
STM 2-31, EDG System Description, Revision 8, Diesel Load Table

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 #	064A3.06	064A3.06
Importance Rating	3.3	3.4
Tier #	2	2
Group #	2	2

Question 76

Which ONE (1) of the following actions confirms that a Process Liquid radiation monitoring instrument with a normal background reading is functional from the detector to the meter?

A. Placing the selector switch in HV (High Voltage) and insuring detector voltage is correct.

B. Placing the selector switch in LEVEL CAL, checking the high alarm setpoint and valve isolation.

C. Placing the selector switch in CHECK SOURCE, observing an increasing meter reading and valve isolation.

D. Removing the high-voltage power cable and observing the count rate decreasing to a lower value.

Answer: C.

References:
2104.014, Rev 30, Supplement 1, Step 6.2 (LRW and BMS Operations)
ANO-2-LP-RO-RMON Obj. 1.15

Question Source:	Bank #	_X___
	Modified Bank #	_____
	New	____
Question Cognitive Level:	Memory or Fundamental Knowledge	_X__
	Comprehension or Analysis	_____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	073A4.02	073A4.02
Importance Rating	3.7	3.7
Tier #	2	2
Group #	2	2

Questions 77

Given the following plant conditions:

* Full power Mode 1.
* Circ Water Pump 2P3A trips.

Which ONE (1) of the following best describes why turbine load must be reduced for the given conditions?

A. Maintain condenser vacuum within acceptable limits.

B. Prevent cavitation of Circ Water Pump 2P3B.

C. Prevent exceeding 40F circ water delta T across condensers.

D. Maintain exhaust hood temperature less than 200F.

Answer: A.

References:
2104.008, Rev 25, Step 5.4 (Circulating Water System Operation)
2203.019, Rev 4, Step 6.0 and Tech Guide (Loss of Condenser Vacuum)
2106.009, Rev 27, Section 5.0 (Turbine Generator Operations)
2203.012B, Rev 21, 2K02-B12, (Annunciator 2K02 Corrective Actions)
STM 2.40-1, Rev 06, Section 4.1 (Circulating Water System)
AA52002-030, Rev 6, Obj 30.5.A
AA32003-024, Rev 7, Obj 24.5

Question Source:	Bank #	_____
	Modified Bank #	___X____
	New	____

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	075K1.08	075K1.08
Importance Rating	3.2	3.2
Tier #	2	2
Group #	2	2

Questions 78

Given the following plant conditions:

* Full power operation.
* Instrument Air Header Pressure decreases to 60 psig.
* Instrument Air Header Cross-tie valves 2CV-3004 and 2CV-3015 are opened.
* Instrument Air Header Pressure continues to decrease to 30 psig.
* Report from Unit 1 that their Instrument Air pressure is 50 psig.

Which ONE (1) of the following actions would apply?

A. Bypass Instrument Air Dryers.

B. Crosstie Instrument Air and Service Air Systems.

C. Open coalescing prefilter bypass.

D. Close crosstie valves 2CV-3004 and 2CV-3015.

Answer: D.

References:
2203.021, Rev 6, Step 3 Contingency (Loss of Instrument Air)
ANO-2-LP-SRO-AOP, Rev 07, Obj 24.0

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 #	079K4.01	079K4.01
Importance Rating	2.9	3.2
Tier #	2	2
Group #	2	2

Question 79

Which ONE (1) of the following Fire Protection Deluge Sprinkler Systems can be manually actuated from the Control Room Fire Protection/Detection Control Panel 2C-343?

A. MFWP Lube Oil Reservoir

B. Hydrogen Seal Oil Skid

C. Unit Auxiliary Transformer

D. EDG Fuel Oil Storage Vaults

Answer: D.

References:
ANO-2-LP-RO-FPROT, Revision 9, Objective 4
STM 2-60, Fire Protection System, Revision 4, Section 7.0 and Table 4

Question Source:	Bank #	_____
	Modified Bank #	__X____
	New	____
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__
	Comprehension or Analysis	_____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	086A4.05	086A4.05
Importance Rating	3.0	3.5
Tier #	2	2
Group #	2	2

Question 80

Given the following plant conditions:

* Ten (10) minutes post trip from full power.
* RCS pressure is 1600 psia and stable.
* Containment pressure is 18.7 psia and lowering.
* Restoration of CCW to Containment has commenced.
* Loop II CCW Surge Tank Level lowers to 9%.

Which ONE (1) of the following actions should be performed for the given conditions?

A. Maintain RCP seal cool down rates < 100 degrees F/Hr.

B. Throttle 2CV-5255-1 open to increase Loop II CCW flow by 100 gpm.

C. Trip remaining RCPs and isolate CCW to Containment.

D. Trip remaining RCPs and actuate CIAS.

Answer: C.

References:
2202.010, Standard Attachments, Rev 005-01-0, Att 21, Step 4.0

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 #	008A1.04	008A1.04
Importance Rating	3.1	3.2
Tier #	2	2
Group #	3	3

Question 81

The following plant conditions exist:

* A large break LOCA has occurred on Unit 2.
* EOP 2202.003, Loss of Coolant Accident is being implemented.
* Hydrogen Analyzers initially indicate 0.7%.
* Hydrogen concentration has increased another 2.2% since the initial reading.
* No equipment is out of service.

Which ONE (1) of the following actions are required to satisfy the Containment Combustible Gas Control safety function?

A. Ensure both Hydrogen Recombiners are in service.

B. Ensure the Hydrogen Purge System or Containment Spray in service.

C. Ensure one Hydrogen Recombiner and Hydrogen Purge System in service.

D. Ensure both Hydrogen Purge System and Containment Spray in service.

Answer: A.

References:
1. Loss of Coolant Accident, 2202.003, Rev 004-00-0, Section 1, Step 20.
2. Loss of Coolant Accident Tech Guidelines, 2202.003, Rev 004-00-0, Section 1, Step 20.
3. Containment Hydrogen Control Operations, 2104.044, Rev 025-02-0, Step 5.2.

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 #	028K1.01	028K1.01
Importance Rating	2.5	2.5
Tier #	2	2
Group #	3	2

Question 82

Which ONE (1) of the following flow paths, when in service, could be directed to the Quench Tank (2T-42)?

A. RCP 4th stage vapor seal drains

B. Reactor vessel head vents

C. Reactor vessel head inner gasket leak off

D. Reactor coolant loop drains

Answer: B.

References:

ANO-2-LP-RO-RCS, Revision 12, Objective 25
STM 2-3, RCS, Revision 8, Section 2.3 and 2.4
STM 2-52, Liquid Radwaste/Boron Management, Revision 5, Section 3.1

Question Source:	Bank #	**X**
	Modified Bank #	
	New	
Question Cognitive Level:	Memory or Fundamental Knowledge	X
	Comprehension or Analysis	

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	007K1.03	
Importance Rating	3.0	
Tier #	2	
Group #	3	

Question 83

Given the following plant conditions:

* The plant has experienced a Loss of all Off Site Power from 100% power.
* #2 EDG has failed to start.
* #1 EDG has started and tied onto 2A3.
* Instrument Air header pressure is 0 psig.
* 2202.007, Loss of Off Site Power has been entered.
* Both MSIVs have been closed.
* Steam Generator pressures are 1070 psia each controlling on Main Steam Safeties.

Which ONE (1) of the following actions could be taken from the control room to restore Steam Generator pressure control to the normal shutdown operating band of 950 to 1050 psia?

A. Control the A SG pressure using the A SG Upstream Atmospheric Dump Valve, 2CV-1001.

B. Control the B SG pressure using the B SG Upstream Atmospheric Dump Valve, 2CV-1051.

C. Control the A SG pressure using the A SG Upstream Atmospheric Dump Valve Isolation Valve, 2CV-1002.

D. Control the B SG pressure using the B SG Upstream Atmospheric Dump Valve Isolation Valve, 2CV-1052.

Answer: D.

References:
ANO-2-LP-RO-SDBCS, Revision 9, Objective 16
ANO-2-LP-RO-STEAM, Revision 11, Objective 2m
STM 2-23, SDBCS, Revision 6, Section 2.12

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 #	041A4.08	041A4.08
Importance Rating	3.0	3.1
Tier #	2	2
Group #	3	3

Question 84

Which ONE (1) of the following sets of parameters match plant response for a turbine trip from 50% Reactor Power?

A. Reactor tripped, Tave approximately 540 degrees F.

B. Reactor tripped, Tave approximately 550 degrees F.

C. Reactor power approximately 50%, Tave approximately 550 degrees F.

D. Reactor power approximately 50%, Tave approximately 560 degrees F.

Answer: D.

References:
1. STM 2-23, Steam Dump and Bypass Control System, Rev 4, Section 2.3.
2. 2102.004C, Tave Vs Tref, Rev 026-04-0

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 #	045K4.11	045K4.11
Importance Rating	3.6	3.9
Tier #	2	2
Group #	3	3

Question 85

The plant is at 100% power with Green Train Maintenance in progress. The "2P4A STRAINER P HI" annunciator (2K06-E5/2K05-E4/2K05-E5) alarm is received. When the Auxiliary Operator reports the differential pressure across Service Water pump discharge strainer is 11 PSID.

Which ONE (1) of the following describes the correct sequence of actions for high strainer DP?

A. Service water cools the seal water and the oil for the HPSI pumps; loss of service water cooling will result in bearing and/or seal failure. Therefore, HPSI pumps are inoperable without service water cooling available and it must be restored to OPERABLE status within 72 hours or the plant must be in HOT SHUTDOWN within the next 12 hours.

B. The Service Water Loop is considered inoperable until the strainer can be cleaned or another pump 2P-4B placed in service and strainer D/P verified less than 8 PSID.

C. The Auxiliary operator can cycle the operating strainer to allow it to settle and reduce the differential pressure.

D. Verify 2P-4B aligned to Loop 1 using 2104.029, Service Water System Operations. Verify 2P-4B aligned to take suction from the ECP using 2104.029, Service Water System Operations, stop pump 2P-4A, then start pump 2P-4B

Answer: B.

References:
STM 2-05 Section 3.3,
STM 2-42Section 5.0
PROC./WORK PLAN NO 2104.029 section 18.0
SAR section 9.0
PROC./WORK PLAN NO 2203.012F

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 #	076A2.01	
Importance Rating	3.5	
Tier #	2	
Group #	3	

Question 86

Given the following plant conditions:

* Instrument Air Compressor 2C-27A is the LEAD compressor and running unloaded.
* Instrument Air Compressor 2C-27B is the LAG compressor and is in standby after cycling off on low Instrument Air load.
* Instrument Air Pressure at the outlet of the compressors is currently 100 psig.

If Instrument Air pressure at the outlet of the compressors were to drop to 80 psig, what would be the status of the Instrument Air Compressors?

A. 2C-27A running loaded, 2C-27B running unloaded

B. 2C-27A running loaded, 2C-27B running loaded

C. 2C-27A running loaded, 2C-27B in standby

D. 2C-27A in standby, 2C-27B running loaded

Answer: B.

References:
ANO-2-LP-AO-IA, Revision 12, Objective 6
STM 2-48, Instrument Air, Revision 3, Sections 2.7 and 2.8.2
OP 2104.024, Instrument Air System Operation, Revision 030-04-0, Steps 6.1, 17.7, and 7.2.9 through 7.2.12 along with the note above step 7.2.9.

Question Source:	Bank #	__X___
	Modified Bank #	_____
	New	____
Question Cognitive Level:	Memory or Fundamental Knowledge	_X__
	Comprehension or Analysis	_____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	078A3.01	078A3.01
Importance Rating	3.1	3.2
Tier #	2	2
Group #	3	3

Question 87

The plant is operating at 100% power, Green Train Maintenance in Progress. A containment entry is in progress to perform on line maintenance. The crew entering containment report that the gasket on the inner airlock door has been damaged, there is a gouge across the entire sealing surface approximately 1/8 inch deep and ½ inch wide and they could hear air flow thru the gouge before they equalized pressure.

Which ONE (1) of the following actions is required in accordance with Abnormal Operating Procedures?

A. Verify that at least the outer air lock door is closed in the affected air lock within one hour and either restore the inner air lock door to OPERABLE status within 24 hours or lock the outer air lock door closed. Operation may then continue provided that the outer air lock door is verified to be locked closed at least once per 31 days.

B. Verify that the inner air lock door is closed in the affected air lock within one hour and either restore the inner air lock door to OPERABLE status within 24 hours or lock the inner air lock door closed and be in at least HOT STANDBY within the next six hours and in COLD SHUTDOWN within the following 30 hours.

C. Verify that the outer air lock door is closed in the affected air lock within one hour and either restore the inner air lock door to OPERABLE status within 24 hours or lock the inner air lock door closed and be in at least HOT STANDBY within the next six hours and in COLD SHUTDOWN within the following 30 hours.

D. Verify that at least the inner air lock door is closed in the affected air lock within one hour and either restore the inner air lock door to OPERABLE status within 24 hours or lock the inner air lock door closed. Operation may then continue provided that the outer air lock door is verified to be locked closed at least once per 31 days.

Answer: A.

References:

Lesson Plan A2LP-RO-EAOP Objective 5

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 #	103K3.02	
Importance Rating	3.8	
Tier #	2	
Group #	3	

Question 88

Which ONE (1) of the following best describes the condition in which the ANO overtime working hour policy applies?

A. A person working in training performing simulator operations.

B. A person working on a procedure revision for a quality related system.

C. A person working on a non-safety related system or component.

D. A person working on safety-related system or component.

Answer: D.

References:
Tech Spec 6.2.2.g
ANO-S-LP-RO-ADMIN Obj 4.0
ANO-S-LP-SRO-ADMIN Obj 4.0

Question Source:	Bank #	___X____
	Modified Bank #	_____
	New	____
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__
	Comprehension or Analysis	_____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	2.1.1	2.1.1
Importance Rating	3.7	3.8
Tier #	3	3
Group #	1	1

Question 89

A plant down power is in progress with the following conditions:

* Tref is 565F and dropping.
* Tave is 570F and steady.
* Boration is in progress at 20 gpm.
* Main turbine is being unloaded at 30 MW/min.

Which ONE (1) of the following statements accurately describes the plant response during this power reduction?

A. Turbine unloading rate is excessive for the boration rate, as evidenced by the steady Tave indication.

B. Turbine unloading rate is excessive for the boration rate, as evidenced by the dropping Tref indication.

C. Boration rate is excessive for the turbine load rate, as evidenced by the dropping Tref indication.

D. Boration rate is excessive for the turbine load rate, as evidenced by the steady Tave indication.

Answer: A.

References:
2102.004, Power Operation, Rev 026-04-0, Step 11.7 and Form 2102.004C

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 #	2.1.7	2.1.7
Importance Rating	3.7	4.4
Tier #	3	3
Group #	1	1

Question 90

Given the following:

* An operator is performing an approved system procedure when he encounters a CAUTION tag giving instructions contradictory to those in the procedure.

Which one (1) of the following actions should the operator take?

A. With the concurrence of the two (2) SROs noted on the procedure, perform the procedure as written and clear the CAUTION tag as soon as the procedure is completed.

B. Deviate from the procedure and follow instructions of the CAUTION tag.

C. N/A the step, note the deviation on the affected page and continue with the procedure.

D. Stop the procedure, place the system in a safe condition, and notify the CRS.

Answer: D.

References:
Procedure 1000.027, Rev 24, Step 6.5.4.d (Hold and Caution Card Control)
Procedure 1015.001, Rev 50, Step 16.1 (Conduct of Operations)
ANO-S-LP-SRO-ADMIN Obj. 4.0

Question Source:	Bank #	___X___
	Modified Bank #	_____
	New	____
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__
	Comprehension or Analysis	_____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	2.1.20	2.1.20
Importance Rating	4.3	4.2
Tier #	3	3
Group #	1	1

Question 91

In accordance with Procedure 2104.028, what is the proper sequence of steps to "swap" CCW pumps?

A. Place oncoming hand switch to START. Throttle open oncoming pump Casing Vent, WHEN pump venting is complete, THEN close pump Casing Vent. Place off going hand switch to STOP.
Observe the following:
- Normal flow (1000 to 2500 gpm)
- Discharge pressure for oncoming pump (100 to 120 psig)

B. Throttle open oncoming pump Casing Vent, WHEN pump venting is complete, THEN close pump Casing Vent. Place oncoming hand switch to START.
Place off going hand switch to STOP.
Observe the following:
- Normal flow (1000 to 2500 gpm)
- Discharge pressure for oncoming pump (100 to 120 psig)

C. Throttle open oncoming pump Casing Vent, WHEN pump venting is complete, THEN close pump Casing Vent. Place oncoming hand switch to START.
Place off going hand switch to STOP.
Observe the following:
- Normal flow (2500 to 2800 gpm)
- Discharge pressure for oncoming pump (80 to 100 psig)

D. Place oncoming hand switch to START. Throttle open oncoming pump Casing Vent, WHEN pump venting is complete, THEN close pump Casing Vent. Place off going hand switch to STOP.
Observe the following:
- Normal flow (2000 to 2500 gpm)
- Discharge pressure for oncoming pump (90 to 120 psig)

Answer: B.

References: Procedure 2104.028

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 #	2.1.23	
Importance Rating	3.9	
Tier #	3	
Group #	1	

Question 92.

Given the following plant conditions:

* The plant is being shutdown for a refueling outage from 100% power.
* All Control Element Assemblies (CEAs) are at the upper electrical limit.
* CRS directs CBOR to commence Axial Shape Index (ASI) control using Group P CEAs.

Which ONE (1) of the following statements describes the correct control manipulations to control ASI using Group P CEAs?

A. Mode Select to "MG", Group Select to "P", P Group Select to "P", Joystick to "Insert".

B. Mode Select to "MS", Group Select to "P", P Group Select to "P", Joystick to "Insert".

C. Mode Select to "MG", Group Select to "P", P Group Select to "P2", Joystick to "Insert".

D. Mode Select to "MS", Group Select to "P", P Group Select to "P1", Joystick to "Insert".

Answer: A.

References:
ANO-2-LP-RO-CEDM, Revision 8, Objective 6
STM 2-02, Control Element Drive Mechanism Control System, Revision 7, Sections 4.2.1.2, 4.2.1.4, and 4.2.3.

Question Source:	Bank #	__X____
	Modified Bank #	_____
	New	____
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__
	Comprehension or Analysis	_____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	2.2.2	2.2.2
Importance Rating	4.0	3.5
Tier #	3	3
Group #	2	2

Question 93

Which ONE (1) of the following actions are required when restoring the system to service and a clearance tag is missing for a component?

A. Do NOT change the as-found position of the component and notify the Control Room Supervisor.

B. Perform the clearance as written and notify the Control Room Supervisor after completion of the restoration.

C. Have another operator verify that it is the correct component and then change the position as required.

D. Change the as-found position of the component, check off and initial the step and write in "Tag Missing".

Answer: A.

References:
OP 1000.027, Rev 24, Step 22.4.2.1

Question Source:	Bank #	__X____
	Modified Bank #	_____
	New	____

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	2.2.13	2.2.13
Importance Rating	3.6	3.8
Tier #	3	3
Group #	2	2

Question 94.

Which ONE (1) one of the following conditions requires entry into a Technical Specification action statement while at normal operating temperature and pressure?

A. "A" diesel generator day fuel tank level 55% (308 gallons)

B. Fuel Oil storage tank level of 98% (22050 gallons).

C. Tcold 553 degF

D. Charging pump 2P-36A is under clearance.

Answer: B

References: Tech Spec 3.8.1.1

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 #	2.2.22	2.2.22
Importance Rating	3.4	4.1
Tier #	3	3
Group #	2	2

Question 95

A Waste Control Operator is required to complete a valve lineup in an area where the radiation level is 50 mrem/hour. The operator's current Total Effective Dose Equivalent (TEDE) is 1730 mrem.

What is the maximum time he can work in this area and not exceed his Administrative Dose Control Level (ADCL)?

A. 1 hour.

B. 5 hours.

C. 10 hours.

D. 25 hours.

Answer: B.

References:
1012.021, Rev 4, Step 6.2.2.A.1 (Exposure Limits and Controls)
ANO-S-LP-RO-RADP, Rev 00, Obj 14.0

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 #	2.3.1	2.3.1
Importance Rating	2.6	3.0
Tier #	3	3
Group #	3	3

Question 96

Given the following plant conditions:

* A small break Loss of Coolant Accident is in progress.
* RCS pressure is 1600 psia.
* Containment pressure is 16 psia and slowly increasing.
* Containment Hi Range Radiation Monitors read 13 R/Hr and increasing.
* Containment Low Range Radiation Monitors are in alarm and trending up
* No operator actions have been performed.
* All systems function as designed

Which ONE (1) of the following actions should be performed?

A. Isolate letdown.

B. Manually actuate SIAS.

C. Manually actuate CIAS.

D. Manually actuate CSAS.

Answer: C.

References:
2203.012J, Revision 028-04-0, 2K10-A6, (Alarm 2K10 Corrective Action for CNTMT Radiation HI)
ANO-2-LP-RO-ELOCA, Revision 05, Objective 6.0

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 #	2.3.10	2.3.10
Importance Rating	2.9	3.3
Tier #	3	3
Group #	3	3

Question 97

When conducting radiological surveys, which ONE (1) of the following guidelines are NOT applicable in accordance with administrative procedure 1012.018?

A. Radiation surveys are required to evaluate the extent of the radiation levels and the potential radiological hazards that could be present.

B. Perform general area surveys by holding the instrument probe approximately waist high with periodic measurements taken at the head and knee levels.

C. Evaluate all radiological hazards present. When neutron dose rates are anticipated the survey must evaluate the neutron component in addition to any gamma measurements.

D. When performing radiation surveys for RWP and job coverage, the general area readings should be taken at waist level.

Answer: D.

References: Procedure 1012.018 section 7.2

Lesson Plan ASLP-RO-RADP Objective 6

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 #	2.3.2	2.3.2
Importance Rating	2.5	2.9
Tier #	3	3
Group #	3	3

Question 98

The following plant conditions exist:

* Mode 5 operations.
* RCS Pressure is 150 psia.
* Pressurizer Level 40%.
* SGs in wet lay-up.
* "A" SDC Heat Exchanger and "A" LPSI Pump in service for SDC.
* "A" LPSI pump trips.

Which ONE (1) of the following actions should be taken?

A. Place 2P60B in service on "A" SDC Heat Exchanger.

B. Repressurize RCS and start a Reactor Coolant Pump.

C. Place 2P35A in service on "A" SDC Heat Exchanger.

D. Place 2P35B in service on "B" SDC Heat Exchanger.

Answer: A.

References:
2104.004, Shutdown Cooling System, Rev 027-00-0, Step 5.2
2203.029, Loss of Shutdown Cooling, Rev 010-01-0, Step 16

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 #	2.4.1	2.4.1
Importance Rating	4.3	4.6
Tier #	3	3
Group #	4	4

Question 99

Given the following conditions:

The reactor has tripped due to a large feed line break on 'A' SG.
o An uncontrolled cool down is in progress
o Tave is 512F and dropping
o All regulating and shutdown rods have fully inserted
o The Main Turbine has NOT tripped
o Both SG levels are 15% and lowering
o EFW flow to 'A' SG is 165 gpm
o EFW flow to 'B' SG is 0 gpm
o Bus 2A4 is de-energized

Which ONE (1) of the following are the operators NOT permitted to do during the performance of their Standard Post Trip Actions?

A. Close the MSIVs

B. Trip the Main Feed Water Pumps

C. Start 2DG2 DG

D. Reduce EFW flow to 'A' SG

Answer: D.

References:

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 #	2.4.34	2.4.34
Importance Rating	3.8	3.6
Tier #	3	3
Group #	4	4

Question 100

The plant has suffered a loss of feed water accident. “A” Steam Generator level is 0% on the narrow range level indication, 17.4” on the wide range, “B” Steam Generator level is 38% on the narrow range level indication, 371” on the wide range. EFW pump 2P7B has been started.

Which ONE (1) of the following describes the correct sequence of actions for the conditions given?

A. Commence feeding the SG’s; maintain EFW flow < 150 gpm to each SG’s (Total EFW flow 300gpm). When increases in SG level observed or continuous EFW flow to the SG has been maintained for > 5 minutes, control EFW flow as necessary.

B. Commence feeding A SG; maintain EFW flow < 150 gpm. When increases in SG level observed or continuous EFW flow to the A SG has been maintained for > 5 minutes, control EFW flow as necessary.

C. Commence feeding the B SG; maintain EFW flow < 150 gpm. When increases in SG level observed or continuous EFW flow to the B SG has been maintained for > 5 minutes, control EFW flow as necessary.

D. Commence feeding the SG’s; maintain EFW flow < 150 gpm to both SG’s (Total EFW flow 150gpm). When increases in SG level observed or continuous EFW flow to the SG has been maintained for > 5 minutes, control EFW flow as necessary.

Answer: C

References: Procedure 2202.006
STM 2-15 Section 3.1.6.12

Lesson Plan (As available)

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 #	2.4.49	2.4.49
Importance Rating	4.0	4.0
Tier #	3	3
Group #	4	4

U.S. Nuclear Regulatory Commission
Site-Specific
Written Examination

Applicant Information

Name:	Region: IV
Date: 7/11/03	Facility/Unit: ANO2
License Level: SRO	Reactor Type: CE
Start Time:	Finish Time:

Instructions

Use the answer sheets provided to document your answers. Staple this cover sheet on top of the answer sheets. The passing grade requires a final grade of at least 80.00 percent. Examination papers will be collected six hours after the examination starts.

Applicant Certification

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

_____

Applicant's Signature

Results

Examination Value	_____ Points
Applicant's Score	_____ Points
Applicant's Grade	_____ Percent

Question 1

Given the following:

* A Reactor Startup has been completed.
* The Reactor is Critical at 1E-5% power on Group P CEAs.
* Tave is 545°F and being maintained by SDBCS in AUTO LOCAL.
* The CBOR Withdraws Group P CEAs for 3 steps.
* The shim switch sticks in the "Withdraw" position for 30 seconds before it is returned to neutral.
* This CEA group withdrawal causes a constant 0.2 dpm startup rate to be established.
* No other operator action is taken.
* Assume no reactor trip occurs.
* POAH = Point of Adding Heat.

Which ONE (1) of the following describes the response of the reactor parameters at exactly 15 minutes after the shim switch was returned to neutral?

A. Reactor Power above the POAH and Tave rising

B. Reactor Power below the POAH and Tave at 545°F

C. Reactor Power below the POAH and Tave rising

D. Reactor Power above the POAH and Tave at 545°F

Answer: B.

References:
General Physics PWR Reactor Theory - Chapter 8, Revision 2, Objectives 12 and 14.
General Physics PWR Reactor Theory - Chapter 8, Revision 2, Intermediate Range Operations

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 #	00001AK1.03	00001AK1.03
Importance Rating	3.9	4.0
Tier #	1	1
Group #	2	1

Question 2

Operators are reducing reactor power from 100% to 80% for turbine control valve testing.

The following indications occur during CEA movement:

"CEAC 1 / 2 CEA DEVIATION" annunciator (2K04-J5/J6) is in alarm

Control Room Operators determine that a single regulating group CEA has lagged behind its associated group position by 10 inches.

Which ONE (1) of the following actions are required to address this condition?

A. A power reduction to 60% or less must be commenced at a rate that will maintain power within the acceptable region of the TS COLR limits.

B. The reactor is tripped because the misalignment is greater than 7 inches and power is greater than 60%,

C. CEA realignment must be completed within 2 hours at a rate no faster than 15 inches in any one minute.

D. The Shift Manager must verify COLSS display within the Azimuthal Tilt and Axial Shape Index limits for continued operation.

ANSWER: B

REFERENCE: AOP 2203.003 CEA Malfunction

Lesson Plan: 2203.003 pg. 19

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 #		003 G2.1.20
Importance Rating		4.2
Tier #		1
Group #		1
10 CFR 55.43(b)		(5)

Question 3

Ten (10) minutes have passed since the reactor was tripped from 100% power due to a LOCA. All RCPs have been secured. LOCA Optimal Recovery Procedure has been entered.
Containment radiation monitors read 1.2 REM/HR and rising.
Pressurizer level is 32% and rising.
RVLMS level 3 indicates covered.
RCS pressure equals 1800 PSIA.
CET temperatures equal 610°F.
RCS Cold Leg temperature, Tc, equals 582°F and lowering.
RCS Hot Leg temperature, Th, equals 602°F and constant.

Which ONE (1) of the following statements is correct concerning the status of the plant?

A. Natural Circulation is not satisfied due to the CET/Th difference.

B. Use CET's and depressurize the RCS to maintain 30 - 45°F MTS.

C. Natural Circulation is not satisfied due to the RVLMS level.

D. Use RCS Th and depressurize the RCS to maintain 30 - 45°F MTS

Answer: B.

References:
Steam Tables
ANO-2-LP-RO-ELOCA, Objective 9
2202.003, Section 2, Step 11A (LOCA Recovery Procedure).

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 #		BW/E03EK3.11
Importance Rating		4.4
Tier #		1
Group #		1
10 CFR 55.43(b)		(5)

Question 4

Following the determination that a CEA in Shutdown Bank "A" is misaligned by four (4) inches and mechanically bound, shutdown margin is calculated to be 4.9%.

Which ONE (1) of the following actions should be taken?

A. Continue plant operation without restriction.

B. Reduce power to less than or equal to 81%.

C. Start a plant shutdown and be in Mode 3 within 6 hours.

D. Initiate Emergency Boration.

Answer: D.

References:
Tech Spec 3.1.3.5, 3.1.3.1, and 3.1.1.1
ANO-2-LP-RO-TS, Rev 06, Obj 3.0
ANO-2-LP-SRO-TS, Rev 06, Obj 3.0
Procedure 2202.006
STM 2-15 Section 3.1.6.12

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 #	00005AK3.01	00005AK3.01
Importance Rating	4.0	4.3
Tier #	1	1
Group #	1	1

Question 5

The following conditions occur:

Indications of a LOCA are present.

RCS pressure is 900 psia.

SIAS signal is present.

Which ONE (1) of the following describes the effect on plant conditions should a loss of ONE HPSI pump occur?

A. Has no effect on peak fuel clad temperature, because of redundant train of HPSI.

B. Has no effect on peak fuel clad temperature, because of SIT flow into RCS.

C. Peak fuel clad temperature will not rise above safety limits, because of redundant train of HPSI.

D. Peak fuel clad temperature will not rise above safety limits, because of SIT flow into RCS.

Answer: C

Reference:
STM 2-05 Rev 12
TS Bases 3/4.5.2, 3/4.5.3

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 #		011EA2.10
Importance Rating		4.7
Tier #		1
Group #		1
10CFR55.43(b)		(5)

Question 6

Given the following plant conditions:

Unit 2 has tripped from 100% of full power
All non-vital offsite power sources are UNAVAILABLE
RCS pressure is 920 psia and decreasing
RCS T-cold is 500F and decreasing
Pressurizer level is 5% and decreasing
Containment pressure is 14.5 psia and stable
Containment temperature is 115F and stable
No radiation alarms are present inside containment or on the Main Steam lines
Both A and B Steam Generator pressure 720 psia and decreasing
Both A and B Steam Generator level is maintained at setpoint
No main steam safeties have lifted

Which ONE (1) of the following procedures would establish stable plant conditions?

A. Loss of Coolant Accident (2202.003)

B. Excess Steam Demand (2202.005)

C. Loss of Feed water (2202.006)

D. Loss of Offsite Power (2202.007)

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	RO	SRO
K/A #		W/E04EA2.1
Importance Rating		4.3
Tier #		1
Group #		1
10CFR55.43(b)		(5)

Question 7

The plant has suffered a LOCA. All RCPs have been secured; All HPSI and LPSI pumps are running.
RCS press is 1200 psia and rising.
PZR level is 100 %.
Thot is 510 F, Tcold is 500 F
Ave CET temp is 560 F
A S/G is 20 % NR
B S/G is 25% NR
Feed water flow to A S/G is 260 GPM; Feed water flow to B S/G is 220 GPM.

Based on the given plant conditions, which ONE (1) of the following actions are correct?

A. Throttle HPSI flow to prevent placing the RCS in a solid plant condition and to control RCS pressure

B. Secure both HPSI and LPSI pumps, continuing charging as necessary to maintain plant pressure using charging pumps as necessary.

C. Continue charging to the RCS with both HPSI pumps and verify HPSI flow using HPSI flow curves.

D. Secure the LPSI pumps and 1 HPSI pump. Throttle flow from the running HPSI pump as necessary to control RCS pressure but maintain at least 50 gpm.

Answer: C

References:
2202.003, Rev 3, Step 16, Page 44 (Loss of Coolant Accident)
ANO-2-LP-RO-ELOCA Obj. 7

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/E01&E02EK1.2
Importance Rating		3.9
Tier #		1
Group #		1
10CFR55.43(b)		(5)

Question: 8

During normal power operations, Reactor Coolant Pump 2P32B Upper Oil Reservoir level begins to drop. Annunciators 2K11-F3, RCP "B" UPPER/LOWER OIL RSVR LEVEL LO" and 2K11-B3, RCP "B" UPPER THRUST BEARING METAL TEMPERATURE HI are actuated. Thrust bearing temperature is rising.

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

A. Immediately trip the reactor and stop RCP 2P32B.

B. Trip RCP 2P32B if vibration increase noted

C. Trip RCP 2P32B if thrust bearing temperature exceeds 330 degrees F.

D. Immediately trip the reactor and stop ALL RCPs.

Answer: A

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 #	000015AK3.03	000015AK3.03
Importance Rating	3.7	4.0
Tier #	1	1
Group #	1	1

Question 9

Given the following plant conditions:

* The plant tripped 20 minutes ago due to a Loss of Offsite Power.
* Pressurizer level is 40% and trending up.
* Pressurizer pressure is 2150 psia and trending up.
* T-hot is 580°F and trending up.
* Average CET temperature is 585°F and trending up.
* T-cold is 550°F and trending up.
* Steam Generator levels are 15% NR and trending up.
* 2P7A and 2P7B are feeding each Steam Generator at 300 gpm.

Which ONE (1) of the following diagnosis should be made concerning Natural Circulation heat removal?

A. Natural Circulation is in the process of being established, all indications are normal.

B. Natural Circulation heat removal is inadequate due to increasing RCS temperatures.

C. Natural Circulation heat removal is inadequate due to inadequate feed water flow.

D. Natural Circulation heat removal is adequate because loop Delta-T is adequate.

Answer: B.

References:
ANO-2-LP-SRO-AOP, Revision 7, Objective 16
OP 2203.013, Natural Circulation Operations, Revision 008-00-0, Steps 5 and 6 and Technical Guidance for Step 5.
OP 2202.007, Loss of Offsite Power EOP, Revision 005-00-0, Step 23, and associated technical guidance.

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 #	CE/A13AA2.2	CE/A13AA2.2
Importance Rating	2.9	3.8
Tier #	1	1
Group #	1	1

Question 10

Given the following plant conditions:

* Two (2) CEAs failed to insert on a Reactor Trip from full power.
* RCS Pressure is 1800 psia.
* HPSI Pump 2P89A is running.

Which ONE (1) of the following Emergency Boration methods should be selected if VCT Outlet valve (2CV-4873-1) is open and will NOT close from the Main Control Board?

A. Open Boric Acid Gravity Feed valves (2CV-4921-1 and 2CV-4922-1).

B. Open RWT to Charging Pump Suction valve (2CV-4950-2).

C. Open Emergency Borate valve (2CV-4916-2) and start BAM Pump.

D. Open CVCS to HPSI Train valve (2CVC-115).

Answer: C.

References:
2202.010, Rev 4, PC-1, Exhibit 1 (Standard Attachments)
2203.032, Rev 7, (Emergency Boration)
ANO-2-LP-RO-EAOP Obj 27.0

Question Source:	Bank #	__X____
	Modified Bank #	_____
	New	____
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__
	Comprehension or Analysis	_____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #		024AA2.02
Importance Rating		4.4
Tier #		1
Group #		1
10CFR55.43(b)		(5)

Question 11

Which ONE (1) of the following combination of actuation signals will isolate Service Water (SW) to the Component Cooling Water (CCW) Heat Exchangers?

A. SIAS and CIAS.

B. SIAS and MSIS.

C. CIAS and RAS.

D. MSIS and CCAS.

Answer: B.

References:
1. STM 2-42 Service Water & ACW Systems, Rev 11 Chg 1, Section 4.0
2. 2202.010, Standard Attachments, Rev 005-01-0, Attachments 2 and 4.

Question Source:	Bank #	___X____
	Modified Bank #	_____
	New	____
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__
	Comprehension or Analysis	_____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	000026AA1.03	000026AA1.03
Importance Rating	3.6	3.6
Tier #	1	1
Group #	1	1

Question 12

If Reactor power is not lowering after a plant trip, Standard Post Trip Actions (SPTAs), 2202.001, Contingency Step 3.A.2 directs the operator to open the feeder breakers to 480 VAC Load Center busses 2B7 and 2B8 for ten (10) seconds and then re-close them.

Which ONE (1) of the following statements is the reason for re-closing these breakers?

A. Restore power to the CEDMCS in order to verify that all CEAs have fully inserted.

B. De-energize the 2B7 and 2B8 busses to allow the under voltage relays strip the individual loads from the busses.

C. Restore power to the Pressurizer backup heaters for proper pressure control and 480V MCCs

D. Restore power to Component Cooling Water Pump 2P33C and 480V MCCs.

Answer: D.

References:
2202.001, Revision 005-00-0, Step 3.A.2 (Standard Post Trip Actions)
2107.001, Rev 44-06-0, Page 31 (Electrical System Operation-Power to CCW Pump C)
ANO-2-LP-RO-ESPTA Objective 8

Question Source:	Bank #	_____
	Modified Bank #	___X___
	New	____
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__
	Comprehension or Analysis	____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #		029EK3.12
Importance Rating		4.7
Tier #		1
Group #		1
10 CFR 55.43(b)		(2)

Question 13

Which ONE (1) of the following differentiates between an Excess Steam Demand Event and a Loss of Coolant Accident?

A. RCS Margin To Saturation

B. Pressurizer level

C. Containment pressure

D. RCS pressure

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 #	000040AA2.03	000040AA2.03
Importance Rating	4.6	4.7
Tier #	1	1
Group #	1	1

Question 14

Plant conditions are as follows:

* RCS Pressure is 1100 psia and slowly lowering.
* CET Temperature is 465 degrees F and slowly lowering.
* Pressurizer Level is 0%.
* SG "A" pressure is 375 psia and level is 70 inches Wide Range.
* SG "B" pressure is 725 psia and level is 240 inches Wide Range.
* Containment Temperature is 200 degrees F.
* Containment Pressure is 27.5 psia.

Which ONE (1) of the following describes the correct actions for this event?

A. When RCS pressure starts to increase, stabilize pressure by using Main or Aux Spray.

B. When CET temperature starts to rise, fully open SDBCS valve 2CV-0303.

C. Manually initiate EFAS to "A" SG and commence feeding in manual to restore level.

D. Open Aux Spray valve to lower RCS pressure and maximize HPSI flow to restore Pzr level.

Answer: A.

References:
1. 2202.005, Excess Steam Demand, Rev 004-00-0, Step 18.0
2. 2202.010, Standard Attachments, Rev 005-00-0, Attachment 27.

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 #	CE/A11AK2.2	CE/A11AK2.2
Importance Rating	3.2	3.4
Tier #	1	1
Group #	1	1

Question 15

Given the following plant conditions:

* Reactor power is 10%.
* A main turbine roll to 1800 rpm is in progress.
* Condenser vacuum has begun degrading.
* Annunciators 2K03-A3/A4 "2E11A/B Pressure Hi" are actuated.

Which ONE (1) of the following immediate actions should the Crew take?

A. Reduce turbine speed to stabilize condenser vacuum.

B. Raise Tave to reduce SDBCS load.

C. Trip the turbine before exceeding 7 inches Hg absolute.

D. Observe the vacuum trend to determine if the turbine must be tripped over the next five (5) minutes.

Answer: C.

References:
2203.019, Rev 4, Step 6.0, (Loss of Condenser Vacuum)
STM 2-22, Rev 2, Section 8.1
2203.019, Rev 4, Step 6.0, Technical Guideline
ANO-2-LP-RO-EAOP, Obj 16.0
ANO-2-LP-SRO-AOP, Obj 22.0

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 #	000051AA2.02	000051AA2.02
Importance Rating	3.9	4.1
Tier #	1	1
Group #	1	1

Question 16

The following plant conditions exist:

* Loss of Offsite Power has occurred from full power.
* AACDG is Out of Service.
* 4160 VAC ESF Bus 2A3 has lockout.
* #2EDG has failed.
* Twenty (20) minutes later a loss of Green D.C. occurs.

Which ONE (1) of the following actions should be performed for these conditions?

A. Locally throttle EFW Valves 2CV-1026-2 and 2CV-1076-2.

B. Locally start and manually control EFW Pump 2P7A.

C. Re-open MSIVs and feed SGs with Main Feed water pump.

D. Cross-connect Red and Green Train DC Buses.

Answer: B.

References:
1. Blackout EOP, 2202.008, Rev 004-00-0, Section 1, Step 7.C.6
2. EFW System Operation, 2106.006, Rev 049-04-0, Exhibit 3, Manual Control of 2P7A

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 #	000055EK3.02	000055EK3.02
Importance Rating	4.3	4.6
Tier #	1	1
Group #	1	1

Question 17

Which ONE (1) of the following Reactor Trip Circuit Breakers would indicate open on a loss of 120V Vital AC bus 2RS-1?

A. Breakers 1 and 5.

B. Breakers 2 and 7.

C. Breakers 3 and 6.

D. Breakers 4 and 8.

Answer: A.

References:
STM-2-63, Rev 3, Section 5.0, (Reactor Protection System).
ANO-2-LP-RO-RPS Obj. 5.0

Question Source:	Bank #	___X____
	Modified Bank #	_____
	New	____
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 18

A Steam Generator Tube Rupture has occurred on Unit 2 on the "A" S/G. EOP 2202.004, Steam Generator Tube Rupture, has been entered. The AO has been directed to complete Attachment 19, Control of Secondary Contamination.

Which ONE (1) of the following actions WILL NOT prevent an inadvertent radiological release in accordance with Attachment 19?

A. Securing Turbine Building Sump pumps.

B. Isolating the Unit 1 Oily Water Separator discharge.

C. Securing Secondary system Vacuum Degasifier.

D. Aligning the S/G sample panel drains to the Neutralizing Tank.

Answer: B

Reference: Plant System Training Manuals

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 #		059G2.4.7
Importance Rating		3.8
Tier #		1
Group #		1
10CFR55.43(b)		(4)

Question 19

Given the following plant conditions:

* 15 minutes post trip from full power operation.
* "A" Main Steam Radiation Monitor reads 2 R/Hr.
* RCS pressure is 1500 psia and stable.
* RCS temperature is 550 degrees F and stable.

Which ONE (1) of the following actions will minimize the off-site release for the given conditions?

A. Restore CCW to RCPs.

B. Restore SW to ACW.

C. Isolate SG Blowdown.

D. Isolate RCS Letdown.

Answer: B.

References:
1. 2202.004, Steam Generator Tube Rupture, Rev 004-00-0, Step 7.H.
2. 2202.004, SGTR Tech Guidelines, Rev 04-00-0, Step 7.

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 #	00062G2.1.23	00062G2.1.23
Importance Rating	3.9	4.0
Tier #	1	1
Group #	1	1

Question 20

Given the following plant conditions:

* Plant 100% steady state.
* Fire in 2A3 switchgear for 20 minutes.
* 2B5 damaged by explosion.
* Fire brigade responding.

Based on the given conditions, which ONE (1) of the following activities is required to be taken?

A. Notify Health Physics (HP) for continuous coverage.

B. Manually trip the reactor and remain in Hot Standby.

C. Perform a plant shutdown and cool down.

D. Reduce plant electrical loads to within S/U #3 capacity.

Answer: C.

References:
AOP 2203.034, Rev 005, Fire Or Explosion, Steps 15 & 16
AOP 2203.045, Rev 000-00-0, Loss of 480 Volt Vital Bus, Step 10
ANO-2-LP-RO-EAOP, Abnormal Operating Procedures, Objective 25

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 #	000067AK1.02	000067AK1.02
Importance Rating	3.1	3.9
Tier #	1	1
Group #	1	1

Question 21

If a fire in the Cable Spreading Room burns for 45 minutes before it is extinguished,

Which ONE (1) of the following will still be reliable indication for RCS pressure?

A. Safety Parameter Display System (SPDS) point P4624-2.

B. Pressurizer Pressure Control Channel Indicator P4626A.

C. Pressurizer Pressure Safety Channel Indicator 2P4626-1B.

D. Pressurizer Pressure Low Range Pressure Indicator 2P4623-1.

Answer: A.

References:
2203.014, Rev 14, SS Follow-up Actions, Steps 7 & 15 (Alternate Shutdown).
ANO-2-LP-RO-EAOP, Rev 03, Obj. 12.0
ANO-2-LP-SRO-AOP, Obj 17.0

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 #	000068AA1.12	000068AA1.12
Importance Rating	4.4	4.4
Tier #	1	1
Group #	1	1

Question 22

The unit is operating at full power with normal plant temperatures and pressures.

Which ONE of the following would represent a loss of containment integrity?

A. Prior to startup, a blank flange was installed to replace a containment isolation valve that failed to pass a surveillance test.

B. One of two normally open redundant containment isolation valves has failed closed, and power has been removed from the failed valve.

C. A mechanic opens the outer containment airlock door to perform 2 hours of maintenance activities on the closed inoperable inner containment door.

D. A manual valve is closed to isolate a penetration where an electrician disconnected the auto close feature of a containment isolation valve.

Answer: C

Reference:
Technical Specification: 3.6.1.1 and 3.6.1.3

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 #	000069A2.01	000069A2.01
Importance Rating	3.7	4.3
Tier #	1	1
Group #	1	1

Question 23

Given the following plant conditions:

* Reactor tripped.
* All RCP's secured.
* Loss of Main Feed Pump Lube Oil has occurred.
* 'A' & 'B' SG levels equal 5% narrow range.
* 'A' & 'B' SG pressures equal 910 psia.
* No feed is currently available to either SG.
* Loss of Feed water EOP entered.

All other systems operate as designed.

Which ONE (1) of the following is the preferred feed source?

A. Emergency Feed water Pump 2P7A.

B. Emergency Feed water Pump 2P7B.

C. Auxiliary Feed water Pump 2P75.

D. Condensate Pump 2P2A

Answer: B.

References:
2202.006, Rev 005-01-0, Loss of Feed water, Step 11.D
2202.006, Rev 005-01-0, Loss of Feed water Technical Guidelines, Step 11.D.
ANO-2-LP-RO-ELOSF, Rev 01, Loss of Feed water, Objective 5

QID BANK 322
SRO IMP 4.0
K/A 074EK2.03

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 #		074EK2.03
Importance Rating		4.0
Tier #		1
Group #		1
10CFR55.43. (b)		(5)

Question 24

Given the following plant conditions:

Unit is operating at 100% power following a plant startup from a refueling outage.
Normal at power CVCS alignment with 1 Coolant Charging Pump (CCP) operating
Pressurizer level is 60 %
Tave is 580F
Pressurizer pressure is 2200 psia
RCS letdown gross radiation monitor (2RITS-4806A) reads 1E5 CPM and is slowly rising.
Chemistry samples indicate that RCS activity is approaching the technical specification limits.

Which ONE (1) of the following actions should be taken due to the rising RCS activity?

A. Bypass letdown demineralizers and swap the VCT inlet to the Hold Up tanks

B. Minimize letdown flow to allow more dilution inventory from charging into the RCS

C. Increase letdown flow to maximize RCS activity cleanup using demineralizers

D. Isolate letdown flow to minimize radiation levels in the auxiliary building

Answer: C

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Reference:
2203.020 High Activity in RCS

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

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	000076A2.02	000076A2.02
Importance Rating	2.8	3.4
Tier #	1	1
Group #	1	1

Question 25

The unit is at 50% power during a ramp to full power, when a reactor and turbine trip occur.

Which ONE (1) of the following statements describes the immediate response of the atmospheric dump valves (ADVs) and Bypass Control valves?

A. ADVs receive a "quick-open" signal and bypass valves modulate to control main steam pressure.

B. Bypass valves and one ADV receive "quick open" signal then modulate to control main steam pressure.

C. ADVs modulate to control RCS temperature and bypass valves receive a "quick-open" signal.

D. Reactor trip blocks all "quick open" signals then ADVs and bypass valves receive modulate signal from the master controller to control RCS temperature.

Answer: B.

References:
2105.008, Rev 13, Section 3.0 (Steam Dump and Bypass Control System Operations)
AA52002-011, Rev 8, Obj 11.2
STM 2-23, Rev 4, Sections 1.3.2 and 2.3.6 (Steam Dump and Bypass Control System)

Question Source:	Bank #	___X___
	Modified Bank #	_____
	New	____
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__
	Comprehension or Analysis	_____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	00007EA1.10	00007EA1.10
Importance Rating	3.7	3.7
Tier #	1	1
Group #	2	2

Question 26

The following plant conditions are given:

* Twenty (20) minutes post trip from full power.
* Pressurizer Level indicates 100%.
* Pressurizer Pressure is 1400 psia.
* RVLMS level 6 wet.
* "A" SG pressure is 860 psia.
* "B" SG pressure is 870 psia.
* CET temperature indicates 580 degree F.
* Auxiliary Spray in service.

Which ONE (1) of the following actions should be performed for the given conditions?

A. Restart RCPs to allow use of normal Pressurizer Spray.

B. Override HPSI to restore Pressurizer Level.

C. Repressurize RCS to restore Margin to Saturation.

D. Depressurize RCS via Reactor Vessel Hi Point vents.

Answer: C.

References:
2202.003, Loss of Coolant Accident, Rev 004-00-0, Step 24
2202.010, Standard Attachments, Rev 005-01-0, Attachment 9, Void Elimination.

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 #	00008AA1.02	00008AA1.02
Importance Rating	4.1	3.9
Tier #	1	1
Group #	2	2

Question 27

The following conditions exist:

A small break Loss of Coolant Accident has occurred.
High Pressure Safety Injection (HPSI) Pump 2P89A has tripped on over current.
The crew has aligned and started HPSI Pump 2P89C. (Red Power)
Two charging pumps are running.
Pressurizer pressure is 1500 psia and steady.
HPSI Pumps 2P89B and 2P89C have been stopped upon meeting SI Termination Criteria.

The CBOR reports that Pressurizer Level is now 20% and slowly dropping.

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

A. Start HPSI Pumps 2P89B and 2P89C and fully open all HPSI Injection valves.

B. Start HPSI Pump 2P89B and throttle open enough HPSI Injection valves to raise Pressurizer level to greater than 29%.

C. Start HPSI Pump 2P89B and the third Charging Pump and fully open all HPSI Injection valves.

D. Start HPSI Pumps 2P89B and 2P89C and fully open enough HPSI Injection valves to raise Pressurizer level to greater than 29%.

Answer: A

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 #	00009EA2.06	00009EA2.06
Importance Rating	3.8	4.3
Tier #	1	1
Group #	2	2

Question 28

While operating at power, significant current oscillations (100 amps) are observed on 480V bus 2B5. Charging Pump 2P36A trips on over current and shortly thereafter, Annunciator 2K12-B3 "CHARGING PUMP HEADER FLOW LOW" actuates.

Which ONE (1) of the following actions should be taken?

A. Start an alternate charging pump after verifying its suction and discharge path.

B. Restart Charging Pump 2P36A after resetting the over current trip.

C. Secure letdown and initiate an investigation for the loss of Charging Pump 2P36A.

D. Secure letdown, start an alternate charging pump, then restore letdown.

Answer: A.

References:
2203.012L, Rev 28, 2K12-B3 (Annunciator 2K12 Corrective Actions)
2203.036, Rev 5, Steps 1 and 2. (Loss of Charging)
ANO-2-LP-RO-EAOP Obj. 29.0
ANO-2-LP-SRO-AOP, Obj. 39.0

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 #	000022AK1.03	000022AK1.03
Importance Rating	3.0	3.4
Tier #	1	1
Group #	2	2

Question 29

Given the following plant conditions:

* Plant shutdown and cool down just completed from 100% power.
* Shutdown Cooling has JUST been established.
* A Loss of Instrument Air occurs.

Which ONE (1) of the following describes the Shutdown Cooling System response?

A. All SDC flow is lost.

B. SDC heat removal is lost.

C. SDC flow is degraded.

D. No significant effect.

Answer: B.

References:
2203.029, Rev 10, Steps 8 and 9 (Loss of Shutdown Cooling)
ANO-2-LP-RO-EAOP, Rev 03, Obj 25.0
ANO-2-LP-SRO-AOP, Rev 03, Obj 32.0

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 #	000025AA1.23	000025AA1.23
Importance Rating	2.8	2.9
Tier #	1	1
Group #	2	2

Question 30

Given the following plant conditions:

* Plant is at 100% Power.
* A Pressurizer (PZR) Pressure malfunction has occurred.
* Procedure 2203.028, PZR Systems Malfunction, has been entered

If both Pressurizer Pressure Control Channels have failed, the procedure directs the following actions:

* Place the Steam Dump Bypass Control System, SDBCS, Master controller in AUTO LOCAL and adjust setpoint to 1000 psia.
* Verify a maximum of one 11.5% SDBCS Bypass or Downstream Atmospheric Dump Valves, ADV, Permissive switch in MANUAL.
* Verify all other SDBCS Bypass and ADV Permissive switches in OFF

Which ONE (1) of the following statements is the reason for the actions above?

A. Prevent spurious Quick Open signals to ALL SDBCS Bypass and ADV valves due to the failed PZR pressure bias input to the SDBCS Main calculator setpoint.

B. Limit the plant effects of any spurious open signals to the SDBCS Bypass and ADV valves due to failed PZR pressure bias input to the SDBCS Main and Permissive calculator setpoint.

C. Prevent spurious Modulation Open signals to ALL SDBCS Bypass and ADV valves due to failed PZR pressure bias input to the SDBCS Permissive calculator setpoint.

D. Maximize the plant effects of any spurious open signals to the SDBCS Bypass and ADVs due to failed PZR pressure bias input to the SDBCS Main and Permissive calculator setpoint.

Answer: B.

References:
AN0-2-LP-RO-EAOP, Revision 5, Objective 21
OP 2203.028, PZR System Malfunction, Revision 5, Step 5
AOPP 2203.028, PZR System Malfunction Technical Guide, Revision 5, Step 5
STM 2-23, SDBCS STM, Revision 6, Section 6.2

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 #		000027AK3.03
Importance Rating		4.1
Tier #		1
Group #		2
10CFR55.43(b)		(2)

Question 31

Fuel is being reloaded into the Reactor Vessel when the Shift Supervisor informs you that one startup channel neutron flux monitor has failed.

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

A. Fuel reload may continue provided backup boron samples are taken every four (4) hours.

B. Fuel reload may continue provided the inoperable channel is returned to operable status within four (4) hours.

C. Suspend core alterations until boron sampling has been initiated every twelve (12) hours for 36 hours.

D. Suspend core alterations until the inoperable channel is returned to operable status.

Answer: D.

References:
Tech Spec 3.9.2
2502.001, Rev 27, Steps 6.19 and 7.23 (Refueling Shuffle)
2203.012J, Rev 27, 2K10-K4, (Annunciator 2K10 Corrective Actions)
ANO-2-LP-RO-FHRX, Rev 00, Obj 5.0 & 7.0

Question Source:	Bank #	___X____
	Modified Bank #	_____
	New	____
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__
	Comprehension or Analysis	_____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	000032AK3.02	000032AK3.02
Importance Rating	3.7	4.1
Tier #	1	1
Group #	2	2

Question 32

During a loss of condenser vacuum event, the following annunciators are received:

* 2K03-E09 FWP Turb "A" Vacuum Lo
* 2K03-E12 FWP Turb "B" Vacuum Lo

Prior to these alarms, which ONE (1) of the below listed alarms should have been received first?

A. 2K03-C3 Condenser 2E11A/B delta P High.

B. 2K02-A14 SDBCS Emergency Off.

C. 2K03-A3-2E11A Pressure Hi.

D. 2K03-A8 2P1A Feed Pump Trip.

Answer: C.

References:
1. 2203.012B, Rev 023-01-0, Annunciator 2K02-A14
2. 2203.012C, Rev 021-01-0, Annunciators 2K03-A3, 2K03-D3, 2K03-A8
3. ANO-2-LP-SRO-AOP, Abnormal Operating Procedures, Rev 007, Objective 22

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 #		W/E05EK1.3
Importance Rating		4.1
Tier #		1
Group #		2
10CFR55.43(b)		(5)

Question 33

Which ONE (1) of the following describes why RCS pressure is maintained within 100 psia of RCP NPSH during a primary to secondary leak of 20 gpm?

A. Ensures margin to saturation is greater than 50F.

B. To minimize RCS Break flow.

C. Ensures seal injection can be maintained.

D. Prevents lifting primary code safeties.

Answer: B.

References:
2203.038, Rev 5, Step 16.A (Primary to Secondary Leakage)
2203.038, Rev 5, Step 16 Technical Guidelines.
ANO-2-LP-SRO-AOP, Rev 07, Obj 41.0
ANO-2-LP-RO-EAOP, Rev 03, Obj 31.0

Question Source:	Bank #	___X____
	Modified Bank #	_____
	New	____
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__
	Comprehension or Analysis	_____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	000037AK3.05	000037AK3.05
Importance Rating	3.7	4.0
Tier #	1	1
Group #	2	2

Question 34

After a Reactor Trip the following parameter values and trends are noted:

* Pressurizer Level is 0%.
* RCS Pressure is 1500 psia and lowering.
* RCS Tcold is 530F and slowly trending down.
* Containment pressure is 14.3 psia and steady.
* Containment Average Temperature is 105F and lowering.
* Main Steam Line Radiation Monitor 2RITS-1007 is in alarm and trending up.
* "A" Steam Generator Level is 20% and dropping slowly.
* "B" Steam Generator Level is 5% and dropping slowly.

Assuming that all other equipment responded as designed,

Which ONE (1) of the following statements best describes the events in progress?

A. Main Steam Line Break and Loss of Coolant Accident inside Containment.

B. Main Steam Line Break outside Containment and isolated LOCA in Letdown.

C. Steam Generator Tube Rupture and isolated LOCA in the Letdown System.

D. Main Steam Line Break outside Containment and Steam Generator Tube Rupture.

Answer: D.

References:
2202.001, Standard Post Trip Action, Rev 004-00-0, Diagnostic Actions

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 #		000038EK2.02
Importance Rating		2.5
Tier #		1
Group #		2
10CFR55.43(b)		(5)

Question 35

The following conditions exist after a reactor trip from 100% power:

Pressurizer Level	20% (lowering)
RCS pressure	1850 psia (lowering)
RCS T-cold (A loop)	540F (lowering)
RCS T-cold (B loop)	520F (lowering)
SG pressure (A loop)	910 psia (lowering)
SG pressure (B loop)	840 psia (lowering)
SG level (A loop)	22 % Narrow Range (lowering)
SG level (B loop)	10 % Narrow Range (lowering)
Containment sump levels	rising
Containment temperature	160F (rising)
Containment pressure	17 psia (rising)
Containment area radiation monitors	180 - 270 mr/hr
Containment wide range area radiation monitors	12 R/hr and 10 R/hr

Which ONE (1) of the following is indicated by the given plant conditions?

A. Feed water line break inside containment upstream of the Feed water Check Valve Isolation 2FW-5A

B. Loss of Coolant Accident inside containment upstream of the Pressurizer safety valves

C. Feed water line break inside containment downstream of the Feed water Check Valve Isolation 2FW-5A

D. Loss of Coolant Accident inside containment downstream of charging header isolation valve

Answer: B

References:
ANO2 OP 2202.001
ANO2 OP 1903.010
NRC IN 97-45

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 #		054AK1.01
Importance Rating		4.3
Tier #		1
Group #		2
10 CFR 55.43(b)		(5)

Question 36

Which ONE (1) of the following describes the effect of a loss of green DC Bus, 2D26 will have on the operation of Emergency Feed water Pump 2P7A?

A. All 2P7A discharge valves to both Steam generators will fail open.

B. All 2P7A discharge valves to both Steam generators will fail closed.

C. 2P7A will over speed.

D. 2P7A will go to minimum speed.

Answer: C.

References:
STM 2-19-2, Rev 1, Page 10, Section 2.1.1.5 (EFW & AFW Systems)
ANO-2-LP-RO-EFW, Rev 04, Obj 1.0

Question Source:	Bank #	___X___
	Modified Bank #	_____
	New	____

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	000058AA2.03	000058AA2.03
Importance Rating	3.5	3.9
Tier #	1	1
Group #	2	2

Question 37

Given the following plant conditions:

* Plant is in Mode 5 making preparations to refuel the reactor.
* RCS is in reduced inventory preparing to install SG nozzle dams.
* Containment Purge System is in service.
* When the 1st set of SG Manways is removed, the Control Room receives Annunciator 2K11 D-10 " Process Gas Radiation HI/LO".
* On 2C-25, the Gas Monitor for the Containment Purge System, 2RITS-8233, reading is above setpoint.
* Annunciator Corrective Action directs verification of Containment Purge secured.

Which ONE (1) of the following statements describe the automatic actions that should have secured containment purge:

A. All three (3) Containment purge supply Isolations go closed.

B. Only the Outside-Outside purge supply and exhaust Isolations go closed.

C. Only the Inside-Inside purge supply and exhaust isolations go closed.

D. All three (3) Containment purge exhaust isolations go closed.

Answer: B.

References:
ANO-2-LP-RO-CVENT, Revision 8, Objective 13
OP 2203.012K, ACA for Process Gas Radiation High, Revision 029-04-0, Window 2K11 D-10
STM 2-9, Containment Cooling and Purge Systems, Revision 6, Sections 7.3, 7.5, 7.6 and Purge one line figure.

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 #	000060AA2.05	000060AA2.05
Importance Rating	3.7	4.2
Tier #	1	1
Group #	2	2

Question 38

Given the following plant conditions:

* Five (5) minutes post trip from full power.
* RCS pressure is 1300 psia and stable.
* Pressurizer Level is 8% and rising slowly.
* CAMS readings are 2000 CPM particulate and 850 CPM gaseous.
* Containment Area Radiation Monitors read 60 to 90 mr/hr.
* Containment Wide Range Area Radiation Monitors read 11 R/hr and 9 R/hr.
* Containment Pressure is 27 psia.
* Containment Temperature is 245 degrees F.

For the given conditions,

Which ONE (1) of the following statements best describes the event in progress?

A. Tcold Small Break LOCA.

B. Thot Large Break LOCA.

C. Excess Steam Demand Event.

D. Pressurizer Steam Space Leak.

Answer: C.

References:
1903.010, Emergency Action Level Classification, Rev 036-00-0, Attachment 6 Caution.
NRC IN 97-45, Environmental Qualification Deficiency for Cables and Cntmt Penetration Pigtails.

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 #	000061AK3.02	000061AK3.02
Importance Rating	3.4	3.6
Tier #	1	1
Group #	2	2

Question 39

The reactor is at 100% power with RED train maintenance in progress. There are severe thunderstorm warnings in effect until 1900 tonight. The "INSTR AIR PRESS HI/LO" annunciator (2K12-A8) actuates. Instrument Air header pressure is 80 psig and lowering.

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

A. If instrument air pressure lowers to less than 65 psig, the reactor should be tripped since a significant number of critical components begin to shift to their failed position when instrument air pressure fails below 60 psig.

B. Trip the reactor if instrument air pressure falls to less than 35 psig. The reactor is manually tripped to prevent the possibility of exceeding an automatic trip setpoint.

C. Under normal operations Unit 1 and Unit 2 instrument air systems are cross connected. Immediately close the instrument air cross connect with Unit 1.

D. Loss of instrument air results in the loss of the CEDM cooling fans. CEDM coil temperatures will exceeds 450°F. A normal plant shutdown is initiated due to the possibility of a dropped rod.

Answer: B.

References: AOP 2203.021 Step 5
ANO-2-LP-RO-EAOP, Revision 5, Objective 16
OP 2203.012L, Annunciator 2K12 Corrective Action, Revision 030-02-0, Window A-8, IA Press Hi/LO
OP 2203.021, Loss of IA AOP, Revision 008-01-0, Entry Conditions, Step 4, and Step 5.

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 #	000065AA2.05	000065AA2.05
Importance Rating	3.4	4.1
Tier #	1	1
Group #	3	3

Question 40

Given the following plant conditions:

The plant tripped due to a small break Loss of Coolant Accident (LOCA) inside Containment.
The Optimum Recovery Procedure for a LOCA, 2202.003, has been entered.

If an Excess Steam Demand (ESD) were to occur now, the guidance to mitigate both of these events would be found in which of the following?

A. Reactor Trip Recovery Procedure, 2202.002

B. ESD Optimum Recovery Procedure, 2202.005

C. LOCA Optimum Recovery Procedure, 2202.003

D. Functional Recovery Procedure, 2202.009

Answer: D. Functional Recovery Procedure, 2202.009

References:
ANO-2-LP-RO-EFRP, Revision 2, Objective 1
OP 1015.021, Unit 2 EOP/AOP Users Guide, Revision 004-02-0, Step 5.1.8
OP 2202.010, Standard Attachments, Revision 006-00-0, Attachment 3, Diagnostic Actions

Question Source:	Bank #	X
	Modified Bank #	
	New	
Question Cognitive Level:	Memory or Fundamental Knowledge	X
	Comprehension or Analysis	

Examination Outline Cross-reference:

Level	RO	SRO
K/A #		E09EK1.2
Importance Rating		4.0
Tier #		1
Group #		2
10CFR55.43(b)		(5)

Question 41

The plant is operating at full power with Tave equal to 580 F, when control room annunciator 2K10-J6, "Cntrl CH 1 Level Lo" is received. In response to the annunciator, the operators observed the following indications:

Pzr level Channel A reads 54% and steady
Channel B reads 62%and rising slowly.
All charging pumps are running and the letdown valve is open.

Which ONE (1) of the following identifies the failed channel and corresponding necessary actions?

A. Channel A PZR Level instrument has failed.
Place the PZR level control system in manual
Adjust the local setpoint to value based on the operating TAVE.
Match the letdown flow controller manual and automatic signals

B. Channel B PZR Level instrument has failed.
Place the VCT bypass in the VCT position.
Place the PZR Level Channel Select Switch 2HS-4628 to channel B,
Shift PZR level indication to automatic control

C. Channel B PZR Level instrument has failed.
Place the Letdown Flow Controller 2HIC-4817 in MANUAL
Control letdown flow to restore PZR level,
Manually control the Charging pumps as needed.

D. Channel A PZR Level instrument has failed.
Place Letdown Flow Controller 2HIC-4817 in MANUAL,
Place the PZR Level Channel Select Switch 2HS-4628 to channel B,
Place PZR Low-Low Level Cutoff Select Switch 2HS-4642 to channel B.

Answer: D.

Provide Procedure 2102.004 ATTACHMENTS C and E to examinee

Reference: STM2-3-1 Section 3.6.2
AOP 2203.028
Procedure 2103.005

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 #	000028AA1.08	000028AA1.08
Importance Rating	3.7	3.6
Tier #	1	1
Group #	3	3

Question 42

The plant has suffered a Loss of Offsite power as a result of lightening strike damage in the switchyard. Both Emergency Diesel Generators are supplying their 4160V ESF buses. Unit 1 EDG #1 has failed and they have requested AACG to supply 4160V ESF bus A3.

For the above plant conditions,

Which ONE (1) of the following actions would be the preferred method of feeding S/Gs and what level should be maintained during an RCS cool down?

A. EFW Pump 2P7A and maintain S/G levels 40 - 60%.

B. EFW Pump 2P7B and raise S/G levels to 60%.

C. AFW Pump 2P75 and maintain S/G levels 40 - 60%.

D. Condensate Pump 2P2A and raise S/G levels to 60 %.

Answer: B.

References:
2203.013, Natural Circulation Cool down, Rev 007-02-0, Step 8.
Tech Guidelines for 2203.013, Natural Circulation Cool down, Rev 007-02-0, Step 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 #	000056AK1.01	000056AK1.01
Importance Rating	4.2	4.3
Tier #	1	1
Group #	3	3

Question 43

During plant heat up having met conditions for Mode 3, Control Room Operators determine RCS leakage to be approximately 5 gpm. Procedure 2203.016 "Excess RCS Leakage" requires a plant depressurization to minimize leakage.

Which ONE (1) of the following actions would meet the requirement?

A. With RCPs running the plant can be depressurized with pressurizer spray, until RCS temperature is 100°F above minimum NDTT.

B. With RCPs running the plant can be depressurized with pressurizer spray, until RCS pressure is 100 psi above minimum NPSH for the reactor coolant pumps.

C. RCS depressurization with no RCPs running can be conducted with the restriction that margin to saturation be maintained greater than 45°F.

D. RCS depressurization with no RCPs running can be conducted with the restriction that cool down cannot exceed 100°F in an hour.

ANSWER: B

Reference: 2203.016 "Excess RCS Leakage" Step 26
Technical Guideline 2203.016 "Excess RCS Leakage" pg 32

Lesson Plan (As available)

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 #		A16AA2.2
Importance Rating		3.7
Tier #		1
Group #		3
10CFR55.43(b)		(2)

Question 44

The following conditions exist:
Unit 2 is at 50% power.
Power escalation in progress.

Which ONE (1) of the following CEDM components is the FIRST component to be energized when the CBOR places the CEA control switch to WITHDRAW?

A. Lift Coil.

B. Upper Gripper Coil.

C. Load Transfer Coil.

D. Lower Gripper Coil.

Answer: A.

References:
STM 2-02, Rev 5, Page 17

Question Source:	Bank #	___X____
	Modified Bank #	_____
	New	____
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__
	Comprehension or Analysis	_____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	001K2.03	001K2.03
Importance Rating	2.7	3.1
Tier #	2	2
Group #	1	1

Question 45

All of the following provide the capability to monitor actual position for an individual CEA using magnetic reed switches EXCEPT the:

A. Upper Electrical Limit light on Panel 2C03.

B. Plant Monitoring System Digital CEA INDV indicator on Panel 2C03.

C. CEAC Channels 1 and 2 on Panel 2C03.

D. Lower Electrical Limit light on Panel 2C03.

Answer: B.

References:
STM 2-02, CEDMCS, Rev 5, Section 3.7.

Question Source:	Bank #	___X___
	Modified Bank #	_____
	New	____
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__
	Comprehension or Analysis	_____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	001G2.2.1	001G2.2.1
Importance Rating	3.7	3.6
Tier #	2	2
Group #	1	1

Question 46

Which ONE (1) of the following is the reason for preventing the start of the fourth Reactor Coolant Pump until RCS temperature is greater than 500 degrees Fahrenheit?

A. To prevent exceeding RCS heat up rate limits.

B. To prevent excessive RCP starting currents.

C. To limit Steam Generator tube stresses.

D. To limit core uplift.

Answer: D.

References:
STM 2-3-2, Rev 1, Section 1.8.1.2
ANO-2-LO-RO-RCS Obj 8.0

Question Source:	Bank #	__X____
	Modified Bank #	_____
	New	____
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__
	Comprehension or Analysis	_____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	003A1.05	003A1.05
Importance Rating	3.4	3.5
Tier #	2	2
Group #	1	1

Question 47

The plant status is as follows:

* Reactor power is 80% and stable.
* Pressurizer Level indicates 50%.
* Pressurizer Level Controller is in Remote Auto.
* Letdown Flow Controller is in Automatic.
* All three Charging Pump hand switches are in Automatic.
* Charging Pump Selector switch is in the "B & C" position.

The correct alignment regarding the status of Charging and Letdown for this condition would be:

A. Three (3) Charging Pumps will be running with maximum letdown flow

B. Two (2) Charging Pumps will be running with maximum letdown flow

C. Three (3) Charging Pumps will be running with minimum letdown flow

D. Two (2) Charging Pumps will be running with minimum letdown flow

Answer: C.

References:
ANO-2-LP-RO-PZR, Objectives 9 and 10
STM 2-3-1,Rev 5, Pzr Pressure and Level Control, Sections 3.2.4, 3.2.5, 3.2.6, 3.2.7, 3.2.8, and 3.2.9
2103.005, Rev 022-01-0, Pressurizer Operations, Steps 6.8 and 6.9
2102.004, Rev 027-04-0, Power Operations, Attachments C and E

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 #		004A3.06
Importance Rating		3.9
Tier #		2
Group #		1
10CFR55.43(b)		(5)

Question 48

Given the following plant conditions:

* 13 minutes post trip from full power.
* Pressurizer level is 0%.
* Pressurizer pressure is 1300 psia.
* Containment Radiation Monitors indicate 10 Rem/Hr.
* Steam Generator pressures are at 1000 psia.
* RAS is actuated on red train.

Which ONE (1) of the following actions will limit fuel damage for the given conditions?

A. Override and open Containment Sump Isolation valves 2CV-5647-1 and 2CV-5649-1.

B. Override and close Containment Sump Isolation valves 2CV-5647-1 and 2CV-5649-1.

C. Use Auxiliary Spray to depressurize and dump Safety Injection Tanks (SITs).

D. Use Auxiliary Spray to depressurize and maximize HPSI Flow.

Answer: B.

References:
2203.040, Inadvertent RAS, Rev 003-01-0, Step 4.

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 #	013K3.01	013K3.01
Importance Rating	4.4	4.7
Tier #	2	2
Group #	1	1

Question 49

Unit 2 is operating at full power with all Control Element Assemblies (CEA) fully withdrawn from the core. A malfunction within the 15 Vdc power supply has resulted in a loss of power to the Reed Switch Position Transmitters (RSPT) #2 for the 20 target CEAs in the associated core quadrant. The operators have determined that RSPT #1 and the CEA pulse counting position indicator channel are still operable.

Which ONE (1) of the following statements describes the effect the loss of power would have on CEA position indication?

A. CEAC #2 would automatically provide CEA position for all CEAs from RSPT#1 with no operator action required

B. The effected 20 target CEA positions would indicate higher than actual position, but within technical specification limitations

C. The Plant computer pulse counter would not get reset to zero during a reactor trip

D. CEAC #2 could provide CEA position for all CEAs from RSPT#1 if the manual actions of OP-2105-001 "CPC/CEAC Operations" are performed.

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 #		014K3.02
Importance Rating		2.8
Tier #		2
Group #		1
10 CFR 55.43(b)		5

Question 50

While performing a reactor startup,

Which ONE (1) of the following indicates the EARLIEST time that you should anticipate criticality?

A. When the shutdown banks are being withdrawn.

B. When the first regulating group is being withdrawn.

C. When the 1/M plot indicates criticality within the next 100 inches.

D. When inside the window of five to seven doublings.

Answer: A.

References:
2102.016, Rev 5, Steps 5.12 and 8.1
ANO-2-LP-RO-OPROC Obj. 3.0 and 7.0

Question Source:	Bank #	__X____
	Modified Bank #	_____
	New	____

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	015K5.05	015K5.05
Importance Rating	4.1	4.4
Tier #	2	2
Group #	1	1

Question 51

Given the following plant conditions:

Containment Spray Pump 2P35A is tagged out for motor replacement.
A large break LOCA has occurred.
Containment Spray Pump 2P35B starts and is providing 2000 gpm flow to Containment.
RCS pressure is 150 psia and dropping.
Crew has entered OP 2202.003, Loss of Coolant Accident.
Loop 2 Service Water Supply Header Isolation to Containment Coolers, 2CV-1510-2, has failed to OPEN.

Which ONE (1) of the following statements best describes the amount of safety related equipment required to maintain adequate Containment temperature and pressure control:

A. Is available due to adequate flow from the Green Train of Containment Spray and the Green Train of Containment Cooling units.

B. Is NOT available due to inadequate flow from the Green Train of Containment Spray and the Green Train of Containment Cooling units.

C. Is available due to adequate flow from the Green Train of Containment Spray and the Red Train of Containment Cooling units.

D. Is NOT available due to inadequate flow from the Green Train of Containment Spray and the Red Train of Containment Cooling units.

Answer: C.

References:
STM 2-08, Rev 07, Containment Spray System, Section 1.3
STM 2-09, Rev 06, Containment Cooling and Purge Systems, Section 2.7
STM 2-42, Rev 13, Service Water & Aux Cooling Water Systems, Section 3.5.4
2203.003, Rev 005-01-0, LOCA Recovery Procedure, Step 8 of the Safety Function Status Check
2203.003, Rev 005-01-0, LOCA Recovery Technical Guide

K/A 022K1.01

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 #		026K1.02
Importance Rating		4.1
Tier #		2
Group #		1
10 CFR 55.43(b)		5

Question 52

Which ONE (1) of the following could be an indication of core being uncovered? (Assume instruments are accurate) CET Temperature equal to:

A. 550 degrees Fahrenheit with RCS Pressure equal to 1100 psia.

B. 570 degrees Fahrenheit with RCS Pressure equal to 1300 psia.

C. 590 degrees Fahrenheit with RCS Pressure equal to 1350 psia.

D. 610 degrees Fahrenheit with RCS Pressure equal to 1700 psia.

Answer: C.

References:
Steam Tables
AA51006-001 Obj 1.8 (Mitigating Core Damage - Core Cooling Mechanics)

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 #	017K5.03	017K5.03
Importance Rating	3.7	4.1
Tier #	2	2
Group #	1	1

Question 53

Given the following plant conditions:

- RCS pressure, temperature, power, and inventory stable.
- Steam Generator pressure and levels stable.
- Containment temperature, pressure, and humidity rising rapidly.
- Containment Sump indicates a 150 gpm increase.

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

A. RCS leak in Containment.

B. Main Steam Leak in Containment.

C. CCW leak in Containment.

D. Main Feed water leak in Containment.

Answer: D.

References:
2203.012J, Rev 27, 2K10-A7, Step 2.6.2

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 #	022A4.05	022A4.05
Importance Rating	3.8	3.8
Tier #	2	2
Group #	1	1

Question 54

The following conditions occurred during a steam line break inside containment:

Peak containment pressure trended to 25 psia and then dropped to 21 psia and is stable.

Peak containment temperature trended to 145 °F and has remained there.

All RCPs have been stopped.

Containment Spray Pump (CSP) A was tagged out prior to the event for maintenance and Containment Spray Pump (CSP) B failed to start.

Which ONE (1) of the following actions is necessary to address the current conditions?

A. Ensure all available containment ventilation fans are running.

B. Restart at least one RCP to establish forced circulation cool down.

C. Proceed with the termination actions for CSAS actuation.

D. Ensure at least one CNTMT cooling fan running and terminate SIAS.

ANSWER: A

References:

EOP 2202.005 Excess Steam Demand
A2-LP-RO-EESD

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 #		022A1.02
Importance Rating		3.8
Tier #		2
Group #		1
10 CFR 55.43(b)		5

Question 55

Which ONE (1) of the following describes why 2CV-0742, Condensate X-Connect prior to MFP suction, is procedurally required to be open during MFP operations?

A. Equalize Condensate flow.

B. Prevent Condensate piping over pressurization.

C. Equalize Main Feed water flow.

D. Ensure MFP NPSH maintained.

Answer: B.

References:
NRC IE Notice 86-106 Supplement 1, Feed water Line Break

Question Source:	Bank #	__X____
	Modified Bank #	_____
	New	____
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__
	Comprehension or Analysis	_____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	056K1.03	056K1.03
Importance Rating	2.6	2.6
Tier #	2	2
Group #	1	1

Question 56

The plant is operating at full power with the FWCS “A” Master Controller in Manual.

Which ONE (1) of the following describes the Steam Generator level response should a Reactor Trip occur?

A. SG "A" will continuously rise until HLO isolates feed water.

B. SG "A" will continuously rise until FW Blocks isolate feed water.

C. SG "A" will initially shrink then slowly rise until HLO isolates feed water.

D. SG "A" will initially shrink then slowly rise until FW blocks isolate feed water

Answer: C.

References:
STM 2-69, Feed water Control System, Rev 5, Sections 3.3 & 3.4

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 #	059K3.03	059K3.03
Importance Rating	3.5	3.7
Tier #	2	2
Group #	1	1

Question 57

Given the following plant conditions:

* A Large Break LOCA is in progress.
* Containment Pressure is 49 psig.
* Containment Temperature is 247°F.
* The RWT level is 5.4%.
* All ECCS components operate as designed.

At this point in the accident, the system that is providing long term cooling for the core is:

A. The High Pressure Safety Injection Pumps from the RWT.

B. Low Pressure Safety Injection Pumps through the SDC Heat Exchangers.

C. The Containment Spray Pumps through the SDC Heat Exchangers.

D. All available Charging Pumps and the Letdown Heat exchanger.

Answer: C.

References:
ANO-2-LP-RO-SPRAY, Containment Spray System, Objective 9
STM-2-08, Containment Spray System, Revision 7, Sections 1.0, 2.1, 3.5, 4.2 and 5.2
Technical Specification 3.6.2.1 Bases

Question Source:	Bank #	__X____
	Modified Bank #	_____
	New	____
Question Cognitive Level:	Memory or Fundamental Knowledge	_X__
	Comprehension or Analysis	_____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #		061G2.4.21
Importance Rating		4.3
Tier #		2
Group #		1
10 CFR 55.43(b)		5

Question 58

Given the following plant conditions:

* A plant shutdown and cool down is in progress.
* Steam Generators are 60% and being fed with AFW Pump 2P75 only.

To prevent run out on 2P75, maximum flow should not exceed:

A. 600 gpm

B. 800 gpm

C. 1000 gpm

D. 1200 gpm

Answer: C.

References:
ANO-2-LP-RO-EFW, Rev 05, Objective 3
2106.006, Rev. 053-01-0, EFW System Operations, Steps 5.10 and 5.17.

Question Source:	Bank #	__X____
	Modified Bank #	_____
	New	____
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__
	Comprehension or Analysis	_____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	061A2.04	061A2.04
Importance Rating	3.4	3.8
Tier #	2	2
Group #	1	1

Question 59

The following conditions are present:

DC busses 2D01 and 2D02 are deenergized inadvertently
Pressurizer level is on program level for 100% power
Charging Pump 2P36A was running prior to the loss of 125 DC power
The plant is in Mode 1 at 100% power

Which ONE (1) of the following actions would address RCS inventory control under these conditions?

A. Letdown will isolate on high temperature due to a loss of charging flow, therefore Charging Pump 2P36C needs to be aligned to the Red ESF Train.

B. Charging Pump 2P36A stopped due to a loss of DC bus 2D02 therefore Charging Pump 2P36C needs to be aligned to the Red ESF Train.

C. Charging Pump 2P36A stopped due to a low suction pressure trip relay actuation, therefore Charging Pump 2P36B needs to be started to reestablish charging flow.

D. Charging Pump 2P36 A stopped due to a low suction pressure trip relay actuation, therefore Charging Pump 2P36C needs to be aligned to the Red ESF Train.

ANSWER: C.

REFERENCE:
2203.037
2104.02
STM 2203.037

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 #		063K2.1
Importance Rating		3.1
Tier #		2
Group #		1
10 CFR 55.43(b)		(5)

Question 60.

The liquid radwaste system and boron management system are designed to provide controlled collection, handling, treatment, and disposal of radioactive wastes from plant operation.

Which ONE (1) of the following describes the principle design criteria of these systems?

A. Allow processing the various potentially radioactive liquid wastes for long term storage on site.

B. Limit releases due to anticipated operational occurrences to annual liquid activity release quantity (five Ci) with an average annual liquid activity release concentration of 2 x 10-8 mCi/cc (excluding tritium and dissolved fission product gases).

C. Provide the removal of radioactivity as soon as feasible in the process, thus preventing the buildup of excessive activity in the remainder of the systems.

D. Ensure protection of general public from exposure by keeping release levels as low as possible.

Answer: D

References: STM-2-52 Section 1.4

Lesson Plan ASLP-RO-RADP

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 #	068K5.04	068K5.04
Importance Rating	3.2	3.5
Tier #	2	2
Group #	1	1

Question 61

Which ONE (1) of the following describes the effect of a Waste Gas Decay Tank pressure increasing to 400 psig?

A. A rupture disc will relieve pressure to Containment.

B. A rupture disc will relieve pressure to the Waste Gas Surge Tank.

C. A rupture disc will unisolate a relief valve and relieve pressure to Containment.

D. A rupture disc will unisolate a relief valve and relieve pressure to the Waste Gas Surge Tank.

Answer: D.

References:
2104.022, Rev 30, Step 6.2 (Gaseous Radwaste System)
2203.012P, Rev 12, Page 6 (Annunciator 2K16 Corrective Actions)
P&ID M2215, Rev 70, Sheet 1, F-4, (Waste Gas System)
ANO-2-LP-WCO-GRW Obj 5.0

Question Source:	Bank #	___X____
	Modified Bank #	_____
	New	____
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__
	Comprehension or Analysis	_____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	071A3.03	071A3.03
Importance Rating	3.6	3.8
Tier #	2	2
Group #	1	1

Question 62

Which ONE (1) of the following conditions would cause the Steam Generator Tube Leak N-16 Monitor System output to be invalid?

A. Any Startup range NI Power indicates < 20% power.

B. Any Safety range NI Power indicates < 20% power.

C. COLSS Plant Power (CV9000) indicates < 20% Power.

D. Steam Flow signal from FWCS indicates < 20% plant power.

Answer: C.

References:
2105.016 Radiation Monitoring and Evacuation Alarm System, Section 3.0 and 5.2

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 #	072A4.01	072A4.01
Importance Rating	3.0	3.3
Tier #	2	2
Group #	1	1

Question 63

Which ONE (1) of the following components/subsystems does NOT discharge into the Quench Tank?

A. RCP Vapor Seal Leak off.

B. Pressurizer Vent.

C. RCP Control Bleed off relief.

D. Reactor Vessel Head Vent.

Answer: A.

References:
2103.007, Rev 14, PC-2, Section 3.0 (Quench Tank and Reactor Drain Tank Ops)
STM 2-3, Rev 3, Section 2.4 (Reactor Coolant System)
ANO-2-LP-RO-RCS Obj 25.0

Question Source:	Bank #	___X____
	Modified Bank #	_____
	New	____
Question Cognitive Level:	Memory or Fundamental Knowledge	__X___
	Comprehension or Analysis	_____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	002K1.05	002K1.05
Importance Rating	3.2	3.4
Tier #	2	2
Group #	2	2

Question 64

Given the following plant conditions:

* Post trip from full power.
* Loss of 4160V ESF Bus 2A2 has occurred.
* Loss Of Coolant Accident (LOCA) in progress.
* #2 Emergency Diesel Generator (EDG) failure has occurred.
* Refueling Water Tank (RWT) Level is 6%.
* HPSI Pump 2P89C is Out of Service.
* HPSI Pump 2P89A Recirc Isolation Valve 2CV-5126-1 breaker trips.

Which ONE (1) of the following actions should be performed for the given conditions?

A. Place HPSI Pump 2P89A in Pull-To-Lock.

B. Cross-tie 2A3 and 2A4 and start HPSI Pump 2P89B.

C. Cross-tie 2Y1 and 2Y2 and close ESF Header Recirc Isolation 2CV-5628-2.

D. Cross-tie 2B5 and 2B6 and close ESF Header Recirc Isolation 2CV-5628-2.

Answer: D.

References:
2107.002, ESF Electrical System Operation, Rev 014-01-0, Attachment D.
2202.003, Loss of Coolant Accident, Rev 004-00-0, Section 1, Step 22; Section 3, step 20.B.
2202.010, Standard Attachments, Rev 005-01-0, Attachment 11, Step F; Attachment 16.

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 #	006K2.04	006K2.04
Importance Rating	3.6	3.8
Tier #	2	2
Group #	2	2

Question 65

Given the following:

* The plant is at 100% Power.
* Pressurizer Pressure Channel Select Switch is selected to "A".
* Pressurizer Pressure Controller, 2PIC-4626A, is in Automatic.
* All other Pressurizer pressure controls are in their normal configuration.
* Selected pressure transmitter 2PT-4626A fails High.
* All other systems respond as designed.
* No operator action is taken.

Considering only the effects of the above conditions on Pressurizer pressure,

Which ONE (1) of the following correctly describes the response of the plant with no operator action?

A. All backup heaters energize, spray valves stay closed, and the plant trips on RPS trip on high Pressurizer Pressure at 2362 psia.

B. All backup heaters energize, spray valves stay closed, and the plant trips on CPC Aux trip on high Pressurizer Pressure at 2375 psia.

C. All backup heaters remain off, spray valves open, and the plant trips on RPS trip on Low Pressurizer Pressure at 1675 psia.

D. All backup heaters remain off, spray valves open, and the plant trips on CPC Aux trip on Low Pressurizer Pressure at 1860 psia.

Answer: D.

References:

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 #	010K6.01	010K6.01
Importance Rating	2.7	3.1
Tier #	2	2
Group #	2	2

Question 66

During a natural circulation cooldown, which ONE (1) of the following pressurizer level responses would indicate the presence of a void in the reactor vessel upper head?

A. A Pressurizer level increase when charging flow is directed through the auxiliary sprays.

B. A Pressurizer level decrease when charging flow is directed through the auxiliary sprays.

C. A Pressurizer level increase when charging flow is directed into the cold legs.

D. A Pressurizer level decrease when there is an increase in the cooldown rate.

Answer: A.

References:
ANO-2-LP-RO-EAOP, Revision 5, Objective 9
OP 2203.013, Natural Circulation Operations, Revision 008-00-0, Step 25
AOP 2203.013, Technical Guide, Revision 008-00-0, Step 25

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 #	011K5.10	011K5.10
Importance Rating	3.7	4.0
Tier #	2	2
Group #	2	2

Question 67

Which ONE (1) of the following reactor trips protects against an uncontrolled CEA Withdrawal from a subcritical condition? (Assume no operator action is taken)

A. Hi Linear Power.

B. Lo DNBR.

C. Hi LPD.

D. Hi Log Power.

Answer: D.

References:
Tech Spec 2.2.1 Bases
STM 2-63, Rev 3, Section 4.3.2 (Reactor Protection System)
ANO-2-LP-RO-RPS, Rev 07, Obj 11.0
ANO-2-LP-RO-TS, Rev 06, Obj 3.0
ANO-2-LP-SRO-TS, Rev 06, Obj 3.0 and 5.0

Question Source:	Bank #	__X____
	Modified Bank #	_____
	New	____

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	012K4.02	012K4.02
Importance Rating	3.9	4.3
Tier #	2	2
Group #	2	2

Question 68

Following a single channel CPC trip, how can the operator quickly determine if the trip signal is due to an auxiliary trip?

A. By obtaining the CEAC Trip Buffer Report.

B. By observing a trip light without the associated pretrip light.

C. By obtaining the trip TRA report.

D. By observing that Diverse Scram System (DSS) Trouble annunciator has actuated.

Answer: B.

References:

2105.001, Rev 22, Section 6.1 (CPC/CEAC Operations)
STM 2-65-1, Rev 5, Section 2.10.5 (Core Protection Calculator System)
AA52002-024, Rev 7, Obj 24.31

Question Source:	Bank #	___X____
	Modified Bank #	_____
	New	____
Question Cognitive Level:	Memory or Fundamental Knowledge	_X__
	Comprehension or Analysis	_____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	012K6.07	012K6.07
Importance Rating	2.9	3.2
Tier #	2	2
Group #	2	2

Question 69

The following plant conditions exist:

* A large break LOCA has occurred on Unit 2.
* EOP 2202.003, Loss of Coolant Accident is being implemented.
* Hydrogen Analyzers initially indicate 0.7%.
* Hydrogen concentration has increased another 2.2% since the initial reading.
* No equipment is out of service.

Which ONE (1) of the following actions are required to satisfy the Containment Combustible Gas Control safety function?

A. Ensure both Hydrogen Recombiners are in service.

B. Ensure the Hydrogen Purge System or Containment Spray in service.

C. Ensure one Hydrogen Recombiner and Hydrogen Purge System in service.

D. Ensure both Hydrogen Purge System and Containment Spray in service.

Answer: A.

References:
1. Loss of Coolant Accident, 2202.003, Rev 004-00-0, Section 1, Step 20.
2. Loss of Coolant Accident Tech Guidelines, 2202.003, Rev 004-00-0, Section 1, Step 20.
3. Containment Hydrogen Control Operations, 2104.044, Rev 025-02-0, Step 5.2.

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 #	028K1.01	028K1.01
Importance Rating	2.5	2.5
Tier #	2	2
Group #	3	2

Question 70

Given the following plant conditions:

* Mode 6 operations with core offload in progress.
* A complete Loss of Offsite Power occurs.
* 2DG1 is supplying 2A3 and 2DG2 failed on startup.
* Alternate AC (AAC) Diesel Generator is NOT available due to maintenance on governor.
* Annunciator 2K11-K5 "Fuel Pool Temp High" is actuated.

For the above plant conditions,

Which ONE (1) of the following would be an available source of makeup for the SF Pool, if makeup were required?

A. Loop 1 Service Water using SW Pump 2P4A.

B. RWT using SFP Purification Pump 2P66.

C. BA Makeup System using BAMT Pump 2P39A/B and RMUW Pump 2P109A/B.

D. BMS Holdup Tanks using Holdup Tank Recirc Pump 2P48

Answer: A.

References:
ANO-2-LP-RO-SFP, Revision 0, Objectives 5,6,and 7
2107.001, Electrical System Operations, Rev 044-06-0, Attachments D & I.
2107.002, ESF Electrical System Operations, Rev 015-01-0, Attachment D.
2104.006, Fuel Pool Systems, Rev 018-05-0, Sections 10, 11, 12, & 14.

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 #	033K1.05	033K1.05
Importance Rating	2.7	2.8
Tier #	2	2
Group #	2	2

Question 71

Which ONE (1) of the following parameters is used to determine when to isolate a ruptured steam generator?

A. Primary Coolant Temperature.

B. Secondary Radiation Levels.

C. Steam Generator Level.

D. Pressurizer Pressure.

Answer: A.

References:
1. 2202.004, Rev 3

Question Source:	Bank #	___X___
	Modified Bank #	_____
	New	____
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__
	Comprehension or Analysis	_____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	035A2.01	035A2.01
Importance Rating	4.5	4.6
Tier #	2	2
Group #	2	2

Question 72

The 90% limit switch on the MSIVs (2CV-1010A and 2CV-1060A) causes the:

A. Exercise valve (2HS-1011 and 2HS-1061) green light to illuminate.

B. Exercise valve(s) to open to prevent inadvertent MSIV closure.

C. Intermediate position indication on the MSIV hand-switches (2HS-1010-1 and 2HS-1060-2).

D. MSIV bypass valve to close when opening the MSIV.

Answer: A.

References:
2106.016, Rev 34, Supplement 1
ANO-2-LP-RO-STEAM, Obj 8.6.B
STM 2-15, Rev 3, Section 3.6 (Steam Generators and Main Steam System)

Question Source:	Bank #	___X___
	Modified Bank #	_____
	New	____

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	039K4.08	039K4.08
Importance Rating	3.3	3.4
Tier #	2	2
Group #	2	2

Questions 73

Given the following plant conditions:

* The plant is at 100% power.
* Condenser Vacuum Pump 2C-5A is running, 2C-5B is in standby.
* Condenser Vacuum starts to degrade.

Which ONE (1) of the following describes the design of the Condenser Vacuum System that will prevent continued degradation of Condenser vacuum.

A. Condenser Vacuum Pump 2C-5A will shift to the "Hogging" mode of operation at 4" HgA vacuum in the condenser and prevent further loss of vacuum.

B. Condenser Vacuum Pump 2C-5A will shift to the "Holding" mode of operation at 6" HgA vacuum in the condenser and prevent further loss of vacuum.

C. Condenser Vacuum Pump 2C-5B will startup at 4" HgA vacuum in the condenser and will be operating in the "Holding" mode after the inlet diaphragm valves are opened.

D. Condenser Vacuum Pump 2C-5B will startup at 6" HgA vacuum in the condenser and will be operating in the "Hogging" mode after the inlet diaphragm valves are opened.

Answer: C.

References:
ANO-2-LP-AO-VACUM, Revision 8, Objectives 3, 11 and 14
STM 2-22, Revision 6, Sections 2.3, 3.1,3.2 and 3.3
OP 2106.010, Revision 015-05-0, Section 3.0
OP 2203.012C, Revision 021-00-0, ACA for Vacuum Pump 2C-5B Auto Start -2K03 E-4

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 #	055K3.01	055K3.01
Importance Rating	2.5	2.7
Tier #	2	2
Group #	2	2

Question 74

Given the following plant conditions:

* Twenty (20) minutes post trip from full power.
* Startup Transformer #3 is locked out.
* Alternate AC Diesel Generator (AACG) Out of Service.
* Steam Generator Tube Rupture in progress.
* #1 Emergency Diesel Generator (EDG) has failed.
* 4160 VAC ESF Bus 2A3 crosstied to 2A4.
* #2 Emergency Diesel Generator (EDG) is loaded to 3300 KW.
* Emergency Feed water Pump 2P7A over speed trip device is tripped and will not reset.

Which ONE (1) of the following action should be performed for the given conditions?

A. Un-crosstie 2A3 and 2A4.

B. Reduce #2EDG load to 3000 KW.

C. Reduce #2EDG load to 2800 KW.

D. Cross-tie 2B5 to 2B6.

Answer: C.

References:
2104.036, Emergency Diesel Generator Operations, Rev 043-01-0, Step 5.8

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 #	062A2.11	062A2.11
Importance Rating	3.7	4.1
Tier #	2	2
Group #	2	2

Question 75

Given the following plant conditions:

* A Plant trip has occurred due to a loss of offsite power.
* Pressurizer Pressure is 1550 psia and dropping.
* Both EDGs start and their output breakers close as designed.

Which ONE (1) of the following list the major pump starts on the safety busses in the correct order beginning with the first pump start?

A. HPSI pumps, Charging Pumps, Service Water Pumps, LPSI Pumps.

B. Charging Pumps, HPSI Pumps, LPSI Pumps, Service Water Pumps.

C. LPSI Pumps, Service Water Pumps, HPSI Pumps, Charging Pumps.

D. Service Water Pumps, HPSI Pumps, LPSI Pumps, Charging Pumps.

Answer: D.

References:
ANO-2-LP-RO-EDG, Revision 8, Objective 3
STM 2-31, EDG System Description, Revision 8, Diesel Load Table

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 #	064A3.06	064A3.06
Importance Rating	3.3	3.4
Tier #	2	2
Group #	2	2

Question 76

Which ONE (1) of the following actions confirms that a Process Liquid radiation monitoring instrument with a normal background reading is functional from the detector to the meter?

A. Placing the selector switch in HV (High Voltage) and insuring detector voltage is correct.

B. Placing the selector switch in LEVEL CAL, checking the high alarm setpoint and valve isolation.

C. Placing the selector switch in CHECK SOURCE, observing an increasing meter reading and valve isolation.

D. Removing the high-voltage power cable and observing the count rate decreasing to a lower value.

Answer: C.

References:
2104.014, Rev 30, Supplement 1, Step 6.2 (LRW and BMS Operations)
ANO-2-LP-RO-RMON Obj. 1.15

Question Source:	Bank #	_X___
	Modified Bank #	_____
	New	____
Question Cognitive Level:	Memory or Fundamental Knowledge	_X__
	Comprehension or Analysis	_____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	073A4.02	073A4.02
Importance Rating	3.7	3.7
Tier #	2	2
Group #	2	2

Questions 77

Given the following plant conditions:

* Full power Mode 1.
* Circ Water Pump 2P3A trips.

Which ONE (1) of the following best describes why turbine load must be reduced for the given conditions?

A. Maintain condenser vacuum within acceptable limits.

B. Prevent cavitation of Circ Water Pump 2P3B.

C. Prevent exceeding 40F circ water delta T across condensers.

D. Maintain exhaust hood temperature less than 200F.

Answer: A.

References:
2104.008, Rev 25, Step 5.4 (Circulating Water System Operation)
2203.019, Rev 4, Step 6.0 and Tech Guide (Loss of Condenser Vacuum)
2106.009, Rev 27, Section 5.0 (Turbine Generator Operations)
2203.012B, Rev 21, 2K02-B12, (Annunciator 2K02 Corrective Actions)
STM 2.40-1, Rev 06, Section 4.1 (Circulating Water System)
AA52002-030, Rev 6, Obj 30.5.A
AA32003-024, Rev 7, Obj 24.5

Question Source:	Bank #	_____
	Modified Bank #	___X____
	New	____
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__
	Comprehension or Analysis	_____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	075K1.08	075K1.08
Importance Rating	3.2	3.2
Tier #	2	2
Group #	2	2

Questions 78

Given the following plant conditions:

* Full power operation.
* Instrument Air Header Pressure decreases to 60 psig.
* Instrument Air Header Cross-tie valves 2CV-3004 and 2CV-3015 are opened.
* Instrument Air Header Pressure continues to decrease to 30 psig.
* Report from Unit 1 that their Instrument Air pressure is 50 psig.

Which ONE (1) of the following actions would apply?

A. Bypass Instrument Air Dryers.

B. Crosstie Instrument Air and Service Air Systems.

C. Open coalescing prefilter bypass.

D. Close crosstie valves 2CV-3004 and 2CV-3015.

Answer: D.

References:
2203.021, Rev 6, Step 3 Contingency (Loss of Instrument Air)
ANO-2-LP-SRO-AOP, Rev 07, Obj 24.0

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 #	079K4.01	079K4.01
Importance Rating	2.9	3.2
Tier #	2	2
Group #	2	2

Question 79

Which ONE (1) of the following Fire Protection Deluge Sprinkler Systems can be manually actuated from the Control Room Fire Protection/Detection Control Panel 2C-343?

A. MFWP Lube Oil Reservoir

B. Hydrogen Seal Oil Skid

C. Unit Auxiliary Transformer

D. EDG Fuel Oil Storage Vaults

Answer: D.

References:
ANO-2-LP-RO-FPROT, Revision 9, Objective 4
STM 2-60, Fire Protection System, Revision 4, Section 7.0 and Table 4

Question Source:	Bank #	_____
	Modified Bank #	__X____
	New	____
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__
	Comprehension or Analysis	_____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	086A4.05	086A4.05
Importance Rating	3.0	3.5
Tier #	2	2
Group #	2	2

Question 80

Given the following plant conditions:

* Ten (10) minutes post trip from full power.
* RCS pressure is 1600 psia and stable.
* Containment pressure is 18.7 psia and lowering.
* Restoration of CCW to Containment has commenced.
* Loop II CCW Surge Tank Level lowers to 9%.

Which ONE (1) of the following actions should be performed for the given conditions?

A. Maintain RCP seal cool down rates < 100 degrees F/Hr.

B. Throttle 2CV-5255-1 open to increase Loop II CCW flow by 100 gpm.

C. Trip remaining RCPs and isolate CCW to Containment.

D. Trip remaining RCPs and actuate CIAS.

Answer: C.

References:
2202.010, Standard Attachments, Rev 005-01-0, Att 21, Step 4.0

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 #	008A1.04	008A1.04
Importance Rating	3.1	3.2
Tier #	2	2
Group #	3	3

Question 81

Given the following plant conditions:

* The plant has experienced a Loss of all Off Site Power from 100% power.
* #2 EDG has failed to start.
* #1 EDG has started and tied onto 2A3.
* Instrument Air header pressure is 0 psig.
* 2202.007, Loss of Off Site Power has been entered.
* Both MSIVs have been closed.
* Steam Generator pressures are 1070 psia each controlling on Main Steam Safeties.

Which ONE (1) of the following actions could be taken from the control room to restore Steam Generator pressure control to the normal shutdown operating band of 950 to 1050 psia?

A. Control the A SG pressure using the A SG Upstream Atmospheric Dump Valve, 2CV-1001.

B. Control the B SG pressure using the B SG Upstream Atmospheric Dump Valve, 2CV-1051.

C. Control the A SG pressure using the A SG Upstream Atmospheric Dump Valve Isolation Valve, 2CV-1002.

D. Control the B SG pressure using the B SG Upstream Atmospheric Dump Valve Isolation Valve, 2CV-1052.

Answer: D.

References:
ANO-2-LP-RO-SDBCS, Revision 9, Objective 16
ANO-2-LP-RO-STEAM, Revision 11, Objective 2m
STM 2-23, SDBCS, Revision 6, Section 2.12

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 #	041A4.08	041A4.08
Importance Rating	3.0	3.1
Tier #	2	2
Group #	3	3

Question 82

Which ONE (1) of the following sets of parameters match plant response for a turbine trip from 50% Reactor Power?

A. Reactor tripped, Tave approximately 540 degrees F.

B. Reactor tripped, Tave approximately 550 degrees F.

C. Reactor power approximately 50%, Tave approximately 550 degrees F.

D. Reactor power approximately 50%, Tave approximately 560 degrees F.

Answer: D.

References:
1. STM 2-23, Steam Dump and Bypass Control System, Rev 4, Section 2.3.
2. 2102.004C, Tave Vs Tref, Rev 026-04-0

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 #	045K4.11	045K4.11
Importance Rating	3.6	3.9
Tier #	2	2
Group #	3	3

Question 83

Given the following plant conditions:

* Instrument Air Compressor 2C-27A is the LEAD compressor and running unloaded.
* Instrument Air Compressor 2C-27B is the LAG compressor and is in standby after cycling off on low Instrument Air load.
* Instrument Air Pressure at the outlet of the compressors is currently 100 psig.

If Instrument Air pressure at the outlet of the compressors were to drop to 80 psig, what would be the status of the Instrument Air Compressors?

A. 2C-27A running loaded, 2C-27B running unloaded

B. 2C-27A running loaded, 2C-27B running loaded

C. 2C-27A running loaded, 2C-27B in standby

D. 2C-27A in standby, 2C-27B running loaded

Answer: B.

References:
ANO-2-LP-AO-IA, Revision 12, Objective 6
STM 2-48, Instrument Air, Revision 3, Sections 2.7 and 2.8.2
OP 2104.024, Instrument Air System Operation, Revision 030-04-0, Steps 6.1, 17.7, and 7.2.9 through 7.2.12 along with the note above step 7.2.9.

Question Source:	Bank #	X
	Modified Bank #	
	New	
Question Cognitive Level:	Memory or Fundamental Knowledge	X
	Comprehension or Analysis	

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	078A3.01	078A3.01
Importance Rating	3.1	3.2
Tier #	2	2
Group #	3	3

Question 84

Which ONE (1) of the following best describes the condition in which the ANO overtime working hour policy applies?

A. A person working in training performing simulator operations.

B. A person working on a procedure revision for a quality related system.

C. A person working on a non-safety related system or component.

D. A person working on safety-related system or component.

Answer: D.

References:
Tech Spec 6.2.2.g
ANO-S-LP-RO-ADMIN Obj 4.0
ANO-S-LP-SRO-ADMIN Obj 4.0

Question Source:	Bank #	___X____
	Modified Bank #	_____
	New	____
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__
	Comprehension or Analysis	_____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	2.1.1	2.1.1
Importance Rating	3.7	3.8
Tier #	3	3
Group #	1	1

Question 85

A plant down power is in progress with the following conditions:

* Tref is 565F and dropping.
* Tave is 570F and steady.
* Boration is in progress at 20 gpm.
* Main turbine is being unloaded at 30 MW/min.

Which ONE (1) of the following statements accurately describes the plant response during this power reduction?

A. Turbine unloading rate is excessive for the boration rate, as evidenced by the steady Tave indication.

B. Turbine unloading rate is excessive for the boration rate, as evidenced by the dropping Tref indication.

C. Boration rate is excessive for the turbine load rate, as evidenced by the dropping Tref indication.

D. Boration rate is excessive for the turbine load rate, as evidenced by the steady Tave indication.

Answer: A.

References:
2102.004, Power Operation, Rev 026-04-0, Step 11.7 and Form 2102.004C

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 #	2.1.7	2.1.7
Importance Rating	3.7	4.4
Tier #	3	3
Group #	1	1

Question 86

Given the following:

* An operator is performing an approved system procedure when he encounters a CAUTION tag giving instructions contradictory to those in the procedure.

Which ONE (1) of the following actions should the operator take?

A. With the concurrence of the two (2) SROs noted on the procedure, perform the procedure as written and clear the CAUTION tag as soon as the procedure is completed.

B. Deviate from the procedure and follow instructions of the CAUTION tag.

C. N/A the step, note the deviation on the affected page and continue with the procedure.

D. Stop the procedure, place the system in a safe condition, and notify the CRS.

Answer: D.

References:
Procedure 1000.027, Rev 24, Step 6.5.4.d (Hold and Caution Card Control)
Procedure 1015.001, Rev 50, Step 16.1 (Conduct of Operations)
ANO-S-LP-SRO-ADMIN Obj. 4.0

Question Source:	Bank #	___X___
	Modified Bank #	_____
	New	____
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__
	Comprehension or Analysis	_____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	2.1.20	2.1.20
Importance Rating	4.3	4.2
Tier #	3	3
Group #	1	1

Question 87

In accordance with Procedure 2104.028, what is the proper sequence of steps to "swap" CCW pumps?

A. Place oncoming hand switch to START. Throttle open oncoming pump Casing Vent, WHEN pump venting is complete, THEN close pump Casing Vent. Place off going hand switch to STOP.
Observe the following:
- Normal flow (1000 to 2500 gpm)
- Discharge pressure for oncoming pump (100 to 120 psig)

B. Throttle open oncoming pump Casing Vent, WHEN pump venting is complete, THEN close pump Casing Vent. Place oncoming hand switch to START. Place off going hand switch to STOP.
Observe the following:
- Normal flow (1000 to 2500 gpm)
- Discharge pressure for oncoming pump (100 to 120 psig)

C. Throttle open oncoming pump Casing Vent, WHEN pump venting is complete, THEN close pump Casing Vent. Place oncoming hand switch to START. Place off going hand switch to STOP.
Observe the following:
- Normal flow (2500 to 2800 gpm)
- Discharge pressure for oncoming pump (80 to 100 psig)

D. Place oncoming hand switch to START. Throttle open oncoming pump Casing Vent, WHEN pump venting is complete, THEN close pump Casing Vent. Place off going hand switch to STOP.
Observe the following:
- Normal flow (2000 to 2500 gpm)
- Discharge pressure for oncoming pump (90 to 120 psig)

Answer: B.

References:
Procedure 2104.028

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 #	2.1.23	2.1.23
Importance Rating	3.9	4.0
Tier #	3	3
Group #	1	1

Question 88.

Given the following plant conditions:

* The plant is being shutdown for a refueling outage from 100% power.
* All Control Element Assemblies (CEAs) are at the upper electrical limit.
* CRS directs CBOR to commence Axial Shape Index (ASI) control using Group P CEAs.

Which ONE (1) of the following statements best describes the correct control manipulations to control ASI using Group P CEAs?

A. Mode Select to "MG", Group Select to "P", P Group Select to "P", Joystick to "Insert".

B. Mode Select to "MS", Group Select to "P", P Group Select to "P", Joystick to "Insert".

C. Mode Select to "MG", Group Select to "P", P Group Select to "P2", Joystick to "Insert".

D. Mode Select to "MS", Group Select to "P", P Group Select to "P1", Joystick to "Insert".

Answer: A.

References:
ANO-2-LP-RO-CEDM, Revision 8, Objective 6
STM 2-02, Control Element Drive Mechanism Control System, Revision 7, Sections 4.2.1.2, 4.2.1.4, and 4.2.3.

Question Source:	Bank #	__X____
	Modified Bank #	_____
	New	____
Question Cognitive Level:	Memory or Fundamental Knowledge	__X__
	Comprehension or Analysis	_____

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	2.2.2	2.2.2
Importance Rating	4.0	3.5
Tier #	3	3
Group #	2	2

Question 89

Which ONE (1) of the following actions are required when restoring the system to service and a clearance tag is missing for a component?

A. Do NOT change the as-found position of the component, notify the Control Room Supervisor.

B. Perform the clearance as written and notify the Control Room Supervisor after completion of the restoration.

C. Have another operator verify that it is the correct component and then change the position as required.

D. Change the as-found position of the component, check off and initial the step and write in "Tag Missing".

Answer: A.

References:
OP 1000.027, Rev 24, Step 22.4.2.1

Question Source:	Bank #	__X____
	Modified Bank #	_____
	New	____

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

Examination Outline Cross-reference:

Level	RO	SRO
K/A #	2.2.13	2.2.13
Importance Rating	3.6	3.8
Tier #	3	3
Group #	2	2

Question 90.

Which ONE (1) of the following conditions requires entry into a Technical Specification action statement while at normal operating temperature and pressure?

A. "A" diesel generator day fuel tank level 55% (308 gallons).

B. Fuel Oil storage tank level of 98%(22050 gallons).

C. Tcold 553 degF

D. Charging pump 2P-36A is under clearance.

Answer: B

References:
Tech Spec 3.8.1.1

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 #	2.2.22	2.2.22
Importance Rating	3.4	4.1
Tier #	3	3
Group #	2	2

Question 91

Which ONE (1) of the following is one of the bases for establishing a minimum temperature for criticality of greater than 525F?

A. Ensure RCS conducive to maintain boron in solution

B. Ensure operation at optimal overall plant efficiency

C. Ensure protective instrumentation is within its normal operating range

D. Ensure proper operation of RCP seals

Answer: C

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 #		K2.2.25
Importance Rating		3.7
Tier #		3
Group #		2
10 CFR 55.43(b)		2

Question 92

A Waste Control Operator is required to complete a valve lineup in an area where the radiation level is 50 mrem/hour. The operator's current Total Effective Dose Equivalent (TEDE) is 1730 mrem. What is the maximum time he can work in this area and not exceed his Administrative Dose Control Level (ADCL)?

A. 1 hour.

B. 5 hours.

C. 10 hours.

D. 25 hours.

Answer: B.

References:
1012.021, Rev 4, Step 6.2.2.A.1 (Exposure Limits and Controls)
ANO-S-LP-RO-RADP, Rev 00, Obj 14.0

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 #	2.3.1	2.3.1
Importance Rating	2.6	3.0
Tier #	3	3
Group #	3	3

Question 93 SRO ONLY

The following plant conditions exist:

* Mode 6.
* Refueling in progress.
* SPING 5 is inoperable.
* Containment Purge Exhaust Process monitor is inoperable.
* Containment Purge System is in service.

Which of the following actions should be performed for the given conditions?

A. Grab samples taken once per 24 hours and analyzed within 48 hours.

B. Place charcoal and HEPA filters in service.

C. Suspend positive reactivity additions to the core.

D. Suspend all core alterations.

Answer: D.

References:
2104.033, Containment Atmosphere Control, Rev 038-03-0, Step 5.3.

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 #		2.3.9
Importance Rating		3.4
Tier #		3
Group #		3

10CFR55_41: 41.12 10CFR55_43: 43.4

Question 94

Given the following plant conditions:

* A small break Loss of Coolant Accident is in progress.
* RCS pressure is 1600 psia.
* Containment pressure is 16 psia and slowly increasing.
* Containment Hi Range Radiation Monitors read 13 R/Hr and increasing.
* Containment Low Range Radiation Monitors are in alarm and trending up
* No operator actions have been performed.
* All systems function as designed

Which ONE (1) of the following actions should be performed?

A. Isolate letdown.

B. Manually actuate SIAS.

C. Manually actuate CIAS.

D. Manually actuate CSAS.

Answer: C.

References:
2203.012J, Revision 028-04-0, 2K10-A6, (Alarm 2K10 Corrective Action for CNTMT Radiation HI)
ANO-2-LP-RO-ELOCA, Revision 05, Objective 6.0

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 #	2.3.10	2.3.10
Importance Rating	2.9	3.3
Tier #	3	3
Group #	3	3

Question 95

When conducting radiological surveys,

Which ONE (1) of the following guidelines are NOT applicable in accordance with administrative procedure 1012.018?

A. Radiation surveys are required to evaluate the extent of the radiation levels and the potential radiological hazards that could be present.

B. Perform general area surveys by holding the instrument probe approximately waist high with periodic measurements taken at the head and knee levels.

C. Evaluate all radiological hazards present. When neutron dose rates are anticipated the survey must evaluate the neutron component in addition to any gamma measurements.

D. When performing radiation surveys for RWP and job coverage, the general area readings should be taken at waist level.

Answer: D.

References: Procedure 1012.018 section 7.2

Lesson Plan ASLP-RO-RADP Objective 6

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 #	2.3.2	2.3.2
Importance Rating	2.5	2.9
Tier #	3	3
Group #	3	3

Question 96

The following plant conditions exist:

* Mode 5 operations.
* RCS Pressure is 150 psia.
* Pressurizer Level 40%.
* SGs in wet lay-up.
* "A" SDC Heat Exchanger and "A" LPSI Pump in service for SDC.
* "A" LPSI pump trips.

Which ONE (1) of the following actions should be taken?

A. Place 2P60B in service on "A" SDC Heat Exchanger.

B. Repressurize RCS and start a Reactor Coolant Pump.

C. Place 2P35A in service on "A" SDC Heat Exchanger.

D. Place 2P35B in service on "B" SDC Heat Exchanger.

Answer: A.

References:
2104.004, Shutdown Cooling System, Rev 027-00-0, Step 5.2
2203.029, Loss of Shutdown Cooling, Rev 010-01-0, Step 16

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 #	2.4.1	2.4.1
Importance Rating	4.3	4.6
Tier #	3	3
Group #	4	4

Question 97

The following plant conditions exist:

The Reactor has tripped from 100% power due to a Small Break LOCA.
RCS pressure 1300 psia
RCS Tcold is 565F
All Reactor Coolant Pumps have been tripped.
Full Safety Injection flow has been established.
Reactor Vessel Level Monitoring System indicates level 5.
Emergency feed water supplying both steam generators

Which one of the following should receive the HIGHEST priority from the operators in order to maintain natural circulation flow?

A. Maintain Pressurizer level greater than 29%.

B. Maintain Pressurizer pressure less than 1400 psia.

C. Maintain Steam Generator levels greater than 45%

D. Maintain RCS Tcold less than 500 degrees F.

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 #		2.4.6
Importance Rating		4.0
Tier #		3
Group #		4
10 CFR 55.43(b)		5

Question 98

Unit 2 has entered an emergency condition and is implementing the Emergency Plan Procedures. In order to mitigate plant circumstances, a Damage Control Team is needed to enter the applicable area of the facility for an estimated duration of 2 hours. The associated I-131 concentration has been determined to be $2x10^{-5}$ *Ci / cc. In accordance with procedure OP-1903.035, "Administration of Potassium Iodide,"

Which one of the following correctly addresses the administration of KI to the members of the Damage Control Team for the given condition?

A. KI should NOT be administered since the exposure is less than 25 Rem.

B. KI should NOT be administered since the expected dose can NOT be determined.

C. KI SHOULD be administered 30 minutes BEFORE exposure

D. KI SHOULD be administered 12 hours AFTER exposure

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 #		2.4.29
Importance Rating		4.0
Tier #		3
Group #		4
10 CFR 55.43(b)		4

Question 99

Given the following conditions:

The reactor has tripped due to a large feed line break on 'A' SG.
o An uncontrolled cool down is in progress
o Tave is 512F and dropping
o All regulating and shutdown rods have fully inserted
o The Main Turbine has NOT tripped
o Both SG levels are 15% and lowering
o EFW flow to 'A' SG is 165 gpm
o EFW flow to 'B' SG is 0 gpm
o Bus 2A4 is de-energized

Which ONE (1) of the following statements are the operators NOT permitted to do during the performance of their Standard Post Trip Actions?

A. Close the MSIVs

B. Trip the Main Feed Water Pumps

C. Start 2DG2 DG

D. Reduce EFW flow to 'A' SG

Answer: D.

References:

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 #	2.4.34	2.4.34
Importance Rating	3.8	3.6
Tier #	3	3
Group #	4	4

Question 100

The plant has suffered a loss of feed water accident. “A” Steam Generator level is 0% on the narrow range level indication, 17.4” on the wide range, “B” Steam Generator level is 38% on the narrow range level indication, 371” on the wide range. EFW pump 2P7B has been started.

Which ONE (1) of the following describes the correct sequence of actions for the conditions given?

A. Commence feeding the SG’s; maintain EFW flow < 150 gpm to each SG’s (Total EFW flow 300gpm). When increases in SG level observed or continuous EFW flow to the SG has been maintained for > 5 minutes, control EFW flow as necessary.

B. Commence feeding A SG; maintain EFW flow < 150 gpm. When increases in SG level observed or continuous EFW flow to the A SG has been maintained for > 5 minutes, control EFW flow as necessary.

C. Commence feeding the B SG; maintain EFW flow < 150 gpm. When increases in SG level observed or continuous EFW flow to the B SG has been maintained for > 5 minutes, control EFW flow as necessary.

D. Commence feeding the SG’s; maintain EFW flow < 150 gpm to both SG’s (Total EFW flow 150gpm). When increases in SG level observed or continuous EFW flow to the SG has been maintained for > 5 minutes, control EFW flow as necessary.

Answer: C

References:
Procedure 2202.006
STM 2-15 Section 3.1.6.12

Lesson Plan (As available)

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

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

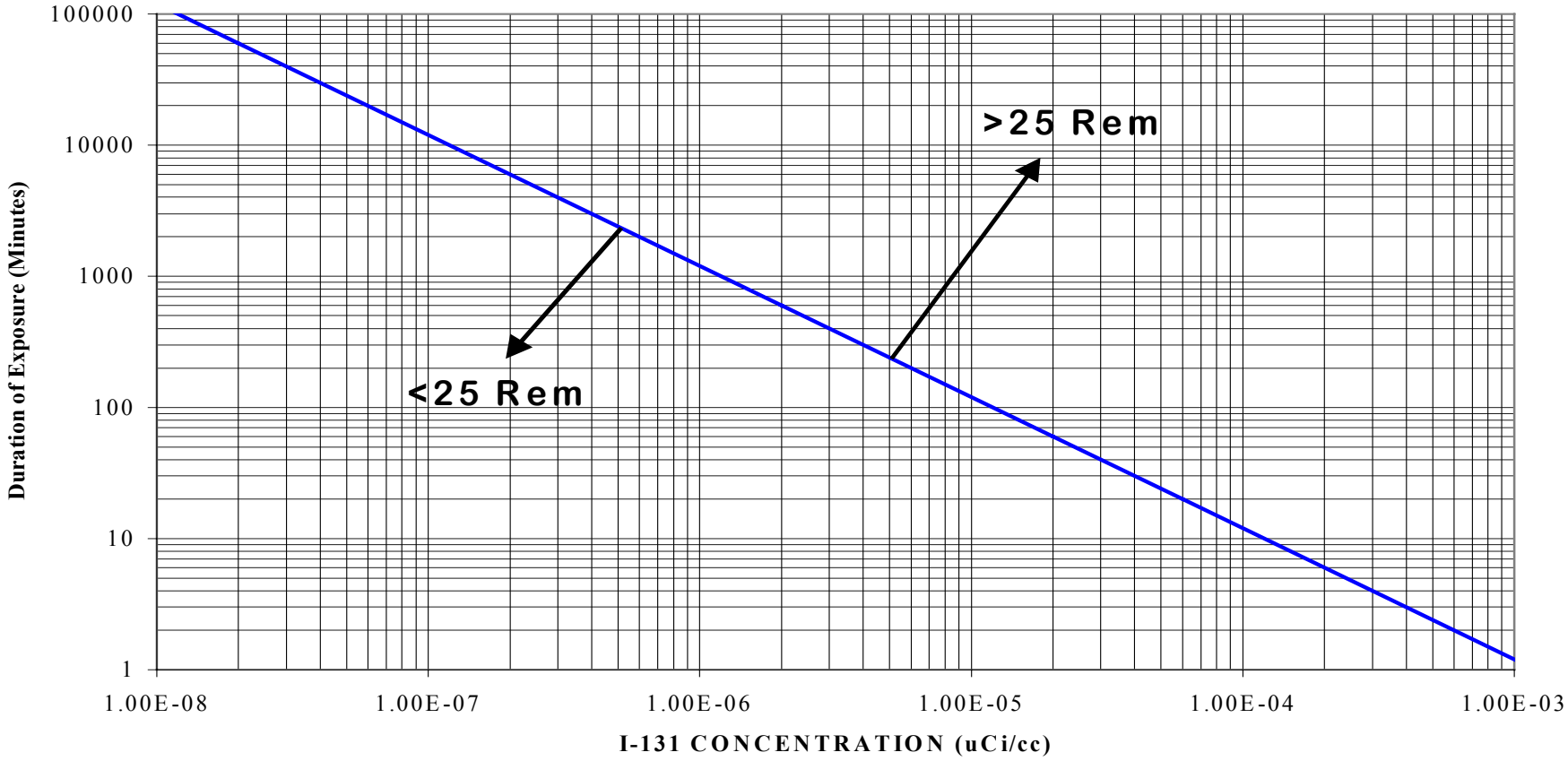
Examination Outline Cross-reference:

Level	RO	SRO
K/A #	2.4.49	2.4.49
Importance Rating	4.0	4.0
Tier #	3	3
Group #	4	4

ATTACHMENT 1

THYROID COMMITTED DOSE EQUIVALENT GRAPH

THYROID COMMITTED DOSE EQUIVALENT GRAPH



SPECIFIC ACTIVITY

LIMITING CONDITION FOR OPERATION

3.4.8 The specific activity of the primary coolant shall be limited to:

a. ≤ 1.0 µCi/gram DOSE EQUIVALENT I-131, and

b. ≤ 100/ $\bar{E}$ µCi/gram.

APPLICABILITY: MODES 1,2,3,4 and 5.

ACTION:

MODES 1, 2 and 3*:

a. With the specific activity of the primary coolant > 1.0 µCi/gram DOSE EQUIVALENT I-131 for more than 48 hours during one continuos time interval or exceeding the limit line shown on Figure 3.4-1, be in at least HOT STANDBY with Tavg <500°F within 6 hours.

b. With the specific activity of the primary coolant > 100/$\bar{E}$ µCi/gram, be in at least HOT STANDBY Tavg <500°F within 6 hours.

*With T avg ≥500°F

ACTION: (Continued)

MODES 1,2,3,4 and 5:

c. With the specific activity of the primary coolant > 1.0 µCi/gram DOSE EQUIVALENT I-131 or > 100/E µCi/gram, perform the sampling and analysis requirements of item 4 a) of Table 4.4-4 until the specific activity of the primary coolant is restored to within its limits.

SURVEILLANCE REQUIREMENTS

4.4.8 The specific activity of the primary coolant shall be determined to be within the limits by performance of the sampling and analysis program of Table 4.4-4.

TABLE 4.4-4

PRIMARY COOLANT SPECIFIC ACTIVITY SAMPLE

AND ANALYSIS PROGRAM

TYPE OF MEASUREMENT AND ANALYSIS	SAMPLE AND ANALYSIS FREQUENCY	MODES IN WHICH SAMPLE AND ANALYSIS REQUIRED
1. Gross Activity Determination	At least once per 72 hours	1,2,3,4
2. Isotopic Analysis for DOSE EQUIVALENT I-131 Concentration	1 per 14 days	1
3. Radiochemical for $\bar{E}$ Determination	1 per 6 months*	1
4. Isotopic Analysis for Iodine Including I-131, I-133, and I-135	a) Once per 4 hours, Whenever the DOSE EQUIVALENT I-131 exceeds 1.0 µCi/gram,, and	1#,2#,3#,4#,5#
	b) One sample between 2 and 6 hours following a THERMAL POWER change exceeding 15 percent of the RATED THERMAL POWER within a one hour period.	1,2,3

Until the specific activity of the primary coolant system is restored within its limits.

*Sample to be taken after a minimum of 2 EFPD and 20 days of POWER OPERATION have elapsed since reactor was last subcritical for 48 hours or longer.

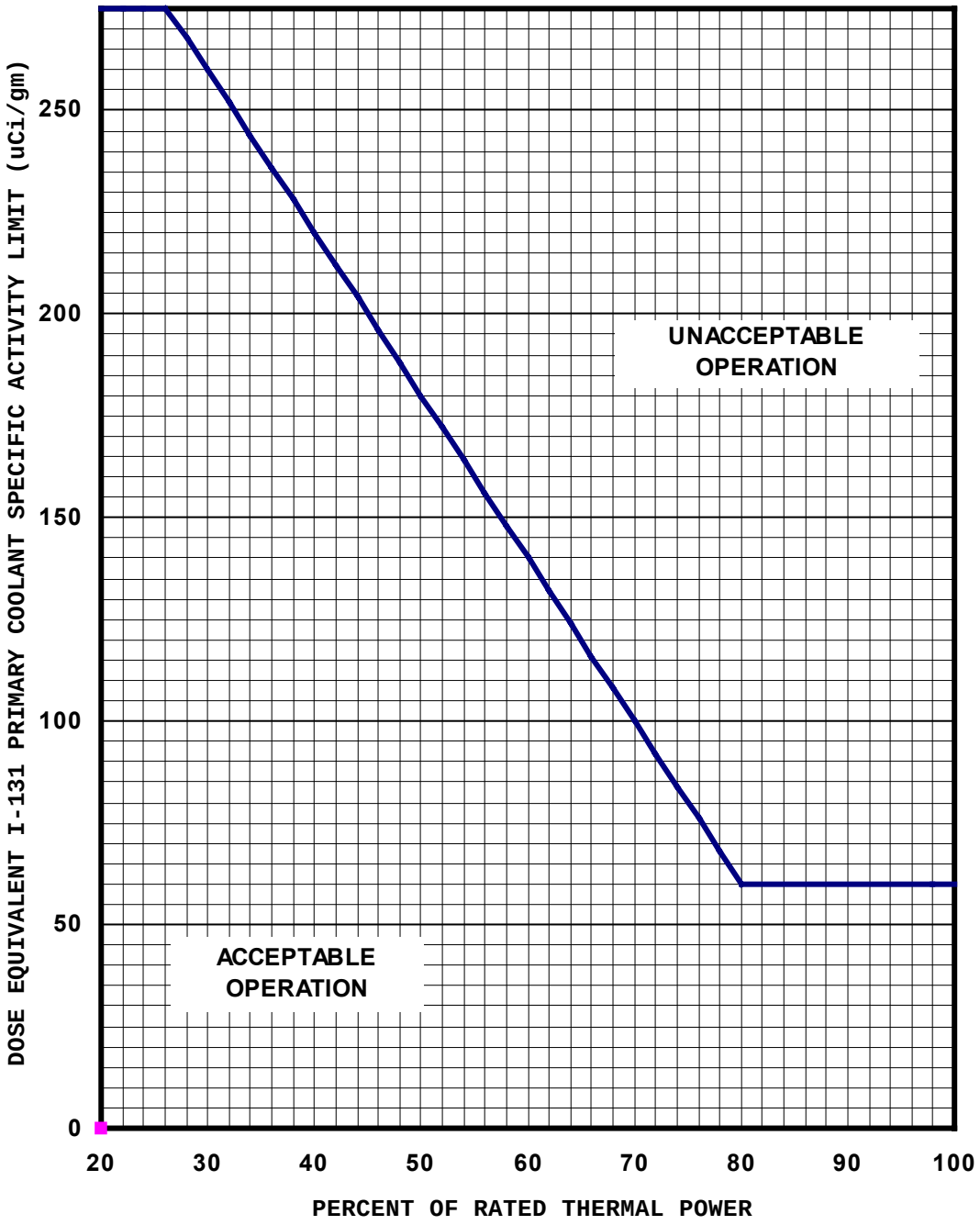


FIGURE 3.4-1

DOSE EQUIVALENT I-131 Primary Coolant Specific Activity Limit Versus Percent of RATED THERMAL POWER with the Primary Coolant Specific Activity > 1.0 µCi/gram Dose Equivalent I-131

3/4.4.9 PRESSURE/TEMPERATURE LIMITS

REACTOR COOLANT SYSTEM

LIMITING CONDITION FOR OPERATION

3.4.9.1 The Reactor Coolant System (except the pressurizer) temperature and pressure shall be limited in accordance with the limit lines shown on Figures 3.4-2A, 3.4-2B and 3.4-2C during heatup/criticality, cooldown, and inservice leak and hydrostatic testing operations with:

a. A maximum heatup of 50°F, 60°F, 70°F or 80°F in any one hour period in accordance with Figure 3.4-2A.

b. A maximum cooldown rate based on:

RCS Temperature (Tc)	Maximum Cooldown Rate
$T_C > 200°F$	100°F per hour (constant) or 50°F in any half hour period (step)
$120°F \leq T_C \leq 200°F$	60°F per hour (constant) or 30°F in any half hour period (step)
$T_C < 120°F$	25°F per hour (constant) or 12.5°F in any half hour period (step)

c. A maximum temperature change of ≤ 10°F in any one hour period during inservice hydrostatic and leak testing operations above the heatup and cooldown limit curves.

APPLICABILITY: At all times.

ACTION:

With any of the above limits exceeded, restore the temperature and/or pressure to within the acceptable region of the applicable curve within 30 minutes; perform an engineering evaluation to determine the effects of the out-of-limit condition on the fracture toughness properties of the Reactor Coolant System; determine that the Reactor Coolant System remains acceptable for continued operations or be in at least HOT STANDBY within the next 6 hours and reduce the RCS Tc and pressure to less than 200°F and less than 500 psia, respectively, within the following 30 hours.

4.4.9.1.1 The Reactor Coolant System temperature and pressure shall be determined to be within the limits at least once per 30 minutes during system heatup, cooldown, and inservice leak and hydrostatic testing operations.

4.4.9.1.2 The reactor vessel material irradiation surveillance specimens shall be removed and examined, to determine changes in material properties, at the intervals shown in SAR Table 5.2-12. The results of these examinations shall be used to update Figures 3.4-2A, 3.4-2B and 3.4-2C.

ACTIVITY

LIMITING CONDITION FOR OPERATION

3.7.1.4 The specific activity of the secondary coolant system shall be ≤ 0.10 µCi/gram DOSE EQUIVALENT I-131.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With the specific activity of the secondary coolant system > 0.10 µCi/gram DOSE EQUIVALENT I-131, be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.7.1.4 The specific activity of the secondary coolant system shall be determined to be within the limit by performance of the sampling and analysis program of Table 4.7-2.

TABLE 4.7-2

SECONDARY COOLANT SYSTEM SPECIFIC ACTIVITY
SAMPLE AND ANALYSIS PROGRAM

TYPE OF MEASUREMENT AND ANALYSIS	SAMPLE AND ANALYSIS FREQUENCY
1. Gross Activity Determination	At least once per 72 hours.
2. Isotopic Analysis for DOSE EQUIVALENT I-131 Concentration	a) 1 per 31 days, whenever the gross activity determination is greater than 10% of the allowable iodine limit. b) 1 per 6 months, whenever the gross activity determination is below 10% of the allowable iodine limit.

CHEMISTRY

LIMITING CONDITION FOR OPERATION

3.4.7 The Reactor Coolant System chemistry shall be maintained within the limits specified in Table 3.4-1.

APPLICABILITY: At all times.

ACTION:

MODES 1, 2, 3 and 4

a. With any one or more chemistry parameter in excess of its Steady State Limit but within its Transient Limit, restore the parameter to within its Steady State Limit within 24 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With any one or more chemistry parameter in excess of its Transient Limit, be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.

MODES 5 and 6

With the concentration of either chloride or fluoride in the Reactor Coolant System in excess of its Steady State Limit for more than 24 hours or in excess of its Transient Limit, reduce the pressurizer pressure to $\leq$ 500 psia, if applicable, and perform an engineering evaluation to determine the effects of the out-of-limit condition on the structural integrity of the Reactor Coolant System; determine that the Reactor Coolant System remains acceptable for continued operation prior to increasing the pressurizer pressure above 500 psia or prior to proceeding to MODE 4.

SURVEILLANCE REQUIREMENTS

4.4.7 The Reactor Coolant System chemistry shall be determined to be within the limits by analysis of those parameters at the frequencies specified in Table 4.4-3.

TABLE 3.4-1

REACTOR COOLANT SYSTEM

CHEMISTRY LIMITS

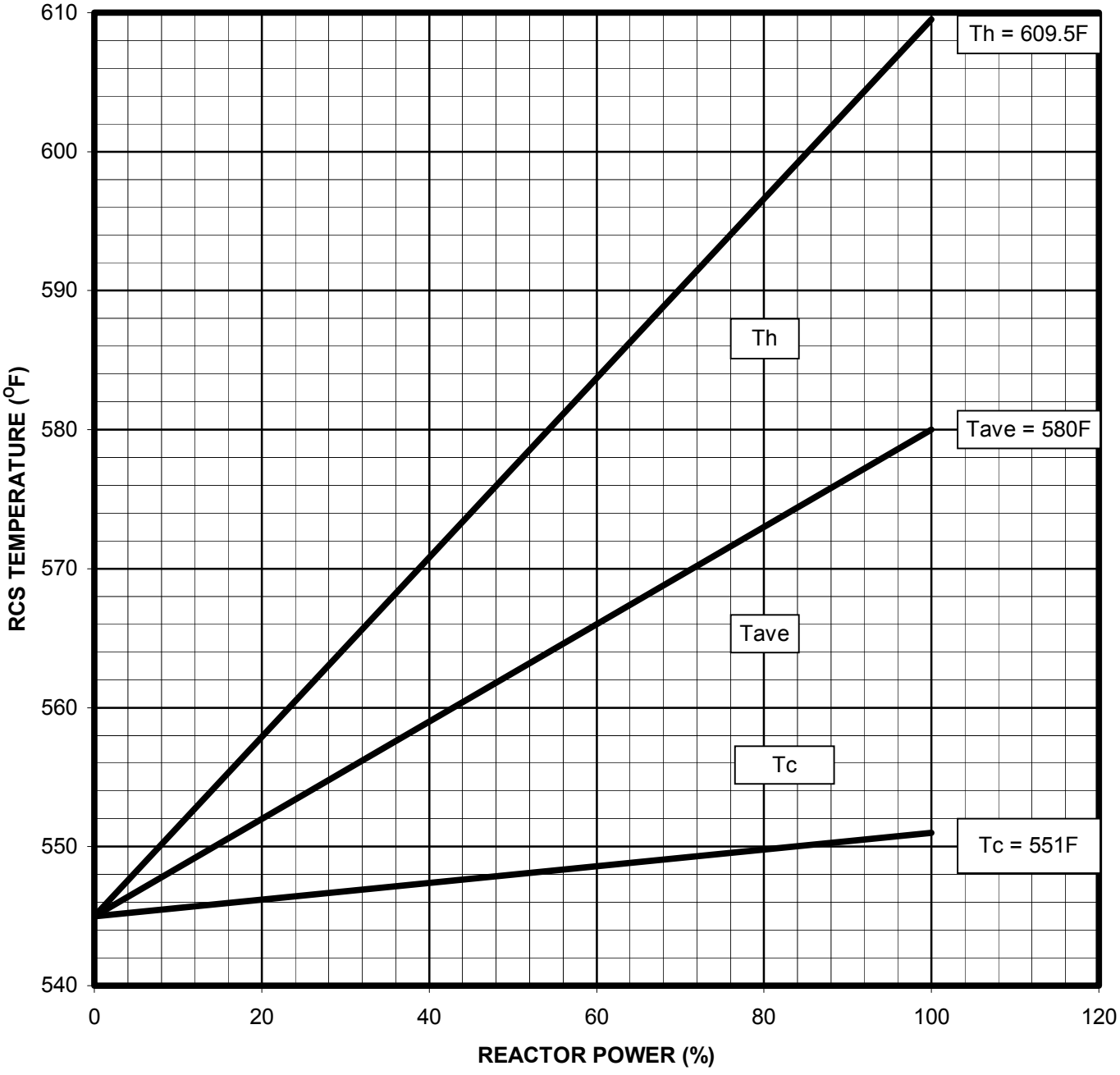
PARAMETER	STEADY STATE LIMIT	TRANSIENT LIMIT
DISSOLVED OXYGEN*	≤0.10 ppm	≤ 1.00 ppm
CHLORIDE	≤0.15 ppm	≤ 1.50 ppm
FLUORIDE	≤0.15 ppm	≤ 1.50 ppm

*Limit not applicable with T_{avg} ≤ 250°F.

ATTACHMENT C

RCS TEMPERATURE VS REACTOR POWER

This temperature profile represents desired trend for RCS temperature vs. Reactor power levels. The actual values at near full power may vary.



ATTACHMENT E

PRESSURIZER LEVEL PROGRAM

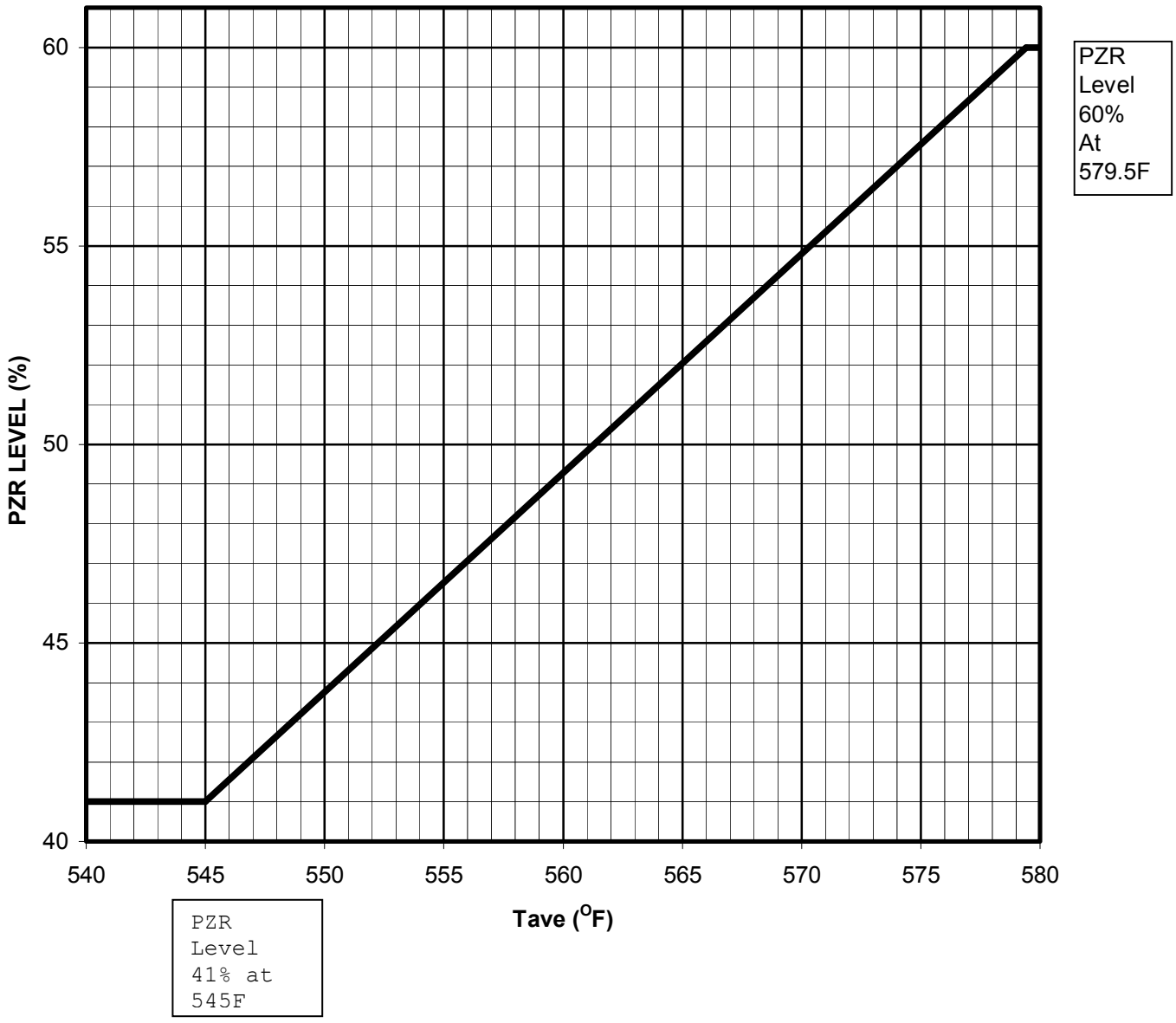


TABLE 4.4-3

REACTOR COOLANT SYSTEM

CHEMISTRY LIMITS SURVEILLANCE REQUIREMENTS

PARAMETER	SAMPLE AND ANALYSIS FREQUENCY
DISSOLVED OXYGEN*	At least once per 72 hours
CHLORIDE	At least once per 72 hours
FLUORIDE	At least once per 72 hours

*Not required with $T_{avg} \leq 250°F$