

ES-401

**Site-Specific RO Written Examination
Cover Sheet**

Form ES-401-7

U.S. Nuclear Regulatory Commission Site-Specific RO Written Examination	
Applicant Information	
Name:	
Date: September 30, 2021	Facility/Unit Catawba Nuclear Station
Region: I <input type="checkbox"/> II <input checked="" type="checkbox"/> III <input type="checkbox"/> IV <input type="checkbox"/>	Reactor Type: W <input checked="" type="checkbox"/> CE <input type="checkbox"/> BW <input type="checkbox"/> GE <input type="checkbox"/>
Start Time:	Finish Time:
Instructions	
Use the answer sheets provided to document your answers. Staple this cover sheet on top of the answer sheets. To pass the examination, you must achieve a final grade of at least 80 percent. Examination papers will be collected 6 hours after the examination begins	
Applicant Certification	
All work done on this examination is my own. I have neither given nor received aid.	

Applicant's Signature	
Results	
Examination Value	___ <u>75</u> ___ Points
Applicant's Score	_____ Points
Applicant's Grade	_____ Percent

Catawba Nuclear Station

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Question: 1
(1 point)

Given the following Unit 1 initial conditions:

- Unit 1 was at 100% RTP
- Core age has reached 325 EFPD
- DRPI Data B power supply failure is being investigated by IAE
- A Turbine runback has occurred due to a trip of 1A CFPT on lowering vacuum

Subsequently:

- Unit 1 Reactor is manually tripped following the loss of 1B CFPT
- NC Temperature is 490 °F
- The CRS has transitioned to EP/1/A/5000/ES-0.1 (Reactor Trip Response) and reached step 8:

8. Verify adequate shutdown margin as follows:

In accordance with ES-0.1:

DRPI indication ____ (1) ____ require emergency boration.

NC Temperature ____ (2) ____ require emergency boration.

Which ONE of the following correctly completes the statement above?

REFERENCE PROVIDED

- A. 1. will
2. will
 - B. 1. will
2. will NOT
 - C. 1. will NOT
2. will
 - D. 1. will NOT
2. will NOT
-

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Question: 2

(1 point)

Given the following Unit 2 conditions:

- The unit is in Mode 3
- Pzr pressure is 1785 PSIG
- Pzr Relief Tank (PRT) pressure is 10 PSIG
- PRT temperature is 125°F
- A Pzr code safety valve is leaking by its seat

Which ONE of the following correctly identifies the approximate temperature that is indicated on the leaking safety valve discharge RTD?

REFERENCE PROVIDED

- A. 121 - 129°F
 - B. 210 - 218°F
 - C. 236 - 244°F
 - D. 282 - 290°F
-

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Question: 3
(1 point)

Given the following Unit 1 initial conditions:

- A small break LOCA has occurred
- EP/1/A/5000/E-1 (Loss of Reactor or Secondary Coolant) has been entered
- Neither train of ICCM is available

Subsequently:

- The crew has transitioned to EP/1/A/5000/ES-1.2 (Post LOCA Cooldown and Depressurization)
- S/G PORVs are being used for cooldown
- Current NC pressure is 665 psig
- Core exit thermocouple temperatures are 490°F
- T-Colds are 487.7°F

In accordance with E-1, the value of subcooling is _____(1)_____ .

Based on current conditions, steam header pressure is _____(2)_____ .

Which ONE of the following correctly completes the statements above?

REFERENCE PROVIDED

- A. 1. - 10° F
2. 608 psig
 - B. 1. - 10° F
2. 593 psig
 - C. 1. + 10° F
2. 608 psig
 - D. 1. + 10° F
2. 593 psig
-

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Question: 4
(1 point)

Given the following Unit 1 conditions:

- The crew has entered EP/1/A/5000/FR-P.1 (Response to Imminent Pressurized Thermal Shock) due to a RED path condition on the Reactor Coolant Integrity CSF Status Tree.

FR-P.1 utilizes the parameters of NC pressure and _____ to determine if a large break LOCA has occurred.

Which ONE of the following correctly completes the statement above?

- A. RVLIS level
 - B. S/G pressure
 - C. NC T-cold temperatures
 - D. ND flow rate to cold legs
-

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Question: 5
(1 point)

Given the following Unit 1 conditions:

- Unit is in Mode 3
- Rod control is capable of rod withdrawal
- NC loops 1A, 1B, and 1D are in operation
- The crew has entered AP/1/A/5500/008 (Malfunction of Reactor Coolant Pump)
- 1A NC Pump Lower Bearing temperature is currently 190°F and rising 5°F per minute

1A NC Pump Lower Bearing temperature will reach trip setpoint in _____(1)_____ .

Following the trip of 1A NCP, entry into the action statement of TS 3.4.5 (RCS Loops – MODE 3) _____(2)_____ required.

Which ONE of the following correctly completes the statements above?

- A. 1. 7 minutes
2. is
 - B. 1. 7 minutes
2. is NOT
 - C. 1. 1 minute
2. is
 - D. 1. 1 minute
2. is NOT
-

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Question: 6
(1 point)

Given the following conditions on Unit 1:

- The unit is at 100% RTP
- 1A NV pump has tripped
- Unit 1 letdown has isolated
- The crew has entered AP/1/A/5500/012 (Loss of Charging or Letdown)

Based on these conditions, all cooling to NC pump lower bearings
_____(1)_____ been lost.

Per AP/12, prior to initiating letdown flow, 1NV-148 (Letdn Press Control) will be
throttled to _____(2)_____ demand.

Which ONE of the following correctly completes the statements above?

- A. 1. has
2. 45%
 - B. 1. has
2. 60%
 - C. 1. has NOT
2. 45%
 - D. 1. has NOT
2. 60%
-

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Question: 7
(1 point)

Given the following Unit 1 initial conditions:

- Refueling was in progress when a loss of ND occurred
- CRS has implemented AP/1/A/5500/019 (Loss of Residual Heat Removal System) Case III (Loss of ND With Large Vent Path Established)

Subsequently:

- The reason for the loss of ND has been corrected
- Crew is performing Enclosure 8 (Restoring an ND Train To Operation) to place 1A ND train in service

In accordance with Enclosure 8:

The MINIMUM KC flow established to the ND heat exchanger is _____(1)_____ GPM.

Prior to starting the 1A ND pump, 1ND-27 (ND Hx 1A Bypass Ctrl) is placed in the _____(2)_____ position.

Which ONE of the following correctly completes the statements above?

- A. 1. 5000
 2. CLOSED
 - B. 1. 5000
 2. OPEN
 - C. 1. 3000
 2. CLOSED
 - D. 1. 3000
 2. OPEN
-

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Question: 8
(1 point)

Given the following Unit 1 timeline:

1200

- The Unit is at 100% RTP
- 1B2 KC Pump is in service
- 1B KC flow is 5000 gpm and stable
- 1B KF is in service

1203

- 1KC-15 (1B2 KC Pump Disch) is inadvertently closed

1205

- 1KC-15 is reopened
- No additional KC pumps have been started

Following closure of 1KC-15, 1KC-156 (KF HX 1B Cool Wtr Otlf) _____(1)_____ automatically change position.

Assuming no operator action, once 1KC-15 is reopened 1AD-9 F/6 "KC Train B Single Pump Runout" _____(2)_____ alarm.

Which ONE of the following correctly completes the statements above?

- A. 1. will
2. will
 - B. 1. will NOT
2. will
 - C. 1. will
2. will NOT
 - D. 1. will NOT
2. will NOT
-

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Question: 9
(1 point)

Given the following Unit 1 initial conditions:

- Unit is at 100% RTP with surveillance testing in progress
- Reactor Trip Breaker 'A' (RTA) and Bypass Breaker 'B' (BYB) are racked-in and closed

Subsequently:

- A complete loss of feedwater occurred
- All efforts to trip the reactor from the control room were unsuccessful
- Annunciator 1AD-1 A/5 (P-14, S/I OR RX TRIP CAUSES TURBINE TRIP) is LIT
- Operators entered EP/1/A/5000/FR-S.1 (Response to Nuclear Power Generation/ATWS)
- An AO was dispatched to locally trip the Reactor

Based on the given conditions, the Reactor Trip Breaker 'A' (RTA) _____(1)_____ failed to operate as designed.

If successful in opening all Reactor Trip and Bypass breakers, then per FR-S.1, the AO _____(2)_____ required to open the MG set breakers locally.

Which ONE of the following correctly completes the statements above?

- A. 1. shunt trip coil ONLY
 2. is NOT
 - B. 1. shunt trip AND undervoltage coils
 2. is NOT
 - C. 1. shunt trip coil ONLY
 2. is
 - D. 1. shunt trip AND undervoltage coils
 2. is
-

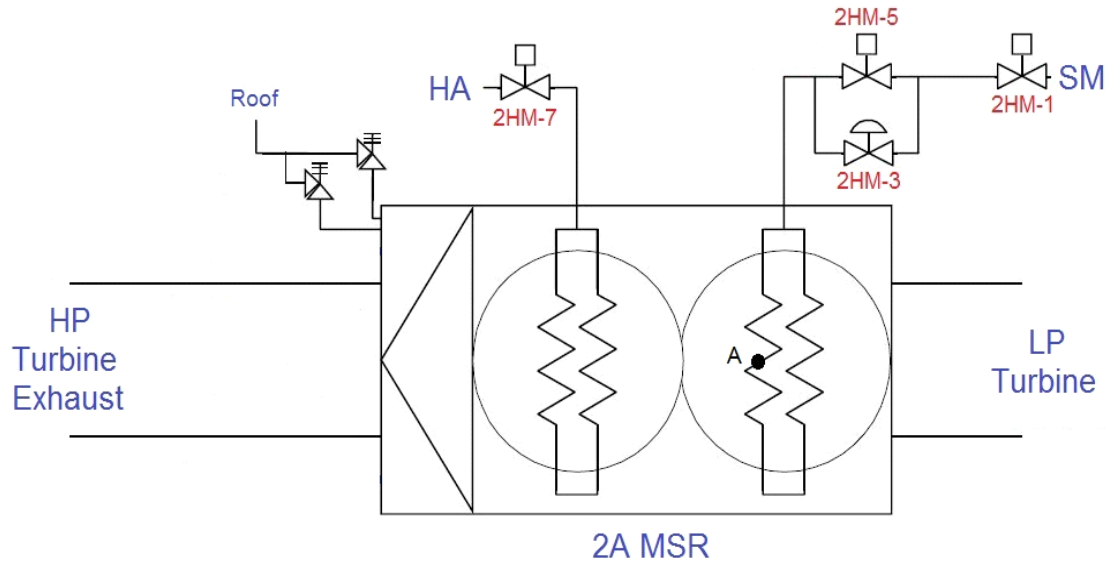
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Question: 10
(1 point)

Given the following Unit 2 conditions:

- The Unit is at 45% RTP
- The crew has entered AP/2/A/5500/028 (Secondary Steam Leak) due to a leak from the 2nd stage reheat steam tube bundle inside 2A MSR (location A)



The steam leak at location A, will cause Main Turbine Megawatts to ____ (1) ____ .

In order to isolate the leak, AP/28 will direct the crew to ____ (2) ____ .

Which ONE of the following correctly completes the statements above?

- A. 1. rise
2. trip the Main Turbine
- B. 1. rise
2. trip the Reactor and close MSIVs
- C. 1. lower
2. trip the Main Turbine
- D. 1. lower
2. trip the Reactor and close MSIVs

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Question: 11
(1 point)

Given the following Unit 2 conditions:

- A seismic event has resulted in the following:
 - 2A S/G has experienced a complete shear of the Main Steam line at the S/G outlet
 - 2D S/G has experienced a complete shear of the Main Feed line at the S/G inlet

Steam Generator _____(1)_____ will lower to 0% WR level FIRST.

Procedural guidance to isolate 2D S/G is contained in _____(2)_____.

Which ONE of the following correctly completes the statements above?

- A.
 - 1. 2A
 - 2. EP/2/A/5000/E-1 (Loss of Reactor or Secondary Coolant)
 - B.
 - 1. 2A
 - 2. EP/2/A/5000/E-2 (Faulted Steam Generator Isolation)
 - C.
 - 1. 2D
 - 2. EP/2/A/5000/E-1 (Loss of Reactor or Secondary Coolant)
 - D.
 - 1. 2D
 - 2. EP/2/A/5000/E-2 (Faulted Steam Generator Isolation)
-

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Question: 12
(1 point)

Given the following Unit 2 conditions:

- A Loss of All Offsite Power has occurred
- Both Unit 2 D/Gs started and loaded their associated bus
- While monitoring D/G operating parameters, the local operator notes that D/G 2B "VOLTS" indicates 3925 V

In order to adjust 2B D/G Voltage, local controls will be operated on the 2B Diesel _____(1)_____ Control Panel .

Following this adjustment, 2B D/G 'AMPS' will be _____(2)_____ .

Which ONE of the following correctly completes the statements above?

- A. 1. Engine
2. lower
 - B. 1. Generator
2. lower
 - C. 1. Engine
2. higher
 - D. 1. Generator
2. higher
-

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Question: 13
(1 point)

Given the following initial conditions:

- 1B RN Pump in service
- 1B1 KC Pump in service
- 2A1 KC Pump in service

Subsequently:

- Both units enter AP/0/A/5500/030 (Plant Flooding), Enclosure 8 (Flooding From RN) following discovery of a large RN leak on the 1A Essential Header
- Per AP/30 guidance, the crew has isolated the 1A RN Essential Header (ONLY)

Based on current conditions:

Cooling water supply _____(1)_____ available to the 1A KD Heat Exchanger.

Mini-Flow protection _____(2)_____ available for the 1B RN Pump.

Which ONE of the following correctly completes the statements above?

- A. 1. is
2. is
 - B. 1. is
2. is NOT
 - C. 1. is NOT
2. is
 - D. 1. is NOT
2. is NOT
-

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Question: 14
(1 point)

Given the following Unit 1 initial conditions:

- The crew has entered AP/0/A/5500/022 (Loss of Instrument Air) following a complete loss of VI
- Both Reactors have been tripped

Subsequently:

- Unit 1 has entered EP/1/A/5000/FR-H.1 (Loss of Heat Sink)
- Feed and Bleed criteria has been met

In order to establish Feed and Bleed, motive force will be available to _____(1)_____ Pressurizer PORVs supplied by _____(2)_____ .

Which ONE of the following correctly completes the statement above?

- A. 1. two
2. cold leg accumulators
 - B. 1. two
2. individual air accumulators
 - C. 1. three
2. cold leg accumulators
 - D. 1. three
2. individual air accumulators
-

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Question: 15
(1 point)

Given the following Unit 1 initial conditions:

- The unit is at 100% RTP with Main Generator power factor at 0.99 lagging
- Unit 1 Voltage Regulator is in "Manual" per Engineering's request
- The "READY" status light for the Voltage Regulator Manual/Auto switch is DARK

Subsequently:

- Generator Voltage and MVARs begin fluctuating
- The CRS enters AP/1/A/5500/037 (Generator Voltage and Electric Grid Disturbances), Case I (Abnormal Generator or Grid Voltage)
 - The CRS has directed the OATC to operate the Voltage Regulator to maintain Generator MVARs within the Generator Capability Curve

With the Voltage Regulator in "Manual", operation of the Voltage Adjust RAISE/LOWER pushbutton _____(1)_____ adjust Reactive Power.

Placing the Voltage Regulator Manual/Auto switch in "Auto" (with the "READY" status light dark) _____(2)_____ transfer the Voltage Regulator to automatic control.

Which ONE of the following correctly completes the statements above?

- A. 1. will
2. will
 - B. 1. will
2. will NOT
 - C. 1. will NOT
2. will
 - D. 1. will NOT
2. will NOT
-

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Question: 16
(1 point)

Given the following initial conditions on Unit 1:

- A LOCA outside containment has occurred
- The crew suspects the leak is located in the 1B ND header
- EP/1/A/5000/ECA-1.2 (LOCA Outside Containment) has been entered

Subsequently:

- 1B ND header has been isolated. 30 seconds following header isolation, indications are as follows:
 - Unit 1 PZR level is 0%
 - Subcooling is -5°F and stable
 - NC Pressure is 1050 psig and slowly lowering
 - RVLIS level is 61.3% and slowly rising

In accordance with ECA-1.2:

The crew _____(1)_____ permitted to isolate 1B ND header prior to 1A ND header.

With given indications, _____(2)_____ will provide the best diagnostic of leak isolation.

Which ONE of the following correctly completes the statements above?

- A. 1. is
2. NC pressure
 - B. 1. is NOT
2. NC pressure
 - C. 1. is
2. RVLIS level
 - D. 1. is NOT
2. RVLIS level
-

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Question: 17
(1 point)

Given the following Unit 1 conditions:

- A Safety Injection due to Hi Containment Pressure has occurred
- Containment pressure peaked at 2.7 psig and is now slowly lowering
- The crew has implemented EP/1/A/5000/FR-H.1 (Response to Loss of Secondary Heat Sink)
- All attempts to restore CA flow have been unsuccessful

In accordance with FR-H.1:

The NEXT source of feed water attempted for restoration of flow to the S/Gs is through the CM/CF system using _____(1)_____.

The crew will be required to establish bleed and feed when W/R level in at least 3 S/Gs is less than a MAXIMUM level of _____(2)_____.

Which ONE of the following correctly completes the statements above?

- A. 1. either Main Feed Water pump
 2. 24%
 - B. 1. either Main Feed Water pump
 2. 36%
 - C. 1. Hotwell and Booster pumps
 2. 24%
 - D. 1. Hotwell and Booster pumps
 2. 36%
-

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Question: 18

(1 point)

Given the following Unit 1 conditions:

- EP/1/A/5000/ECA-1.1 (Loss of Emergency Coolant Recirculation) is in progress
- NC Pressure is 1700 psig
- FWST level is trending down

_____(1)_____ are currently providing injection flow into the NC System.

Per ECA-1.1, as the FWST level lowers less than _____(2)_____ the operator will secure these pumps.

Which ONE of the following correctly completes the statements above?

- A. 1. NV AND NI Pumps
2. 20%
 - B. 1. NV AND NI Pumps
2. 5%
 - C. 1. ONLY NV Pumps
2. 20%
 - D. 1. ONLY NV Pumps
2. 5%
-

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Question: 19
(1 point)

Given the following Unit 1 initial conditions:

- Unit is in Mode 6 performing core loading
- Unit 1 TRN A SMM BORON DILUTION INTLKS switch is in the “Enable” position
- Unit 1 TRN B SMM BORON DILUTION INTLKS switch is in the “Defeat” position
- The VCT Outlet Valve Interlock Keyswitch is in the “Normal” position

Subsequently:

- The OATC has just reset Shutdown Margin Monitor setpoints on 1A and 1B trains
- An error has resulted in mispositioning of several fuel assemblies
 - This mispositioning has resulted in a critical array and rising count rate

1AD-2 E(F)/2 “Train A(B) Shutdown Margin Alarm” will actuate once count rate rises by a MINIMUM factor of _____(1)_____ .

Following alarm actuation, 1A and 1B NV Pump suction will be aligned to the _____(2)_____ .

Which ONE of the following correctly completes the statements above?

- A. 1. two
2. VCT
 - B. 1. two
2. FWST
 - C. 1. three
2. VCT
 - D. 1. three
2. FWST
-

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Question: 20
(1 point)

Given the following Unit 1 initial conditions:

- Unit is at 100% RTP
- Letdown flow is 85 gpm aligned through the 1NV-10A (Letdn Orif 1B Otlt Cont Isol)

Subsequently:

- 1A S/G develops a tube leak
- The crew has entered AP/1/A/5500/010 (Reactor Coolant Leak), Case I (Steam Generator Tube Leak)
- 1NV-294 (NV Pmps A&B Disch Flow Ctrl) has been fully opened
 - Pressurizer level continues to lower at 0.1% / minute
- The CRS desires letdown flow reduction to 45 gpm

Prior to this event, 1NV-849 (Letdn Flow Var Orif Ctrl) SLIM station was in _____(1)_____ .

Per AP/10, letdown flow reduction will be accomplished via the _____(2)_____ .

Which ONE of the following correctly completes the statements above?

- A. 1. manual
2. 45 gpm orifice
 - B. 1. manual
2. variable orifice
 - C. 1. automatic
2. 45 gpm orifice
 - D. 1. automatic
2. variable orifice
-

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Question: 21

(1 point)

Given the following conditions on Unit 1:

- Reactor power is currently 7%
- The crew has entered AP/1/A/5500/023 (Loss of Condenser Vacuum)
- In service CFPT vacuum, and Main Condenser vacuum, is currently 17" Hg and lowering

In accordance with AP/23, a reactor trip _____(1)_____ required.

Main Condenser steam dumps _____(2)_____ currently available.

Which ONE of the following correctly completes the statements above?

- A. 1. is
2. are
 - B. 1. is
2. are NOT
 - C. 1. is NOT
2. are
 - D. 1. is NOT
2. are NOT
-

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Question: 22
(1 point)

Given the following conditions:

- A planned Liquid Waste Release of Waste Monitor Tank (WMT) A was initiated at 1110

The following timeline of events then occurs:

- 1120** 1RAD-1, C/5 (EMF-49 LIQUID WASTE DISCH HI RAD) alarms
1130 The release is manually re-initiated without re-sampling
1145 1RAD-1, C/5 (EMF-49 LIQUID WASTE DISCH HI RAD) alarms
1155 The release is manually re-initiated without re-sampling
1215 1RAD-1, C/5 (EMF-49 LIQUID WASTE DISCH HI RAD) alarms

The release _____(1)_____ be manually re-initiated, without re-sampling, per OP/0/B/6500/113 (Operations Liquid Waste Release).

The release was automatically isolated by closure of _____(2)_____ .

Which ONE of the following correctly completes the statements above?

- A. 1. can
2. 1WL-X28
- B. 1. can
2. 1WL-124
- C. 1. can NOT
2. 1WL-X28
- D. 1. can NOT
2. 1WL-124
-

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Question: 23

(1 point)

Given the following Unit 1 initial condition:

- The crew has entered EP/1/A/5000/FR-Z.1 (Response to High Containment Pressure) due to a valid red path

In accordance with FR-Z.1, Enclosure 3 (Containment Isolation VX System Verification), the crew will verify Containment Air Return Fans are **operating** if the elapsed time since Phase B actuation is greater than ____ (1) ____ and **secured** if containment pressure lowers below ____ (2) ____ .

Which ONE of the following correctly completes the statement above?

- A. 1. 9 minutes
 2. 0.9 PSIG
 - B. 1. 9 minutes
 2. 0.3 PSIG
 - C. 1. 10 seconds
 2. 0.9 PSIG
 - D. 1. 10 seconds
 2. 0.3 PSIG
-

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Question: 24
(1 point)

Given the following Unit 1 initial conditions:

- A Loss of Off-Site Power (LOOP) has occurred
- Due to multiple equipment failures, the crew has implemented EP/1/A/5000/FR-C.1 (Response To Inadequate Core Cooling)
- Containment pressure has risen to 2.6 psig and stabilized
- ECCS steam pressure has been blocked in preparation for cooldown

Subsequently:

- Main steam pressure has lowered to 750 psig
- Operators are preparing to depressurize intact steam generators to 140 PSIG

Based on the conditions above:

Operation of S/G PORVs _____(1)_____ require depressing the SM PORV TRAIN A(B) RESET pushbutton.

In order to establish required cooldown rate, the OATC _____(2)_____ rotate all S/G PORV controllers to the full open position.

Which ONE of the following correctly completes the statements above?

- A. 1. will
2. will
 - B. 1. will
2. will NOT
 - C. 1. will NOT
2. will
 - D. 1. will NOT
2. will NOT
-

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Question: 25
(1 point)

Given the following Unit 1 conditions:

- A medium break LOCA has occurred
- EP/1/A/5000/E-1 (Loss of Reactor Coolant or Secondary Coolant) has been implemented and the crew is evaluating Safety Injection termination criteria
- The BOP reports the following data:
 - NC pressure is 1200 PSIG and STABLE
 - Containment pressure is 3.3 PSIG and trending down
 - NC subcooling is 2°F
 - Pressurizer level is 17% and STABLE

Based on S/I termination criteria of E-1:

NC Pressure requirement _____(1)_____ met.

Pressurizer level requirement _____(2)_____ met.

Which ONE of the following correctly completes the statement above?

- A. 1. is
2. is
 - B. 1. is NOT
2. is
 - C. 1. is
2. is NOT
 - D. 1. is NOT
2. is NOT
-

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Question: 26
(1 point)

Given the following Unit 1 initial conditions:

- The Unit is at 100% RTP

Subsequently:

1100 A LOCA occurs

1215 Containment sump level is 13 feet and slowly rising

If containment sump level is rising at a constant rate of 0.25 feet per minute, EP/1/A/5000/FR-Z.2 (Response to Containment Flooding) entry will be REQUIRED at ____ (1) ____ .

Valves, inside containment, NOT qualified for submergence will be isolated by an ____ (2) ____ signal.

Which ONE of the following correctly completes the statements above?

- A. 1. 1225
2. ST
 - B. 1. 1245
2. ST
 - C. 1. 1225
2. SP
 - D. 1. 1245
2. SP
-

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Question: 27
(1 point)

Given the following Unit 1 conditions:

- A LOCA has occurred
- Containment pressure peaked at 2.8 PSIG, and is now 2.2 PSIG and slowly lowering
- Crew has entered EP/1/A/5000/ES-1.2 (Post LOCA Cooldown and Depressurization) and is performing the initial cooldown

LOOP DATA		LOOP A	LOOP B	LOOP C	LOOP D
CURRENT T-COLD, BEST (DEG F)		546.0	546.4	546.1	546.1
ADMINISTRATIVE LIMIT (DEG F)		479.8	480.2	479.8	479.8
TECH SPEC LIMIT (DEG F)		459.8	460.2	459.8	459.8
T-COLD CURRENT MINUS 1 HR T-COLD MAXIMUM		-12.8	-13.6	-12.3	-12.1
15-MIN RATE (DEG F/HR)		-38	-38	-36	-36
5-MIN RATE (DEG F/HR)		-131	-134	-128	-127
1-MIN RATE (DEG F/HR)		-113	-107	-111	-102

In accordance with ES-1.2:

The **INITIAL** cooldown will be started using the _____(1)_____.

With rates established, per the graphic above, the cooldown _____(2)_____ continue at this time.

Which ONE of the following correctly completes the statements above?

- A. 1. S/G PORVs
2. can NOT
- B. 1. S/G PORVs
2. can
- C. 1. Condenser Steam Dumps
2. can NOT
- D. 1. Condenser Steam Dumps
2. can

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Question: 28

(1 point)

Given the following Unit 1 conditions:

- The Unit is at 100% RTP
- Total charging flow is currently 90 gpm
- 1NV-294 (NV Pmps A&B Disch Flow Ctrl) is in MANUAL
- 1NV-309 (Seal Water Injection Flow) is in AUTO

Assuming stable plant conditions, as 1NV-294 is throttled CLOSED, 1NV-309 will throttle in the _____(1)_____ direction in order to maintain _____(2)_____ seal injection flow.

Which ONE of the following correctly completes the statements above?

- A. 1. OPEN
2. 32 gpm
 - B. 1. CLOSED
2. 32 gpm
 - C. 1. OPEN
2. 40 gpm
 - D. 1. CLOSED
2. 40 gpm
-

Catawba Nuclear Station

ILT 21 CNS RO NRC Examination

Question: 29
(1 point)

Concerning operation of the Unit 1 Volume Control Tank (VCT):

A loss of power to 1LT-5761 (VCT Level CH 1) _____(1)_____ result in a DCS Alternate Action.

A loss of 1ERPA will result in a loss of _____(2)_____ makeup capability to the VCT.

Consider each statement separately

Which ONE of the following correctly completes the statements above?

- A. 1. will
2. auto ONLY
 - B. 1. will
2. auto AND manual
 - C. 1. will NOT
2. auto ONLY
 - D. 1. will NOT
2. auto AND manual
-

Catawba Nuclear Station

ILT 21 CNS RO NRC Examination

Question: 30
(1 point)

Given the following Unit 2 initial conditions:

- Unit is in Mode 4
- 2A ND train in service in RHR Mode
- 2B ND train remains in Injection Mode

Subsequently:

- Instrument Air is lost to 2ND-26 (ND Hx 2A Outlet Ctrl)

Assuming no operator action:

ND system flow _____(1)_____ automatically adjust to compensate for the change caused by this malfunction.

2A ND Heat Exchanger outlet temperature will _____(2)_____ .

Which ONE of the following correctly completes the statements above?

- A. 1. will
2. rise
 - B. 1. will NOT
2. rise
 - C. 1. will
2. lower
 - D. 1. will NOT
2. lower
-

Catawba Nuclear Station

ILT 21 CNS RO NRC Examination

Question: 31
(1 point)

Given the following Unit 2 conditions:

- Unit is at 75% RTP
- Several banks of FWST heaters have failed "ON"
- Current FWST temperature is 91°F
- FWST temperature is rising at a rate of 0.5°F/min

Based on the conditions above, FWST temperature will reach the T.S. 3.5.4 (Refueling Water Storage Tank (RWST)) limit in a MINIMUM of _____(1)_____ minutes.

Normally, Group 1 FWST heaters cycle automatically to maintain FWST temperature greater than T.S. 3.5.4 MINIMUM of _____(2)_____ .

Which ONE of the following correctly completes the statements above?

- A. 1. 10
2. 65°F
 - B. 1. 10
2. 70°F
 - C. 1. 18
2. 65°F
 - D. 1. 18
2. 70°F
-

Catawba Nuclear Station

ILT 21 CNS RO NRC Examination

Question: 32
(1 point)

Given the following Unit 1 timeline:

1000

- A load rejection resulted in a reactor trip from 100% RTP
- Following the trip, a Pressurizer Safety valve opens, and will NOT reseal
- The PRT rupture disks function as designed
- Containment pressure is 0.1 psig and rising at 0.03 psig every 5 minutes
- Lower Containment temperature is 110°F and rising at 2°F every 5 minutes

Assuming these conditions remain constant, and concerning only the application of LCOs 3.6.4 and 3.6.5

Plant conditions will FIRST require entry into LCO ____ (1) ____ .

At **1030**, conditions for entry into ____ (2) ____ will be met.

Which ONE of the following correctly completes the statements above?

LEGEND:

LCO 3.6.4 (Containment Pressure)

LCO 3.6.5 (Containment Air Temperature)

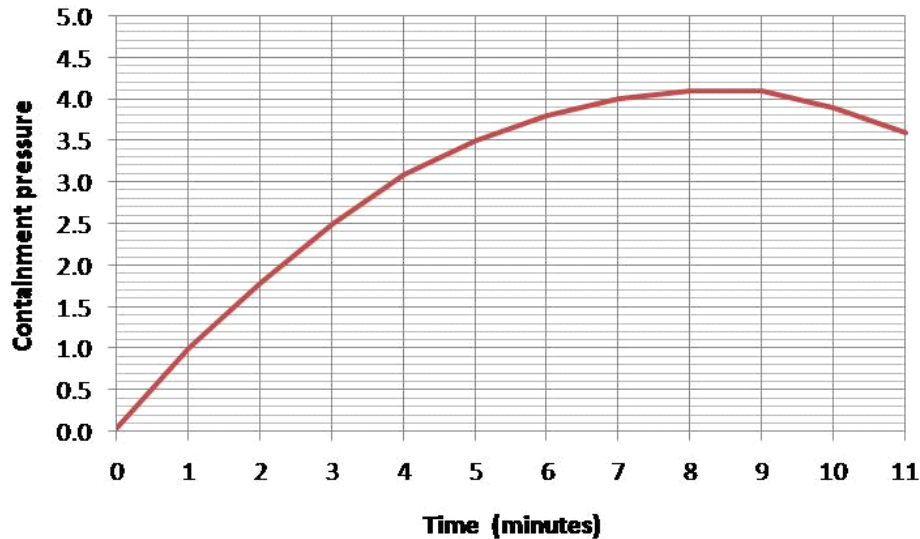
- A. 1. 3.6.4
2. 3.6.4 ONLY
 - B. 1. 3.6.4
2. 3.6.4 AND 3.6.5
 - C. 1. 3.6.5
2. 3.6.5 ONLY
 - D. 1. 3.6.5
2. 3.6.4 AND 3.6.5
-

Catawba Nuclear Station

ILT 21 CNS RO NRC Examination

Question: 33
(1 point)

A LOCA has occurred on Unit 1 at Time = 0 minutes. Given the following containment pressure trend:



At Time = 3 minutes, the PRT _____(1)_____ be cooled using the NCDT Heat Exchanger.

At Time = 3 minutes, the PRT _____(2)_____ be cooled using spray flow from the RMWST.

Which ONE of the following correctly completes the statements above?

- A. 1. can
2. can
- B. 1. can
2. can NOT
- C. 1. can NOT
2. can
- D. 1. can NOT
2. can NOT

Catawba Nuclear Station

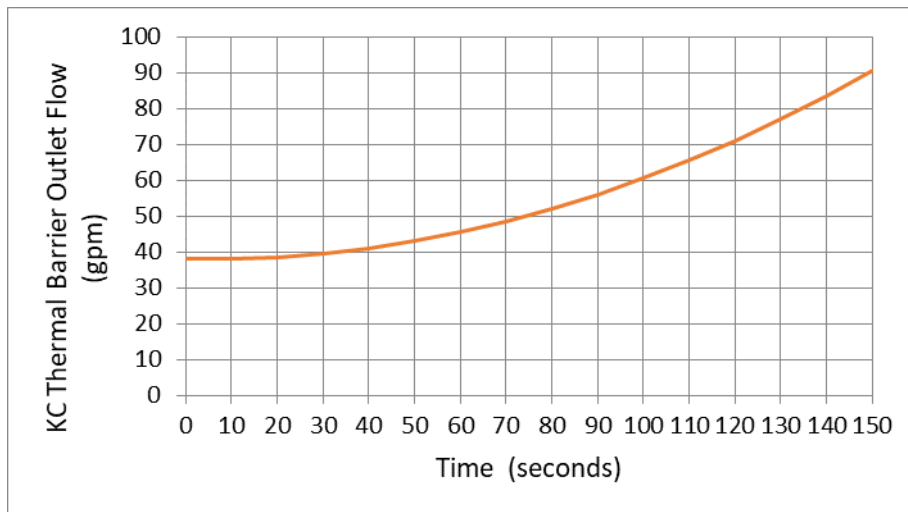
ILT 21 CNS RO NRC Examination

Question: 34
(1 point)

Unit 1 is in Mode 3 when the following alarm is received:

- 1AD-6, E/1 (NCP A Thermal Barrier KC Outlet Hi/Lo Flow)

The flow trend is given below:



- (1) At what time on the above graph did 1KC-394A (NC Pump 1A Therm Bar Otlt) automatically close?
- (2) If the NCP 1A thermal barrier cannot be isolated from the KC System by any means, how is over pressurization of the KC surge tanks prevented?
 - A.
 1. 100 seconds
 2. The KC surge tanks vent line is large enough to prevent over pressurization.
 - B.
 1. 130 seconds
 2. The KC surge tanks vent line is large enough to prevent over pressurization.
 - C.
 1. 100 seconds
 2. The KC surge tanks relief valve to the KC drain sump is large enough to prevent over pressurization.
 - D.
 1. 130 seconds
 2. The KC surge tanks relief valve to the KC drain sump is large enough to prevent over pressurization.

Catawba Nuclear Station

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Question: 35
(1 point)

Given the following Unit 1 conditions:

- The crew has entered AP/1/A/5500/017 (Loss of Control Room) due to a Security Event
- Transfer to the SSF has been completed

Based on the conditions above, NC System Pressure control will be accomplished via use of PZR Heater Group _____(1)_____ which will be powered from _____(2)_____.

Which ONE of the following correctly completes the statement above?

- A. 1. A
2. 1LXH
 - B. 1. A
2. SMXG
 - C. 1. D
2. 1LXH
 - D. 1. D
2. SMXG
-

Catawba Nuclear Station

ILT 21 CNS RO NRC Examination

Question: 36
(1 point)

Given the following Unit 1 conditions:

- Unit is at 100% RTP
- A slight cooldown of the NC system causes the "C" PZR heaters to be full "on"
- A malfunction of two PZR pressure transmitters causes an Alternate Action to occur on the Pressurizer Pressure Control System

Assuming NO operator actions:

The PZR Pressure Master will be in _____(1)_____ control AND "C" Heaters _____(2)_____ be energized.

Which ONE of the following correctly completes the statement above?

- A. 1. Manual
2. will
 - B. 1. Manual
2. will NOT
 - C. 1. Automatic
2. will
 - D. 1. Automatic
2. will NOT
-

Catawba Nuclear Station

ILT 21 CNS RO NRC Examination

Question: 37
(1 point)

Given the following Unit 1 conditions:

- Reactor startup is in progress
- The permissive P-6 status light on 1SI-18 has just LIT
- Reactor power is rising

In accordance with PT/0/A/4150/019 (1/M Approach to Criticality), the operator will manually block the _____(1)_____ high flux reactor trip. Following this, the reactor trip setpoint for high flux is _____(2)_____ .

Which ONE of the following correctly completes the statements above?

- A. 1. Source Range
2. 10%
 - B. 1. Source Range
2. 25%
 - C. 1. Intermediate Range
2. 10%
 - D. 1. Intermediate Range
2. 25%
-

Catawba Nuclear Station

ILT 21 CNS RO NRC Examination

Question: 38
(1 point)

Given the following initial conditions:

- Both units are at 100% RTP

Subsequently:

- An inadvertent 1A Train Safety Injection occurs

As a result of this event and assuming no operator actions:

The 1B Aux Building Unfiltered Exhaust Fan (ABUFXF) _____(1)_____ secured.

The 2A Aux Building Unfiltered Exhaust Fan (ABUFXF) _____(2)_____ secured.

Which ONE of the following correctly completes the statements above?

- A. 1. is
 2. is
 - B. 1. is
 2. is NOT
 - C. 1. is NOT
 2. is
 - D. 1. is NOT
 2. is NOT
-

Catawba Nuclear Station

ILT 21 CNS RO NRC Examination

Question: 39
(1 point)

Concerning operation of the Containment Ventilation Units:

Under normal conditions, Containment Ventilation Units are cooled by the _____(1)_____ system.

Containment Ventilation cooling water supply is isolated by a _____(2)_____ signal.

Which ONE of the following correctly completes the statements above?

- A. 1. YV
2. Phase A
 - B. 1. YV
2. Phase B
 - C. 1. RN
2. Phase A
 - D. 1. RN
2. Phase B
-

Catawba Nuclear Station

ILT 21 CNS RO NRC Examination

Question: 40

(1 point)

Given the following Unit 1 conditions:

- Operators are performing Aux Safeguards testing
- A spurious automatic signal caused 1NF-233B (Containment Return Isolation) to inadvertently close during the testing

1NF-233B was closed by an inadvertent _____(1)_____ signal.

The glycol expansion tank _____(2)_____ overflow inside containment.

Which ONE of the following correctly completes the statements above?

- A. 1. S_T
2. will NOT
- B. 1. S_P
2. will NOT
- C. 1. S_T
2. will
- D. 1. S_P
2. will
-

Catawba Nuclear Station

ILT 21 CNS RO NRC Examination

Question: 41

(1 point)

Given the following Unit 1 conditions:

- Unit is in Mode 4
- It has been determined that eight Ice Condenser Intermediate Deck doors will not open due to excessive ice buildup

Based on the conditions listed above, peak pressure following a LOCA will be reached _____(1)_____ than normal.

Tech Spec 3.6.13 (Ice Condenser Doors) _____(2)_____ applicable.

Which ONE of the following correctly completes the statements above?

- A. 1. sooner
2. is
 - B. 1. later
2. is
 - C. 1. sooner
2. is NOT
 - D. 1. later
2. is NOT
-

Catawba Nuclear Station

ILT 21 CNS RO NRC Examination

Question: 42
(1 point)

Given the following Unit 1 conditions:

- The crew is performing EP/1/A/5000/ES-1.3 (Transfer To Cold Leg Recirculation)
- Containment Spray (NS) has been aligned for recirculation
- Containment pressure is 3.2 PSIG and rising slowly

ES-1.3 will require starting _____(1)_____ NS pump(s).

Based on the conditions above, if a loss of NS flow occurs, a Containment ORANGE path _____(2)_____ occur.

Which ONE of the following correctly completes the statements above?

- A. 1. both
2. will
 - B. 1. ONLY one
2. will
 - C. 1. both
2. will NOT
 - D. 1. ONLY one
2. will NOT
-

Catawba Nuclear Station

ILT 21 CNS RO NRC Examination

Question: 43

(1 point)

Given the following Unit 1 timeline:

0800 Reactor trip and Safety Injection initiated due to large break LOCA

0845 Crew enters EP/1/A/5000/ES-1.3 (Transfer to Cold Leg Recirculation)

- Containment pressure is currently 3.0 psig and **rising** at 0.8 psig / min
- Crew is unable to align either Containment Spray pump for recirculation per Enclosure 2 (Aligning NS for Recirculation)

In accordance with EP/1/A/5000/FR-Z.1 (Response to High Containment Pressure), the earliest time that the crew will align ND Spray is _____ .

Which ONE of the following correctly completes the statement above?

A. 0845

B. 0850

C. 0900

D. 0930

Catawba Nuclear Station

ILT 21 CNS RO NRC Examination

Question: 44
(1 point)

Given the following Unit 1 initial conditions:

- The Unit is at 63% RTP following a refueling outage
- AP/1/A/5500/028 (Secondary Steam Leak) has been entered following the discovery of a leak on the Unit 1 Main Turbine Crossover line

Subsequently:

- The Unit 1 Main Turbine is tripped to isolate the leak

At this time, _____(1)_____ steam dumps will operate to control main steam pressure at approximately _____(2)_____ psig.

Which ONE of the following correctly completes the statement above?

- A. 1. ONLY condenser
2. 1085
 - B. 1. ONLY condenser
2. 1115
 - C. 1. condenser AND atmospheric
2. 1085
 - D. 1. condenser AND atmospheric
2. 1115
-

Catawba Nuclear Station

ILT 21 CNS RO NRC Examination

Question: 45

(1 point)

Given the following Unit 1 conditions:

- Following a refueling outage, the operating crew began a power escalation
- Due to chemistry concerns, the unit has been placed in hold at 65%
- A tube leak has developed in 1A S/G

In accordance with CSD-CP-CNS-0020 (CNS Primary to Secondary Leak Rate Monitoring Program), leak rate monitoring will be based on readings obtained from _____ .

Which ONE of the following correctly completes the statement above?

COMPONENT LEGEND:

1EMF-29 (Steam Line 1A)

1EMF-33 (Condenser Air Ejector Exhaust)

1EMF-71 (S/G A Leakage)

- A. 1EMF-29 ONLY
 - B. 1EMF-71 ONLY
 - C. 1EMF-33 AND 1EMF-29
 - D. 1EMF-33 AND 1EMF-71
-

Catawba Nuclear Station

ILT 21 CNS RO NRC Examination

Question: 46
(1 point)

Given the following Unit 1 conditions:

- The Unit is at 12% RTP and rising

DCS will maintain S/G Level Control for each S/G in the LO Power mode until a MAXIMUM Selected CF Flow of _____(1)_____ is reached on each S/G.

With DCS in the LO Power mode, the CF Control Valves will start to OPEN when the CF Control Bypass Valves demand signal reaches a MINIMUM of _____(2)_____.

Which ONE of the following correctly completes the statements above?

- A. 1. 17%
2. 55%
 - B. 1. 17%
2. 65%
 - C. 1. 20%
2. 55%
 - D. 1. 20%
2. 65%
-

Catawba Nuclear Station

ILT 21 CNS RO NRC Examination

Question: 47
(1 point)

Given the following Unit 1 conditions:

- The unit was at 100% RTP when a reactor trip occurred
- Reactor Trip Breaker 1B failed to open
- All S/G Narrow Range levels are OFF-Scale LOW

In order to meet secondary heat sink requirements CA flow must be greater than a MINIMUM value of _____(1)_____ GPM

With regard to core age, more decay heat will be generated following a reactor trip at the _____(2)_____ of core life.

Which ONE of the following correctly completes the statements above?

- A. 1. 1000
2. beginning
 - B. 1. 1000
2. end
 - C. 1. 450
2. beginning
 - D. 1. 450
2. end
-

Catawba Nuclear Station

ILT 21 CNS RO NRC Examination

Question: 48
(1 point)

Given the following Unit 1 conditions:

- Unit is at 100% RTP
- 1B Transformer Loss of Cooler Power results in a Zone B Lockout

The 1B NCP supply breaker is located on the _____(1)_____ side of 1TB Switchgear.

Following the Zone B Lockout, the 1B NCP _____(2)_____ continue to operate.

Which ONE of the following correctly completes the statements above?

- A. 1. long
 2. will
 - B. 1. long
 2. will NOT
 - C. 1. short
 2. will
 - D. 1. short
 2. will NOT
-

Catawba Nuclear Station

ILT 21 CNS RO NRC Examination

Question: 49
(1 point)

Given the following Unit 1 conditions:

- 1KXIB has experienced a complete loss of DC input voltage
- Stable power is restored two (2) minutes later

Based on the conditions above,

An indication used to determine that the backup power supply has been aligned is the _____(1)_____ light LIT.

When 1KXIB loss of voltage condition clears, the normal power supply _____(2)_____ be automatically realigned.

Which ONE of the following correctly completes the statements above?

- A. 1. 1KXMB "In Sync"
2. will NOT
- B. 1. 1KXMB "In Sync"
2. will
- C. 1. 1KXAB "Alternate AC Source Supplying Load"
2. will NOT
- D. 1. 1KXAB "Alternate AC Source Supplying Load"
2. will
-

Catawba Nuclear Station

ILT 21 CNS RO NRC Examination

Question: 50
(1 point)

Concerning operation of the Emergency Diesel Generators:

In accordance with OP/1/A/6350/002 (Diesel Generator Operation), an inspection for water accumulation in the 1A D/G is performed by opening _____(1)_____. This inspection is performed _____(2)_____ D/G operational testing.

Which ONE of the following correctly completes the statements above?

- A. 1. Cylinder indicator cocks 1L – 8L and 1R – 8R
 2. prior to
 - B. 1. Cylinder indicator cocks 1L – 8L and 1R – 8R
 2. following
 - C. 1. 1ZD-1 (1A D/G Eng Crankcase Vent Drip Leg Drain)
 2. prior to
 - D. 1. 1ZD-1 (1A D/G Eng Crankcase Vent Drip Leg Drain)
 2. following
-

Catawba Nuclear Station

ILT 21 CNS RO NRC Examination

Question: 51
(1 point)

Given the following Unit 2 initial conditions:

- Unit was operating at 100% RTP
- A containment air release (VQ) was in progress

Subsequently:

- A LOCA occurs
- "B" Train safety injection failed to actuate and was performed manually when it was recognized by the crew
- The following indications are noted for:
 - Containment pressure
 - 2EMF-36 (Unit Vent Gas Monitor)
 - 2EMF-39 (Containment Gas Monitor)
 - E/S Load Sequencers status lights

Time	0200	0201	0202	0203
Containment pressure (psig)	0.5	1.1	1.4	1.8
2EMF-36 Trip 2 Light	LIT	LIT	LIT	LIT
2EMF-39 Trip 2 Light	DARK	LIT	LIT	LIT
E/S LOAD SEQ ACTUATED TRAIN "A" status light	DARK	DARK	LIT	LIT
E/S LOAD SEQ ACTUATED TRAIN "B" status light	DARK	DARK	DARK	LIT

Based on the above indications and conditions, what is the earliest time that an operator can be assured that 2VQ-3B (VQ Fan Suct From Cont Isol) has received a close signal?

- A. 0200
 - B. 0201
 - C. 0202
 - D. 0203
-

Catawba Nuclear Station

ILT 21 CNS RO NRC Examination

Question: 52
(1 point)

Given the following Unit 1 conditions:

- A Large Break LOCA has occurred
- The crew is performing EP/1/A/5000/ES-1.3 (Transfer To Cold Leg Recirculation)
- The BOP is instructed to align NS for recirc per Enclosure 2 (Aligning NS for Recirculation)

RN flow through the NS Heat Exchanger will be aligned when/if Containment pressure reaches a MINIMUM of _____(1)_____ .

Once aligned, a CAUTION in ES-1.3 states that RN flow shall not exceed a MAXIMUM of _____(2)_____ to prevent damage to the NS Heat Exchanger tubes.

Which ONE of the following correctly completes the statements above?

- A. 1. 1 psig
2. 5700 GPM
 - B. 1. 1 psig
2. 4650 GPM
 - C. 1. 3 psig
2. 5700 GPM
 - D. 1. 3 psig
2. 4650 GPM
-

Catawba Nuclear Station

ILT 21 CNS RO NRC Examination

Question: 53
(1 point)

Given the following conditions:

- Unit 1 is in Mode 5
- Unit 2 is at 100% RTP
- 1A train of ND is in service
- Both units enter AP/0/A/5500/022 (Loss of Instrument Air) following a VI pipe rupture

Per AP/22:

Once positioned per procedure, 1NI-173A (ND Hdr 1A To Cold Legs C&D) will be throttled _____(1)_____ if NC temperature begins to rise.

Unit 2 Reactor Trip will be required at a MAXIMUM lowering VI pressure of _____(2)_____ .

Which ONE of the following correctly completes the statements above?

- A. 1. OPEN
2. 55 psig
 - B. 1. CLOSED
2. 55 psig
 - C. 1. OPEN
2. 76 psig
 - D. 1. CLOSED
2. 76 psig
-

Catawba Nuclear Station

ILT 21 CNS RO NRC Examination

Question: 54
(1 point)

Given the following Unit 1 conditions:

- Unit is at 100% RTP
- A steam break occurred on the Main Steam Equalization Header
- Train 1B Safety Injection failed to automatically actuate

Assuming no operator action:

Phase A (St) isolation has been initiated on train ____ (1) ____.

Phase B (Sp) isolation ____ (2) ____ been initiated.

Which one of the following correctly completes the statements above?

- A. 1. 1A ONLY
2. has
 - B. 1. 1A ONLY
2. has NOT
 - C. 1. 1A AND 1B
2. has
 - D. 1. 1A AND 1B
2. has NOT
-

Catawba Nuclear Station

ILT 21 CNS RO NRC Examination

Question: 55
(1 point)

Given the following Unit 1 conditions:

- A rapid downpower is in progress due to a secondary steam leak inside Containment
- 1A, 1B, and 1D Lower Containment Vent Units (LCVU) are in operation
- Current Unit 1 Containment pressure is 0.58 psig and rising slowly

Assuming no operator action,

1RN-473 (LCVU A Full Flow Valve) _____(1)_____ currently open.

1A LCVU _____(2)_____ operating in "Hi Speed".

Which ONE of the following correctly completes the statements above?

- A. 1. is
2. is
- B. 1. is
2. is NOT
- C. 1. is NOT
2. is
- D. 1. is NOT
2. is NOT
-

Catawba Nuclear Station

ILT 21 CNS RO NRC Examination

Question: 56
(1 point)

Concerning Reactor Trip Breaker 1B:

The Undervoltage coil receives power auctioneered from _____(1)_____ and 1ERPD and is _____(2)_____ to actuate.

Which ONE of the following correctly completes the statement above?

- A. 1. 1ERP
2. energized
 - B. 1. 1ERP
2. de-energized
 - C. 1. 1ERP
2. energized
 - D. 1. 1ERP
2. de-energized
-

Catawba Nuclear Station

ILT 21 CNS RO NRC Examination

Question: 57
(1 point)

Concerning the Pressurizer Cold Cal Channel:

The Pressurizer level "Cold Calibrated" Channel is calibrated for _____(1)_____. This channel _____(2)_____ a required safety related indication.

Which ONE of the following correctly completes the statements above?

- A. 1. 100°F
2. is
 - B. 1. 100°F
2. is NOT
 - C. 1. 120°F
2. is
 - D. 1. 120°F
2. is NOT
-

Catawba Nuclear Station

ILT 21 CNS RO NRC Examination

Question: 58
(1 point)

Given the following Unit 1 initial conditions:

- Unit is at 12% RTP following startup
- Required actions for being greater than P-10 have been taken

Subsequently:

- 1ERPA de-energizes

As a result of this failure:

Power Range detector N-41 will lose ____ (1) ____.

The crew will FIRST enter ____ (2) ____.

Which ONE of the following correctly completes the statements above?

- A.
 1. control power ONLY
 2. EP/1/A/5000/E-0 (Reactor Trip or Safety Injection)
 - B.
 1. control power ONLY
 2. AP/1/A/5500/016 (Malfunction of Nuclear Instrumentation)
 - C.
 1. control and instrument power
 2. EP/1/A/5000/E-0 (Reactor Trip or Safety Injection)
 - D.
 1. control and instrument power
 2. AP/1/A/5500/016 (Malfunction of Nuclear Instrumentation)
-

Catawba Nuclear Station

ILT 21 CNS RO NRC Examination

Question: 59

(1 point)

Given the following Unit 1 conditions:

- A Shift Maintenance Technician performing Reactor Building rounds reports that the Ice Condenser Inlet Door Positioning Monitor System panel has no indicating lights lit

Which one of the following is the minimum action required to maintain compliance with SLC 16.6-3 Inlet Door Position Monitoring System?

- A. Immediately verify the ice bed temperature is less than or equal to 27 °F
 - B. Immediately verify the Ice Bed Temperature Monitoring System is Functional
 - C. Within 1 hour verify the ice bed temperature is less than or equal to 27 °F
 - D. Within 1 hour verify the Ice Bed Temperature Monitoring System is Functional
-

Catawba Nuclear Station

ILT 21 CNS RO NRC Examination

Question: 60
(1 point)

Given the following Unit 1 conditions:

- A Design Basis Large Break LOCA has occurred combined with a loss of core cooling event
- Reactor Engineering calculates cladding temperature to be approximately 2400 °F

Based on given conditions, the largest contributor to hydrogen buildup in containment is _____(1)_____ .

Per OP/1/A/6450/010 (Containment Hydrogen Control Systems) Technical Support Center (TSC) approval will be required, to place Hydrogen Recombiners in service, if Hydrogen concentration exceeds a MINIMUM of _____(2)_____ .

Which ONE of the following correctly completes the statements above?

- A. 1. Zirc-Water reaction in core region
2. 4%
 - B. 1. Zirc-Water reaction in core region
2. 6%
 - C. 1. Dissolved hydrogen in the NC System
2. 4%
 - D. 1. Dissolved hydrogen in the NC System
2. 6%
-

Catawba Nuclear Station

ILT 21 CNS RO NRC Examination

Question: 61
(1 point)

Given the following Unit 1 timeline:

1000

- The Unit has experienced a runback, from 100% power, following a trip of 1A CFPT

1003

- Main Turbine target load has been reached
- 1AD-2 A/9 (Control Rod Bank Lo Limit) illuminates

1005

- 1AD-2 B/9 (Control Rod Bank Lo-Lo Limit) illuminates
- Steam Dumps have closed
- Temperature Error meter indicates (+) 1.8° F

Entry into the Action Statement of Tech Spec 3.1.6 (Control Bank Insertion Limits) is FIRST required at _____(1)_____ .

In accordance with the conditions provided at **1005**, OMP 1-7 (Emergency / Abnormal Procedure Implementation Guidelines) _____(2)_____ state that control rods should be placed in MANUAL.

Which ONE of the following correctly completes the statements above?

- A. 1. 1003
2. does
 - B. 1. 1003
2. does NOT
 - C. 1. 1005
2. does
 - D. 1. 1005
2. does NOT
-

Catawba Nuclear Station

ILT 21 CNS RO NRC Examination

Question: 62
(1 point)

Given the following Unit 1 conditions:

- The Unit 1 is at 100% RTP
- Main Condenser Vacuum is lowering due to CSAE malfunction
- The crew has entered AP/1/A/5500/023 (Loss of Condenser Vacuum)

In accordance with AP/23:

A turbine load reduction _____(1)_____ be effective.

As vacuum lowers, the OATC will trip the reactor once it is imminent that vacuum, in any main condenser, will reach a MAXIMUM value of _____(2)_____.

Which ONE of the following correctly completes the statements above?

- A. 1. will
2. 24.3 in Hg
 - B. 1. will
2. 22 in Hg
 - C. 1. will NOT
2. 24.3 in Hg
 - D. 1. will NOT
2. 22 in Hg
-

Catawba Nuclear Station

ILT 21 CNS RO NRC Examination

Question: 63
(1 point)

Concerning area monitors 1EMF-18 and 1EMF-19 (Reactor Coolant Filter A and B):

1EMF-18 and 1EMF-19 _____(1)_____ required by Tech Specs, and
_____(2)_____ listed as symptoms for entry into AP/1/A/5500/018 (High
Activity in Reactor Coolant).

Which ONE of the following correctly completes the statement above?

- A. 1. are
2. are
 - B. 1. are
2. are NOT
 - C. 1. are NOT
2. are
 - D. 1. are NOT
2. are NOT
-

Catawba Nuclear Station

ILT 21 CNS RO NRC Examination

Question: 64
(1 point)

Given the following initial conditions:

- Units 1 & 2 are at 100% RTP
- 1A RN pump is in service

Subsequently:

- The following Unit 1 annunciators are lit
 - 1AD-12 B/2 "RN PIT A Screen Hi D/P"
 - 1AD-12 B/1 "RN Pump Intake Pit A Level – LO"
 - 1AD-12 E/2 "RN Pit A Swap to SNSWP"

Based on this event:

_____ (1) _____ will automatically close.

1B RN Pump _____ (2) _____ automatically start.

Which ONE of the following correctly completes the statements above?

- A. 1. 1RN-47A (RN Supply X-Over Isol)
2. will
 - B. 1. 1RN-47A (RN Supply X-Over Isol)
2. will NOT
 - C. 1. 1RN-48B (RN Supply X-Over Isol)
2. will
 - D. 1. 1RN-48B (RN Supply X-Over Isol)
2. will NOT
-

Catawba Nuclear Station

ILT 21 CNS RO NRC Examination

Question: 65
(1 point)

Given the following Unit 1 conditions:

- The Fire Protection (RF) system heat sensitive element located at Unit 1 Main Turbine Bearing #8 has failed open

As a result of this malfunction, RF discharge flow to the Main Turbine Bearing #8 _____(1)_____ initiate.

The purpose of the Main Turbine portion of the Fire Protection system is to engulf turbine bearings with a large quantity of _____(2)_____ .

Which ONE of the following correctly completes the statements above?

- A. 1. will
2. water
 - B. 1. will
2. foam extinguishing agent
 - C. 1. will NOT
2. water
 - D. 1. will NOT
2. foam extinguishing agent
-

Catawba Nuclear Station

ILT 21 CNS RO NRC Examination

Question: 66

(1 point)

Given the following conditions:

- A clarification related to EAL classification needs to be communicated to all licensed SROs via Standing Instruction and has been prepared by a member of the Emergency Planning group

In accordance with AD-OP-ALL-0111 (Operations Communications):

This Standing Instruction _____(1)_____ be approved by another member of the Emergency Planning group..

Non-impacted operators (i.e. AOs) _____(2)_____ be exempted from documented review of this Standing Instruction

Which ONE of the following correctly completes the statements above?

- A. 1. can
2. can
- B. 1. can NOT
2. can
- C. 1. can
2. can NOT
- D. 1. can NOT
2. can NOT
-

Catawba Nuclear Station

ILT 21 CNS RO NRC Examination

Question: 67
(1 point)

Given the following conditions:

- Unit 1 has suffered a loss of Main Feed Pump runback from 100% RTP
 - Control rods failed to automatically insert on the runback
- Unit 2 is currently raising power to 100% RTP following Control Valve Movement Testing
 - An ILT student is manipulating control rods under the instruction of the OATC

In accordance with AD-OP-ALL-0203 (Reactivity Management):

An additional Reactor Operator _____(1)_____ required to peer check the Unit 1 OATC manually operating failed control rods.

An additional Reactor Operator _____(2)_____ required to peer check control rod manipulations performed by the ILT student.

Which ONE of the following correctly completes the statements above?

- A. 1. is
2. is
 - B. 1. is
2. is NOT
 - C. 1. is NOT
2. is
 - D. 1. is NOT
2. is NOT
-

Catawba Nuclear Station

ILT 21 CNS RO NRC Examination

Question: 68
(1 point)

Given the following Unit 1 conditions:

- A Unit startup is in progress in accordance with OP/1/A/6100/001 (Controlling Procedure for Unit Startup)
- Auxiliary Steam (AS) from Unit 2 is being used for turbine warming
- NC system pressure is 2235 psig
- Steam dumps are controlling NC Tavg at 557°F
- The crew is preparing to restore AS to a normal alignment by closing 1AS-4, (Main Steam to AS HDR CTRL Bypass)

Operation of 1AS-4 is performed _____(1)_____ the Control Room.

In accordance with AD-OP-ALL-0203, (Reactivity Management), the Unit startup will require a dedicated _____(2)_____ with no concurrent duties.

Which ONE of the following correctly completes the statements above?

- A. 1. outside
2. RO AND SRO
 - B. 1. inside
2. RO AND SRO
 - C. 1. outside
2. RO ONLY
 - D. 1. inside
2. RO ONLY
-

Catawba Nuclear Station

ILT 21 CNS RO NRC Examination

Question: 69
(1 point)

Concerning Tech Spec 2.1.1 (Reactor Core SLs):

The peak centerline fuel temperature shall be maintained less than _____(1)_____ .

This limit _____(2)_____ change over core life.

Which ONE of the following correctly completes the statements above?

- A. 1. 2200°F
2. does
 - B. 1. 2200°F
2. does NOT
 - C. 1. 5080°F
2. does
 - D. 1. 5080°F
2. does NOT
-

Catawba Nuclear Station

ILT 21 CNS RO NRC Examination

Question: 70
(1 point)

Given the following Unit 2 conditions:

- Maintenance is performing a calibration of Pressurizer Pressure Channel 1
- A technician has requested the Unit 2 BOP delete an OAC alarm per the associated IP procedure

In accordance with AD-OP-ALL-1000 (Conduct of Operations):

The deleted OAC alarm ____ (1) ____ required to be logged in eSOMS.

An audit of deleted computer alarms is required ____ (2) ____ .

Which ONE of the following correctly completes the statements above?

- A. 1. is
2. weekly
 - B. 1. is
2. monthly
 - C. 1. is NOT
2. weekly
 - D. 1. is NOT
2. monthly
-

Catawba Nuclear Station

ILT 21 CNS RO NRC Examination

Question: 71
(1 point)

Given the following:

- A General Emergency has been declared
- A mission to protect valuable property is required

In accordance with AD-EP-ALL-0205 (Emergency Exposure Controls):

The limit associated with this emergency exposure is _____(1)_____ and the worker _____(2)_____ required to be a volunteer.

Which ONE of the following correctly completes the statement above?

- A. 1. 5 Rem
2. is
 - B. 1. 5 Rem
2. is NOT
 - C. 1. 10 Rem
2. is
 - D. 1. 10 Rem
2. is NOT
-

Catawba Nuclear Station

ILT 21 CNS RO NRC Examination

Question: 72
(1 point)

Given the following Unit 1 conditions:

- An Operator is performing a valve lineup in the Unit 1 Auxiliary Building
- While working in the area, the Operator receives a Dose Rate alarm on his Electronic Dosimeter (ED)
- After a few seconds, the Dose Rate alarm automatically clears
- The possibility of a Dose Rate alarm was NOT discussed during the RP brief

In accordance with PD-RP-ALL-0001 (Radiation Worker Responsibilities):

the Operator _____(1)_____ .

if the Operator receives a Dose alarm, the alarm _____(2)_____ .

Which ONE of the following correctly completes the statements above?

- A.
 1. must stop work, exit the area, and notify RP immediately
 2. will not clear until the ED is reset
 - B.
 1. must stop work, exit the area, and notify RP immediately
 2. will automatically clear after 10 seconds
 - C.
 1. may continue to work unless two additional dose rate alarms are received
 2. will not clear until the ED is reset
 - D.
 1. may continue to work unless two additional dose rate alarms are received
 2. will automatically clear after 10 seconds
-

Catawba Nuclear Station

ILT 21 CNS RO NRC Examination

Question: 73
(1 point)

During an emergency event:

The MINIMUM level of emergency classification that ALWAYS requires activation of the OSC, TSC, and EOF is a ____ (1) ____.

The MINIMUM level of emergency classification that ALWAYS requires an evacuation of all non-essential personnel from the site is a ____ (2) ____.

Which ONE of the following correctly completes the statements above?

- A.
 - 1. Alert
 - 2. Site Area Emergency
 - B.
 - 1. Alert
 - 2. General Emergency
 - C.
 - 1. Unusual Event
 - 2. Site Area Emergency
 - D.
 - 1. Unusual Event
 - 2. General Emergency
-

Catawba Nuclear Station

ILT 21 CNS RO NRC Examination

Question: 74
(1 point)

Of the four (4) nuclear instruments listed in F-0, (Critical Safety Function Status Trees), for assessing the “Subcriticality” safety function, which ONE is a Post-Accident Monitoring (PAM) instrument required by LCO 3.3.3, “PAM (Post-Accident Monitoring) Instrumentation?”

- A. Source Range
 - B. Intermediate Range
 - C. Power Range
 - D. Wide Range
-

Catawba Nuclear Station

ILT 21 CNS RO NRC Examination

Question: 75
(1 point)

Given the following Unit 1 initial conditions:

- Unit is cooling down for a refueling outage
- NC Thots are at 365°F
- NC pressure is 400 psig
- All CLAs have been isolated

Subsequently:

- NC pressure and PZR level are steadily lowering
- Containment pressure is rising
- The crew enters AP/1/A/5500/027, (Shutdown LOCA) and maximizes charging and isolates letdown
- Pressurizer level and pressure continue to lower

In accordance with AP/27, the cooldown rate is required to be LESS THAN _____(1)_____ in one hour.

In accordance with OP/1/A/6200/004, (Residual Heat Removal System), ND can be placed in RHR Mode once NC Thots are less than a MAXIMUM temperature of _____(2)_____ .

Which ONE of the following correctly completes the statements above?

- A. 1. 100°F
2. 350°F
 - B. 1. 80°F
2. 350°F
 - C. 1. 100°F
2. 300°F
 - D. 1. 80°F
2. 300°F
-

WRITTEN EXAM
REFERENCE PACKAGE CONTENTS

EXAM ID: CNS ILT 21 NRC Exam (RO)	
1	CNS ROD Book Section 2.6
2	CNS Unit 1 Data Book Figure 57 (Reactor Coolant Saturation Curve, Wide Range)
3	Steam Tables
4	Mollier Diagram

**UNIT ONE
REACTOR OPERATING DATA
SECTION 2.6**

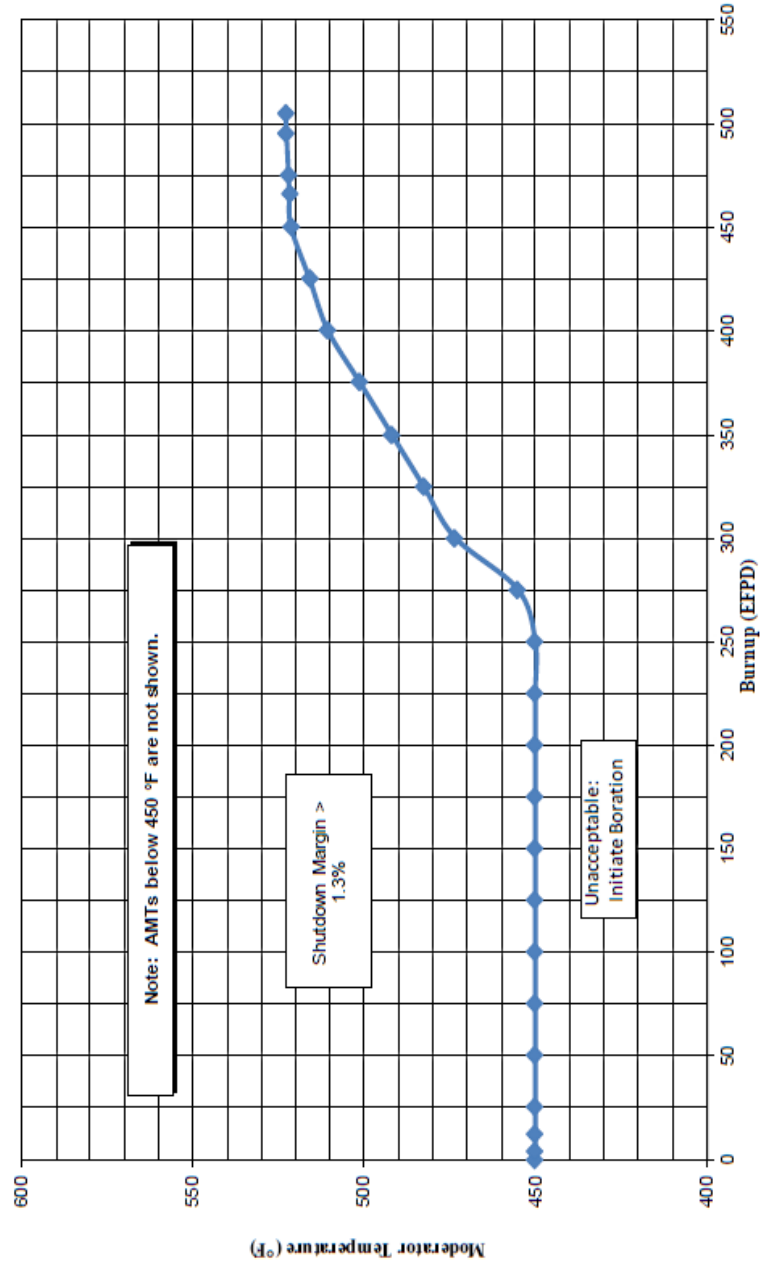
Source: CNEI-0400-361
Prepared by: MW Hawes
Revision Number: 870
Date: 5/25/20

**MINIMUM NC TEMPERATURE FOR 1.3% SHUTDOWN MARGIN
FOLLOWING REACTOR TRIP**

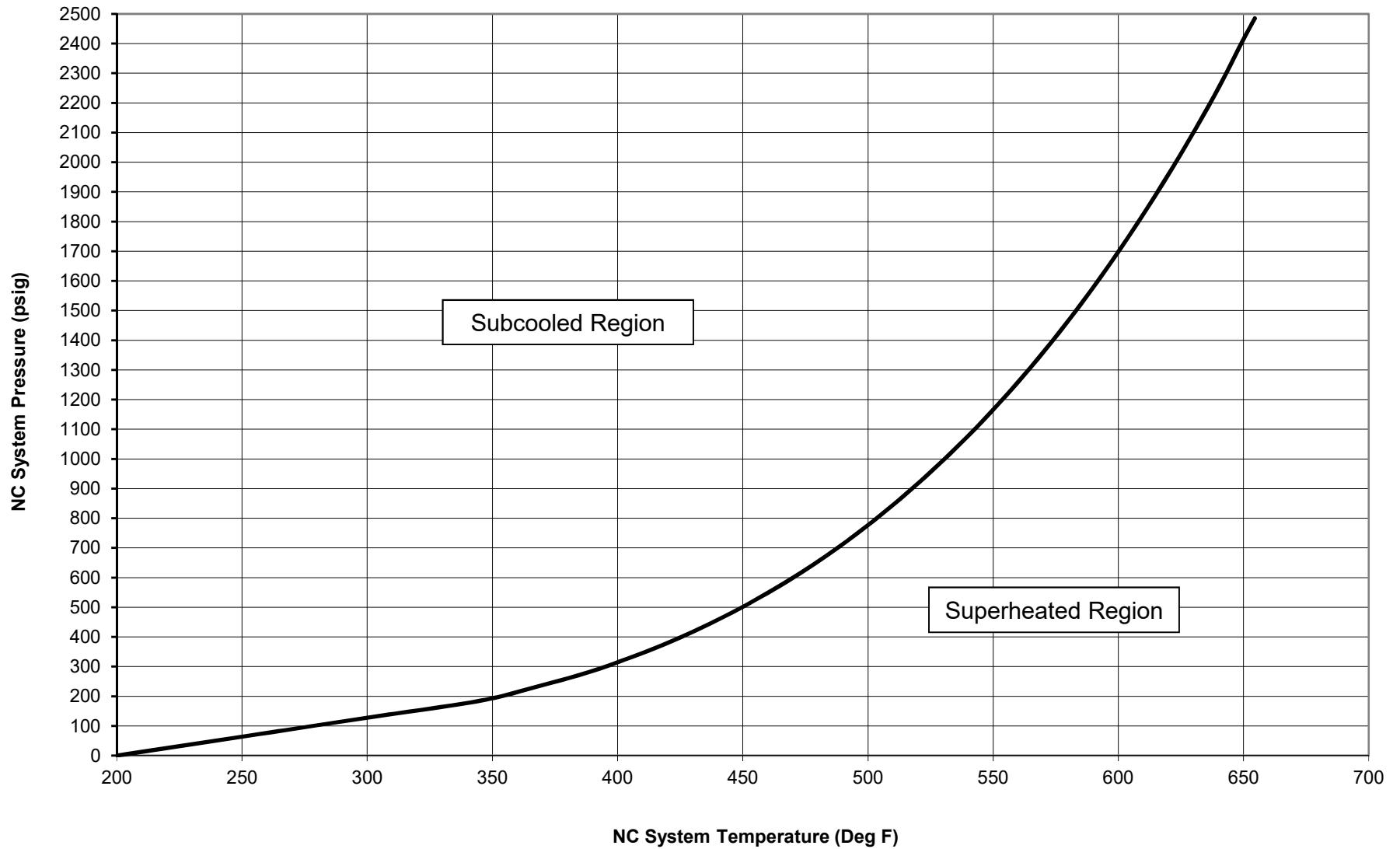
Catawba 1 Cycle 26
Startup and Operational Report

CNEI-0400-361, Rev. 0
CRD 35

**Figure 3
Allowable Moderator Temperature vs Burnup
for 1.3% Shutdown Margin
(Immediately Following and up to 2 hours after Reactor Trip)**



EFPD	0	4	12	25	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400	425	450	466	475	495	505	
AMT	450	450	450	450	450	450	450	450	450	450	450	450	450	450	455	473	483	492	501	511	516	522	522	522	523	523



Examination KEY
ILT 21 CNS RO NRC Examination

<i>Q</i>	<i>A</i>	<i>Q</i>	<i>A</i>	<i>Q</i>	<i>A</i>	<i>Q</i>	<i>A</i>
1	D	26	A	51	B		
2	C	27	D	52	D		
3	B	28	B	53	A		
4	D	29	B	54	B		
5	A	30	C	55	B		
6	C	31	D	56	D		
7	A	32	C	57	B		
8	B	33	D	58	D		
9	D	34	B	59	B		
10	A	35	D	60	B		
11	D	36	A	61	C		
12	B	37	B	62	D		
13	A	38	C	63	C		
14	A	39	B	64	C		
15	A	40	C	65	C		
16	D	41	A	66	B		
17	A	42	B	67	C		
18	D	43	C	68	A		
19	B	44	D	69	C		
20	B	45	D	70	C		
21	A	46	C	71	D		
22	D	47	D	72	A		
23	B	48	C	73	A		
24	C	49	D	74	D		
25	C	50	A	75	A		