

**CNS 2013 NRC Exam 75 Questions
REACTOR OPERATOR**

Question 1

Given the following Unit 1 initial conditions:

- The Unit is at 58% power.
- Turbine bearing #8 vibration began to rise rapidly.
- With bearing #8 vibration at 16 mils and continuing to rise, the operator attempted to manually trip the turbine by depressing the Turbine Trip pushbutton.

Current Conditions:

- All turbine stop and control valves are OPEN.
- 1AD-1, B/7 (Manual Turb Trip C/R) is DARK.
- The crew is performing the Immediate Actions of AP/1/A/5500/002, (Turbine Generator Trip).

In accordance with AP/02, the operator will attempt to CLOSE the turbine control valves at a rate of 100% over a period of _____ (1) _____ .

If that action is NOT successful, the NEXT required action is to _____ (2) _____ .

- A. (1) 3 minutes
(2) trip the reactor
- B. (1) 3 minutes
(2) close all MSIVs and bypass valves
- C. (1) 45 seconds
(2) trip the reactor
- D. (1) 45 seconds
(2) close all MSIVs and bypass valves

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Question 2

Given the following Unit 1 conditions:

Initial

- The crew is recovering from a faulted Steam Generator outside containment, upstream of the MSIVs.
- SI has been terminated.
- The crew is maintaining the plant in a stable condition per EP/1/A/5000/ES-1.1 (SI Termination).
- PZR pressure is 2185 psig and stable.
- PZR level is 50% and stable.

Current

- NC pressure starts to decrease rapidly due to a significant leak on one of the PZR safety valves.
- PRT pressure is 20 psig.
- PZR level is 17%.
- NC subcooling is negative 5°F.

Based on the event in progress:

- (1) Safety Injection re-initiation _____ be required.
- (2) PZR Safety valve tailpipe temperature will be indicating _____ .
- A. (1) will NOT
(2) 315°F
- B. (1) will
(2) 315°F
- C. (1) will NOT
(2) 260°F
- D. (1) will
(2) 260°F

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Question 3

Given the following:

- 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.
- Total CA Flow is 600 gpm and stable.
- Core Exit T/Cs on OAC indicate 545°F.
- All Hot Leg temperatures are 530°F.
- All Cold Leg temperatures are 515°F.
- NC B Loop W/R pressure is stable at 1000 psig.
- Pressurizer level is 33% and stable.

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

(2) S/I termination criteria ____ (2) ____ met.

Which ONE of the following completes the above statements?

Reference Provided

- A. (1) 0°F
(2) ARE
- B. (1) 0°F
(2) are NOT
- C. (1) +15°F
(2) ARE
- D. (1) - 15°F
(2) are NOT

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Question 4

During a Large Break LOCA, the operator notes the following trend (from Time 1 to Time 6) indication on Train A and Train B of ICCM subcooling margin monitor:

Time 1: 15°F
Time 2: 0°F
Time 3: minus 5°F
Time 4: minus 35°F
Time 5: minus 35°F
Time 6: minus 35°F

- (1) Subcooling margin indications are based on the average of loop wide range hot leg temperatures and the average of the _____.
- (2) What is the significance of the subcooling margin monitor indications for Times 4, 5, and 6?
- A. (1) 5 highest CETs
(2) Subcooling margin monitor indication is at the bottom of its scale.
- B. (1) 5 highest CETs
(2) Unit conditions have stabilized.
- C. (1) 40 ACC qualified CETs
(2) Subcooling margin monitor indication is at the bottom of its scale.
- D. (1) 40 ACC qualified CETs
(2) Unit conditions have stabilized.

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Question 5

During a small break LOCA the following NCP vibration data are received for 1D NCP:

Time		Shaft Vibration (mils)	Frame Vibration (mils)
2100		5	2
2105		12	4
2110		19	6
2115		22	8

Which ONE of the following is the earliest time at which the NCP trip criteria was MET, in accordance with annunciator response procedures?

- A. 2100
- B. 2105
- C. 2110
- D. 2115

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Question 6

Given the following Unit 1 conditions:

- The Unit is at 100% power.
- Pressurizer level is currently 50% and slowly decreasing.
- 1NV-294 (NV Pumps Disch Flow Controller) valve demand signal indicates 100%.
- 1NV-309 (NCP Seal Injection Control Valve) is in auto.

- (1) Assuming NO operator action, which ONE of the following describes the cause of this transient?
- (2) Seal Injection _____ providing cooling to the NCP seals.
- A. (1) Tave input to the Pressurizer Level Control System has failed LOW.
(2) Is NOT
- B. (1) Total Sealwater Flow Transmitter output has gradually failed LOW.
(2) Is
- C. (1) Tave input to the Pressurizer Level Control System has failed LOW.
(2) Is
- D. (1) Total Sealwater Flow Transmitter output has gradually failed LOW.
(2) Is NOT

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Question 7

Given the following Unit 1 conditions:

- The Unit has entered a refueling outage and is in Mode 5.
- 1A Train ND is OPERABLE and secured.
- 1B Train ND is in service.
- NC temperature is 110°F.
- All S/G NR levels are 10%.
- NC system drain procedure is in progress.
- NC Wide Range level is 22%.

Subsequently:

- ND Pump 1B TRIPS.

In accordance with Technical Specifications, the Required Action is to immediately _____?

Which ONE of the following completes the above statement?

- A. Suspend operations that would cause introduction of coolant into the RCS with boron concentration less than required to meet SDM.
- B. Initiate action to restore required S/G secondary side water levels to within limits.
- C. Close all containment penetrations providing direct access from containment atmosphere to outside atmosphere.
- D. Initiate action to establish ≥ 23 ft. of water above the top of reactor vessel flange.

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Question 8

Given the following Unit 1 conditions:

- A LOCA inside containment is occurring.
- Containment pressure peaked at 3.2 psig.
- FWST level decreased to 30%.

- (1) The non-essential KC headers are automatically isolated by the _____ (1) _____ signal.
- (2) This isolation prevents KC pump runout due to the _____ (2) _____ valves receiving an OPEN signal.

Which ONE of the following completes the above statements?

- A. (1) Safety Injection
(2) NDHX Inlet (1KC-56A/81B)
- B. (1) Phase B
(2) NDHX Inlet (1KC-56A/81B)
- C. (1) Safety Injection
(2) NDHX Outlet (1KC-57A/82B)
- D. (1) Phase B
(2) NDHX Outlet (1KC-57A/82B)

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Question 9

Given the following Unit 1 conditions:

Initial:

- The Unit was at 100% power.
- A turbine trip occurred.
- The reactor did NOT trip and could NOT be tripped from the Control Room.

Current:

- Pressurizer pressure is 2350 psig.
 - The crew has transitioned to EP/1/A/5000/FR-S.1 (Response to Nuclear Power Generation/ATWS).
 - The crew is initiating emergency boration in accordance with Step 4 of FR-S.1.
- (1) A minimum emergency boration flowrate of _____ gpm is required to avoid swapping NV pump suction to the FWST.
- (2) Pzr PORV operation _____ be required to enhance emergency boration flow.

Which ONE of the following completes the above statements, in accordance with FR-S.1?

- A. (1) 30
(2) Will NOT
- B. (1) 60
(2) Will NOT
- C. (1) 30
(2) Will
- D. (1) 60
(2) Will

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Question 10

A Unit shutdown is in progress for a refueling outage with the following conditions:

- Pressurizer pressure is 1800 psig.
- Steam line pressure is 750 psig.

Subsequently:

- A large steam break occurs upstream of 'B' MSIV and outside containment.
- 'B' steam generator completely depressurizes.

(Assume NO manual action is taken after the steam break occurs.)

Based on the above information:

- (1) Safety Injection _____ automatically occur.
- (2) Main Steam Isolation automatically occurred due to _____ ONLY.
- A. (1) did NOT
(2) HIGH negative rate of "B" steam line pressure
- B. (1) did NOT
(2) LOW "B" steam line pressure
- C. (1) did
(2) HIGH negative rate of "B" steam line pressure
- D. (1) did
(2) LOW "B" steam line pressure

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Question 11

Given the following Unit 1 conditions:

The Unit was at 6% power during a post refueling startup with 1A CFPT in service.

Subsequently:

The following events occur at the listed times:

- 1000 An NC system leak develops.
PZR pressure is 2220 psig and decreasing at 2 psig/min.
PZR level is 26% and decreasing at 0.3%/minute
- 1003 1A CFPT trips due to low oil pressure.
- 1005 1C NCP trips on underfrequency.
- 1008 Containment pressure reaches 1.2 psig.

Which ONE of the following is the EARLIEST time at which the reactor will be tripped based on a setpoint or manual action taken by procedures?

- A. 1000
- B. 1003
- C. 1005
- D. 1008

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Question 12

Given the following Unit 1 conditions:

- The Unit tripped due to a complete loss of offsite power.
- The crew completed the Immediate Actions of EP/1/A/5000/E-0 (Reactor Trip or Safety Injection).
- The crew transitioned to EP/1/A/5000/ES-0.1 (Reactor Trip Response), and is at Step 2 RNO of ES-0.1, which requires the MSIVs to be closed due to the loss of 6.9KV power.
- The backup diesel VI compressor has been placed in service.

- (1) The purpose of closing the MSIVs is to _____.
- (2) Following completion of this step, automatic S/G PORV operation _____ be available.

Which ONE of the following completes the above statements?

- A. (1) maintain S/G inventory
(2) will NOT
- B. (1) minimize cooldown
(2) will NOT
- C. (1) maintain S/G inventory
(2) will
- D. (1) minimize cooldown
(2) will

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Question 13

During the performance of AP/0/A/5500/020, (Loss of Nuclear Service Water), Case I, "Loss of RN Train", Step 8, the operator is directed to verify that each operating RN pump has the required minimum flow.

If this required minimum flow is NOT met, then a certain amount of flow will be directed through the _____ (1) _____, not to exceed _____ (2) _____ in order to avoid flow induced vibration problems.

Which ONE of the following completes the above statement?

- A. (1) KC Hx
(2) 4650 gpm
- B. (1) NS Hx
(2) 4650 gpm
- C. (1) KC Hx
(2) 2550 gpm
- D. (1) NS Hx
(2) 2550 gpm

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Question 14

Given the following plant conditions:

- Both Units are at 100% power.
- A seismic event has occurred.
- The crew is performing actions of AP/0/A/5500/022 (Loss of Instrument Air).
- All available Instrument Air Compressors are running and loaded.
- Instrument Air pressure continues to DECREASE.

In accordance with AP/22:

(1) What is the LOWEST Instrument Air pressure at which the CRS is required to direct a reactor trip?

(2) Loss of Normal Feedwater supply _____ the reason for the manual reactor trip.

- A. (1) 55 psig
(2) is
- B. (1) 60 psig
(2) is not
- C. (1) 55 psig
(2) is not
- D. (1) 60 psig
(2) is

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Question 15

Note the step below from AP/1/A/5500/037 (Generator Voltage and Electric Grid Disturbances):

- Select "MANUAL" on turbine control panel.

- (1) The above direction is given ONLY in _____.
- (2) The basis for this step is to ensure reactor power is maintained less than a maximum of _____.

Which ONE of the following completes the above statement?

- A. (1) Case I (Abnormal Generator or Grid Voltage)
(2) 69%
- B. (1) Case I (Abnormal Generator or Grid Voltage)
(2) 100%
- C. (1) Case II (Abnormal Generator or Grid Frequency)
(2) 69%
- D. (1) Case II (Abnormal Generator or Grid Frequency)
(2) 100%

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Question 16

Given the following Unit 1 initial conditions:

- The Unit was at 100% power.

Subsequently:

- At 0200: The reactor tripped due to a LOCA outside containment.
- At 0210: The crew entered EP/1/A/5000/ECA-1.2, (LOCA Outside Containment).
- At 0220: The crew entered EP/1/A/5000/ECA-1.1, (Loss of Emergency Coolant Recirc).
- At 0240: The crew is at the step in ECA-1.1 for determining NC subcooling.

Current Conditions:

- NCS pressure is 1100 psig.
- 1B NC pump is running.
- 1A, 1C, and 1D NC pumps have been secured.
- Reactor Vessel D/P is 20%.
- 1A NI pump is running with flow indicated at 320 gpm.
- 1A NV pump is running with flow indicated at 415 gpm.
- Both ND pumps are OFF.
- No NS pumps are running.
- Subcooling is 35°F.

(1) What is the minimum required injection flowrate?

(2) Which, if any, pump can be secured?

Reference Provided

- A. (1) 380 gpm
(2) NEITHER pump
- B. (1) 380 gpm
(2) 1A NI pump ONLY
- C. (1) 408 gpm
(2) 1A NI pump ONLY
- D. (1) 408 gpm
(2) NEITHER pump

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Question 17

Given the following Unit 2 conditions:

Initial:

- The Unit was at 100% power.

Subsequently:

- A medium break LOCA occurred inside containment.
- Containment pressure peaked at 2.7 psig and is slowly decreasing.
- The crew has implemented EP/2/A/5000/FR-H.1 (Response to Loss of Secondary Heat Sink).
- All attempts to restore flow to the S/Gs from the CA system have NOT been successful.

In accordance with FR-H.1:

- (1) The next prioritized source of feedwater for restoration of flow to the S/Gs is through the CM/CF system by operating a _____ (1) .
 - (2) The crew is FIRST required to establish bleed and feed when W/R level in at least 3 S/Gs decreases to less than _____ (2) .
- A. (1) main feedwater pump
(2) 24%
 - B. (1) main feedwater pump
(2) 36%
 - C. (1) hotwell and booster pump ONLY
(2) 24%
 - D. (1) hotwell and booster pump ONLY
(2) 36%

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Question 18

Given the following Unit 1 conditions:

- An NC system LOCA occurred on Unit 1.
- 1NI-184B and 1NI-185A (Containment Sump Isolation Valves) are CLOSED and CANNOT be opened.
- EP/1/A/5000/ECA-1.1 (Loss of Emergency Coolant Recirculation) was entered.
- All NC pumps are OFF.
- Minimum ECCS flow to remove decay heat has been established.

In accordance with ECA-1.1, the operator will increase NCS make-up flow if...

- A. Hot leg Wide Range (WR) temperatures increase by 5°F.
- B. Pressurizer level is 2% and decreasing.
- C. RVLIS Lower Range (LR) is 64% and stable.
- D. Core Exit Thermocouples are 650°F and increasing.

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Question 19

Given the following Unit 1 conditions:

- AP/1/A/5500/015 (Rod Control Malfunction) is entered due to continuous rod movement.
- Rods have been placed in manual.
- Initial group demand was 85 steps withdrawn on Control Bank D.
- Final group demand was 101 steps withdrawn on Control Bank D.

Subsequently:

- Rod D-4 DRPI experiences a Data A Failure.

(All rods are at the same actual height and in Control Bank D.)

Rod D-4 indicates _____ steps withdrawn on DRPI.

Which ONE of the following completes the above statement?

- A. 108
- B. 102
- C. 96
- D. 90

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Question 20

Given the following Unit 1 conditions:

- For a planned refueling outage, the Unit entered Mode 3 at 2120 on 08/12/2013.

Current Conditions:

- The Unit is in Mode 6.
- NC boron concentration is 2580 ppm.
- At 1915 on 08/15/2013, a fuel bundle has been placed in the upender for transport to Spent Fuel Pool storage.

Based on the above conditions:

- (1) SLC 16.9-17 (Refueling Operations - Decay Time) _____ required to be entered.
- (2) Tech Spec 3.9.1 (Boron Concentration) _____ required to be entered.

- 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 21

Given the following Unit 1 conditions:

- Unit 1 is at 100% power.
- 1A S/G has developed a 200 GPD tube leak.
- 1EMF-33 (CSAE Discharge) Trip 2 light is LIT.
- The following annunciator is alarming:
 - 1RAD-1, B/1, 1EMF-33 CSAE EXHAUST HI RAD



For the above conditions, and PRIOR TO any operator action, which ONE of the following describes whether the as-found configuration of the control switch and indication in the photo above is CORRECT and why or why not?

- A. INCORRECT configuration. The VA light should be LIT due to automatic swapover caused by 1EMF-33 reaching its Trip 2 setpoint.
- B. INCORRECT configuration. The switch should have already been in AUTO, to enable CSAE exhaust automatic swapover to Aux. Bldg. (VA) filtered exhaust immediately upon 1EMF-33 reaching its Trip 2 setpoint.
- C. CORRECT configuration. Swapover of the CSAE exhaust to Aux. Bldg. (VA) filtered exhaust will ONLY occur when the operator OPENS 1ABF-D-11 and 1ABF-D-4.
- D. CORRECT configuration. Swapover of the CSAE exhaust to Aux. Bldg. (VA) filtered exhaust will ONLY occur when the operator takes the switch to the AUTO position.

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Question 22

In order to prevent condenser overpressurization upon a loss of vacuum, steam dump operation will be prevented by the C-9 permissive based on lowering vacuum sensed by at least _____ (1) _____ condenser pressure sensor(s) OR loss of cooling water supply based on _____ (2) _____ .

Which ONE of the following completes the above statement?

- A. (1) 2
(2) RC Pump breaker position
- B. (1) 1
(2) RC Pump breaker position
- C. (1) 2
(2) RC system flowrate
- D. (1) 1
(2) RC system flowrate

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Question 23

Given the following LWR (Liquid Waste Release) Permit Report excerpt for a planned release of Recycle Monitor Tank "A":

See Attached Liquid Waste Release Permit Report excerpt (1 page)

- (1) In accordance with SLC 16.11-2, (Radioactive Liquid Effluent Monitoring Instrumentation), which item on the provided LWR excerpt will require that additional sampling be performed prior to the release?
- (2) If the concentration of radioactive material released to unrestricted areas exceeds the limits specified on the Liquid Waste Discharge Permit Report and in SLC 16.11-1 (Liquid Effluents), the concentration must be restored to within limits _____ discovery.

Which ONE of the following completes the above statements?

- A. (1) "Setpoint Data"
(2) within one hour of
- B. (1) "Setpoint Data"
(2) immediately upon
- C. (1) "RL Pump Data"
(2) immediately upon
- D. (1) "RL Pump Data"
(2) within one hour of

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RETNAS v3.5.1 <DPCNS Rev.4.0>

CANBERRA

LIQUID WASTE RELEASE PERMIT REPORT

LMR Number: 2012095

== RL PUMP DATA ==

RL pumps assigned to release..... 1.00

== RECOMMENDED RELEASE RATE ==

Allowable release rate (gpm)..... 2.57E+02

Recommended release rate (gpm)..... 1.00E+02 100

== SETPOINT DATA ==

EMF49L in Service NO

EMF49L Background (cpm) NA

Cs-137 Equivalence (uCi/ml) NA

Expected CPM NA

Trip 1 setpoint (cpm) NA

Trip 2 setpoint (cpm) NA

== SPECIAL INSTRUCTIONS FOR RELEASE ==

EMF 49 INOPERABLE

Do NOT use this LMR after EMF is declared OPERABLE.

* RL flow interlock must be greater than or equal to 19,000 GPM.

Performed by:

[Signature]

Date: 12/14/12

Verified by:

[Signature]

Date: 12/14/12

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Question 24

Which ONE of the following describes an action, including the reason for the action, in accordance with EP/1/A/5000/FR-Z.1 (Response to High Containment Pressure)?

- A. Initiate ONE train of ND Auxiliary Spray, if containment pressure exceeds 5 psig 50 minutes following Rx Trip, in order to reduce the challenge to containment integrity due to high pressure.
- B. Isolate faulted steam generators in order to reduce the challenge to containment integrity due to high pressure.
- C. Secure ND Auxiliary Spray when containment pressure decreases below 3 psig in order to reduce the challenge to containment integrity due to low pressure.
- D. Initiate BOTH trains of ND Auxiliary Spray, if containment pressure exceeds 15 psig 60 minutes following Rx Trip, in order to reduce the challenge to containment integrity due to high pressure.

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Question 25

Given the following Unit 1 initial conditions:

- The Unit is at 100% power.

Subsequently:

- A small break LOCA occurs.
- The crew is performing EP/1/A/5000/ES-1.2 (Post LOCA Cooldown and Depressurization).
- All NC pumps are secured.

- (1) What is the maximum NC system cooldown rate specified in this procedure?
- (2) Which method is the first choice for the NC system depressurization for the given conditions?
- A. (1) 100°F/hr
(2) NV auxiliary spray
- B. (1) Maximum achievable rate
(2) NV auxiliary spray
- C. (1) 100°F/hr
(2) NC PORV
- D. (1) Maximum achievable rate
(2) NC PORV

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Question 26

Given the following:

- Unit 1 has experienced a small break LOCA.
- The crew has completed applicable steps of EP/1/A/5000/E-0 (Reactor Trip or Safety Injection) and entered EP/1/A/5000/E-1 (Loss of Reactor or Secondary Coolant).
- 1B NCP has been secured due to #1 seal failure.

Subsequently:

- 1A, 1C, & 1D NCPs are in service.
- Core Exit Thermocouples: 706°F and slowly increasing.
- RVLIS Level: 60% and slowly decreasing.
- 1C NCP Motor Stator Temp: 315°F and slowly increasing.
- Subcooling: -5°F.
- The crew has transitioned to FR-C.2, (Response to Degraded Core Cooling).

How will the crew address immediate operation of the NCPs (trip vs. leave running), in accordance with FR-C.2?

	<u>1A NCP</u>	<u>1C NCP</u>	<u>1D NCP</u>
A.	leave running	trip	leave running
B.	leave running	trip	trip
C.	trip	trip	trip
D.	leave running	leave running	leave running

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Question 27

During a large break LOCA, the following conditions are given:

- The ECCS suction has been swapped to the Cold Leg Recirculation alignment.
- NS suction has been swapped to the containment sump.
- 1A NS is in service.
- FWST level = 4%.
- Containment Sump level is off scale high.
- Containment pressure = 7 psig and slowly decreasing.
- CETs = 560°F.
- RVLIS Level is 57% and slowly decreasing.
- PZR level is 0%.
- NC Subcooling is -5°F.

Which ONE of the following describes:

- (1) The implications of the above conditions.
 - (2) Which procedure entry conditions are met?
- A. (1) Containment sump level is higher than would be expected for a Large Break LOCA.
(2) EP/1/A/5000/FR-C.2 (Response to Degraded Core-Cooling)
- B. (1) The level of water in the core region has been reduced such that the core has become uncovered.
(2) EP/1/A/5000/FR-C.2 (Response to Degraded Core-Cooling)
- C. (1) Containment sump level is higher than would be expected for a Large Break LOCA.
(2) EP/1/A/5000/FR-Z.2 (Response to Containment Flooding)
- D. (1) The level of water in the core region has been reduced such that the core has become uncovered.
(2) EP/1/A/5000/FR-Z.2 (Response to Containment Flooding)

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Question 28

Given the following:

TIME	NC Tcold Temperatures	S/G Water Temperatures
0600	202°F	273°F
0700	205°F	264°F
0800	209°F	255°F
0900	212°F	246°F

What is the EARLIEST time at which an NCP may be started, in accordance with Tech. Spec. 3.4.6, (RCS Loops - Mode 4)?

- A. 0600
- B. 0700
- C. 0800
- D. 0900

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Question 29

Given the following Unit 1 conditions:

- The Unit is at 100% power.
- NV makeup controls were last adjusted three (3) days ago.
- The CRS directs setpoints to be updated per OP/1/A/6150/009, Enclosure 4.1 (Automatic Makeup).

Given the current sample results:

- NC Boron = 600 ppm
- RMWST Boron = 35 ppm
- FWST Boron = 2900 ppm
- BAT Boron = 7500 ppm

(1) Enclosure 4.1 will require changing 1NV-238A (B/A Xfer Pmp to Blender Ctrl) setpoint to _____.

(2) Upon decreasing VCT level, an automatic makeup will begin at _____ %.

- A. (1) 7.2
(2) 32.7
- B. (1) 7.2
(2) 35
- C. (1) 8.0
(2) 32.7
- D. (1) 8.0
(2) 35

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Question 30

Given the following:

- Unit 1 is in Mode 5.
- The reactor coolant system is water solid.
- 1A ND is in service. 1B ND is secured.
- 1B NV pump is in service.
- 1NV-294 (NV Pumps Disch Flow Controller) is being controlled manually.
- 1NV-309 is in automatic.
- All plant parameters are stable.

Subsequently:

- 1KC-56A (KC to ND Hx 1A Sup Isol) closes due to controller malfunction.
- Operators are taking action to stabilize NC system pressure while 1B ND is placed in service.
- Letdown flow is maintained constant in order to maximize system cleanup.

In response to this event (and prior to placing 1B ND in service):

- (1) 1B NV pump motor amps will be _____ .
- (2) 1NV-309 (NCP Seal Injection-Control Valve) will throttle _____ .

- A. (1) lower
(2) open
- B. (1) lower
(2) closed
- C. (1) higher
(2) open
- D. (1) higher
(2) closed

**CNS 2013 NRC Exam 75 Questions
REACTOR OPERATOR**

Question 31

Given the following Unit 1 conditions:

- The Unit is in Mode 5 following core reload.
- 1A ND Pump is operating.
- ND system flow is 3100 gpm.
- NC system level is at 6.7%.

Subsequently:

- NC system level remains stable at 6.7%.
- Core Exit T/Cs are stable at 115°F.
- 1A ND pump flow and discharge pressure begin to oscillate.

In accordance with AP/1/A/5500/019 (Loss of Residual Heat Removal System), Case IV, "Loss of ND in Mid Loop," the operator is first required to initiate containment evacuation, containment closure, and then to _____.

- A. manually trip 1A ND pump.
- B. place 1B ND train in service.
- C. attempt to mitigate 1A ND pump conditions by raising NC level to greater than 25%.
- D. attempt to mitigate 1A ND pump conditions by reducing ND flow to less than 1000 gpm.

**CNS 2013 NRC Exam 75 Questions
REACTOR OPERATOR**

Question 32

Given the following plant conditions:

Initial:

- Unit 1 is at 100% power.
- Unit 2 is in Mode 6.
- 1B NV pump is running.
- 1A NV pump is OFF.

Subsequently:

- KC cooling flow to the Unit 1 NV pumps is lost.
- The crew enters AP/1/A/5500/021, (Loss of Component Cooling) and has dispatched an operator to align backup cooling to an NV pump.
- The crew is performing Enclosure 5, "Maximize NV Pump Run Time".

- (1) The crew dispatched the operator to align alternate cooling to (1) NV pump(s).
- (2) While the alternate cooling alignment is being performed, the operating pump will be (2) .
- A. (1) ONLY 1A
 (2) Secured immediately.
- B. (1) ONLY 1A
 (2) Operated for a maximum of 10 minutes.
- C. (1) 1A and 1B
 (2) Secured immediately.
- D. (1) 1A and 1B
 (2) Operated for a maximum of 10 minutes.

**CNS 2013 NRC Exam 75 Questions
REACTOR OPERATOR**

Question 33

1NC-54A (Nitrogen to PRT Containment Isolation) _____ (1) _____ receive an automatic isolation signal if containment pressure exceeds 1.2 psig.

1NC-107 (PRT to NCDT Pumps Suction) _____ (2) _____ receive an automatic isolation signal if PRT pressure exceeds 8.0 psig.

- A. (1) does
(2) does
- B. (1) does
(2) does not
- C. (1) does not
(2) does
- D. (1) does not
(2) does not

**CNS 2013 NRC Exam 75 Questions
REACTOR OPERATOR**

Question 34

Given the following Unit 2 initial conditions:

- The Unit was at 100% power when the reactor was manually tripped due to a partially stuck open PZR Safety Valve.

Subsequently:

- At 1005: Containment pressure is **NEGATIVE** 0.2 psig.
- At 1010: PRT pressure rises to approximately 50 psig and then rapidly decreases.

(1) At time 1005, Tech Spec. 3.6.4 (Containment Pressure) _____ met.

(2) At time 1010, the PRT rupture disc(s) operated _____.

- A. (1) is NOT
(2) as designed
- B. (1) is NOT
(2) earlier than designed
- C. (1) is
(2) as designed
- D. (1) is
(2) earlier than designed

**CNS 2013 NRC Exam 75 Questions
REACTOR OPERATOR**

Question 35

Which ONE of the following describes the NORMAL and BACKUP makeup supplies to the KC Surge Tank?

	<u>NORMAL</u>	<u>BACKUP</u>
A.	YF	RN
B.	YM	YD
C.	YM	RN
D.	YF	YD

**CNS 2013 NRC Exam 75 Questions
REACTOR OPERATOR**

Question 36

Given the following Unit 1 conditions:

- The Unit was at 60% power prior to a steam leak in the turbine building.
- The crew has isolated the leak per AP/1/A/5500/028 (Secondary Steam Leak).
- The crew is responding to low Pressurizer pressure per AP/1/A/5500/011 (Pressurizer Pressure Abnormalities).

Subsequently:

- 1A and 1D Pressurizer Heaters automatically ENERGIZED at appropriate setpoint.
- Pressurizer pressure is at 2140 psig and slowly increasing.
- 1B Pressurizer Heater is DE-ENERGIZED due to breaker failure.

Based on the above listed conditions:

(1) Automatic PZR PORV operation _____ blocked.

(2) Tech Spec 3.4.9 (Pressurizer) _____ met.

A. (1) is NOT
(2) is

B. (1) is NOT
(2) is NOT

C. (1) is
(2) is

D. (1) is
(2) is NOT

**CNS 2013 NRC Exam 75 Questions
REACTOR OPERATOR**

Question 37

Given the following Unit 2 conditions:

- The Unit is at 100% power.
- 2B Pressurizer heaters are manually energized to promote mixing following unit start-up.
- All plant parameters are at equilibrium.
- A fault causes breaker 2LXH-6C (2B NC PZR Heater Power Panel PHP2B Feeder) to OPEN.

(1) How will the output of the pressurizer master control change?

(2) What is the system's response to the loss of heat input?

- A. (1) Increase
(2) Pressurizer Spray Valves will close prior to "A" & "D" Pressurizer Heaters energizing.
- B. (1) Decrease
(2) Pressurizer Spray Valves will close prior to "A" & "D" Pressurizer Heaters energizing.
- C. (1) Increase
(2) "A" and "D" Pressurizer Heaters will energize prior to Pressurizer Spray Valves closing.
- D. (1) Decrease
(2) "A" and "D" Pressurizer Heaters will energize prior to Pressurizer Spray Valves closing.

**CNS 2013 NRC Exam 75 Questions
REACTOR OPERATOR**

Question 38

In accordance with Technical Specifications, which ONE of the following reactor trips is required to be OPERABLE to provide protection against Departure from Nucleate Boiling (DNB) from Mode 2 to 100% power?

- A. Pressurizer low pressure
- B. OPDT
- C. Low NC loop flow
- D. OTDT

**CNS 2013 NRC Exam 75 Questions
REACTOR OPERATOR**

Question 39

Given the following Unit 1 conditions:

- The Unit is at 100%.
- Testing has revealed that ONE channel of Auxiliary Feedwater Auto-Start logic on Trip of ALL Main Feedwater Pumps will NOT actuate within the acceptance criteria.
- The channel is declared INOPERABLE at time 0415.

In accordance with T.S. 3.3.2, (ESFAS Instrumentation), the required action is to place the channel in _____.

- A. trip no later than 0515.
- B. bypass no later than 0515.
- C. trip no later than 0445.
- D. bypass no later than 0445.

**CNS 2013 NRC Exam 75 Questions
REACTOR OPERATOR**

Question 40

Given the following Unit 1 conditions:

Initial:

- The Unit is at 80% power.
- Lower Containment Ventilation Units (LCVUs) 1A, 1B, 1C are in operation.
- Upper Containment Ventilation Unit (UCVU) 1B is in operation.

Subsequently:

- Containment temperature, pressure, and humidity are slowly increasing.
- Containment radiation levels are normal.

In accordance with AP/1/A/5500/028, (Secondary Steam Leak), ALL LCVUs will be operated in _____ (1) _____ speed, and _____ (2) _____ cooling.

- A. (1) HIGH
(2) NORM
- B. (1) HIGH
(2) MAX
- C. (1) LOW
(2) NORM
- D. (1) LOW
(2) MAX

**CNS 2013 NRC Exam 75 Questions
REACTOR OPERATOR**

Question 41

Given the following Unit 1 conditions:

- The Unit is in Mode 4.
- 1AD-13 / A7 (ICE COND LOWER INLET DOORS OPEN) alarm is LIT.
- The lower inlet door position display panel indicates that a door is open.
- The door is confirmed to be cracked opened, and cannot be closed.
- No other alarms related to the ice condenser, NF system or AHUs are lit.

Which, if any, of the following is REQUIRED to be entered based on the current plant conditions?

1. Tech Spec 3.6.13 (Ice Condenser Doors)
2. Tech Spec 3.6.12 (Ice Bed)

- A. 1 ONLY
- B. 2 ONLY
- C. 1 and 2
- D. No Tech. Spec. entry required.

**CNS 2013 NRC Exam 75 Questions
REACTOR OPERATOR**

Question 42

In order to align "1A" train ND to supply containment spray, 1NS-43A (ND Pump A to NS Spray Header Containment Isolation Valve) must be opened.

- (1) In order to open this valve, _____ must be open.
 - (2) Once aligned, spray _____ be directed through the NS spray rings.
- A. (1) 1NS-18A (NS Pump A Suct from Cont Sump)
(2) will
 - B. (1) 1NS-18A (NS Pump A Suct from Cont Sump)
(2) will NOT
 - C. (1) 1NI-185A (ND Pump 1A Cont Sump Suct)
(2) will
 - D. (1) 1NI-185A (ND Pump 1A Cont Sump Suct)
(2) will NOT

**CNS 2013 NRC Exam 75 Questions
REACTOR OPERATOR**

Question 43

Which Motor Control Center provides power to 1NS-20A (NS Pump 1A Suct from FWST)?

- A. 1EMXA
- B. 1EMXD
- C. 1MXC
- D. 1MXD

**CNS 2013 NRC Exam 75 Questions
REACTOR OPERATOR**

Question 44

In order to protect the Main Turbine from overspeed following a loss of generator load, the _____ (1) _____ will close at a maximum of _____ (2) _____ of rated speed.

- A. (1) Intercept Valve
(2) 103%
- B. (1) Intercept Valve
(2) 105%
- C. (1) Reheat Stop Valve
(2) 103%
- D. (1) Reheat Stop Valve
(2) 105%

**CNS 2013 NRC Exam 75 Questions
REACTOR OPERATOR**

Question 45

Given the following Unit 1 conditions:

- Reactor power is 8%.
- Steam Dumps are in MANUAL.
- Preparations are being made to place the Main Turbine online.

Subsequently:

- 1SV-21 (1A S/G Safety No. 2) fails OPEN and cannot be isolated.

Complete the following statement:

(1) Assuming no operator action, reactor power will STABILIZE at approximately _____.

- A. 8%
- B. 10.5%
- C. 13%
- D. 15.5%

**CNS 2013 NRC Exam 75 Questions
REACTOR OPERATOR**

Question 46

Given the following Unit 2 conditions:

- Unit 2 is currently at normal operating pressure and temperature making preparations for unit startup following refueling shutdown.
- 2A and 2B CA pumps are maintaining S/G levels.
- 2A CFPT has been reset and pump startup preparations are in progress.

Subsequently:

- The RO allows all S/G levels to increase to 80%
- (1) 2A CFPT is currently _____.
- (2) A purpose of the P-14 signal _____ to avoid challenging main steam piping and supports due to excess weight.
- A. (1) reset
(2) is
- B. (1) reset
(2) is not
- C. (1) tripped
(2) is not
- D. (1) tripped
(2) is

**CNS 2013 NRC Exam 75 Questions
REACTOR OPERATOR**

Question 47

Given the following Unit 1 initial conditions:

- The Unit was at 100% power.
- The 1C S/G secondary manway failed resulting in a reactor trip and safety injection.

10 minutes later:

- Containment pressure is 3.2 psig and slowly decreasing.
- S/G parameters are as follows:

S/G	1A	1B	1C	1D
NR Level	14%	8%	5%	16%
CA Flow	110 gpm	130 gpm	120 gpm	100 gpm

- All NC Tcolds are 445°F and decreasing.
- All NC Thots are 475 °F and decreasing.
- All MSIVs are OPEN and will NOT close.
- The crew has entered EP/1/A/5000/ECA-2.1 (Uncontrolled Depressurization of All Steam Generators).

- (1) How will the crew respond to step 6 to "Control feed flow..." in EP/1/A/5000/ECA-2.1?
- (2) Which temperature indication is used to initiate dumping steam and evaluating changes to CA flow for stabilizing NC temperature in this procedure?
- A. (1) Reduce flow to 0 gpm each in 1A and 1D S/Gs and maintain at least 75 gpm in 1B and 1C S/Gs.
(2) NC Thots
- B. (1) Reduce flow to 75 gpm each in all four S/Gs.
(2) NC Thots
- C. (1) Reduce flow to 0 gpm each in 1A and 1D S/Gs and maintain at least 75 gpm in 1B and 1C S/Gs.
(2) NC Tcolds
- D. (1) Reduce flow to 75 gpm each in all four S/Gs.
(2) NC Tcolds

**CNS 2013 NRC Exam 75 Questions
REACTOR OPERATOR**

Question 48

Which ONE of the following breaker operations can be performed from the control room given the accompanying condition?

- A. CLOSE 1ETA-2 (Alternate Feeder to 1FTA) with
1FTA-1 (Alternate Incoming Breaker from 1ETA) OPEN.
- B. CLOSE PCB-15 (Unit Tie PCB) with
PCB 14 (Unit Tie PCB) CLOSED.
- C. CLOSE GEN PCB 1B while
MOD lever is in the SAFE position.
- D. CLOSE 1HTA-5 (1HTA and 2HTA Tie breaker) with
1HTA-1 (Incoming Feeder from XFMR 1ATE) and 2HTA-4 (Incoming Feeder from XFMR
2ATE) CLOSED.

**CNS 2013 NRC Exam 75 Questions
REACTOR OPERATOR**

Question 49

- (1) Auxiliary Control Power Batteries 1CBA and 1CBB are capable of powering their associated loads for at least ____ (1) ____ without any manual load shedding of DC loads.
- (2) Manual DC load shedding is performed so that battery capacity is maintained at a value of no less than ____ (2) ____, as indicated on 1CDA and 1CDB voltage indication on 1MC-8.

In accordance with EP/1/A/5000/ECA-0.0 (Loss of All AC Power), Enclosure 23, "DC Loads to be Shed During Loss of All AC Power", which ONE of the following completes the above statements?

- A. (1) 2 hours
(2) 100 volts
- B. (1) 2 hours
(2) 105 volts
- C. (1) 4 hours
(2) 100 volts
- D. (1) 4 hours
(2) 105 volts

**CNS 2013 NRC Exam 75 Questions
REACTOR OPERATOR**

Question 50

In order to prevent blowing inverter input fuses, the Static Inverter must be _____ (1) _____ prior to closing the _____ (2) _____.

- A. (1) Synchronized
(2) DC Input Breaker.
- B. (1) Synchronized
(2) AC Output Breaker.
- C. (1) Pre-charged
(2) DC Input Breaker.
- D. (1) Pre-charged
(2) AC Output Breaker.

**CNS 2013 NRC Exam 75 Questions
REACTOR OPERATOR**

Question 51

Given the following conditions:

- Unit 1 is at 100% power when the following alarm is received:

1AD-11, B/7, D/G A PANEL TROUBLE
- An NLO is dispatched and confirms that the power supply to the 1A D/G Battery Charger is de-energized.

A loss of which ONE of the following power supplies is the cause for these conditions?

- A. 1EDE
- B. 1EMXE
- C. 1EADA
- D. 1VADA

**CNS 2013 NRC Exam 75 Questions
REACTOR OPERATOR**

Question 52

Given the following Unit 1 conditions:

Initial:

- A containment air release (VQ) is in progress.
- 1EMF-39 (Containment Gas) Trip 2 setpoint is set to 1300 counts per minute (cpm) per the gas waste release permit.
- 1EMF-36 (Unit Vent Gas) is operable.

Subsequently:

- A small reactor coolant leak develops around an instrument line.
- The crew has determined that Safety Injection initiation is not warranted.
- 1EMF-39 countrate is 1000 cpm and increasing.

Current:

- 1EMF-38/39 sample pump has tripped off due to breaker failure.
- 1RAD-1 D/4, 1EMF-38/39 Containment Loss of Flow alarm is LIT.
- 1EMF-36 Trip 2 has actuated.

Which ONE of the following describes the effect of the above-conditions?

- A. The VQ release will continue until manual operator action is taken to secure it.
- B. 1EMF-36 detects the activity released and stops the VQ release.
No Containment Ventilation Isolation (Sh) signal is initiated.
- C. 1EMF-39 loss of flow alarm actuates an Sh signal. The Sh signal stops the VQ release.
- D. 1EMF-36 detects the activity released and actuates an Sh signal.
The Sh signal stops the VQ release.

**CNS 2013 NRC Exam 75 Questions
REACTOR OPERATOR**

Question 53

Given the following Unit 2 conditions:

- The Unit is at 100%.
- 'B' Train KC is in service.
- 2A RN train is in operation for testing.
- The RN trains are split with 2RN-48B (RN Supply X-Over Isol) closed.
- 2B RN pump flow is indicating 2700 gpm.

Subsequently:

- 2RN-351 (2B KC HX Outlet Throttle) fails closed due to valve stem separation.

Assuming flow cannot be restored, which ONE of the following parameters will exceed an operational setpoint AND require a unit trip?

- A. Containment temperature
- B. NCP stator temperatures
- C. NCP motor bearing temperatures
- D. Letdown Heat Exchanger temperature

**CNS 2013 NRC Exam 75 Questions
REACTOR OPERATOR**

Question 54

Given the following Unit 1 conditions:

- The VI system on Unit 1 has become heavily contaminated with oil and debris.
 - The VI Air Dryer begins to rapidly clog.
- (1) VI header pressure will decrease until 1VI-670 (VI Auto Dryer Bypass) automatically opens at _____ (1) _____ .
- (2) If 1VI-670 FAILS and does NOT automatically open, AP/0/A/5500/022, (Loss of Instrument Air), directs the operators to _____ (2) _____ the air dryers locally.
- A. (1) 80 psig
(2) bypass
- B. (1) 85 psig
(2) bypass
- C. (1) 80 psig
(2) swap
- D. (1) 85 psig
(2) swap

**CNS 2013 NRC Exam 75 Questions
REACTOR OPERATOR**

Question 55

Given the following Unit 1 conditions:

- Unit 1 was at 100% power.
- At 1000, a secondary steam leak occurred in Unit 1 containment.
- The crew has started a controlled shutdown per AP/1/A/5500/009 (Rapid Downpower).

Containment pressure and temperature trends indicate:

<u>Time</u>	<u>Temperature</u>	<u>Pressure</u>
1000	113°F	0.15 psig
1005	117°F	0.28 psig
1010	119°F	0.42 psig
1015	122°F	0.48 psig
1020	126°F	0.65 psig
1025	129°F	0.91 psig

Assuming NO manual operator actions have occurred, which ONE of the following is the EARLIEST time period at which the Lower Containment Ventilation Units (LCVUs) cooling water bypass valves (full flow valves) automatically OPEN?

- A. Between 1005 and 1010
- B. Between 1010 and 1015
- C. Between 1015 and 1020
- D. Between 1020 and 1025

**CNS 2013 NRC Exam 75 Questions
REACTOR OPERATOR**

Question 56

Given the following Unit 1 conditions:

- The Unit was at 8% power.
- Turbine warming was in progress.

Subsequently:

- 1A and 1C NCPs tripped due to "A" train power supply fault.
- A fast transfer on the associated 6900V busses did NOT occur.

- (1) An automatic reactor trip _____ occur.
- (2) Following a reactor trip, the setpoint for a main feedwater isolation to automatically occur is less than or equal to _____.

Which ONE of the following completes the above statements?

- A. (1) Will
(2) 553°F
- B. (1) Will
(2) 564°F
- C. (1) Will NOT
(2) 553°F
- D. (1) Will NOT
(2) 564°F

**CNS 2013 NRC Exam 75 Questions
REACTOR OPERATOR**

Question 57

Given the following:

Steam Dump Valve 1SB-3 (Main Steam Bypass to Condenser Control Valve #3) fails open during a plant startup. No operator action has been taken. Pressurizer pressure and reactor power trends (Power Range) indicate:

Time	PZR Pressure (psig)	N-41 %	N-42 %	N-43 %	N-44 %
0835	1950	8	10	8	9
0836	1910	9	10	9	9
0837	1870	9	10	10	9
0838	1830	10	11	10	9

What is the EARLIEST time at which an automatic Reactor Trip signal will be generated?

- A. 0835
- B. 0836
- C. 0837
- D. 0838

**CNS 2013 NRC Exam 75 Questions
REACTOR OPERATOR**

Question 58

As Unit 1 power increases above 20%, _____ (1) _____ input(s) into the anticipatory circuit of narrow range S/G level response. This is due to a(n) _____ (2) _____ transfer within the S/G water level control system.

- A. (1) Steam Flow and Feed Flow
(2) Manual
- B. (1) Steam Flow and Feed Flow
(2) Automatic
- C. (1) Wide Range S/G Level
(2) Manual
- D. (1) Wide Range S/G Level
(2) Automatic

**CNS 2013 NRC Exam 75 Questions
REACTOR OPERATOR**

Question 59

Unit 1 was initially at 100% power when the following sequence of events occurred:

1000

- A Loss of Offsite Power occurred.
- The reactor tripped.
- When 1A D/G attempted to load 1ETA, 86N (Normal Incoming Undervoltage) relay actuated.

1005

- A large break LOCA inside containment developed.
- Containment pressure quickly increased to 3.0 psig and continues to slowly increase.

At 1010, which ONE of the following describes the status of the VE (Annulus Ventilation) fans?

- A. ONLY 1B VE fan is running.
- B. 1A AND 1B VE fans are running.
- C. ONLY 1B VE fan will start in 4 minutes.
- D. 1A AND 1B VE fans will start in 4 minutes.

**CNS 2013 NRC Exam 75 Questions
REACTOR OPERATOR**

Question 60

Given the following:

- Unit 1 is in Mode 6 with core unload in progress.
- 1A KF pump is running.
- An RP Technician in the Spent Fuel Pool (SFP) building reports that level in the SFP is DECREASING.
- The fuel assembly most recently removed from the core is currently in the reactor building manipulator crane.

In accordance with AP/1/A/5500/026 (Loss of Refueling Canal Level):

- (1) If the level in the Spent Fuel Pool decreases to 38.0 feet, the 1A KF pump _____ required to be secured.
 - (2) The fuel assembly in the reactor building manipulator crane is REQUIRED to be placed _____.
- A. (1) is
(2) Into the upender and lowered to the fully down position.
- B. (1) is
(2) Fully down in the core or the deep end of the canal.
- C. 1) is NOT
(2) Into the upender and lowered to the fully down position.
- D. (1) is NOT
(2) Fully down in the core or the deep end of the canal.

**CNS 2013 NRC Exam 75 Questions
REACTOR OPERATOR**

Question 61

Which ONE of the following describes the effect of 1EMF-15, Spent Fuel Building Refueling Bridge Monitor losing power?

- A. Fuel movement in the Spent Fuel Pool must be stopped immediately.
- B. SFP Ventilation System automatically swaps to filter mode.
- C. New fuel elevator cannot be operated in the UP direction.
- D. The Auxiliary Hoist cannot be raised.

**CNS 2013 NRC Exam 75 Questions
REACTOR OPERATOR**

Question 62

Given the following conditions:

- Unit 1 and 2 are at 100% power.
- VQ release is in progress on both units.

Subsequently:

- A leaking isolation valve has initiated an unplanned release from "C" Waste Gas Decay Tank.
- A packing leak has developed at 1WG-160 (WGDT Outlet to Unit Vent Isol).
- 0EMF-41 (Aux Bldg Ventilation) is in Trip 2.
- 1EMF-36 (Unit Vent Gas Monitor) is in Trip 2.
- No operator action has been taken.

Currently:

- (1) 2A VA _____ aligned to filter mode.
- (2) Unit 2 VQ release _____ been secured.

- A. (1) is
(2) has
- B. (1) is
(2) has NOT
- C. (1) is NOT
(2) has NOT
- D. (1) is NOT
(2) has

**CNS 2013 NRC Exam 75 Questions
REACTOR OPERATOR**

Question 63

Given the following Unit 1 initial conditions:

- The Unit is at 100% power.
- 1A1 Cont Floor & Equip Sump Pump has automatically started due to normal operational leakage.

Subsequently:

- 1EMF-53A, (Containment Hi Range) loses power.

(Note the following component designators):

1WL-825A, (Cont Smp Pumps Disch Cont Isol)

1WL-827B, (Cont Smp Pumps Disch Cont Isol)

Which ONE of the following describes the status of the components listed below?

	<u>1WL-825A</u>	<u>1WL-827B</u>	<u>Pump 1A1</u>
A.	OPEN	OPEN	ON
B.	CLOSED	CLOSED	OFF
C.	CLOSED	OPEN	OFF
D.	CLOSED	OPEN	ON

**CNS 2013 NRC Exam 75 Questions
REACTOR OPERATOR**

Question 64

Which ONE of the following statements describes an interlock provided for the cross-connect of the Instrument Air (VI) and Station Air (VS) systems?

As (VI) system pressure decreases,_____.

- A. 1VI-500 (VI to VS Supply Isolation) CLOSES at 85 psig.
- B. 1VI-500 (VI to VS Supply Isolation) CLOSES at 76 psig.
- C. 1VS-78 (VS Auto Backup to VI) OPENS at 80 psig.
- D. 1VS-78 (VS Auto Backup to VI) OPENS at 76 psig.

**CNS 2013 NRC Exam 75 Questions
REACTOR OPERATOR**

Question 65

If normal cooling has been lost to the "E" and "F" VI compressors, the _____ (1) _____ System can be aligned to supply cooling water to the "E" and "F" VI compressors with the discharge aligned to the _____ (2) _____ System.

- A. (1) RF
 (2) RN
- B. (1) RF
 (2) RL
- C. (1) RL
 (2) RN
- D. (1) RN
 (2) RL

**CNS 2013 NRC Exam 75 Questions
REACTOR OPERATOR**

Question 66

Which ONE of the following describes an appropriate example of information to be communicated to the shifts by use of an OPS Guide, in accordance with the requirements of SOMP 01-13 (Operations Work List, Routine Task List, and OPS Guides)?

- A. Notification that engineering has determined a Tech Spec inoperability may exist under certain conditions due to new analyzed failure scenarios.
- B. OSM direction to verify 1A D/G Lube Oil Temp two times per shift due to an annunciator failure.
- C. Temporary procedure instructions for a system which is currently being modified, while a procedure change is being completed.
- D. Direction, from the unit lead, concerning work (or evolutions) that need(s) to be completed on a particular shift.

**CNS 2013 NRC Exam 75 Questions
REACTOR OPERATOR**

Question 67

In accordance with SOMP 02-01, (Safety Tagging and Configuration Control):

- (1) Using a Configuration Control Card (CCC) to position components within the boundaries of an R&R to allow additional venting/drainage capacity _____ allowed.
- (2) When more than _____ Tag Sticker(s) is/are required for a control panel switch, a controlling sticker shall be placed on the switch and the Tag Sticker(s) will be placed in the Control Room Sticker Logbook.

Which ONE of the following completes the above statements?

- A. (1) IS
(2) One
- B. (1) IS
(2) Two
- C. (1) IS NOT
(2) One
- D. (1) IS NOT
(2) Two

**CNS 2013 NRC Exam 75 Questions
REACTOR OPERATOR**

Question 68

Given the following Unit 1 conditions:

- The Unit is in Mode 6.
- (1) In accordance with Tech. Spec. 3.9.6 (Refueling Cavity Water Level), if water level is LESS than 23' above the reactor vessel flange, then control rod drive shaft unlatching _____ .
- (2) In accordance with PT/1/A/4600/002 F, (Mode 6 Periodic Surveillance Items), if 1KFP5120 (Spent Fuel Pool Level) fails low during fuel unloading operations, a check of NC system WR level ____ (2) ____ adequate to satisfy the requirements of this PT.
- A. (1) must be stopped
(2) is
- B. (1) must be stopped
(2) is NOT
- C. (1) may continue
(2) is
- D. (1) may continue
(2) is NOT

**CNS 2013 NRC Exam 75 Questions
REACTOR OPERATOR**

Question 69

With Unit 1 in Mode 3, which ONE of the following describes the MAXIMUM NC system pressure, in accordance with Tech Spec 2.1.2 (RCS Pressure SL), and the MAXIMUM time allowed to restore compliance, per Tech Spec 2.2.2 (SL Violations)?

- A. 2735 psig
1 hour
- B. 2735 psig
5 minutes
- C. 2750 psig
1 hour
- D. 2750 psig
5 minutes

**CNS 2013 NRC Exam 75 Questions
REACTOR OPERATOR**

Question 70

With both Units at 100% power the following alarm will not function.

- 1AD-13, A/5, Main Fire Pump A Ctrl Pwr Trouble

To identify the status of this annunciator, a _____ will be placed on or near the annunciator window in the Control Room.

- A. distinctive GREEN flag
- B. distinctive RED flag
- C. WHITE deficiency sticker
- D. YELLOW Restricted sticker

**CNS 2013 NRC Exam 75 Questions
REACTOR OPERATOR**

Question 71

Consider the following conditions relating to planned radiation releases:

1. EMF-50 (WG Disch Monitor - Waste Gas) Trip 2 has actuated.
2. Turbine Building Sump release exceeds EMF-31 (Turbine Building Sump) pre-set level.

In accordance with the applicable procedures, which ONE of the following completes the below statements (consider each separately):

- (1) Re-initiation of the Waste Gas release at least once without resampling ____ (1) ____ allowed.
- (2) Re-initiation of the Turbine Building Sump release at least once without resampling ____ (2) ____ allowed when the release exceeds EMF-31 pre-set level.
- A. (1) is
(2) is NOT
- B. (1) is
(2) is
- C. (1) is NOT
(2) is
- D. (1) is NOT
(2) is NOT

**CNS 2013 NRC Exam 75 Questions
REACTOR OPERATOR**

Question 72

Given the following Unit 1 conditions:

- The Unit has just entered Mode 5 in preparation for refueling.
- The missile shield has not been removed.
- A lower containment entry is planned for the next shift.
- The on-duty crew will perform purge of containment in preparation for the containment entry.
- Currently, the VP system is secured with all fans off and containment purge and exhaust valves closed.

For this planned containment purge:

(1) The NORMAL-REFUEL SELECTOR switch is placed in the _____ (1) _____ position.

(2) This alignment is used in order to _____ (2) _____ .

Which ONE of the following completes the above statements, in accordance with OP/1/A/6450/015 (Containment Purge System)?

- A. (1) NORM
(2) Prevent overpressurization of upper containment and an unmonitored release path.
- B. (1) NORM
(2) Prevent opening the ice condenser doors and to ensure air flow is routed through clean up filters.
- C. (1) REFUEL
(2) Prevent overpressurization of upper containment and an unmonitored release path.
- D. (1) REFUEL
(2) Prevent opening the ice condenser doors and to ensure air flow is routed through clean up filters.

**CNS 2013 NRC Exam 75 Questions
REACTOR OPERATOR**

Question 73

Given the following Unit 1 conditions:

- The crew is performing a S/G depressurization in accordance with EP/1/A/5000/FR-C.2 (Response to Degraded Core Cooling) due to an ORANGE Path on SPDS.
- While in FR-C.2 the crew receives a RED Path for NC Integrity.

The crew _____ (1) _____ transition to EP/1/A/5000/FR-P.1 (Response To Imminent Pressurized Thermal Shock Condition) because _____ (2) _____ .

- A. (1) will
(2) Pressurized Thermal Shock is a higher priority concern because of the potential challenge to reactor vessel integrity.
- B. (1) will
(2) during the performance of an ORANGE path procedure, if any RED condition arises, then the RED condition is addressed first.
- C. (1) will NOT
(2) Core Cooling is a higher priority concern and should be completed prior to performing a lower priority procedure.
- D. (1) will NOT
(2) transition to this procedure could cause further degradation of core cooling.

**CNS 2013 NRC Exam 75 Questions
REACTOR OPERATOR**

Question 74

- (1) OEMF-41 (Aux. Bldg. Radiation Monitor) indicating 5×10^5 cpm _____ (1) _____ require initiation of a Site Assembly.
- (2) The minimum level of emergency classification which ALWAYS requires an evacuation of non-essential personnel is _____ .
- A. (1) will
(2) Site Area Emergency
- B. (1) will
(2) General Emergency
- C. (1) will NOT
(2) Site Area Emergency
- D. (1) will NOT
(2) General Emergency

**CNS 2013 NRC Exam 75 Questions
REACTOR OPERATOR**

Question 75

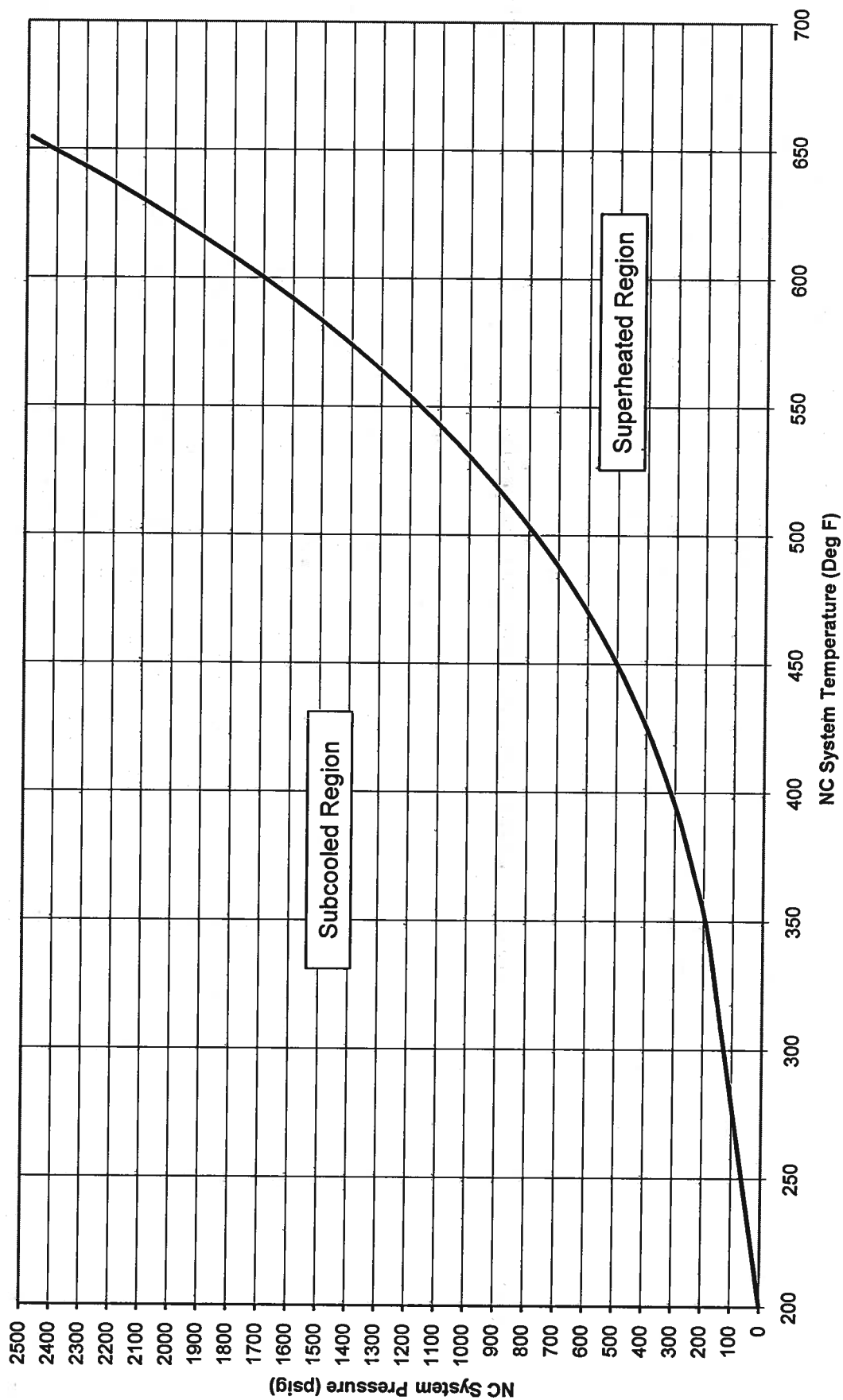
Which ONE of the following is a Post Accident Monitoring Instrument, AND is controlled by Tech. Spec. 3.3.3, [Post-Accident Monitoring (PAM) Instrumentation]?

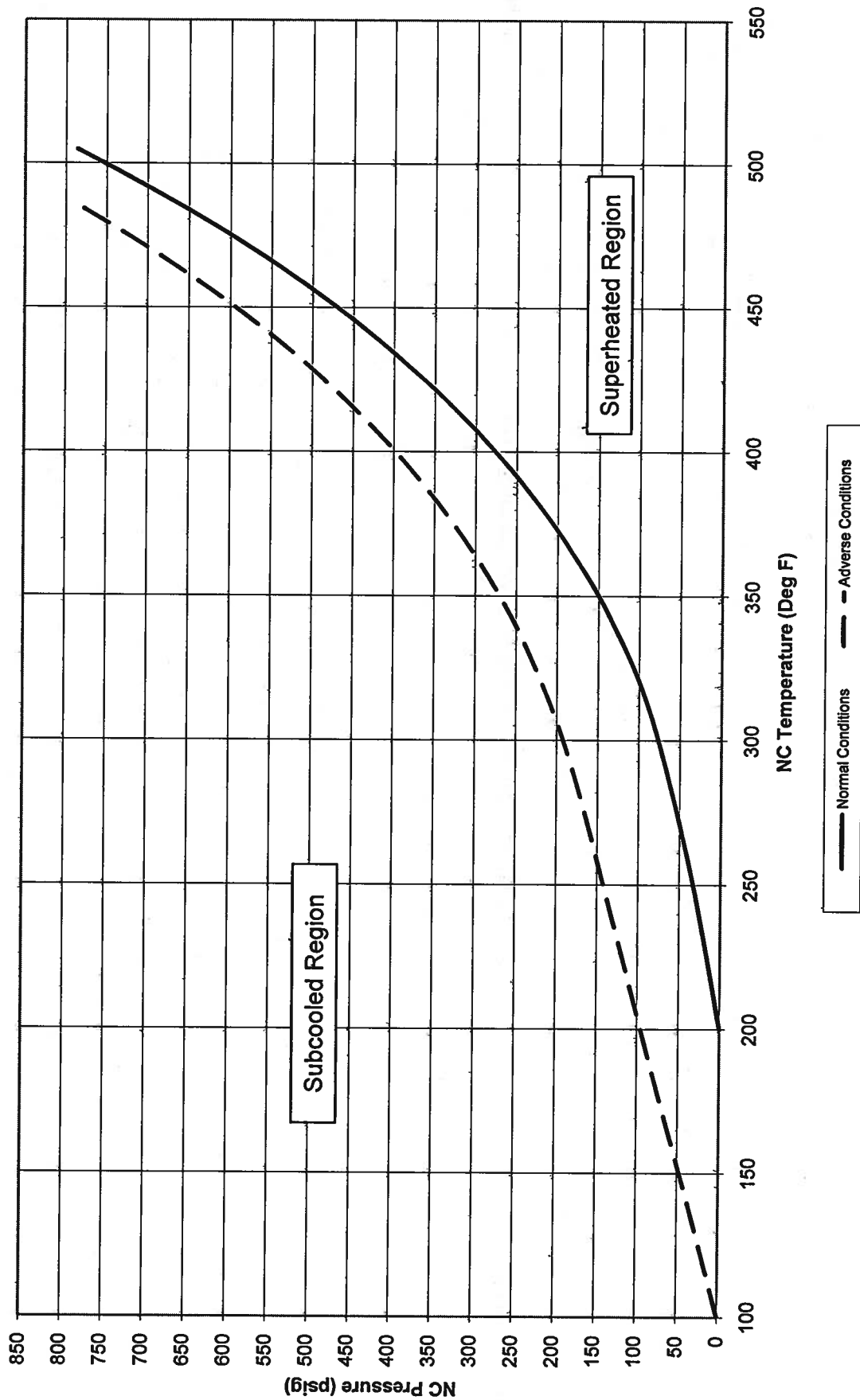
- A. Containment Humidity
- B. SG Water Level Wide Range
- C. 1EMF-36L, Unit Vent Gas Monitor
- D. 1EMF-38L, Containment Monitor - Particulate

REACTOR OPERATOR
Catawba Nuclear Station
ILT 2013 NRC Written Exam (Sept. 2013)

REFERENCE PACKAGE CONTENTS

EXAM ID: ILT2013NRC Exam RO Exam	
1	Databook Figure 57, Reactor Coolant Saturation Curve, Wide Range
2	Databook Figure 58, Reactor Coolant Saturation Curve, Narrow Range
3	ECA-1.1 (Loss of Emergency Coolant Recirculation), Step 18
4	ECA-1.1, Enclosure 4 (Minimum S/I flowrate Versus Time After Trip)





ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

17. (Continued)

- ___ d. Attempt to start 1B NC pump to provide normal pressurizer spray. REFER TO Enclosure 3 (NC Pump Start).

- ___ d. IF 1B NC pump cannot be started, THEN start NC pump(s) as necessary to provide normal pressurizer spray. REFER TO Enclosure 3 (NC Pump Start).

18. Verify S/I termination criteria as follows:

- a. Verify RVLIS indication is adequate as follows:

- ___ a. GO TO Step 25.

- ___ • IF all NC pumps are off, THEN verify "REACTOR VESSEL LR LEVEL" - GREATER THAN 61%.

OR

- ___ • IF any NC pump is on, THEN verify "REACTOR VESSEL D/P" - GREATER THAN REQUIRED D/P FROM TABLE BELOW:

Number of NC Pumps On	Required "REACTOR VESSEL D/P"			
	TRN A With NC Pump 1A		TRN B With NC Pump 1C	
	On	Off	On	Off
4	80%	N/A	80%	N/A
3	60%	32%	60%	32%
2	45%	20%	45%	20%
1	35%	14%	35%	14%

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

18. (Continued)

- ___ b. NC subcooling based on core exit T/Cs
- GREATER THAN 50°F.

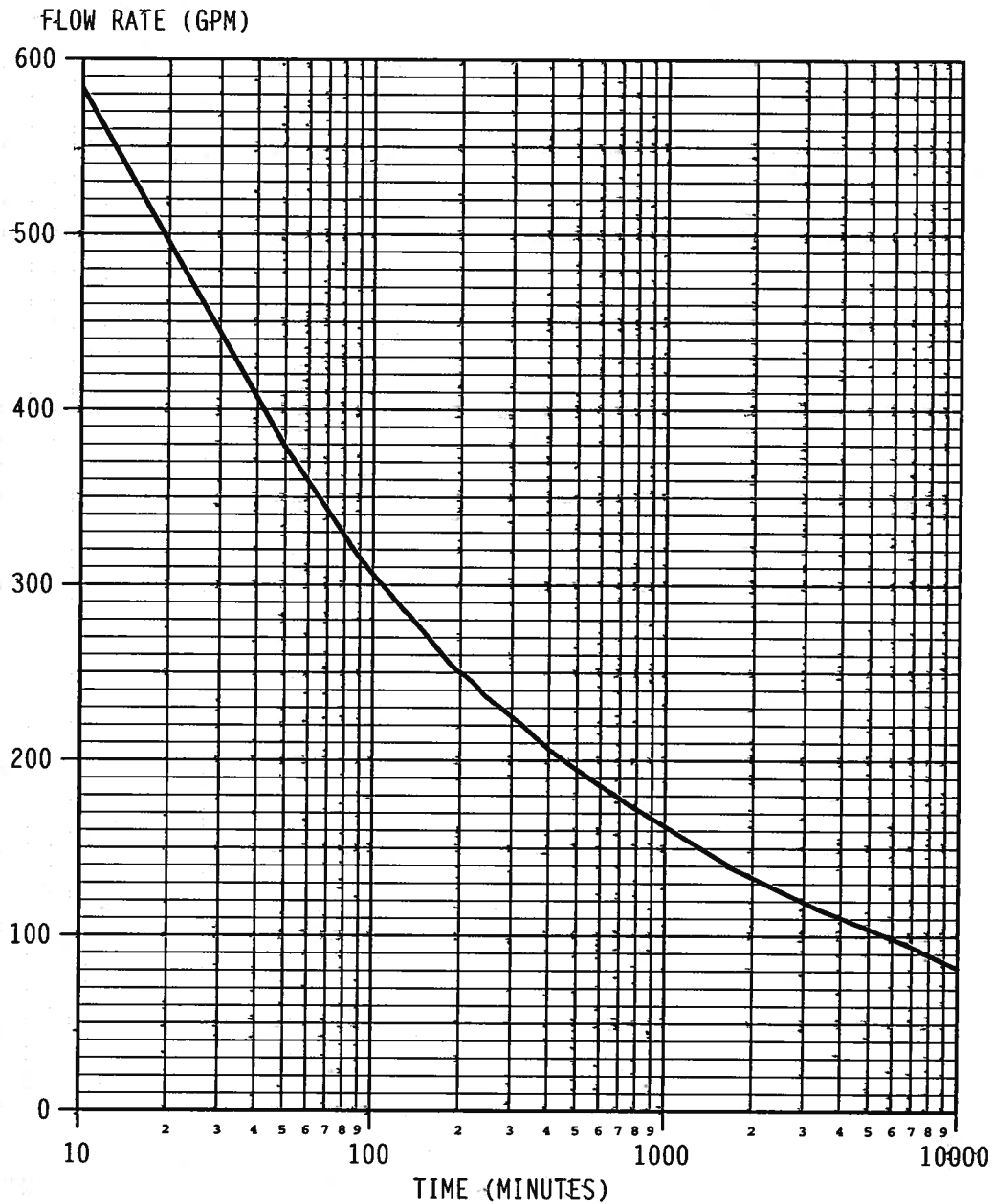
b. Perform the following:

- ___ 1) Determine minimum S/I flow required. **REFER TO** Enclosure 4 (Minimum S/I Flowrate Versus Time After Trip).
- 2) Stop S/I pumps as required to obtain the following:
- ___ • Minimize S/I flow
- ___ • Maintain S/I flow greater than or equal to flow required by Enclosure 4 (Minimum S/I Flowrate Versus Time After Trip).
- ___ 3) **GO TO** Step 25.

19. Ensure the following containment isolation signals - RESET:

- ___ • Phase A
- ___ • Phase B.

S/I FLOW REQUIRED TO MATCH DECAY HEAT



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STUDENT ENROLLMENT SHEET
Catwaha Sept. 2013 NRC Exam

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LAST NAME		FIRST NAME		M.I.
A	A	A	A	A
B	B	B	B	B
C	C	C	C	C
D	D	D	D	D
E	E	E	E	E
F	F	F	F	F
G	G	G	G	G
H	H	H	H	H
I	I	I	I	I
J	J	J	J	J
K	K	K	K	K
L	L	L	L	L
M	M	M	M	M
N	N	N	N	N
O	O	O	O	O
P	P	P	P	P
Q	Q	Q	Q	Q
R	R	R	R	R
S	S	S	S	S
T	T	T	T	T
U	U	U	U	U
V	V	V	V	V
W	W	W	W	W
X	X	X	X	X
Y	Y	Y	Y	Y
Z	Z	Z	Z	Z

SUBJ SCORE										TEST FORM			
0	0	0	0	0	0	0	0	0	0	A	B	C	D
1	1	1	1	1	1	1	1	1	1				
2	2	2	2	2	2	2	2	2	2				
3	3	3	3	3	3	3	3	3	3				
4	4	4	4	4	4	4	4	4	4				
5	5	5	5	5	5	5	5	5	5				
6	6	6	6	6	6	6	6	6	6				
7	7	7	7	7	7	7	7	7	7				
8	8	8	8	8	8	8	8	8	8				
9	9	9	9	9	9	9	9	9	9				

NAME KEY KEY
SUBJECT KEY KEY
DATE _____ HOUR/DAY _____

1	A	B	D	E	11	A	B	C	D	E	21	A	B	C	D	E	31	A	B	C	D	E	41	A	B	C	D	E	
2	A	B	C	D	E	12	A	B	C	D	E	22	A	B	C	D	E	32	A	B	C	D	E	42	A	B	C	D	E
3	A	B	C	D	E	13	A	B	C	D	E	23	A	B	C	D	E	33	A	B	C	D	E	43	A	B	C	D	E
4	A	B	C	D	E	14	A	B	C	D	E	24	A	B	C	D	E	34	A	B	C	D	E	44	A	B	C	D	E
5	A	B	C	D	E	15	A	B	C	D	E	25	A	B	C	D	E	35	A	B	C	D	E	45	A	B	C	D	E
6	A	B	C	D	E	16	A	B	C	D	E	26	A	B	C	D	E	36	A	B	C	D	E	46	A	B	C	D	E
7	A	B	C	D	E	17	A	B	C	D	E	27	A	B	C	D	E	37	A	B	C	D	E	47	A	B	C	D	E
8	A	B	C	D	E	18	A	B	C	D	E	28	A	B	C	D	E	38	A	B	C	D	E	48	A	B	C	D	E
9	A	B	C	D	E	19	A	B	C	D	E	29	A	B	C	D	E	39	A	B	C	D	E	49	A	B	C	D	E
10	A	B	C	D	E	20	A	B	C	D	E	30	A	B	C	D	E	40	A	B	C	D	E	50	A	B	C	D	E
51	A	B	C	D	E	61	A	B	C	D	E	71	A	B	C	D	E	81	A	B	C	D	E	91	A	B	C	D	E
52	A	B	C	D	E	62	A	B	C	D	E	72	A	B	C	D	E	82	A	B	C	D	E	92	A	B	C	D	E
53	A	B	C	D	E	63	A	B	C	D	E	73	A	B	C	D	E	83	A	B	C	D	E	93	A	B	C	D	E
54	A	B	C	D	E	64	A	B	C	D	E	74	A	B	C	D	E	84	A	B	C	D	E	94	A	B	C	D	E
55	A	B	C	D	E	65	A	B	C	D	E	75	A	B	C	D	E	85	A	B	C	D	E	95	A	B	C	D	E
56	A	B	C	D	E	66	A	B	C	D	E	76	A	B	C	D	E	86	A	B	C	D	E	96	A	B	C	D	E
57	A	B	C	D	E	67	A	B	C	D	E	77	A	B	C	D	E	87	A	B	C	D	E	97	A	B	C	D	E
58	A	B	C	D	E	68	A	B	C	D	E	78	A	B	C	D	E	88	A	B	C	D	E	98	A	B	C	D	E
59	A	B	C	D	E	69	A	B	C	D	E	79	A	B	C	D	E	89	A	B	C	D	E	99	A	B	C	D	E
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101	A	B	C	D	E	111	A	B	C	D	E	121	A	B	C	D	E	131	A	B	C	D	E	141	A	B	C	D	E
102	A	B	C	D	E	112	A	B	C	D	E	122	A	B	C	D	E	132	A	B	C	D	E	142	A	B	C	D	E
103	A	B	C	D	E	113	A	B	C	D	E	123	A	B	C	D	E	133	A	B	C	D	E	143	A	B	C	D	E
104	A	B	C	D	E	114	A	B	C	D	E	124	A	B	C	D	E	134	A	B	C	D	E	144	A	B	C	D	E
105	A	B	C	D	E	115	A	B	C	D	E	125	A	B	C	D	E	135	A	B	C								

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