

U.S. Nuclear Regulatory Commission

Site-Specific RO Written Examination

Applicant Information

Name:

Date:

Facility/Unit: MCGUIRE

Region: I II III IV

Reactor Type: W CE BW GE

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 80.00 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 _____ Points

Applicant's Score _____ Points

Applicant's Grade _____ Percent

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 1

(1 point)

Given the following plant conditions:

- Unit 2 is at 20% RTP.
- NC Pump 2A Lower Bearing Temperature is currently 190°F and has been increasing for the last six hours (at a rate of approximately 5°F/hr).

Which ONE (1) of the following is the MINIMUM NCP Lower Bearing Temperature requiring NCP TRIP AND where this indication can be monitored?

- A. 235°F
OAC AND Main Control Board
 - B. 225°F
OAC AND Main Control Board
 - C. 235°F
OAC ONLY
 - D. 225°F
OAC ONLY
-

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2009 RO NRC Retake Examination

Question: 2

(1 point)

Given the following INITIAL conditions on Unit 1:

- Unit is operating at 100% RTP with all control systems in AUTO
- Charging Header Flow - 100 GPM
- Total Seal flow to NCPs - 30 GPM

The following occurs:

- 1NV-241 (U1 Seal Water Inj Flow Control) fails CLOSED
- Operators have performed the immediate actions of AP-12 (Loss of Letdown, Charging Or Seal Injection).

Which ONE (1) of the following completes the statement below?

Assuming NO FURTHER OPERATOR ACTIONS, TOTAL seal injection flow 15 minutes after the failure will be _____.

- A. 0 GPM
 - B. 30 GPM
 - C. 35 GPM
 - D. 50 GPM
-

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2009 RO NRC Retake Examination

Question: 3
(1 point)

Given the following conditions on Unit 1:

- Unit is in Mode 5
- Preparations for refueling are in progress
- The crew is preparing to perform a Nitrogen purge of the VCT

Which ONE (1) of the following completes the statements below?

Nitrogen is aligned to the VCT from (1).
The purpose for performing this evolution is to (2).

- A. (1) Bulk Nitrogen
(2) Remove air and non- condensable gases from the NC System in preparation for taking the plant solid.
- B. (1) Bulk Nitrogen
(2) Remove Dissolved Hydrogen from the NC System to prevent formation of an explosive Hydrogen / Oxygen mixture.
- C. (1) Shutdown Waste Gas Decay Tank B
(2) Remove air and non- condensable gases from the NC System in preparation for taking the plant solid.
- D. (1) Shutdown Waste Gas Decay Tank B
(2) Remove Dissolved Hydrogen from the NC System to prevent formation of an explosive Hydrogen / Oxygen mixture.
-

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2009 RO NRC Retake Examination

Question: 4
(1 point)

Given the following INITIAL conditions on Unit 1:

- LTOP is in service
- $T_{ave} = 175^{\circ}\text{F}$
- Train B ND is in service

The following occurs:

- Annunciator 1AD-6 D12 (PORV NC-32B Actuated) is in alarm
- 1NC-32B (PZR PORV) indicates OPEN
- Loop "C" NARROW Range Pressure is reading 370 PSIG
- Loop "D" WIDE Range Pressure is reading 390 PSIG

Which ONE (1) of the following completes the statement below?

The controlling channel for 1NC-32B is (1), and based on the conditions above, what action (If any) would the operator be required to take? (2).

- A. (1) Loop "C" Narrow Range Pressure
(2) None, the system is responding as designed.
 - B. (1) Loop "D" Wide Range Pressure
(2) None, the system is responding as designed.
 - C. (1) Loop "C" Narrow Range Pressure
(2) Close or isolate 1NC-32B
 - D. (1) Loop "D" Wide Range Pressure
(2) Close or isolate 1NC-32B
-

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Question: 5
(1 point)

Given the following on Unit 2:

- A Reactor Trip and Safety Injection have occurred due to a Small Break LOCA
- The 2A Safety Injection (NI) pump failed to automatically start
- Attempts to manually start the pump have been unsuccessful

To which ONE (1) of the following locations should the NEO be dispatched to check the 2A NI pump feeder breaker?

- A. 2ETA
 - B. 2EMXA
 - C. 2ELXA
 - D. 2TA
-

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Question: 6
(1 point)

Which ONE (1) of the following ESF operated valves will lose power if 1EVDD is de-energized?

- A. 1NI-10B, NC Cold Leg Inj from NV
 - B. 1NV-24B, NC Loop to Excess LD Hx Isol
 - C. 1KC-228B, Trn B Rx Bldg Non Ess Sup Isol
 - D. 1NV-142B, VCT Outlet Isolation
-

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Question: 7
(1 point)

Unit 1 was operating at 100% RTP when it was determined that 1NV-6 (Letdown Line Inside RB Relief) is leaking 9.0 GPM to the PRT. The 1A NCDT pump has failed and was tagged last shift.

- 1) Assuming a starting level in the PRT of 70%, what would be the indicated PRT level after 4 hours?
- 2) To which location is the PRT drained to prevent exceeding the design limit for PRT level per OP/1/A/6150/004 (Pressurizer Relief Tank)?

REFERENCE PROVIDED

- A.
 - 1) 86%
 - 2) Containment Floor and Equipment Sump
 - B.
 - 1) 86%
 - 2) NCDT
 - C.
 - 1) 90%
 - 2) Containment Floor and Equipment Sump
 - D.
 - 1) 90%
 - 2) NCDT
-

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Question: 8
(1 point)

The following conditions exist on Unit 2:

- A normal plant shutdown is in progress
- All NC pumps are in service
- Train A of ND cooling was placed in service 5 minutes ago
- 3 minutes ago the following alarms were received on the OAC:
 - "2A KC HX Outlet Temp Hi Hi"
 - "NC Pump Thermal Barrier KC Outlet Temp Hi" for all NCPs
 - "NC Pump Mtr Upper BRG CLR KC Outlet Temp Hi" for all NCPs

- The following readings exist on all running NCPs:
 - Motor bearing temperatures are 190°F
 - Lower radial bearings are 200°F
 - Seal outlet temperatures are 165°F

Which ONE (1) of the following completes the statement below?

Operator action in response to these conditions will be to (1) because (2).

- A. (1) reduce the KC heat load by reducing ND flow
(2) an NCP bearing temperature limit has been exceeded due to a loss of cooling flow

 - B. (1) reduce the KC heat load by reducing ND flow
(2) KC HX temperatures are approaching design limits

 - C. (1) immediately stop all running NCPs
(2) an NCP bearing temperature limit has been exceeded due to a loss of cooling flow

 - D. (1) immediately stop all running NCPs
(2) KC HX temperatures are approaching design limits
-

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2009 RO NRC Retake Examination

Question: 9
(1 point)

Given the following conditions on Unit 1:

- NC system pressure is 1985 PSIG and slowly decreasing due to a leaking Pressurizer Code Safety Valve (1NC-1)
- PRT pressure is currently 65 PSIG
- Discharge temperature downstream of 1NC-1 is 310°F
- Containment pressure is currently 0.1 PSIG

Which ONE (1) of the following completes the statement below?

If the PRT rupture disc fails prematurely given the conditions above, the rate of NC system depressurization will (1) AND the temperature downstream of 1NC-1 will (2) .

- A. (1) increase
(2) remain the same
 - B. (1) increase
(2) decrease
 - C. (1) increase
(2) increase
 - D. (1) remain the same
(2) decrease
-

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2009 RO NRC Retake Examination

Question: 10

(1 point)

Given the following:

- Reactor power is steady state at 50% RTP
- Power Range Channel N-42 has just failed LOW

Which ONE (1) of the following combinations of remaining OPERABLE channels indicate the status of the trip logic coincidence required for the High Neutron Flux Trip:

- 1) After the failure has occurred, but BEFORE Power Range Channel N-42 is removed from service?
- 2) AFTER all required I&E actions have been completed for removing Power Range Channel N-42 from service?

	<u>BEFORE</u> <u>Channel Removal</u>	<u>AFTER</u> <u>Channel Removal</u>
A.	1/3	1/3
B.	1/3	2/3
C.	2/3	1/3
D.	2/3	2/3

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Question: 11

(1 point)

Given the following:

- An inadvertent Reactor Trip/Safety Injection has occurred due to IAE testing
- Both reactor trip breakers opened as expected

Which of the following describes the effect of pushing the SI reset pushbuttons after the safety injection actuation?

- A. After the SI timer has timed out and the SI reset pushbuttons are depressed, automatic SI reinitiation can occur.
- B. After the SI reset pushbuttons are depressed and the RTBs have been cycled, an automatic SI reinitiation can IMMEDIATELY occur.
- C. After the SI timer has timed out and the SI reset pushbuttons are depressed, only a manual SI can be initiated, automatic SI reinitiation remains blocked.
- D. After the SI reset pushbuttons are depressed and the reactor trip breakers are cycled, only a manual SI can be initiated, automatic SI reinitiation remains blocked.
-

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2009 RO NRC Retake Examination

Question: 12

(1 point)

Given the following on Unit 1:

- Unit is operating at 100% RTP
- Containment Pressure Channel III has been BYPASSED for testing

Which ONE (1) of the following lists the logic for a Containment Spray actuation based on the conditions above?

- A. 1/3
 - B. 2/3
 - C. 1/2
 - D. 2/2
-

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2009 RO NRC Retake Examination

Question: 13

(1 point)

Given the following conditions on Unit 2:

- The unit is operating at 100% RTP
- A small NC System leak occurs inside Containment
- Annunciator 1AD-9 / A8, (CONT .5 PSIG ALERT) is received
- The BOP reports that 1A VL Fan is running in LOW speed

Which ONE (1) of the following fan combinations is required in accordance with the above listed Annunciator Response Procedure?

- A. Place 1B and 1D VL Fans in LOW speed ONLY.
 - B. Place 1A and 1C VL Fans in HIGH speed ONLY.
 - C. Place all four VL Fans in HIGH speed.
 - D. Place the 1B, 1C, and 1D VL Fans in LOW speed.
-

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Question: 14

(1 point)

Which ONE (1) of the following completes the statements below regarding the effect of operating with elevated Ice Condenser temperatures on the process of sublimation and the resulting operational implications should a high energy line break occur inside containment?

- Sublimation rates would (1).
 - Peak containment pressure would be (2).
- A. (1) increase
(2) higher
- B. (1) increase
(2) unaffected
- C. (1) decrease
(2) higher
- D. (1) decrease
(2) unaffected
-

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Question: 15
(1 point)

The following conditions exist on Unit 1:

- LOCA inside containment
- 1ETB has experienced a ground fault
- Auto swap to Cold Leg Recirc. has failed due to 1NI-185A (1A ND Pump Suction From Containment Sump Isol) not opening
- Attempts to manually open 1NI-185A have failed
- Control Room has implemented ECA-1.1 (Loss of Emergency Coolant Recirc)
- Containment pressure is 12 PSIG and slowly going up

Which ONE (1) of the following describes Operator actions associated with NS system operation following the receipt of "FWST Lo Lo Level?"

- A. Open 1NS-18A (A NS Pump suct from Cont Sump) and close 1NS-20A (A NS Pump Suct From FWST), '1A' NS pump remains running.
 - B. Secure '1A' NS pump, close 1ND-19A (1A ND pump suct. from FWST or NC), swap NS suction to Containment Sump, restart NS pump.
 - C. Secure '1A' NS pump, NS cannot be aligned to Containment Sump until 1NI-185A is open.
 - D. Secure '1A' NS pump, close 1NS-20A and open 1NS-18A, restart '1A' NS pump.
-

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Question: 16

(1 point)

Unit 1 is at 100% RTP with the Ops Test Group (OTG) performing PT/1/A/4208/001 A (1A NS Pump Performance Test). The OTG Technician has reached the step in this PT which directs the starting of the 1A NS pump.

Which ONE (1) of the following describes the required positions of 1NS-29A (A NS Pump Disch Cont Outside Isol) and 1NS-32A (A NS Pump Disch Cont Outside Isol) AND the required system alignment for the performance of this PT?

- A. Valves CLOSED
"A" Train NS system flowpath is through the HX and directly back to the pump suction.
 - B. Valves CLOSED
"A" Train NS system flowpath is through the HX to the FWST
 - C. Valves OPEN
"A" Train NS system flowpath is through the HX, through 1NS-29A and 1NS-32A, then directly back to the pump suction
 - D. Valves OPEN
"A" Train NS system flowpath is through the HX, through 1NS-29A and 1NS-32A, then to the FWST
-

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Question: 17

(1 point)

Given the following:

- Unit 1 is at 100% RTP
- Due to a severe packing leak, the Plant SRO decides to close 1SP-1 (MAIN STEAM TO 1A CF PUMP TURB ISOL)

Assuming no additional operator actions are taken, what would be the effect of this action on the 1A FWPT operation?

The 1A FWPT would:

- A. remain in operation supplied by MSR exhaust ONLY.
 - B. remain in operation but the steam supply would swap to Aux Steam ONLY.
 - C. remain in operation but the steam supply would now be a combination of Aux Steam AND MSR exhaust.
 - D. slow down and back out of the header due to the loss of its primary steam supply for full power operation.
-

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 18
(1 point)

Given the following conditions on Unit 1:

- Unit is in Mode 3
- NC pressure is 1940 PSIG
- CA auto start defeat "Defeated" lights are lit.

The following sequence of events occur on Unit 1 while in Mode 3:

1. A CF isolation occurs on S/G Hi-Hi level
2. The S/G Hi-Hi level clears
3. CF isolation is reset
4. T-ave increases and NC pressure increases to 1960 PSIG

Which ONE (1) of the following describes when any CA pump(s) should have automatically started?

- A. When the SG Hi-Hi level cleared ONLY
 - B. When pressure increased above 1955 PSIG ONLY
 - C. Following the CF isolation reset OR when the SG Hi-Hi level cleared
 - D. Following the CF isolation reset OR when pressure increased above 1955 PSIG.
-

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2009 RO NRC Retake Examination

Question: 19
(1 point)

Given the following conditions on Unit 1:

- Unit 1 is operating at 60% RTP
- Channel 41 of Nuclear Instrumentation fails to 120%
- "PR TO S/G PROGRAM LEVEL CHANNEL DEFEAT" switch is in the "Normal" position

Which ONE (1) of the following describes the effect this failure will have on the S/G level control system?

- A. The feedwater regulating valves on A and D SGs ONLY will open to increase the NR levels to 65%.
 - B. The feedwater regulating valves will remain in the same position for all SGs.
 - C. All feedwater regulating valves will open to feed all SG NR levels to 65%.
 - D. The feedwater regulating valves on B and C SGs ONLY will open to increase the NR levels to 65%.
-

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2009 RO NRC Retake Examination

Question: 20

(1 point)

Given the following on Unit 2:

- A reactor trip from 100% RTP has occurred
- The TD CA pump tripped on overspeed upon starting
- Bus 2ETA locked out

Which ONE (1) of the following describes which S/Gs are currently being fed and the associated flow rates?

- A. A and B S/Gs at 450 GPM total flow
 - B. C and D S/Gs at 450 GPM total flow
 - C. A and B S/Gs at 450 GPM to each S/G
 - D. C and D S/Gs at 450 GPM to each S/G
-

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2009 RO NRC Retake Examination

Question: 21
(1 point)

Given the following conditions:

- The loads supplied by Static Inverter 1KU are being supplied by their alternate power source due to an automatic transfer on low inverter output voltage.

Which ONE (1) of the following describes the response of the Auxiliary Control Power system when inverter voltage is restored to normal?

- A. No response, loads must be manually restored to the inverter.
 - B. No response, the alternate power source must be deenergized and the loads will then auto swap back to the inverter.
 - C. Loads will auto swap back to the inverter if the inverter voltage remains stable for 30 seconds.
 - D. Loads will auto swap back to the inverter as soon as inverter overcurrent is detected to be less than 120%.
-

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Question: 22
(1 point)

Which ONE (1) of the following receives power from 250VDC Auxiliary Power System?

- A. D/G Fuel Oil Booster Pump AND FWPT "A" Emergency Oil Pump
 - B. FWPT "A" Emergency Oil Pump(s) AND Reactor Trip Switchgear Control
 - C. Turbine Emergency Bearing Oil Pump AND Turbine Backup Vapor Extractor
 - D. Turbine Emergency Bearing Oil Pump AND D/G Fuel Oil Booster Pump
-

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 23

(1 point)

Which ONE (1) of the following correctly completes the statement below?

The Diesel Generator Starting Air compressors are designed to automatically maintain the Starting Air Header pressure between (1). During an automatic start of the Diesel Generator, the Starting Air solenoid will open to supply the diesel for (2) or until Diesel Generator speed is >40%.

- A. (1) 225 – 235 PSIG
(2) 10 seconds
 - B. (1) 210 – 225 PSIG
(2) 10 seconds
 - C. (1) 225 – 235 PSIG
(2) 20 seconds
 - D. (1) 210 – 225 PSIG
(2) 20 seconds
-

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2009 RO NRC Retake Examination

Question: 24

(1 point)

The following on Unit 1:

- A unisolable leak develops on the 1A Fuel Oil Storage Tank (FOST)
- At 0800 hours 1A FOST level is 41,250 gal
- At 0930 hours 1A FOST level is 40,000 gal

Assuming the leak rate from the FOST remains constant, when is the EARLIEST time that 1A D/G will fail to meet the LCO requirements for TS 3.8.3 (Diesel Fuel Oil and Starting Air)?

REFERENCE PROVIDED

- A. 1006 hours
 - B. 1136 hours
 - C. 1935 hours
 - D. 2105 hours
-

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2009 RO NRC Retake Examination

Question: 25

(1 point)

While performing daily surveillance checks on 1EMF-33 (Condenser Air Ejector Exhaust), you determine that the OPERATE light is OFF. The Control Room Supervisor asks you to perform an operability check of 1EMF-33.

Which ONE (1) of the following is required to be performed for this check per PT/1/A/4600/003 B (Daily Surveillance Items)?

- A. Have RP perform a setpoint check ONLY.
 - B. Have RP perform a source check ONLY.
 - C. Start the associated sample pump for this EMF AND have RP perform a setpoint check.
 - D. Start the associated sample pump for this EMF AND have RP perform a source check.
-

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2009 RO NRC Retake Examination

Question: 26

(1 point)

Given the following conditions:

- Unit 1 @ 100% RTP
- 1B RN Pump is in service with suction aligned to the Low Level Intake
- A spurious Safety Injection Signal occurs (on both trains)

Which ONE (1) of the following describes the alignment of the RN Pumps after the spurious Safety Injection?

- A. RN Pump 1A is running with suction from SNSWP and RN Pump 1B is running with suction from the Low Level Intake.
 - B. RN Pump 1A running with suction from the Low Level Intake and RN Pump 1B is running with suction from the SNSWP.
 - C. RN Pump 1A is running with suction from the RC Crossover and RN Pump 1B is running with suction from the SNSWP.
 - D. RN Pump 1B is running with suction from the RC Crossover and RN Pump 1A is running with suction from the SNSWP.
-

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2009 RO NRC Retake Examination

Question: 27

(1 point)

Due to a leak on the VI system the Unit 1 OATC observes the following indications:

- 1AD-12 C1 (VI/VS Lo Pressure) is LIT
- 0VIP-5090 (VI/VS Press) dropped to a lowest reading of 86 PSIG and is now 89 PSIG and increasing.

Which ONE (1) of the following describes automatic actions which have occurred as a result of the indicated pressure transient?

- A. G and H VI Compressors Auto Started ONLY
- B. 1VI-820 (VI to VS Supply) Auto Closed ONLY
- C. 1VI-820 Auto Closed AND 1VI-1812 (VI Dryer Bypass Vlv) has Auto Opened
- D. G and H VI Compressors Auto Started AND 1VI-820 (VI to VS Supply) Auto Closed
-

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 28

(1 point)

Given the following conditions on Unit 1:

- A Steam Break has occurred inside Containment
- Containment pressure is 3.5 PSIG and decreasing

Which ONE (1) of the following describes the MINIMUM action(s) required to allow restoration of Component Cooling Water to the NC pumps?

- A. Reset Phase A ONLY
 - B. Reset Phase B ONLY
 - C. Reset Phase A AND Phase B ONLY
 - D. Reduce Containment pressure below 3.0 PSIG AND reset Phase A AND Phase B
-

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 29

(1 point)

The following conditions exist on Unit 1:

- Unit 1 is at 100% RTP with a small NC system leak in Containment
- Containment pressure is 0.28 PSIG and slowly increasing
- The BOP places all VL fans in High Speed

Which ONE (1) of the following correctly describes the impact of this action on the following Containment parameters?

- A. Containment Pressure AND Temperature will DECREASE.
- B. Containment Pressure will INCREASE. Containment Temperature will DECREASE.
- C. Containment Pressure will DECREASE ONLY.
- D. Containment Temperature will DECREASE ONLY.
-

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 30

(1 point)

Given the following plant conditions:

- Reactor Startup in progress
- Control Board Annunciator 1AD-2 / D9 (RPI at Bottom Rod Drop) is LIT.

Which ONE (1) One of the following describes the EARLIEST rod configuration at which 1AD-2 / D9 will clear during the startup?

- A. All Shutdown Bank rods >6 steps.
 - B. All Shutdown Bank rods withdrawn AND Control Bank 'A' rods >6 steps.
 - C. All Shutdown Bank rods AND Control Bank 'A' rods fully withdrawn.
 - D. All Shutdown Bank rods withdrawn AND all Control Bank rods >6 steps.
-

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 31
(1 point)

Given the following conditions on Unit 1:

- Unit is operating at 100% RTP
- It is discovered that ONLY three (3) Core Exit Thermocouples (CETs) are OPERABLE in core Quadrant 2

Which ONE (1) of the following describes the status of CETs in Quadrant 2 and the requirements of Tech Spec 3.3.3 (PAM Instrumentation) at the time of discovery based on these conditions?

REFERENCE PROVIDED

- A. Both channels of CETs are INOPERABLE. Immediately restore one channel to OPERABLE.
 - B. Both channels of CETs are INOPERABLE. Restore one channel to OPERABLE within 7 days.
 - C. One channel of CETs is INOPERABLE ONLY. Restore required channel to OPERABLE within 30 days.
 - D. One channel of CETs is INOPERABLE ONLY. Initiate the actions of T.S. 5.6.7 immediately.
-

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 32
(1 point)

Given the following conditions on Unit 2:

- Unit is in Mode 5
- Containment personnel airlocks are currently in service
- VP Train B is being placed in service
- Containment pressure begins to increase at 0.1 PSIG per minute
- An Operator in the plant reports that supply and exhaust flow rates indicate flow is balanced

Which ONE (1) of the following is the probable cause of the Containment pressure increase and how can it be stabilized per OP/1/A/6450/015 (Containment Purge System)?

- A. VP SUPPLY AIR FLOW indication is reading LOWER than actual flow. Supply flow to Containment must be DECREASED.
- B. VP EXHAUST AIR FLOW indication is reading HIGHER than actual flow. Exhaust flow from Containment must be DECREASED.
- C. VP SUPPLY AIR FLOW indication is reading HIGHER than actual flow. Supply flow to Containment must be INCREASED.
- D. VP EXHAUST AIR FLOW indication is reading LOWER than actual flow. Exhaust flow from Containment must be INCREASED.
-

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 33

(1 point)

Given the following conditions:

- Reactor is in MODE 6
- Core reload is in progress
- Source range instrument N31 has read approximately 80 CPS for the past hour
- Electronic noise from a welder inadvertently caused N31 to reach 3000 CPS for 30 seconds

Which ONE (1) of the following describes the correct plant response?

- A. If a VQ release is in progress, it should be secured.
 - B. The Containment Purge Supply and Exhaust dampers close ONLY.
 - C. The Containment Evacuation alarm sounds.
 - D. A Containment Ventilation Isolation actuates.
-

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 34

(1 point)

Which ONE (1) of the following best describes the overspeed protection for the Main Turbine?

- A. Electrical trip at 103% and mechanical trip at 113%.
 - B. Electrical trip at 111% and mechanical trip at 113%.
 - C. Mechanical trip at 110% and electrical trip at 111%.
 - D. Mechanical trip at 110% and electrical trip at 115%.
-

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 35

(1 point)

The following conditions exist on Unit 2:

- 2A S/G has developed a 200 GPD tube leak
- 2EMF-33 (CSAE Discharge) Trip 2 light is illuminated

Which ONE (1) of the following describes the discharge flowpath for the Condenser Steam Jet Air Ejectors (CSAE) AND what occurs as a result 2EMF-33 counts reaching Trip 2?

- A. The CSAEs discharge to the Unit Vent. Annunciator ONLY.
- B. The CSAEs discharge to the Unit Vent. Annunciator AND CSAE discharge flowpath isolates.
- C. The CSAEs discharge to the Turbine Building roof. Annunciator ONLY.
- D. The CSAEs discharge to the Turbine Building roof. Annunciator AND CSAE discharge flowpath isolates.
-

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 36
(1 point)

Units 1 and 2 were operating at 100% RTP with a WMT release in progress. Given the following:

- Annunciator 1RAD1 C5 (EMF 49 Liquid Waste Disch Hi Rad) is in alarm.
- 1WP-37 (Liquid Waste to RC Cntrl) indicates OPEN.
- 1WP-35 (WMT & VUCDT to RC Cntrl) indicates OPEN.
- 1WM-46 (0EMF-49 Outlet Hi Rad Shutoff Isol) indicates CLOSED.

Concerning the 0EMF-49 RP86A Digital Module, which ONE (1) of the following statements correctly describes the status of the associated indicator lights and the required operator actions?

- A. Yellow Light ONLY - LIT
Ensure 1WP-35 and 1WM-46 are closed on 1MC-11.
 - B. Yellow Light AND Red Light - LIT
Ensure 1WP-35 and 1WM-46 are closed on 1MC-11.
 - C. Yellow Light ONLY - LIT
Ensure 1WP-37 and 1WP-35 are closed on 1MC- 11.
 - D. Yellow Light AND Red Light - LIT
Ensure 1WP-37 and 1WP-35 are closed on 1MC- 11.
-

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 37

(1 point)

Given the following:

- Unit 1 is operating at 100% RTP
- Unit 2 is refueling
- Unit 1 is releasing a minimally decayed Waste Gas Decay Tank
- A significant packing leak starts on isolation valve 1WG-160, (WG Decay Tank Outlet to Unit Vent Control)

Which ONE (1) of the following correctly describes the automatic actions which will ensure that the leak is contained and filtered?

- A. 1EMF-35 (Unit Vent Part Hi Rad) automatically stops the Auxiliary Building ventilation unfiltered exhaust fans AND 1EMF-41 (Aux Bldg Vent Hi Rad) automatically aligns the Auxiliary Building ventilation filter trains.
- B. 1EMF-41 (Aux Bldg Vent Hi Rad) automatically stops the Auxiliary Building ventilation unfiltered exhaust fans AND 1EMF-36 (Unit Vent Gas Hi Rad) automatically closes 1WG-160.
- C. 1EMF-36 (Unit Vent Gas Hi Rad) automatically closes 1WG-160 AND 1EMF-35 (Unit Vent Part Hi Rad) automatically aligns the Auxiliary Building ventilation filter trains.
- D. 0EMF-50 (Waste Gas Disch Hi Rad) automatically closes 1WG-160 AND 1EMF-41 (Aux Bldg Vent Hi Rad) automatically stops the Auxiliary Building ventilation unfiltered exhaust fans.
-

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 38

(1 point)

I&E has requested that the 1B Nuclear Service Water Pump breaker be racked out for lubrication.

To which ONE (1) of the following locations should an Operator be dispatched to rack out the breaker?

- A. 1ETB
 - B. 1ELXB
 - C. 1TB
 - D. 1EMXB
-

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 39

(1 point)

Given the following:

- Unit 1 was operating at 100% RTP
- A Reactor Trip occurs due to the loss of Bus 1TA
- NC system temperature is 569°F
- The 1A S/G NR level peaked at 82% and is decreasing

Which ONE (1) of the following describes the CURRENT plant status based on the conditions above?

- A. Main Feed Pump turbines are tripped
Bank 1 Condenser Dump valves are modulated open
 - B. Main Feed Pump turbines are in MANUAL at 2800 RPM
Bank 1 Condenser Dump valves are tripped open
 - C. Main Feed Pump turbines are tripped
Bank 1 Condenser Dump valves are tripped open
 - D. Main Feed Pump turbines are in MANUAL at 2800 RPM
Bank 1 Condenser Dump valves are modulated open
-

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 40

(1 point)

Unit 1 is in Mode 3 at full temperature and pressure. The crew has entered AP/1/A/5500/011 (Pressurizer Pressure Anomalies) due to Pressurizer pressure decreasing very slowly.

- Pressurizer pressure is 2150 PSIG
- PRT pressure is 2 PSIG

Given the above conditions, determine which ONE (1) of the following would indicate a leaking PORV and the state of the fluid in the PORV discharge?

REFERENCE PROVIDED

	<u>PORV Discharge Temperature</u>	<u>State of the Effluent</u>
A.	200-240°F	Wet Vapor
B.	200-240°F	Saturated Vapor
C.	240-280°F	Wet Vapor
D.	240-280°F	Saturated Vapor

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 41

(1 point)

Given the following conditions on Unit 1:

- Seal Injection AND Thermal Barrier Cooling have been lost to all NCPs

Which ONE (1) of the following describes the OPERATIONAL IMPLICATIONS associated with this condition?

- A. NCP operational limits will be exceeded and NCPs will have to be secured unless seal injection is restored within 30 minutes.
- B. NCP operational limits will be exceeded and NCPs will have to be secured unless EITHER seal injection OR thermal barrier cooling is restored.
- C. NCP operational limits will be exceeded and NCPs will have to be secured unless BOTH seal injection AND thermal barrier cooling are restored.
- D. NCP operational limits will be exceeded and NCPs will have to be secured unless thermal barrier cooling is restored within 30 minutes.
-

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 42

(1 point)

Which ONE (1) of the following describes why NC system pressure is checked less than 2335 PSIG immediately after initiating emergency boration in FR-S.1 (Response to Nuclear Generation / ATWS)?

- A. To reduce NC pressure to allow closing of NV pump recirc valves to maximize emergency boration flow.
 - B. To maintain positive control of NC pressure to prevent lifting a code safety relief valve.
 - C. To ensure that the boration flow rate is sufficient for emergency boration.
 - D. To maintain pressure below the PORV setpoint to prevent cycling the PORVs.
-

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 43

(1 point)

Given the following current conditions on Unit 1:

- Unit is operating at 100% RTP
- A malfunction of the Letdown Hx Outlet temperature controller has caused 1KC-132 (Letdown Hx Cooling Water Control) valve to slowly drift closed
- Letdown Heat Exchanger Outlet temperature has increased from 106°F to 115°F

Which ONE (1) of the following correctly completes the statement below?

Based on current conditions, NC system temperature will (1) due to reactivity effects AND if Letdown Hx Outlet temperature continues to increase, 1NV-127A, LD Hx Outlet 3-Way Cntrl will divert to the VCT at (2).

- A. (1) decrease
(2) 120°F
 - B. (1) decrease
(2) 138°F
 - C. (1) increase
(2) 120°F
 - D. (1) increase
(2) 138°F
-

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 44

(1 point)

Given the following events and conditions on Unit 1:

- A Reactor Trip and SI have occurred due to a faulted S/G
- The affected S/G has now been isolated per E-2 (Faulted S/G Isolation)
- The transient resulted in PZR level indicating off scale low for a period of time but is now 70% and stable
- Safety injection has been terminated and normal letdown and charging have been restored.
- The Pressurizer Pressure Master has been placed in MANUAL with a 50% output and all backup heaters have just been energized.
- NC system pressure is 2000 PSIG and increasing.

Which ONE (1) of the following describes the resulting behavior of PZR pressure AND the automatic action that will occur to protect the NC system if an overpressure condition develops?

- A. PZR pressure will recover slowly because the water in the PZR is subcooled: Pressurizer PORVs 1NC-32 & 36 will open at 2335 PSIG.
 - B. PZR pressure will recover slowly because the water in the PZR is subcooled: Pressurizer PORV 1NC-34 will open at 2335 PSIG.
 - C. PZR pressure will recover rapidly because of the elevated level and smaller steam space volume: Pressurizer PORVs 1NC-32 & 36 will open at 2335 PSIG.
 - D. PZR pressure will recover rapidly because of the elevated level and smaller steam space volume: Pressurizer PORV 1NC-34 will open at 2335 PSIG.
-

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 45
(1 point)

Which ONE (1) of the following lists the indications which are checked in E-0, (Reactor Trip or Safety Injection) prior to implementing monitoring of Critical Safety Function Status Trees to determine if entry into FR-S.1, Response to Nuclear Generation / ATWS is required?

1. I/R Amps – GOING DOWN
2. All Rod Bottom Lights – LIT
3. Reactor Trip and Bypass Breakers – OPEN
4. I/R SUR – ZERO OR NEGATIVE
5. All Power Channels – LESS THAN 5%

- A. 2, 3, and 5 ONLY
- B. 3, 4, and 5 ONLY
- C. 1, 2, and 3 ONLY
- D. 2, 3, and 4 ONLY
-

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 46
(1 point)

Unit 1 is operating at 100% RTP. Given the following conditions:

- 1EMF-33 (Condenser Air Ejector Exhaust) alarms in Trip 2

Given the conditions above, which ONE (1) of the following should be used to confirm that a primary-to-secondary leak exists per NSD-513 (Primary-to-Secondary Leak Monitoring Program)?

- A. S/G feed flow to steam flow mismatch
 - B. 1EMF-24, 25, 26 and 27 (STEAMLINE HI RAD- Doghouse)
 - C. 1EMF-34 (S/G SAMPLE)
 - D. 1EMF-71, 72, 73, and 74 (STEAMLINE N-16 LEAKAGE)
-

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 47

(1 point)

Unit 1 is responding to a Steam Break inside Containment from 100% RTP.

Given the following events and conditions:

- Narrow Range S/G level is 15% for each intact S/G
- The NCPs were TRIPPED
- FR-P.1 (Response to Imminent Pressurized Thermal Shock Condition) has been implemented
- NCS temperature is now STABLE
- NCS pressure is STABLE
- Letdown has been RESTORED

The crew has determined that a 1 hour soak is required. Which ONE (1) of the following evolutions could be performed by the crew in the next hour while continuing on through the EP procedures?

- A. Start 1D NCP
 - B. Energize Pressurizer Heaters
 - C. Place Auxiliary Spray in service
 - D. Increase CA flow to one intact S/G to raise NR level to 50%
-

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 48

(1 point)

Given the following conditions on Unit 1:

- The unit is operating at 100% RTP
- The steam pressure input for S/G 'B' controlling channel fails LOW

The S/G 'B' trend recorder will indicate which ONE (1) of the following?

- A. - Steam Flow increased
 - Feed Flow decreased
 - S/G Narrow Range level decreasing
- B. - Steam Flow increased
 - Feed Flow increased
 - S/G Narrow Range level increasing
- C. - Steam Flow decreased
 - Feed Flow increased
 - S/G Narrow Range level increasing
- D. - Steam Flow decreased
 - Feed Flow decreased
 - S/G Narrow Range level decreasing
-

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 49

(1 point)

Given the following conditions:

- A loss of All AC power has occurred on Unit 1
- Crew has implemented ECA-0.0 (Loss of All AC Power)
- The Unit 1 Standby Make Up pump has failed
- Incore Cooling Monitor indicates subcooling is - 5°F

Which ONE (1) of the following describes the reason for depressurizing the S/G's to 290 PSIG?

- A. Initiate Cold Leg Accumulator injection to restore subcooling.
 - B. Initiate Cold Leg Accumulator injection to maintain the core subcritical.
 - C. Reduce NC system temperature and pressure to establish Natural Circulation conditions.
 - D. Reduce NC system temperature and pressure to reduce NC pump seal leakage and minimize NC system inventory loss.
-

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 50
(1 point)

A Loss of Off-Site Power (LOOP) has occurred.

D/G '1B' is supplying bus 1ETB, loaded as follows:

- Voltage - 4120 volts.
- Frequency - 59.4 Hz.
- Load - 1800 KW.

Which one of the following describes the response of D/G '1B' when the Governor Control RAISE pushbutton is depressed?

- A. Frequency increases; load and voltage remain the same.
 - B. Frequency and voltage remain the same; load increases.
 - C. Frequency increases; load remains the same; voltage increases.
 - D. Frequency remains the same; load and voltage increase.
-

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 51

(1 point)

Reactor power is at 45% RTP with all systems in automatic when you notice the following:

- 120 VAC ESS PWR CHANNEL A TROUBLE alarm
- CH 1 Impulse pressure indicates 0 PSIG
- All 4 S/G CH 1 Feed Flow, Stm Flow and Levels indicate 0 %
- CH 1 PZR pressure indicates 1700 PSIG

Which ONE (1) of the following lists the IMMEDIATE ACTIONS which must be taken based on these indications?

- A. Manually trip the reactor.
 - B. Place Control Rods and Feedwater Reg valves in Manual and restore Tave to Tref.
 - C. Place Control Rods and Feedwater Reg valves in Manual, and manually restore S/Gs to programmed level.
 - D. Place Pressurizer Pressure Master in Manual, adjust to 50%, and then place "PZR PRESS CNTRL SELECT" switch to backup channel.
-

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 52
(1 point)

Given the following:

- A loss of ALL AC power has occurred on Unit 1
- Crew has implemented ECA 0.0 (Loss of All AC Power)
- The crew is performing Enc 7 (DC Bus Alignment) of AP-07 (Loss of Electrical Power)

Which ONE (1) of the following completes the statements below?

Power must be restored to the battery chargers within (1).

The MAXIMUM DESIGN loads that the 125v DC Vital Batteries are designed to carry under emergency conditions with NO Essential AC available to the Vital Chargers is (2).

- A. (1) ONE hour
(2) One (1) 125v DC Distribution Center, Two(2) 125v DC Panel Boards, Two (2) 120v AC Static Inverters
- B. (1) ONE hour
(2) Two(2) 125v DC Distribution Centers, Four (4) 125v DC Panel Boards, Four (4) 120v AC Static Inverters
- C. (1) 30 minutes
(2) Two(2) 125v DC Distribution Centers, Four(4) 125v DC Panel Boards, Four(4) 120v AC Static Inverters
- D. (1) 30 minutes
(2) One (1) 125v DC Distribution Center, Two(2) 125v DC Panel Boards, Two (2) 120v AC Static Inverters
-

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 53

(1 point)

Given the following:

- Due to air entrainment, both Unit 1 RN pumps were tripped
- The Unit 1 Reactor was tripped along with all NC pumps
- As a result of this transient, a leak developed associated with the 1A NC pump thermal barrier
- 1EMF-46A (Unit 1 Component Cooling A) is in Trip 2
- KC Surge tank levels are increasing

Which ONE (1) of the following best completes the statements below?

1KC-364B (A NC PUMP THERM BAR OTLT) will Auto Close at (1).

1KC-122 (U-1 KC Surge Tank Vent Valve) (2).

- A. (1) 60 GPM
(2) must be re-opened from the Local Control Station
 - B. (1) 60 GPM
(2) will re-open when the EMF signal clears
 - C. (1) 70 GPM
(2) must be re-opened from the Local Control Station
 - D. (1) 70 GPM
(2) will re-open when the EMF signal clears
-

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 54

(1 point)

Unit 1 was operating at 100%. Given the following events and conditions:

- 0210 – reactor tripped due to a LOCA
- 0300 – crew enters ECA-1.2, (LOCA Outside Containment)
- 0340 – crew enters ECA-1.1, (Loss of Emergency Coolant Recirc)
- 0350 – The crew is at step 21.b of ECA-1.1
- Current conditions:
 - 1B NC pump running, all other NC pumps secured
 - 1A NI pump is running, indicating 310 GPM
 - Both NV pumps are running, indicating 300 GPM
 - Both ND pumps off
 - Subcooling is 35°F

Which ONE (1) of the following describes the MINIMUM SI flow required and the required actions (if any)?

REFERENCE PROVIDED

- A. Minimum flow required is 305 GPM, stop both NV pumps.
 - B. Minimum flow required is 315 GPM, stop one NV pump.
 - C. Minimum flow required is 305 GPM, stop the running NI pump.
 - D. Minimum flow required is 315 GPM, no pumps can be stopped at this time.
-

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 55

(1 point)

Unit 2 was operating at 100% power. Given the following:

- A S/G has faulted inside Containment
- Containment pressure peaked at 3.1 PSIG and is now 2.7 PSIG and slowly decreasing
- The crew has implemented FR-H.1 (Response to Loss of Secondary Heat Sink)
- All CA flow has been lost

Which ONE (1) of the following completes the statements below?

- 1) The NEXT source of feed water that FR-H.1 will prioritize for restoration of flow to the S/Gs is through the CM/CF system using (1) ?
- 2) Based on S/G conditions, the crew would be required to establish bleed and feed when W/R level in at least 3 S/Gs is less than (2) ?

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

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 56

(1 point)

Given the following conditions on Unit 1:

- Unit 1 FWST level is 175 inches following indications of a Large-Break LOCA
- The crew is performing actions in ES-1.3 (Transfer to Cold Leg Recirc)
- 1NI-184B (1B ND Pump Suction From Cont Sump Isol) has failed in the CLOSED position
- Containment sump level is 3.0 feet

Which ONE (1) of the following symptoms and/or indications would require the crew to transition to ECA-1.1 (Loss of Emergency Coolant)?

- A. 1A ND Pump is lost.
 - B. 1A and 1B NI pumps are lost.
 - C. C/R receives report that the Unit 1 FWST is ruptured.
 - D. FWST Lo Lo Level is reached with Containment sump indicating a level of 3.5 ft.
-

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 57

(1 point)

Given the following:

- Unit 1 is operating at 100% RTP with Rod Control in AUTO
- A rod in Control Bank C drops into the core
- Tave dropped to 584°F and was restored to 585°F by the OATC with the Rod Control system in MANUAL
- NC system pressure has stabilized at 2235 PSIG
- NC system boron concentration has not changed

Which ONE (1) of the following completes the statement below?

Based on the steady-state conditions above, shutdown margin (1) and rod insertion limits (2).

- A. 1) increases
2) decrease
 - B. 1) remains the same
2) decrease
 - C. 1) remains the same
2) remain the same
 - D. 1) increases
2) remain the same
-

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 58

(1 point)

Given the following conditions on Unit 1:

- Control Rod M-4 (Control Bank D, Group 2) indicates 186 steps on DRPI
- Bank D Group Step Counters indicate 195 steps on both banks
- I&E has determined that Control Rod M-4 is immovable due to a failure of its Lift Coil Disconnect switch
- There has been no indication that the rod is mechanically bound.
- It will take approximately 3 hours to replace the failed disconnect switch

Which ONE (1) of the following describes the OPERABILITY of Control Rod M-4 as described by Technical Specification 3.1.4 (Rod Group Alignment Limits)?

- A. The control rod does not meet alignment limits but remains OPERABLE because it can be tripped.
 - B. The control rod can be tripped but is INOPERABLE because it is not within alignment limits.
 - C. The control rod is OPERABLE because it can be tripped and it is within alignment limits.
 - D. The control rod is within alignment limits but is INOPERABLE because it can not be moved.
-

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 59

(1 point)

Given the following conditions on Unit 1:

- An Operator in the plant reports that the FWST Heater Overtemperature light on the FWST Heater Control panel is LIT

Which ONE (1) of the following describes the operational implications of the FWST Heater overtemperature condition?

- A. All FWST heater groups are tripped. The FWST will remain OPERABLE until FWST temperature decreases to less than 70°F.
- B. Only the FWST heater group with the overtemperature condition has tripped. The FWST will remain OPERABLE until FWST temperature decreases to less than 70°F.
- C. All FWST heater groups are tripped. The FWST will remain OPERABLE until FWST temperature decreases to less than 80°F.
- D. Only the FWST heater group with the overtemperature condition has tripped. The FWST will remain OPERABLE until FWST temperature decreases to less than 80°F.
-

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 60

(1 point)

Given the following conditions on Unit 1:

- Unit is in Mode 6
- The reactor is being defueled
- The following alarm has JUST been received in the Main Control Room:
 - “1EMF-16 (CONTAINMENT REFUELING BRIDGE)” annunciator

Which ONE (1) of the following alarms could be used to confirm that the 1EMF-16 alarm is valid?

- A. 1EMF-17 (SPENT FUEL BLDG REFUEL BRIDGE) annunciator OR SPENT FUEL POOL LEVEL LOW computer alarm.
 - B. INCORE INST ROOM SUMP HI LEVEL alarm OR HIGH FLUX AT SHUTDOWN alarm.
 - C. 1EMF-17 (SPENT FUEL BLDG REFUEL BRIDGE) annunciator OR 1EMF-51 (REACTOR BUILDING ACTIVITY) alarm.
 - D. 1EMF-51A (REACTOR BUILDING ACTIVITY) alarm OR SPENT FUEL POOL LEVEL LOW computer alarm.
-

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 61

(1 point)

Unit 2 was operating at 100% power when an electrical fire started inside the auxiliary building cable spreading room. AP/0/A/5500/45 (Plant Fire) has been implemented.

Which ONE (1) of the following describes how the fire suppression system is actuated AND the hazards to personnel if they enter this room?

- A. An NLO is dispatched to open a manual deluge valve. An electrical shock hazard exists.
 - B. Automatic sprinkler system actuation. An electrical shock hazard exists.
 - C. Automatic Halon system actuation. An asphyxiation hazard exists.
 - D. An NLO is dispatched to actuate a manual Cardox system. An asphyxiation hazard exists.
-

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 62

(1 point)

Which ONE (1) of the following describes the expected method of Pressurizer level control, in accordance with AP-24 (Loss of Plant Control Due to Fire or Sabotage)?

- A. Maintain level at 25% by cycling the Standby Makeup pump and by letdown flow through the Reactor Vessel Head vents (NV-272 and NV-273).
 - B. Maintain level between 60-80% with either Normal or Excess Letdown flow and manual adjustment of Charging Line Flow Control valve (NV-238) and NCP Seal Injection flow (NV-241).
 - C. Maintain level between 60-80% through adjustment of the Reactor Vessel Head vents (NV-272 and NV-273) with charging supplied by the Standby Makeup pump through the NCP seals.
 - D. Maintain level at 25% utilizing letdown flow through Normal or Excess Letdown and manual adjustment of Charging Line Flow Control valve (NV-238).
-

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 63

(1 point)

Which ONE (1) of the following describes the basis for establishing conditions so that only one NC pump is running during the performance of ES-1.2 (Post LOCA Cooldown and Depressurization)?

1. Minimize house electrical loads
2. Provide normal Pressurizer Spray
3. Eliminate stratification in the S/Gs
4. Provide mixing of NC system water
5. Minimize NC system heat input

- A. 2, 3, 5
- B. 1, 2, 4
- C. 2, 4, 5
- D. 1, 2, 3
-

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 64

(1 point)

Unit 1 has entered AP-09 (Natural Circulation). The following conditions are observed:

1. NC system subcooling $> 0^{\circ}\text{F}$
2. NC system hot leg temperatures at saturation temperature for S/G pressure
3. NC system cold leg temperatures going up slowly
4. NC system hot leg temperatures going down
5. S/G pressure stable
6. NC system cold leg temperatures at saturation temperature for S/G pressure
7. NC system pressure stable
8. Core Exit T/C's stable

Which ONE (1) of the following sets of conditions confirm that Natural Circulation exists and is effective in cooling the core?

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

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 65

(1 point)

Given the following conditions on Unit 1:

- An inadvertent Main Steam Isolation resulted in a Reactor Trip.
- FR-H.4 (Response to Loss of Normal Steam Release Capability) has been implemented due to a Yellow Path on Heat Sink
- The Main Steam Safety valves (MSSVs) have reduced S/G pressures to 1200 PSIG

- 1) What indications on MC-2 are required to be present to allow for S/G PORV operation?
- 2) Based on current conditions, how many MSSVs per S/G should be open?

- A. 1) S/G PORV RESET lights – LIT ONLY
 2) 2
- B. 1) Main Steam Isolation RESET light – LIT, S/G PORV RESET lights – LIT
 2) 2
- C. 1) S/G PORV RESET lights – LIT ONLY
 2) 3
- D. 1) Main Steam Isolation RESET light – LIT, S/G PORV RESET lights – LIT
 2) 3
-

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 66

(1 point)

Which ONE (1) of the following correctly describes the function of the Pressurizer Pressure Control Selector Switch?

- A. In the "1-3" Position, CHANNEL 1 inputs the master pressure controller and CHANNEL 3 actuates PORV 32B & 34A.
 - B. In the "3-2" Position, CHANNEL 2 inputs the master pressure controller and CHANNEL 3 actuates PORV 32B & 36B.
 - C. In the "1-2" Position, CHANNEL 1 inputs the master pressure controller and CHANNEL 2 actuates PORV 32B & 34A.
 - D. In the "1-4" Position, CHANNEL 1 inputs the master pressure controller and CHANNEL 4 actuates PORV 32B & 36B.
-

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 67

(1 point)

The SSF Diesel Generator is operating in the EMERGENCY Mode AND the Break Glass Station Overspeed Shutdown Bypass Switch is in the "Bypass" position.

Which ONE (1) of the following lists ALL SSF Diesel Generator trips in addition to the Overspeed trip that are bypassed?

- A. Generator Differential ONLY.
 - B. Low Lube Oil Pressure ONLY.
 - C. Generator Differential and Low Lube Oil Pressure Trips ONLY.
 - D. Generator Differential, Low Lube Oil Pressure, and High Jacket Water Temperature Trips.
-

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 68

(1 point)

Given the following conditions on Unit 2:

- An NC system cooldown and depressurization is in progress in preparation for refueling.
- Annunciator 2AD-6 / A12 (PORV LO PRESS MODE NOT SELECTED) alarms

Which ONE (1) of the following sets of conditions could have caused this alarm?

- A. - NC system **temperature** less than 320°F
- 2NC34A OR 2NC32B PORV OVERPRESS PROTECTION SELECT switches in "NORM"
- B. - NC system **pressure** less than 380 PSIG
- 2NC34A OR 2NC32B PORV OVERPRESS PROTECTION SELECT switches in "NORM"
- C. - NC system **temperature** less than 320°F
- 2NC34A OR 2NC36B PORV OVERPRESS PROTECTION SELECT switches in "NORM"
- D. - NC system **pressure** less than 380 PSIG
- 2NC34A OR 2NC36B PORV OVERPRESS PROTECTION SELECT switches in "NORM"
-

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 69

(1 point)

Given the following plant conditions:

- Unit 1 is in MODE 3
- The OATC has just denied a request from maintenance to close 1ND-15B (Train B ND TO HOT LEG ISOL) for valve stroke time testing.

Which ONE (1) of the following describes the reason for the OATC's decision?

- A. Both trains of ND will become INOPERABLE.
 - B. 1ND-15B would cause one ND train to become INOPERABLE.
 - C. 1ND-15B is interlocked with 1ND-58A (TRAIN A ND TO NV & NI).
 - D. 1ND-15B is interlocked with 1NI-136B (B NI PUMP SUCTION FROM ND).
-

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 70

(1 point)

Given the following conditions on Unit 1:

- NC system temperature is 85°F
- Reactor Vessel head assembly is complete in preparation for Startup
- One Reactor Vessel head bolt was discovered not fully tensioned and has subsequently been re-tensioned

Which ONE (1) of the following describes the current plant MODE and the Reactivity Condition requirements which apply per Technical Specification Definitions?

- A. MODE 5, K_{eff} must be less than 0.95
 - B. MODE 5, K_{eff} must be less than 0.99
 - C. MODE 6, K_{eff} must be less than 0.95
 - D. MODE 6, K_{eff} must be less than 0.99
-

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 71

(1 point)

Given the following:

- A rapid load reduction from 100% power to 60% power was performed on Unit 1 approximately 3 hours ago.
- 1RAD-2 / C3 (1EMF 48 REACTOR COOLANT HI RAD) annunciator is LIT
- Chemistry confirms that reactor coolant I-131 activity indicates that fuel damage has occurred.

In accordance with AP-18 (High Activity in Reactor Coolant), which ONE (1) of the following methods would be used to reduce the activity levels in the NC system?

- A. Ensure an NC filter is in service.
 - B. Raise letdown flow to 120 GPM.
 - C. Divert letdown flow to the Recycle Holdup Tank.
 - D. Place the Cation demineralizer in service.
-

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 72

(1 point)

After realigning the NV system for startup, a valve located in a high radiation area requires independent verification.

Given the following conditions:

- General area radiation levels are 130 MREM / hr
- Estimated time to independently verify the position is 10 minutes
- There are no known hot spots in the area
- There is no airborne activity in this room
- The room has no surface contamination areas

What are the ALARA requirements related to waiving the independent verification of this valve per NSD 700 (Verification Techniques)?

- A. Independent verification may be waived for all valves in high radiation areas until after shutdown.
 - B. Independent verification may NOT be waived until General Area radiation levels are reduced to less than 100 MREM / hr.
 - C. Independent verification may be waived because the exposure to the operator exceeds ALARA guidelines.
 - D. Independent verification may NOT be waived because exposure to the operator will be within ALARA guidelines.
-

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 73

(1 point)

A radiation worker is repairing a valve in a contaminated area, which has the following radiological characteristics:

- The worker's present exposure is 1938 MREM for the year
- The RWP states:
 - General area dose rate = 30 MREM/hr
 - Airborne contamination concentration = 10.0 DAC

The job will take 2 hours if the worker wears a full-face respirator. It will only take 1 hour if the worker does not wear the respirator.

If the RP Manager grants all applicable dose extensions, which ONE (1) of the following choices for completing this job would maintain the worker's exposure within the station administrative requirements?

- A. The worker should not wear the respirator.
The dose received wearing a respirator will exceed site annual personnel dose limits.
 - B. The worker should not wear the respirator.
The calculated TEDE dose received will be less than if he does wear one.
 - C. The worker must wear the respirator.
The calculated TEDE dose received will be less than if he does not wear one.
 - D. The worker must wear the respirator.
He will exceed DAC limits.
-

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 74

(1 point)

With the following conditions on Unit 1:

- A Loss of Offsite Power (LOOP) has resulted in a Reactor Trip and Safety Injection
- All Rod Bottom Lights are LIT
- Train 'A' Reactor Trip breaker is CLOSED
- Both Unit 1 D/G's FAILED to start
- Pressurizer level 25%
- Subcooling is 5°F
- NC system pressure is 1865 PSIG and stable
- Total CA flow is 500 GPM

Which ONE (1) of the following correctly states which procedure will have the highest PRIORITY for the above conditions?

- A. AP-007 (Loss of Electrical Power)
 - B. FR-S.1 (Response to Nuclear Power Generation/ATWS)
 - C. ES-1.1 (SI Termination)
 - D. ECA-0.0 (Loss of All AC Power)
-

MCGUIRE NUCLEAR STATION

2009 RO NRC Retake Examination

Question: 75

(1 point)

A Reactor Trip and Safety Injection have occurred on Unit 1 due to a Loss of Coolant Accident (LOCA). The following conditions exist:

- Containment pressure is 10 PSIG
- All NC pumps have been secured
- NC system subcooling is -50°F
- CETs indicate 750°F
- Reactor Vessel Lower Range Level is currently 32%

Which ONE (1) of the following correctly completes the statement below?

The Critical Safety Function status for Containment is ____ (1) ____ and the status of Core Cooling is ____ (2) ____.

- A. (1) ORANGE
(2) ORANGE
 - B. (1) RED
(2) ORANGE
 - C. (1) ORANGE
(2) RED
 - D. (1) RED
(2) RED
-

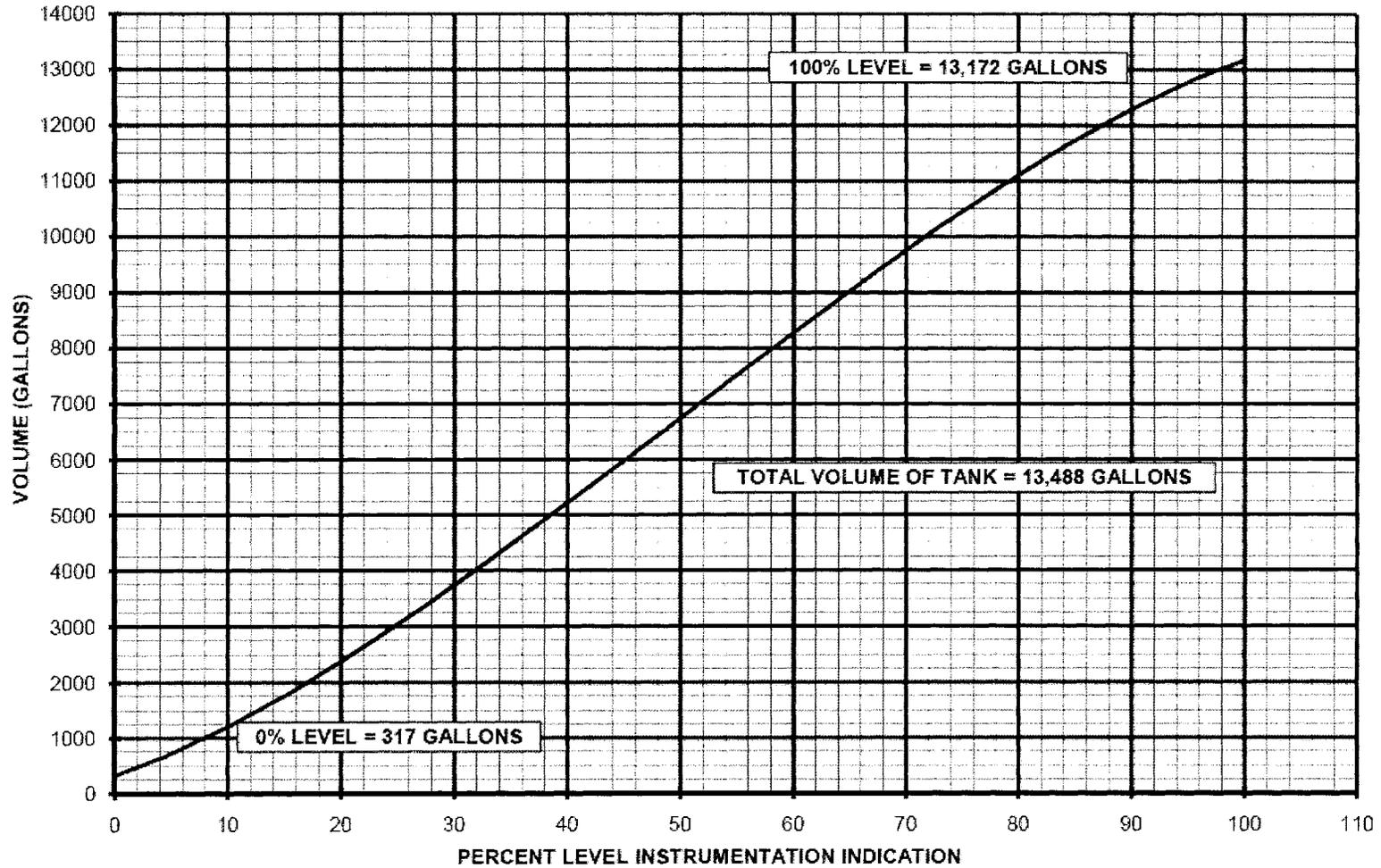
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Reference List for: 2009 RO NRC Retake Examination

<i>Question Number</i>	<i>Reference List</i>
7	U-1 Data Book Curve 7.2 (Q7)
24	Tech Spec 3.8.3 (Q24)
31	Copy of TS 3.3.3 (Q31)
40	Steam Tables (Q40)
54	EP/1/A/5000/ECA-1.1 (Step.21) EP/1/A/5000/ECA-1.1 (Enclosure 9) (Q54)

UNIT 1

OP/1/A/6100/22
ENCLOSURE 4.3
CURVE 7.2
PRESSURIZER RELIEF TANK
(VOLUME vs. LEVEL)



This data is also available on the OAC.

UNIT 1

3.8 ELECTRICAL POWER SYSTEMS

3.8.3 Diesel Fuel Oil and Starting Air

LCO 3.8.3 The stored diesel fuel oil and starting air subsystem shall be within limits for each required diesel generator (DG).

APPLICABILITY: When associated DG is required to be OPERABLE.

ACTIONS

-----NOTE-----
Separate Condition entry is allowed for each DG.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more DGs with fuel oil inventory < 39,500 gal and > 31,600 gal.	A.1 Restore fuel oil level to within limits.	48 hours
B. One or more DGs with stored fuel oil total particulates not within limit.	B.1 Restore fuel oil total particulates within limit.	7 days
C. One or more DGs with new fuel oil properties not within limits.	C.1 Restore stored fuel oil properties to within limits.	30 days

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.3.1	Verify the fuel oil storage system contains $\geq 39,500$ gal of fuel for each DG.	31 days
SR 3.8.3.2	Verify fuel oil properties of new and stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.	In accordance with the Diesel Fuel Oil Testing Program
SR 3.8.3.3	Verify each DG air start receiver pressure is ≥ 210 psig.	31 days
SR 3.8.3.4	Check for and remove accumulated water from the fuel oil storage tank.	31 days

3.3 INSTRUMENTATION

3.3.3 Post Accident Monitoring (PAM) Instrumentation

LCO 3.3.3 The PAM instrumentation for each Function in Table 3.3.3-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

-----NOTE-----
Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one or more required channels inoperable.	A.1 Enter the Condition referenced in Table 3.3.3-1 for the channel.	Immediately
B. One or more Functions with one required channel inoperable.	B.1 Restore required channel to OPERABLE status.	30 days
C. Required Action and associated Completion Time of Condition B not met.	C.1 Initiate action in accordance with Specification 5.6.7	Immediately
D. One or more Functions with one required channel inoperable.	D.1 Restore required channel to OPERABLE status.	7 days

(continued)

ACTIONS (continued)

CONDITION		REQUIRED ACTION	COMPLETION TIME
E.	One or more Functions with two required channels inoperable.	E.1 Restore one channel to OPERABLE status.	7 days
F.	Not Used	F.1 Not Used	Not Used
G.	Required Action and associated Completion Time of Condition D or E not met.	G.1 Be in MODE 3. <u>AND</u> G.2 Be in MODE 4.	6 hours 12 hours
H.	Required Action and associated Completion of Condition D not met.	H.1 Initiate action in accordance with Specification 5.6.7.	Immediately

SURVEILLANCE REQUIREMENTS

-----NOTE-----
SR 3.3.3.1 and SR 3.3.3.3 apply to each PAM instrumentation Function in Table 3.3.3-1.

SURVEILLANCE		FREQUENCY
SR 3.3.3.1	Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	31 days
SR 3.3.3.2	Not Used	Not Used
SR 3.3.3.3	-----NOTE----- Neutron detectors are excluded from CHANNEL CALIBRATION. ----- Perform CHANNEL CALIBRATION.	18 months

Table 3.3.3-1 (page 1 of 1)
Post Accident Monitoring Instrumentation

	FUNCTION	REQUIRED CHANNELS	CONDITIONS
1.	Neutron Flux (Wide Range)	2	B,C,E,G
2.	Reactor Coolant System (RCS) Hot Leg Temperature	2	B,C,E,G
3.	RCS Cold Leg Temperature	2	B,C,E,G
4.	RCS Pressure (Wide Range)	2	B,C,E,G
5.	Reactor Vessel Water Level (Dynamic Head Range)	2	B,C,E,G
6.	Reactor Vessel Water Level (Lower Range)	2	B,C,E,G
7.	Containment Sump Water Level (Wide Range)	2	B,C,E,G
8.	Containment Pressure (Wide Range)	2	B,C,E,G
9.	Containment Atmosphere Radiation (High Range)	1	D,H
10.	Not Used	Not Used	Not Used
11.	Pressurizer Level	2	B,C,E,G
12.	Steam Generator Water Level (Narrow Range)	2 per steam generator	B,C,E,G
13.	Core Exit Temperature - Quadrant 1	2(a)	B,C,E,G
14.	Core Exit Temperature - Quadrant 2	2(a)	B,C,E,G
15.	Core Exit Temperature - Quadrant 3	2(a)	B,C,E,G
16.	Core Exit Temperature - Quadrant 4	2(a)	B,C,E,G
17.	Auxiliary Feedwater Flow	2 per steam generator	B,C,E,G
18.	RCS Subcooling Margin Monitor	2	B,C,E,G
19.	Steam Line Pressure	2 per steam generator	B,C,E,G
20.	Refueling Water Storage Tank Level	2	B,C,E,G
21.	DG Heat Exchanger NSWS Flow ^(b)	1 per DG	D,G
22.	Containment Spray Heat Exchanger NSWS Flow ^(b)	1 per train	D,G

(a) A channel consists of two core exit thermocouples (CETs).

(b) Not applicable if the associated outlet valve is set to its flow balance position with power removed or if the associated outlet valve's flow balance position is fully open.

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

21. **Check if S/I can be terminated:**

a. Check RVLIS indication:

___ a. **GO TO** Step 27.

- ___ • **IF** all NC pumps off, **THEN** check "REACTOR VESSEL LR LEVEL" - GREATER THAN 60%.

OR

- ___ • **IF** at least one NC pump on, **THEN** check "REACTOR VESSEL D/P" - GREATER THAN REQUIRED DELTA P FROM Enclosure 7 (Minimum Dynamic RVLIS Indication).

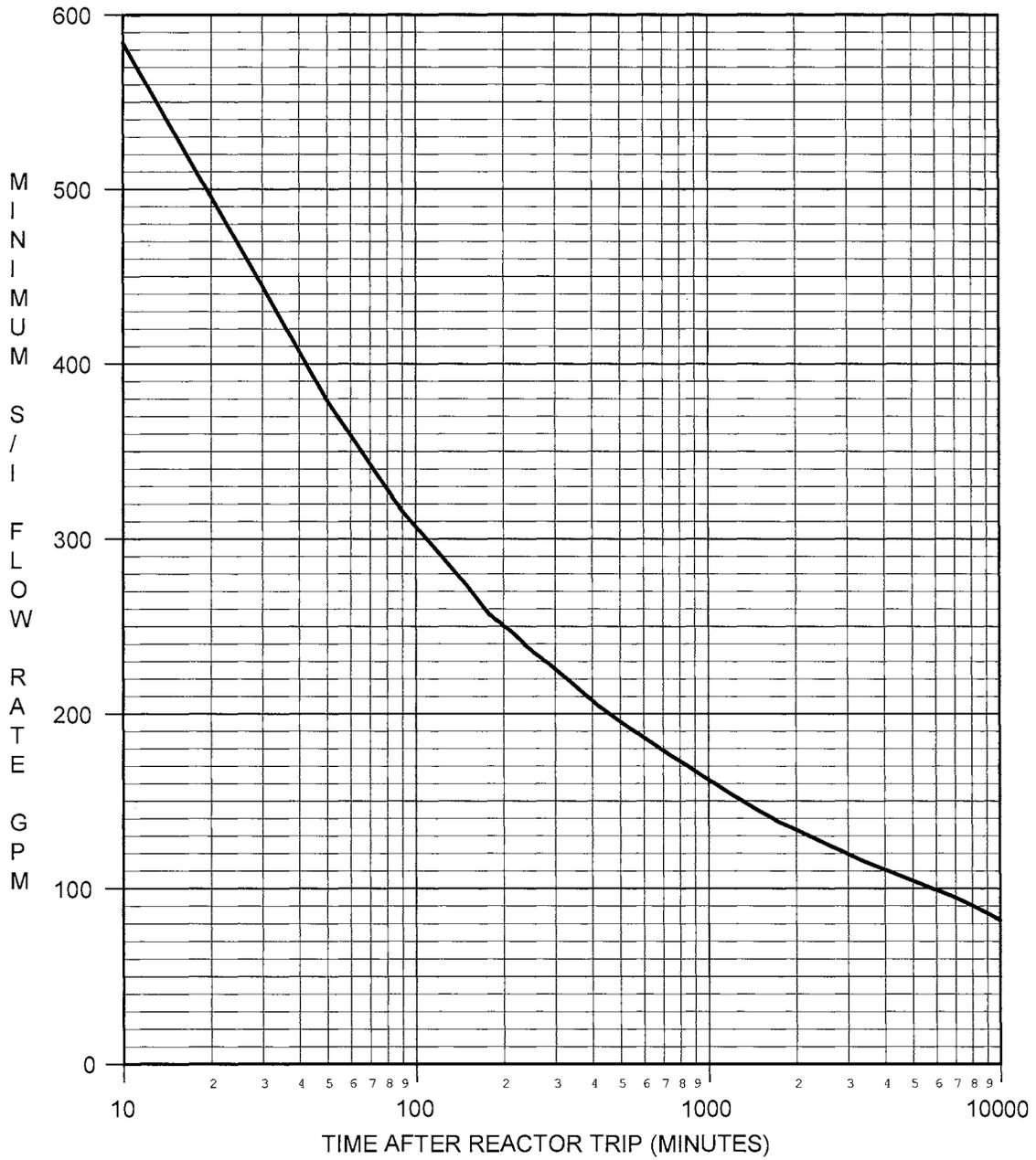
___ b. NC subcooling based on core exit T/Cs - GREATER THAN 50°F.

b. Perform the following:

- ___ 1) Determine minimum S/I flow required **PER** Enclosure 9 (Flow Required to Match Decay Heat).
- ___ 2) Minimize S/I flow by stopping one or more S/I pumps while maintaining greater than or equal to flow required by Enclosure 9 (Flow Required to Match Decay Heat).
- ___ 3) **GO TO** Step 27.

22. **Reset the following:**

- ___ • Phase A Isolation
- ___ • Phase B Isolation.



Examination KEY for: 2009 RO NRC

*Question
Number* *Answer*

1	B
2	C
3	D
4	C
5	A
6	B
7	B
8	B
9	B
10	C
11	C
12	B B
13	C
14	A
15	C
16	B
17	A
18	B
19	A
20	B
21	C
22	C
23	C
24	A
25	B

9

Examination KEY for: 2009 RO NRC

<i>Question Number</i>	<i>Answer</i>
----------------------------	---------------

26	B
27	D
28	B
29	A
30	B
31	C
32	A
33	C
34	C
35	A
36	B
37	A
38	A
39	D
40	A
41	B
42	C
43	B
44	A
45	C
46	D
47	C
48	D
49	D
50	A

Examination KEY for: 2009 RO NRC

<i>Question Number</i>	<i>Answer</i>
51	C
52	B
53	B
54	A
55	B
56	A
57	C
58	C
59	A
60	A
61	A
62	C
63	C
64	C
65	B
66	D
67	D
68	A
69	A
70	B
71	D
72	C
73	B
74	D
75	C

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PERIOD _____ DATE _____