

U.S. Nuclear Regulatory Commission

Site-Specific SRO 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 overall, with 70.00 percent or better on the SRO-only items if given in conjunction with the RO exam; SRO-only exams given alone require a final grade of 80.00 percent to pass. You have 8 hours to complete the combined examination, and 3 hours if you are only taking the SRO portion.

Applicant Certification

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

\_\_\_\_\_  
Applicant's Signature

Results

RO/SRO-Only/Total Examination Values      \_\_\_\_ / \_\_\_\_ / \_\_\_\_ Points

Applicant's Score      \_\_\_\_ / \_\_\_\_ / \_\_\_\_ Points

Applicant's Grade      \_\_\_\_ / \_\_\_\_ / \_\_\_\_ Percent

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 1  
(1 point)

---

Given the following conditions on Unit 1:

- The unit is operating at 40% RTP
- NCP 'C' trips on overcurrent

Assuming no operator action, which ONE (1) of the following describes the effect on the Departure from Nucleate Boiling Ratio (DNBR) AND reactor thermal power?

- A. DNBR will INCREASE.  
Reactor power decreases and stabilizes at a new lower thermal power.
  - B. DNBR will DECREASE.  
Reactor power decreases and stabilizes at a new lower thermal power.
  - C. DNBR will INCREASE.  
Reactor power initially decreases and then returns to 40% thermal power.
  - D. DNBR will DECREASE.  
Reactor power initially decreases and then returns to 40% thermal power.
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 2  
(1 point)

---

Given the following conditions on Unit 1:

- Unit is operating at 100% RTP
- The controller for 1KC-132 (Letdown Hx Outlet Temp Ctrl) has been placed in MANUAL due to erratic operation
- Subsequently, NV letdown flow is increased by 10 GPM as requested by Chemistry

As letdown temperature increases, NC system boron concentration will   (1)   AND if letdown temperature continues to increase, letdown flow will automatically bypass the demineralizer at   (2)  .

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

- A. 1. INCREASE  
2. 120°F
  - B. 1. INCREASE  
2. 138°F
  - C. 1. DECREASE  
2. 120°F
  - D. 1. DECREASE  
2. 138°F
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 3  
1 point)

---

Given the following conditions on Unit 1:

- Unit is in MODE 5 with ND Train 'A' in service
- 1NI-173A (Train 'A' ND to A & B CL) is OPEN
- ND flow is being reduced by throttling 1ND-29A ('A' ND HX Outlet) in preparation for removing ND from service

1ND-68A ('A' ND Pump & A HX Mini-flow) will open if 1A ND pump flow decreases to less than a MAXIMUM of \_\_\_\_ (1) \_\_\_\_\_. The Operators in the Control Room can verify that 1ND-68A has opened by recirc flow indication on \_\_\_\_ (2) \_\_\_\_\_.

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

- A. 1. 325 GPM  
2. the OAC ONLY
  - B. 1. 325 GPM  
2. a chart recorder on MC-7 AND the OAC
  - C. 1. 750 GPM  
2. the OAC ONLY
  - D. 1. 750 GPM  
2. a chart recorder on MC-7 AND the OAC
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 4  
(1 point)

---

Given the following conditions on Unit 1:

- The unit is in MODE 4
- The crew is increasing NC system temp and pressure for unit startup
- ND Train 'A' is in service
- NC system temperature is being maintained at 140°F

If instrument air is lost to 1ND-34 (A & B ND Hx Byp) the valve will fail   (1)   AND NC system temperature will   (2)  .

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

- A.     1. OPEN  
       2. INCREASE
  - B.     1. CLOSED  
       2. INCREASE
  - C.     1. OPEN  
       2. DECREASE
  - D.     1. CLOSED  
       2. DECREASE
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 5  
(1 point)

---

Concerning the operation of Engineering Safeguards Modulating Control Valves:

Upon receipt of a (1) signal, the modulating control valve circuit will (2) the control valves.

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

- A. 1. Safety Injection ONLY  
2. maintain VI aligned to
  - B. 1. Safety Injection ONLY  
2. vent air off
  - C. 1. Safety Injection OR Blackout  
2. maintain VI aligned to
  - D. 1. Safety Injection OR Blackout  
2. vent air off
-

# MCGUIRE NUCLEAR STATION

## 2010 MNS SRO NRC Examination

Question: 6

(1 point)

Unit 1 is operating at 100% RTP.

Given the following indications for Unit 1 CLAs:

	1A	1B	1C	1D
Pressure	630 PSIG	570 PSIG	590 PSIG	615 PSIG
Level	7305 GAL	6970 GAL	6890 GAL	7375 GAL

Which ONE (1) of the following describes how the ECCS system is affected (if at all) by the CLA parameters listed above?

- A. '1B' CLA ONLY is INOPERABLE.
- B. '1C' CLA ONLY is INOPERABLE.
- C. '1A' and '1C' CLAs are INOPERABLE.
- D. '1B' and '1D' CLAs are INOPERABLE.

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 7

1 point)

---

Given the following conditions on Unit 1:

- A unit startup is in progress following refueling
- The crew is preparing to draw a bubble in the Pressurizer.
- NC system pressure is 360 PSIG
- NC system is in Solid Ops with LTOP in service
- The 1A NC pump is RUNNING

1. Per Selected Licensee Commitment 16.5-4 (Pressurizer), what is the MAXIMUM allowable Pressurizer heat up rate?
2. Based on current plant conditions, how are non-condensable gases removed from the NC system?

- A.
    1. 75°F in any one hour period
    2. Cycle Pressurizer PORVs
  - B.
    1. 75°F in any one hour period
    2. Cycle the Reactor Vessel Head vents
  - C.
    1. 100°F in any one hour period
    2. Cycle Pressurizer PORVs
  - D.
    1. 100°F in any one hour period
    2. Cycle the Reactor Vessel Head vents
-



# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 8

1 point)

---

Concerning the operation of 1KC-122 (KC Surge Tank Vent Valve):

When a (1) alarm is received on 1EMF-46A(B), 1KC-122 will automatically close and the valve (2).

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

- A.    1. Trip 1  
      2. must be locally re-opened
  - B.    1. Trip 1  
      2. will automatically re-open when the alarm clears
  - C.    1. Trip 2  
      2. must be locally re-opened
  - D.    1. Trip 2  
      2. will automatically re-open when the alarm clears
-

# MCGUIRE NUCLEAR STATION

## 2010 MNS SRO NRC Examination

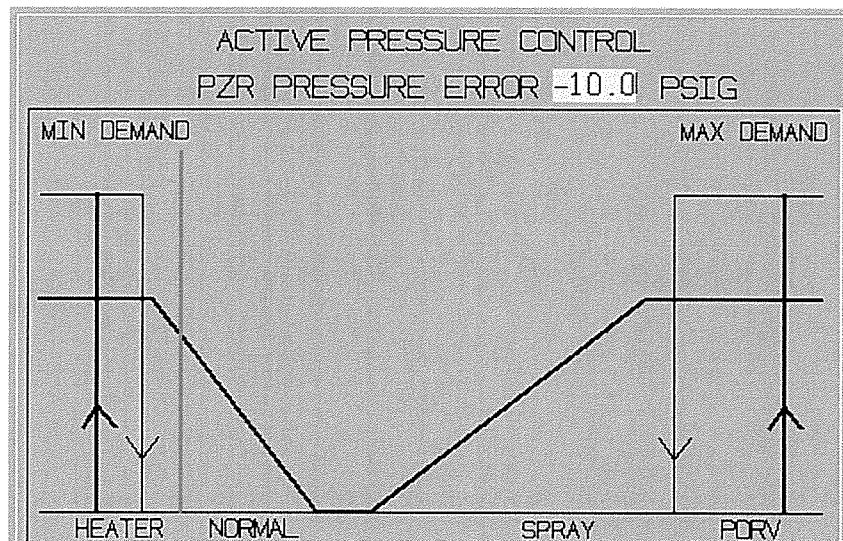
Question: 9

(1 point)

Given the following conditions on Unit 1:

- Repairs have just been completed on the SLIM module for 1NC-29 (Pressurizer Spray Valve)
- The OATC has just completed throttling 1NC-29 with its controller in MANUAL to verify proper operation of the SLIM
- 1NC-29 controller is now in AUTO

After completion of testing the Pressurizer Pressure Master Controller soft controls indicate as follows:



1. What is the current demand for the Bank 'C' heaters?
2. At what PRESSURE ERROR will the Backup heaters energize?

- A. 1. 17%  
2. (-) 17 PSIG
- B. 1. 17%  
2. (-) 25 PSIG
- C. 1. 83%  
2. (-) 17 PSIG
- D. 1. 83%  
2. (-) 25 PSIG

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 10

(1 point)

---

Given the following conditions and sequence of events on Unit 1:

- The unit is operating at 100% RTP
- The crew enters AP-016 (Malfunction of Nuclear Instrumentation) due to N-42 lower detector failing LOW
- IAE has placed the required bistables in the trip condition per AP-016
- A complete loss of 1EKVA occurs

Which ONE (1) of the following lists the required procedure flowpath for these conditions?

- A. Continue in AP-016
  - B. Enter AP-003 (Load Rejection)
  - C. Enter E-0 (Reactor Trip or Safety Injection)
  - D. Enter AP-015 (Loss of Vital or Aux Control Power)
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 11

1 point)

---

Given the following conditions on Unit 1:

- A Small-Break LOCA has occurred
- The crew has reached the step in E-1 (Loss of Reactor or Secondary Coolant) to reset SI and the Sequencers
- The crew is unable to reset the Sequencers

Which ONE (1) of the following describes the locations where Operators must be dispatched to de-energize BOTH Sequencers?

- A. 1EVDA ; 1EVDB
  - B. 1EVDA ; 1EVDD
  - C. 1EVDB ; 1EVDC
  - D. 1EVDC ; 1EVDD
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 12

1 point)

---

Given the following conditions on Unit 1:

- 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

Which ONE (1) of the following is an expected response of the VL AHU's and the Containment Pipe Tunnel Booster Fans (PTBF's)?

- A. All VL AHU(s) start and shift to HIGH speed  
Both PTBF's start and shift to HIGH speed
  - B. All VL AHU(s) start and shift to HIGH speed  
The PTBF's are running according to their switch positions
  - C. Operating VL AHU(s) shift to HIGH speed, Idle fans remain OFF  
Both PTBF's start and shift to HIGH speed
  - D. Operating VL AHU(s) shift to HIGH speed, Idle fans remain OFF  
The PTBF's are running according to their switch positions
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 13

(1 point)

---

Which ONE (1) of the following describes the operation of the RV System if Containment pressure reaches 2.8 PSIG?

- A. The RV Containment isolation valves will Auto Close on the ( $S_T$ ) signal. Containment cooling will be provided to the RN non-essential header.
  - B. The RV Containment isolation valves will Auto Close on the ( $S_S$ ) signal. Containment cooling will be provided to the RN non-essential header.
  - C. The RV header is isolated from the RN header by the ( $S_T$ ) signal. The RV pumps will Auto Start on RN non-essential header low pressure to supply the Containment AHU's.
  - D. The RV header is isolated from the RN header by the ( $S_S$ ) signal. The RV pumps will Auto Start on RN non-essential header low pressure to supply the Containment AHU's.
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 14

(1 point)

---

Given the following conditions on Unit 1:

- The unit is increasing power after a forced shutdown
- OP/1/A/6100/003 (Controlling Procedure for Unit Operation) is in effect
- 1A CF pump is in service
- When 40% RTP is reached, the crew closes 1HM-95 (AS to A&B CF Pumps)
- When 1HM-95 closes, the crew observes the 1A CF pump speed and D/P decreasing and FRV's opening

1. What is the cause of the indications described above?

2. What action is required to continue the power increase?

- A.
1. 1SP-1 (SM to CF Pump 1A) is closed.
  2. Dispatch an operator to open 1SP-1. Main Steam is the primary supply to the CF pumps between 20% and 80% RTP.
- B.
1. 1SP-1 (SM to CF Pump 1A) is closed.
  2. Dispatch an operator to open 1SP-1. Main Steam is the primary supply to the CF pumps between 20% and 100% RTP.
- C.
1. MSR cross over steam pressure is inadequate.
  2. 1HM-95 must be reopened. MSR crossover steam is the primary supply to the CF pumps between 40% and 80% RTP.
- D.
1. MSR cross over steam pressure is inadequate.
  2. 1HM-95 must be reopened. MSR crossover steam is the primary supply to the CF pumps between 40% and 100% RTP.
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 15

1 point)

Given the following conditions on Unit 1:

- The unit is in MODE 1 at 10% RTP
- 1AD-9 / A5 (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. The door will not move further open and cannot be closed
- No other alarms related to the ice condenser, NF system or AHUs are lit

Which 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
3. Selected Licensee Commitment 16.6-3 Ice Condenser Door Position Monitoring System

A. 1 ONLY

B. 1 and 2 ONLY

C. 1 and 3 ONLY

D. 1, 2, and 3



# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 16  
(1 point)

---

Given the following conditions on Unit 1:

- The unit is in MODE 4 with A Train ND in service
- A CRUD Burst has been initiated and clean up is in progress
- Unknown to the Operators, 1ND-35 (ND Sys to FWST Isol) has developed a small leak past its seat (0.5 GPM)

1. Which of the following describes the operational concern associated with this condition?
  2. In accordance with OP/1/A/6200/014 (Refueling Water System) what alignment would be required to address the radiological effects of this event?
- A.
1. Increased radiation levels at the FWST enclosure.
  2. The FWST would be placed in purification with the FW pump for clean up.
- B.
1. Increased radiation levels at the FWST enclosure.
  2. The FWST suction piping would be placed in recirculation using the FW Recirc pumps to dilute the crud deposited in the ECCS suction piping.
- C.
1. The formation of hot spots in the ECCS suction piping downstream of 1FW-27 (FWST to ND Pump Isol).
  2. The FWST would be placed in purification with the FW pump for clean up.
- D.
1. The formation of hot spots in the ECCS suction piping downstream of 1FW-27 (FWST to ND Pump Isol).
  2. The FWST would be placed in recirculation using the FW Recirc pumps to dilute the crud deposited in the ECCS suction piping.
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 17  
(1 point)

---

Given the following conditions on Unit 1:

- A LOCA has occurred inside Containment
- Containment pressure is 3.4 PSIG
- The crew is preparing to initiate a cooldown per ES 1.2 (Post LOCA Cooldown and Depressuration)

Which ONE (1) of the following must occur to allow reopening the MSIV's for the given conditions?

- A. Reset the Main Steam Isolation signal ONLY.
  - B. Reset the Phase B AND Main Steam Isolation signals ONLY.
  - C. Containment pressure must be reduced below 3 PSIG AND reset the Main Steam Isolation signal ONLY.
  - D. Containment pressure must be reduced below 3 PSIG AND reset BOTH the Main Steam Isolation signal and Phase B Isolation signal.
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 18

(1 point)

---

Given the following conditions on Unit 1:

- The unit is operating at 45% RTP
- Channel 1 Main Turbine Impulse pressure indicates 310 PSIG
- Channel 2 is indicating 0 PSIG
- The AMSAC "UNBLOCK" light is DARK

Which ONE (1) of the following describes the current status of the AMSAC system?

- A. Auto actuation is NOT functional.  
The loss of CF flow path auto actuation can NOT be restored until the failed impulse channel is repaired.
- B. Auto actuation is NOT functional.  
The loss of CF flow path auto actuation can be restored by depressing the AMSAC Actuation "UNBLOCK" pushbutton.
- C. Auto actuation will occur if both Feedwater pumps trip.  
The loss of CF flow path auto actuation can NOT be restored until the failed impulse channel is repaired.
- D. Auto actuation will occur if both Feedwater pumps trip.  
The loss of CF flow path auto actuation can be restored by depressing the AMSAC Actuation "UNBLOCK" pushbutton.
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 19

1 point)

---

Given the following conditions on Unit 1:

- The unit has experienced a Loss of all AC
- Crew has implemented ECA 0.0 (Loss Of All AC Power)
- Unit 1 Control has been swapped to the SSF
- An NEO has been dispatched to close the feeder breaker for 1CA-161C (CA Suction Hdr RN Supply Isol)

Based on the conditions described above which ONE (1) of the following states where the NEO would be dispatched to perform this action?

- A. SMXG
  - B. SMXG1
  - C. SDSP-1
  - D. 1EVDA-1
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 20

(1 point)

---

Given the following conditions on Unit 1:

- B Train of essential equipment is in operation on Unit 1
- OP/1/A/6350/002 (Diesel Generator) is in progress with the 1A Diesel running in parallel to the grid when the following sequence of events occurs:
  - Load is reduced on the diesel to 200KW in anticipation of opening the Emergency Breaker
  - The RO accidentally OPENS the Normal Feeder Breaker from 1ATC

The "Blackout Sequencer Actuated Train A" status light on SI-14 \_\_\_\_\_.

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

- A. illuminates and the 1A DG load increases
  - B. remains dark and the 1A DG load increases
  - C. illuminates and the 1A DG Emergency Breaker trips open, then re-closes 8.5 seconds later
  - D. remains dark and the 1A DG Emergency Breaker trips open, then re-closes 8.5 seconds later
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 21

1 point)

---

Given the following plant conditions:

- Both Units operating at 100% RTP
- A complete Loss of Offsite Power occurred on Unit 1
- 1A D/G started but subsequently tripped on Low Lube Oil Pressure
- 30 seconds have passed since the Loss of Offsite Power occurred

Which ONE (1) of the following describes the condition of the components listed below?

1. 125 VDC Vital Distribution Center (EVDA)
2. Annunciator 1AD-11 / B2 (Seq A Loss of Control Pwr)

- A.
    1. Energized
    2. "LIT"
  - B.
    1. Energized
    2. "DARK"
  - C.
    1. De-energized
    2. "LIT"
  - D.
    1. De-energized
    2. "DARK"
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 22

(1 point)

---

Given the following plant conditions:

- Both Units are operating at 100% RTP
- Battery 1DP is aligned for equalizing charge
- The DC Output breaker for Charger 1DS has tripped open

Which ONE (1) of the following describes the current status of Bus 1DP?

- A. Bus 1DP will be de-energized.
  - B. Bus 1DP will be energized from Charger 1DP ONLY.
  - C. Bus 1DP will be energized from Chargers 1DP and 2DP.
  - D. Bus 1DP will be energized from Charger 1DP and Battery 1DP.
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 23

(1 point)

---

Given the following:

- Unit 1 is shutdown in MODE 3
- Auxiliary Transformer 1ATA is tagged out for repairs
- All unit loads are being supplied by Auxiliary Transformer 1ATB

1. A Blackout will occur if \_\_\_\_\_ open.
2. The DG \_\_\_\_\_ Sequence is ONLY enabled if emergency bus minimum voltage and frequency setpoints are met.

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

- A.
    1. PCBs 8 & 9
    2. Committed
  - B.
    1. PCBs 11 & 12
    2. Committed
  - C.
    1. PCBs 8 & 9
    2. Accelerated
  - D.
    1. PCBs 11 & 12
    2. Accelerated
-



# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 24

(1 point)

---

Which ONE (1) of the following lists the EMFs that will automatically stop the Auxiliary Building Unfiltered Exhaust Fans (1ABFXF-1A/1B) on a Trip 2 alarm?

- A. 1EMF 36(L) Unit Vent Gas (Low Range) OR  
1EMF 36(H) Unit Vent Gas (High Range)
  - B. 1EMF 36(L) Unit Vent Gas (Low Range) OR  
1EMF 37 Unit Vent Iodine
  - C. 1EMF 35(L) Unit Vent Particulate (Low Range) OR  
1EMF 37 Unit Vent Iodine
  - D. 1EMF 35(L) Unit Vent Particulate (Low Range) OR  
1EMF 36(H) Unit Vent Gas (High Range)
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 25

(1 point)

---

Which ONE (1) of the following is an effect if flow is lost to the Nuclear Service Water System Essential Header? (Assume the equipment listed is in service)

- A. PD pump bearing oil temperature increases.
  - B. NC Pump motor bearing temperature increases.
  - C. MD CA Pump motor bearing temperature increases.
  - D. Steam Generator Blowdown Heat Exchanger outlet temperature increases.
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 26  
(1 point)

---

Due to a leak on the VI system the following indications were observed:

- 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

## *2010 MNS SRO NRC Examination*

Question: 27  
(1 point)

---

Given the following:

- Unit 1 is operating at 100% RTP when a loss of VI event occurs
- AP-22 (Loss of VI) has been implemented
- VI header pressure is 55 PSIG and decreasing

Which ONE (1) of the following system effects would be the FIRST to require the crew to trip the reactor in accordance with AP-22?

- A. Decreasing S/G levels
  - B. Loss of RN supply to Containment
  - C. Loss of NC pump seal leakoff to the VCT
  - D. PZR level approaching the High Level Trip setpoint
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 28

(1 point)

---

Given the following conditions on Unit 1:

- A LOCA has occurred inside Containment
- Containment pressure is currently 3.5 PSIG

Which ONE (1) of the following describes the MINIMUM steps required before KC can be restored to Containment?

- A. Reset Phase A
  - B. Reset Phase B
  - C. Reduce Containment pressure below 1.0 PSIG, reset Phase A
  - D. Reduce Containment pressure below 3.0 PSIG, reset Phase B
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 29

1 point)

---

Give the following conditions on Unit 1:

- The unit is in MODE 3 withdrawing S/D banks in preparation for startup
- 1AD-2 / D10 (RPI Urgent Alarm) Annunciator has just alarmed
- DRPI and OAC RODS position indication for rod D-8 has been lost

What is the FIRST action required by SLC 16.7.9 (Rod Position Indication System - Shutdown)?

- A. Place rods in manual ONLY.
  - B. Place rods in manual AND drive all rods in.
  - C. Immediately open the reactor trip breakers.
  - D. Restore rod position indication within 1 hour.
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 30

(1 point)

---

Given the following conditions on Unit 1:

- The unit is at 100% RTP
- All Pressurizer heaters are energized in MANUAL
- The SLIM for 1NV-238 (Charging Flow Control) has been placed in MANUAL due to a malfunction of the Pressurizer Level Master Controller
- The OATC reduces the 1NV-238 SLIM output to reduce Pressurizer level
- Charging Line Flow is inadvertently reduced to 18 GPM

If the 1NV-238 controller output remains constant, after 5 minutes Pressurizer level will be (1) AND the Pressurizer heaters will be (2).

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

- A.    1. DECREASING  
      2. OFF
  - B.    1. DECREASING  
      2. ON
  - C.    1. INCREASING  
      2. OFF
  - D.    1. INCREASING  
      2. ON
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 31

(1 point)

---

Unit 1 is operating at 100% RTP. The following indications are observed on the Digital Rod Position Indication (DRPI) system:

- D-4 rod indication is RED
- Associated rod group background is ORANGE
- 1AD-2 / D10 (RPI URGENT FAILURE) is LIT

Which ONE (1) of the following describes the condition of rod D-4?

- A. Rod D-4 is fully inserted.
  - B. Rod D-4 is at half accuracy.
  - C. Rod D-4 position cannot be determined.
  - D. Rod D-4 is greater than 231 steps withdrawn.
-



# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 32

1 point)

---

Given the following conditions on Unit 1:

- Unit is shutdown in MODE 6 for Refueling
- While responding to a series of alarms associated with the NI's the operator notices that the Instrument Power and Control Power lights on the PR N43 drawers are DARK

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

- A. Inverter 1EVIA has tripped.
  - B. The feeder breaker for panelboard 1EKVB has tripped.
  - C. Inverter 1EVIC has tripped.
  - D. The feeder breaker for panelboard 1EKVD has tripped.
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 33

(1 point)

---

Which ONE (1) of the following sets of indications can be read outside the Main Control Room on BOTH the Auxiliary Shutdown Panel (ASP) AND the Safe Shutdown Facility (SSF) Control Panel?

- A. SR Neutron Flux AND S/G WR Levels
  - B. SR Neutron Flux AND Pressurizer Level
  - C. Incore Thermocouples AND S/G WR Levels
  - D. Incore Thermocouples AND Pressurizer Level
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 34

1 point)

---

Given the following on Unit 1:

- A LOCA occurred 24 hours ago
- The 1A H2 Recombiner was placed in service per EP/1/A/5000/G-1 Enclosure 4 (Placing H2 Recombiners In Service)
- Containment pressure was 5 PSIG when the Recombiner was placed in service

Current Conditions are as follows:

- Containment pressure is 1.5 PSIG

Based on the conditions above the recombiner Power Setting was (1) when the recombiner was placed in service and should now be set to (2).

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

### REFERENCE PROVIDED

- A. 1. 49.8 KW  
2. 45.3 KW
- B. 1. 49.8 KW  
2. 45.8 KW
- C. 1. 50.3 KW  
2. 45.3 KW
- D. 1. 50.3 KW  
2. 45.8 KW
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 35

(1 point)

---

Given the following events and conditions associated with the Unit 1 SFP:

- A Lo-Lo alarm is received for OAC point M1A0004 (SFP Level)
- The operators read (-)2.1 ft SFP level and steady on the main control board
- The operating KF pump has tripped
- An NEO reports a large leak in the auxiliary building but the leak has now slowed to a trickle

For the event described above the leak must be associated with the KF pump (1) piping and (2) would be utilized to monitor increasing radiation levels associated with the loss of SFP level.

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

- A.     1. discharge  
          2. 1EMF-42 (U-1 Spent Fuel Bldg Vent)
  - B.     1. discharge  
          2. 1EMF-17 (Spent Fuel Bldg Refuel Brdg)
  - C.     1. suction  
          2. 1EMF-42 (U-1 Spent Fuel Bldg Vent)
  - D.     1. suction  
          2. 1EMF-17 (Spent Fuel Bldg Refuel Brdg)
-

# MCGUIRE NUCLEAR STATION

## 2010 MNS SRO NRC Examination

Question: 36

1 point)

Given the following conditions on Unit 1:

- A unit shutdown is in progress
- Operators have blocked the CA Auto-Start signal
- At 0200 both Main Feed Pumps trip

Given the following plant conditions and times:

	<u>Time</u>				
<u>Condition</u>	<u>0200</u>	<u>0205</u>	<u>0210</u>	<u>0215</u>	<u>0220</u>
Tave (°F)	551	552	552	553	554
NC Press. (PSIG)	1951	1953	1958	1951	1957
NR SG A (%)	24	16	25	18	10
NR SG B (%)	26	18	22	14	9
NR SG C (%)	28	20	26	13	8
NR SG D (%)	23	15	16	19	9

Which ONE (1) of the following lists the EARLIEST time that the Turbine Driven CA pump would have automatically started?

- A. 0205
- B. 0210
- C. 0215
- D. 0220

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 37

1 point)

---

Given the following conditions on Unit 1:

- Reactor Power is currently being increased from 55% to 90% RTP at 3%/hr following a Refueling Outage

1. How is the withdrawal of control rods affected?
2. What changes (if any) to NCS boron concentration will be required?

### REFERENCE PROVIDED

- A.
    1. NOT restricted
    2. Dilution is required.
  - B.
    1. NOT restricted
    2. Dilution is NOT required.
  - C.
    1. Restricted
    2. Dilution is required.
  - D.
    1. Restricted
    2. Dilution is NOT required.
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 38

1 point)

---

Given the following plant conditions:

- Waste Gas Decay Tank 'A' is aligned for planned release
- Waste Gas Decay Tank 'E' is also mistakenly aligned for release while in service
- EMF-50 (L) Waste Gas Discharge is not detecting release activity

Which ONE (1) of the following would be the result if the release exceeds expected activity levels?

- A. The release is monitored by 2EMF-36(L) (Unit 2 Unit Vent Gas). However, no automatic termination will occur.
  - B. The release is monitored by 2EMF-36(L) which will automatically terminate the release if a Trip 2 alarm is reached.
  - C. The release is monitored by 1EMF-36(L) (Unit 1 Unit Vent Gas). However, no automatic termination will occur.
  - D. The release is monitored by 1EMF-36(L) which will automatically terminate the release if a Trip 2 alarm is reached.
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 39

(1 point)

---

Given the following conditions on Unit 1:

- A Reactor Trip and Safety Injection have occurred due to a Small-Break LOCA
- The crew has entered E-0 (Reactor Trip or Safety Injection) and has reached Step 7:

**“Check ESF Monitor Light Panel on energized train(s)”**

This check is performed to prevent \_\_\_\_ (1) \_\_\_\_ AND to \_\_\_\_ (2) \_\_\_\_.

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

- A.
    - 1. water from entering the steam lines due to uncontrolled CA flow
    - 2. ensure Containment release paths are isolated
  - B.
    - 1. excessive NC system cooldown due to uncontrolled CF flow
    - 2. ensure Containment release paths are isolated
  - C.
    - 1. water from entering the steam lines due to uncontrolled CA flow
    - 2. ensure automatic actuation of Containment Spray and Containment Isolation Phase B if containment pressure exceeded 3 PSIG
  - D.
    - 1. excessive NC system cooldown due to uncontrolled CF flow
    - 2. ensure automatic actuation of Containment Spray and Containment Isolation Phase B if containment pressure exceeded 3 PSIG
-



# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 40

1 point)

Given the following conditions on Unit 1:

- The unit 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.	240-280°F	Saturated Vapor
B.	200-240°F	Saturated Vapor
C.	240-280°F	Wet Vapor
D.	200-240°F	Wet Vapor

# MCGUIRE NUCLEAR STATION

## 2010 MNS SRO NRC Examination

Question: 41

(1 point)

Given the following conditions on Unit 1:

- The unit has experienced a Reactor Trip and Safety Injection due to a Small-Break LOCA
- The crew has just completed the actions of E-0 (Reactor Trip or Safety Injection)
- NV pump flow to the NC system Cold Legs is 390 GPM
- NC system pressure is 1300 PSIG and stable
- SG pressures are 1092 PSIG and stable
- NC system subcooling on the ICCM is 22°F and stable

Which ONE (1) of the following describes plant conditions upon transition to E-1 (Loss of Reactor or Secondary Coolant)?

NC Pumps Running?	SGs Required for Heat Removal?
YES	YES
YES	NO
NO	YES
NO	NO

A.

B.

C.

D.

# MCGUIRE NUCLEAR STATION

## 2010 MNS SRO NRC Examination

Question: 42

(point)

Unit 1 was operating at 100% RTP. Given the following trends on the 1A NCP:

<u>Time</u>	<u>0200</u>	<u>0205</u>	<u>0210</u>	<u>0215</u>
Pump #1 Seal D/P (PSID)	215	210	205	195
Lower pump bearing temp (°F)	221	225	228	231
#1 seal outlet temp (°F)	205	227	235	251
Motor winding temp (°F)	312	314	316	323

What is the LATEST time at which the 1A NCP must be secured?

- A. 0200
- B. 0205
- C. 0210
- D. 0215

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 43

1 point)

---

A loss of all charging and seal injection flow on Unit 1 has resulted in a failure of the 1B NCP #2 Seal.

The 1B NCP #1 Seal Leak-off flow is going (1).

1B NCP #2 Seal Standpipe (2) level alarm is LIT.

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

- A.     1. DOWN  
       2. LOW
  - B.     1. DOWN  
       2. HIGH
  - C.     1. UP  
       2. HIGH
  - D.     1. UP  
       2. LOW
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 44

(1 point)

---

Given the following conditions on Unit 1:

- Unit is in Mode 5
- Both Trains of ND are initially in service
- NC system temperature is being maintained at 140°F
- Subsequently, both ND pumps trip
- The crew has implemented AP-19 (LOSS OF ND OR ND SYSTEM LEAKAGE)
- Efforts to restore an ND pump to service have been unsuccessful

If a MAXIMUM NC system temperature of (1) is exceeded, AP-19 will direct the crew to stop attempts to restore an ND pump and (2) to restore cooling to the NC system.

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

- A.
    - 1. 180°F
    - 2. initiate NC system feed and bleed
  - B.
    - 1. 180°F
    - 2. attempt to start an NC pump
  - C.
    - 1. 212°F
    - 2. initiate NC system feed and bleed
  - D.
    - 1. 212°F
    - 2. attempt to start an NC pump
-

# MCGUIRE NUCLEAR STATION

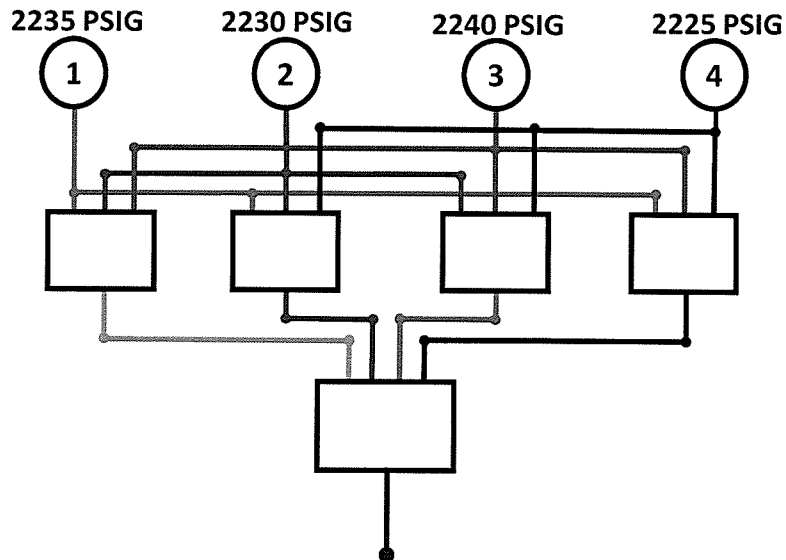
## 2010 MNS SRO NRC Examination

Question: 45

(1 point)

Based on the current Pressurizer Pressure Channel indications below:

Pressurizer Pressure Channels



Which ONE (1) of the following lists the Selected pressure output to the Pressurizer Pressure Master Controller:

1. Based on the pressure indications shown above?
  2. If Pressurizer Pressure Channel 3 fails low?
- A. 1. 2240 PSIG  
2. 2230 PSIG
- B. 1. 2235 PSIG  
2. 2232.5 PSIG
- C. 1. 2240 PSIG  
2. 2232.5 PSIG
- D. 1. 2235 PSIG  
2. 2230 PSIG

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 46

(1 point)

---

Given the following conditions on Unit 1:

- Pzr level is slowly decreasing
- Charging flow is slowly increasing
- NC system temperature is decreasing slowly
- S/G levels are being controlled at program level
- The Rod Control Power Mismatch (PMM) indication is (+)1.5°F

Which ONE (1) of the following describes the procedure that will be entered and the FIRST action required based on current conditions?

- A. AP/1/A/5500/001 (Steam Leak)  
Reduce turbine load to maintain Rx power less than or equal to 100%.
  - B. AP/1/A/5500/001 (Steam Leak)  
Manually throttle 1NV-238 (Charging Line Flow Control) to stabilize Pzr level.
  - C. AP/1/A/5500/010 (Reactor Coolant Leak) Case II (NC System Leak)  
Reduce turbine load to maintain Rx power less than or equal to 100%.
  - D. AP/1/A/5500/010 (Reactor Coolant Leak) Case II (NC System Leak)  
Manually throttle 1NV-238 (Charging Line Flow Control) to stabilize Pzr level.
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 47

(1 point)

---

Given the following conditions on Unit 1:

- The unit has experienced a feedwater line break of the 1A S/G inside containment and a total loss of feedwater
- FR-H.1 (Response to Loss of Secondary Heat Sink) has been entered and feed and bleed of the NC system was initiated
- Shortly after opening the PORVs, the Turbine Driven CA pump is returned to service and a source of feedwater is available
- CET's are stable
- All S/G WR levels are indicating 0%
- Containment pressure is 3.5 PSIG

1. Based on the conditions described above which ONE (1) of the following describes the criteria for restoration of CA flow?
  2. What is the basis for the restoration of flow criteria?
- 
- A.
    1. Restore cooling to ALL intact S/G's at a rate not to exceed 100 GPM
    2. To minimize additional NC cooldown causing thermal stress to the reactor vessel
  - B.
    1. Restore cooling to ALL intact S/G's at a rate not to exceed 100 GPM
    2. To minimize the thermal stress on the S/G to prevent failure of S/G components
  - C.
    1. Restore cooling to ONE intact S/G at a rate not to exceed 100 GPM
    2. To minimize additional NC cooldown causing thermal stress to the reactor vessel
  - D.
    1. Restore cooling to ONE intact S/G at a rate not to exceed 100 GPM
    2. To minimize the thermal stress on the S/G to prevent failure of S/G components
-



# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 48

(point)

---

Given the following plant conditions:

- Due to a fault at the switch yard, the site has experienced a LOOP
- Unit 1 subsequently lost both D/G's
- Due to a rupture of the Diesel VI compressor discharge piping, VI header pressure is indicating 0 PSIG
- The crew is performing ECA 0.0 (Loss of All AC Power)
- Prior to this event, Unit 1 was at 100% RTP with normal L/D in service and flow being controlled with 1NV-459 (U1 Variable L/D Orifice Outlet Flow Cntrl)
- The Crew is performing Step 6 of ECA 0.0 "Check NC System - ISOLATED"

Assuming no manual operator action has been taken associated with these components, which ONE (1) of the following correctly lists the expected "As Found" positions for the valves listed below?

- 1NV-35A (Variable L/D Orifice Outlet Cont Isol)
- 1NV-1A (NC L/D Isol To Regen Hx)

- A. 1NV-35A - CLOSED  
1NV-1A - CLOSED
  - B. 1NV-35A - OPEN  
1NV-1A - CLOSED
  - C. 1NV-35A - CLOSED  
1NV-1A - OPEN
  - D. 1NV-35A - OPEN  
1NV-1A - OPEN
-

# MCGUIRE NUCLEAR STATION

## 2010 MNS SRO NRC Examination

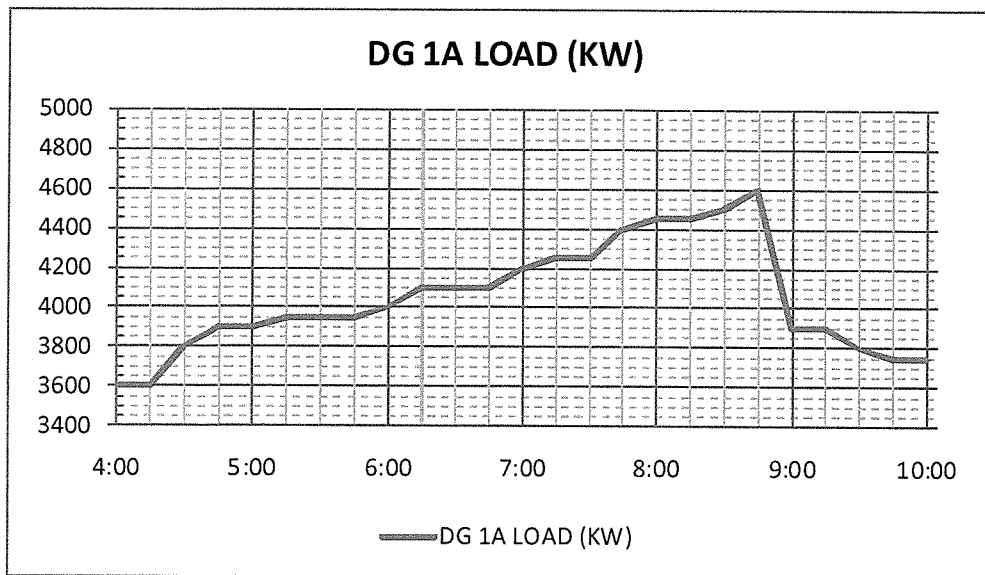
Question: 49

(1 point)

Given the following conditions on Unit 1:

- A loss of off-site power has occurred
- 1A and 1B DGs have started and loaded normally

Based on the following loading profile for 1A DG:



1. The maximum design load limit for CONTINUOUS operation was FIRST exceeded at (1).
2. The maximum design load limit for operation in an OVERLOAD condition was FIRST exceeded at (2).

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

- A. 1. 0430  
2. 0600
- B. 1. 0600  
2. 0745
- C. 1. 0430  
2. 0745
- D. 1. 0600  
2. 0830

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 50

(1 point)

---

The Kirk Key interlocks located on the Vital Battery Charger Connection Boxes (ECB-1 thru 4) associated with EVCA, EVCB, EVCC and EVCD prevent \_\_\_\_\_.

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

- A. supplying 'A' Train Busses from the 'B' Train Source
  - B. tying a Unit 1 power source to a Unit 2 power source
  - C. energizing more than one battery from the Standby Charger
  - D. supplying two 125v DC Distribution Centers from the Standby Charger
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 51

(1 point)

---

Given the following conditions on Unit 1:

- The unit is at 100% RTP
- Train swap is in progress and currently both trains of KC and RN have been placed in service.
- The 1A RN pump TRIPPED
- A Unit 2 electrical fault causes a B/O associated with 2ETA.

Based on the conditions described above and assuming no operator action, which ONE (1) of the following describes the effect of this event on Unit 1?

- A. Cooling flow would be lost to the 1A KC HX due to Unit 1 RN Train separation. The 1B RN Train suction and discharge alignment would be unaffected.
  - B. Cooling flow would be lost to the 1A KC HX due to Unit 1 RN Train separation. The 1B RN Train suction and discharge would realign to the SNSWP.
  - C. The 1B RN Pump would continue to supply cooling for the 1A KC HX because the Unit 1 RN Train cross connect valves remain open. The 1B RN Train suction and discharge would realign to the SNSWP.
  - D. The 1B RN Pump would continue to supply cooling for the 1A KC HX because the Unit 1 RN Train cross connect valves remain open. The 1B RN Train suction and discharge alignment would be unaffected.
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 52

(1 point)

---

Given the following conditions on Unit 1:

- A loss of offsite power has occurred
- Both EDGs failed to start
- ECA-0.0 (Loss of All AC Power) has been implemented
- VI Header pressure is 20 PSIG

Based on the conditions above, CA flow may have to be controlled locally to prevent \_\_\_\_\_.

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

- A. SG overfill
  - B. CA pump runout
  - C. loss of heat sink
  - D. loss of shutdown margin
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 53

(1 point)

---

Unit 1 & 2 are operating at 100% RTP:

- The TCC has notified the Control Room that the "Real Time Contingency Analysis" (RTCA) indicates that switchyard voltage would NOT be adequate should a Unit Trip occur
- The CR Supervisors implement AP/1/A/5500/05 and AP/2/A/5500/05, Generator Voltage and Electric Grid Disturbances
- The OAC is not in service
- Unit 1 Main Generator Voltage is 23.8 KV
- Unit 2 Main Generator Voltage is 24.2 KV
- Unit 1 & 2 Main Generator MW's are 1200
- Unit 1 Main Generator MVAR's are 450
- Unit 2 Main Generator MVAR's are 475
- H<sub>2</sub> pressure on both generators is 75 PSIG

Which ONE (1) of the following actions is required to be taken by the Unit 1 & 2 crews?

### REFERENCE PROVIDED

- A. Depress "RAISE" on the "VOLTAGE ADJUST" for Unit 1 ONLY.
  - B. Depress "RAISE" on the "VOLTAGE ADJUST" for Unit 2 ONLY.
  - C. Depress "LOWER" on the "VOLTAGE ADJUST" for Unit 1 ONLY.
  - D. Depress "LOWER" on the "VOLTAGE ADJUST" for Unit 2 ONLY.
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 54

(1 point)

---

Given the following conditions on Unit 1:

- A Reactor Trip and SI have occurred due to low Pressurizer pressure
- Crew is performing the actions of E-0 (Reactor Trip or SI)
- SI termination criteria cannot be met at this time
- Containment parameters are normal
- Both ND pumps are tripped
- FWST level indicates 340 inches
- 1EMF-1 (ND Area Monitor) is in Trip 2 at 1.5E2 mREM/hr
- 1EMF-41 (Aux Bldg Ventilation) is in Trip 2 alarm

Based on the above indications, the crew will transition to   (1)   and the strategy implemented to mitigate this event is   (2)  .

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

- A.    1. ECA-1.1 (Loss of Emergency Coolant Recirculation)  
      2. to identify and isolate the break
  - B.    1. ECA-1.1 (Loss of Emergency Coolant Recirculation)  
      2. to delay depletion of the FWST by reducing outflow and initiating makeup
  - C.    1. ECA-1.2 (LOCA Outside Containment)  
      2. to identify and isolate the break
  - D.    1. ECA-1.2 (LOCA Outside Containment)  
      2. to delay depletion of the FWST by reducing outflow and initiating makeup
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 55

(1 point)

---

Given the following conditions on Unit 1:

- A medium-break LOCA occurred in Containment
- Containment pressure peaked at 2.7 PSIG and is slowly decreasing
- The crew has implemented FR-H.1 (Response to Loss of Secondary Heat Sink)
- All attempts to restore flow to the S/Gs from the CA system have been unsuccessful

1. Based on these conditions, the NC pumps must be stopped to \_\_\_\_\_.
2. The EARLIEST time (based on S/G conditions) that the crew is required to establish NC system bleed and feed is when W/R level in at least 3 S/Gs is less than \_\_\_\_\_.

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

- A.
    1. prevent NC pump impeller damage due to low pressure operation
    2. 24%
  - B.
    1. prevent NC pump impeller damage due to low pressure operation
    2. 36%
  - C.
    1. conserve secondary inventory by reducing NC system heat input
    2. 24%
  - D.
    1. conserve secondary inventory by reducing NC system heat input
    2. 36%
-



# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 56

(1 point)

---

Given the following conditions on Unit 1:

- EP/1/A/5000/ECA-1.1, Loss of Emergency Coolant Recirculation, has just been implemented
- The "FWST LEVEL LO-LO" alarm is LIT

Which ONE (1) of the following actions are required FIRST?

- A. When FWST level decreases to less than 20 inches, reset Containment Spray AND stop the NS pumps.
  - B. When FWST level decreases to less than 20 inches, stop the NS pumps ONLY.
  - C. Immediately reset Containment Spray AND stop the NS pumps.
  - D. Immediately stop the NS pumps ONLY.
-

# MCGUIRE NUCLEAR STATION

## 2010 MNS SRO NRC Examination

Question: 57

(1 point)

---

Given the following conditions on Unit 1:

- An ATWS has occurred
- The crew has entered FR-S.1 (Response to Nuclear Generation/ATWS)
- During the initiation of emergency boration, the following indications are noted:
  - Charging Flow = 47 GPM
  - Letdown Flow = 75 GPM
  - NC system pressure is 2300 PSIG
  - 1A NV pump is ON with suction aligned to the VCT
  - 1A and 1B BAT pumps are ON
  - 1NV-265B (Boric Acid To NV Pumps) is open
  - 1NV-244A (Chrg Line Cont Isol) is open
  - 1NV-245B (Chrg Line Cont Isol) is open

In accordance with FR-S.1, the MINIMUM required emergency boration flow is (1) and if that flow is NOT met the Operator will (2).

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

- A.
    - 1. 30 GPM
    - 2. increase charging flow
  - B.
    - 1. 60 GPM
    - 2. increase charging flow
  - C.
    - 1. 30 GPM
    - 2. align the NV pump suction to the FWST
  - D.
    - 1. 60 GPM
    - 2. align the NV pump suction to the FWST
-

# MCGUIRE NUCLEAR STATION

## 2010 MNS SRO NRC Examination

Question: 58

(1 point)

Given the following conditions on Unit 1:

- Pressurizer Level transmitter 1 has failed low
- Prior to removing the Level Channel 1 from service, a leak develops on the reference leg for Pressurizer Level transmitter 2

Based on these conditions, the indication for Pressurizer Level Channel 2 fails (1)  
AND the Pressurizer Level Master Controller (2).

Which ONE of the following completes the statement above?

- A. 1. low  
2. swaps to MANUAL
- B. 1. low  
2. remains in AUTO
- C. 1. high  
2. swaps to MANUAL
- D. 1. high  
2. remains in AUTO

# MCGUIRE NUCLEAR STATION

## 2010 MNS SRO NRC Examination

Question: 59

(1 point)

Unit 1 is operating at 97% RTP when a Reactor Trip occurs. Given the following conditions:

<u>Channel</u>	<u>Flux Level</u>	<u>SUR</u>
SR N31	0 CPS	0 DPM
SR N32	0 CPS	0 DPM
IR N35	$1.1 \times 10^{-10}$ AMPS	-1/3 DPM
IR N36	$9.5 \times 10^{-11}$ AMPS	-1/3 DPM
PR N41	12%	
PR N42	0%	
PR N43	0%	
PR N44	0%	

Which ONE (1) of the following statements describes why the Source Range Nuclear Instruments are NOT indicating?

- A. P-10 (Nuclear at Power) status light is LIT.
- B. P-6 (S/R Block Permissive) status light is LIT.
- C. P-10 (Nuclear at Power) status light is DARK.
- D. P-6 (S/R Block Permissive) status light is DARK.

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 60

(1 point)

---

Given the following conditions on Unit 1:

- Unit is currently at 35% RTP
- A unit shutdown is in progress
- Intermediate Range Channel N35 fails
- N35 Level Trip Bypass switch has been placed in "BYPASS" in accordance with AP-16 (Malfunction of Nuclear Instrumentation)
- N35 Instrument Power fuses and Control Power fuses have been removed for troubleshooting

Which ONE (1) of the following describes the actions required to prevent a Reactor Trip and the MINIMUM power level at which those actions must be performed if the unit shutdown is continued?

- A. N35 Control Power fuses ONLY must be installed or a Reactor Trip will occur when power decreases to less than 10% RTP.
  - B. N35 Control Power fuses ONLY must be installed or a Reactor Trip will occur when power decreases to less than 25% RTP.
  - C. N35 Control Power fuses AND Instrument Power fuses must be installed or a Reactor Trip will occur when power decreases to less than 10% RTP.
  - D. N35 Control Power fuses AND Instrument Power fuses must be installed or a Reactor Trip will occur when power decreases to less than 25% RTP.
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 61

(1 point)

---

An NEO reports a leak in the 1A NV pump room. Water from the leak is spraying into the air and is also collecting on the floor.

Radiation Protection (RP) is notified and determines the water is contaminated. RP reports that the radiation from the leak is exclusively a skin dose and absorption concern.

The radiation emitted from the contamination is predominately (1).

This event results in a Trip 2 alarm on 1EMF-41 (Aux Building Ventilation). The Auxiliary Building Ventilation (2).

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

- A.     1. Alpha  
       2. supply and exhaust fans will trip
  - B.     1. Beta  
       2. supply and exhaust fans will trip
  - C.     1. Alpha  
       2. filter train will be placed in service
  - D.     1. Beta  
       2. filter train will be placed in service
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 62

1 point)

---

Given the following plant conditions:

- The Control Room has been evacuated due to a chlorine gas leak
- AP-17 (Loss of Control Room) has been implemented on both units
- An Operator has been dispatched to control 1A & 1D SG PORVs using AP-17, Enclosure 7 (Manual Control of PORVs)

The Operator dispatched to perform Enclosure 7 will control the SG PORVs using manual loaders located in the (1). To establish control of the SG PORVs the Operator must (2).

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

- A. 1. Exterior Doghouse  
2. open the VI supply from the local manual loader ONLY
  - B. 1. Interior Doghouse  
2. open the VI supply from the local manual loader ONLY
  - C. 1. Exterior Doghouse  
2. open the VI supply from the local manual loader AND close the VI supply from the Control Room manual loader
  - D. 1. Interior Doghouse  
2. open the VI supply from the local manual loader AND close the VI supply from the Control Room manual loader
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 63

1 point)

---

Given the following conditions on Unit 1:

- The unit was operating at 100% RTP with a VQ release in progress
- A Rx Trip was manually initiated due to the 1A S/G FRV failing closed
- The resulting transient resulted in a tube rupture on the 1A S/G
- The crew has manually initiated Safety Injection
- Both trains "Cont Vent Isol Reset" lights on 1MC-11 are LIT
- 1VQ-1A (U-1 Cont Air Release Inside Isol) indicates OPEN
- No AUTO SI setpoints have been exceeded
- 1EMF 38, 39 & 40 readings have remained less than Trip 2 values

Based on these conditions, the Containment Ventilation Isolation Reset Lights should be (1) AND the Operators shall (2).

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

- A. 1. DARK  
2. close 1VQ-1A
  - B. 1. DARK  
2. verify 1VQ-1A remains OPEN
  - C. 1. LIT  
2. close 1VQ-1A
  - D. 1. LIT  
2. verify 1VQ-1A remains OPEN
-



# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 64

(1 point)

---

Which ONE of the following will generate a LOSS OF SUBCOOLING (AD2-D5) annunciator in the Control Room?

- A. 2°F subcooling on Loop A  $T_H$
  - B. 0°F subcooling on Loop B  $T_H$
  - C. 2°F subcooling on Loop C  $T_H$
  - D. 0°F subcooling on Loop D  $T_H$
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 65

(1 point)

---

Given the following conditions on Unit 1:

- A cooldown is being performed in accordance with ES-0.2 (Natural Circulation Cooldown)
- The crew has reached the step in ES-0.2 to initiate a depressurization of the NC system
- The crew observes that 2 CRDM fans are running

1. Based on the conditions above, the depressurization \_\_\_\_\_ continue.
2. The basis, per ES-0.2 Background Document for checking the number of CRDM fans running is to \_\_\_\_\_.

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

- A.
    1. can
    2. enhance natural circulation flow
  - B.
    1. can
    2. prevent voiding in the reactor vessel head
  - C.
    1. can NOT
    2. enhance natural circulation flow
  - D.
    1. can NOT
    2. prevent voiding in the reactor vessel head
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 66

1 point)

---

Given the following conditions on Unit 1:

- A Small-Break LOCA has occurred
- Attempts to mitigate the event have been unsuccessful
- Core Exit Thermocouples are 630°F and STABLE
- Subcooling is (-)5°F and STABLE
- 'A' and 'B' NC pumps have been secured
- 'C' and 'D' NC pumps are running

In order to satisfy the requirements for the Critical Safety Function for Core Cooling, which ONE (1) of the following is required Reactor Vessel D/P based on the conditions above?

### REFERENCE PROVIDED

- A. Train 'A' 15%, Train 'B' 15%
  - B. Train 'A' 15%, Train 'B' 23%
  - C. Train 'A' 23%, Train 'B' 15%
  - D. Train 'A' 23%, Train 'B' 23%
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 67

(1 point)

---

Given the following:

- Operators are performing valve lineups on the Unit 1 Secondary
- Several valves are approximately 15 feet above the floor level

In accordance with the Nuclear Generation Department Safe Work Practices Pocket Manual, the Operators performing the manipulations can work safely using a securely placed extension ladder and \_\_\_\_\_.

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

- A. a safety belt with the lanyard attached to a nearby 6" diameter pipe
  - B. a full body harness with the lanyard attached to a nearby 4" diameter pipe
  - C. a safety belt with the lanyard attached to a nearby vertical scaffolding member
  - D. a full body harness with the lanyard attached to a nearby horizontal scaffolding member
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 68

1 point)

---

In accordance with Tech Spec 2.1.1 (Reactor Core Safety Limits) Bases, the proper functioning of the     (1)     AND     (2)     prevent exceeding the Departure from Nucleate Boiling Reactor Core Safety Limit.

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

- A.     1. Rod Control System  
       2. Pressurizer Safety Valves
  - B.     1. Rod Control System  
       2. Main Steam Safety Valves
  - C.     1. Reactor Protection System  
       2. Pressurizer Safety Valves
  - D.     1. Reactor Protection System  
       2. Main Steam Safety Valves
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 69

(1 point)

---

With Unit 1 operating at 100% RTP, which ONE (1) of the following exceeds the limits of Tech Spec 3.4.13 (RCS Operational Leakage)?

- A. 6 GPM identified leakage
  - B. 0.5 GPM unidentified leakage
  - C. 140 GPD tube leakage in 1C SG
  - D. 356 GPD total primary-to-secondary leakage through all SGs
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 70

1 point)

---

Given the following conditions on Unit 1:

- The NV system is being aligned for startup
- The procedure being used calls for independent verification of a single valve located in a room with a general dose rate of 130 mREM/hr
- Estimated time to independently verify the valve's 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
- Assume any necessary approvals are obtained

In accordance with NSD 700 (Verification Techniques), independent verification of the valve above (1) be waived because (2).

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

- A.
    - 1. may
    - 2. the general area dose rate is greater than 100 mREM/hr
  - B.
    - 1. may NOT
    - 2. the general area dose rate is less than 1 REM/hr
  - C.
    - 1. may
    - 2. the radiation exposure for a single verification would exceed the allowable limit
  - D.
    - 1. may NOT
    - 2. the radiation exposure for a single verification is within the allowable limit
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 71

(1 point)

---

Regarding the use of Electronic Dosimeters (ED):

- If a DOSE alarm setpoint is exceeded, the alarm will (1).
- If a DOSE RATE alarm setpoint is exceeded, the alarm will (2).

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

- A.
    - 1. not clear until the ED is reset
    - 2. clear when the dose rate drops below the alarm setpoint
  - B.
    - 1. not clear until the ED is reset
    - 2. not clear until the ED is reset
  - C.
    - 1. automatically clear after 10 seconds
    - 2. clear when the dose rate drops below the alarm setpoint
  - D.
    - 1. automatically clear after 10 seconds
    - 2. not clear until the ED is reset
-



# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 72

(1 point)

---

Given the following conditions on Unit 1:

- The unit has experienced several fuel pin failures
- You have been directed to tag out the 1B NI pump
- The 1B NI pump room general area is 400 mREM/hr
- To reach the 1B NI pump room you must transit through a 6 REM/hr high radiation area for 2 minutes and return via the same route
- Your current accumulated annual dose is 1000 mREM
- An RWP has been written for this job which has your Electronic Dosimeter (ED) alarm set for your EXCLUDE exposure limit

Based on the conditions above, what is your **MAXIMUM** allowable stay-time in the 1B NI pump room for hanging the tagout to prevent your ED from alarming before you exit the RCA?

- A. 30 minutes
  - B. 1 hour
  - C. 1.5 hours
  - D. 2 hours
-

# MCGUIRE NUCLEAR STATION

## 2010 MNS SRO NRC Examination

Question: 73

1 point)

Given the following conditions on Unit 1:

- A Reactor Trip and Safety Injection have occurred
- Main Steam and ALL feedwater is isolated to all SGs
- TD CA pump is running.
- All SG level instruments agree and indicate as follows:

1A	1B	1C	1D
100%	0%	38% and lowering slowly	38% and stable

Which ONE (1) of the following describes the condition of the SGs?

A.

1A	1B	1C	1D
Faulted	Ruptured	Intact	Intact

B.

1A	1B	1C	1D
Faulted	Ruptured	Ruptured	Intact

C.

1A	1B	1C	1D
Ruptured	Faulted	Ruptured	Intact

D.

1A	1B	1C	1D
Ruptured	Faulted	Intact	Intact

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 74

1 point)

---

Given the following conditions on Unit 1:

- A Site Area Emergency has been declared
- A Site Assembly is being conducted in accordance with RP/0/A/5700/011  
(Conducting a Site Assembly, Site Evacuation, or Containment Evacuation)

In accordance with Enclosure 4.3 (OSM Actions for Site Assembly) the announcement for the Site Assembly shall be repeated (1) until notification that the Site Assembly has been completed and the Site Assembly shall be completed within (2).

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

- A.
    - 1. every 20 minutes
    - 2. 30 minutes
  - B.
    - 1. every 10 minutes
    - 2. 30 minutes
  - C.
    - 1. every 20 minutes
    - 2. 75 minutes
  - D.
    - 1. every 10 minutes
    - 2. 75 minutes
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 75

(1 point)

---

Given the following indications on Unit 1:

- 1AD-2 / C8 (P/R OVER POWER STOP ALERT) is in LIT
- Tavg is 578°F and stable

1. Which ONE (1) of the following lists the MINIMUM conditions that will cause the alarm above?
  2. Which ONE (1) of the following is the required action for the above condition per OP/1/A/6100/010 C, Annunciator Response for Panel 1AD-2?
- A.
    1. One PR channel greater than 109%
    2. Initiate RCS boration to reduce power
  - B.
    1. One PR channel greater than 103%
    2. Reduce turbine load to reduce power
  - C.
    1. One PR channel greater than 103%
    2. Initiate RCS boration to reduce power
  - D.
    1. One PR channel greater than 109%
    2. Reduce turbine load to reduce power
-

# MCGUIRE NUCLEAR STATION

## 2010 MNS SRO NRC Examination

Question: 76

(1 point)

Given the following conditions on Unit 1:

- The unit was initially at 100% RTP
- #1 Seal Leakoff on 1A NC pump indicates 6.5 GPM
- AP-08 (Malfunction of NC Pump) Case I (NC Pump Seal or Pump Lower Bearing Malfunction has been implemented
- The crew has reached the steps in AP-08 to trip the Reactor and stop the 1A NC pump

In accordance with AP-08, Enclosure 2 (NC Pump Post Trip Actions For #1 Seal Failure) must be performed within 3-5 minutes after stopping the 1A NC pump to prevent \_\_\_\_ (1) \_\_\_\_\_. The requirement to perform these actions is applicable \_\_\_\_ (2) \_\_\_\_\_.

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

- A.     1. damage to the 1A NC pump #2 & #3 seals  
          2. only while AP-08 is in effect
- B.     1. damage to the 1A NC pump #2 & #3 seals  
          2. even after transition from AP-08 to E-0
- C.     1. the VCT from exceeding design temperature limits  
          2. only while AP-08 is in effect
- D.     1. the VCT from exceeding design temperature limits  
          2. even after transition from AP-08 to E-0

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 77

1 point)

---

Given the following conditions on Unit 1:

- The unit is in Mode 5
- NC system temperature is currently 112°F
- 1A ND Train is in service
- A special test procedure is to be run which requires BOTH NI pumps to be run in parallel and aligned to inject into the NC system.

Which ONE (1) of the following describes the requirements per Tech Spec 3.4.12 (LTOP) Bases?

- A. Secure two PORVs open with associated block valves open and power removed.  
This action protects against brittle fracture due to pressurized thermal shock of the reactor vessel.
- B. Secure two PORVs open with associated block valves open and power removed.  
This action protects against brittle fracture due to cold overpressure of the reactor vessel.
- C. Establish an RCS vent of  $\geq 2.75$  square inches and verify at least ONE Operable PZR PORV.  
This action protects against brittle fracture due to pressurized thermal shock of the reactor vessel.
- D. Establish an RCS vent of  $\geq 2.75$  square inches and verify at least ONE Operable PZR PORV.  
This action protects against brittle fracture due to cold overpressure of the reactor vessel.
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 78

(1 point)

---

Given the following conditions on Unit 1:

- The unit is at 12% RTP preparing to roll the main turbine
- M1A1276 (U1 CA Temp at Chk Vlv 1CA-37) alarms on the OAC
- 1CA-37 (#1 TD CA to S/G D)

Based on the above conditions:

1. In accordance with OP/1/A/6250/002 (Auxiliary Feedwater System), what method would FIRST be used to reduce the temperature at the check valve?
  2. How would this action affect the operability of the TD CA Pump?
    - A.
      1. Close 1CA-36 AB (U1 TD CA Pump Disch to 1D S/G Control) and monitor temperature for 15 min.
      2. The U-1 TD CA Pump remains OPERABLE.
    - B.
      1. Close 1CA-36 AB (U1 TD CA Pump Disch to 1D S/G Control) and monitor temperature for 15 min.
      2. The U-1 TD CA Pump shall be declared INOPERABLE.
    - C.
      1. Close 1CA-38B (U1 TD CA Pump Disch to 1D S/G Isol) and start the TD CA pump aligned for recirculation to the UST.
      2. The U-1 TD CA Pump remains OPERABLE.
    - D.
      1. Close 1CA-38B (U1 TD CA Pump Disch to 1D S/G Isol) and start the TD CA pump aligned for recirculation to the UST.
      2. The U-1 TD CA Pump shall be declared INOPERABLE.
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 79

(1 point)

---

Unit 1 is operating at 100% RTP with 'B' train components in service with a normal RN system alignment. 1B RN pump amps are swinging.

The following annunciators are in alarm:

- "B RN Pump Suction Lo Press"
- "B RN Pump Discharge Lo Press"

Which ONE (1) of the following is the required response to the above conditions based on the implementation of AP-20 (Loss of RN)?

- A. Implement Case 1, Loss of Operating RN Train  
Swap alignment to the Nuclear Service Water Pond and place the '1A' RN pump in service
  - B. Implement Case 1, Loss of Operating RN Train  
Place the '1A' RN pump in service and remain on Low Level Intake
  - C. Implement Case 2, Loss of Low level or RC Supply Crossover  
Swap alignment to the Nuclear Service Water Pond and place the '1A' RN pump in service
  - D. Implement Case 2, Loss of Low level or RC Supply Crossover  
Place the '1A' RN pump in service and remain on Low Level Intake
-



# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 80

1 point)

---

With both Units at 100% RTP the following occurs:

- Loss of Offsite Power occurred on Unit 1
- Both DGs started and loaded as designed
- 1A D/G subsequently trips on overspeed
- At Step 17 of ES 0.1 (Reactor Trip Response), the decision is made to implement AP-07 (Loss of Electrical Power)

Which ONE (1) of the following describes the Time Critical actions directed by the CRS to mitigate this event per AP-07?

- A. Complete Enc. 7 (DC Bus Alignment) to realign Battery Charger EVCA to Unit 2 within one hour.
  - B. Complete Enc. 7 (DC Bus Alignment) to realign Battery EVCA to Battery Charger EVCS within one hour.
  - C. Complete Generic Enc. 13 (VC and VA System Operation) to restart the Train A VC/YC Chiller within 37.5 minutes.
  - D. Complete Generic Enc. 13 (VC and VA System Operation) to swap Train A VC/YC Chiller power and water to Unit 2 and restart chiller within 1 hour and 15 minutes.
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 81

(1 point)

---

Given the following conditions on Unit 1:

- The unit is currently at 80% RTP with a power increase in progress
  - Power Range channel N-43 fails due to a faulty power supply
  - N-43 has been removed from service in accordance with AP-16 (Malfunction of Nuclear Instrumentation)
  - N-43 will be repaired in approximately 6 hours
1. In accordance with Tech Spec 3.2.4 (QPTR), Quadrant Power Tilt Ratios shall be determined by \_\_\_\_\_.
  2. Quadrant Power Tilt limits prevent exceeding \_\_\_\_\_ power distribution design limits.

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

- A.
    1. calculation using the remaining three Power Range channels OR movable incore detectors
    2. RADIAL
  - B.
    1. using the movable incore detectors ONLY
    2. RADIAL
  - C.
    1. calculation using the remaining three Power Range channels OR movable incore detectors
    2. AXIAL
  - D.
    1. using the movable incore detectors ONLY
    2. AXIAL
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 82

1 point)

---

Given the following conditions on Unit 1:

- The unit is operating at  $10^{-8}$  AMPS taking critical data
- One condenser steam dump fails open
- Crew is performing AP-01 (Steam Leak)
- Pressurizer level is stable
- NC system temperature is 553°F and decreasing slowly

1. Based on the conditions above, to isolate the steam leak AP-01 will direct the crew to \_\_\_\_\_.
2. Isolating the steam leak is one of the design basis considerations for ensuring \_\_\_\_\_ per Tech Spec 3.4.2, RCS Minimum Temperature for Criticality Basis.

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

- A.
    1. trip the Reactor and close the MSIVs
    2. the reactor remains subcritical in the event of a reactor trip
  - B.
    1. take "A" and "B" "STEAM DUMP INTLK BYP" switches to "OFF/RESET"
    2. the reactor remains subcritical in the event of a reactor trip
  - C.
    1. trip the Reactor and close the MSIVs
    2. proper indication and response of the excore detectors
  - D.
    1. take "A" and "B" "STEAM DUMP INTLK BYP" switches to "OFF/RESET"
    2. proper indication and response of the excore detectors
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 83

1 point)

---

Given the following conditions on Unit 1:

- The unit is initially in MODE 3 with SD Banks withdrawn and NC System at full temperature and pressure
- 1NC-32B (PZR PORV) fails open
- AP-11 (Pressurizer Pressure Anomalies) has been implemented
- The PORV isolation valve for 1NC-32B will not close
- An RO is directed to trip the Reactor and initiate Safety Injection
- When attempted, both Reactor Trip breakers will not open

In accordance with AP-11, the crew shall wait until the Reactor is tripped (1).

The crew will subsequently transition to (2).

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

- A.     1. AND then initiate SI, even if the low pressure SI setpoint is exceeded  
       2. AP-34 (Shutdown LOCA)
- B.     1. AND then initiate SI, even if the low pressure SI setpoint is exceeded  
       2. E-0 (Reactor Trip or Safety Injection)
- C.     1. OR the low pressure SI setpoint is reached to initiate SI  
       2. AP-34 (Shutdown LOCA)
- D.     1. OR the low pressure SI setpoint is reached to initiate SI  
       2. E-0 (Reactor Trip or Safety Injection)
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 84

(1 point)

---

Given the following conditions on Unit 1:

- The unit is operating at 100% RTP
- 1C NCP Oil Reservoir Level alarm is received on the OAC
- Oil level indication on the OAC is -2.0 inches
- 1C NC pump motor bearing temperature is 200°F
- AP-08 (Malfunction of NC Pump) Case II (NC Pump Motor or Motor Bearing Malfunction) has been implemented

Which ONE (1) of the following describes the ACTIONS to be directed by the CRS in accordance with AP-08 and the HIGHEST POWER allowed at which the NCP can be stopped?

- A. Trip the Reactor, verify reactor power less than 10%, then stop the 1C NCP.
  - B. Trip the Reactor, verify reactor power less than 5%, then stop the 1C NCP.
  - C. Reduce reactor power to < 10% using AP-04 (Rapid Downpower), then stop the 1C NCP.
  - D. Reduce reactor power to < 5% using AP-04 (Rapid Downpower), then stop the 1C NCP.
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 85

(1 point)

---

Unit 1 is operating at 100% RTP when the following alarms are received:

- 1AD-7 / J1 (NC PUMP SEAL INJ LO FLOW)
- 1AD-7 / I2 (REGEN HX LETDN HI TEMP)
- 1AD-7 / G2 (CHARGING LINE ABNORMAL FLOW)

The crew has implemented AP-12 (Loss of Letdown, Charging, or Seal Injection).

1. Based on plant conditions indicated by the alarms above, what actions are directed by AP-12?
  2. What actions are directed by AP-12 regarding the restoration of letdown during the subsequent recovery?
- A.
    1. FIRST close the Letdown Orifice Isolations (1NV-458A, 457A, 35A) and then close 1NV-1A, 2A (NC L/D Isol To Regen Hx).
    2. Pressurize the letdown system locally.
  - B.
    1. Close 1NV-1A, 2A (NC L/D Isol To Regen Hx) and ensure that the Letdown Orifice Isolations (1NV-458A, 457A, 35A) auto-close.
    2. Pressurize the letdown system locally.
  - C.
    1. FIRST close the Letdown Orifice Isolations (1NV-458A, 457A, 35A) and then close 1NV-1A, 2A (NC L/D Isol To Regen Hx).
    2. Pressurize the letdown system from the Control Room.
  - D.
    1. Close 1NV-1A, 2A (NC L/D Isol To Regen Hx) and ensure that the Letdown Orifice Isolations (1NV-458A, 457A, 35A) auto-close.
    2. Pressurize the letdown system from the Control Room.
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 86

1 point)

---

Given the following conditions on Unit 1:

- 1A, 1B and 1D Pressurizer heater group supply breakers open at 1100 on June 1 due to a lightning strike and cannot be reclosed
- A reactor startup is in progress with reactor power at 1% RTP
- Heater group 1C is available

Which ONE (1) of the following describes the required actions per Tech Spec 3.4.9, (Pressurizer)?

- A. Restore PZR heater group 1A ONLY to operable status.
  - B. Restore PZR heater group 1A AND 1B ONLY to operable status.
  - C. Restore PZR heater group 1A AND 1D ONLY to operable status.
  - D. Restore PZR heater group 1A AND 1B OR 1A AND 1D to operable status.
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 87

(1 point)

---

Given the following conditions on Unit 1:

- NC system is in MODE 3
- S/G tube leakage occurs on "C" S/G
- AP-10 (NC System Leakage within the Capacity of Both NV Pumps), Case I (S/G Tube Leakage) has been implemented
- Charging flow is 240 GPM

The maximum charging flow limit specified by AP-10 is based on (1).

The basis for performing a rapid cooldown to a selected target temperature is (2).

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

- A.
    - 1. preventing NV pump runout
    - 2. to ensure that there is sufficient NC System subcooling following depressurization
  - B.
    - 1. preventing Regen Hx tube vibration
    - 2. to ensure that there is sufficient NC System subcooling following depressurization
  - C.
    - 1. preventing NV pump runout
    - 2. to ensure NC system temperature is below the saturation temperature for the ruptured SG PORV lift pressure
  - D.
    - 1. preventing Regen Hx tube vibration
    - 2. to ensure NC system temperature is below the saturation temperature for the ruptured SG PORV lift pressure
-



# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 88

(1 point)

---

. Given the following conditions on Unit 1:

- The unit was operating at 100% RTP when a total loss of onsite and offsite power occurred

1. In accordance with AP-15 (Loss of Vital or Aux Control Power), what is the MINIMUM voltage on the DC Vital busses which requires the Vital Batteries (EVCA, EVCB, EVCC, EVCD) to be removed from service?
2. After power is restored and the battery chargers are placed in service, in accordance with Tech Spec 3.8.4 (DC Sources – Operating), what is the MINIMUM voltage required for the Vital Batteries to be OPERABLE while on float charge?

- A.
    1. 110 volts
    2. 125 volts
  - B.
    1. 105 volts
    2. 125 volts
  - C.
    1. 110 volts
    2. 110 volts
  - D.
    1. 105 volts
    2. 110 volts
-

# MCGUIRE NUCLEAR STATION

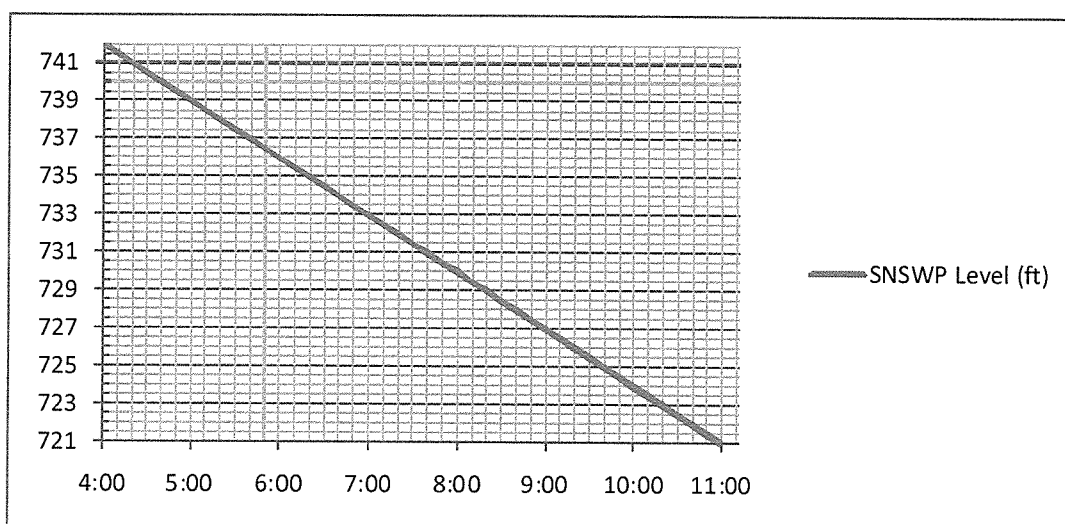
## 2010 MNS SRO NRC Examination

Question: 89

(1 point)

Unit 1 is operating at 100% RTP with "B" Train equipment in service when the following sequence of events occurs:

- The Low Level Intake suction has been lost due to fouling associated with the intake grating
- The crew is performing Enclosure 1 of AP-20 (Aligning B Train RN to Pond)
- 0RN-152 (Train 1B & 2B Disch to SNSWP) failed to open and all attempts to move the valve have failed
- The following SNSWP level trend is observed on the OAC:



Based on these conditions, the SNSWP level becomes initially INOPERABLE at (1).

The SNSWP minimum level ensures a sufficient volume of water to allow RN system operation for at least (2) following a design basis LOCA.

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

- A. 1. 0450  
2. 5 Days
- B. 1. 1040  
2. 5 Days
- C. 1. 0450  
2. 30 Days
- D. 1. 1040  
2. 30 Days

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 90

1 point)

---

Given the following conditions on Unit 1:

- Unit was at 100% RTP when rod M-4 dropped due to a blown fuse
- AP-14 (Rod Control Malfunction) has been implemented

- 1) In accordance with Tech Spec 3.1.4 (Rod Group Alignment Limits), if the rod can NOT be restored to within alignment limits, power must be reduced to less than or equal to \_\_\_\_\_ within 2 hours.
- 2) Per AP-14 power must be reduced to less than a MAXIMUM of \_\_\_\_\_ to retrieve the dropped rod.

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

- A.
    1. 95% RTP
    2. 75% RTP
  - B.
    1. 95% RTP
    2. 50% RTP
  - C.
    1. 75% RTP
    2. 50% RTP
  - D.
    1. 75% RTP
    2. 75% RTP
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 91

1 point)

---

Given the following conditions on Unit 1:

- The unit is in MODE 5 following a refueling outage
- PT/1/A/4200/002 C (Containment Closure / Integrity) is in effect
- Both trains of ND are in service
- Both ND pumps trip and cannot be restarted
- AP-19 (Loss of ND or ND System Leakage) has been implemented

Which ONE (1) of the following describes actions required by AP-19 based on the conditions above?

- A. Notify the WCC SRO to dispatch Operators to isolate any open penetrations ONLY.
  - B. Evacuate Containment AND notify the WCC SRO to dispatch Operators to isolate any open penetrations.
  - C. Notify the Containment Closure Coordinator to initiate Containment closure ONLY.
  - D. Evacuate Containment AND notify the Containment Closure Coordinator to initiate Containment closure.
-

# MCGUIRE NUCLEAR STATION

## 2010 MNS SRO NRC Examination

Question: 92  
1 point)

---

Given the following conditions on Unit 1:

- The unit is at 100% RTP
- AP-18 (High Coolant Activity) has been entered due to 1EMF-18 (Reactor Coolant Filter 1A) in Trip 2 alarm

Isotopic analysis of the NC system indicates the presence of Cobalt and Manganese which indicates that a (1) event has occurred and the required action in accordance with AP-18 to reduce the activity in the NC system is to (2).

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

- A.
    - 1. failed fuel
    - 2. place the Cation Bed demineralizer in service
  - B.
    - 1. failed fuel
    - 2. increase letdown flow
  - C.
    - 1. crud burst
    - 2. place the Cation Bed demineralizer in service
  - D.
    - 1. crud burst
    - 2. increase letdown flow
-

# MCGUIRE NUCLEAR STATION

## 2010 MNS SRO NRC Examination

Question: 93

1 point)

Given the following conditions on Unit 1:

- A Reactor Trip and Safety Injection have occurred due to a Small-Break LOCA inside Containment
- Containment pressure peaked at 2.5 PSIG
- ES-1.2 (Post LOCA Cooldown and Depressurization) has been implemented
- Both ND pumps are running
- NC system pressure is 250 PSIG and decreasing slowly

The FIRST FWST level and Containment Sump conditions that require stopping both ND pumps prior to swapping to the containment sump are FWST level (1) AND both "CONT SUMP LEVEL GREATER THAN 2.5 FT" alarms are (2).

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

- A. 1. 200 inches  
2. DARK
- B. 1. 260 inches  
2. DARK
- C. 1. 200 inches  
2. LIT
- D. 1. 260 inches  
2. LIT

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 94

(1 point)

---

Unit 1 is operating at 100% RTP.

An active licensed STA may assume the duties of the Control Room Supervisor provided the CRS or relief SRO is available to return to the control room within (1) AND the periods during which the STA assumes SRO duties do not exceed (2) in duration.

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

- A.     1. 10 minutes  
       2. 15 minutes
  - B.     1. 15 minutes  
       2. 10 minutes
  - C.     1. 15 minutes  
       2. 15 minutes
  - D.     1. 10 minutes  
       2. 10 minutes
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 95

1 point)

---

Given the following conditions on Unit 1:

- The unit is in a refueling outage
- Fuel movement is in progress
- A leak has developed which has caused level to drop in the spent fuel pool
- The Spent Fuel Pool Level Low computer alarm has actuated

In accordance with AP-40 (Loss of Refueling Canal Level), which ONE (1) of the following describes the FIRST action directed by the CRS to mitigate the current conditions?

- A. Place the weir gate in position and inflate the seals.
  - B. Begin makeup to the pool from the Boric Acid Tank.
  - C. Move the fuel transfer cart to the reactor side and close 1KF-122 (Fuel transfer tube block valve).
  - D. Move the fuel transfer cart to the spent fuel (pit) side and close 1KF-122 (fuel transfer tube block valve).
-



# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 96

(1 point)

Given the following conditions on Unit 1:

- Unit 1 is operating at 100% RTP

The following sequence of events occurs:

<u>DATE</u>	<u>TIME</u>	<u>EVENT</u>
0800	July 10	1SA-49AB (Main Steam Supply from SG 1B to TD CA Pump) declared INOPERABLE
0800	July 16	1SA-48ABC (Main Steam Supply from SG 1C to TD CA Pump) declared INOPERABLE
0100	July 17	1SA-49AB (Main Steam Supply from SG 1B to TD CA Pump) returned to OPERABLE status

In accordance with Tech Spec 3.7.5 (AFW System), 1SA-48ABC must be returned to OPERABLE status by \_\_\_\_\_ or the unit must be placed in MODE 3 within 6 hours and MODE 4 within 12 hours.

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

### REFERENCE PROVIDED

- A. 0800 on July 17
- B. 0800 on July 20
- C. 0800 on July 23
- D. 0100 on July 24

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 97

1 point)

---

Given the following conditions on Unit 1:

- The unit is in MODE 5 preparing for a unit startup after refueling
- You are the Unit 1 Control Room Supervisor
- A Temporary Test procedure is being run on the 1B Boric Acid pump
- The OATC points out that several steps in the TT procedure should be concurrent verification steps to be consistent with similar steps in other test procedures

In accordance with NSD 703 (Administrative Instructions for Technical Procedures) the change to the Temporary Test Procedure shall be processed as a (1) change.

For any procedure change, a 10CFR50.59 Evaluation is NOT required (2).

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

- A. 1. minor  
2. for minor changes ONLY
  - B. 1. major  
2. for minor changes ONLY
  - C. 1. minor  
2. for minor changes OR if the procedure has been excluded from the 10CFR50.59 process
  - D. 1. major  
2. for minor changes OR if the procedure has been excluded from the 10CFR50.59 process
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 98

(1 point)

---

SLC 16.11.20 (Gas Storage Tanks) limits the quantity of radioactivity in each Waste Gas Decay Tank (WGDT).

The basis for this limit assures the amount of radioactivity released would be substantially lower than the dose guideline values of \_\_\_\_\_.

Which One (1) of the following completes the statement above?

- A. 10 CFR 20 during routine WGDT releases.
  - B. 10 CFR 100 during routine WGDT releases.
  - C. 10 CFR 20 in the event of a WG System leak or failure.
  - D. 10 CFR 100 in the event of a WG System leak or failure.
-

# MCGUIRE NUCLEAR STATION

## 2010 MNS SRO NRC Examination

Question: 99

(1 point)

---

Given the following plant conditions:

- You are tasked to evaluate four available work teams to perform repairs in a 1500 mREM/hr radiation field

Which ONE (1) of the following work teams would maintain station radiation dose ALARA?

- A. Two qualified male workers can complete the task working together in 15 minutes. Each worker has accumulated 325 mREM for the year.
  - B. A team consisting of a qualified male and qualified female worker can complete the task working together in 20 minutes. Each worker has accumulated 100 mREM this year.
  - C. A qualified male worker who has previously performed this task can complete the task in 20 minutes. However, he has exceeded his 'Alert' level for exposure and will require a dose extension.
  - D. A team consisting of a qualified declared pregnant female worker and a non-qualified male worker who needs to qualify on this task can complete the task working together in 15 minutes. The female has no dose and the male worker has accumulated 200 mREM for the year.
-

# MCGUIRE NUCLEAR STATION

## *2010 MNS SRO NRC Examination*

Question: 100

(1 point)

---

Given the following plant conditions:

- An Unusual Event was declared on Unit 2.
- Initial Notification to the States, Counties and the NRC has been completed.
- The Emergency Coordinator has just made the decision to upgrade the classification to an Alert

The NRC is required to be notified immediately but no more than (1) after change of classification.

After the initial notification of the change in classification is made to the State and Counties, follow up notifications are required to be made every (2) until the emergency is terminated.

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

- A.    1. 1 hour  
      2. hour
  - B.    1. 1 hour  
      2. 4 hours
  - C.    1. 15 minutes  
      2. hour
  - D.    1. 15 minutes  
      2. 4 hours
-



## ***Reference List for: 2010 MNS SRO NRC Examination***

U-1 Data Book Curve 1.8

EP Generic Enc G-1 End. 4

Data Book Sect. 1.3 Enc. 4.3

Steam Tables

Unit 1 & 2 Generator Capability Curves

EP/1/A/5000/F-0 Page 5 of 11

Tech Spec 3.7.5 (AFW System)

**UNIT 1**

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

1. **Select one train of H<sub>2</sub> Recombiner to be placed in service:**

- \_\_\_ • To start 1A H<sub>2</sub> Recombiner, **GO TO**  
Step 2.

OR

- \_\_\_ • To start 1B H<sub>2</sub> Recombiner, **GO TO**  
Step 5.

2. **Determine 1A H<sub>2</sub> Recombiner power setting as follows:**

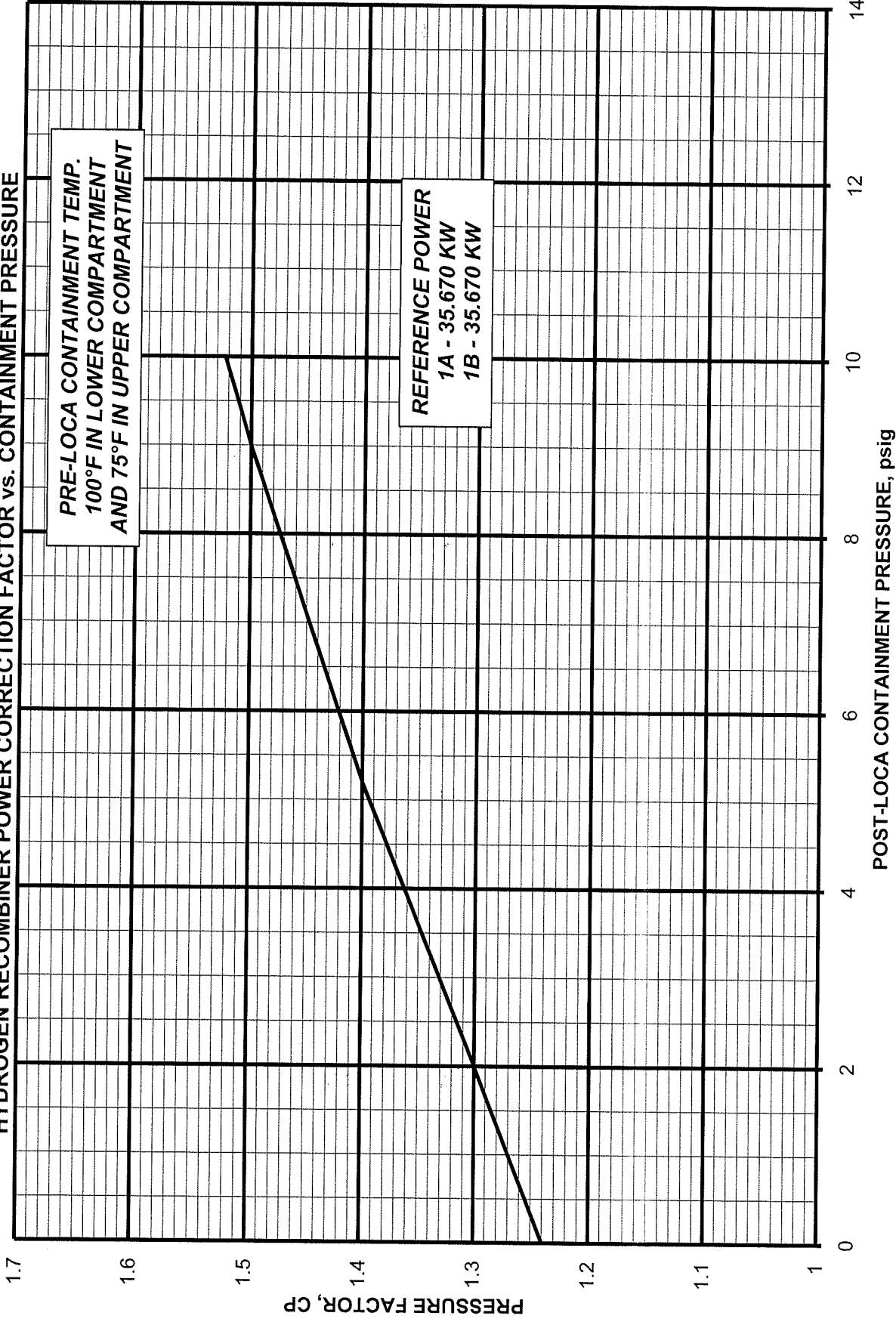
- \_\_\_ a. Determine "PRESSURE FACTOR, CP"  
from Data Book Curve 1.8.
- \_\_\_ b. Multiply "1A REFERENCE POWER"  
listed on Data Book Curve 1.8 by  
"PRESSURE FACTOR, CP" to  
determine 1A Hydrogen Recombiner  
Power Setting.

$$1A: \quad \frac{\text{"1A REFERENCE POWER"}}{\text{"1A REFERENCE POWER"}} \times \frac{\text{"PRESSURE FACTOR, CP"}}{\text{"PRESSURE FACTOR, CP"}} = \frac{\text{1A Power Setting}}{\text{1A Power Setting}}$$

- \_\_\_ c. Record "1A POWER SETTING"  
\_\_\_\_\_.



HYDROGEN RECOMBINER POWER CORRECTION FACTOR vs. CONTAINMENT PRESSURE



OP/1/A/6100/022  
Unit 1 Data Book  
Section 1.3  
Enclosure 4.3

## Fuel Maneuvering Limits

- NOTES:**
- 1: Fuel Maneuvering Limits apply to power increases **NOT** power decreases.
  - 2: Maneuvering Limits are based on **REACTOR POWER** not **GENERATOR POWER**.
  - 3: Contact the Reactor Group if there are any questions concerning the Fuel Maneuvering Limits.

### I. Definitions

#### 1. **Ramp Rate**

Ramp rate is the core power increase time averaged over a maximum period of 1 hour.

#### 2. **Conditioned Power Level**

- a. Operating Category 1: During initial cycle startup (including first core startup and any cold shutdown in which fuel assemblies were handled) prior to achieving 100% RTP for 72 cumulative hours out of any 7 day operating period at power.

CPL  $\cong$  highest power level sustained for at least 72 cumulative hours (does not have to be consecutive) out of any 7 day operating period at power.

- b. Operating Category 2: After achieving the 100% RTP requirement above.

CPL  $\cong$  highest power level sustained for at least 72 cumulative hours (does not have to be consecutive) out of the preceding 30 day operating period at power.

OP/1/A/6100/022  
Unit 1 Data Book  
Section 1.3  
Enclosure 4.3

## Fuel Maneuvering Limits

### II. Allowable Ramp Rates

#### Initial cycle startup

No Rate Restrictions from 0% RTP to 40% RTP

Recommended rate of  $\leq 3\%$ /hour between 40% RTP and 100% RTP, but to accommodate secondary side efficiency changes, rate shall never exceed:

3% step change increase  
4% power increase in 1 hour  
7% power increase in 2 hours  
10% power increase in 3 hours

#### Subsequent power maneuvering

No Rate Restrictions from 0% RTP to 40% RTP, if  $CPL < 40\%$  RTP

No Rate Restrictions from 0% RTP to CPL, if  $CPL > 40\%$  RTP

When  $CPL > RTPBE$ , no step change increase shall exceed 10%

When  $RTPBE \geq 40\%$  **AND**  $RTPBE > CPL$ , recommended rate of  $\leq 3\%$ /hour; but to accommodate secondary side efficiency changes, rate shall never exceed:

3% step change increase  
4% power increase in 1 hour  
7% power increase in 2 hours  
10% power increase in 3 hours

OP/1/A/6100/022  
Unit 1 Data Book  
Section 1.3  
Enclosure 4.3

## Fuel Maneuvering Limits

### III. Control Rod Movement

#### Initial Cycle Startup

Applicable for initial startup following refueling, or following cold shutdown where fuel assemblies were handled within the reactor vessel.

Control Rod Withdrawal Rate Limit of 3 steps/hour above 50% RTP concurrent with power increase. There are no control rod movement rate limits when RTP is held constant.

Once the rods have been withdrawn to a given position at a given power level, during subsequent maneuvers there are no restrictions on rod withdrawals to the previous position up to that power level.

#### Subsequent Startups

There are no restrictions on rod withdrawals to the maximum withdrawn position and corresponding power level that has occurred since the most recent startup.

For withdrawals beyond the maximum withdrawn position, limit withdrawal to 3 steps per hour concurrent with power increase. There are no control rod withdrawal limits when RTP is constant.

OP/1/A/6100/22

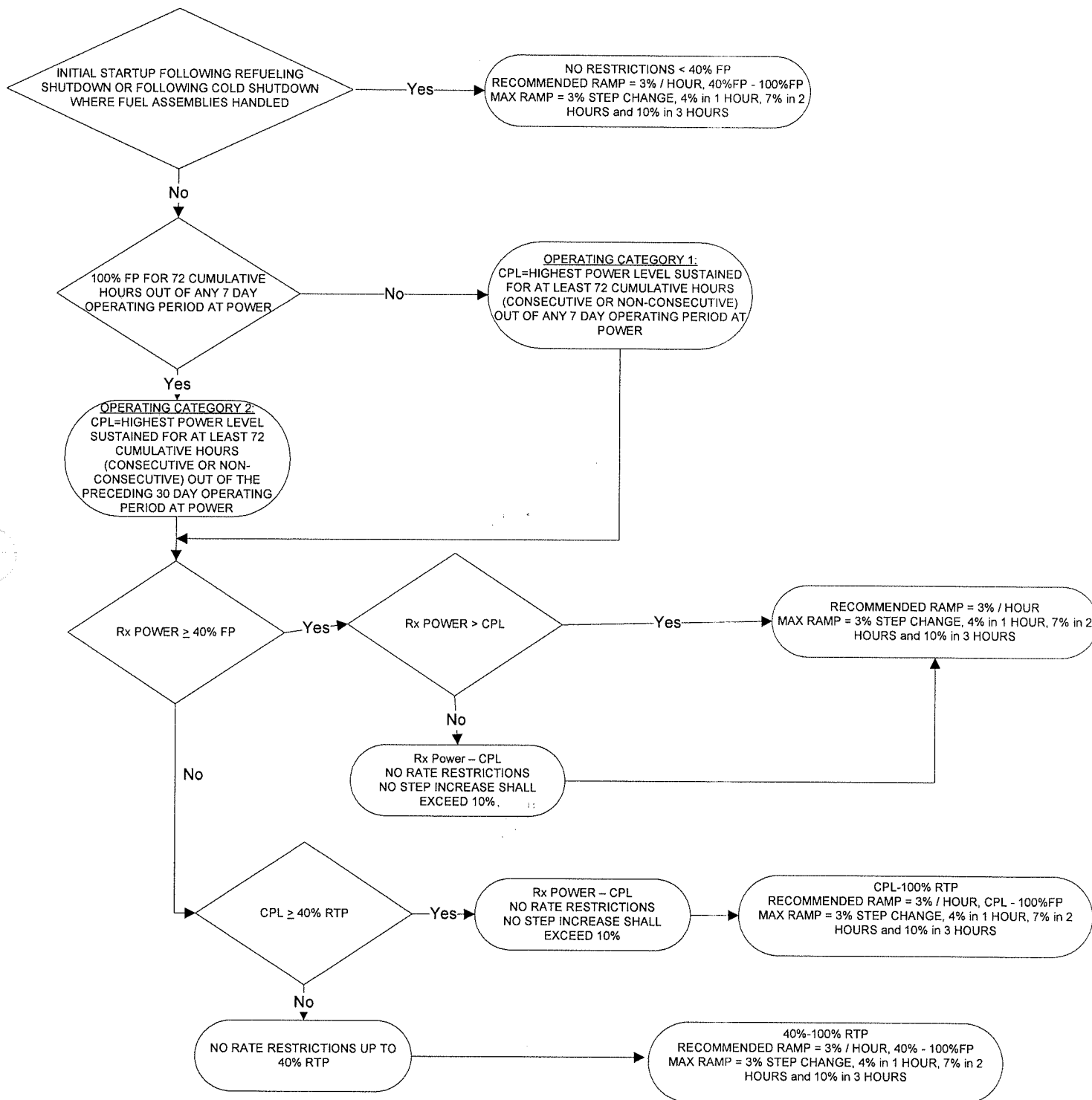
Unit 1 Data Book

Section 1.3

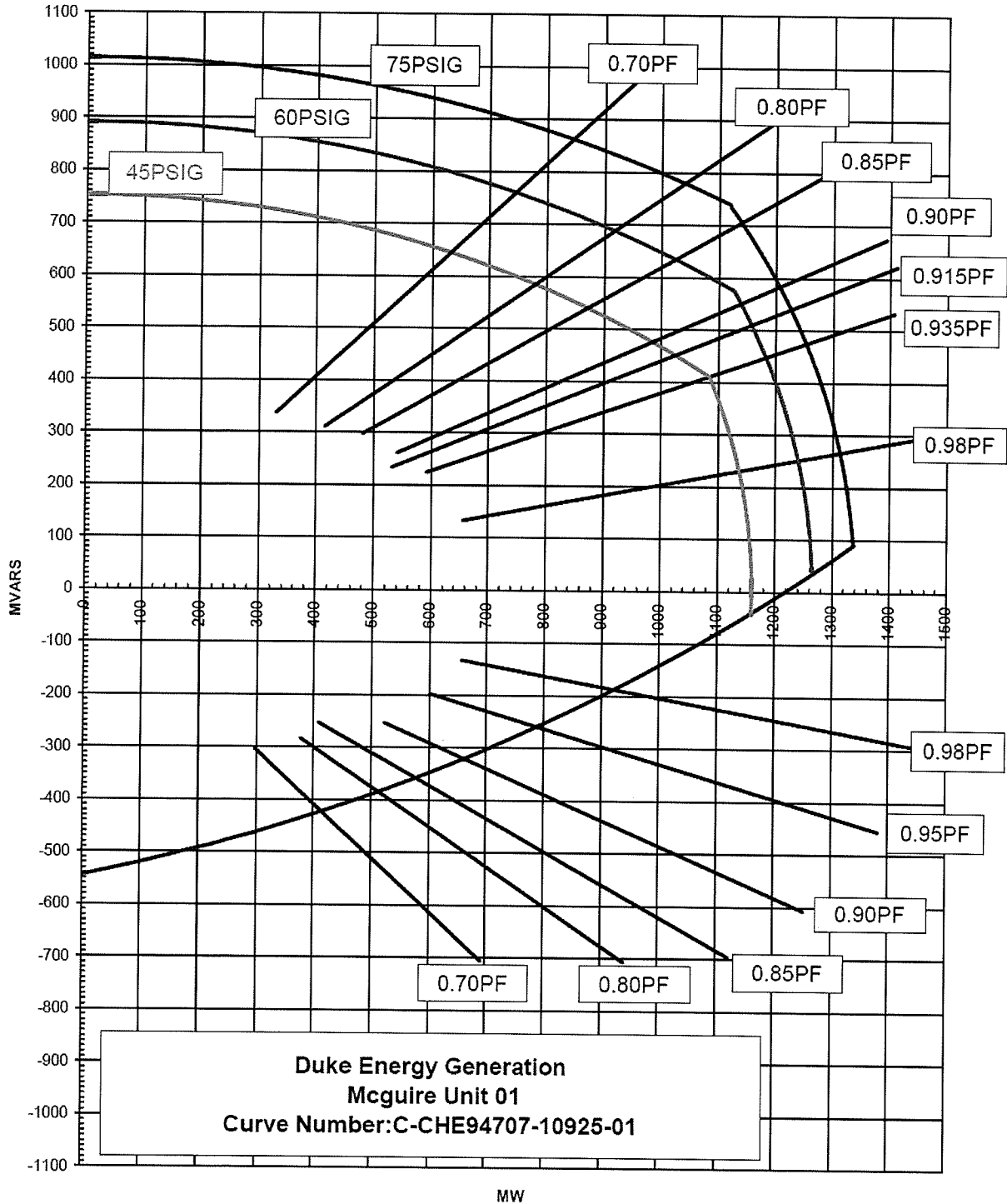
Enclosure 4.3

Fuel Maneuvering Limits

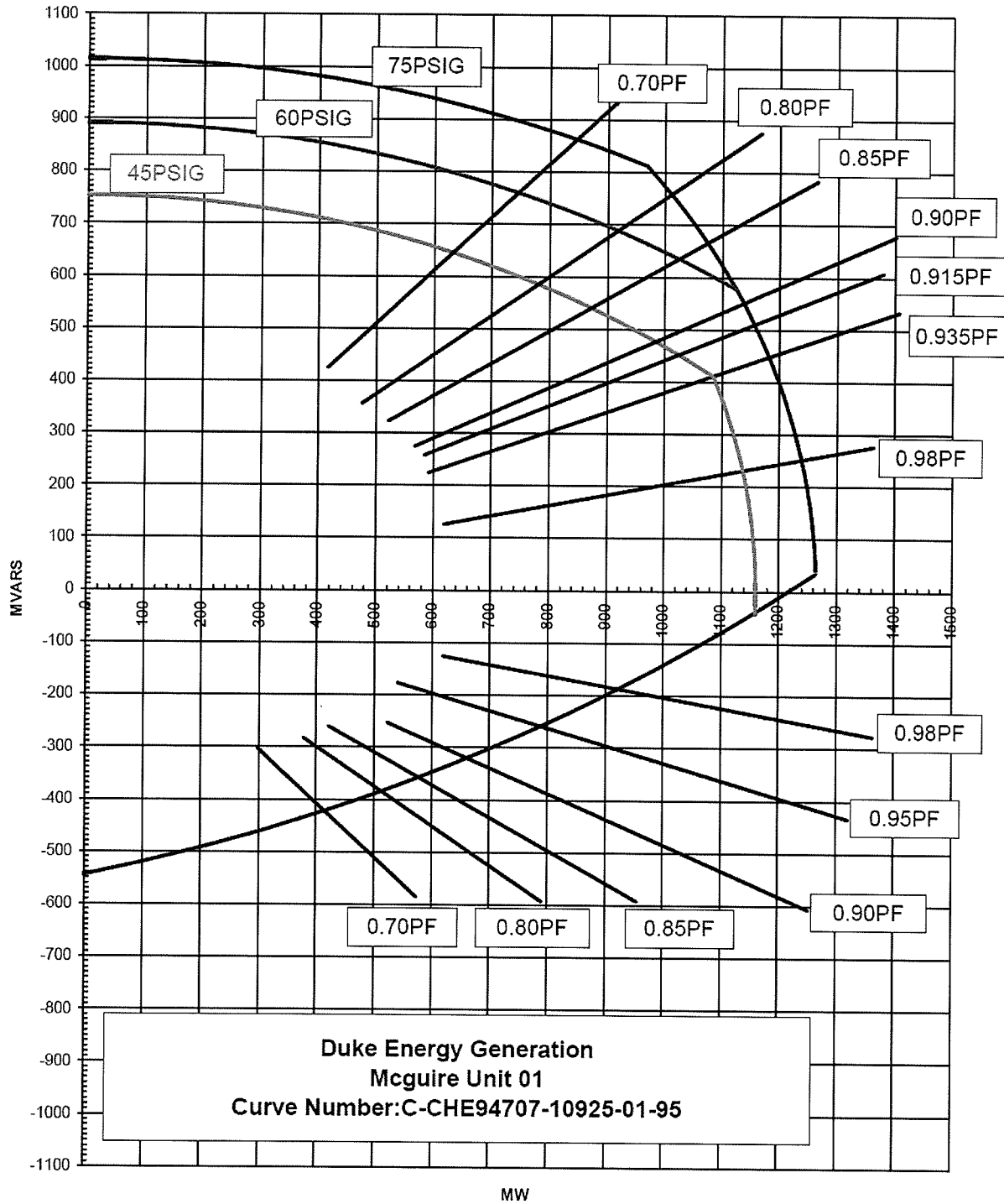
## POWER RAMP RESTRICTIONS



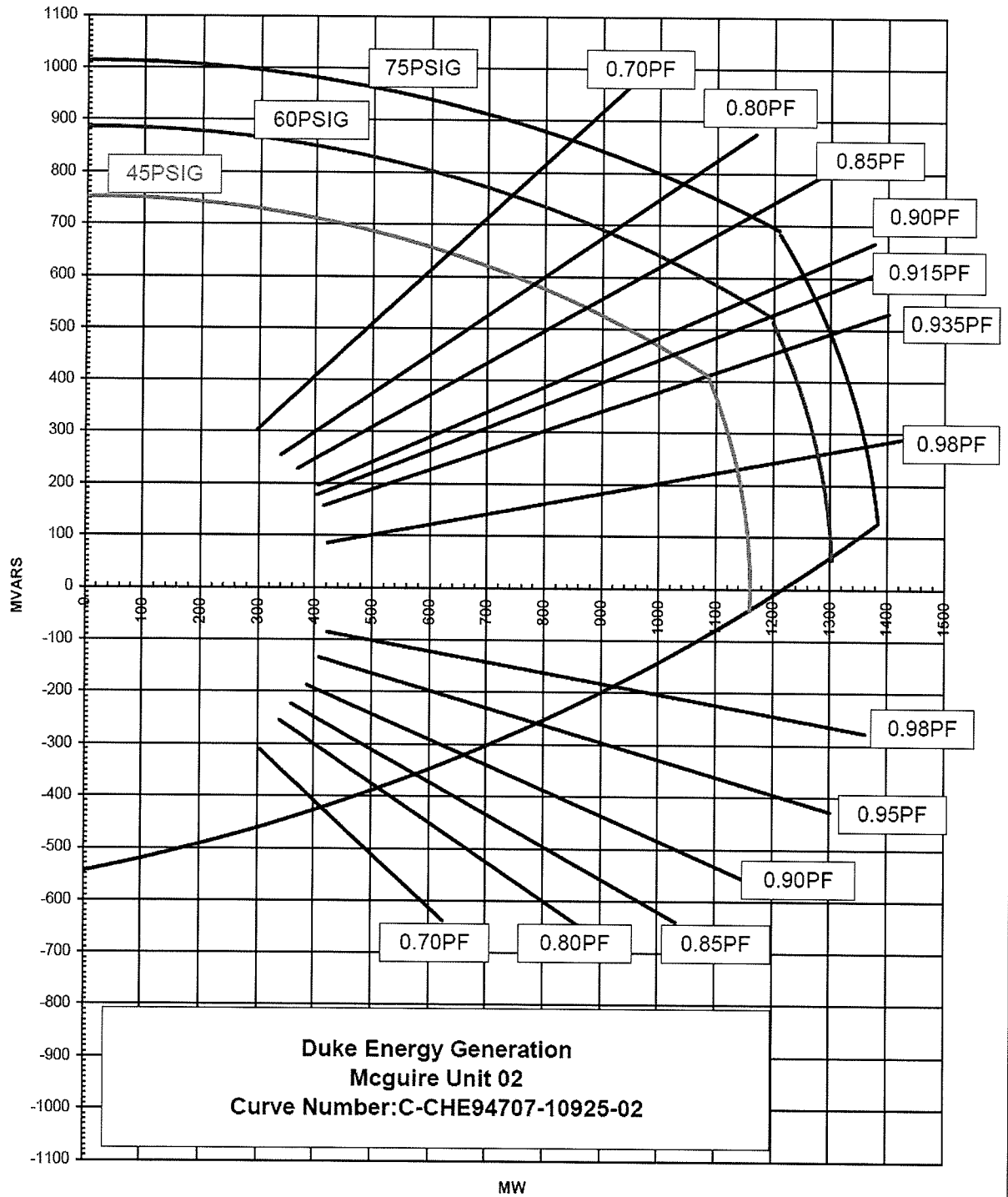
SIEMENS POWER GENERATION  
CALCULATED CAPABILITY CURVE  
AT 100 PERCENT VOLTAGE (24kV)  
HYDROGEN INNER-COOLED TURBINE GENERATOR  
WITH WATER COOLED STATOR  
1330MVA, 0.83PF, 46C COLD GAS



SIEMENS POWER GENERATION  
 CALCULATED CAPABILITY CURVE  
 AT 95 PERCENT VOLTAGE (22.8kV)  
 HYDROGEN INNER-COOLED TURBINE GENERATOR  
 WITH WATER COOLED STATOR  
 1264MVA, 0.76PF, 46C COLD GAS

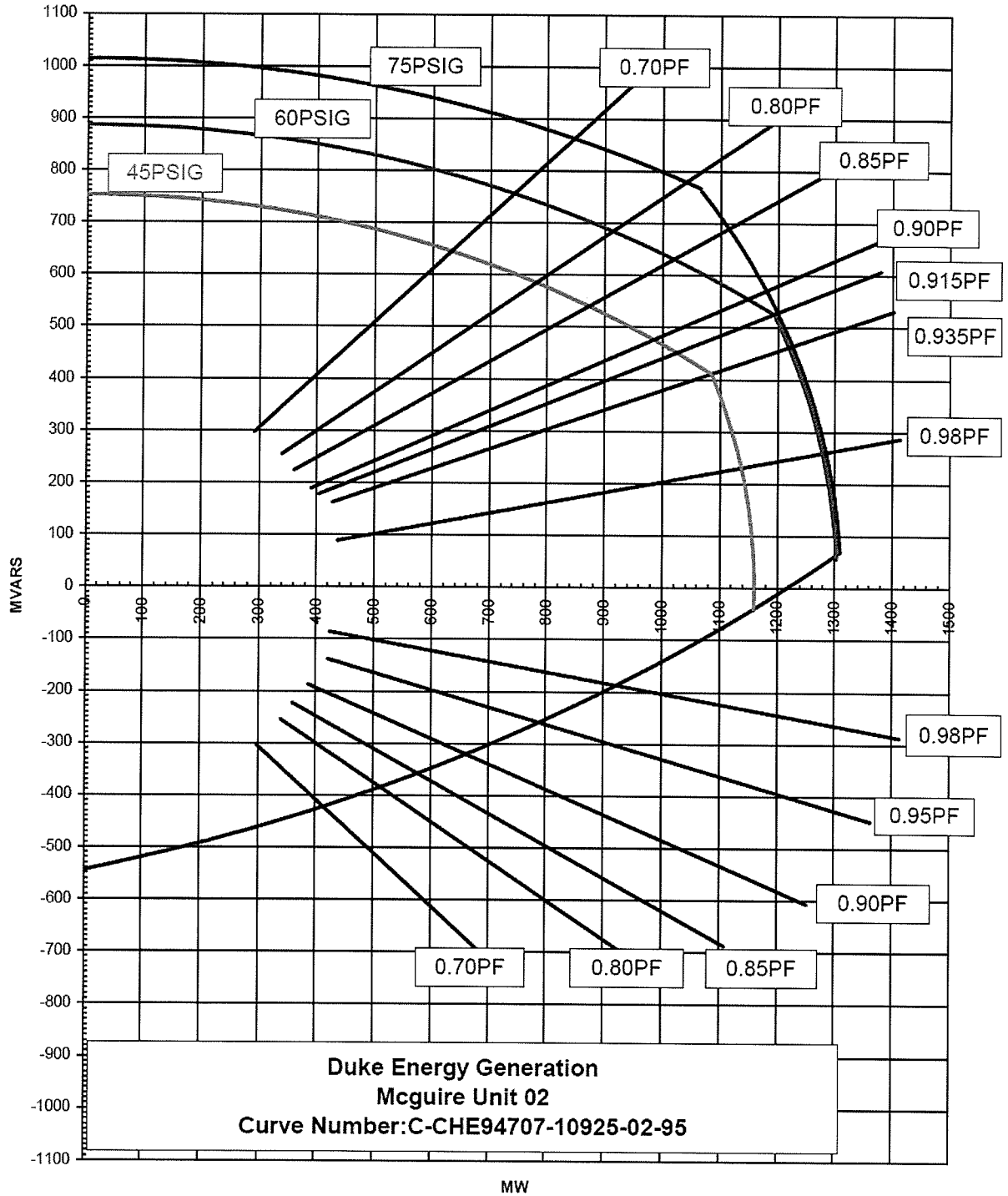


SIEMENS POWER GENERATION  
CALCULATED CAPABILITY CURVE  
AT 100 PERCENT VOLTAGE (24kV)  
HYDROGEN INNER-COOLED TURBINE GENERATOR  
WITH WATER COOLED STATOR  
1380MVA, 0.87PF, 46C COLD GAS





SIEMENS POWER GENERATION  
CALCULATED CAPABILITY CURVE  
AT 95 PERCENT VOLTAGE (22.8kV)  
HYDROGEN INNER-COOLED TURBINE GENERATOR  
WITH WATER COOLED STATOR  
1311MVA, 0.81PF, 46C COLD GAS



OP/ 1/A/6100/022

Enclosure 4.3

Table 3.1.4

UNIT 1

McGuire Nuclear Station

Generator Capability Curve Application Guidance

- 1 22.8kV Capability Curve (Curve 3.1.1 of Enclosure 4.3) to be used when generator output voltage is between 22.8kV and 24.0 kV.
- 2 24.0kV Capability Curve (Curve 3.1.2 of Enclosure 4.3) to be used when generator output voltage is 24.0 kV or higher.

**NOTE:** MVAR limits provided in Enclosure 4.3 are based upon Full Power (1200 MWs) operation. At reduced power MVAR limits should be obtained from generator capability curves. Actual MVAR limits are based upon operating generator voltage, H2 pressure, MW output, etc.

- 3 When generator MVARs exceed capability curve, refer to AP / 1 / A / 5500 / 005 (Generator Voltage and Electric Grid Disturbances)

UNIT 1

**"REACTOR VESSEL D/P" SETPOINTS FOR DEGRADED CORE COOLING**

Number of NC Pumps On	Required "REACTOR VESSEL D/P"			
	TRN A With 1A NC Pump		TRN B With 1C NC Pump	
	ON	OFF	ON	OFF
4	44%	N/A	44%	N/A
3	30%	24%	30%	24%
2	23%	15%	23%	15%
1	16%	10%	16%	10%

### 3.7 PLANT SYSTEMS

#### 3.7.5 Auxiliary Feedwater (AFW) System

LCO 3.7.5 Three AFW trains shall be OPERABLE.

-----NOTE-----  
Only one AFW train, which includes a motor driven pump, is required to be OPERABLE in MODE 4.  
-----

APPLICABILITY: MODES 1, 2, and 3,  
MODE 4 when steam generator is relied upon for heat removal.

#### ACTIONS

-----NOTE-----  
LCO 3.0.4.b is not applicable when entering MODE 1.  
-----

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One steam supply to turbine driven AFW pump inoperable.	A.1 Restore steam supply to OPERABLE status.	7 days  <u>AND</u>  10 days from discovery of failure to meet the LCO
B. One AFW train inoperable in MODE 1, 2 or 3 for reasons other than Condition A.	B.1 Restore AFW train to OPERABLE status.	72 hours  <u>AND</u>  10 days from discovery of failure to meet the LCO

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. Required Action and associated Completion Time for Condition A or B not met.</p> <p><u>OR</u></p> <p>Two AFW trains inoperable in MODE 1, 2, or 3.</p>	<p>C.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>C.2 Be in MODE 4.</p>	<p>6 hours</p> <p>12 hours</p>
<p>D. Three AFW trains inoperable in MODE 1, 2, or 3.</p>	<p>D.1 -----NOTE-----  LCO 3.0.3 and all other LCO Required Actions requiring MODE changes are suspended until one AFW train is restored to OPERABLE status.  -----</p> <p>Initiate action to restore one AFW train to OPERABLE status.</p>	<p>Immediately</p>
<p>E. Required AFW train inoperable in MODE 4.</p>	<p>E.1 Initiate action to restore AFW train to OPERABLE status.</p>	<p>Immediately</p>

## SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.7.5.1 -----NOTE----- Not applicable to automatic valves when THERMAL POWER is <math>\leq</math> 10% RTP. -----</p> <p>Verify each AFW manual, power operated, and automatic valve in each water flow path, and in both steam supply flow paths to the steam turbine driven pump, that is not locked, sealed, or otherwise secured in position, is in the correct position.</p>	31 days
<p>SR 3.7.5.2 -----NOTE----- Not required to be performed for the turbine driven AFW pump until 24 hours after <math>\geq</math> 900 psig in the steam generator. -----</p> <p>Verify the developed head of each AFW pump at the flow test point is greater than or equal to the required developed head.</p>	In accordance with the Inservice Testing Program
<p>SR 3.7.5.3 -----NOTE----- Not applicable in MODE 4 when steam generator is relied upon for heat removal. -----</p> <p>Verify each AFW automatic valve that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.</p>	18 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.7.5.4 -----NOTE-----</p> <ol style="list-style-type: none"> <li>1. Not required to be performed for the turbine driven AFW pump until 24 hours after <math>\geq 900</math> psig in the steam generator.</li> <li>2. Not applicable in MODE 4 when steam generator is relied upon for heat removal.</li> </ol> <p>-----</p> <p>Verify each AFW pump starts automatically on an actual or simulated actuation signal.</p>	<p>18 months</p>





**Examination KEY for: 2010 MNS SRO NRC Examination**

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

**Examination KEY for: 2010 MNS SRO NRC Examination**

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

***Examination KEY for: 2010 MNS SRO NRC Examination***

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

**Examination KEY for: 2010 MNS SRO NRC Examination**

<b>Question Number</b>	<b>Answer</b>
76	B
77	B
78	B
79	C
80	A
81	B
82	D
83	D
84	B
85	C
86	B
87	B
88	B
89	C
90	C
91	D
92	D
93	A
94	A
95	D
96	B
97	C
98	D
99	C
100	A