U.S. Nuclear Regulatory Commission

Site-Specific RO Written Examination

Applicant Information	
Name:	
Date:	Facility/Unit: MCGUIRE
Region: I (II) III IV	Reactor Type: (W) CE BW GE
Start Time:	Finish Time:

Instructions

Use the answer sheets provided to document your answers. Staple this cover sheet on top of the answer sheets. To pass the examination, you must achieve a final grade of at least 80.00 percent. Examination papers will be collected 6 hours after the examination begins.

Applicant Certification

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

_____
Applicant's Signature

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

McGuire Nuclear Station

2012 MNS RO NRC Examination

Question: 1
(1 point)

With Unit 1 operating at 50% RTP, a Reactor Trip signal will be generated on a Turbine trip provided 2/3 Auto Stop Oil pressures lower below the setpoint, which is ___(1)___ PSIG, OR 4/4 ___(2)___ are closed.

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

A. 1. 45
   2. Throttle valves

B. 1. 75
   2. Throttle valves

C. 1. 45
   2. Governor valves

D. 1. 75
   2. Governor valves

Question: 2
(1 point)

Given the following conditions on Unit 1:

- The unit is at 100% RTP
- An inadvertent Phase A Containment Isolation occurs

Based on the conditions above:

	NC Pump Seal Water Return Flow is _____.	NC Pump RN Flow is _____.
A.	isolated	isolated
B.	isolated	NOT isolated
C.	NOT isolated	isolated
D.	NOT isolated	NOT isolated

Question: 3
(1 point)

Unit 2 is operating at 100% RTP.

The NC System boron concentration will DECREASE if Letdown temperature is ___(1)___ by 10°F.

If LD Hx outlet temperature reaches ___(2)___ 2NV-127A (LD Hx Outlet 3-Way Temp Cntrl) will AUTO divert letdown flow to the VCT.

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

A. 1. LOWERED
   2. 120°F

B. 1. LOWERED
   2. 138°F

C. 1. RAISED
   2. 120°F

D. 1. RAISED
   2. 138°F

Question: 4
(1 point)

Unit 1 was operating at 100% RTP when a LOCA occurred. Given the following events and conditions:

- The crew attempted to align 1A Train of the ND system to supply Containment Spray
- 1NS-43A (1A ND Hx Outlet to NS Cont Outside Isol) failed to open

Which ONE (1) of the following statements describes the interlock that prevented 1NS-43A from opening?

A. 1NI-173A (1A ND to A & B Cold Legs Cont Outside Isol) was not closed.

B. 1ND-58A (Train A ND to NV & NI Pumps) was not closed.

C. 1NI-185A (RB Sump to Train A ND & NS) was not open.

D. CPCS signal was not present.

Question: 5
(1 point)

Given the following conditions on Unit 2:

- A small break LOCA has occurred
- Bus 2EMXB-4 is locked out on protective relay actuation
- The crew is performing ES-1.2 (Post LOCA Cooldown and Depressurization)

In accordance with ES-1.2, during the NC system cooldown and depressurization, the Operators will isolate Cold Leg Accumulators (CLA's) __(1)__ and depressurize CLA's __(2)__.

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

A. 1. A and C
   2. B and D

B. 1. A and B
   2. C and D

C. 1. B and D
   2. A and C

D. 1. C and D
   2. A and B

Question: 6
(1 point)

Given the following conditions on Unit 1:

- Unit is in Mode 5
- Preparations for refueling are in progress
- The crew is preparing to perform a Nitrogen purge of the VCT for an NC system Degas
- There is a bubble in the Pressurizer

In accordance with OP/1/A/6100/SD-10 (NC System, PRT and NCDT Degas):

Nitrogen is aligned to the VCT from __(1)__.

The purpose for performing the Nitrogen purge is to __(2)__.

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

A. 1. Bulk Nitrogen
2. Remove air and non- condensable gases from the NC System in preparation for taking the plant solid.

B. 1. Bulk Nitrogen
2. Remove Dissolved Hydrogen from the NC System to prevent formation of an explosive Hydrogen / Oxygen mixture.

C. 1. Shutdown Waste Gas Decay Tank B
2. Remove air and non- condensable gases from the NC System in preparation for taking the plant solid.

D. 1. Shutdown Waste Gas Decay Tank B
2. Remove Dissolved Hydrogen from the NC System to prevent formation of an explosive Hydrogen / Oxygen mixture.

Question: 7
(1 point)

Given the following conditions on Unit 1:

- The unit is at 100% RTP
- 'B' Train components are in service
- The crew implements AP-21 (Loss of KC or KC System Leakage) due to a loss of the 1B1 KC pump

At 0800 the following temperatures are observed on all NC pumps:

Parameter	Temperature	Increase
Lower Motor Bearings	177°F	+1.5°F/min
Upper Motor Bearings	182°F	+1.0°F/min
Pump Lower Radial Bearings	180°F	+1.0F/min

Based on the conditions above, and considering that the trend does not change:

The NC pumps ___(1)___ Motor bearings will be the FIRST motor bearings to reach an operating limit.

The NC Pumps Lower Radial Bearing temperatures with reach their operating limit at ___(2)___.

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

A. 1. Lower
   2. 0820

B. 1. Upper
   2. 0820

C. 1. Lower
   2. 0845

D. 1. Upper
   2. 0845

Question: 8
(1 point)

Given the following conditions on Unit 2:

- The unit is initially operating at 100% RTP
- 'A' Train components are in service
- The 2B sequencer is in TEST
- An SI signal is received on BOTH Unit 2 ESF Trains

1) After load sequencing is complete (with no operator actions), which KC pumps are running?

2) Each train of KC pumps has a recirc valve which discharges to _____.

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

A. 1. 2A1 and 2A2 KC pumps ONLY
   2. the KC Surge tank

B. 1. 2A1 and 2A2 KC pumps ONLY
   2. its respective train's suction line

C. 1. 2A1, 2A2, 2B1 and 2B2 KC pumps
   2. the KC Surge tank

D. 1. 2A1, 2A2, 2B1 and 2B2 KC pumps
   2. its respective train's suction line

Question: 9
(1 point)

Regarding the design of the Pressurizer:

1) Why are the Pressurizer Spray lines connected to the NC System cold legs?

2) Why is a constant flow maintained through the PZR spray lines?

A. 1. To provide a differential pressure between the surge line and the spray lines.
2. Prevents large differential temperature buildup across the spray nozzles.

B. 1. To provide a differential pressure between the surge line and the spray lines.
2. Reduce the number of valve cycles (open/closed) and resulting fatigue stress concerns on the valve internals.

C. 1. Turbulent flow at the NCP discharge provides better mixing of NC system for a more uniform boron concentration and pH control.
2. Prevents large differential temperature buildup across the spray nozzles.

D. 1. Turbulent flow at the NCP discharge provides better mixing of NC system for a more uniform boron concentration and pH control.
2. Reduce the number of valve cycles (open/closed) and resulting fatigue stress concerns on the valve internals.

Question: 10
(1 point)

Unit 1 is operating at 30% RTP. Given the following events and conditions:

- Main Turbine MW Loop is in service
- 1C NC pump trips
- No operator action has been taken

After 15 minutes, with unit load unchanged, total steam flow from all Steam Generators (S/G) will be approximately ___(1)___ as compared to total steam flow from all S/Gs prior to the NC pump trip

AND

Pressure in S/Gs 1A, 1B and 1D will be approximately ___(2)___ as compared to the pressure in those S/Gs prior to the NC pump trip.

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

A. 1. lower
   2. lower

B. 1. the same
   2. lower

C. 1. lower
   2. the same

D. 1. the same
   2. the same

Question: 11
(1 point)

Given the following conditions on Unit 1:

- Unit is operating at 70% RTP
- The OATC determines that AUTO rod withdrawal is not functioning
- Further investigation reveals that manual rod withdrawal is functioning normally
- Control Bank 'D' rods are currently at 190 steps

Which ONE (1) of the following failures has caused this condition?

A. Turbine Impulse Pressure Channel II fails low.

B. Turbine Impulse Pressure Channel I fails low.

C. Loop 2 ΔT Channel fails high.

D. PR Channel N-41 fails high.

Question: 12
(1 point)

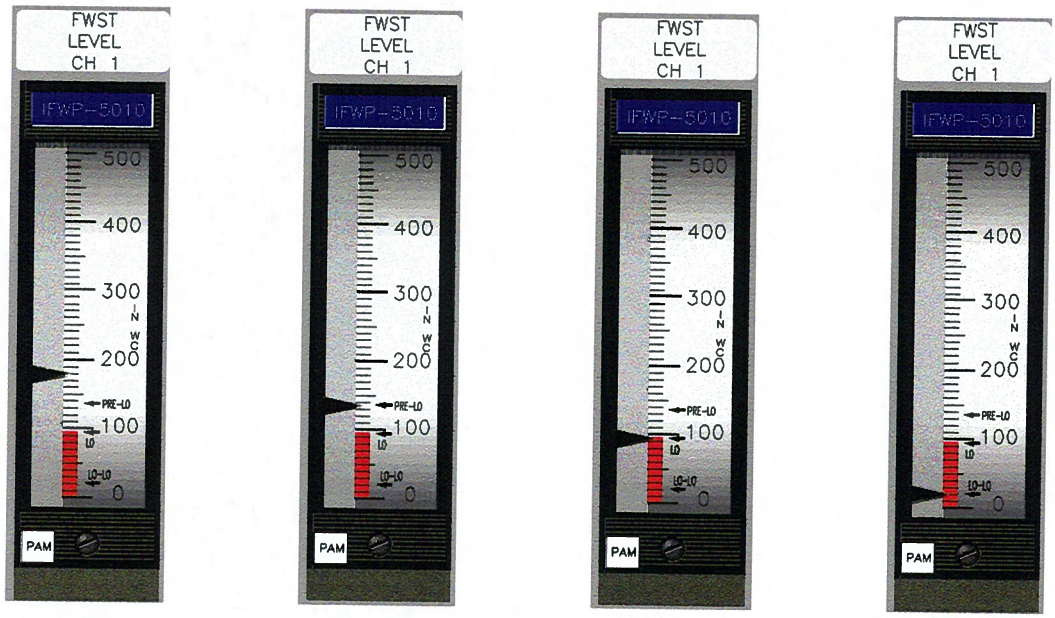
Given the following conditions on Unit 1:

- A Reactor Trip and Safety Injection have occurred due to a LOCA inside Containment

Based on the following FWST level trend:

TIME

1500 **1515** **1530** **1545**



Which ONE (1) of the following is the EARLIEST time a signal would be generated to automatically swap the ND pump suction to the Containment Sump?

A. 1500

B. 1515

C. 1530

D. 1545

Question: 13
(1 point)

Given the following conditions on Unit 1:

- The unit is operating at 100% RTP
- Containment pressure Channel II fails HIGH
- The Channel II Containment Pressure - High B/S has been TRIPPED
- The Channel II Containment Pressure - High High B/S has been BYPASSED

Which ONE (1) of the following identifies the correct ESF actuation logic for the **REMAINING** Containment Pressure channels?

A. Safety Injection - 1/2;
Phase B - 1/3

B. Safety Injection - 1/2;
Phase B - 2/3

C. Safety Injection – 1/3;
Phase B - 1/3

D. Safety Injection – 1/3;
Phase B - 2/3

Question: 14
(1 point)

Given the following initial conditions on Unit 1:

- The unit was operating at 100% RTP
- A leak on the RV system occurs inside Containment
- The crew isolates RV to Containment to stop the leak

Subsequently, the following occurs:

- A steam break occurs on the 1A S/G
- Containment pressure peaked at 3.2 PSIG and is currently 1.5 PSIG
- The 1A S/G has been isolated in accordance with E-2 (Faulted S/G Isolation)
- The crew has transitioned to ES-1.1 (SI Terminaton) and is currently evaluating SI termination criteria

The crew ___(1)___ have to use adverse Containment value for Subcooling.

The crew ___(2)___ have to use adverse Containment value for PZR level.

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

A. 1. WILL
   2. WILL

B. 1. WILL NOT
   2. WILL

C. 1. WILL
   2. WILL NOT

D. 1. WILL NOT
   2. WILL NOT

Question: 15
(1 point)

Given the following conditions on Unit 1:

- NCS temperature is 205°F
- A plant heatup to normal operating temperature is in progress
- Annunciator 1AD-9, A/5 (ICE COND LOWER INLET DOORS OPEN) is lit
- A NEO reports that ONE of the Ice Condenser Lower Inlet doors is partially open
- An HVAC maintenance technician is dispatched to inspect the door and has determined that the door will open but cannot be closed
- The Ice Condenser Chart Recorder (1NPRC-5000) indicates temperature for the affected ice bed is 19°F and slowly increasing
- No other annunciator alarms are present

Based on the given conditions:

1) Based on the conditions above, Technical Specification (TS) LCO 3.6.12 (Ice Bed) LCO actions _____ required to be taken.

2) The primary concern with the increasing ice bed temperature is _____.

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

A. 1. are
   2. increased ice bed sublimation

B. 1. are NOT
   2. increased ice bed sublimation

C. 1. are
   2. blockage of air flow due to volumetric expansion of the ice beds

D. 1. are NOT
   2. blockage of air flow due to volumetric expansion of the ice beds

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Question: 16
(1 point)

Given the following conditions on Unit 1:

- The unit was initially operating at 100% RTP
- A LOCA occurs inside Containment

1) To MANUALLY start the Containment Air Return Fans (CARFs) a CPCS signal _____ required.

2) In addition to other signals, an AUTOMATIC start of the CARFs requires a/an _____.

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

A. 1. is
   2. S_p signal (no associated time delay required)

B. 1. is not
   2. time delay after S_p signal generated

C. 1. is
   2. time delay after S_p signal generated

D. 1. is not
   2. S_p signal (no associated time delay required)

Question: 17
(1 point)

Given the following conditions on Unit 1:

- A LOCA has occurred inside Containment
- ES-1.3 (Transfer to Cold Leg Recirc) has been implemented
- Containment pressure is 3.2 PSIG

As a **MINIMUM**, to MANUALLY START the "A" Train NS Pump:

1) CPCS Train A pressure must be greater than the setpoint value of ___(1)___

AND

2) ___(2)___ "A" Train NS Pump Discharge valve(s) must be OPEN.

Which ONE of the following completes the statements above?

A. 1. 0.80 PSIG
   2. ONE

B. 1. 0.35 PSIG
   2. ONE

C. 1. 0.80 PSIG
   2. BOTH

D. 1. 0.35 PSIG
   2. BOTH

Question: 18
(1 point)

Unit 1 is in Mode 3 conducting a plant cooldown and depressurization in accordance with OP/1/A/6100/SD-2 (Cooldown to 400°F).

The following conditions exist:

- NC System pressure 1900 PSIG
- NC System temperature 557°F
- All Steam Generator pressures 1100 PSIG
- Low Pressure SI and Low Pressure Steamline Isolation have been blocked
- The operator has just begun an 80°F/hour cooldown.

Which ONE (1) of the following conditions would automatically close all four Main Steam Isolation Valves?

A. NC Pressure increases to 2000 PSIG.

B. Containment Pressure increases to 1.3 PSIG.

C. 1A Steam Generator Pressure drops to 900 PSIG in 2 seconds.

D. 1B Steam Generator Pressure drops to 700 PSIG over the next 30 minutes.

Question: 19
(1 point)

The following conditions exist on Unit 1:

- The plant is at 20% RTP
- Power increase in progress

The CF Control Bypass valves receive a full close demand signal from DCS when steam flow increases to a MINIMUM of ___(1)___ .

The CF Control Bypass valves receive a full open demand signal from DCS when steam flow increases to a MINIMUM of ___(2)___.

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

A. 1. 25%
   2. 75%

B. 1. 25%
   2. 85%

C. 1. 30%
   2. 75%

D. 1. 30%
   2. 85%

Question: 20
(1 point)

Given the following on Unit 2:

- A reactor trip from 100% RTP has occurred
- The TD CA pump tripped on overspeed upon starting
- Bus 2ETB locked out due to a ground fault on the bus

If no operator action has adjusted CA flow rates, which ONE (1) of the following describes which S/Gs are currently being fed and the associated flow rates?

A. C and D S/Gs at 450 GPM to each S/G

B. C and D S/Gs at 450 GPM total flow

C. A and B S/Gs at 450 GPM to each S/G

D. A and B S/Gs at 450 GPM total flow

Question: 21
(1 point)

Given the following conditions on Unit 1:

- The unit is at 100% RTP
- "B" train equipment is in service
- 1ETA Normal incoming breaker trips OPEN
- 1A D/G starts and comes up to speed and voltage, but its output breaker does NOT close
- An NEO reports that an 86N Relay is IN on Bus 1ETA

IAW AP-07 (Loss of Electrical Power) Case II, Thermal Barrier Isolation Valves on __(1)__ must be Ensured OPEN.

Based on the conditions above, if the BOP operator attempts to manually close the 1A D/G Output Breaker, the breaker __(2)__ close.

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

A. 1. Train B ONLY
   2. WILL

B. 1. Train B ONLY
   2. WILL NOT

C. 1. Train A and Train B
   2. WILL

D. 1. Train A and Train B
   2. WILL NOT

Question: 22
(1 point)

Given the following initial conditions on Unit 1:

- The unit is at 100% RTP
- All NCPs are powered from their normal sources.
- Each 6.9 KV bus Mode Select switch is in Auto.

Subsequently the following occurs:

- A Generator –Switchyard protective lockout occurs on 1B Bus Line

Based on the given conditions:

1) NCP 1B _____.

2) Bus 1TB automatically _____transfers to its alternate power supply.

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

A. 1. trips
   2. fast

B. 1. trips
   2. slow

C. 1. continues to run
   2. fast

D. 1. continues to run
   2. slow

Question: 23
(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

Based on the conditions above, with no operator action, Bus 1DP is _____.

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

A. energized from Charger 1DP and Battery 1DP

B. energized from Chargers 1DP and 2DP

C. energized from Charger 1DP ONLY

D. de-energized

Question: 24
(1 point)

Given the following conditions on Unit 1:

- The 1A D/G has been placed in operation to facilitate a power swap on 1ETA from 1ATC to SATA
- Indicated load is 400 KW and 75 KVARS
- 1A DG is currently powering 1ETA with the 1ETA Normal Breaker and 1ETA Stdby Breaker OPEN

When the "1A D/G Gov Cntrl" "Raise" pushbutton is depressed, frequency will ___(1)___.

When the "1A D/G Volt Adjust" is rotated to "Raise," indicated KVAR's will ___(2)___.

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

A. 1. Increase
   2. Remain the same

B. 1. Remain the same
   2. Remain the same

C. 1. Increase
   2. Increase

D. 1. Remain the same
   2. Increase

Question: 25
(1 point)

While performing daily surveillance checks on 1EMF-33 (Condenser Air Ejector Exhaust), it is determined that the OPERATE light is OFF.

Which ONE (1) of the following actions is required in accordance with PT/1/A/4600/003 B (Daily Surveillance Items)?

A. Perform a source check of 1EMF-33.

B. Verify operability of 1EMF-36L (Unit Vent Gas Monitor) by checking OPERATE light lit and LOSS OF SAMPLE FLOW annunciator NOT in alarm.

C. Depress CLR (Clear) on the 1EMF-33 touch controls.

D. Place the sample Pump in OFF, and then depress the RUN pushbutton for a MINIMUM of 5 seconds.

Question: 26
(1 point)

Given the following conditions:

- Unit 2 is at 100% RTP
- A Loss of Offsite Power occurs on both Units 1 and 2

Based on the given conditions, if no operator actions occur, which ONE (1) of the following provides the assured source of cooling water to the Unit 2 Containment AHUs?

A. BOTH '2A' AND '2B' RN pumps

B. RV pump selected in "Auto"

C. '2A' RN pump ONLY

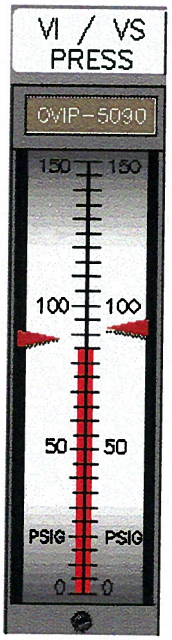
D. '2B' RN pump ONLY

Question: 27
(1 point)

Given the following plant conditions:

- Both units are operating at 100% RTP
- An instrument air system leak develops in the Unit 1 Turbine Building
- The Diesel VI Compressors (G & H) "AUTO/OFF-RESET" selector switches are in 'AUTO".

The following indications are observed in the Control Room:



Based on the indications above, the Diesel VI Compressors (G & H) are ___(1)___ AND 1VI-1812 (VI Air Dryer Bypass Filter Isol) is ___(2)___.

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

A. 1. NOT running
   2. closed

B. 1. running
   2. closed

C. 1. NOT running
   2. open

D. 1. running
   2. open

Question: 28
(1 point)

Given the following conditions:

- Fuel reload is in progress on Unit 1
- 1EMF-16 (Containment Refueling Bridge) display goes dark due to a loss of Bus KRA

Which ONE (1) of the following describes the procedure required to be implemented AND the effect of 1EMF-16 on the Containment Evacuation alarm?

	Procedure	Containment Evacuation Alarm
A.	AP-07 (Loss of Electrical Power)	Defeated
B.	AP-07 (Loss of Electrical Power)	Actuated
C.	AP-15 (Loss of Vital or Aux Control Power)	Defeated
D.	AP-15 (Loss of Vital or Aux Control Power)	Actuated

Question: 29
(1 point)

A reactor start-up is in progress on Unit 2

- Reactor power is 2%
- The OATC is withdrawing control rods
- Another RO is monitoring/controlling SG level, steam dumps, and feedwater flow

Based on the conditions above:

1. To control NCS temperature, OP/2/A/6100/003 (Controlling Procedure for Unit Operation) Enclosure 4.1 (Power Increase) directs the operators to maintain _____ within the desired range by adjusting steam dump control.

2. If the steam dump controller setpoint is not changed, with each rod pull SG pressure increases _____.

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

A. 1. Tcold
   2. initially, then returns to approximately the original value before the rod pull

B. 1. Tave
   2. initially, then returns to approximately the original value before the rod pull

C. 1. Tcold
   2. and stabilizes at a higher steam pressure than before the rod pull

D. 1. Tave
   2. and stabilizes at a higher steam pressure than before the rod pull

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Question: 30
(1 point)

Given the following conditions on Unit 2:

- The unit is currently at 100% RTP, with pressurizer pressure control and level control in auto.
- NC system pressure is decreasing slowly due to a leaking Pressurizer Code Safety valve (2NC-2)
- At 1500, PRT pressure is INITIALLY at 3 PSIG and increasing at 1 PSIG / min

Over the next 30 minutes, if the reactor does NOT trip, the temperature indication on 2NCP-5960 (PZR Relief Valve Temperature 2NC-2) will ___(1)___ AND the rate of NC system depressurization will ___(2)___.

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

A. 1. increase
   2. decrease

B. 1. remain the same
   2. remain the same

C. 1. increase
   2. remain the same

D. 1. remain the same
   2. decrease

Question: 31
(1 point)

Given the following conditions:

- Unit 1 is responding to a LOCA
- All sources of feedwater have been lost, S/G NR levels are 17% and decreasing
- NC pumps are secured
- FR-C.1 (Response to Inadequate Core Cooling) has been implemented
- NI and NV pumps are unavailable
- Peak Containment pressure reached 2.5 PSIG
- S/G depressurization has failed to restore adequate core cooling
- Core Exit Thermocouples are currently indicating 1210°F
- NC pump support requirements can NOT be met
- The ICCM Subcooling Margin Monitors (SMM) indicate:
  - Train A (-)25°F
  - Train B (-)35°F

The reason for the difference in subcooling indication is that Train A Wide Range Loop pressure input has failed ___(1)___.

Based on the conditions above, the NEXT major action required by FR-C.1 is to __(2)__.

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

A. 1. LOW
   2. restart NC pumps one at a time until CETs are less than 1200°F

B. 1. HIGH
   2. restart NC pumps one at a time until CETs are less than 1200°F

C. 1. LOW
   2. open all PZR PORVs and head vents to depressurize the NC system

D. 1. HIGH
   2. open all PZR PORVs and head vents to depressurize the NC system

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Question: 32
(1 point)

Given the following conditions on Unit 1:

- A LOCA has occurred inside Containment
- During the recovery Containment is vented to the annulus and an Annulus Ventilation (VE) fan is to be started for Iodine removal
- When the BOP attempts to start the 1A VE Fan, it will not start

To which ONE (1) of the following locations should a NEO be dispatched to inspect the feeder breaker for the 1A VE Fan?

A. 1MXJ

B. 1MXK

C. 1EMXC

D. 1EMXD

Question: 33
(1 point)

Given the following conditions on Unit 2:

- A LOCA has occurred inside Containment
- Containment pressure peaked at 3.2 PSIG
- Containment pressure is currently 2.8 PSIG and LOWERING slowly
- Annulus pressure is -4.0" WG and LOWERING (more negative)

Based on the given conditions above:

1) What is the current discharge flowpath of the VE (Annulus Ventilation) fans?

2) If annulus pressure continues to lower with no operator actions, at what pressure setpoint will a signal be generated to change the discharge flowpath of the VE fans?

Which ONE (1) of the following answers the questions above?

A. 1. Unit Vent
   2. -4.2" WG

B. 1. Annulus
   2. -7.0" WG

C. 1. Unit Vent
   2. -7.0" WG

D. 1. Annulus
   2. -4.2" WG

Question: 34
(1 point)

Given the following conditions on Unit 2:

- The core has been off-loaded to the Spent Fuel Pool
- 2A KF Pump is running
- 2B KF Pump is off
- A Loss of Off-Site Power occurs
- 2A and 2B D/Gs start and load normally
- 30 minutes after the loss of power, a Spent Fuel Pool Hi Temperature alarm is received

Which ONE (1) of the following is the cause of this condition?

A. The 2A or 2B KF pump was not manually started (Sequencer reset required).

B. The 2A or 2B KF pump was not manually started (Sequencer reset NOT required).

C. The 2A KF pump ONLY did not automatically load on the Blackout sequence as designed.

D. The 2A and 2B KF pumps did not automatically load during the Blackout sequence as designed.

Question: 35
(1 point)

Given the following conditions on Unit 2:

- The unit is currently in MODE 5
- Spent Fuel Pool fuel handling operations were secured 4 hours ago
- VF system is operating normally in accordance with OP/2/A/6450/004 (Fuel Pool Ventilation System)

Subsequently:

- 2EMF-42 (Fuel Building Ventilation Radiation Monitor) is in Trip 2

Based on the given conditions, which ONE (1) of the following describes the AUTOMATIC response of the Fuel Handling Building Ventilation system (VF) to the 2EMF-42 condition?

A. The Outside Air damper (D-1) will close.

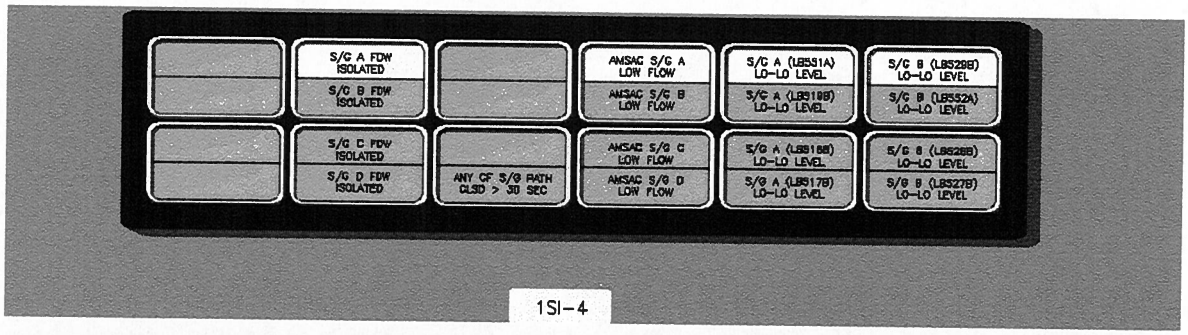
B. The Exhaust Filter Bypass damper (D-5) will close.

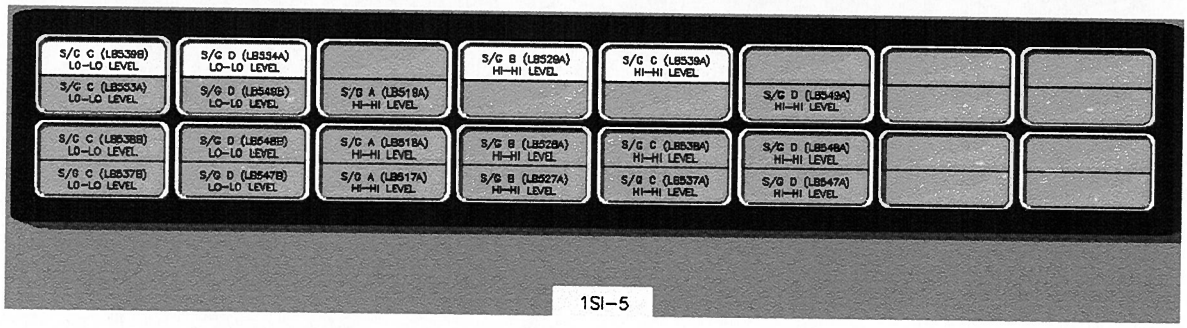
C. The Supply fan AND Exhaust fans will stop.

D. The Supply fan will stop. The Exhaust fans will NOT stop.

Question: 36
(1 point)

Given the following indications/conditions on Unit 1:





- The unit is operating at 100% RTP
- A loss of 1EKVA occurs
- **NO** Operator actions have been taken

Based on the conditions above, what is the MINIMUM number of ADDITIONAL channels on S/G 1A that must trip to cause a/an:

1) Feedwater Isolation Actuation?

2) Auxiliary Feedwater Actuation?

	Feedwater Isolation	**Aux Feedwater Actuation**
A.	2	2
B.	2	1
C.	1	2
D.	1	1

Question: 37
(1 point)

Given the following conditions on Unit 1:

- Unit shutdown in progress
- Power = 80% RTP and DECREASING
- 1A SG Tube Leak = 20 GPM
- Due to high activity, the Turbine Building Sump (TBS) is being pumped to the RC Discharge

Based on the given plant conditions:

1. Which ONE (1) of the following would present a more significant radiation hazard to a member of the public at the site boundary due to the release?

2. What EMF Trip 2 automatic action(s) would ensure the release of radioactive material is ALARA?

A.
1. Beta radiation from the decay of Tritium
2. TBS pump trips

B.
1. Beta radiation from the decay of Tritium
2. 1WP-35 (WMT & VUCDT to RC Cntrl) closes

C.
1. Gamma radiation from the decay of Nitrogen-16
2. TBS pump trips

D.
1. Gamma radiation from the decay of Nitrogen-16
2. 1WP-35 (WMT & VUCDT to RC Cntrl) closes

Question: 38
(1 point)

Given the following:

- The Instrument Air (VI) system is in a normal alignment and cross-connected to the Station Air (VS) system
- A leak occurs on the Instrument Air (VI) header
- The VI header begins to slowly depressurize
- The crew has implemented AP-22 (Loss of VI)

As the VI header depressurizes, the VI header will be isolated from the VS header by ___(1)___.

The VS air compressor ___(2)___ to maintain VS header pressure.

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

A. a manual isolation valve
will start automatically

B. a manual isolation valve
must be manually started

C. an automatic isolation valve
will start automatically

D. an automatic isolation valve
must be manually started

Question: 39
(1 point)

A Reactor trip has occurred on Unit 1.

In accordance with the Immediate Actions of E-0 (Reactor Trip or Safety Injection):

One indication listed in the procedure that is used to verify that the reactor is tripped is ___(1)___.

If the turbine does not trip automatically and will not trip manually, the procedure will NEXT direct the operator to ___(2)___.

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

A. 1. IR SUR - ZERO OR NEGATIVE
2. close the MSIVs AND MSIV bypasses

B. 1. IR AMPS - GOING DOWN
2. close the MSIVs AND MSIV bypasses

C. 1. IR SUR - ZERO OR NEGATIVE
2. place the turbine in MANUAL AND close the governor valves in fast action

D. 1. IR AMPS - GOING DOWN
2. place the turbine in MANUAL AND close the governor valves in fast action

Question: 40
(1 point)

Given the following conditions on Unit 2:

- The unit is operating at 100% RTP
- One PZR PORV is leaking past its seat
- Pressurizer pressure is 2235 PSIG
- Pressurizer Steam Space temperature is 653°F
- PRT pressure is 15 PSIG

Which ONE (1) of the following is the approximate expected temperature downstream of the leaking PZR PORV?

REFERENCE PROVIDED

A. 220°F

B. 240°F

C. 250°F

D. 300°F

Question: 41
(1 point)

Given the following conditions on Unit 1:

- The operating crew initiated a manual SI due to a small break LOCA.
- Equipment failures resulted in a RED condition on the Integrity CSF Status Tree.
- NC Cooldown rate was approximately 220°F per hour
- NC System temperature is currently 240°F
- The crew is performing a soak in accordance with FR-P.1 (Response to Imminent Pressurized Thermal Shock Condition).

Based on the conditions given, which ONE (1) of the following actions is permitted by FR-P.1 during the soak?

A. Energize PZR heaters

B. Start an additional NV Pump

C. Place Auxiliary Spray in service

D. Initiate a cooldown at less than 50°F per hour

Question: 42
(1 point)

Unit 1 was operating at 100% RTP when a Large-Break LOCA occurred.

1) What is the MINIMUM time following the LOCA that E-1 (Loss of Reactor or Secondary Coolant) directs an initiation of hot leg recirculation?

2) Which ECCS pumps are CAPABLE of being aligned to inject into the hot legs per ES-1.4 (Transfer to Hot Leg Recirculation)?

A. 1. 4 hours
   2. NI ONLY

B. 1. 6 hours
   2. ND and NI

C. 1. 4 hours
   2. ND and NI

D. 1. 6 hours
   2. NI ONLY

Question: 43
(1 point)

Given the following conditions on Unit 2:

- A load rejection from 100% RTP has occurred due to the trip of 2A CF pump
- Pressurizer level is greater than setpoint
- 2NV-238 (Charging Line Flow Control) is in AUTOMATIC and CLOSING
- Annunciator 2AD-7, J/1 (NC PUMP SEAL INJ LO FLOW) is LIT

The setpoint for Annunciator 2AD-7, J/1 is ___(1)___GPM.

To clear the Annunciator, the BOP must throttle 2NV-241 (Seal Injection Flow Control) in the ___(2)___ direction.

Which ONE of the following completes the statements above?

A. 1. 6
   2. OPEN

B. 1. 6
   2. CLOSED

C. 1. 7
   2. OPEN

D. 1. 7
   2. CLOSED

Question: 44
(1 point)

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

- 0210 – reactor tripped due to a LOCA
- 0300 – crew enters ECA-1.2, (LOCA Outside Containment)
- 0320 – crew enters ECA-1.1, (Loss of Emergency Coolant Recirc)
- 0330 – The crew is at step 18.b of ECA-1.1
- Current conditions:
  - 1A NI pump is running, indicating 185 GPM
  - 1B NI pump is running, indicating 165 GPM
  - Both NV pumps are running, indicating 340 GPM (Consider that the NV pumps have equal capacity)
  - Subcooling is +35°F

Based on the conditions above, at time 0330:

1) Which ONE (1) of the following describes the actions that will meet <u>ALL</u> requirements of ECA-1.1?

   <u>AND</u>

2) Flow from the remaining ECCS pumps will be greater than the MINIMUM required flow rate of _____.

<u>REFERENCE PROVIDED</u>

A. 1. Stop both NV pumps.
   2. 345 GPM

B. 1. Stop the 1B NI pump <u>AND</u> one NV pump.
   2. 345 GPM

C. 1. Stop the 1A NI pump <u>AND</u> one NV pump.
   2. 330 GPM

D. 1. Stop both NI pumps.
   2. 330 GPM

Question: 45
(1 point)

Given the following conditions on Unit 1:

- The unit is in HOT SHUTDOWN on ND Cooling (Both Train A and B)
- B Train KC is aligned to supply Reactor and Aux Bldg Non-Essential Headers with both 1B1 and 1B2 pumps in operation
- A Train KC is aligned to supply the A ND HX Header with both 1A1 and 1A2 pumps in operation
- The 1A1 KC pump has just tripped

In accordance with the Limits and Precautions of OP/1/A/6400/005 (Component Cooling Water System), KC flow through the 1A ND Heat Exchanger shall be throttled to less than a MAXIMUM of _____.

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

A. 2000 GPM

B. 4000 GPM

C. 5000 GPM

D. 6000 GPM

Question: 46
(1 point)

Given the following conditions on Unit 2:

- A failure of the Pressurizer Pressure Master Controller occurs
- All Pressurizer heaters energize due to the failure
- NC system pressure is currently 2310 PSIG
- All Pressurizer Pressure control components are in AUTO

Based on the given conditions, if NO operator actions are taken, which ONE (1) of the following is the effect on the PZR Surge Line temperature AND the position of the Pressurizer Spray valves, as compared to the conditions before the Pressurizer Pressure Master Controller failure?

	PZR Surge Line Temperature	PZR Spray Valve Position
A.	INCREASED	CLOSED
B.	DECREASED	CLOSED
C.	INCREASED	OPEN
D.	DECREASED	OPEN

Question: 47
(1 point)

Given the following conditions on Unit 1:

- An ATWS has occurred
- FR-S.1 (Response to Nuclear Power Generation / ATWS) has been implemented

1) When the turbine is tripped, the amount of negative reactivity added will be greater if the unit is at _____.

2) The basis for immediately tripping the turbine during an ATWS event is to _____.

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

A. 1. EOL as compared to BOL
   2. generate a redundant reactor trip signal

B. 1. BOL as compared to EOL
   2. generate a redundant reactor trip signal

C. 1. EOL as compared to BOL
   2. maintain S/G inventory if the initiating event is a simultaneous loss of all feedwater

D. 1. BOL as compared to EOL
   2. maintain S/G inventory if the initiating event is a simultaneous loss of all feedwater

Question: 48
(1 point)

Given the following initial conditions on Unit 2:

- A SGTR has occurred on the 2D SG
- A Steam Line break occurred on the 2B SG
- Containment pressure peaked at 3.1 PSIG

Current conditions:

- Containment pressure is 0.9 PSIG and STABLE

Based on the current conditions, E3 (Steam Generator Tube Rupture) requires that 2D SG NR level be maintained greater than a MINIMUM of ___(1)___.

AND

E-3 will require the crew to FIRST attempt to depressurize the NC system using ___(2)___.

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

A. 1. 11%
   2. one PZR PORV

B. 1. 32%
   2. one PZR PORV

C. 1. 11%
   2. Auxiliary Spray

D. 1. 32%
   2. Auxiliary Spray

Question: 49
(1 point)

Given the following conditions on Unit 1:

- The unit was initially at 100% RTP
- A steam line break occurs inside Containment
- Containment pressure is currently 3.5 PSIG

Based on the conditions above, with no operator action:

Both CF Pumps are ___(1)___.

AND

The CF to CA Nozzle Valves are ___(2)___.

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

A. 1. tripped
   2. CLOSED

B. 1. tripped
   2. OPEN

C. 1. running at 2800 RPM
   2. CLOSED

D. 1. running at 2800 RPM
   2. OPEN

Question: 50
(1 point)

Given the following conditions on Unit 1:

- Unit is at 100% RTP

Regarding the operation of the CA system:

1) ONLY the Motor-Driven CA pump(s) will start if a _____ occurs.
2) The CA system is capable of supplying sufficient flow to maintain S/G inventory provided reactor power is less than a MAXIMUM of _____.

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

A. 1. Blackout signal on 1ETA and/or 1ETB
   2. 3%

B. 1. Trip of both CF pumps
   2. 3%

C. 1. Blackout signal on 1ETA and/or 1ETB
   2. 5%

D. 1. Trip of both CF pumps
   2. 5%

Question: 51
(1 point)

Given the following conditions:

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

In accordance with ECA-0.0:

1) What is the reason for depressurizing the S/G's to 290 PSIG?

2) What is the reason for NOT allowing S/G's to depressurize to less than 190 PSIG?

A. 1. Reduce NC system pressure to initiate Cold Leg Accumulator injection to restore subcooling
   2. Prevent excessive thermal shock of Reactor Vessel cold leg nozzles

B. 1. Reduce NC system temperature and pressure to reduce NC pump seal leakage and minimize NC system inventory loss
   2. Prevent excessive thermal shock of Reactor Vessel cold leg nozzles

C. 1. Reduce NC system pressure to initiate Cold Leg Accumulator injection to restore subcooling
   2. Prevent nitrogen from the Cold Leg Accumulators from injecting into the NC system

D. 1. Reduce NC system temperature and pressure to reduce NC pump seal leakage and minimize NC system inventory loss
   2. Prevent nitrogen from the Cold Leg Accumulators from injecting into the NC system

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Question: 52
(1 point)

Given the following conditions on Unit 1:

- A Loss of Offsite Power has occurred
- During the recovery, it is determined that a natural circulation cooldown needs to be performed

Which ONE (1) of the following indicates that natural circulation is occurring per Generic Enclosure 33 (Natural Circulation Parameters)?

	NC System Cold Leg Temperatures:	**NC System Hot Leg Temperatures:**
A.	Going DOWN	At saturation temperature for S/G pressure
B.	At saturation temperature for S/G pressure	Going DOWN
C.	Going DOWN	Going DOWN
D.	At saturation temperature for S/G pressure	At saturation temperature for S/G pressure

Question: 53
(1 point)

A sustained loss of power to Vital AC Panelboard _____ will require that operators manually transfer NV Pump suction from the VCT to the FWST per AP-15 (Loss of Vital or Aux Control Power).

Which ONE of the following completes the statement above?

A. 1EKVA

B. 1EKVB

C. 1EKVC

D. 1EKVD

Question: 54
(1 point)

Given the following conditions on Unit 1:

- The 1B DG is running due to an inadvertent Blackout signal during testing
- 1RN-171B (B DG HX Supply Isolation Valve) did NOT open

1) Based on the conditions above, if the Lube Oil High Temperature trip setpoint is reached, will the DG trip?

2) What is the DG Lube Oil High Temperature trip setpoint?

A. 1. Yes
   2. 190°F

B. 1. No
   2. 190°F

C. 1. Yes
   2. 200°F

D. 1. No
   2. 200°F

Question: 55
(1 point)

Unit 1 was initially at 100% RTP:

- A Safety Injection has occurred due to a LOCA on 1A Train of ND
- ECA-1.2 (LOCA Outside Containment) has been implemented

The overall mitigating strategy of ECA-1.2 includes:

Cooldown the NCS ___(1)___ and then depressurize the NCS to allow the ___(2)___.

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

A. 1. while maintaining a cooldown rate in NC Tcolds less than 100°F/hr
   2. Cold Leg Accumulators to inject

B. 1. at maximum rate while attempting to avoid a Main Steam Isolation
   2. Cold Leg Accumulators to inject

C. 1. while maintaining a cooldown rate in NC Tcolds less than 100°F/hr
   2. ND isolation valves (1NI-173A and 1NI-178B) to close

D. 1. at maximum rate while attempting to avoid a Main Steam Isolation
   2. ND isolation valves (1NI-173A and 1NI-178B) to close

Question: 56
(1 point)

Unit 1 has tripped from 100% RTP with the following conditions:

- The crew has implemented FR-H.1 (Response to Loss of Secondary Heat Sink)
- All attempts to restore CA flow have been unsuccessful

Which ONE (1) of the following identifies the next source of feedwater that FR-H.1 will prioritize for restoration AND when attempts to restore feedwater will be terminated?

A. Condensate (CM); AND
When Feed and Bleed has been established.

B. Condensate (CM); AND
When a Secondary Heat Sink is restored.

C. Main Feedwater (CF); AND
When Feed and Bleed has been established.

D. Main Feedwater (CF); AND
When a Secondary Heat Sink is restored.

Question: 57
(1 point)

Given the following conditions on Unit 1:

- The Reactor is shutdown
- Tave is 556°F and STABLE
- OATC is moving Shutdown Bank 'A' rods for testing

Current Conditions:

- Shutdown rod B4 drops halfway into the core
- The OATC immediately stops moving rods
- DRPI for rod B4 reads 30 steps
- DRPI and Group Step Counters for all other rods in Shutdown Bank 'A' read 66 steps
- Except for Shutdown Bank A, all other rod bottom lights are LIT

Based on the current conditions, Technical Specification (TS) 3.1.4 (Rod Group Alignment Limits) LCO actions ___(1)___ required to be taken.

OP/1/A/6100/003 (Controlling Procedure for Unit Operation) states that MODE 2 may be declared when ___(2)___ Banks are initially withdrawn from the fully inserted position.

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

A. 1. ARE NOT
   2. Control

B. 1. ARE NOT
   2. Shutdown

C. 1. ARE
   2. Control

D. 1. ARE
   2. Shutdown

Question: 58
(1 point)

Given the following conditions on Unit 1:

- After withdrawing Control Bank D, the RO identifies that Control Rod M-4 (Control Bank D, Group 2) indicates 92 steps on DRPI
- Bank D Group Step Counters indicate 100 steps on both banks
- I&E has determined that Control Rod M-4 stopped moving due to a failed Lift Coil Disconnect switch
- The failed switch has been replaced and the Operating crew is ready to realign Control Rod M-4
- As Control Rod M-4 begins to move, annunciator 1AD-2, A/10 (Rod Control Urgent Failure) alarms

The cause of this alarm is an Urgent Failure in Power Cabinet _____.

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

A. 1AC

B. 2AC

C. 1BD

D. 2BD

Question: 59
(1 point)

Given the following conditions on Unit 1:

- An ATWS has occurred on the unit
- FR-S.1 (Response to Nuclear Power Generation / ATWS) has been implemented
- Emergency Boration has been initiated

FR-S.1 requires the operator to:

1) verify a MINIMUM Emergency Boration flow of _____.

AND

2) check that charging flow _____.

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

A. 1. 20 GPM
2. is greater than boration flow

B. 1. 30 GPM
2. is greater than boration flow

C. 1. 20 GPM
2. does not exceed VCT makeup capability

D. 1. 30 GPM
2. does not exceed VCT makeup capability

Question: 60
(1 point)

Unit 1 is operating at 97% RTP when a Reactor Trip occurs.

Given the following conditions:

Channel	Flux Level	SUR
SR N31	0 CPS	0 DPM
SR N32	0 CPS	0 DPM
IR N35	1.1×10^{-10} AMPS	-1/3 DPM
IR N36	9.5×10^{-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.

Question: 61
(1 point)

Given the following conditions on Unit 1:

- A Reactor startup is in progress
- Based on the following indications, the startup has been placed on hold:
  - N-31 indicates 3.1×10^{4} cps
  - N-32 indicates 3.0×10^{4} cps
  - N-35 indicates 1.5×10^{-9} amps
  - N-36 indicates 1.0×10^{-10} amps
- Rods are in manual with no rod motion
- SR and IR NIs are slowly increasing
- T_{ave} is holding steady

Which ONE of the following is the reason for placing the startup on hold?

A. N-35 compensating voltage is set too high

B. N-35 compensating voltage is set too low

C. N-36 compensating voltage is set too high

D. N-36 compensating voltage is set too low

Question: 62
(1 point)

Given the following conditions on Unit 2:

- EP/2/A/5000/FR-C.2 (Response to Degraded Core Cooling) is in progress
- Reactor coolant pumps (NCP) 2A and 2C are in service
- Reactor vessel dynamic D/P is decreasing and is 3% less than required
- The crew has just completed depressurizing the S/Gs to 190 PSIG

What is the mitigation strategy in accordance with EP/2/A/5000/FR-C.2?

A. Shutdown all NCPs. Depressurize the NC system by depressurizing the steam generators to atmospheric pressure.

B. Shutdown all NCPs. Do not depressurize the steam generators further.

C. Continue to run both NCPs. Depressurize the NC system by depressurizing the steam generators to atmospheric pressure.

D. Continue to run both NCPs. Do not depressurize the steam generators further.

Question: 63
(1 point)

Given the following on Unit 1:

- The Fire Detection system computer indicates a fire in Zone 70 (AB 716' Unit 1 M/D CA Pump Room)
- An Operator dispatched to the area reports that there is smoke and some cables with glowing embers but, **NO** visible flames

1) In accordance with AP-45 (Plant Fire) and the conditions above, this ____ classified as an ACTIVE fire.

2) In accordance with RP-25 (Fire Brigade Response), in addition to making an announcement on the Fire Brigade Radio AND activating the Fire Brigade Pagers, a Plant PA announcement ____ required when dispatching the Fire Brigade.

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

A. 1. is
   2. is

B. 1. is
   2. is NOT

C. 1. is NOT
   2. is

D. 1. is NOT
   2. is NOT

Question: 64
(1 point)

Given the following sequence of events on Unit 1:

Time = 1000 Unit 1 was operating at 100% RTP
Time = 1001 A technician setting up poles for temporary lighting in the Control Room inadvertently actuates Train B of Containment Isolation Phase A
Time = 1002 An automatic Reactor trip occurs when the 'A' MSIV spuriously closes
Time = 1003 Unit 1 loses all offsite power

Current conditions at Time = 1010:

- SI is **NOT** actuated
- Train B of Phase A has **NOT** been reset
- Buses 1ETA and 1ETB are powered from their respective D/Gs
- Operators are implementing FR-H.2 (Response to S/G Overpressure)
- S/G status:

	'A' S/G	'B' S/G	'C' S/G	'D' S/G
NR Level [%] :	77	67	65	70
S/G Pressure [PSIG] :	1270	1180	1176	1182

Based on the current conditions, in accordance with FR-H.2, which ONE (1) of the following will be required to mitigate the overpressure condition?

A. Start the TDCA pump

B. Open the 'A' SM PORV

C. Place the S/G Blowdown system (BB) in service

D. Commence a 100°F/hr NC system cooldown using condenser steam dumps

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Question: 65
(1 point)

Which ONE (1) of the following is NOT a major action category of procedure FR-Z.3 (Response to High Containment Radiation)?

A. Place VE (Annulus Ventilation) system in operation.

B. Place VX (Containment Air Return) system in operation.

C. Check Containment Ventilation Isolation.

D. Notify Station Management of Containment Radiation levels.

Question: 66
(1 point)

Given the following conditions on Unit 1:

- The crew has implemented E-0 (Reactor Trip or Safety Injection) due to a LOCA
- The OATC is performing supplementary action steps in E-0
- The BOP is manually adjusting CA flow to the S/Gs
- An alarm annunciates on the electrical relay back panel behind the main control boards (1AD11-E8, Transfer Trip System B Trouble)

In accordance with SOMP 01-04 (Conduct of Operations) Attachment 7.6 (Reactor Operator Responsibilities), which ONE (1) of the following is the correct response by the OATC regarding the annunciator alarm?

A. The OATC can investigate the alarm, because the requirements for remaining in the surveillance area do not apply during implementation of EOPs.

B. The OATC can investigate the alarm because the electrical relay panel is within the OATC defined surveillance area.

C. The OATC is required to remain within the surveillance area during implementation of EOPs. The annunciator alarm can NOT be investigated by the OATC, another operator must investigate the alarm.

D. The OATC is allowed to momentarily leave the surveillance area to investigate the alarm in the event of an emergency affecting the safety of plant operations.

Question: 67
(1 point)

SOMP 01-04 (Conduct of Operations), Attachment 7.15 (Control Room Conduct) Step 2 (Starting or Operating Large Components) *specifically* requires an announcement using the plant paging system prior to initiation of _____.

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

A. Excess Letdown

B. Normal Letdown

C. Steam Generator Blowdown

D. Radioactive Waste Liquid Release

Question: 68
(1 point)

Given the following conditions on Unit 1:

- The WCC SRO has dispatched two NEOs (Doer / Documenter) to perform valve manipulations inside a contaminated area in accordance with an Operating Procedure
- The Doer is inside the contaminated area and is in direct communication with the Documenter outside the contaminated area
- The Documenter is reading each procedure step sequentially
- The Documenter can NOT see the valve manipulations being performed

If the Doer does NOT have the procedure in hand as he performs the steps, what are the requirements of NSD 704 (Technical Procedure Use and Adherence), regarding the sign off for each step?

A. The Documenter checks off each step as the step is completed. The Doer initials each step upon completion of the task.

B. The Doer signs off the steps using his own initials upon completion of the task after leaving the contaminated area.

C. The Documenter signs off each step as the step is completed using his own initials AND the initials of the Doer.

D. The Documenter signs off each step as the step is completed using his own initials ONLY.

Question: 69
(1 point)

With Unit 1 conducting a plant startup the following conditions exist:

- Reactor is at 40% RTP
- Impulse Pressure Channel 1 is 295 PSIG
- Impulse Pressure Channel 2 is 305 PSIG
- All AMSAC S/G LOW FLOW status lights are DARK
- The S/G PATH CLSD > 30 SEC annunciator is DARK
- The AMSAC UNBLOCK light is DARK

Which ONE (1) of the following describes the operation of the AMSAC System, AND describes the action that should be taken in accordance with OP/1/A/6100/003, Enclosure 4.1 (Power Increase)?

A. AMSAC has NOT failed to automatically unblock;
Continue with the power increase and AMSAC will automatically unblock when BOTH Impulse Pressure channels rise above a MINIMUM of 360 PSIG.

B. AMSAC has NOT failed to automatically unblock;
Continue with the power increase and AMSAC will automatically unblock when Impulse Pressure Channel 1 rises above a MINIMUM of 300 PSIG.

C. AMSAC has failed to automatically unblock;
Suspend the power increase until the failure has been resolved.

D. AMSAC has failed to automatically unblock;
Depress the AMSAC Unblock Pushbutton, verify the Unblock light is LIT, and continue with the power increase.

Question: 70
(1 point)

Given the following plant conditions:

- It is the end of a shift and there is an outstanding Configuration Control Card (CCC) that is being maintained in the Control Room
- The component being tracked on the CCC can NOT be returned to its AS FOUND position before the end of shift

In accordance with SOMP 02-01 (Safety Tagging and Configuration Control), which ONE (1) of the following describes the required disposition of the CCC?

A. Document the CCC as part of your turnover at shift relief.

B. Return the CCC to the OSM. An R&R will be issued prior to shift turnover.

C. Return the CCC to the CRS to determine whether it should be turned over, or if a procedure change will be required.

D. Return the CCC to the WCC SRO. The CCC will be tracked as open until the component can be repositioned to its AS FOUND position.

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. clear after pressing and holding the Dose/Dose Rate toggle button on the ED for 10 seconds
   2. clear when the dose rate drops below the alarm setpoint

D. 1. clear after pressing and holding the Dose/Dose Rate toggle button on the ED for 10 seconds
   2. not clear until the ED is reset

Question: 72
(1 point)

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

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

The job will take 2 hours if the worker wears a full-face respirator. The 2-hour time for work with a respirator includes the respirator-induced inefficiency factor. It will only take 1 hour if the worker does not wear the respirator.

If the RP Manager grants all applicable dose extensions, which ONE (1) of the following choices for completing this job would maintain the worker's exposure within the station administrative requirements and the principles of ALARA AND why is that action appropriate?

A. The worker must wear the respirator.
He will exceed DAC limits if he does NOT wear one.

B. The worker must wear the respirator.
The calculated TEDE dose received will be less than if he does NOT wear one.

C. The worker should NOT wear the respirator.
The calculated TEDE dose received will be less than if he does wear one.

D. The worker should NOT wear the respirator.
The dose received wearing a respirator will exceed site annual personnel dose limits.

Question: 73
(1 point)

Unit 1 is operating at 8% RTP.

Which ONE (1) of the following conditions will result in an automatic Reactor trip signal? (Consider each indication separately)

A. Intermediate Range channel N-35 indicates 10^{-4} AMPS

B. 1A NC Loop Flow 1NCP-5000 (Channel 1) indicates 90%

C. Pressurizer Level 1NCP-5160 (Channel 1) and 1NCP-5151 (Channel 2) indicate 100%

D. 1C S/G NR Level 1CFP-5560 (Channel 3) and 1CFP-5550 (Channel 4) indicate 82%

Question: 74
(1 point)

Given the following plant conditions:

- Chlorine gas is entering the Control Room due to a dropped gas cylinder
- AP-17 (Loss of Control Room) has been implemented
- 1ETA and 1ETB are energized

In accordance with AP-17:

The RO dispatched to the CA Pump panels is first directed to ___(1)___.

At the CA Pump panels, the RO is directed to control S/G WR levels between ___(2)___.

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

A. 1. locally stop the Reactor Makeup Water pumps if a dilution is in progress
2. 80 - 90%

B. 1. locally stop the Reactor Makeup Water pumps if a dilution is in progress
2. 55 - 65%

C. 1. close the MSIVs by opening the breakers in the vital battery room if a cooldown is occurring
2. 80 - 90%

D. 1. close the MSIVs by opening the breakers in the vital battery room if a cooldown is occurring
2. 55 - 65%

Question: 75
(1 point)

Given the following initial conditions on Unit 1:

- The unit is at 45% RTP

Current conditions:

- 1AD-4 / A3 (S/G C FLOW MISMATCH LO STM FLOW) - LIT
- 1AD-4 / B3 (S/G C LEVEL DEVIATION) - LIT
- 1AD-6 / B10 (T-REF/T-AVG ABNORMAL) - LIT
- 1AD-6 / D10 (LOOP T-AVG DEVIATION) - LIT
- 1AD-6 / E10 (LOOP D/T DEVIATION) - LIT
- 1AD-6 / F3 (C NC PUMP LO FLO ALERT) - LIT
- 1AD-6 / E11 (NC PUMP HI VIBRATION) - LIT
- 1AD-6 / F11 (NC PUMP HI HI VIBRATION) - LIT
- The Safety breaker AND the Feeder breaker for 1C NC pump indicate CLOSED
- The unit remains at 45% RTP

Based on the above conditions, which ONE (1) of the following actions is required to be performed?

A. Immediately trip the 1C NC pump and THEN shutdown the unit in accordance with OP/1/A/6100/003 (Controlling Procedure for Unit Operation).

B. Place the 1C S/G CF Control valve in Manual and reduce feed flow.

C. Manually trip the reactor, stop the 1C NCP, and then go to E-0 (Reactor Trip or Safety Injection).

D. Place the Unit 1 D/T DEFEAT switch to the "1C" position per the Annunciator Response Procedure for 1AD-6 / E10.

Reference List for: ***2012 MNS RO NRC Examination***

Steam Tables

EP/1/A/5000/ECA-1.1 (Step 18)
EP/1/A/5000/ECA-1.1 (Enclosure 9)

ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

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

    a. Check RVLIS indication:

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

    OR

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

    __ a. GO TO Step 24.

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

    b. Perform the following:

    __ 1) Determine minimum S/I flow required PER Enclosure 9 (Flow Required to Match Decay Heat).

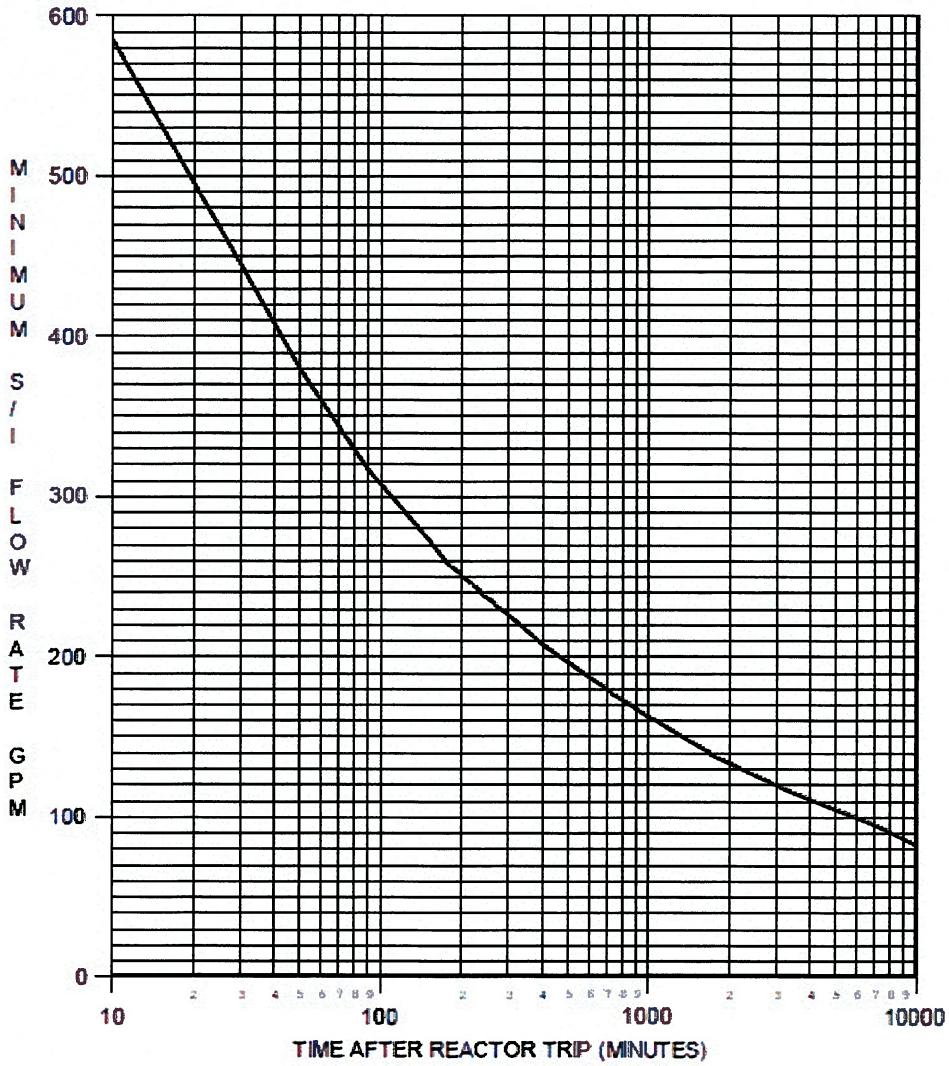
    __ 2) Minimize S/I flow by stopping one or more S/I pumps while maintaining greater than or equal to flow required by Enclosure 9 (Flow Required to Match Decay Heat).

    __ 3) GO TO Step 24.

19. **Reset the following:**

    __ • Phase A Isolation

    __ • Phase B Isolation.


600
500
400
300
200
100
0
MINIMUM S/I FLOW RATE GPM
10
100
1000
10000
TIME AFTER REACTOR TRIP (MINUTES)

Examination KEY for: 2012 MNS RO NRC Examination

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

Examination KEY for: 2012 MNS RO NRC Examination

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

Examination KEY for: 2012 MNS RO NRC Examination

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