McGuire Nuclear Station

MNS ILT 20-1R NRC Written MNS SRO NRC Retake Examination

Question: 1
(1 point)

Regarding Containment isolation signals:

1) The S/G CF Containment Isolation valves (CF-35, 30, 28, & 26) will close if Containment pressure rises to a MINIMUM of _____ PSIG.

2) A Containment Phase A isolation will occur if NC system pressure lowers to less than a MAXIMUM of _____ PSIG.

Which ONE of the following completes the statements above?

A. 1. 3.0
   2. 1845

B. 1. 3.0
   2. 1945

C. 1. 1.0
   2. 1945

D. 1. 1.0
   2. 1845

Question: 2
(1 point)

Given the following on Unit 1:

- A large break LOCA has occurred
- The CRS has implemented FR-Z.1 (RESPONSE TO HIGH CONTAINMENT PRESSURE)

Subsequently:

- The crew attempts to align the 1A Train of ND to supply Containment Spray
- 1NS-43A (1A ND HX OUTLET TO NS CONT OUTSIDE ISOL) failed to open

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

A. 1NI-185A (RB SUMP TO TRAIN A ND & NS) was not OPEN

B. CPCS signal was not present

C. 1NI-173A (1A ND TO A & B COLD LEGS CONT OUTSIDE ISOL) was not CLOSED

D. 1ND-58A (TRAIN A ND TO NV & NI PUMPS) was not CLOSED

Question: 3
(1 point)

Given the following on Unit 2:

- Unit is at 100% RTP
- A malfunction of 2KC-132 (L/D HX OUTLET TEMP CONTROL) has occurred
- 2AD-7, H2 (LETDN HX OUTLET HI TEMP) is in alarm

Based on the conditions above:

1) This event will result in the addition of _____ reactivity.

2) If letdown temperature continues to rise to 138 °F, letdown flow will be automatically aligned to the _____.

Which ONE of the following best completes the statements above?

A. 1. positive
   2. VCT

B. 1. negative
   2. VCT

C. 1. positive
   2. RHT

D. 1. negative
   2. RHT

Question: 4
(1 point)

Given the following on Unit 1:

- Unit 1 is at 75% RTP
- CRD BANK SELECT AUTO
- Valve Positions on 1MC10:

Based on the conditions above, the NC SYS M/U CONTROLLER is in the ____(1)____ position.

If operation is continued in this alignment, automatic control rod ____(2)____ will occur.

Which ONE of the following completes the statements above?

A. 1. ALT DILUTE
   2. withdrawal

B. 1. DILUTE
   2. withdrawal

C. 1. ALT DILUTE
   2. insertion

D. 1. DILUTE
   2. insertion

Question: 5
(1 point)

Given the following on Unit 1:

- A LOCA has occurred
- Initial depressurization to S/G pressures of 190 PSIG has been completed
- All T-Hot temperatures are less than 388°F

The crew is currently performing the following:

- S/G depressurization to atmospheric pressure per FR-C.1 (RESPONSE TO INADEQUATE CORE COOLING)

Per FR-C.1:

1) A RVLIS reading of less than a MAXIMUM of _____ indicates an inadequate core cooling condition.

2) The subsequent S/G depressurization to atmospheric pressure is performed in order to allow injection from the _____.

Which ONE of the following completes the statements above?

A. 1. 39%
   2. ND system

B. 1. 60%
   2. ND system

C. 1. 39%
   2. Cold Leg accumulators

D. 1. 60%
   2. Cold Leg accumulators

Question: 6
(1 point)

Given the following on Unit 1:

- Unit is at 100% RTP
- There is leak-by on ONE PZR PORV
- PRT Temperature on 1NCP-5350 is currently 90°F and rising 2°/minute

At the current rate, the PRT temperature will reach the PRT high temperature alarm on 1AD-6 within _____ minutes.

Which ONE of the following completes the statements above?

A. 12

B. 20

C. 25

D. 40

Question: 7
(1 point)

Given the following on Unit 2:

- A reactor trip has occurred
- The CRS has implemented E-0 (REACTOR TRIP OR SAFETY INJECTION)

Subsequently,

- ONE (1) PZR PORV fails partially open

Based on the conditions above,

1) the PRT _____ will operate to reduce PRT pressure.

2) as Containment pressure rises, the LCO for TS 3.6.4 (CONTAINMENT PRESSURE) will be exceeded when Containment pressure exceeds a MINIMUM of _____ PSIG.

Which ONE of the following completes the statements above?

A. 1. relief valve
   2. 0.3

B. 1. rupture disc
   2. 0.3

C. 1. relief valve
   2. 0.2

D. 1. rupture disc
   2. 0.2

Question: 8
(1 point)

Given the following on Unit 2:

- Unit is at 100% RTP
- 2A1 KC Pump is in service
- 2A2 KC Pump is secured
- The 2B sequencer is in TEST

Subsequently:

- An inadvertent SI signal is received on Unit 2 "B" Train ONLY

Which ONE of the following describes the Unit 2 KC pumps that are in service?
(Assume no operator action)

A. 2A1 KC pump ONLY

B. 2A1, 2B1, and 2B2 KC pumps ONLY

C. 2A1 and 2A2 KC pumps ONLY

D. 2A1, 2A2, 2B1 and 2B2 KC pumps

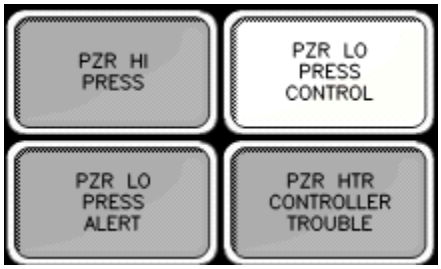
Question: 9
(1 point)

Given the following on Unit 1:

- The unit is at 100% RTP
- Pressurizer Pressure is 2235 PSIG

Subsequently:

- Pressurizer Pressure is slowly lowering
- Pressurizer Pressure Master Controller Error is -15 PSIG
- Backup Heaters are in AUTO
- The following is observed on 1AD6:



At the current error signal, all backup heaters are ____(1)____.

1AD6 Annunciators ____(2)____ consistent with the given plant conditions.

Which ONE of the following best completes the statements above?

A 1. OFF
2. are NOT

B 1. ON
2. are NOT

C 1. OFF
2. are

D 1. ON
2. are

Question: 10
(1 point)

Given the following on Unit 2:

- The Unit is conducting a startup at 6% RTP
- The N-35 channel "LEVEL TRIP" switch is in "BYPASS"

Subsequently:

- Intermediate Range channel N-35 begins to operate erratically

Removal of 2N-35 Instrument Power fuses ____(1)____ result in a reactor trip.

Removal of 2N-35 Control Power fuses ____(2)____ result in a reactor trip.

Which ONE of the following completes the statements above?

A. 1. will
   2. will

B. 1. will
   2. will NOT

C. 1. will NOT
   2. will

D. 1. will NOT
   2. will NOT

Question: 11
(1 point)

Given the following on Unit 2:

- A startup is in progress and reactor power is currently 1% RTP

Subsequently:

- 2NC-27C (PRESSURIZER SPRAY CONTROL) fails OPEN
- The crew enters AP-11 (PRESSURIZER PRESSURE ANOMALIES)
- The valve will not close from the SLIM on 2MC-10.

Based on the conditions above,

1) The BOP will attempt to stop spray flow by _____.

2) IF unwarranted spray flow is allowed to continue without operator action an _____ reactor trip would occur.

Which ONE of the following completes the statements above?

A. 1. securing NC Pumps A and B
   2. OTΔT

B. 1. securing NC Pumps A and B
   2. OPΔT

C. 1. placing emergency close switch to "CLOSE".
   2. OTΔT

D. 1. placing emergency close switch to "CLOSE".
   2. OPΔT

Question: 12
(1 point)

Given the following on Unit 1:

- A SBLOCA has occurred
- Containment pressure peaked at 1.3 PSIG and now is 0.9 PSIG and stable
- The Pressurizer Booster and Pipe Tunnel Booster Fans have shunt tripped OFF

Based on the conditions above,

1) The Pressurizer Booster fans _____ swapped to emergency power.

2) The Pipe Tunnel Booster fans _____ remain OFF.

Which ONE of the following completes the statements above?

A. 1. have
   2. will

B. 1. have
   2. will NOT

C. 1. have NOT
   2. will

D. 1. have NOT
   2. will NOT

Question: 13
(1 point)

Given the following on Unit 2:

- 13:00 - A LOCA occurred
- 13:01 - Containment Pressure is 3.5 PSIG and rising

At time 13:02, the Containment Air Return Fans ___(1)___ be running.

In order to open, Containment Air Return Dampers require differential pressure between lower and upper containment to be less than or equal to a MAXIMUM of ___(2)___ PSID.

Which ONE of the following completes the statements above?

A. 1. will
2. 0.35

B. 1. will NOT
2. 0.5

C. 1. will
2. 0.5

D. 1. will NOT
2. 0.35

Question: 14
(1 point)

Given the following on Unit 1:

- 1AD-9, A/6 (GLYCOL EXPANSION TNK LO-LO LVL) has alarmed

Based on the above conditions, 1NF-234A (RB GLYCOL RETURN CONT OUTSIDE ISOL) ____(1)____ close.

A ____(2)____ signal will close all NF isolation valves.

Which ONE of the following completes the statements above?

A. 1. will NOT
   2. Phase B

B. 1. will NOT
   2. Phase A

C. 1. will
   2. Phase B

D. 1. will
   2. Phase A

Question: 15
(1 point)

Concerning operation of the Containment Spray System (NS):

Aligning suction from the _____(1)_____ with a specific _____(2)_____ limits post-accident Iodine concentration and minimizes stress corrosion.

Which ONE of the following completes the statement above?

A. 1. FWST
   2. pH

B. 1. containment sump
   2. pH

C. 1. FWST
   2. boron concentration

D. 1. containment sump
   2. boron concentration

Question: 16
(1 point)

Given the following on Unit 2:

- A LBLOCA has occurred
- One train of NS has been aligned for recirc per ES-1.3 (TRANSFER TO COLD LEG RECIRC)

As Containment pressure lowers, the NS Pump will automatically secure at a MAXIMUM Containment pressure of ___(1)___ PSIG.

Following this NS Pump shutdown, if Containment pressure rises above the auto-secure setpoint, the NS Pump discharge valves ___(2)___ automatically OPEN.

Which ONE of the following completes the statements above?

A. 1. 0.35
   2. will NOT

B. 1. 0.8
   2. will NOT

C. 1. 0.35
   2. will

D. 1. 0.8
   2. will

Question: 17
(1 point)

Given the following on Unit 1:

- A reactor trip has occurred due to a secondary system malfunction
- E-0 (REACTOR TRIP OR SAFETY INJECTION) has been performed and the crew has transitioned to ES-0.1 (REACTOR TRIP RESPONSE)

Subsequently,

- The crew enters FR-H.3 (RESPONSE TO STEAM GENERATOR HIGH LEVEL)

FR-H.3 will NOT allow steam to be released from any S/G if NR level exceeds a MINIMUM of ___(1)___ due to ___(2)___ concerns, without an overfill evaluation being completed.

Which ONE of the following completes the statements above?

A. 1. 82%
   2. steamline water hammer

B. 1. 82%
   2. condenser tube damage

C. 1. 92%
   2. steamline water hammer

D. 1. 92%
   2. condenser tube damage

Question: 18
(1 point)

Given the following on Unit 1:

- A shutdown is in progress
- Turbine Inlet Pressure is 400 PSIG

At time 13:00 the following conditions are observed:

- CF-32 (A S/G CF CNTRL VALVE) 20% OPEN with CF-104 (A S/G CF CNTRL VLV BYPASS) CLOSED
- CF-23 (B S/G CF CNTRL VALVE) 10% OPEN with CF-105 (B S/G CNTRL VLV BYPASS) 100% OPEN
- CF-28 (C S/G CF CONT OUTSIDE ISOL) CLOSED
- CF-26 (D S/G CF CONT OUTSIDE ISOL) CLOSED

At time 13:01, based on the above conditions, AMSAC actuation ____(1)____ occur.

Depressing "BLOCK" on the AMSAC ACTUATION BLOCK/UNBLOCK pushbutton prevents AMSAC ACTUATION if a loss of _____(2)_____ occurs.

(CONSIDER EACH QUESTION SEPARATELY)

Which ONE of the following completes the statements above?

A. 1. will
   2. CF pumps

B. 1. will
   2. CF flow path

C. 1. will NOT
   2. CF pumps

D. 1. will NOT
   2. CF flow path

Question: 19
(1 point)

Given the following on Unit 2:

- A small break LOCA has occurred
- Safety Injection has been initiated
- The sequencer has not been reset
- S/G NR levels indicate the following:

S/G	2A	2B	2C	2D
NR Level (%)	20	19	16	20

Subsequently:

- The normal incoming breaker to 2ETA opens

Based on the conditions above, the 2A and 2B SGs are _____.

Which ONE of the following completes the statement above?

A. not being fed

B. being fed by the 2A MDCA pump ONLY

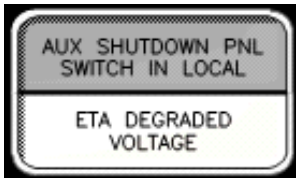
C. being fed by the U2 TDCA pump ONLY

D. being fed by the 2A MDCA pump AND U2 TDCA pump

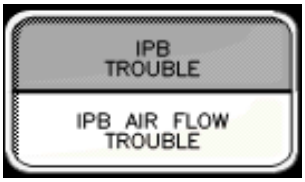
Question: 20
(1 point)

Given the following on Unit 1:

- Unit is at 100% RTP
- The following separate annunciators are illuminated on 1AD-11:



TCC reports low grid voltage is present



- Both IPB Fans are OFF and will not restart
- NO fire is present

- NO other annunciators are present
- NO lockouts are present

Based on the conditions above, an automatic action will occur after a MINIMUM of _____ minutes. **(Assume No operator action)**

Which ONE of the following completes the statement above?

A. 3

B. 5

C. 10

D. 30

Question: 21
(1 point)

Given the following on Unit 1:

- A fault required battery EVCA to be removed from service
- The crew is aligning charger EVCC and battery EVCC to supply distribution center EVDA per OP/0/A/6350/001A Enclosure 4.13 (REMOVAL OF BATTERY EVCA FROM SERVICE)

Subsequently:

- 1AD-11 C3 (BATT EVCC GROUND) alarms in the Control Room
- Relay Board 2EB5 indicates a negative leg ground exists on EVCC

Based on the conditions above:

1) The detector lamp on 2EB5 will be _____ to indicate a ground.

2) Per Enclosure 4.13, Limits and Precautions, the alignment of EVCC should NOT occur if a _____ leg ground exists on EVDA.

Which ONE of the following completes the statements above?

A. 1. bright
   2. positive

B. 1. dim
   2. positive

C. 1. bright
   2. negative

D. 1. dim
   2. negative

Question: 22
(1 point)

Given the following on Unit 2:

- A Loss of Offsite Power has occurred
- 2B D/G started but subsequently tripped on overspeed
- 60 seconds have passed since the Loss of Offsite Power occurred

Based on the conditions above:

1) 125 VDC Power Panel Board 2EVDD will be energized from _____.

2) This can be verified by checking control power available to 4160V pumps powered from _____.

Which ONE of the following completes the statements above?

A. 1. Battery EVCD
   2. 2ETA

B. 1. Standby Charger EVCS
   2. 2ETA

C. 1. Battery EVCD
   2. 2ETB

D. 1. Standby Charger EVCS
   2. 2ETB

Question: 23

(1 point)

Given the following 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

Based on the conditions above,

1) depressing the "1A D/G Gov Cntrl" "Raise" pushbutton will result in raising 1A D/G _____.

2) rotating the "1A D/G Volt Adjust" switch to "Raise," will result in raising 1A D/G _____.

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

A. 1. frequency
   2. KVARs

B. 1. load
   2. KVARs

C. 1. frequency
   2. voltage

D. 1. load
   2. voltage

Question: 24
(1 point)

Given the following on Unit 2:

- Unit is at 100% RTP
- Train "A" equipment is in service
- The power supply to 2EMF-46A (TRAIN A KC) has FAILED

Based on the conditions above,

1) 2KC-122 (KC SURGE TANK VENT) _____ receive a signal to auto-close.

2) 2RAD-1/F5 (CABINET 1-2 TROUBLE) alarm _____ be generated.

Which ONE of the following completes the statement above?

A. 1. does
   2. will

B. 1. does NOT
   2. will

C. 1. does
   2. will NOT

D. 1. does NOT
   2. will NOT

Question: 25
(1 point)

Given the following on Unit 1:

- Unit is at 100% RTP
- 1B DG is running for PT/1/A/4350/002B, Diesel Generator 1B Operability Test.

Subsequently:

- The BOP operator reports that 1B D/G Room average temperature is 105°F and rising at 2°F per minute

Based on the conditions above, the SLC 16.9.16 (AREA TEMPERATURE MONITORING) limit for D/G Room temperature will be exceeded in a MINIMUM of _____ minutes.

Which ONE of the following completes the statement above?

A. 5

B. 7.5

C. 10

D. 12.5

Question: 26
(1 point)

Given the following on Unit 1:

- The Unit is at 100% RTP
- Electrical supplies are aligned normally
- "A" Train KC is in service

Subsequently:

- A Blackout occurs on 1ETA

The blackout occurred due to a loss of Unit 1 6900 volt bus ____(1)____.

As a result of the Blackout, "A" Train KC pumps will ____(2)____.

Which ONE of the following completes the statements above?

A. 1. 1TA
   2. receive a manual start permissive

B. 1. 1TC
   2. receive a manual start permissive

C. 1. 1TA
   2. automatically start

D. 1. 1TC
   2. automatically start

Question: 27
(1 point)

Regarding the Low Pressure Station Air System (VS):

The backup supply to the Low Pressure Air system is the ____(1)____.

When running in automatic, the Low Pressure Station Air compressor will trip on low ____(2)____ flow to the oil cooler.

Which ONE of the following completes the statements above?

A. 1. Low Pressure Station Air compressor
   2. RL

B. 1. VI system through 1VI-820
   2. RL

C. 1. Low Pressure Station Air compressor
   2. KR

D. 1. VI system through 1VI-820
   2. KR

Question: 28
(1 point)

Given the following conditions:

- Unit 1 is at 12% RTP
- Power ascension in progress

Subsequently:

- 1C NC pump trips

An automatic reactor trip will NOT occur because reactor power is below the ____(1)____ setpoint.

Loop C delta-T will stabilize at a ____(2)____ value.

Which ONE of the following completes the statements above?

A. 1. P-7
   2. higher

B. 1. P-8
   2. lower

C. 1. P-8
   2. higher

D. 1. P-7
   2. lower

Question: 29
(1 point)

Give the following on Unit 1:

- Unit is in MODE 3
- Shutdown Banks are being withdrawn in preparation for startup per OP/1/A/6100/003 (CONTROLLING PROCEDURE FOR UNIT OPERATION)

Subsequently:

- 1AD-2 / D10 (RPI URGENT ALARM) has just alarmed
- DRPI and OAC RODS position indication for rod D-8 in Shutdown Bank E has been lost

What action is required by **SLC 16.7.9** (ROD POSITION INDICATION SYSTEM - SHUTDOWN)?

A. IMMEDIATELY place rods in manual

B. IMMEDIATELY open the reactor trip breakers

C. IMMEDIATELY insert the shutdown banks

D. Restore rod position indication within 1 hour

Question: 30
(1 point)

Given the following on Unit 1:

- Unit is at 100% RTP
- The SLIM for 1NV-238 (CHARGING FLOW CONTROL) has been placed in MANUAL due to a malfunction of the Pressurizer Level Master Controller
- 1NV-238 SLIM output is lowered to reduce Pressurizer level
- Charging Line Flow is lowered to 18 GPM

Based on the conditions above:

1) If the 1NV-238 controller output remains constant, pressurizer level will be _____.

2) The crew will use _____ to address pressurizer level.

Which ONE of the following completes the statements above?

PROCEDURE LEGEND:
OP/1/A/6102/003 (DISTRIBUTED CONTROL SYSTEM OPERATION)
AP/1/A/5500/12 (LOSS OF LETDOWN, CHARGING OR SEAL INJECTION)

A. 1. rising
   2. AP/1/A/5500/12

B. 1. rising
   2. OP/1/A/6102/003

C. 1. lowering
   2. AP/1/A/5500/12

D. 1. lowering
   2. OP/1/A/6102/003

Question: 31
(1 point)

Given the following initial conditions on Unit 2:

- A reactor startup is being performed per OP/2/A/6100/003 (CONTROLLING PROCEDURE FOR UNIT OPERATION)
- Reactor power is $7X10^{-6}$ % (IR)

Subsequently:

- The IR Signal Processor output for detector channel N36 fails low

Based on the conditions above:

1) Reactor power indication on _____ has been lost.

2) If the power increase is continued, Permissive P-6 logic _____ be met by the remaining channel.

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

A. 1. N36 ONLY
   2. will

B. 1. N36 ONLY
   2. will NOT

C. 1. N32 AND N36
   2. will

D. 1. N32 AND N36
   2. will NOT

Question: 32
(1 point)

Which ONE 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. Incore Thermocouples AND S/G WR Levels

B. Incore Thermocouples AND Pressurizer Level

C. SR Neutron Flux AND S/G WR Levels

D. SR Neutron Flux AND Pressurizer Level

Question: 33
(1 point)

Given the following on Unit 1:

- A LOCA has occurred
- Containment hydrogen concentration is slowly rising.
- The TSC has recommended placing the H2 Purge Blower in service.

The H2 Purge Blower is placed in service to maintain hydrogen concentration less than a MAXIMUM of ____(1)____ %.

While in operation, the H2 Purge blower return line vents air from containment to the ____(2)____.

Which ONE of the following completes the statement above?

A. 1. 4
   2. Auxiliary Building

B. 1. 6
   2. Auxiliary Building

C. 1. 4
   2. Annulus

D. 1. 6
   2. Annulus

Question: 34

(1 point)

Given the following on Unit 1:

- The reactor is stable at approximately 2% RTP
- A Steam Generator safety valve fails OPEN
- NO Reactor Trip or Safety Injection actuation occurs

NC system temperature will stabilize at a lower temperature if this event were to occur at ____(1)____.

Reactor power will stabilize at ____(2)____.

(Consider each question separately)

Which ONE of the following completes the statements above?

A. 1. BOL
   2. a higher value at BOL than at EOL

B. 1. BOL
   2. approximately the same value at BOL and EOL

C. 1. EOL
   2. a higher value at BOL than at EOL

D. 1. EOL
   2. approximately the same value at BOL and EOL

Question: 35
(1 point)

Given the following Unit 1 conditions:

- The Unit was operating at 100% RTP
- A Reactor Trip occurs
- Reactor Trip breaker 1RTB fails to open on the trip

Based on the conditions above with regards to the Steam Dump System:

The ____(1)____ controller will be in service.

Operator action ____(2)____ be required to lower T_{AVG} to 557°F.

Which ONE of the following completes the statements above?

A. 1. Plant Trip
   2. will

B. 1. Load Rejection
   2. will

C. 1. Plant Trip
   2. will NOT

D. 1. Load Rejection
   2. will NOT

Question: 36
(1 point)

The turbine Overspeed Protection Control (OPC) circuit limits turbine speed to a MAXIMUM of ____(1)____ by closing the ____(2)____.

Which ONE of the following completes the statement above?

A. 1. 103%
   2. IVs ONLY

B. 1. 110%
   2. IVs ONLY

C. 1. 103%
   2. GVs and IVs

D. 1. 110%
   2. GVs and IVs

Question: 37
(1 point)

Given the following on Unit 2:

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

The normal discharge flowpath for the Condenser Steam Jet Air Ejectors (CSAE) is to the ____(1)____.

A Trip 2 condition on 2EMF-33, ____(2)____ isolate the CSAE drains to the turbine building sump.

Which ONE of the following completes the statements above?

A. 1. Turbine Building roof
   2. will NOT

B. 1. Unit vent
   2. will NOT

C. 1. Turbine Building roof
   2. will

D. 1. Unit vent
   2. will

Question: 38
(1 point)

Given the following on Unit 1:

- Unit is at 100% RTP
- The Unit 1 VUCDT is being released

Subsequently:

- Annunciator 1RAD2 C/2 (1EMF-44 CONT VENT DRN TANK HI RAD) alarms
- 1WL-320 (VUCDT RAD MONITOR OUTLET) indicates OPEN
- 1WP-35 (WMT & VUCDT TO RC CNTRL) indicates CLOSED
- 1WP-37 (LIQUID WASTE TO RC CNTRL) indicates OPEN

Based on the conditions above, _____ has/have failed to automatically close.

If VUCDT activity level is too high for a normal "batch" release to RC, the VUCDT would be transferred to the _____.

Which ONE of the following completes the statements above?

A. 1. 1WL-320 ONLY
   2. WMT (Waste Monitor tank)

B. 1. 1WL-320 ONLY
   2. FDT (Floor Drain tank)

C. 1. 1WL-320 AND 1WP-37
   2. WMT (Waste Monitor tank)

D. 1. 1WL-320 AND 1WP-37
   2. FDT (Floor Drain tank)

Question: 39
(1 point)

Given the following on Unit 1:

- The unit has tripped due to a loss of both Feed pumps
- Rod H12 fails to fully insert into the core
- The crew has entered ES-0.1 (REACTOR TRIP RESPONSE)

Based on the conditions above and per ES-0.1, emergency boration ___(1)___ required.

Per T.S. 3.1.1 (SHUTDOWN MARGIN) if boration is required due to SDM not within the limit, then initiation of boration must occur within ___(2)___ minutes

Which ONE of the following completes the statement above?

A. 1. is
   2. 30

B. 1. is NOT
   2. 30

C. 1. is
   2. 15

D. 1. is NOT
   2. 15

Question: 40
(1 point)

Given the following on Unit 2:

- Unit 2 is at 100% RTP

Subsequently:

- PORV NC-32B inadvertently lifts and fails to reseat

Based on the conditions above:

1) The output (error signal) of the Pressurizer Pressure Master Controller will _____.

2) The transient will cause the setpoint for **OPΔT** to _____.

Which ONE of the following completes the statements above?

A. 1. raise
   2. remain the same

B. 1. lower
   2. lower

C. 1. raise
   2. lower

D. 1. lower
   2. remain the same

Question: 41
(1 point)

Given the following on Unit 1:

- A Safety Injection due to High Containment pressure has occurred
- The crew has implemented E-0 (REACTOR TRIP OR SAFETY INJECTION)
- NV pump flow to the NC system Cold Legs is 390 GPM
- NC system pressure is 1350 PSIG and STABLE
- SG pressures are 1092 PSIG and STABLE
- NC system subcooling on the ICCM is 22°F and STABLE

Per E-0 Foldout Page, the crew ____(1)____ secure NC pumps.

Upon transition to E-1 (LOSS OF REACTOR OR SECONDARY COOLANT), Steam Generators ____(2)____ be required for heat removal.

Which ONE of the following completes the statements above?

A. 1. will NOT
   2. will NOT

B. 1. will NOT
   2. will

C. 1. will
   2. will NOT

D. 1. will
   2. will

Question: 42
(1 point)

Given the following on Unit 1:

- A LBLOCA has occurred.
- The crew has just transitioned to ES-1.3 (TRANSFER TO COLD LEG RECIRCULATION).
- "CONT SUMP LEVEL GREATER THAN 2.5 FT" on 1AD-14 is LIT.
- "CONT SUMP LEVEL GREATER THAN 3.0 FT" on 1AD-14 is DARK.

Per ES-1.3:

1) The MINIMUM Containment sump level required to align ND to cold leg recirculation _____ met.

2) When FWST level lowers to a MAXIMUM of _____ INCHES, NV and NI can be aligned to cold leg recirculation.

Which ONE of the following completes the statements above?

A. 1. is
2. 95

B. 1. is NOT
2. 95

C. 1. is
2. 20

D. 1. is NOT
2. 20

Question: 43
(1 point)

Given the following on Unit 2:

- Unit is in MODE 3 with Shutdown Banks withdrawn
- 2B, 2C, and 2D NC pumps are in service
- Bus 2TA is de-energized with its supply breaker racked out for maintenance

Subsequently:

- The 2B NC pump 6.9KV NC pump feeder breaker trips

Based on the conditions above:

1) The 2C and 2D NC pumps SAFETY BREAKERS indicate _____.

2) The Unit 2 Reactor Trip breakers _____.

Which ONE of the following completes the statements above?

A. 1. CLOSED
   2. remain CLOSED

B. 1. CLOSED
   2. are TRIPPED

C. 1. OPEN
   2. remain CLOSED

D. 1. OPEN
   2. are TRIPPED

Question: 44
(1 point)

Given the following on Unit 1:

- Unit is at 100% RTP
- The CRS has implemented AP-12 (LOSS OF LETDOWN, CHARGING OR SEAL INJECTION) following a trip of 1A NV Pump

Subsequently:

- 1B NV Pump has been started

When initially restoring seal injection flow, the BOP will **slowly** throttle ____(1)____ on 1NV-241 (U1 SEAL WATER INJ FLOW CONTROL) to ____(2)____.

Which ONE of the following completes the statement above?

A. 1. OPEN
   2. establish 8-10 gpm seal flow per NC pump

B. 1. OPEN
   2. limit NCP lower bearing cooldown rate to 1°F/min

C. 1. CLOSED
   2. limit NCP lower bearing cooldown rate to 1°F/min

D. 1. CLOSED
   2. establish 8-10 gpm seal flow per NC pump

Question: 45
(1 point)

Given the following on Unit 2:

- Unit is in MODE 5 and drained to Mid-loop
- ND Train 2A is in service
- ND system flow rate is 3200 GPM
- NC System level is 7 inches and stable
- 2A ND pump amps and discharge pressure begin to oscillate
- The crew has entered AP-19 (LOSS OF ND OR ND SYSTEM LEAKAGE)

Based on the conditions above:

The 2A ND pump is _____(1)_____.

Per AP/19, the crew will FIRST _____(2)_____.

Which ONE of the following completes the statements above?

A. 1. cavitating
   2. secure 2A ND Pump

B. 1. cavitating
   2. reduce ND flow to less than 3000 GPM

C. 1. operating at runout condition
   2. secure 2A ND Pump

D. 1. operating at runout condition
   2. reduce ND flow to less than 3000 GPM

Question: 46
(1 point)

Given the following on Unit 1:

- Unit is at 100% RTP, normal temperature and pressure

Subsequently:

- The Pressurizer Pressure Master controller suffers an internal failure resulting in a "Pressurizer Pressure Error" of +100 PSIG
- Actual Pressurizer Pressure is 2100 PSIG and lowering

Pressurizer Spray valves are currently _____(1)_____.

At the time of the failure, _____(2)_____ received a signal to open.

Which ONE of the following completes the statements above?

A. 1. CLOSED
   2. PORV NC-34A ONLY

B. 1. CLOSED
   2. PORVs NC-32B AND NC-36B

C. 1. OPEN
   2. PORVs NC-32B AND NC-36B

D. 1. OPEN
   2. PORV NC-34A ONLY

Question: 47
(1 point)

Given the following on Unit 1:

- Unit was at 100% RTP

Subsequently:

- A turbine trip occurs
- The CRS has implemented FR-S.1 (RESPONSE TO NUCLEAR POWER GENERATION/ATWS) due to inability to open the trip breakers
- A Pzr safety lifted and did not reseat
- Pzr pressure lowered to a pressure of 1600 PSIG and is now slowly trending up
- The following indications are observed:

1. Which ONE of the following valves is in the CORRECT position?

2. FR-S.1 _____ direct the use of the ESF Monitor Light Panel to check all ESF valve positions.

Which ONE of the following completes the statement above?

A. 1. 1NV-150B
   2. will

B. 1. 1NV-150B
   2. will NOT

C. 1. 1NV-245B
   2. will

D. 1. 1NV-245B
   2. will NOT

Question: 48
(1 point)

Why does the loss of reactor coolant pumps during a steam generator tube rupture increase the risk of voiding during the subsequent cooldown and depressurization?

A. The NCS hot legs reach saturation temperature during the rapid depressurization from the tube rupture, causing the NCS to flash.

B. More ECCS flow is injected into the ruptured loop cold leg due to the reduced pressure, resulting in less flow to the core and less heat removal.

C. The upper head region becomes inactive and the fluid temperature in that region significantly lags the temperatures in the NCS loop.

D. The isolation of the steam generator in the affected loop causes that loop to stagnate; therefore, insufficient heat removal capacity is available to cool the NCS.

Question: 49
(1 point)

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 of the following completes the statements above?

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

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

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

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

Question: 50
(1 point)

Given the following conditions:

- Both units have experienced a Loss of Offsite Power (LOOP)
- ECA-0.0 (LOSS OF ALL AC POWER) was implemented on Unit 1 and the crew transitioned to ECA-0.1 (LOSS OF ALL AC POWER RECOVERY WITHOUT S/I REQUIRED)

Current conditions:

- NC Subcooling is greater than 0°F
- S/G pressures are STABLE at 470 PSIG
- NC Thots are STABLE
- Core Exit T/Cs - STABLE
- NC Tcolds are 500°F and STABLE

Consider Each Statement Separately

Natural Circulation flow ____(1)____ currently established.

If Natural Circulation flow is NOT established, then ____(2)____ will be used to dump steam.

Which ONE of the following completes the statements above?

REFERENCE PROVIDED

A. 1. is
   2. Main Steam PORVs

B. 1. is
   2. Steam Dumps

C. 1. is NOT
   2. Main Steam PORVs

D. 1. is NOT
   2. Steam Dumps

Question: 51
(1 point)

Given the following:

- VC/YC Mode Select Switch is in TRAIN A with all A Train equipment in operation, except CR-OAPFT-1
- VC/YC Train B Mode Select Switch is in OFF with all B Train equipment selected to AUTO
- No smoke or fire detection alarms, associated with VC/YC, are active

Subsequently:

- A blackout on 1ETB occurs.

Based on the conditions above,

1) The Train B CR-AHU _____ be running.

2) The Train A CR-OAPFT-1 will _____.

Which ONE of the following completes the statement above?

A. 1. will NOT
   2. start

B. 1. will NOT
   2. remain OFF

C. 1. will
   2. start

D. 1. will
   2. remain OFF

Question: 52
(1 point)

Given the following on Unit 1:

- A loss of EVDD has occurred
- The CRS has implemented AP-15 (LOSS OF VITAL OR AUX CONTROL POWER)

Due to the isolation of ____(1)____, the operating crew will be required to respond to rising containment pressure.

To aid in controlling containment pressure, LOWER Containment TEMPERATURE will be maintained less than a MAXIMUM of ____(2)____, as required by TS 3.6.5 (CONTAINMENT AIR TEMPERATURE).

Which ONE of the following completes the statements above?

A. 1. the VQ (Containment Air Addition and Release) system
   2. 100°F

B. 1. RV (Containment Cooling) to Lower Containment
   2. 100°F

C. 1. the VQ (Containment Air Addition and Release) system
   2. 120°F

D. 1. RV (Containment Cooling) to Lower Containment
   2. 120°F
   .

Question: 53
(1 point)

Given the following initial conditions on Unit 1:

- The Unit is operating at 100% RTP

Subsequently,

- 1AD8 / D2 (SUMP B GROUNDWATER DRAINAGE HI HI LVL) alarms
- An AO has been dispatched to investigate reports that the B Groundwater sump is overflowing

Which ONE (1) of the following describes the source of the flooding?

A. 2A RN strainer basket shaft seal failure

B. 2B RN Pump Suction piping weld failure

C. RF piping break in the Unit 1 CA pump Room

D. 1B RN strainer automatic backwash valve has failed open

Question: 54
(1 point)

Given the following:

- Both Units at 100% RTP
- A loss of VI has occurred
- AP-22 (LOSS OF VI) has been implemented on both units

Subsequently:

- A Loss of Off-Site Power occurs

Based on the conditions above, the Auxiliary Bldg Instrument Air headers ____(1)____ be supplied from the D/G Starting Air system (VG).

The air supplied by the Auxiliary Bldg Instrument Air headers will be used to ensure valves essential to safe operation ____(2)____.

Which ONE of the following completes the statements above?

A. 1. can NOT
   2. can be used to achieve unit shutdown to COLD Shutdown

B. 1. can NOT
   2. attain their "fail safe" position

C. 1. can
   2. can be used to achieve unit shutdown to COLD Shutdown

D. 1. can
   2. attain their "fail safe" position

Question: 55
(1 point)

Given the following on Unit 2:

- A LOCA has occurred
- Containment pressure peaked at 3.2 PSIG and is currently 2.5 PSIG
- NO CA flow is available
- E-1 (LOSS OF REACTOR OR SECONDARY COOLANT) has been implemented

Given the following parameters:

	TIME			
Highest SG NR Level	0200	0210	0220	0230
2A S/G	35%	25%	15%	10%
2B S/G	31%	24%	15%	9%
2C S/G	34%	25%	12%	8%
2D S/G	32%	23%	10%	7%

Which ONE of the following is the EARLIEST time that the crew is required to implement FR-H.1 (LOSS OF SECONDARY HEAT SINK)?

A. 0200

B. 0210

C. 0220

D. 0230

Question: 56
(1 point)

ECA-2.1 (UNCONTROLLED DEPRESSURIZATION OF ALL STEAM GENERATORS) contains actions to limit total AFW flow to any S/G with a N/R level less than 11% (32% ACC).

The basis for the minimum feed flow value is to _____.

Which ONE of the following completes the statement above?

A. prevent Steam Generator dryout

B. prevent water hammer in the feed rings

C. meet the minimum heat sink flow requirements

D. minimize water inventory to prevent a Steam Generator overfill condition

---

Question: 57
(1 point)

Given the following Unit 1 initial conditions:

- Unit is at 40% RTP and stable
- Rod Control is in automatic
- The MW feedback loop is OUT of service
- NC T-Avg is 567°F

Subsequently,

- Control Bank "D" Rod M-12 drops fully into the core
- The crew has implemented AP-14 (ROD CONTROL MALFUNCTION)
- NC T-Avg is 563°F

Turbine power _____ stabilize at a lower value.

Per AP-14, the crew _____ FIRST adjust control rods in order to restore T-Avg to T-Ref.

Which ONE of the following completes the statements above?

A. 1. will
   2. will

B. 1. will
   2. will NOT

C. 1. will NOT
   2. will

D. 1. will NOT
   2. will NOT

Question: 58
(1 point)

Given the following on Unit 2:

- The CRS has implemented FR-S.1, (RESPONSE TO NUCLEAR POWER GENERATION - ATWS)
- The crew is initiating emergency boration
- 2NV-265B (BA TO NV PMPS) is OPEN
- 2A NV pump is "ON"
- Both Boric Acid Transfer Pumps are OFF.
- 2NV-244A and 2NV-245B, (CHRG LINE CONT ISOLs) are OPEN

Per FR-S.1, the crew is required to start ____(1)____ boric acid transfer pump(s) and to ensure a MINIMUM boric acid flow of ____(2)____.

Which ONE of the following completes the statement above?

A. 1. ONE
   2. 30 gpm

B. 1. Both
   2. 30 gpm

C. 1. ONE
   2. 50 gpm

D. 1. Both
   2. 50 gpm

Question: 59
(1 point)

Given the following on Unit 2:

- Unit is in Mode 6
- The core is being off-loaded
- It has just been identified (and verified) that the RCS boron concentration is 2650 ppm
- The refueling boron concentration required by the COLR is 2675 ppm

Per TS 3.9.1 (BORON CONCENTRATION), the crew is required to _____.

Which ONE of the following completes the statement above?

A. initiate action to restore boron concentration and suspend core alterations

B. initiate action to restore boron concentration and establish containment integrity

C. suspend positive reactivity changes and establish containment integrity

D. suspend movement of irradiated fuel assemblies within containment and suspend operations that dilute the RCS

Question: 60
(1 point)

Given the following on Unit 2:

- The crew has implemented AP-10 (NC SYSTEM LEAKAGE), Case 1 (S/G TUBE LEAKAGE)
- Letdown flow is 45 GPM
- Charging flow is 110 GPM
- Pressurizer level is stabilized

Upon entry into AP-10, the Balance of Plant Operator will establish a __(1)__ GPM mismatch between letdown flow and charging flow per Excellence Criteria.

Based on the conditions above, the estimated leak rate is __(2)__ GPM.

Which ONE of the following completes the statements above?

A. 1. 30
   2. 53

B. 1. 30
   2. 65

C. 1. 10
   2. 53

D. 1. 10
   2. 65

Question: 61
(1 point)

Given the following on Unit 1:

- Unit is at 40% RTP
- Exhaust Hood temperature is 165°F
- Condenser vacuum on 1MC-1 indicates 26 inches HG and DEGRADING
- (1ZJP5000) CSAE steam pressure, is reading 100 PSIG
- AP-23 (LOSS OF CONDENSER VACUUM) has been implemented
- Main Condenser Vacuum has been established as a critical parameter

Alternate condenser vacuum indication is available on ___(1)___.

Based on the conditions above, the CRS will direct ___(2)___ to mitigate the event.

Which ONE of the following best completes the statements above?

A. 1. the OAC ONLY
   2. dispatching an operator to increase CSAE steam pressure

B. 1. the OAC ONLY
   2. opening the Exhaust Hood Spray valves

C. 1. 1MC-13 and the OAC
   2. opening the Exhaust Hood Spray valves

D. 1. 1MC-13 and the OAC
   2. dispatching an operator to increase CSAE steam pressure

---

Question: 62
(1 point)

Given the following:

- The Control Room has been evacuated due to toxic gas

An adequate heat sink is maintained by controlling S/G levels within the specified range by _____.

Shutdown margin will be maintained by use of the _____.

Which ONE of the following completes the statements above?

A. 1. manually throttling the motor operated isolation valves in the doghouses
   2. Standby Makeup Pump

B. 1. manually throttling the motor operated isolation valves in the doghouses
   2. Boric Acid Transfer Pumps

C. 1. adjusting the manual loaders at the local CA pump panels
   2. Standby Makeup Pump

D. 1. adjusting the manual loaders at the local CA pump panels
   2. Boric Acid Transfer Pumps

Question: 63
(1 point)

Given the following on Unit 1:

- Unit was at 100% RTP
- A SBLOCA has occurred
- The CRS is transitioning from E-1 (LOSS OF REACTOR OR SECONDARY COOLANT) to ES-1.2 (POST LOCA COOLDOWN AND DEPRESSURIZATION)

Per ES-1.2:

1) The crew will FIRST attempt to establish an NC system cooldown using the ____(1)____.

2) The crew will cooldown at ____(2)____.

Which ONE of the following completes the statements above?

A. 1. Condenser Dumps
   2. a rate not to exceed 100°F in an hour

B. 1. Condenser Dumps
   2. maximum rate

C. 1. SM PORVs
   2. a rate not to exceed 100°F in an hour

D. 1. SM PORVs
   2. maximum rate

Question: 64
(1 point)

Given the following on Unit 1:

- An event has occurred that resulted in a RED condition on the NC Integrity CSF Status Tree
- The CRS has implemented FR-P.1 (RESPONSE TO IMMINENT PRESSURIZED THERMAL SHOCK)
- The crew is performing the 60 minute soak per Step 26 of FR-P.1

Which 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: 65
(1 point)

Given the following on Unit 1:

- A large break LOCA has occurred
- At 1215 containment sump level is 10 feet and slowly rising

If containment sump level is rising at a constant rate of 0.25 feet per minute, FR-Z.2 (RESPONSE TO CONTAINMENT FLOODING) entry will be REQUIRED at ____(1)____.

The reason that safe plant recovery is not assured for a design-basis Large Break LOCA when Containment water level requires entry into FR Z.2 is because operation of ____(2)____.

Which ONE of the following completes the statements above?

A. 1. 1225
   2. the hydrogen skimmer system is compromised by the suction line becoming submerged

B. 1. 1229
   2. the hydrogen skimmer system is compromised by the suction line becoming submerged

C. 1. 1225
   2. critical ECCS components needed for safe recovery are endangered by submersion

D. 1. 1229
   2. critical ECCS components needed for safe recovery are endangered by submersion

---

Question: 66
(1 point)

Per AD-OP-ALL-0107 (MAINTENANCE OF RO AND SRO LICENSES), at a MINIMUM, a Reactor Operator must:

1) Perform _____ 12 hour shifts per calendar quarter as RO or BOP.

2) Complete a doctor's medical exam _____.

Which ONE of the following completes the statements above?

A. 1. four
   2. yearly

B. 1. four
   2. every two years

C. 1. five
   2. every two years

D. 1. five
   2. yearly

Question: 67
(1 point)

Per AD-OP-ALL-1000 (CONDUCT OF OPERATIONS),

1) Plant announcements are required if starting or stopping plant equipment of greater than or equal to a MINIMUM of _____.

2) The use of cameras _____ an acceptable alternative to verify that plant personnel are clear of equipment prior to starting.

Which ONE of the following completes the statements above?

A. 1. 4 kv
   2. is NOT

B. 1. 4 kv
   2. is

C. 1. 6.9 kv
   2. is NOT

D. 1. 6.9 kv
   2. is

Question: 68
(1 point)

Given the following on Unit 1:

- Unit is in Mode 6 with refueling in progress
- 1B D/G is tagged for maintenance
- 1ETB is powered by SATB from Unit 2
- 1A ND pump is in service
- 1B ND pump is in standby

Subsequently:

- 1B busline is de-energized in preparation for tagging

Based on the conditions above:

1) TS 3.8.2 (AC SOURCES - SHUTDOWN) _____ met.

2) TS 3.9.5 (RHR and COOLANT CIRCULATION - HIGH LEVEL) _____ met.

Which ONE of the following completes the statements above?

A. 1. is
   2. is NOT

B. 1. is
   2. is

C. 1. is NOT
   2. is NOT

D. 1. is NOT
   2. is

Question: 69
(1 point)

Given the following on Unit 1:

- Unit is in Mode 3
- NC System pressure is 2750 PSIG

Per TS 2.1 (SAFETY LIMITS), NC System pressure is required to be reduced to less than or equal to a MAXIMUM of ____(1)____ PSIG and this is required to be accomplished within a MAXIMUM of ____(2)____.

Which ONE of the following completes the statement above?

A. 1. 2485
   2. 1 hour

B. 1. 2485
   2. 5 minutes

C. 1. 2735
   2. 1 hour

D. 1. 2735
   2. 5 minutes

Question: 70
(1 point)

In accordance with AD-HU-ALL-004 (PROCEDURE AND WORK INSTRUCTION USE AND ADHERENCE):

1) A user _____ allowed to perform Information Use procedures without referring to the procedure.

2) For technical procedures, the user shall verify the latest revision of the procedure prior to job start and at least every _____ days while work is being performed.

Which ONE of the following completes the statements above?

A. 1. is
   2. 7

B. 1. is
   2. 14

C. 1. is NOT
   2. 7

D. 1. is NOT
   2. 14

Question: 71
(1 point)

Given the following:

- An operator has been assigned work in the radiologically controlled area
- The dose rate in the area is 500 mRem/hr
- The operator has a current yearly dose of 0.5 Rem TEDE

Which ONE of the following identifies the MAXIMUM time that the operator can perform work, without receiving an extension, BEFORE reaching the Duke Energy Annual Administrative Dose Limit?

A. 2.2 hours

B. 2.6 hours

C. 3.0 hours

D. 5.8 hours

Question: 72
(1 point)

An Operator needs to access an area with a general area radiation dose rate of 1100 mREM/hr to hang a clearance tag.

Per CSD-RP-ALL-1013 (RADIATION PROTECTION STANDARD GLOSSARY OF TERMS), the correct radiation posting for this area is a ____(1)____.

Per AD-RP-ALL-2017 (ACCESS CONTROLS TO VERY HIGH RADIATION AREAS AND SUPPLEMENTAL ACCESS CONTROLS FOR HRA AND LHRA), continuous RP coverage ____(2)____ required for this area.

Which ONE of the following completes the statements above?

A. 1. High Radiation Area
   2. is NOT

B. 1. High Radiation Area
   2. is

C. 1. Locked High Radiation Area
   2. is NOT

D. 1. Locked High Radiation Area
   2. is

Question: 73
(1 point)

E-3 (STEAM GENERATOR TUBE RUPTURE) contains the following statement:

> Preference should be given to running 1B NC pump to provide Pzr spray capability. If 1B NC pump is not available, running 1A NC pump along with one or two additional NC pumps may be required for adequate spray.

The statement above ____(1)____ a NOTE because it gives ____(2)____ information.

Which ONE of the following completes the statement above?

A. 1. is
   2. advisory

B. 1. is
   2. critical

C. 1. is NOT
   2. advisory

D. 1. is NOT
   2. critical

Question: 74
(1 point)

Per AD-OP-ALL-1001 (CONDUCT OF ABNORMAL OPERATIONS), the dispatch of Auxiliary Operators (AOs) to perform tasks outside the control room ____(1)____.

Per OMP 4-3 (USE OF EMERGENCY AND ABNORMAL PROCEDURES AND FLEX SUPPORT GUIDELINES), during an emergency if a dispatched operator cannot operate a manual valve, a valve wrench ____(2)____ be used without supervisor approval.

Which ONE of the following completes the statements above?

A. 1. is performed by the Reactor Operators
   2. can

B. 1. is performed by the Reactor Operators
   2. can NOT

C. 1. requires CRS approval
   2. can

D. 1. requires CRS approval
   2. can NOT

Question: 75
(1 point)

Given the following 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)

Per RP-011,

1) the announcement for the Site Assembly shall be repeated every _____ minutes until notification that the Site Assembly has been completed.

2) the Site Assembly shall be completed within a MAXIMUM of _____ minutes.

Which ONE of the following completes the statements above?

A. 1. 15
   2. 30

B. 1. 10
   2. 30

C. 1. 15
   2. 60

D. 1. 10
   2. 60

Question: 76
(1 point)

Given the following on Unit 1:

- Unit is in MODE 5
- NC temperature is 70°F
- LTOP is in service
- Engineering requests a test procedure be performed which requires BOTH NI Pumps to be capable of injecting into the NC system
- Both NV pumps will be racked out and tagged for the test

Entry into the Action statement of T. S. 3.4.12 (LTOP SYSTEM) ____(1)____ required to perform this test.

Per T.S. 3.4.12 Bases, ONE OPERABLE ND suction relief valve ONLY ____(2)____ satisfy the LTOP RCS vent requirement.

Which ONE of the following completes the statements above?

A. 1. is
   2. will NOT

B. 1. is
   2. will

C. 1. is NOT
   2. will NOT

D. 1. is NOT
   2. will

Question: 77
(1 point)

Given the following on Unit 1:

- The CRS has implemented ECA-1.2 (LOCA OUTSIDE CONTAINMENT)
- The crew has determined the leak is NOT on the ND system
- NC System pressure is 1700 PSIG and lowering
- Pzr Level is 22% and lowering
- FWST level is 110 inches and lowering

The CRS will NEXT be required to transition to ____(1)____.

After transition is made, if FWST level lowers to less than a MAXIMUM of ____(2)____ inches, the CRS will direct securing ALL pumps taking suction on the FWST.

Which ONE of the following completes the statements above?

PROCEDURE LEGEND:
ECA-1.1 (LOSS OF EMERGENCY COOLANT RECIRC)
ES-1.2 (POST LOCA COOLDOWN AND DEPRESSURIZATION)

A. 1. ECA-1.1
   2. 95

B. 1. ECA-1.1
   2. 20

C. 1. ES-1.2
   2. 95

D. 1. ES-1.2
   2. 20

Question: 78
(1 point)

Given the following on Unit 2:

- Unit is at 100% RTP
- A loss of 2EKVD has occurred
- The CRS has implemented AP-15 (LOSS OF VITAL OR AUX CONTROL POWER)
- NO Tech Spec actions have been addressed

The current Containment Pressure channel logic, for the remaining Containment Pressure channels, which will cause a **Phase B** actuation is ____(1)____.

Per TS 3.3.2 (ESFAS INSTRUMENTATION) LCO Actions, when the failed channel is removed from service, I&E will place the Containment Pressure **Hi-Hi** Bistable in ____(2)____.

Which ONE of the following completes the statements above?

A. 1. 1/3
   2. Trip

B. 1. 1/3
   2. Bypass

C. 1. 2/3
   2. Trip

D. 1. 2/3
   2. Bypass

Question: 79
(1 point)

Given the following Initial Conditions:

- Unit 1 tripped from 100% RTP following a loss of both Main Feed pumps
- All CA pumps failed to start automatically and cannot be started manually
- The CRS has implemented FR-H.1 (LOSS OF SECONDARY HEAT SINK)
- S/G WR levels are 32% and lowering in all S/Gs

Current Conditions:

- Safety Injection has NOT occurred
- CM flow has been established to the S/Gs
- The crew has just transitioned to ES-0.1 (REACTOR TRIP RESPONSE)
- The BOP reports SI initiation criteria for Pzr level is met per the ES-0.1 foldout page

Based on initial conditions, when attempting to establish feed flow from the CM system, the CRS will direct the crew to depressurize ____(1)____ to 500 PSIG.

Based on current conditions, the CRS ____(2)____ direct the BOP to initiate SI.

Which ONE of the following completes the statement above?

A. 1. one S/G
   2. should NOT

B. 1. one S/G
   2. should

C. 1. two S/Gs
   2. should NOT

D. 1. two S/Gs
   2. should

Question: 80

(1 point)

Given the following on Unit 1:

- Unit is responding to a Pressurized Thermal Shock condition in accordance with FR-P.1 (RESPONSE TO IMMINENT PRESSURIZED THERMAL SHOCK CONDITION)
- NC T-Colds are 170°F and lowering
- All S/Gs are FAULTED

Per FR-P.1, CA flow will be throttled to ____(1)____ GPM to each S/G and the basis for this action ____(2)____ to minimize the effects of the RCS cooldown.

Which ONE of the following completes the statement above?

A. 1. 100
   2. is

B. 1. 100
   2. is NOT

C. 1. 25
   2. is

D. 1. 25
   2. is NOT

Question: 81
(1 point)

Given the following conditions on Unit 1:

- Unit is in MODE 6 with core RELOAD in progress
- NC system boron concentration is 2705 PPM
- Boric Acid Tank level is 10%
- The following surveillances are being performed:
  - PT/1/A/4600/100 (SURVEILLANCE REQUIREMENTS FOR SHUTDOWN CONDITIONS)
  - PT/1/A/4600/003 C (WEEKLY SURVEILLANCE ITEMS CHECKLIST)

The surveillance for NC system boron concentration performed during PT/1/A/4600/100 (SR 3.9.1.1) ensures that k_{eff} during MODE 6 remains less than or equal to a MAXIMUM of ___(1)___.

Based on the conditions above the MINIMUM required Boric Acid Tank level ___(2)___ met.

Which ONE of the following completes the statements above?

REFERENCE PROVIDED

A. 1. 0.99
   2. is

B. 1. 0.99
   2. is NOT

C. 1. 0.95
   2. is

D. 1. 0.95
   2. is NOT

Question: 82
(1 point)

Given the following on Unit 1:

- Core off-load is in progress
- During removal of a fuel assembly, the fuel hoist is stopped mid travel due to an overload cutoff limit

Fuel hoist travel was stopped due to the fuel hoist load cell sensing a MINIMUM of _____ pounds.

Per AD-NS-1001 (CONDUCT OF REFUELING), any interlock bypass, not approved by procedure, requires approval from the _____.

Which ONE of the following completes the statements above?

A. 1. 2900
   2. Fuel Handling SRO ONLY

B. 1. 1000
   2. Fuel Handling SRO ONLY

C. 1. 2900
   2. Fuel Handling SRO AND Control Room SRO

D. 1. 1000
   2. Fuel Handling SRO AND Control Room SRO

Question: 83
(1 point)

Given the following:

- Radwaste reports the radioactivity in the "A" WGDT exceeds the SLC limit

Per SLC 16.11.20 (GAS STORAGE TANKS), the required action is to IMMEDIATELY ____(1)____.

Per SLC 16.11.20 Bases, the radioactivity limit is based on exposure received by a ____(2)____ during an accidental release.

Which ONE of the following completes the statements above?

A. 1. reduce tank contents within the limits
   2. plant worker

B. 1. reduce tank contents within the limits
   2. member of the public

C. 1. suspend all additions of radioactive material to the tank
   2. plant worker

D. 1. suspend all additions of radioactive material to the tank
   2. member of the public

Question: 84
(1 point)

Given the following on Unit 1:

- A small break LOCA has occurred
- Containment pressure peaked at 3.2 PSIG and is currently stable at 1.5 PSIG
- The CRS has implemented E-0 (REACTOR TRIP OR SAFETY INJECTION)

Based on the conditions above, the CRS ____(1)____ direct the performance of E-0, Enclosure 4 (VX MANUAL START AND ISOLATING RV COOLING).

The basis for isolating RV cooling in Enclosure 4 is to ____(2)____.

Which ONE of the following completes the statements above?

A. 1. will NOT
   2. gain containment sump level margin and avoid sump dilution during small LOCAs

B. 1. will NOT
   2. maintain containment pressure low during the long transient of a LOCA

C. 1. will
   2. gain containment sump level margin and avoid sump dilution during small LOCAs

D. 1. will
   2. maintain containment pressure low during the long transient of a LOCA

Question: 85
(1 point)

Given the following on Unit 2:

- Unit is at 100% RTP
- SPOC has determined that 2KC-56A (KC To A ND HX) will not open due to breaker damage

Based on the failure of 2KC-56A, 2A ND ____(2)____ OPERABLE.

If required for core cooling, ES-1.3 (TRANSFER TO COLD LEG RECIRCULATION) will verify a MINIMUM flow of ____(1)____ GPM through 2KC-56A.

Which ONE of the following completes the statements above?

A. 1. is
   2. 6000

B. 1. is NOT
   2. 6000

C. 1. is
   2. 5000

D. 1. is NOT
   2. 5000

Question: 86
(1 point)

Given the following on Unit 1:

- The unit is at 100% RTP
- A loss of Battery Charger EVCA has occurred

Following restoration, Battery EVCA conditions are as follows:

- For two connected cells, the Specific Gravity is 1.185
- For all connected cells, the average Specific Gravity is 1.202
- Electrolyte temperature is 76°F

1) Based on the conditions above, TS 3.8.6 (BATTERY CELL PARAMETERS) Condition(s) _____ is/are required to be entered.

2) One DC CHANNEL _____ adequate to satisfy the MINIMUM requirements of operability for the DC Distribution System.

Which ONE of the following completes the statements above?

REFERENCE PROVIDED

A. 1. A ONLY
   2. is

B. 1. A ONLY
   2. is NOT

C. 1. A AND B
   2. is

D. 1. A AND B
   2. is NOT

Question: 87
(1 point)

Given the following:

- Unit 1 & 2 are at 100% RTP
- The DEC TOP (Transmission Operations) 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
- AP-05, (GENERATOR VOLTAGE AND ELECTRIC GRID DISTURBANCES) has been implemented on BOTH units

Per Unit 1 AP-05,

1) The CRS _____ be directed to enter Tech. Spec. LCO 3.0.3.

2) T.S. 3.8.1 (AC SOURCES-OPERATING) is required to be entered due to BOTH _____ being INOPERABLE.

Which ONE of the following completes the statements above?

A. 1. will
   2. Emergency D/Gs

B. 1. will
   2. Offsite Power Sources

C. 1. will NOT
   2. Emergency D/Gs

D. 1. will NOT
   2. Offsite Power Sources

Question: 88
(1 point)

Given the following on Unit 2:

- The CRS has implemented ECA-1.2 (LOCA OUTSIDE CONTAINMENT)
- U2 FWST level is slowly lowering
- NC system pressure is 1600 PSIG and slowly lowering

Per ECA-1.2, a cooldown and depressurization of the NC System is performed to allow the ___(1)___.

Per ECA 1.2 basis document, the target temperature selected for the NC system cooldown ensures a ____(2)____ event does NOT occur.

Which ONE of the following completes the statements above?

A. 1. Cold Leg Accumulators to inject
   2. Pressurized Thermal Shock (PTS)

B. 1. Cold Leg Accumulators to inject
   2. Core re-criticality

C. 1. ND isolation valves (2NI-173A and 2NI-178B) to be closed
   2. Pressurized Thermal Shock (PTS)

D. 1. ND isolation valves (2NI-173A and 2NI-178B) to be closed
   2. Core re-criticality

Question: 89
(1 point)

Given the following on Unit 1:

- A LOCA has occurred
- The CRS has transitioned from ES-1.3 (TRANSFER TO COLD LEG RECIRC) to ECA-1.1 (LOSS OF EMERGENCY COOLANT RECIRC)
- Containment pressure is currently 3.2 PSIG

Per ECA-1.1, while attempting to establish recirculation flow the crew will cool the core by ____(1)____.

While performing ECA-1.1, if a RED Path occurs on Core Cooling the crew ____(2)____ transition to FR-C.1 (RESPONSE TO INADEQUATE CORE COOLING).

Which ONE of the following completes the statements above?

A. 1. aligning the NC system for Feed and Bleed
   2. will NOT

B. 1. aligning the NC system for Feed and Bleed
   2. will

C. 1. dumping steam from the intact Steam Generators
   2. will NOT

D. 1. dumping steam from the intact Steam Generators
   2. will

Question: 90
(1 point)

Given the following on Unit 1:

- A unit startup is in progress
- Reactor power is at 4% RTP and holding
- The crew determines that Control Bank 'D', Rod M-4 is misaligned by greater than 12 steps

Per AP-14 (ROD CONTROL MALFUNCTION), Enclosure 1 (RESPONSE TO DROPPED OR MISALIGNED ROD):

1) The crew will use _____ to determine reactor power during implementation of Enclosure 1.

2) Based on current plant conditions, the CRS will direct the crew to _____.

Which ONE of the following completes the statements above?

A. 1. Thermal Power Best Estimate
   2. shutdown to MODE 3

B. 1. Thermal Power Best Estimate
   2. maintain power stable until the cause of the misaligned rod is corrected

C. 1. Excore Nuclear Instruments
   2. shutdown to MODE 3

D. 1. Excore Nuclear Instruments
   2. maintain power stable until the cause of the misaligned rod is corrected

---

Question: 91
(1 point)

Given the following on Unit 1:

- Unit is at 100% RTP
- The Upper Airlock Inner door will not close and had been declared INOPERABLE

Based on the conditions above:

Per TS 3.6.2 (CONTAINMENT AIR LOCKS), the Upper Airlock Outer door ____(1)____ required to be CLOSED within ONE hour.

Per TS 3.6.1 (CONTAINMENT), containment ____(2)____ OPERABLE.

Which ONE of the following completes the statements above?

A. 1. is NOT
   2. is NOT

B. 1. is NOT
   2. is

C. 1. is
   2. is NOT

D. 1. is
   2. is

Question: 92
(1 point)

Given the following on Unit 2:

- Unit is at 100% RTP
- 2EMF-48 (REACTOR COOLANT HI RAD) is in alarm

Subsequently:

- The CRS has implemented AP-18 (HIGH ACTIVITY IN REACTOR COOLANT)
- Chemistry reports Dose Equivalent 1-131 is 75 µCi/gm

Per TS 3.4.16 (RCS SPECIFIC ACIVITY), a Unit shutdown ____(1)____ required.

Per TS 3.4.16 Bases, the analysis for the SGTR and ____(2)____ accidents establish the acceptance criteria for RCS specific activity.

Which ONE of the following completes the statements above?

A. 1. is
   2. LOCA

B. 1. is NOT
   2. LOCA

C. 1. is
   2. SLB

D. 1. is NOT
   2. SLB

Question: 93
(1 point)

Given the following on Unit 2:

- Unit was at 100% RTP when a spurious Safety Injection occurred due to an instrument malfunction

The CRS will direct initiation of the SI termination sequence per ____(1)____.

SI Termination must be completed within a MAXIMUM of ____(2)____ minutes.

Which ONE of the following completes the statements above?

PROCEDURE LEGEND:
E-0 (REACTOR TRIP OR SAFETY INJECTION)
ES-1.1 (SAFETY INJECTION TERMINATION)

A. 1. E-0
   2. 10

B. 1. E-0
   2. 15

C. 1. ES-1.1
   2. 10

D. 1. ES-1.1
   2. 15

Question: 94
(1 point)

Per AD-OP-ALL-1001 (CONDUCT OF ABNORMAL OPERATIONS), regarding variances:

1) Prior to taking action, the CRS approving the Variance _____ from a second SRO.

2) When invoking a Variance that requires departing from Technical Specifications, the NRC Operations Center must be notified within a MAXIMUM of _____.

Which ONE of the following completes the statements above?

A. 1. must ALWAYS obtain concurrence
   2. 15 minutes

B. 1. must ALWAYS obtain concurrence
   2. 1 HOUR

C. 1. will obtain concurrence if time allows
   1. 1 HOUR

D. 1. will obtain concurrence if time allows
   2. 15 minutes

Question: 95
(1 point)

Given the following on Unit 1:

- Unit is at 100% RTP
- 1EMF-33 (CONDENSER AIR EJECTOR EXHAUST) is in Trip 2 alarm
- 1EMF-71 (S/G A LEAKAGE) is in Trip 2 alarm
- Pressurizer level has been stabilized using AP-10 (NC LEAKAGE WITHIN THE CAPACITY OF BOTH NV PUMPS)
- Letdown flow is 45 GPM
- Charging flow is 78 GPM

The MAXIMUM time that AP-10 allows for the unit to reach MODE 3 for the conditions specified is ____(1)____.

Per SLC 16.9.7 (STBY S/D SYSTEM) Condition C (LEAKAGE), the Standby Makeup Pump is ____(2)____.

Which ONE of the following completes the statements above?

A. 1. 6 hours
   2. NON-FUNCTIONAL

B. 1. 6 hours
   2. FUNCTIONAL

C. 1. 3 hours
   2. NON-FUNCTIONAL

D. 1. 3 hours
   2. FUNCTIONAL

Question: 96
(1 point)

Given the following on Unit 1:

- Unit shutdown and cooldown has been performed in preparation for a refueling outage
- Unit is currently in MODE 6
- NC System level is required to be lowered to 70 inches WR Level

Per AD-WC-ALL-0420 (SHUTDOWN RISK MANAGEMENT), this evolution will place the Unit in a ____(1)____ Inventory condition.

Per OP/1/A/6100/SO-1 (MAINTAINING NC SYSTEM LEVEL), an SOER 91-01/IPTE briefing ____(2)____ required prior to commencing this evolution.

Which ONE of the following completes the statements above?

REFERENCE PROVIDED

A. 1. Lowered
   2. is NOT

B. 1. Lowered
   2. is

C. 1. Reduced
   2. is NOT

D. 1. Reduced
   2. is

Question: 97
(1 point)

Given the following on Unit 2:

- Unit is at 100% RTP
- 2A Boric Acid Transfer pump has been removed from service for motor replacement
- 2B Boric Acid Transfer pump is protected

Subsequently:

- 2B Boric Acid Transfer pump is secured due to high bearing temperatures
- Maintenance has requested to collect an oil sample from the 2B Boric Acid Transfer pump for troubleshooting

Per AD-OP-ALL-0201 (PROTECTED EQUIPMENT),

1) The WCC SRO ____(1)____ approve a request for work on protected equipment.

2) Prior to approval, a person from ____(2)____ is required to conduct a job site inspection to evaluate impact on other protected equipment.

Which ONE of the following completes the statements above?

A. 1. can
   2. the requesting work group

B. 1. can
   2. Operations

C. 1. can NOT
   2. the requesting work group

D. 1. can NOT
   2. Operations

Question: 98
(1 point)

Given the following conditions:

- A General Emergency has been declared
- An AO must be dispatched from the Operations Support Center to an area with an identified radiation field of 110 R/hr in order to isolate the pathway for a large release to the environment
- The operator will be in the area for 15 minutes

Per AD-EP-ALL-0205 (EMERGENCY EXPOSURE CONTROLS),

1) the AO selected to perform this isolation ____(1)____ required to be a volunteer.

2) Performance of this task ____(2)____ considered a Planned Special Exposure (PSE).

Which ONE of the following completes the statements above?

A. 1. is
   2. is NOT

B. 1. is
   2. is

C. 1. is NOT
   2. is NOT

D. 1. is NOT
   2. is

Question: 99
(1 point)

Given the following on Unit 1:

- A Loss of Offsite Power occurs following a LOCA
- No ECCS injection flow is available
- FR-C.1 (RESPONSE TO INADEQUATE CORE COOLING) has been entered from E-0 (REACTOR TRIP OR SAFETY INJECTION)
- All S/G N/R levels are < 0% with no feed flow available
- All Pzr PORVs have been OPENED
- "A" train NC vent path was aligned by opening 1NC-272AC and 1NC-273AC (U1 A TRAIN HEAD VENT TO PRT ISOL)
- Core Exit Thermocouple temperatures are 1205°F and RISING

Based on current conditions, the CRS will _____ to further mitigate this event.

Which ONE of the following completes the statement above?

A. Implement FR-H.1 (LOSS OF SECONDARY HEAT SINK)

B. Implement E-1 (LOSS OF REACTOR OR SECONDARY COOLANT)

C. Remain in FR-C.1 until Core Exit Thermocouples indicate < 1200°F

D. Implement SAMG/SAG-1 (CONTROL ROOM SEVERE ACCIDENT GUIDELINE INITIAL RESPONSE)

Question: 100
(1 point)

Given the following:

- The Control Room has been notified by the NRC Headquarters Operations Center that a 747 commercial aircraft has been hijacked
- Ground intelligence indicates a nuclear plant is the intended target
- The airplane's current flight path will intersect with McGuire in **32 minutes**

In accordance with AP-47 (SECURITY EVENTS),

1) the CRS will transition to _____.

2) all non-essential personnel on site will be directed to _____.

Which ONE of the following completes the statements above?

PROCEDURE LEGEND:
Enclosure 2 (AIRCRAFT PROBABLE THREAT)
Enclosure 3 (AIRCRAFT INFORMATIONAL THREAT)

A. 1. Enclosure 3
   2. relocate to the MOC

B. 1. Enclosure 3
   2. seek shelter in the nearest building

C. 1. Enclosure 2
   2. relocate to the MOC

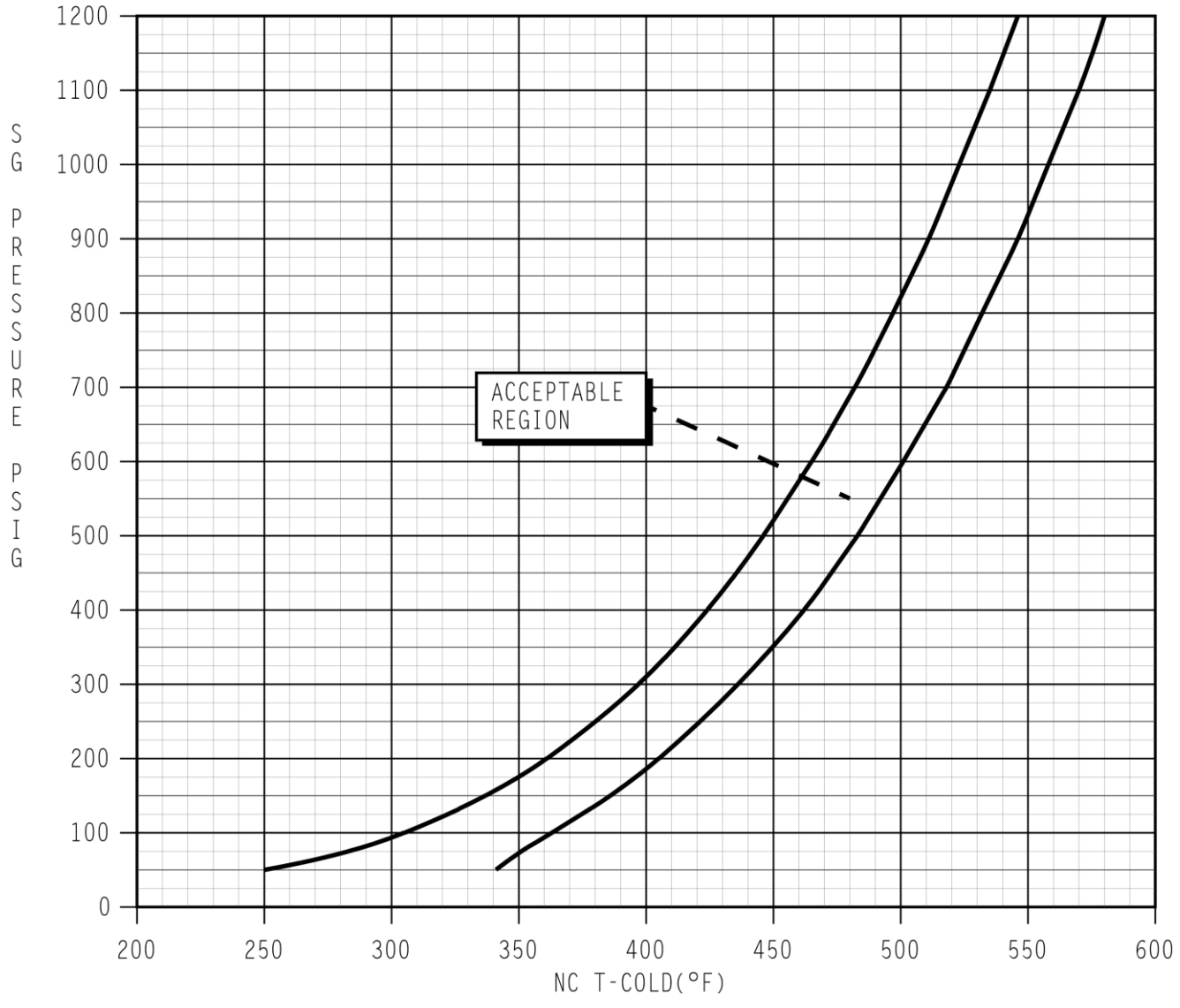
D. 1. Enclosure 2
   2. seek shelter in the nearest building

Copy of TS 3.8.6
Generic Enclosure 33 (page 211)
OP/1/A/6100/SO-1 page 89
Unit 1 COLR - Borated Water Sources pages 28-30

1. The following conditions support or indicate natural circulation flow:

   - NC subcooling - GREATER THAN 0°F
   - S/G pressures - STABLE OR GOING DOWN
   - NC T-Hots - STABLE OR GOING DOWN
   - Core exit T/Cs - STABLE OR GOING DOWN
   - NC T-Colds - AT SATURATION TEMPERATURE FOR S/G PRESSURE (WITHIN THE LIMITS OF THE GRAPH BELOW).

2. IF Natural Circulation flow is not established, THEN raise dumping steam to establish Natural Circulation flow.



McGuire 1 Cycle 27 Core Operating Limits Report

2.15 Borated Water Source – Shutdown (SLC 16.9.14)

2.15.1 Volume and boron concentrations for the Boric Acid Tank (BAT) and the Refueling Water Storage Tank (RWST) during MODE 4 with any RCS cold leg temperature ≤ 300 °F and MODES 5 and 6.

Parameter	Limit
Note: When cycle burnup is > 452 EFPD, Figure 6 may be used to determine required BAT minimum level.	
BAT minimum contained borated water volume	10,599 gallons 13.6% Level
BAT minimum boron concentration	7,150 ppm
BAT minimum water volume required to maintain SDM at 7,150 ppm	2,300 gallons
RWST minimum contained borated water volume	47,700 gallons 41 inches
RWST minimum boron concentration	2,675 ppm
RWST minimum water volume required to maintain SDM at 2,675 ppm	8,200 gallons

McGuire 1 Cycle 27 Core Operating Limits Report

2.16 Borated Water Source - Operating (SLC 16.9.11)

2.16.1 Volume and boron concentrations for the Boric Acid Tank (BAT) and the Refueling Water Storage Tank (RWST) during MODES 1, 2, 3, and MODE 4 with all RCS cold leg temperature > 300 °F.*

***Note: The SLC 16.9.11 applicability is down to Mode 4 temperatures of > 300°F. The minimum volumes calculated support cooldown to 200°F to satisfy UFSAR Chapter 9 requirements.**

Parameter	Limit
Note: When cycle burnup is > 452 EFPD, Figure 6 may be used to determine required BAT minimum level.	
BAT minimum contained borated water volume	22,049 gallons 38.0% Level
BAT minimum boron concentration	7,150 ppm
BAT minimum water volume required to maintain SDM at 7,150 ppm	13,750 gallons
RWST minimum contained borated water volume	96,607 gallons 103.6 inches
RWST minimum boron concentration	2,675 ppm
RWST maximum boron concentration (TS 3.5.4)	2,875 ppm
RWST minimum water volume required to maintain SDM at 2,675 ppm	57,107 gallons

2.17 Standby Shutdown System - (SLC-16.9.7)

2.17.1 Minimum boron concentration limit for the spent fuel pool required for Standby Makeup Pump Water Supply. Applicable for MODES 1, 2, and 3.

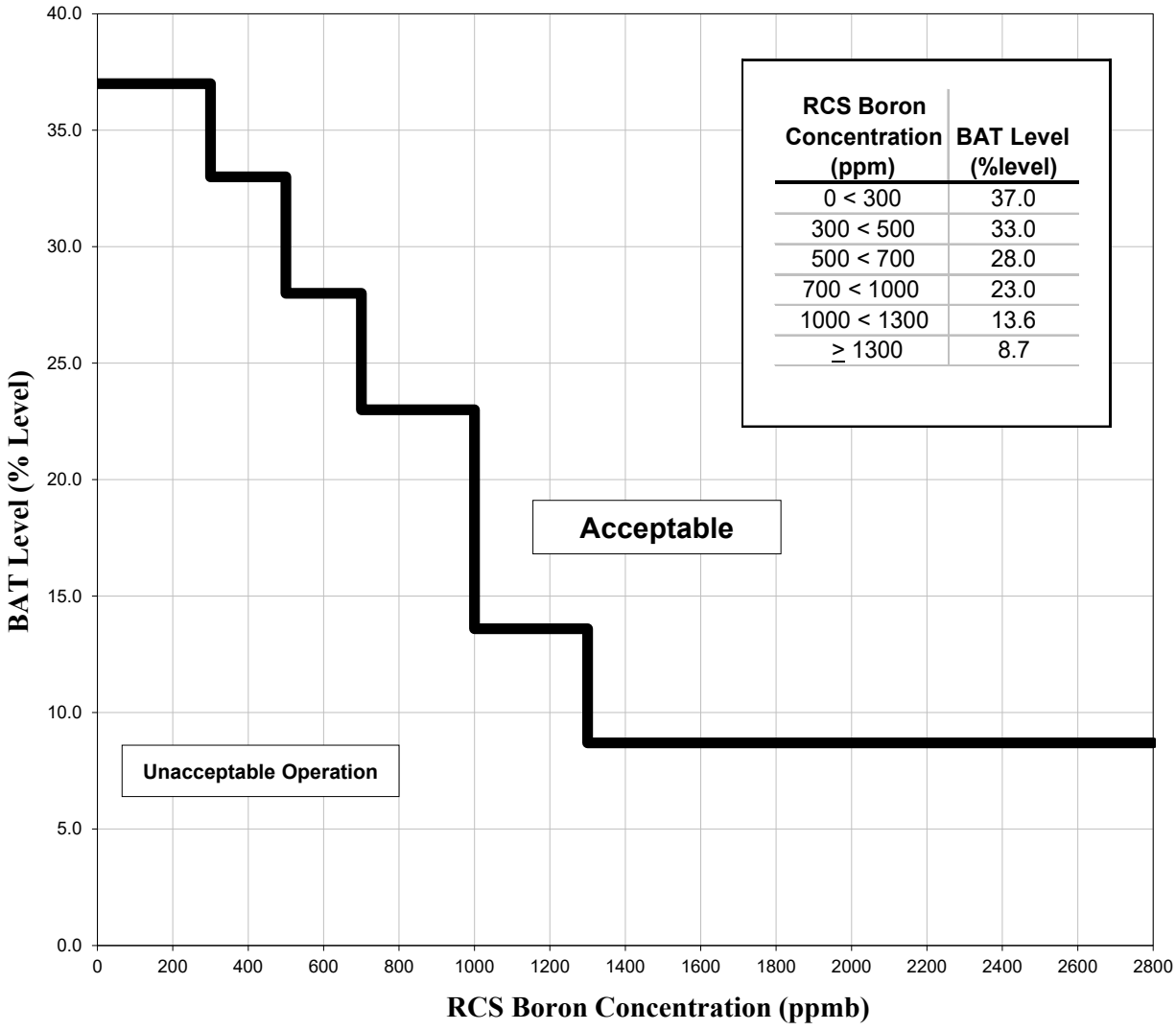
Parameter	Limit
Spent fuel pool minimum boron concentration for TR 16.9.7.2.	2,675 ppm

McGuire 1 Cycle 27 Core Operating Limits Report

Figure 6
Boric Acid Storage Tank Indicated Level Versus
RCS Boron Concentration

(Valid When Cycle Burnup is > 452 EFPD)

This figure includes additional volumes listed in SLC 16.9.14 and 16.9.11



RCS Boron Concentration (ppm)	BAT Level (%level)
0 < 300	37.0
300 < 500	33.0
500 < 700	28.0
700 < 1000	23.0
1000 < 1300	13.6
≥ 1300	8.7

3.8 ELECTRICAL POWER SYSTEMS

3.8.6 Battery Cell Parameters

LCO 3.8.6 Battery cell parameters for the channels of DC batteries shall be within the limits of Table 3.8.6-1.

APPLICABILITY: When associated channels of DC sources are required to be OPERABLE.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more batteries with one or more battery cell parameters not within Category A or B limits.	A.1 Verify pilot cells electrolyte level and float voltage meet Table 3.8.6-1 Category C limits. AND	1 hour
	A.2 Verify battery cell parameters meet Table 3.8.6-1 Category C limits. AND	24 hours AND Once per 7 days thereafter
	A.3 Restore battery cell parameters to Category A and B limits of Table 3.8.6-1.	31 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met. OR One or more batteries with average electrolyte temperature of the representative cells < 60°F. OR One or more batteries with one or more battery cell parameters not within Category C values.	B.1 Declare associated battery inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.6.1	Verify battery cell parameters meet Table 3.8.6-1 Category A limits.	In accordance with the Surveillance Frequency Control Program

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.6.2	Verify battery cell parameters meet Table 3.8.6-1 Category B limits.	In accordance with the Surveillance Frequency Control Program AND Once within 7 days after a battery discharge < 110 V AND Once within 7 days after a battery overcharge > 150 V
SR 3.8.6.3	Verify average electrolyte temperature of representative cells is ≥ 60°F.	In accordance with the Surveillance Frequency Control Program

Table 3.8.6-1 (page 1 of 1)
Battery Cell Parameters Requirements

PARAMETER	CATEGORY A: LIMITS FOR EACH DESIGNATED PILOT CELL	CATEGORY B: LIMITS FOR EACH CONNECTED CELL	CATEGORY C: ALLOWABLE LIMITS FOR EACH CONNECTED CELL
Electrolyte Level	> Minimum level indication mark, and ≤ ¼ inch above maximum level indication mark(a)	> Minimum level indication mark, and ≤ ¼ inch above maximum level indication mark(a)	Above top of plates, and not overflowing
Float Voltage	≥ 2.13 V	≥ 2.13 V	> 2.07 V
Specific Gravity(b)(c)	≥ 1.200	≥ 1.195 AND Average of all connected cells > 1.205	Not more than 0.020 below average of all connected cells or ≥ 1.195 AND Average of all connected cells ≥ 1.195

(a) It is acceptable for the electrolyte level to temporarily increase above the specified maximum during equalizing charges provided it is not overflowing.

(b) Corrected for electrolyte temperature and level. Level correction is not required, however, when battery charging is < 2 amps when on float charge.

(c) A battery charging current of < 2 amps when on float charge is acceptable for meeting specific gravity limits following a battery recharge, for a maximum of 7 days. When charging current is used to satisfy specific gravity requirements, specific gravity of each connected cell shall be measured prior to expiration of the 7 day allowance.

<< NC Level Instrument Overlap >>

Table 1, NC Level Instrument Overlap

Pzr Cold Cal 1NCP-5173 (%)	NC WR Level 1NCP-5990 [1] (inches)	NC NR Level 1NCP-5991 [1] (inches)	NC Sightglass 1NCLG-7940 [1] (inches)	RVLIS [3] Upper Range [2] (%/inches)	Ultrasonics 1NCLT8460 1NCLT8470 (inches)	Elevation	Physical Reference
High Tap 100% = 801' + 9.75"							
------34.8-----	-------400--------	----------	----------	----------	----------	---773' + 7.25"-	
------29.6-----	------372.75----	----------	----------	----------	----------	----771' + 4"-----	Refueling Canal Water Level
-------20-------	-------322.9------						
------15.5-----	--------300--------						
-------10------	--------271-------						
--------0-------	-------219.75----	----------	----------	----------	----------	--758' + 6.25"--	Pzr Level Low Tap
	-------195.5------	----------	----------	106% / 196.74"	----------	--756' + 6"-----	Top of RVLIS Standpipe [3]
	-------155--------	----------	--------155---------	97.55%/154.99"	----------	----------	Top of Sightglass
	-------100--------		--------100---------				
	-------84.75------	----------	--------84.75------	83% / 83.12"	----------	---747' + 4" -----	Top Rx Vessel Flange
	---------60-------	----------	---------60---------	78% / 58.42"	----------	---745' + 2.5"---	
	---------28--------	----------	---------28---------	72% / 28.78"	----------	--742' + 6.25"--	S/G 'B' Spillover
	---------25--------	---------25--------	---------25---------	71% / 23.84"	----------	--742' + 3.25"--	Top of NR Transmitter
	--------14.5------	-------14.5-------	--------14.5--------	68% / 13.96"	-------14.5-------	--741' + 4.75"-	Ultrasonics upper range
	---------0--------	---------0---------	---------0---------	66% / 0.00"	---------0--------	--740' + 2.25"--	(C/L) C Hotleg
	----------	--------11-------	--------11---------	64%/ -10.74"	---------11--------	--739' + 3.5"----	Bottom of Sightglass
		-------12.5-------	----------	----------	-------12.5-------	----739' + 2"-----	Hotleg tap for UR and LR RVLIS
		-------14.5-------	----------	--63% / -15.68"---	------14.5--------	--738' + 11.75"-	Ultrasonics lower range
		--------25--------	----------	----------	----------	--738' + 1.25"--	Bottom of NR Transmitter

Examination KEY
ILT 20-1R NRC Written MNS SRO NRC Retake Exami

Q	A	Q	A	Q	A	Q	A
1	D	**26**	C	**51**	D	**76**	A
2	A	**27**	C	**52**	C	**77**	B
3	B	**28**	B	**53**	B	**78**	D
4	D	**29**	B	**54**	C	**79**	C
5	A	**30**	A	**55**	B	**80**	C
6	A	**31**	C	**56**	A	**81**	D
7	B	**32**	D	**57**	B	**82**	A
8	B	**33**	C	**58**	B	**83**	D
9	A	**34**	B	**59**	A	**84**	A
10	C	**35**	B	**60**	A	**85**	D
11	C	**36**	C	**61**	D	**86**	B
12	A	**37**	B	**62**	D	**87**	B
13	B	**38**	B	**63**	A	**88**	C
14	D	**39**	D	**64**	C	**89**	D
15	B	**40**	D	**65**	C	**90**	A
16	A	**41**	B	**66**	C	**91**	D
17	C	**42**	C	**67**	B	**92**	C
18	B	**43**	C	**68**	B	**93**	B
19	B	**44**	C	**69**	D	**94**	C
20	C	**45**	B	**70**	B	**95**	C
21	A	**46**	D	**71**	C	**96**	B
22	C	**47**	A	**72**	D	**97**	D
23	C	**48**	C	**73**	A	**98**	A
24	A	**49**	D	**74**	A	**99**	D
25	C	**50**	C	**75**	B	**100**	A