Southern Nuclear Operating Company		
SOUTHERN COMPANY Nuclear Management Form	Training Exam Coversheet	NMP-TR-213-F01 Version 3.0 Page 1 of 1

Name _____ LMS ID _____

Date 4/9/2015 Exam Number _____

Exam Title ILT-09 SRO NRC EXAM Total Points 100.00

Instructions

1. This is a(n) __8__ hour exam.
2. This examination is a:
   - ☑ Written exam with a pass/fail criteria.
   - ☐ Practical exam with a pass/fail criteria.
   - ☐ Other _____
3. Answer all of the questions as indicated below:
   - ☐ On a separate paper.
   - ☑ On a Scantron sheet.
   - ☐ On the exam by marking the correct response, or by filling in the blanks.
   - ☐ Orally communicate answer to the Instructor.

Prepared by: _____ Reference Peer Check: _____
Exam Writer initials

Approved by: _____
Training Supervisor or designee

WARNING

CHEATING OF ANY KIND IS STRICTLY FORBIDDEN. ANY INDIVIDUAL CAUGHT CHEATING WILL AUTOMATICALLY FAIL THE EXAMINATION AND DISCIPLINARY ACTION WILL BE TAKEN.

WARNING

All work completed on this examination is my own. To my knowledge, I have neither given nor received aid.

Examinee Signature: _____

Exam Graded by: **SCANTRON** Grade: _____

Grading Review: _____
(If required)

1. 209001K2.01 001

Which ONE of the choices below completes the following statements?

The power supply for the 2A Core Spray pump is _____ .

The power supply for the 2B Core Spray pump is _____ .

A. 4160V 2E, 2R22-S005;
4160V 2F, 2R22-S006

B. 4160V 2E, 2R22-S005;
4160V 2G, 2R22-S007

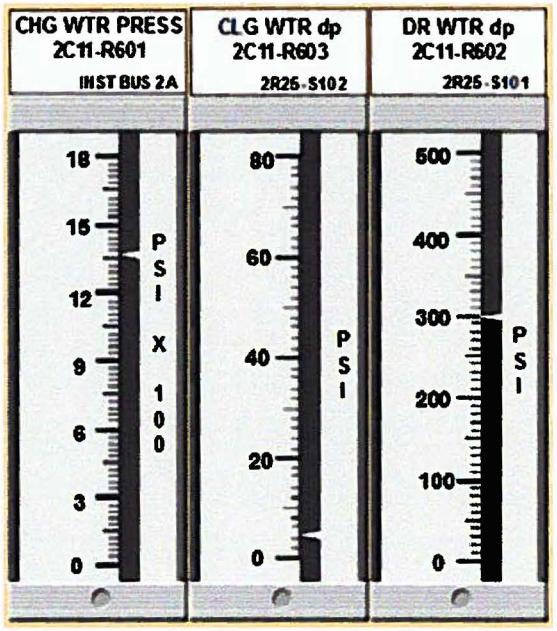
C. 4160V 2F, 2R22-S006;
4160V 2E, 2R22-S005

D. 4160V 2F, 2R22-S006;
4160V 2G, 2R22-S007

2. 201003A1.02 001

Unit 2 is performing a Reactor Startup.

The OATC observes the following indications:



Based on the above conditions,

If a Control Rod is moved, the Control Rod will travel _____ than NORMAL speed.

Placing the control switch for 2C11-F003, Drive Press Cntl Valve, to OPEN for one (1) second will cause Drive Water dp, 2C11-R602, indication to _____ .

A. faster;
lower

B. faster;
rise

C. slower;
lower

D. slower;
rise

3. 201006A1.03 001

Unit 2 is starting up with the following conditions:

- o Reactor power is 3.5 % RTP
- o Control Rod density equals 60%

The currently "Latched" rod step (step 12) has an Insert limit of 24 and a Withdraw limit of 48.

- o All Control rods in the currently "Latched" step are at position 48
- o Step 13 Control rods are at position 00

The RWM "Display" will FIRST indicate that Step 13 is "Latched" when the _____ .

After RWM is "Latched" to Step 13, ALL of the Control rods "Latched" in this step will be indicated _____ .

A. first Control rod in step 13 is selected;
on the "List Rods" display of RWM

B. first Control rod in step 13 is selected;
by backlighting on the Control Rod Select Matrix

C. last Control rod in step 12 reached position 48;
on the "List Rods" display of RWM

D. last Control rod in step 12 reached position 48;
by backlighting on the Control Rod Select Matrix

4. 295025EK2.01 001

Unit 2 is operating at 73% RTP when the following MSIVs close:

- o 2B21-F022A, Inboard Main Steam Isolation Valve
- o 2B21-F028B, Outboard Main Steam Isolation Valve
- o RPV pressure peaks at 1078 psig

Based on the above conditions,

The MSIV position input to the RPS logic, due to the closure of the above combination of MSIVs, resulted in a RPS _____ signal.

The High Reactor Pressure RPS Scram setpoint _____ been exceeded.

A. HALF Scram ONLY;
has

B. HALF Scram ONLY;
has NOT

C. FULL Scram;
has

D. FULL Scram;
has NOT

5. 205000K3.02 001

Unit 1 is in Mode 4 with RHR Loop B Shutdown Cooling in service.

Subsequently, a tube rupture occurs in RHR Heat Exchanger 1B.

With the above conditions and NO operator actions,

RWL will start going _____ .

IAW 34SO-E11-010-1, RHR System, the MINIMUM listed RHR to RHRSW differential pressure allowed is _____ .

A. UP;
21 psid

B. UP;
31 psid

C. DOWN;
21 psid

D. DOWN;
31 psid

6. 206000A1.04 001

Unit 2 was operating at 100% RTP when a spurious scram occurred.

RPV pressure control has been transferred to the HPCI System due to the MSIVs being manually closed.

IAW 34SO-E41-001-2, HPCI System, HPCI is operating in the Pressure Control Mode at the following times with the associated flows and 2E41-F008, Test To CST Valve, positions:

Time	HPCI flow	2E41-F008
10:00	Rated gpm	75% open
10:20	Rated gpm	25% open

Based on the above conditions;

The HIGHEST rate of Torus water level increase will be occurring at _____ .

If Torus water level reaches 151 inches, HPCI will be operating _____ .

A. 10:00;
on MINIMUM flow

B. 10:00;
at RATED flow

C. 10:20;
on MINIMUM flow

D. 10:20;
at RATED flow

7. 206000A4.03 001

The **Unit 2** HPCI system was manually placed in service following a Feedwater transient.

The following conditions exist:

- o RWL ..... 38 inches (lowest level reached -15 inches)
- o RPV Pressure ..... 920 psig
- o Drywell pressure ..... 0.5 psig (highest pressure reached 0.6 psig)
- o HPCI Bearing temperatures are steadily increasing

The SRO directs the NPO to monitor HPCI Bearing temperatures.

With the above conditions and IAW 34SO-E41-001-2, High Pressure Coolant Injection (HPCI) System,

When HPCI was started, 2E41-F059, Lube Oil Clg Wtr valve, _____ opened.

The NPO will monitor HPCI Bearing temperatures on Panel, _____ .

A. was manually;
2H11-P700

B. was manually;
2H11-P614

C. automatically;
2H11-P700

D. automatically;
2H11-P614

8. 201002K3.03 001

Unit 2 is performing a shutdown with reactor power at 13% RTP.

A FAILURE of the MASTER Timer occurs in the Reactor Manual Control System (RMCS).

- o The MASTER Timer will NOT energize

If the "Rod Movement Control" switch is placed to the "IN" position, the selected control rod _____ INSERT.

A RWM "Insert Block" will _____ control rod movement while using the "Emergency In/Notch Override" switch.

A. will;
ALLOW

B. will;
PREVENT

C. will NOT;
ALLOW

D. will NOT;
PREVENT

9. 211000K1.05 001

Unit 2 was at 100% RTP when an ATWS occurred.

- o RWL is 9 inches (lowest RWL reached -5 inches)
- o SBLC can NOT be initiated from the Control Room

Subsequently, the LOCAL "2A" SBLC pump switch (2H21-P011) is placed in the RUN position.

With the above conditions,

2C41-F004A/B, Squib Valves, will _____ .

RWCU System _____ .

A. detonate ONLY after installing jumpers;
will automatically isolate

B. detonate ONLY after installing jumpers;
must be manually isolated

C. automatically detonate;
will automatically isolate

D. automatically detonate;
must be manually isolated

10. 212000K6.05 001

Unit 1 is operating at 30% RTP.

The following failure occurs on Turbine Control Valve (TCV) #1 Emergency Trip Supply (ETS) Oil Pressure Sensor:

- o The transmitter output for TCV #1, ETS Oil Pressure Sensor, begins drifting down and settles below its trip setpoint

The TCV Closure RPS Scram setpoint is _____ .

Based on the above conditions, a RPS HALF (1/2) Scram _____ be received.

A. 670 psig;
will

B. 670 psig;
will NOT

C. 1100 psig;
will

D. 1100 psig;
will NOT

11. 215003A2.05 001

A **Unit 2** Reactor startup is in progress.

At 10:00, the IRMs indicate as follows:

- o IRMs A, B, C & D 24/125 on Range 6
- o IRMs E, F, G & H 10/40 on Range 5

IRMs A - D are increasing 3/125 per minute AND
IRMs E - H are increasing 9/40 per minute.

At 10:01, the voltage at the detector for IRM H decreases to one (1) VDC.

With the above IRM conditions,

The EARLIEST listed time that the IRMs will initiate a half scram signal is _____ .

IAW the associated ARPs on 2H11-P603, an OD-7 Option 2, Control Rod Position Check, _____ REQUIRED to be performed.

A. 10:01;
is

B. 10:01;
is NOT

C. 10:03;
is

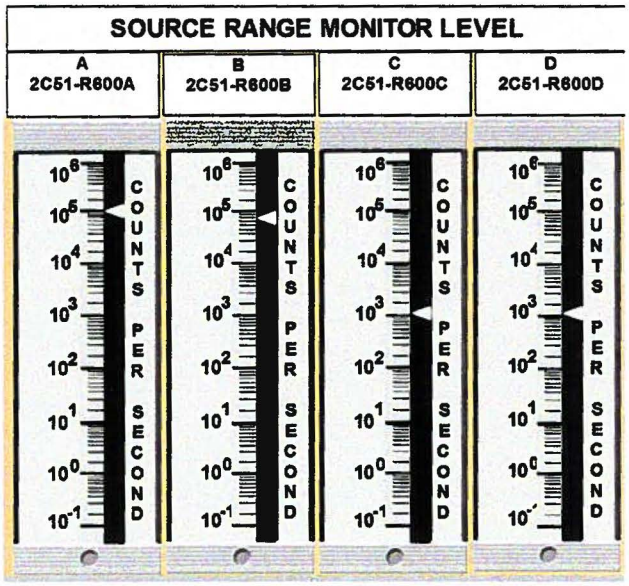
D. 10:03;
is NOT

12. 215004A3.01 001

Unit 2 is performing a Shutdown By Prescribed Control Rod Sequence Insertion (Improved BPWS) IAW 34GO-OPS-013-2, Plant Shutdown.

- o IRMs are on Range 3
- o SRM C & D are selected

The following indications currently exist:



Based on these indications,

Annunicator ROD OUT BLOCK, (603-238) _____ be illuminated.

If the DRIVE IN pushbutton for SRM/IRM Drive Contol is depressed for 10 seconds and then released, SRM C & D indications above will _____ .

A. will;
stop increasing as soon as the "Drive IN" push button is released

B. will;
continue to increase until SRM C & D are fully inserted

C. will NOT;
stop increasing as soon as the "Drive IN" push button is released

D. will NOT;
continue to increase until SRM C & D are fully inserted

13. 215004K2.01 001

Unit 2 is starting up with Reactor power at 5% RTP.

24/48 VDC Cabinet 2B, 2R25-S016, de-energizes and can NOT be restored.

SRM Channels _____ will have lost their power supply.

A. 2A & 2C

B. 2A & 2D

C. 2B & 2C

D. 2B & 2D

14. 215005K5.03 001

Unit 2 is starting up from a refueling outage.

- o Reactor power is 7% RTP

The NPO has just completed moving a Step of Control Rods to their withdraw limit of position 08.

Before movement of the next group of control rods, the following occurs,

- o One (1) Control Rod starts drifting out from position 08

With the above Control Rod drifting out,

Notch positions _____ will provide the HIGHEST change in magnitude of LPRM power indication as the control rod drifts through this range of notch positions.

IAW 34AB-C11-004-2, Mispositioned Control Rods, the OATC is required to _____ .

A. 20 to 24;
drive the drifting rod to position 08 using the EMERGENCY IN switch

B. 20 to 24;
manually SCRAM the reactor

C. 36 to 40;
drive the drifting rod to position 08 using the EMERGENCY IN switch

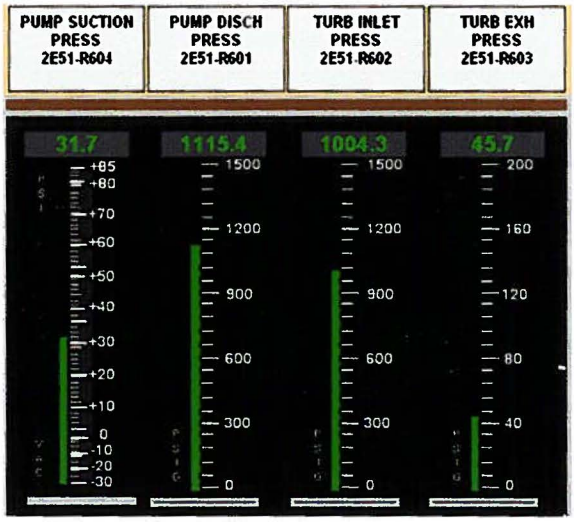
D. 36 to 40;
manually SCRAM the reactor

15. 217000K3.03 001

After a loss of Main Condenser vacuum transient on **Unit 2**, RCIC is operating in Pressure Control Mode.

The RCIC flow controller, 2E51-R612, is in AUTOMATIC with an output of 75%.

Subsequently, a malfunction causes 2E51-R612 controller output to drift from 75% to 95% resulting in the following RCIC indications:



As the RCIC controller output drifts up to 95%, the reactor Cooldown Rate will _____ .

Based on the above indications, RCIC should have _____ .

A. decrease;
ONLY automatically tripped

B. decrease;
automatically tripped AND isolated

C. increase;
ONLY automatically tripped

D. increase;
automatically tripped AND isolated

16. 218000K5.01 001

Unit 2 was operating at 100% RTP when a LOCA occurred.

- o ADS logic automatically opened the ADS valves during the transient

When both ADS Inhibit Switches are placed in the "INHIBIT" position, the ADS valves will _____ AND the 102.5 second ADS timer _____ .

A. close;
will reset

B. close;
will NOT reset

C. remain open;
will reset

D. remain open;
will NOT reset

17. 218000K1.04 001

At 14:50, **Unit 2** experiences a Loss of Offsite Power (LOSP).

At 15:00, the following conditions exist:

- o ALL low pressure ECCS pumps have been manually started
- o RPV Pressure ..... 860 psig controlled by LLS
- o RWL ..... -97 inches, lowering at 2 inches/minute
- o Drywell Pressure ..... 0.85 psig, rising at 0.2 psig/minute
- o ADS Inhibit Switches..... "Normal" position

Given these trends,

The EARLIEST listed time that the ADS valves will have automatically OPENED is _____ .

A. 15:02

B. 15:04

C. 15:07

D. 15:13

18. 219000A2.13 001

Unit 2 is operating at 100% RTP when the following occurs;

At 10:00,
- o 'M' SRV inadvertently opens
- o Suppression Pool temperature is 94°F and rising 1°F/minute

At 10:01,
- o Shift Supervisor directs a NPO to place RHR Loop A into Suppression Pool Cooling IAW 34SO-E11-010-2, Residual Heat Removal System

At 10:10,
- o 'M' SRV is closed
- o Suppression Pool temperature is 102°F and steady

With the above conditions,

At 10:02 and IAW 34SO-E11-010-2, 2E11-F047A, Hx Inlet Valve, _____ required to be CLOSED prior to starting the first RHR pump.

At 10:10 and IAW 34AB-T23-003-2, Torus Temperature Above 95° F, ALL available RHR Loops _____ required to be placed into Suppression Pool Cooling.

A. is;
are

B. is;
are NOT

C. is NOT;
are

D. is NOT;
are NOT

19. 223002A4.01 001

Unit 2 is operating at 100% RTP.

At 10:00, an event occurred which resulted in the following conditions:

- o HPCI Equipment (Pipe Penetration) Room, 170°F
- o Torus Area Ambient Temperature, 170°F

At 10:15,

- o HPCI Equipment (Pipe Penetration) Room, 185°F
- o Torus Area Ambient Temperature, 185°F

With the above conditions,

The EARLIEST listed time that 2E41-F002, HPCI Isolation valve, should have received an automatic isolation signal is _____ .

2E41-F002 valve position _____ be monitored on 2H11-P601 Vertical Display.

A. 10:00;
can

B. 10:00;
can NOT

C. 10:15;
can

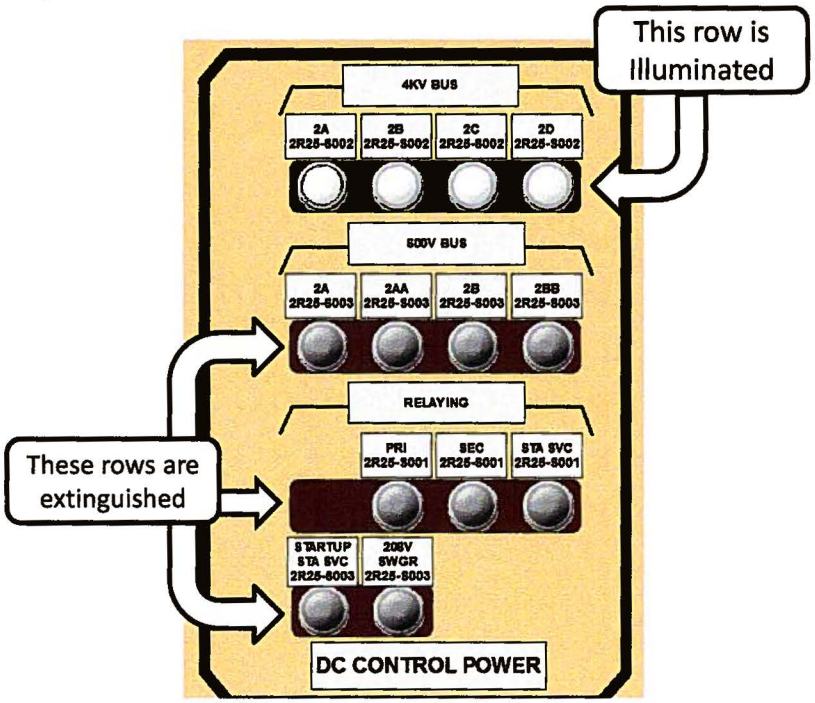
D. 10:15;
can NOT

20. 223002K6.02 001

Unit 2 is operating at 100% RTP when the following occurs:

- o RPS A DE-ENERGIZES

Two (2) minutes later, a DC Switchgear DE-ENERGIZES as indicated below on Panel, 2H11-P651;



Based on the above electrical losses,

The 125/250 VDC Battery Switchgear that de-energized is _____ .

Ten (10) seconds later, _____ of the Main Steam Isolation Valves (MSIVs) will have automatically isolated.

A. 125/250 VDC Batt Swgr 2B, 2R22-S017;
four (4)

B. 125/250 VDC Batt Swgr 2B, 2R22-S017;
none

C. 125/250 VDC Batt Swgr 2A, 2R22-S016;
four (4)

D. 125/250 VDC Batt Swgr 2A, 2R22-S016;
none

21. 230000K2.02 001

Unit 2 experiences a Loss of Offsite power.

- o 4160V 2G is the ONLY 4160V bus that is ENERGIZED

Based on the above conditions,

RHR pump 2B _____ be used for Suppression Pool Spray.

RHR pump 2D _____ be used for Suppression Pool Spray.

A. can;
can

B. can;
can NOT

C. can NOT;
can

D. can NOT;
can NOT

22. 239002K1.07 001

Unit 2 is operating at 100% RTP when a transient occurs resulting in Suppression Pool level lowering with the following times and levels:

TIME	LEVEL
10:00	147 inches
10:02	145 inches

Based on the above conditions and IAW TS 3.6.2.2, Suppression Pool Water Level, the EARLIEST listed time that a Required Action Statement (RAS) is entered is _____ .

The HIGHEST listed Suppression Pool water level at which the SRV T-Quenchers will be uncovered is _____ .

A. 10:00;
57.4 inches

B. 10:00;
62.9 inches

C. 10:02;
57.4 inches

D. 10:02;
62.9 inches

23. 245000K5.07 001

Unit 2 is operating at 100% RTP when 2R13-C008A, Isophase Bus Cooling Unit fan, trips.

With the above conditions,

The 2R13-C008B, Isophase Bus Cooling Unit fan, _____ .

If 2R13-C008B subsequently trips, the MAXIMUM Unit 2 Main Generator output limit is _____ .

A. will already be running;
12800 amps

B. will already be running;
14000 amps

C. must be manually started;
12800 amps

D. must be manually started;
14000 amps

24. 256000K6.01 001

Unit 2 is operating at 100% RTP when a TOTAL loss of Instrument and Service Air occurs.

Based on the above conditions,

The MAXIMUM listed Control Air pressure at which 2N21-F111, Feedwater Startup Level Control Valve, will be LOCKED UP in its existing position is _____ .

A. 49 psig

B. 74 psig

C. 84 psig

D. 89 psig

25. 259001G2.4.35 001

Unit 1 is operating at 100% RTP when an event occurs requiring the Main Control Room to be evacuated.

The ONLY action taken prior to leaving the Main Control Room was to manually scram the reactor.

Control has been established at the Remote Shutdown panels.

The Shift Supervisor dispatches an operator to locally trip RFPT 1A.

The operator will depress the local RFPT 1A trip pushbuttons at the _____ .

After RFPT 1A is tripped locally, without any additional operator actions, RFPT 1A will be _____ .

A. Turbine Building 1H21-P216 Panel; on the turning gear

B. Turbine Building 1H21-P216 Panel; windmilling

C. Turbine Building RFPT 1A area; on the turning gear

D. Turbine Building RFPT 1A area; windmilling

26. 259002A3.04 001

Unit 2 is operating at 100% RTP with the following RWL indications:

- o 2C32-R606A, GEMAC, indication: 37.0 inches
- o 2C32-R606B, GEMAC, indication: 36.6 inches
- o 2C32-R606C, GEMAC, indication: 36.9 inches

Subsequently, a leak occurs on the REFERENCE leg associated with the 2C32-R606A instrument resulting in a 3 inch/minute change in RWL.

Based on the above conditions and with NO operator actions,

INITIALLY, the indication on RWL instrument 2C32-R606B will go _____ and Feedwater flow will _____ .

A. DOWN;
DECREASE

B. DOWN;
INCREASE

C. UP;
DECREASE

D. UP;
INCREASE

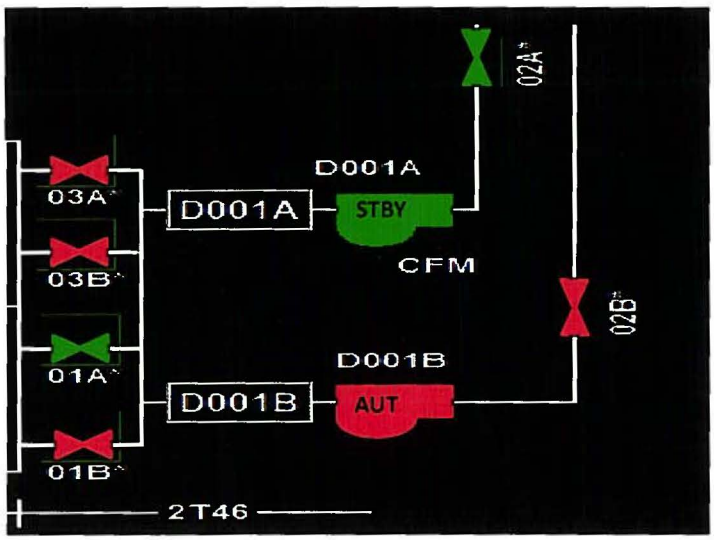
27. 261000A4.02 001

Unit 2 is operating at 100% RTP.

At 10:00, Secondary Containment receives an isolation signal.

At 10:01, the NPO secures SBGT 2A by placing the SBGT 2A fan control switch to the OFF position and then places the switch to the STBY position. (ONLY switch manipulated)

At 10:02, the following Unit 2 SPDS Diagnostic Screen is observed:



Based on the SPDS Diagnostic Screen at 10:02,

The Unit 2 SBGT system _____ operated as designed.

If SPDS becomes unavailable, Unit 2 SBGT flows can be monitored on Panels 2H11-P657 and _____ .

A. has;
2H11-P654

B. has;
2H11-P700

C. has NOT;
2H11-P654

D. has NOT;
2H11-P700

28. 262001A1.04 001

Unit 2 is at 60% RTP with an operator transferring 4160 VAC Bus 2A to its Alternate supply. The following conditions currently exist:

- o Voltages are matched
- o Sync switch for the 4160 VAC 2A Alternate breaker is in the ON position
- o Sync light is at its dimmest (12 O'Clock position and steady)
- o Station SVC Interlock Cutout switch for ACB 135434-135454 is in the NORMAL (UP) position

Subsequently, the operator places the control switch for ACB 135454 (Alternate supply breaker) in the close position and IMMEDIATELY releases the switch.

Based on the above conditions,

Ten (10) seconds after the operator releases the control switch, the ampere indication will be as shown on _____ .

Figure 1

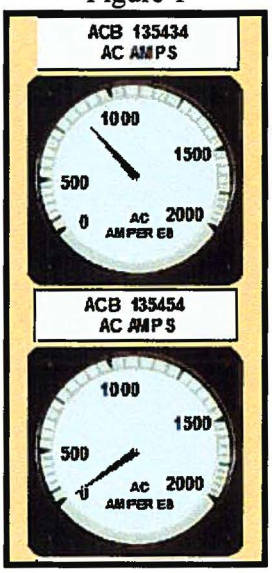


Figure 2

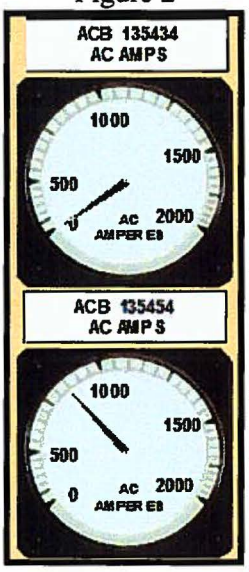


Figure 3

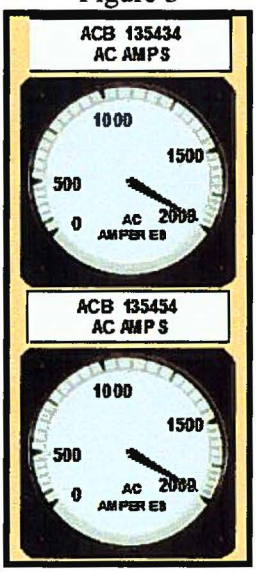
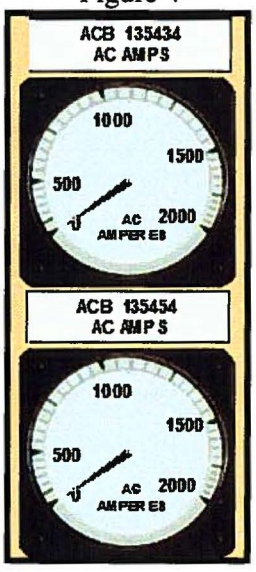


Figure 4



A. Figure 1

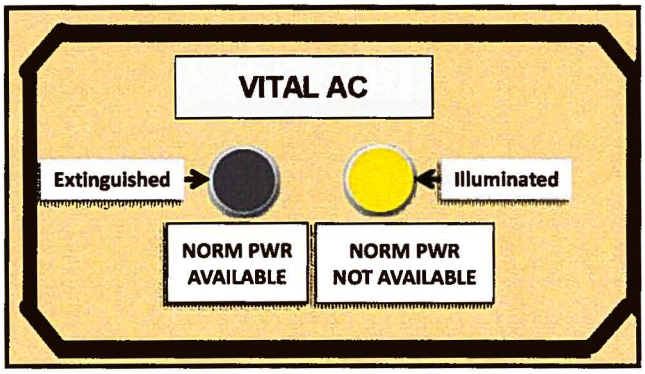
B. Figure 2

C. Figure 3

D. Figure 4

29. 262002K4.01 001

Unit 2 is operating at 100% RTP when the following indications are received on Panel 2H11-P651;



Based on the above indications and,

Fifteen (15) seconds later, the Vital AC Bus is receiving power from its _____ Power Supply.

The Alternate AC supply for the Vital AC Bus is _____ .

A. Alternate AC;
600V Bus 2C

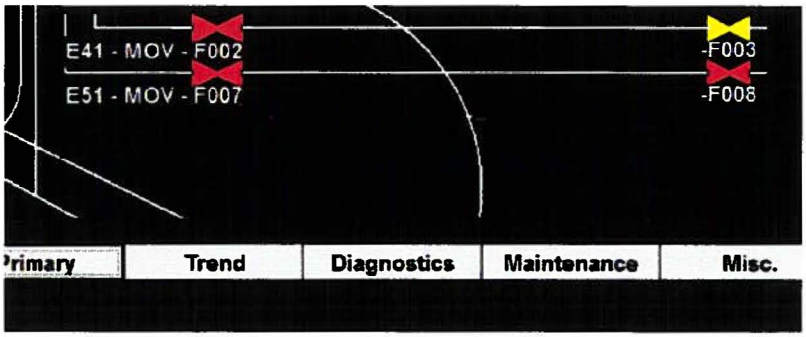
B. Alternate AC;
600V Bus 2D

C. Backup DC;
600V Bus 2C

D. Backup DC;
600V Bus 2D

30. 263000G2.1.19 001

While monitoring SPDS on **Unit 2**, the following indications exist on the PCIS Diagnostic Groups 1, 3, 4, & 5 Status screen;



Based on the above SPDS indications,

A loss of _____ has occurred.

If HPCI receives a valid initiation signal, HPCI _____ start and inject into the RPV.

A. 600V Rx. Bldg. MCC 2B, 2R24-S011A;
will

B. 600V Rx. Bldg. MCC 2B, 2R24-S011A;
will NOT

C. 250 VDC MCC 2B, 2R24-S022;
will

D. 250 VDC MCC 2B, 2R24-S022;
will NOT

31. 263000K5.01 001

Unit 2 is operating at 100% RTP with the "2A" and "2B" 125/250VDC Station Service Batteries on "Equalize" charge.

Subsequently,

- o All Control Building Chillers and fans trip and can NOT be restored
- o Control Building temperatures start increasing

With the "2A" and "2B" 125/250VDC Station Service Batteries on "Equalize" charge, the 125/250VDC Station Service Battery Chargers output voltage will be _____ the battery voltage.

With Control Building temperatures increasing and NO operator actions, the 125/250VDC Station Service Battery _____ .

A. equal to;
Room Hydrogen concentrations will rise in each of the battery rooms

B. equal to;
Chargers will trip when their high temperature trip setpoint is reached

C. greater than;
Room Hydrogen concentrations will rise in each of the battery rooms

D. greater than;
Chargers will trip when their high temperature trip setpoint is reached

32. 264000A3.06 001

Unit 1 and **Unit 2** are operating at 100% RTP when a TOTAL Loss Of Offsite Power (LOSP) occurs.

The Diesel Gen 1B Keylock control switch is in the REMOTE UNIT 1 position.

With the above conditions,

The automatic start of the Standby Diesel Service Water Pump, 2P41-C002, can be monitored for operation at _____ .

INITIALLY, the Standby Diesel Service Water Pump, 2P41-C002 will be powered from 4160V _____ .

A. 2H11-P652 ONLY;
1F

B. 2H11-P652 ONLY;
2F

C. 2H11-P652 and 1H11-P652;
1F

D. 2H11-P652 and 1H11-P652;
2F

33. 271000K4.01 001

Which ONE of the choices below describes the reason for air purging the Off-Gas system for one hour prior to placing the system in operation following a Refueling Outage?

A. To provide cooling air to the hydrogen recombiner

B. To dilute any hydrogen left in the system from previous use

C. To provide cooling air to the post treatment radiation monitors

D. To remove any radioactive Iodine deposited on the charcoal adsorbers

34. 272000A3.02 001

Post Treatment Radiation Monitor Channel "A" _____ and Channel "B" _____ will cause an automatic isolation of the **Unit 2** Main Stack Isolation valve, 2N62-F057.

A. INOP;
DOWNSCALE

B. INOP;
HIGH-HIGH

C. HIGH;
DOWNSCALE

D. HIGH;
HIGH-HIGH

35. 288000K1.04 001

On **Unit 1**,

Cooling water to the Safeguard Equipment Cooling (SEC) coolers is supplied by the _____ System.

Cooling water to the Main Control Room Air Conditioning Unit Condensers is supplied by the _____ System.

A. Reactor Building Chilled Water;
Plant Service Water

B. Reactor Building Chilled Water;
Control Building Chilled Water

C. Plant Service Water;
Plant Service Water

D. Plant Service Water;
Control Building Chilled Water

36. 290001A4.02 001

Unit 1 is operating at 100% RTP with RWCU Pump 1A in service.

NPOs in the Main Control Room, monitoring the RWCU System, observe the following:

Time	RWCU HX Room Temp
10:55	125°F
11:00	145°F
11:05	168°F

Based on the above conditions,

When the RWCU Hx Room temperatures reached their isolation setpoint, the RWCU System should have automatically isolated _____ .

The EARLIEST listed time that the NPO is procedurally required to manually isolate the RWCU System is _____ .

A. immediately;
11:00

B. immediately;
11:05

C. after a time delay;
11:00

D. after a time delay;
11:05

37. 295001AA2.06 001

A **Unit 2** startup is in progress IAW 34GO-OPS-001-2, Plant Startup.

The following sequence of events occur:

- o Both Recirc Pump speeds were raised from minimum speed to 30%
- o After the Recirc Pump speeds were raised, ASD 2A tripped

With the above current conditions,

To manually calculate core flow rate, Loop "A" Jet Pump flow, 2B21-R611A, must be _____ Loop "B" Jet Pump Flow, 2B21-R611B.

Core Flow Recorder, 2B21-R613, _____ be indicating accurate core flow.

A. subtracted from;
will NOT

B. subtracted from;
will

C. added to;
will NOT

D. added to;
will

38. 295003AK2.04 001

Unit 1 was operating at 100% RTP when a Loss of Offsite Power occurred.

The following conditions exist:

- o "1E" 4160 VAC Bus ..... DE-ENERGIZES and remains de-energized
- o "1F" 4160 VAC Bus ..... ENERGIZED
- o "1G" 4160 VAC Bus ..... DE-ENERGIZES and remains de-energized

With NO operator actions and based on the above conditions,

The PSW System WILL supply cooling water to the _____ .

The TOTAL number of PSW pumps supplying cooling water to these buildings is _____ .

A. Reactor Building and Diesel Building ONLY;
one (1)

B. Reactor Building and Diesel Building ONLY;
two (2)

C. Reactor Building, Turbine Building and Diesel Building;
one (1)

D. Reactor Building, Turbine Building and Diesel Building;
two (2)

39. 295004AK2.01 001

Unit 2 is operating at 100% RTP when the following sequence of events occur:

At 11:00 - 125/250V DC SWITCHGEAR 2B, 2R22-S017, de-energized due to a fault on one of the previously in service Division II 125 VDC Battery Chargers

At 11:30 - Maintenance replaced the Division II Battery Fuses and 2R22-S017 is re-energized from the Division II Batteries

IAW 34SO-R42-001-2, 125 VDC & 125/250 VDC System and with the above conditions,

Local manipulation of a Throwover Switch _____ REQUIRED to return the new combination of Division II 125 VDC Battery Chargers to service.

When placing a Battery Charger in service, the proper sequence of AC Input and DC Output breaker operation is to FIRST position the _____ breaker to the ON position.

A. is;
AC Input

B. is;
DC Output

C. is NOT;
AC Input

D. is NOT;
DC Output

40. 295005AK3.02 001

Unit 1 is operating late in core life with the EOC RPT breakers in service.

If the Main Turbine trips, the MINIMUM reactor power level which will result in an EOC RPT breaker trip is _____ .

The trip of the EOC RPT breakers is designed to prevent exceeding the _____ limit.

A. 24.0%;
APLHGR

B. 24.0%;
MCPR

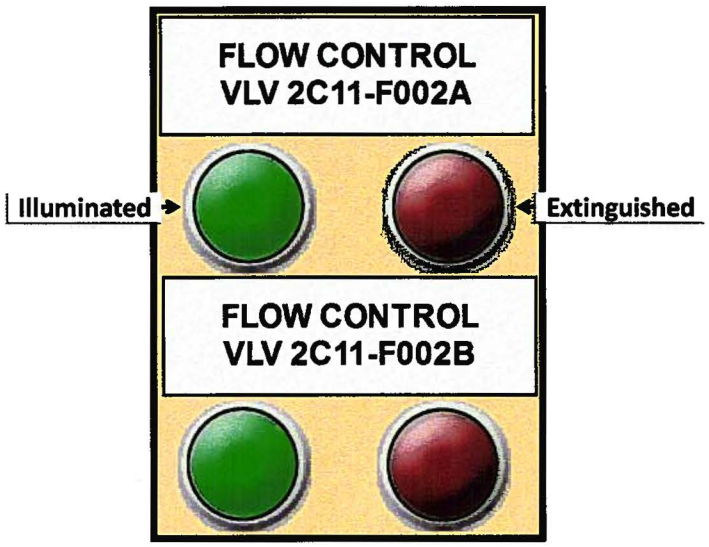
C. 27.6%;
APLHGR

D. 27.6%;
MCPR

41. 295006G2.1.31 001

Unit 2 is operating at 100% RTP with the 2C11-F002A, Flow Control Valve, in service.

Subsequently, a transient occurs resulting in RWL lowering to -10 inches (lowest RWL reached) before being restored to normal with Feedwater.



One (1) minute later and based on the above indications/conditions,

2C11-F002A _____ responding correctly.

2C11-F002A indicating LIGHTS are located on _____ .

A. is;
2H11-P603 and locally at the 2C82-P001, Remote Shutdown Panel

B. is;
2H11-P603 Panel ONLY

C. is NOT;
2H11-P603 and locally at the 2C82-P001, Remote Shutdown Panel

D. is NOT;
2H11-P603 Panel ONLY

42. 295008G2.1.20 001

Unit 2 was operating at 100% RTP when a transient resulted in the following:

- o RWL increased to 102 inches
- o RPV pressure is 490 psig

A NPO placed the control switch for Safety Relief Valve, 2B21-F013M, in the OPEN position.

Based on the above conditions and when 2B21-F013M control switch is placed to OPEN,

INITIALLY, 2B21-F013M will be passing _____ .

2B21-F013M "Amber" indicating light will ILLUMINATE _____ .

A. steam;
immediately

B. steam;
after several seconds

C. water;
immediately

D. water;
after several seconds

43. 295014AA2.04 001

Unit 2 is operating at 65% RTP when an inadvertent initiation of HPCI occurs.

HPCI injects at rated flow for approximately 45 seconds before the NPO secures HPCI.

The STA generates a Process Computer Monitoring Case Report which indicates the following:

MFLCPR	1.013
MFLPD	0.974
MAPRAT	0.936
PCRAT	1.101

With the above conditions,

The limit for _____ has been EXCEEDED.

A. MFLCPR

B. MFLPD

C. MAPRAT

D. PCRAT

44. 295015AK1.02 001

Unit 1 was operating at 100% RTP when an ATWS occurred.

- o SBLC System was initiated
- o SBLC Tank level is now 12%

Based on the current conditions,

Cold Shutdown Boron Weight (CSBW) _____ been injected.

If a RPV pressure reduction occurs, Reactor power _____ to the point of Criticality.

A. has NOT;
can increase

B. has NOT;
can NOT return

C. has;
can increase

D. has;
can NOT return

45. 295016G2.4.11 001

An evacuation of the Main Control Room has occurred.

- o The **Unit 1** Reactor was NOT scrammed prior to leaving the Control Room
- o SPDS is NOT available

IAW 31RS-OPS-001-1, Shutdown From Outside Control Room,

Guidance is given to LOCALLY scram the reactor by tripping the Scram Discharge Volume (SDV) _____ .

This procedure provides guidance to confirm the Reactor is shutdown by visually verifying that each _____ .

A. Thermal Level Switches;
SDV Vent and Drain valve is CLOSED

B. Thermal Level Switches;
HCU Scram Inlet and Outlet valve is OPEN

C. Float Level Switches;
SDV Vent and Drain valve is CLOSED

D. Float Level Switches;
HCU Scram Inlet and Outlet valve is OPEN

46. 295018AA2.02 001

Unit 2 is operating at 100% RTP.

CONDENSER ROOM FLOODING, 650-164, alarm is received.

- o 2P41-F316A-D, Turbine Bldg Isolation Valves, indicate closed

Based on the above conditions,

RBCCW suction temperature will _____ .

2P41-F316A-D _____ be overridden and re-opened from the MCR.

A. start increasing;
can

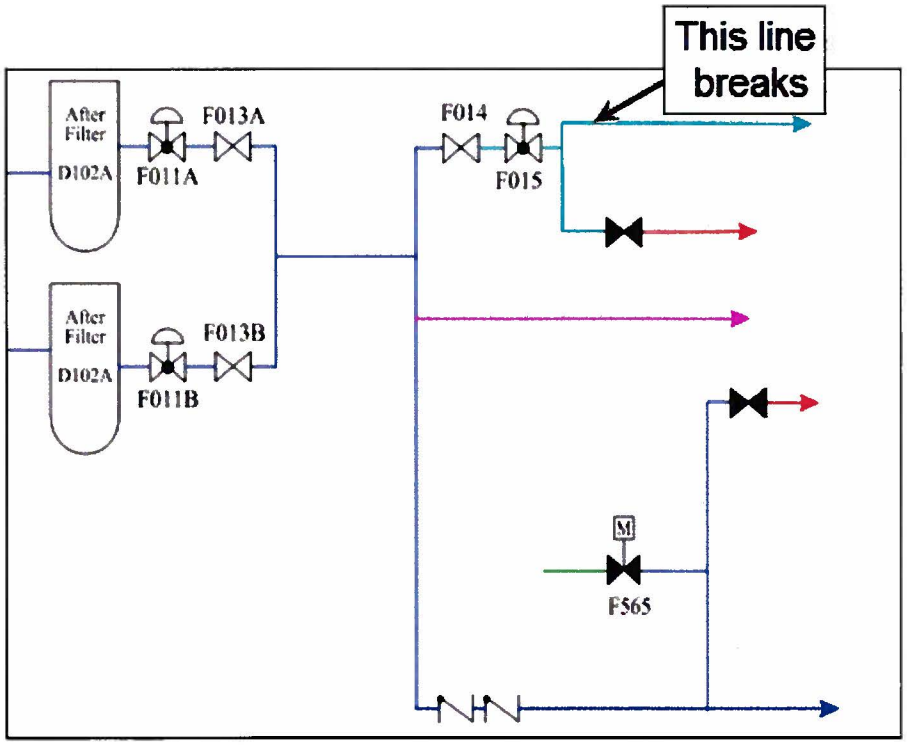
B. start increasing;
can NOT

C. remain approximately the same;
can

D. remain approximately the same;
can NOT

47. 295019AA1.02 001

Unit 2 is operating at 100% RTP when a complete (100%) rupture on the Non-Essential Instrument Air Header, down stream of 2P52-F015, occurs.



With NO operator action, the 2P52-F015, Turb. Bldg Inst Air To RW Bldg Isol valve, will _____ .

The setpoint for 2P52-F565, Rx Bldg Inst N_2 To Non-Int Air El. 185 Isol Vlv, to automatically open is _____ .

A. close and remain closed;
70 psig

B. close and remain closed;
80 psig

C. continously cycle open and closed;
70 psig

D. continously cycle open and closed;
80 psig

48. 295020AA1.02 001

Nitrogen (N_2) is being added to the **Unit 2** Drywell (DW) from the Unit 1 N_2 Storage Tank IAW 34SO-T48-002-2, Containment Atmosphere Control and Dilution System.

- o 2T48-F113, Nitrogen to DW isolation valve, is OPEN
- o 2T48-F114, Nitrogen to DW isolation valve, is OPEN
- o DW venting using Standby Gas Treatment is in progress

An inadvertant loss of the 2A Reactor Protection System (RPS) bus occurred.

N_2 addition to the DW will _____ .

A loss of DW cooling _____ IMMEDIATELY occur.

A. continue;
will NOT

B. continue;
will

C. automatically isolate;
will NOT

D. automatically isolate;
will

49. 295021AK3.01 001

With the plant shutdown in Mode 4 and RHR loop "B" operating in Shutdown Cooling (SDC), a leak occurs resulting in a SDC isolation due to low RWL.

Recirc suction temperature is 170°F.

IAW 34AB-E11-001-2, Loss of Shutdown Cooling,

RWL will be raised to a MINIMUM of 53 inches as indicated on _____ .

The reason RWL is raised is to _____ .

A. 2B21-R605, Floodup Range;
increase coolant inventory ONLY

B. 2B21-R605, Floodup Range;
increase coolant inventory AND ensure a flow path for natural circulation

C. 2C32-R606A, Narrow Range;
increase coolant inventory ONLY

D. 2C32-R606A, Narrow Range;
increase coolant inventory AND ensure a flow path for natural circulation

50. 295023AK1.03 001

Unit 1 is in Mode 5 with fuel movement in progress.

- o RPS Shorting Links INSTALLED
- o A fuel bundle is on the Main Grapple in the Normal Up position

The Reactor Cavity and Fuel Pool water levels start to decrease.

The fuel bundle on the Main Grapple is lowered back into the RPV core and seated.

- o The count rate on SRM A increases to 300 cps with a stable positive period indicated

Based on the above conditions:

IAW 34AB-G41-002-1, Decreasing Rx Well/Fuel Pool Water Level, the grappled fuel bundle was required to be placed _____ in-core location.

If SRM A continues to increase, SRM A _____ automatically initiate a FULL Scram.

A. ONLY in its proper;
will

B. ONLY in its proper;
will NOT

C. into ANY;
will

D. into ANY;
will NOT

51. 295024EA2.08 001

Unit 2 was operating at 55% RTP, due to a fuel leaker, when a steam line break inside containment occurs.

Plant conditions are below:

- o Drywell pressure is 10.5 psig and slowly increasing
- o Drywell radiation is 2.0 E2 R/hr and steady
- o Torus pressure is 10.0 psig and slowly increasing
- o Neither Drywell or Torus sprays have been initiated

With the above conditions,

At this time, _____ Sprays are REQUIRED to be placed in service.

The AMBER light above 2T48-F318, Torus Vent Valve, will be _____ .

A. BOTH Drywell and Torus;
extinguished

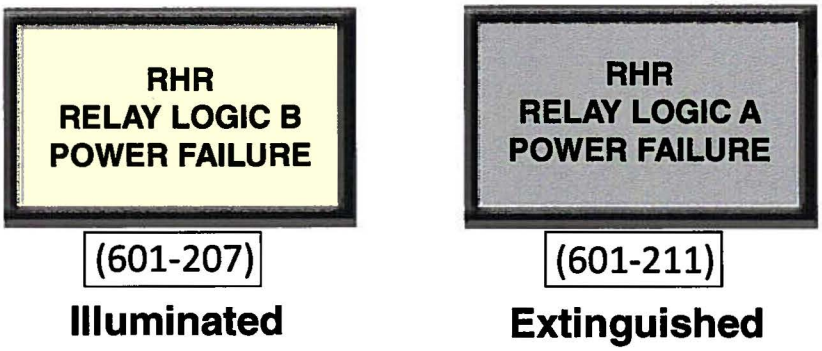
B. BOTH Drywell and Torus;
illuminated

C. ONLY Torus;
extinguished

D. ONLY Torus;
illuminated

52. 203000A2.14 001

Unit 2 is operating at 25% RTP with the following alarm status:



Subsequently, Drywell pressure increases and stabilizes at 4.5 psig.

IAW 34SO-E11-010-2, RHR System, and with the current status of the above alarms and plant conditions,

RHR pump 2B _____ .

If RHR Pump 2B is subsequently secured and then the RHR Pump 2B RESET pushbutton is depressed and released, RHR Pump 2B _____ automatically start.

A. must be manually started;
will

B. must be manually started;
will NOT

C. will automatically start;
will

D. will automatically start;
will NOT

53. 295026EK1.02 001

Unit 2 is operating at 100% RTP when a leak occurs inside the Drywell (DW).

Steam condensation from the leak will cause Torus water temperature to heat up _____ .

IAW 31EO-EOP-012-2, PC Primary Containment Control, the LOWEST listed Torus temperature requiring entry into RC Point A of 31EO-EOP-010-2, RC RPV Control (NON-ATWS), is _____ .

A. uniformly throughout the Torus due to the design of the downcomers;
111°F

B. uniformly throughout the Torus due to the design of the downcomers;
121°F

C. directly under the area of the DW leak due to the energy being distributed directly to the Torus water in that area;
111°F

D. directly under the area of the DW leak due to the energy being distributed directly to the Torus water in that area;
121°F

54. 295028G2.1.25 001

Unit 2 has experienced a LOCA.

The following conditions exist:

o RTD 2T47-N001A	300°F
o RTD 2T47-N001K	275°F
o RPV pressure	700 psig and steady
o 2B21-R623B, Wide Range (compensated)	-90 inches

Based on the above conditions, and IAW 34AB-B21-002-2, RPV Water Level Corrections,

Corrected RWL is _____ .

Reference Provided

A. -27 inches

B. -40 inches

C. -99 inches

D. -102 inches

55. 295030EA1.05 001

Unit 1 was scrammed from 80% RTP.

- o RPV pressure is being controlled by LLS
- o RWL is -50 inches and steady
- o HPCI is the ONLY high pressure injection source
- o Torus level is 116 inches and decreasing at 2 inches/minute

IAW 31EO-EOP-012-1, Primary Containment Control,

One (1) minute later, the HPCI System _____ ALLOWED to continue injecting into the RPV.

Ten (10) minutes later, the Ring Header DOWNCOMER openings are _____ .

A. is NOT;
COVERED

B. is NOT;
UNCOVERED

C. is;
COVERED

D. is;
UNCOVERED

56. 295031EK2.09 001

Unit 2 is at 60% RTP with the following conditions:

- o 2A RFP is in AUTOMATIC
- o 2B RFP has just been transferred to the M/A Station

Subsequently, RFP 2A experiences a malfunction that results in RFP 2A speed lowering to 2100 rpm and stabilizes.

- o RWL is recovered to normal using the RFP 2B
- o LOWEST RWL reached was 0 inches

With the above conditions,

Of the listed RWL values, the HIGHEST RWL at which a Recirc Pump runback signal will FIRST be generated is _____ .

The FINAL Recirc Pump speed will be _____ .

A. 29 inches;
22%

B. 29 inches;
33%

C. 31 inches;
22%

D. 31 inches;
33%

57. 295032EK3.03 001

Unit 2 is operating at 100% RTP when a pipe ruptures in the Torus Area.

The RCIC System has automatically isolated due to high temperatures in the Torus Area.

IAW 34SO-E51-001-2, Reactor Core Isolation Cooling (RCIC) System, the time delay for the RCIC isolation is _____ .

The reason for the RCIC System isolation at this setpoint is _____ .

A. 29 minutes;
because the Max Safe Operating temperature limit has been exceeded

B. 29 minutes;
to limit radioactive release to the public

C. 14 minutes;
because the Max Safe Operating temperature limit has been exceeded

D. 14 minutes;
to limit radioactive release to the public

58. 295033EK2.02 001

Maintenance is in the process of removing the **Unit 2** Steam Dryer from the RPV when the Steam Dryer momentarily becomes partially uncovered.

Radiation Protection (RP) reports NO Airborne Contamination exists.

ALL Unit 2 Refueling Floor Area Radiation Monitors (ARMs) increase to 17 mr/hr before lowering to their pre-event value.

With the above conditions and NO operator actions,

The **Unit 2** SBGT System fans will _____ .

The Main Control Room Environmental Control (MCREC) System will _____ .

A. have automatically started;
have aligned to Pressurization Mode

B. have automatically started;
remain in the Normal Mode

C. remain in Standby;
have aligned to Pressurization Mode

D. remain in Standby;
remain in the Normal Mode

59. 295036EA1.04 001

On a loss of 2R25-S064, Instrument Bus 2A, Secondary Containment (SC) radiation levels _____ be monitored by using area radiation monitoring (ARM) instrumentation located in the Main Control Room.

Personnel _____ to determine that Max Normal SC Water level has been exceeded.

A. can NOT;
can use the Main Control Room SC sump alarms by themselves

B. can NOT;
must be dispatched LOCALLY

C. can;
can use the Main Control Room SC sump alarms by themselves

D. can;
must be dispatched LOCALLY

60. 295037EK3.03 001

Unit 2 was operating at 100% RTP when an ATWS occurred.

RC-1 actions are completed.

Reactor power stabilizes at 8% RTP.

Based on the above conditions, the Recirc pumps are _____ .

IAW the EOPs, RWL will be intentionally lowered in order to _____ .

A. tripped;
DECREASE core inlet subcooling by UNCOVERING feedwater spargers

B. tripped;
INCREASE void fraction inside the core shroud ONLY

C. operating at minimum speed;
DECREASE core inlet subcooling by UNCOVERING feedwater spargers

D. operating at minimum speed;
INCREASE void fraction inside the core shroud ONLY

61. 295038EA1.01 001

The Shift Manager has declared an Emergency.

The following Main Stack annunciators are illuminated on **Unit 1**:

- o OFF GAS VENT RADIATION HIGH-HIGH (601-412)
- o OFF GAS VENT RADIATION HIGH (601-418)

The SS has directed NMP-EP-104-F07, Offsite Dose Assessment Hatch Prompt Offsite Dose Assessment, (PODA), to be performed.

The current normal average daily site dose rate is 1.0 E-3 mR/hr.

The result from the PODA is a peak TEDE dose rate of 2.0 E-2 mR/hr.

Based on the above conditions,

The Main Stack Effluent Accident Range Gas Monitors (KAMANs) _____ .

IAW NMP-EP-104-F07, a radioactive release from the Main Stack _____ in progress.

A. have automatically started;
is

B. have automatically started;
is NOT

C. are in standby;
is

D. are in standby;
is NOT

62. 300000G2.2.44 001

Unit 2 is operating at 100% RTP when 34AB-P51-001-2, Loss of Instrument or Service Air System or Water Intrusion into the Service Air System, is entered due to lowering air pressure.

The following conditions exist,

- o 2P52-F565, Rx Bldg Inst N2 To Non-Int Air El. 185 Isol Vlv, Danger Tagged CLOSED
- o SCRAM VLV PILOT AIR HDR PRESS HIGH/LOW (603-131) is illuminated
- o CRD HYD TEMP HIGH (603-140) is illuminated

Based on the above conditions and IAW 34AB-P51-001-2,

A Reactor scram _____ required to be inserted at this time.

If the crosstie between Unit 1 and Unit 2 Service Air Systems CANNOT be opened, the _____ MSIVs will drift close as air pressure continues to lower.

A. is;
Inboard

B. is;
Outboard

C. is NOT;
Inboard

D. is NOT;
Outboard

63. 400000K4.01 001

Unit 2 is operating at 30% RTP.

- o Two (2) RBCCW pumps are running
- o One (1) RBCCW pump is Danger tagged out of service

The following sequence of events occur:

At 11:00 - A loss of a 600V bus results in one (1) of the running RBCCW pumps being de-energized
At 11:03 - RBCCW system pressure decreases below the RBCCW pump auto start setpoint
At 11:05 - Power is restored to the 600V bus

Based on the above plant conditions,

After power is restored to the 600V bus, the Non-Essential Load Lockout pushbutton _____ REQUIRED to be depressed prior to the restart of the associated RBCCW pump.

Prior to restarting the associated RBCCW pump, its control switch _____ REQUIRED to first be placed in the STOP position and then released.

A. is;
is

B. is;
is NOT

C. is NOT;
is

D. is NOT;
is NOT

64. 600000AK1.02 001

Which ONE of the following plant fire locations REQUIRES a manual reactor scram IAW 34AB-X43-001-2, Fire Procedure, when a major fire exists?

A. Turbine Building East Cableway

B. Unit Auxilary Transformer

C. Oil Storage Tank Room

D. Intake Structure

65. 700000G2.2.44 001

Following a grid disturbance, all **Unit 2** 4160 VAC Emergency Bus voltages indicate 4000 VAC.

IAW 34AB-S11-001-0, Operation With Degraded Voltage;

The 4160 VAC Emergency Bus voltages are _____ the MINIMUM ACCEPTABLE voltage.

If ALL **Unit 2** 4160 VAC Emergency Bus voltages are less than the MINIMUM ACCEPTABLE voltage for one (1) hour, _____ required to be manually started and connected to the respective Unit 2 Emergency Bus(es).

A. less than;
one (1) EDG is

B. less than;
two (2) EDGs are

C. greater than;
one (1) EDG is

D. greater than;
two (2) EDGs are

66. G2.1.23 001

Unit 2 is performing Low Pressure Feedwater Injection IAW 34SO-N21-007-2, Condensate and Feedwater System, during a Reactor startup.

The following conditions exist:

- o One Condensate Pump is running
- o One Condensate Booster Pump running
- o Condensate/Feed system is lined up for injection
- o Turbine Bypass valves are controlling RPV pressure
- o 2N21-F165, Cleanup Recirc FCV, is throttled open to maintain RWL

IAW 34SO-N21-007-2 and based on the above conditions,

To avoid excessive vibration on the associated piping, the MAXIMUM throttled position allowed for 2N21-F165 is _____ .

As RPV pressure increases, 2N21-F165 will be throttled in the _____ direction.

A. 55%;
close

B. 55%;
open

C. 70%;
close

D. 70%;
open

67. G2.1.40 001

Unit 2 is performing fuel movement in the RPV.

IRM A and IRM B are bypassed.

IAW 34FH-OPS-001-0, Fuel Movement Operation,

The Reactor Mode Switch is REQUIRED to be LOCKED in the _____ position.

The MINIMUM RPV water level for fuel movement to continue is _____ above the top of the irradiated fuel assemblies seated in the RPV.

A. REFUEL;
21 feet

B. REFUEL;
23 feet

C. SHUTDOWN;
21 feet

D. SHUTDOWN;
23 feet

68. G2.2.21 001

Given the following:

1E11-F017A, RHR Injection valve, was declared INOPERABLE for preventative maintenance (PM).

Following the PM, operators performed the stroke test on 1E11-F017A IAW 34SV-E11-002-1, RHR Valve Operability.

The stroke test data is shown below:

Column 1	Column 2		Column 3				Column 4		Column 5	
VALVE NO.	Reference Stroke OPER TIME (SEC)		CALCULATED ALLOWABLE TIMES (SEC)				OPERATING TIMES (SEC)		MAXIMUM TIME LIMIT (SEC)	
	OPEN	CLOSE	OPEN		CLOSE		OPEN	CLOSE	OPEN	CLOSE
1E11-F017A MOV	24.2	N/A	20.6	27.8	N/A	N/A	30.5	N/A	≤ 34	N/A

IAW 34SV-E11-002-1,

To time 1E11-F017A OPEN, the NPO will START the stopwatch when the _____ .

Based on the above data, the opening stroke time for 1E11-F017A _____ satisfactory.

A. control switch is placed to OPEN;
is

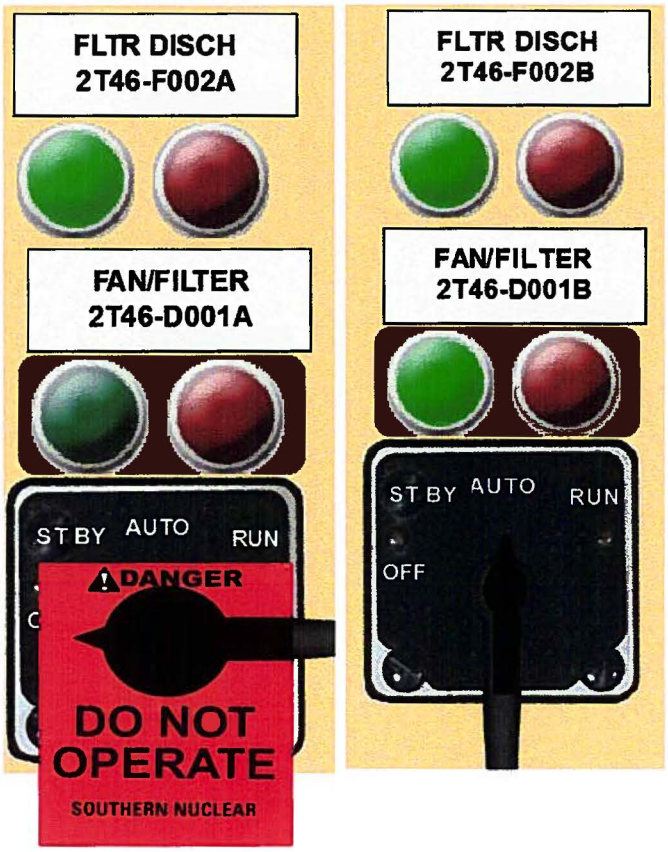
B. control switch is placed to OPEN;
is NOT

C. red light FIRST illuminates;
is

D. red light FIRST illuminates;
is NOT

69. G2.2.36 001

Unit 1 and **Unit 2** are operating at 100% RTP. On your Control Room tour during turnover, you note the change in status in the Standby Gas Treatment System (SBGT) as shown below:



With the above status of SBGT, if a troubleshooting activity resulted in tripping the feeder breaker to _____ , an additional LCO entry would be required for the SBGT System.

A. 2R24-S011, Rx. Bldg. MCC 2C

B. 2R24-S012, Rx. Bldg. MCC 2B

C. 2R24-S013, Rx. Bldg. MCC 2A

D. 2R24-S014, Rx. Bldg. MCC 2D

70. G2.3.11 001

Which ONE of the following is the BASIS for restarting the Turbine Building (TB) Ventilation when executing 31EO-EOP-014-2, SC Secondary Containment Control - RR Radioactivity Release Control?

Restarting the TB Ventilation _____ **AND** assures a release from the TB Ventilation System is monitored prior to exiting the _____ .

A. preserves personnel accessibility;
Main Stack

B. preserves personnel accessibility;
Reactor Building Stack

C. maintains equipment operability;
Main Stack

D. maintains equipment operability;
Reactor Building Stack

71. G2.3.13 001

Two NPOs and a RP Tech are entering a room to perform a tagout.

o The dose rate in this area is 1200 mR/hr

IAW 62RP-RAD-016-0, Control Of High Radiation Areas,

This room will be posted as a _____ Area.

After exiting this Radiation Area, the door _____ be concurrently verified secure by one of the NPOs.

A. Locked High Radiation;
can

B. Locked High Radiation;
can NOT

C. Very High Radiation;
can

D. Very High Radiation;
can NOT

72. G2.3.14 001

34SV-E51-002-1, RCIC Pump Operability, will be performed within the next hour.

RCIC is located in the _____ diagonal.

IAW 34SV-E51-002-1, the RCIC diagonal _____ REQUIRED to be posted as a High Radiation Area during the RCIC run.

A. Southwest;
is NOT

B. Southwest;
is

C. Northwest;
is NOT

D. Northwest;
is

73. G2.4.21 001

Unit 2 is cooling down with RHR Loop "B" in Shutdown Cooling Mode.

- o RPV pressure is 115 psig

Subsequently, a leak occurs in the Drywell resulting in Drywell pressure increasing to 1.9 psig.

Based on the above conditions and with NO operator actions,

RHR Loop "B" _____ REMAIN in the Shutdown Cooling Mode.

HPCI _____ AUTOMATICALLY start and inject into the RPV.

A. will;
will

B. will;
will NOT

C. will NOT;
will

D. will NOT;
will NOT

74. G2.4.32 001

Unit 2 was operating at 100% RTP when a loss of electrical power results in a loss of a significant number of Main Control Room annunciators (P603, P602 & P601) with a Reactor scram.

- o An Alert Emergency classification is declared

IAW NMP-EP-111-002, Emergency Notification Network Communicator Instructions - Hatch,

The LATEST that the INITIAL Plant Page Announcement can be made is _____ after the Emergency classification is declared.

Subsequent Plant Page Announcements are REQUIRED to be performed at _____ intervals after the INITIAL Plant Page Announcement is made.

A. 14 minutes;
30 minute

B. 14 minutes;
15 minute

C. 29 minutes;
30 minute

D. 29 minutes;
15 minute

75. G2.4.49 001

Unit 2 is at 100% RTP when a loss of Feedwater Heating event occurs.

IAW 34AB-N21-001-2, Loss Of Feedwater Heating,

The Immediate Operator Action is to depress the _____ .

The feedwater temperatures (4) shown on SPDS _____ to determine Final Feedwater Temperature.

A. Individual Recirc Flow Control LOWER FAST pushbuttons; can be read directly

B. Individual Recirc Flow Control LOWER FAST pushbuttons; must be averaged

C. Master Recirc Flow Control LOWER FAST pushbutton; can be read directly

D. Master Recirc Flow Control LOWER FAST pushbutton; must be averaged

76. 202001A2.26 001

Unit 2 is recovering from a transient due to the trip of both Recirc Pumps.

34SO-B31-001-2, Reactor Recirculation System, Recirc Pump Quick Restart, is in progress.

At 10:00, the following conditions exist:

- o RPV saturation temperature 530°F and steady
- o "A" Recirc suction temperature 505°F lowering 1°F/minute
- o "B" Recirc suction temperature 510°F lowering 1°F/minute
- o Vessel Bottom Head Drain temperature 445°F lowering 2°F/minute
- o An operator depresses the ASD "A" START pushbutton

At 10:02, 2B31-F031A, Recirc Pump A Discharge Valve, red AND green indicating lights are BOTH illuminated.

Based on the above conditions,

IAW TS 3.4.9 RCS Pressure and Temperature (P/T) Limits, the LATEST listed time the crew could have started Recirc pump "2A" and still meet TS 3.4.9 temperature requirements is NO LATER THAN _____ .

At 10:03, Recirc Pump "2A" will be _____ .

A. 10:20;
tripped

B. 10:20;
running at minimum speed

C. 10:30;
tripped

D. 10:30;
running at minimum speed

77. 205000A2.07 001

Unit 1 is in Mode 3 following a shutdown 18 hours earlier for refueling with the following plant conditions:

- o RPV Level is 40 inches and steady
- o BOTH Recirc ASDs are Danger tagged for maintenance
- o RHR pump 1A is Danger tagged due to a motor ground
- o RHR pump 1B is Danger tagged for breaker failure
- o RHR Loop B is in Shutdown Cooling

RHRSW PUMPS BRG TEMP HIGH, 650-430, alarm is received. Investigation reveals cooling water to RHRSW pump 1B motor has been lost and CANNOT be restored.

RHRSW pump 1B is shutdown.

With the above conditions,

After RHRSW pump 1D is started and IAW TS LCO 3.4.7, Residual Heat Removal (RHR) Shutdown Cooling System - Hot Shutdown, the REQUIRED number of OPERABLE RHR Shutdown Cooling Subsystems _____ met.

IAW 31GO-OPS-006-0, Conditions, Required Actions, And Completion Times, when Unit 1 enters Mode 4, the Required Action Sheet (RAS) for RHRSW pump 1B _____ .

A. is;
MUST remain active

B. is;
CAN be replaced with a Tracking RAS

C. is NOT;
MUST remain active

D. is NOT;
CAN be replaced with a Tracking RAS

78. 206000A2.07 001

Unit 2 was at 100% RTP when a seismic event occurred.

The following conditions exist:

- o RWL is -150 inches and slowly lowering
- o HPCI flowrate is at rated
- o RCIC is unavailable
- o An UNISOLABLE leak has developed from the Torus
- o Torus pressure 3 psig
- o Torus temperature 185°F
- o CST is unavailable

Based on the above conditions and IAW EOPs,

An automatic HPCI suction swap will occur as a result of a _____ Torus level.

At 140 inches in the Torus, HPCI flowrate _____ .

Reference Provided

A. high;
will remain at rated to ensure adequate core cooling

B. high;
must be reduced to restore NPSH limits

C. low;
will remain at rated to ensure adequate core cooling

D. low;
must be reduced to restore NPSH limits

79. 215002G2.1.7 001

Unit 2 was operating at 70% RTP.

While reducing Recirc flow with a central control rod selected, the following indications existed:

	RBM A	RBM B
10:04	90%	92%

NO alarms or Control Rod Blocks were received.

At 11:04, LCO 3.0.3 is entered due to RBM A and RBM B status.

At 11:30, RBM A is placed in the TRIPPED condition.

Based on the above conditions,

The RBM Downscale Control Rod block setpoint is _____ .

At 11:30, LCO 3.0.3 _____ be EXITED.

Reference Provided

A. 95%;
can

B. 95%;
can NOT

C. 93%;
can

D. 93%;
can NOT

80. 223002A2.01 001

Unit 2 is operating at 60% RTP when 600V Bus 2D de-energizes.

Maintenance reports it will take approximately 10 hours to repair.

With the above condition,

2G31-F004, RWCU Outboard Isolation, valve will _____ .

IAW Tech Specs, a Required Action Statement MUST be entered for _____ .

A. automatically close;
600VAC 2D ONLY

B. automatically close;
600VAC 2D and ALSO for Essential Cabinet 2B

C. remain open;
600VAC 2D ONLY

D. remain open;
600VAC 2D and ALSO for Essential Cabinet 2B

81. 259002G2.4.20 001

Unit 2 was operating 100% RTP when an event occurs resulting in the following conditions:

- o ATWS with reactor power 7% RTP

The Reactor is Emergency Depressurized due to a loss of ALL RWL indications.

At 10:00, reactor pressure is 400 psig

At 10:06, reactor pressure is 75 psig

IAW the EOPs and of the listed times, conditions to ALLOW injection into the RPV FIRST occurred at _____ .

A. 10:00 with ONLY one pump at rated flow

B. 10:00 with ALL available at rated flow

C. 10:06 with ONLY one pump at rated flow

D. 10:06 with ALL available at rated flow

82. 262002G2.4.46 001

Unit 2 is operating at 100% RTP when the Vital AC Bus, 2R25-S063, DE-ENERGIZES.

With the above condition,

Alarm TURBINE VACUUM LOW-LOW, (650-102), will be received _____ .

Once Vital AC is restored, guidance to reopen the 2N62-F057, Off Gas Stack Inlet Valve, is located in _____ .

A. immediately;
34AB-R25-001-2, Loss of Vital AC Bus

B. immediately;
34AB-N61-002-2, Main Condenser Vacuum Low

C. ONLY after Main Condenser vacuum degrades;
34AB-R25-001-2, Loss of Vital AC Bus

D. ONLY after Main Condenser vacuum degrades;
34AB-N61-002-2, Main Condenser Vacuum Low

83. 268000A2.01 001

Unit 2 is operating at 100% RTP.

Drywell Floor Drain Leakage has been 1.3 gpm for the last 48 hours.

At 09:15, a small pipe break in the Drywell occurs.

Subsequent Drywell Floor Drain Leakage rates were calculated at the following times:

09:20 2.1 gpm
09:40 5.1 gpm

At 10:15, 2G11-F003, Floor Drain Valve, fails CLOSED.

At 10:25, the following alarm is received on Panel 2H11-P602:

- o Drywell Floor Drains Sump Level High-High, 602-402

With the above Drywell leakage rates and conditions,

IAW TS LCO 3.4.4, RCS Operational Leakage, a Required Action Statement (RAS) is REQUIRED to be entered at _____ .

IAW TS Bases 3.4.5, RCS Leakage Detection Instrumentation, the LATEST listed time that the Drywell Floor Drain Sump Monitoring System will still be OPERABLE is _____ .

A. 09:20;
10:14

B. 09:20;
10:24

C. 09:40;
10:14

D. 09:40;
10:24

84. 295001G2.1.7 001

Unit 2 was operating at 100% RTP with both Recirc pump speeds at 99% when ASD "2A" malfunctions resulting in the following Recirc System indications:

At 11:00,

- o Jet Pump Total "A"Flow indication 28.6 Mlbm/hr
- o Jet Pump Total "B"Flow indication 42.2 Mlbm/hr

Subsequently, Recirc pump "B" speed is reduced which results in the following indications:

- o Jet Pump Total "A"Flow indication 31.3 Mlbm/hr
- o Jet Pump Total "B"Flow indication 36.3 Mlbm/hr

Based on the above conditions,

At 11:00, the MAXIMUM amount of time that the Jet Pump flow mismatch can EXIST without exceeding Tech Specs RAS limits is _____ .

After Recirc "B" Loop Jet Pump flow is reduced to 36.3 Mlbm/hr, Tech Specs RAS Jet Pump flow mismatch limits _____ SATISFIED.

A. 12 hours;
are

B. 12 hours;
are NOT

C. 24 hours;
are

D. 24 hours;
are NOT

85. 295006AA2.02 001

At 11:00, **Unit 1** was operating at 6% RTP.

A low RWL scram occurs resulting in the following conditions:

- o Twenty (20) Control rods at position 14
- o Eight (8) Control rods at position 08
- o ALL other Control rods at position 00
- o All IRMs are on RANGE 6 indicating mid-scale

At 11:01, the SRO enters 31EO-EOP-011-1, RCA RPV Control (ATWS).

At 11:04, the following conditions are reported:

- o Ten (10) Control rods at position 14
- o ALL other Control rods at position 00
- o All IRMs are on RANGE 3 indicating mid-scale

NO Boron has been injected.

All Containment and Reactor parameters are within normal bands following the scram.

IAW 31EO-EOP-011-1, RCA RPV Control (ATWS),

At 11:01, the SRO directed the OATC to insert Control rods using _____ .

At 11:04, RC/Q path _____ required to be exited.

A. 34AB-C11-005-1, Control Rod Insertion Methods; is

B. 34AB-C11-005-1, Control Rod Insertion Methods; is NOT

C. 31EO-EOP-103-1, EOP Control Rod Insertion Methods; is

D. 31EO-EOP-103-1, EOP Control Rod Insertion Methods; is NOT

86. 295008AA2.01 001

Unit 2 has scrammed from 100% RTP due to MSIV closure.

The following conditions exist:

o Reactor Power	3% and slowly increasing
o RWL	62 inches and slowly increasing
o RPV Pressure	Maintained by LLS
o HPCI injection flowrate	4000 gpm
o Torus Temperature	101°F and slowly increasing

The HPCI System high RWL trip setpoint is _____ .

With the above conditions, the SS will order ALL injection into the RPV stopped, except CRD, IAW _____ .

A. 51.7 inches;
34AB-C32-001-2, Reactor Water Level Above +60 inches

B. 51.7 inches;
31EO-EOP-113-2, Terminating and Preventing Injection into the RPV

C. 54.0 inches;
34AB-C32-001-2, Reactor Water Level Above +60 inches

D. 54.0 inches;
31EO-EOP-113-2, Terminating and Preventing Injection into the RPV

87. 295014G2.4.11 001

Unit 2 is operating at 76% RTP when a loss of feedwater heating event results in a feedwater temperature reduction to 360°F.

- o ALL required Reactor power reductions are complete
- o Verification of Core thermal limits is in progress

With the above conditions,

IAW 34AB-N21-001-2, Loss Of Feedwater Heating, the MAXIMUM listed Reactor power ALLOWED is _____ .

Reference Provided

A. 55% RTP;

B. 65% RTP;

C. 72% RTP;

D. 76% RTP;

88. 295024EA2.02 001

Unit 1 is operating at 100% RTP when a loss of Drywell Cooling occurs.

34AB-T47-001-1, Complete Loss of Drywell Cooling, is in progress.

The Drywell temperatures on Attachment 1, Peak Drywell Temperature, are exceeded.

The following Drywell conditions exist:

- o Drywell pressure is being manually controlled between 0.5 psig and 1.2 psig
- o Average Drywell temperature is 190°F

Based on the above conditions,

IAW 34AB-T47-001-1, the MAXIMUM amount of time that the existing Drywell conditions can exist before requiring a fast reactor shutdown is _____ .

IAW Unit 1 TS Bases 3.6.1.5, Drywell Air Temperature, if a DBA LOCA were to occur, the resultant peak accident temperature _____ EXCEED the Drywell design temperature.

A. 30 minutes;
will

B. 30 minutes;
will NOT

C. 60 minutes;
will

D. 60 minutes;
will NOT

89. 295026EA2.01 001

Unit 1 scrammed on low reactor water level due to a loss of the Condensate system.

Current plant conditions are:

- o Control rods ..... Fully inserted
- o Reactor Water Level ..... -135 inches and stable
- o RPV Pressure ..... 880 psig and stable
- o Torus Level ..... 160 inches and stable

IAW 31EO-EOP-012-1, Primary Containment Control EOP Flowchart and the above conditions,

The LOWEST listed Torus Temperature at which the plant will be in the UNSAFE region of the Heat Capacity Temperature Limit (HCTL) is _____ .

With a Torus temperatue of 200°F, the Shift Supervisor will order _____ .

Reference provided

A. 165°F;
a RPV pressure band that places the plant in the SAFE region of HCTL Graph, without exceeding the cooldown rate limit, IAW 31EO-EOP-010-1, RC RPV Control (NON-ATWS) RC/P path

B. 165°F;
an Emergency Depressurization of the RPV IAW 31EO-EOP-015-1, CP-1 Alternate Level Control, Steam Cooling, & Emergency RPV Depressurization

C. 180°F;
a RPV pressure band that places the plant in the SAFE region of HCTL Graph, without exceeding the cooldown rate limit, IAW 31EO-EOP-010-1, RC RPV Control (NON-ATWS) RC/P path

D. 180°F;
an Emergency Depressurization of the RPV IAW 31EO-EOP-015-1, CP-1 Alternate Level Control, Steam Cooling, & Emergency RPV Depressurization

90. 295028EA2.05 001

Unit 2 has experienced a small LOCA and the following conditions currently exist:

- o RWL ..... 9 inches / stable
- o RPV pressure ..... 950 psig / stable
- o Torus level ..... 150 inches / stable
- o Torus pressure ..... 6.5 psig, rising 1.0 psig/minute
- o Drywell pressure ..... 8.0 psig, rising 1.0 psig/minute
- o Bulk Average Drywell temperature ... 275°F, rising 2°F/minute
- o 2E11-F016A, RHR DW Spray Valve, has failed closed and CANNOT be opened

IAW 31EO-EOP-012-2, PC chart, with the above conditions, which ONE of the choices below completes the following statements?

On the Drywell temperature path (DW/T), Torus Spray _____ REQUIRED to be placed into service PRIOR to spraying the Drywell.

Without additional operator actions and five (5) minutes later, the Shift Supervisor will direct the NPO to _____ .

Reference Provided

A. is;
place RHR Loop B in Drywell Spray

B. is;
Emergency Depressurize the reactor

C. is NOT;
place RHR Loop B in Drywell Spray

D. is NOT;
Emergency Depressurize the reactor

91. 295035EA2.01 001

Unit 2 is operating at 100% RTP with 2T41-C007A, Rx Bldg Vent Exhaust Fan, Danger Tagged out of service.

At 12:05, 2T41-C007B, Rx Bldg Vent Exhaust Fan, experiences a shaft failure resulting in the following conditions:

- o RB INSIDE TO OUTSIDE AIR DIFF PRESS LOW, (654-001), alarm is received
- o Secondary Containment (SC) Differential Pressure (dP) is (+) 0.5 inches WC

At 12:10, Unit 2 Reactor Building Ventilation is secured and SC dP is 0.0 inches WC.

At 12:11, SBGT 2A and 2B are started with 3900 SCFM each and SC dP is (-) 0.05 inches WC and becoming more negative.

At 12:13, SC dP is (-) 0.15 inches WC and stable, 654-001 alarm is clear.

Based on the above conditions,

IAW TS Bases 3.6.4.1, Secondary Containment, TS LCO 3.6.4.1, Secondary Containment, is FIRST required to be entered at _____ .

A. 12:05

B. 12:10

C. 12:11

D. 12:13

92. 295038G2.4.8 001

Unit 2 is operating at 50% RTP due to a fuel leaker.

A Seismic Event causes a Group 1 Isolation and results in the following:

- o RWL is -135 inches and slowly increasing with HPCI
- o All Low Pressure ECCS systems are UNAVAILABLE
- o LEAK DET AMBIENT TEMP HIGH (601-327) is alarming
- o RCIC ISOL TIMER INITIATED, (602-303) is alarming
- o Radiation levels in the Reactor Building cause Secondary Containment to ISOLATE
- o Offsite dose rate at the Site Boundary is 0.7 mr/hr TEDE

Based on the above conditions,

The RCIC System will be isolated IAW _____ .

IAW 31EO-EOP-014-2, Secondary Containment Control/Radioactivity Release Control, the Reactor Building Ventilation _____ ALLOWED to be restarted.

A. 34AB-D11-001-2, Radioactivity Release Control; is

B. 34AB-D11-001-2, Radioactivity Release Control; is NOT

C. 31EO-EOP-100-2, Miscellaneous Overrides; is

D. 31EO-EOP-100-2, Miscellaneous Overrides; is NOT

93. 600000G2.4.47 001

Unit 1 and **Unit 2** are operating at 100% RTP.

A fire is detected on the Master Fire Panel for ZONE 2T43130D02.

At 10:10, an Emergency is declared based on the fire.

With the above conditions,

The Fire Brigade was directed to report to the 130 elevation, _____ .

IAW NMP-AD-031, SNC Reportability Roles, Responsibilities, and Fleet Requirements, the NRC Operations Center is REQUIRED to be notified NO LATER THAN _____ .

Reference Provided

A. North CRD Area;
10:24

B. North CRD Area;
11:09

C. East Cableway;
10:24

D. East Cableway;
11:09

94. G2.1.39 001

Security has just notified the Main Control Room that armed intruders have just penetrated the Protected Area and are headed towards the Service Building.

- o Both Units are manually scrammed
- o An Emergency has been declared IAW NMP-EP-110, Emergency Classification Determination

IAW 34AB-Y22-004-0, Intruder Based Security Threat, and based on the above conditions,

A portion of the PA announcement required by 34AB-Y22-004-0 is for "All TSC and OSC emergency response personnel _____ ".

A cooldown of greater than 100°F/hr _____ REQUIRED to be initiated.

A. assemble in the Simulator Building, first floor, east wing;
is

B. assemble in the Simulator Building, first floor, east wing;
is NOT

C. wait on further instructions;
is

D. wait on further instructions;
is NOT

95. G2.2.14 001

Unit 2 is operating at 100% RTP with the following conditions:

- o 34SV-E41-002-2, HPCI Pump Operability, is in progress
- o RHR B Loop is operating in Torus Cooling Mode

Subsequently, an NPO reports to the Shift Supervisor the following Off-Normal valve positions:

- o 2E11-F028B, Torus Spray or Test Vlv, OPEN
- o 2E11-F024B, Full Flow Test Line Vlv, OPEN
- o 2E11-F048B, Hx Bypass Vlv, CLOSED
- o 2E41-F008, Test To CST Vlv, OPEN
- o 2E41-F011, Test To CST Vlv, OPEN

31GO-OPS-006-0, Conditions, Required Actions and Completion Times, is entered.

The above valve positions will be restored to their normal position before the end of the shift.

With the above valve positions,

ONLY _____ is considered INOPERABLE.

A Required Action Sheet (RAS) (OPS-1349) _____ REQUIRED to be initiated.

A. RHR;
is

B. RHR;
is NOT

C. HPCI;
is

D. HPCI;
is NOT

96. G2.2.25 001

Unit 2 is operating at 100% RTP when the following occurs:

The 30 amp DC breaker for ACB 135594, 4160V Bus "2G" Normal Supply breaker TRIPS.

- o The 30 amp DC breaker CANNOT be closed
- o 4160V Bus "2G" is on Alternate Supply from SAT 2C
- o 4160V Bus "2E" is on Normal Supply from SAT 2D
- o 4160V Bus "2F" is on Normal Supply from SAT 2D

With the above conditions;

IAW TS Bases 3.8.1, AC Sources - Operating, entry into a TS Required Action Statement (RAS) _____ REQUIRED.

If the Main Generator trips, the MAXIMUM number of Station Service Buses that will be energized is _____ .

A. is;
zero (0)

B. is;
two (2)

C. is NOT;
zero (0)

D. is NOT;
two (2)

97. G2.3.12 001

Unit 1 is in Mode 2 at 9% RTP to inspect the Drywell for leakage.

Upon Drywell entry, it is identified that the INNER airlock door seal is no longer intact.

A Required Action Statement (RAS) is written for the INNER airlock door.

- o The OUTER airlock door has been verified to be locked closed
- o Parts to repair the INNER airlock door seal will be onsite in 60 days

IAW Tech Spec 3.6.1.2, Primary Containment Airlock, and Bases,

When performing verification requirements, the next TS verification _____ be accomplished administratively (i.e. without entering the Drywell Access).

While Maintenance is actively repairing the INNER Airlock door, the OUTER Airlock door _____ .

A. can NOT;
must be immediately closed after each entry and exit

B. can NOT;
can be left open while Maintenance workers are in the airlock;

C. can;
must be immediately closed after each entry and exit

D. can;
can be left open while Maintenance workers are in the airlock;

98. G2.3.15 001

An unisolable RCIC steam line break occurs on **Unit 2** resulting in an Emergency declaration.

The following elevated radiation levels occur in the Reactor Building at the given times;

Time	2D21-K601V	2D21-K601F
11:00	75 mR/hr	60 mR/hr
12:00	1050 mR/hr	900 mR/hr

Based on the above conditions,

A Group 2 Isolation signal _____ automatically occur.

IAW NMP-EP-110-GL02, HNP EALs - ICs, Threshold Values and Basis, the EARLIEST listed time that conditions are met REQUIRING an upgrade to the Emergency Classification is _____ .

REFERENCE PROVIDED

A. will;
11:00

B. will;
12:00

C. will NOT;
11:00

D. will NOT;
12:00

99. G2.4.9 001

Unit 1 was operating at 5% RTP when an unisolable MSL break occurs in the Turbine Bldg.

At 12:30,

- o A radiation release is in progress
- o An Emergency is declared

At 13:00, NMP-EP-104-F07, Offsite Dose Assessment Hatch Prompt Offsite Dose Assessment, (PODA) results in the following:

- o 1 mile is 1200 mr/hr TEDE
- o 2 mile is 600 mr/hr TEDE

At 13:02, an Emergency Depressurization is performed

At 13:15, NMP-EP-104-F07 is performed again resulting in the following:

- o 1 mile is 50 mr/hr TEDE
- o 2 mile is 20 mr/hr TEDE

Based on the above conditions,

NMP-EP-112, Protective Action Recommendations, _____ REQUIRED to be entered.

Based on the results of the PODA at 13:15 and IAW NMP-EP-104-F07, the Emergency classification _____ be DOWNGRADED.

A. is;
can

B. is;
can NOT

C. is NOT;
can

D. is NOT;
can NOT

100. G2.4.31 001

At 12:59, **Unit 2** experiences a complete Loss of Offsite Power (LOSP).

At 13:00, ALL 4160 VAC buses are de-energized.

The following conditions occur on Unit 2:

At 13:10, Drywell pressure increases to 2.0 psig due to loss of Drywell Chillers
At 13:12, 4160 VAC bus 2E is energized
At 13:19, A small break LOCA occurs
At 13:20, Drywell pressure increases to 8.5 psig and continues to slowly increase
At 13:25, 4160 VAC bus 2G is energized

Based on the above conditions,

The EARLIEST listed time that the EOP actions will take precedence over 34AB-R22-003-2, Station Blackout, is _____ .

A. 13:10

B. 13:12

C. 13:20

D. 13:25

ILT-09 SRO NRC EXAM

ANSWER KEY

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

99. (A) **(B)** (C) (D)
100. (A) (B) **(C)** (D)

NRC SRO REFERENCES

SRO EXAM

1. 34AB-B21-002-2, RPV Water Level Corrections, Att. 1, Att. 3 & Att. 4
2. Unit 2 EOP Graph 17A HPCI Pump NPSH Limit Above 146
3. Unit 2 EOP Graph 17A and 17B HPCI Pump NPSH Limit Below 146
4. Unit 2 TS 3.3.2.1 Control Rod Block Instrumentation
5. 34AB-N21-001-2, Loss of Feedwater Heating, Att. 1
6. Unit 1 EOP Graph 2, Heat Capacity Temperature Limit
7. Unit 1 EOP Graph 6, SRV Tail Pipe Limit
8. Unit 1 Graph 8 Drywell Spray Initiation Curve
9. 34SO-Z43-001-0, Operation Of The Multiplex Fire Detection System, Attachment 4
10. Unit 2 31EO-EOP-014-2, SC/RR Table 6

RTD	INDICATOR	PANEL
RTD GROUP 1		
• 2T47-N001K ①	2T47-R627, Point 8	2H11-P650
• 2T47-N010 ①	2T47-R627, Point 13	2H11-P650
• 2T47-N014	2T47-R620	2H11-P657
RTD GROUP 2		
• 2T47-N001A ①	2T47-R626, Point 7	2H11-P657
• 2T47-N002 ①	2T47-R626, Point 10	2H11-P657
• 2T47-N015	2T47-R621	2H11-P654
RTD GROUP 3		
• 2T47-N003 ①	2T47-R627, Point 10	2H11-P650
• 2T47-N001M ①	2T47-R627, Point 9	2H11-P650
RTD GROUP 4		
• 2T47-N001L ①	2T47-R626, Point 9	2H11-P657
• 2T47-N009 ①	2T47-R626, Point 14	2H11-P657

① SPDS Indications may be used for RTD temperature indications

CAUTION 1

RPV WATER LEVEL INSTRUMENT MAY BE USED ONLY WHEN BOTH OF THE FOLLOWING CONDITIONS ARE MET FOR THAT INSTRUMENT:

1. THERE IS NO INDICATION OF ERRATIC INSTRUMENT BEHAVIOR (BOILING COULD OCCUR WHEN THE HIGHEST TEMPERATURE IN THE RTD GROUP IS ABOVE THE RPV SATURATION TEMPERATURE (ATTACHMENT 2 OR SPDS).

   INCREASE INSTRUMENT MONITORING WHEN RPV SATURATION TEMPERATURE FOR INSTRUMENT IS REACHED.

INSTRUMENT	RTD GROUP
NARROW RANGE (0 to +60 IN.)	
- 2C32-R606A & C	1
- 2C32-R606B	2
WIDE RANGE (-150 to +60 IN.)	
- 2B21-R604A & R623A	1
- 2B21-R604B & R623B	2
FLOODUP RANGE (-0 to +400 IN.)	
- 2B21-R605	1 & 2
FLOODUP RANGE (0 to +200 IN.)	
- 2C32-R655	1 & 2
FUEL ZONE RANGE (-317 TO -17 IN.)	
- 2B21-R623B	2 & 3
- 2B21-R623A	1 & 4

CAUTION 1 (CONTINUED)

2. FOR THE FOLLOWING TABLE, THE WATER LEVEL INSTRUMENT READS ABOVE MINIMUM INDICATED LEVEL FOR THE ASSOCIATED MAXIMUM RUN TEMPERATURE MEASURED BY THE HIGHEST TEMPERATURE IN THE ASSOCIATED RTD GROUP.

a. NARROW RANGE (0 TO +60 IN.)

INSTRUMENT	RTD GROUP
2C32-R606A & C	1
2C32-R606B	2

MINIMUM INDICATED LEVEL (IN.)	MAXIMUM RUN TEMPERATURE (°F)
0	UP TO 273
6	274 TO 350
9	351 TO 399
27	400 OR ABOVE

b. WIDE RANGE (-150 TO +60 IN)

INSTRUMENT	RTD GROUP
2B21-R604A & R623A	1
2B21-R604B & R623B	2

MINIMUM INDICATED LEVEL (IN.)	MAXIMUM RUN TEMPERATURE (°F)
- 150	UP TO 197
- 130	198 TO 350
- 122.5	351 TO 399
- 90	400 OR ABOVE

c. FLOODUP RANGE

INSTRUMENT	RTD GROUP
2B21-R605 (0 TO +400 IN.)	1
2C32-R655 (0 TO +200 IN.)	2

MINIMUM INDICATED LEVEL (IN.)	MAXIMUM RUN TEMPERATURE (°F)
0	UP TO 190
16	191 TO 250
46	251 TO 350
60	351 TO 399
102	400 OR ABOVE

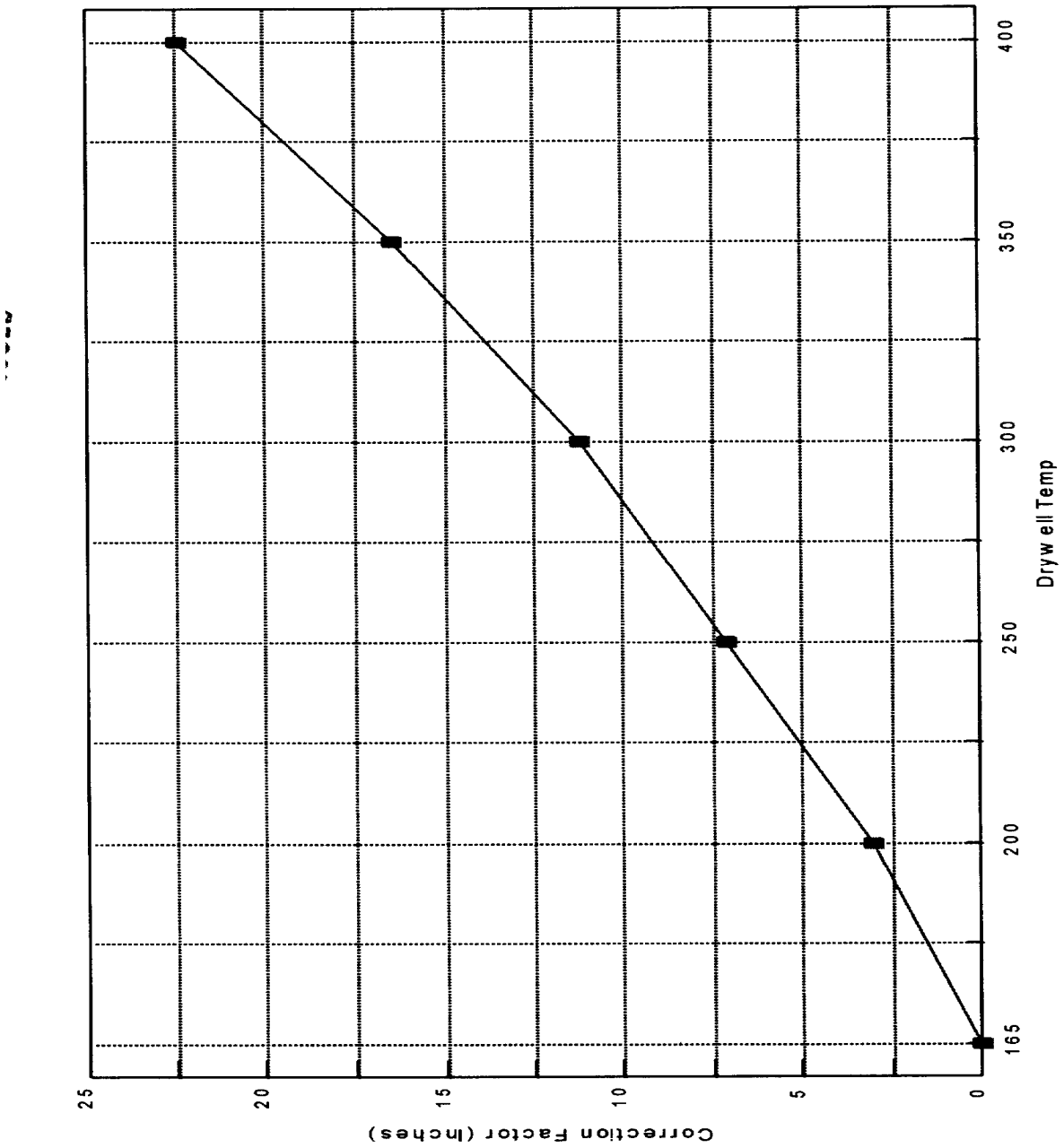
d. FUEL ZONE (-317 TO -17 IN.)

INSTRUMENT	RTD GROUP
2B21-R623B	2
2B21-R623A	1

MINIMUM INDICATED LEVEL (IN.)	MAXIMUM RUN TEMPERATURE (°F)
- 317	UP TO 280
- 299	281 AND ABOVE

IND LEVEL	CORRECTED LEVEL					IND LEVEL
	0 PSIG	200 PSIG	400 PSIG	600 PSIG	800 PSIG	
-17	-28	11	31	48	65	-17
-20	-31	7	28	45	61	-20
-25	-36	2	22	39	55	-25
-30	-41	-4	16	33	48	-30
-35	-46	-9	10	27	42	-35
-40	-51	-15	4	21	36	-40
-45	-56	-20	-1	15	30	-45
-50	-61	-26	-7	9	23	-50
-55	-66	-31	-13	3	17	-55
-60	-71	-37	-19	-4	11	-60
-65	-76	-42	-25	-10	5	-65
-70	-81	-48	-30	-16	-2	-70
-75	-86	-54	-36	-22	-8	-75
-80	-91	-59	-42	-28	-14	-80
-85	-96	-65	-48	-34	-20	-85
-90	-101	-70	-54	-40	-27	-90
-95	-106	-76	-59	-46	-33	-95
-100	-111	-81	-65	-52	-39	-100
-105	-116	-87	-71	-58	-46	-105
-110	-121	-92	-77	-64	-52	-110
-115	-126	-98	-83	-70	-58	-115
-120	-131	-103	-88	-76	-64	-120
-125	-136	-109	-94	-82	-71	-125
-130	-141	-114	-100	-88	-77	-130
-135	-146	-120	-106	-94	-83	-135
-140	-151	-125	-112	-100	-89	-140
-145	-156	-131	-117	-106	-96	-145
-150	-161	-136	-123	-112	-102	-150
-155	-166	-142	-129	-118	-108	-155
-160	-171	-147	-135	-124	-114	-160
-165	-176	-153	-141	-130	-121	-165

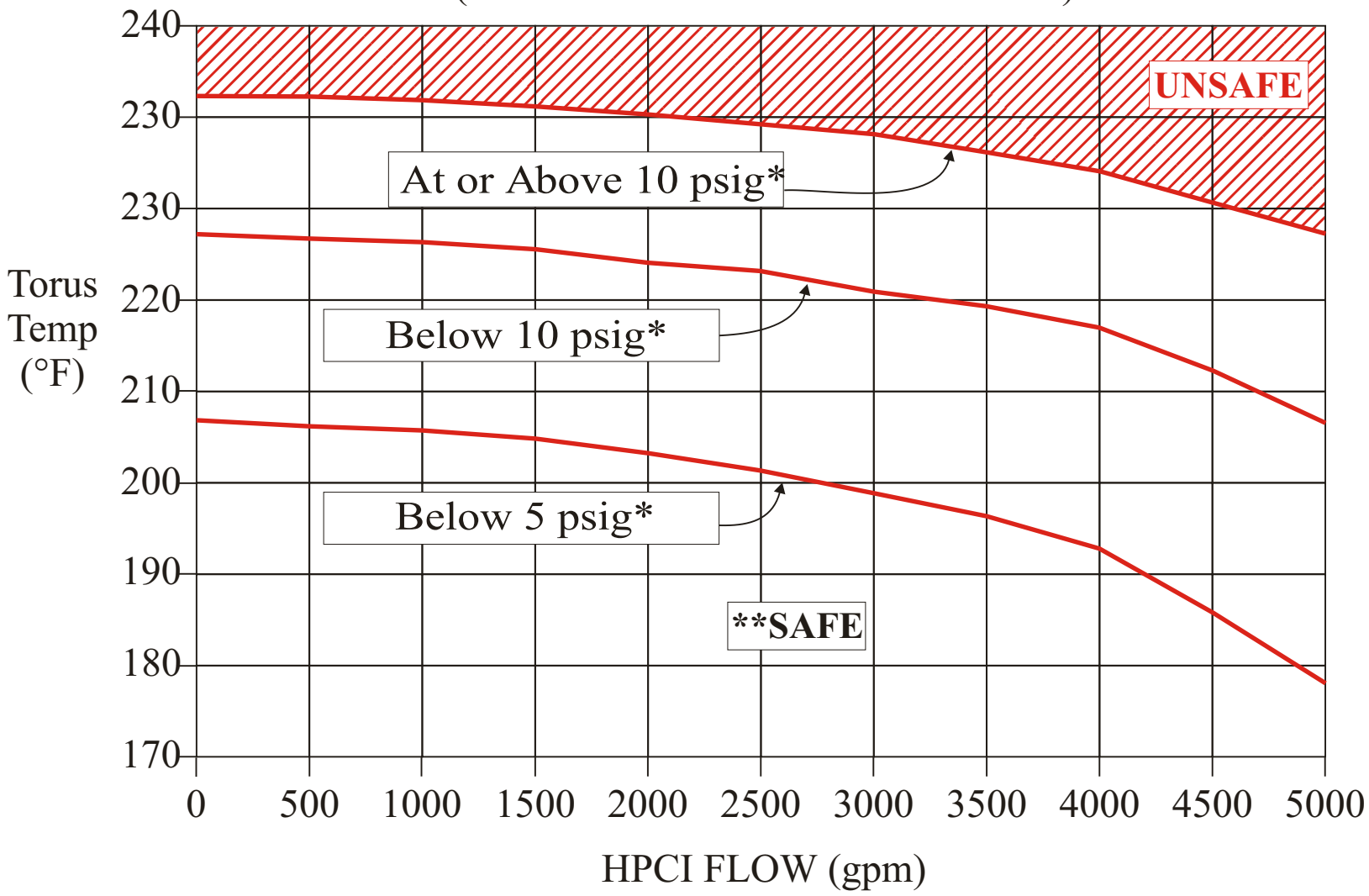
IND LEVEL	CORRECTED LEVEL					IND LEVEL
	0 PSIG	200 PSIG	400 PSIG	600 PSIG	800 PSIG	
-170	-181	-158	-146	-136	-127	-170
-175	-186	-164	-152	-142	-133	-175
-180	-191	-170	-158	-148	-139	-180
-185	-196	-175	-164	-154	-146	-185
-190	-201	-181	-170	-161	-152	-190
-195	-206	-186	-175	-167	-158	-195
-200	-211	-192	-181	-173	-164	-200
-205	-216	-197	-187	-179	-171	-205
-210	-221	-203	-193	-185	-177	-210
-215	-226	-208	-199	-191	-183	-215
-220	-231	-214	-204	-197	-189	-220
-225	-236	-219	-210	-203	-196	-225
-230	-241	-225	-216	-209	-202	-230
-235	-246	-230	-222	-215	-208	-235
-240	-251	-236	-228	-221	-214	-240
-245	-256	-241	-234	-227	-221	-245
-250	-261	-247	-239	-233	-227	-250
-255	-266	-252	-245	-239	-233	-255
-260	-271	-258	-251	-245	-240	-260
-265	-276	-263	-257	-251	-246	-265
-270	-281	-269	-263	-257	-252	-270
-275	-286	-274	-268	-263	-258	-275
-280	-291	-280	-274	-269	-265	-280
-285	-296	-286	-280	-275	-271	-285
-290	-301	-291	-286	-281	-277	-290
-295	-306	-297	-292	-287	-283	-295
-300	-311	-302	-297	-293	-290	-300
-305	-316	-308	-303	-299	-296	-305
-310	-321	-313	-309	-305	-302	-310
-315	-326	-319	-315	-311	-318	-315
-317	-328	-321	-317	-314	-311	-317


Drywell Temp
400
350
300
250
200
165
25
20
15
10
5
0
Correction Factor (Inches)

GRAPH 17A

UNIT 2

HPCI PUMP NPSH LIMIT
(Torus Water Level At or Above 146")



NOTE: May use SPDS Emergency Displays in place of this Graph.

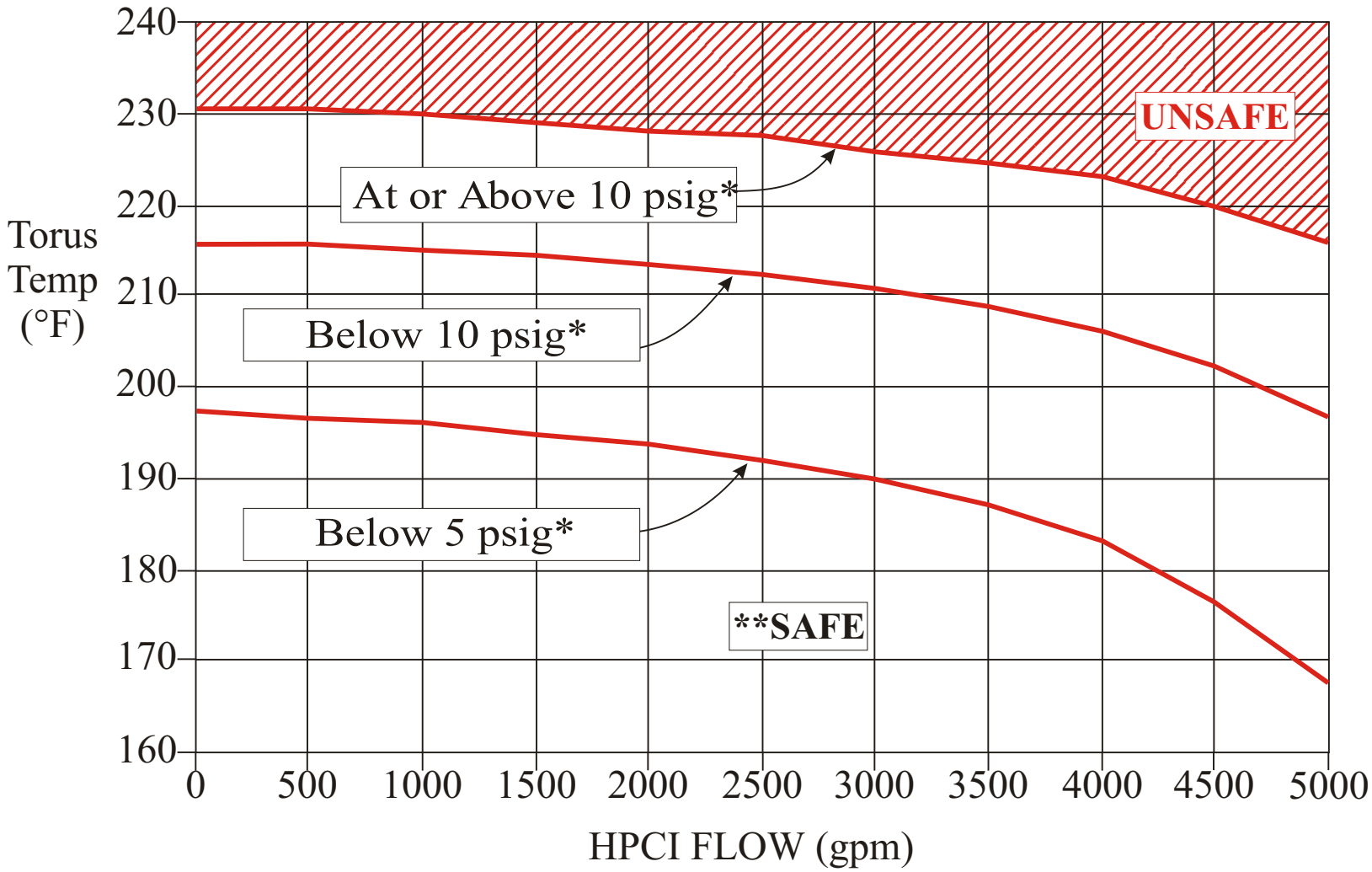
* Suppression Chamber Pressure.

** Safe operating region is below the applicable pressure line.

GRAPH 17B

UNIT 2

HPCI PUMP NPSH LIMIT
(Torus Water Level Below 146")



NOTE: May use SPDS Emergency Displays in place of this Graph.

* Suppression Chamber Pressure.

** Safe operating region is below the applicable pressure line.

3.3 INSTRUMENTATION

3.3.2.1 Control Rod Block Instrumentation

LCO 3.3.2.1 The control rod block instrumentation for each Function in Table 3.3.2.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.2.1-1.

ACTIONS

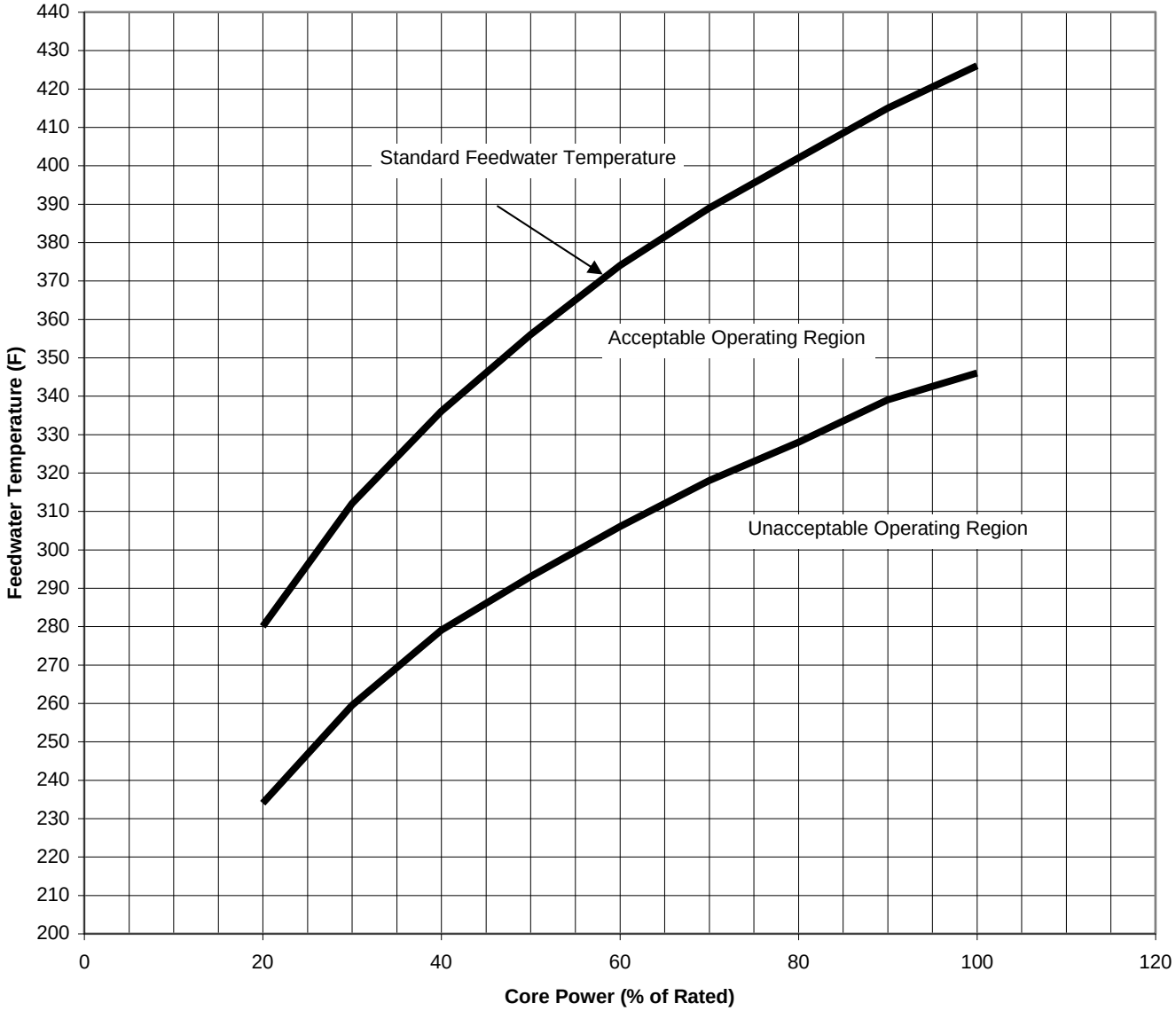
CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One rod block monitor (RBM) channel inoperable.	A.1 Restore RBM channel to OPERABLE status.	24 hours
B. Required Action and associated Completion Time of Condition A not met. OR Two RBM channels inoperable.	B.1 Place one RBM channel in trip.	1 hour
C. Rod worth minimizer (RWM) inoperable during reactor startup.	C.1 Suspend control rod movement except by scram. OR C.2.1.1 Verify ≥ 12 rods withdrawn. OR	Immediately Immediately

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	C.2.1.2 Verify by administrative methods that startup with RWM inoperable has not been performed in the last calendar year. AND	Immediately
	C.2.2 Verify movement of control rods is in compliance with banked position withdrawal sequence (BPWS) by a second licensed operator or other qualified member of the technical staff.	During control rod movement
D. RWM inoperable during reactor shutdown.	D.1 Verify movement of control rods is in compliance with BPWS by a second licensed operator or other qualified member of the technical staff.	During control rod movement
E. One or more Reactor Mode Switch - Shutdown Position channels inoperable.	E.1 Suspend control rod withdrawal. AND	Immediately
	E.2 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately

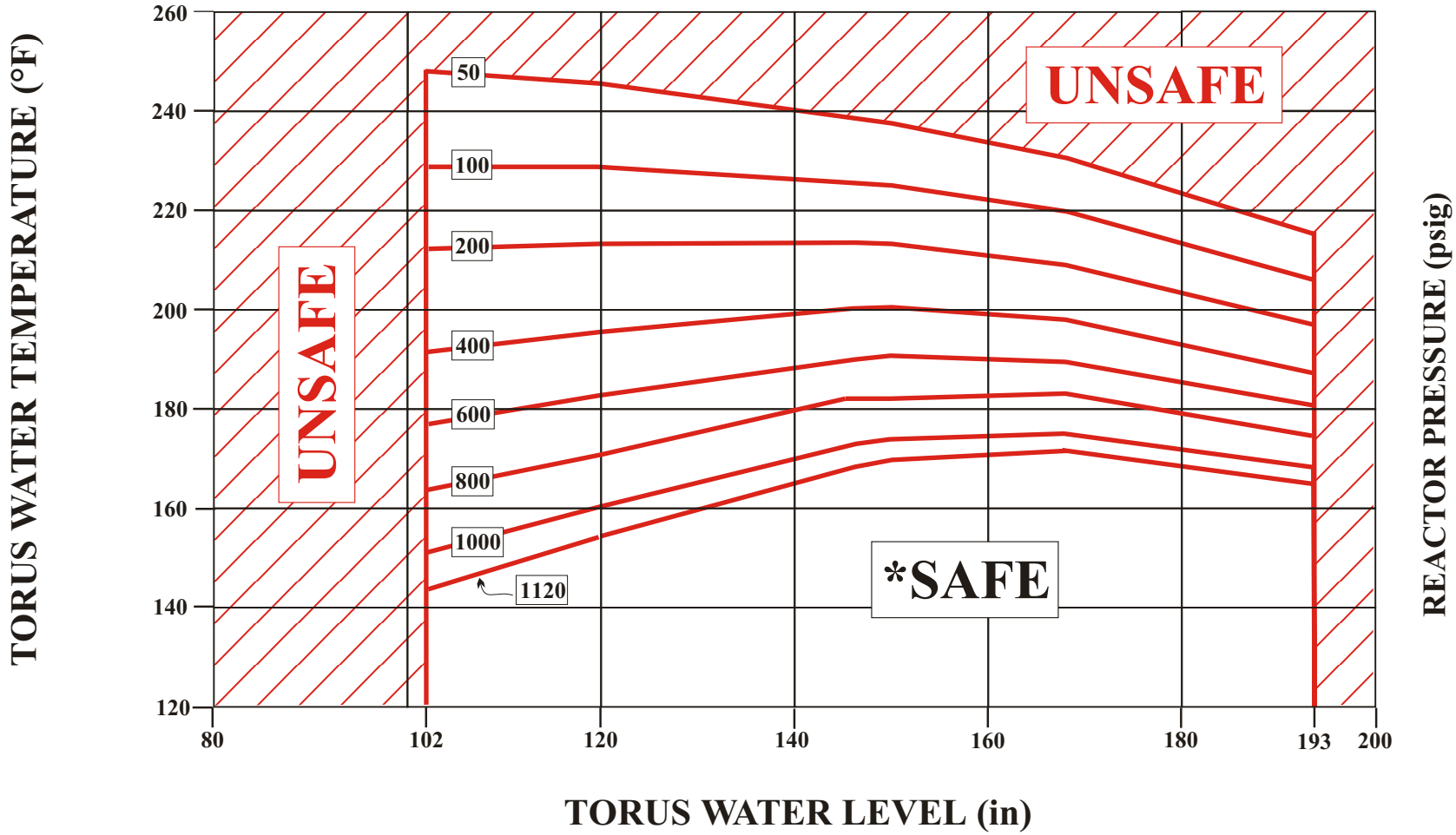
Unit 2 Acceptable Operating Region



GRAPH 2

UNIT 1

HEAT CAPACITY TEMPERATURE LIMIT



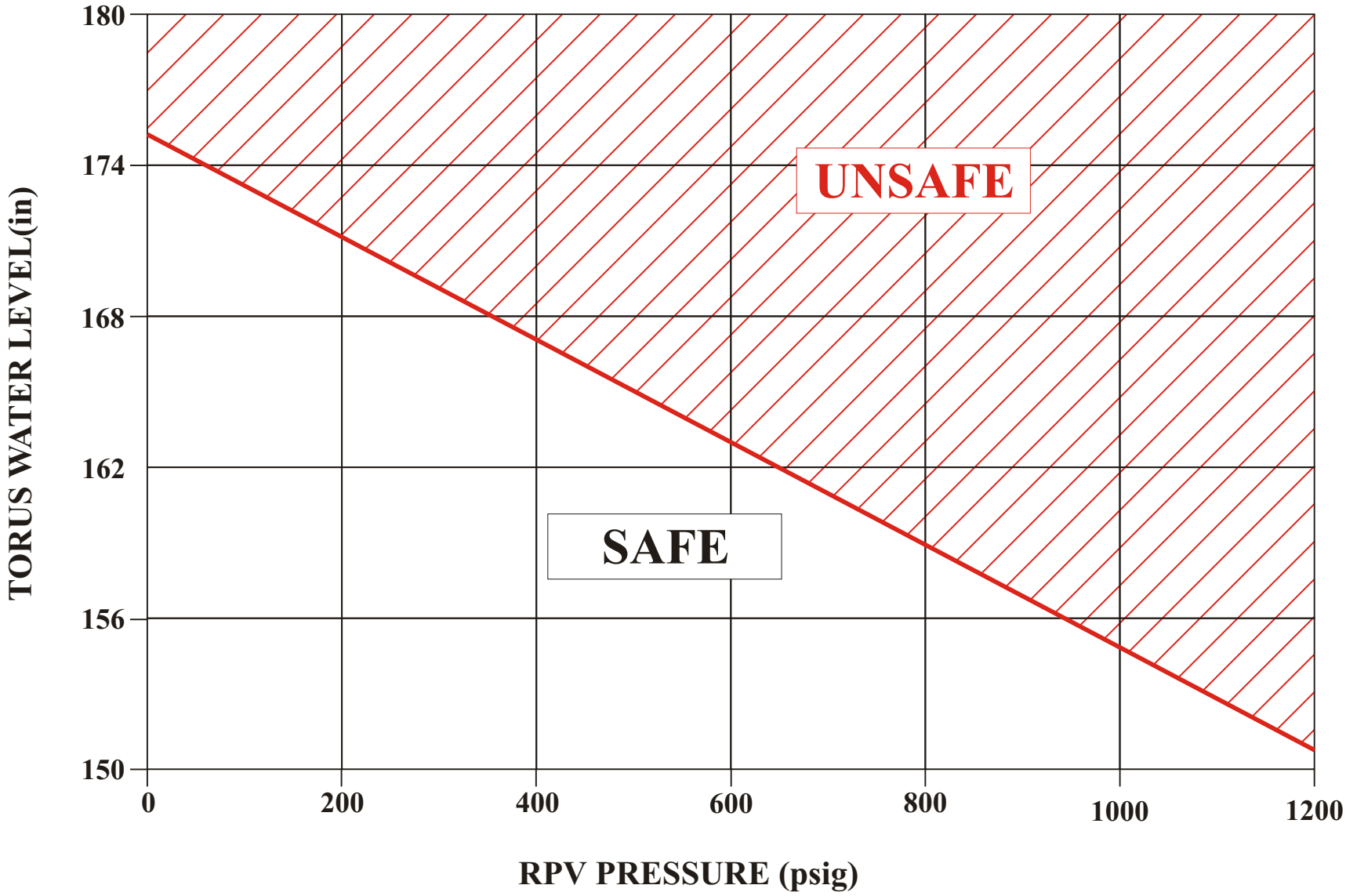
NOTE: May use SPDS Emergency Displays in place of this Graph.

*** Safe operating is below the applicable pressure line.**

GRAPH 6

UNIT 1

SRV TAIL PIPE LEVEL LIMIT

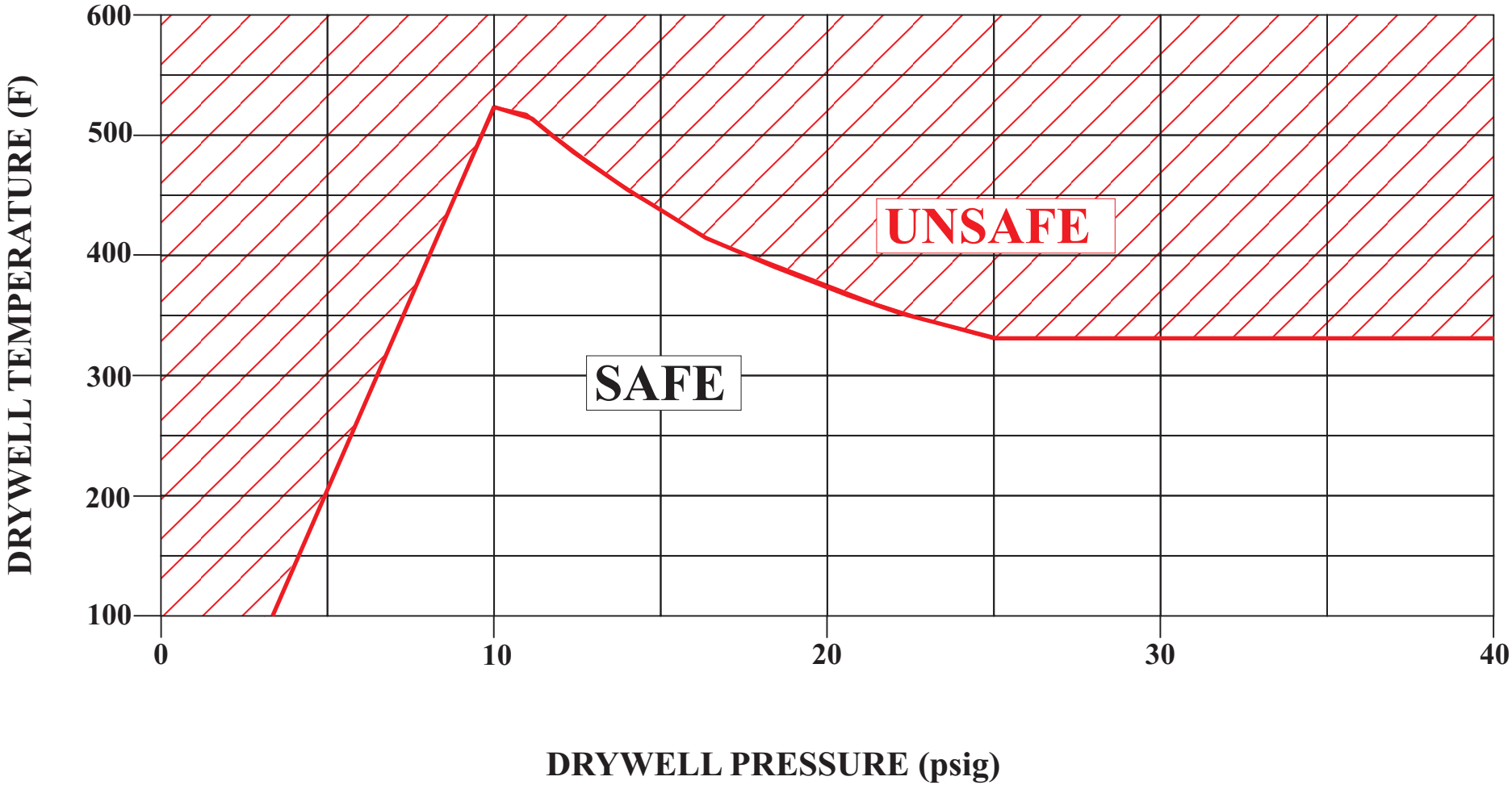


NOTE: May use SPDS Emergency Displays in place of this Graph.

GRAPH 8

UNIT 1

DRYWELL SPRAY INITIATION LIMIT



NOTE: May use SPDS Emergency Displays in place of this Graph.

ZONE TABLE

ZONE	MINIMUM NO ROD	INSTRUMENT	SLAVE	SUB SLAVE	DESCRIPTION
1T43087 D02	1	1T43N411 AF	A		E TORUS WATER CURTAIN
1T43087 D04	1	1T43N411 AH	A		W TORUS WATER CURTAIN
1T43087 D08	1	1T43N411 AG	A		SE PUMP ROOM
1T43087 D09	1	1T43N411 AE	A		NE RHR PUMP ROOM
1T43130 D02	4	1T43N406 AA 1T43N406 AB 1T43N406 AC 1T43N406 AD 1T43N406 AE 1T43N406 AZ 1T43N406 BA 1T43N406 BB	A		SW WATER CURT EL 130
1T43130 D04	1	1T43N411 AA 1T43N448 AC	A	ALIS* PROT**	S RX BLDG CRD AREA
1T43130 D05	1	1T43N406 AN 1T43N406 AP 1T43N406 AQ	A		SE CORNER EL 130
1T43130 D07	1	1T43N411 AC 1T43N448 AB	A	ALIS PROT	E WATER CURT EL 130
1T43130 D08	1	1T43N406 AK 1T43N406 AL 1T43N406 AM	A		NE CORNER EL 130
1T43130 D09	1	1T43N411 AB 1T43N448 AA	A	ALIS PROT	N RX BLDG CRD AREA
1T43130 D10	2	1T43N406 AF 1T43N406 AG 1T43N406 AH 1T43N406 AJ	A		NW CORNER EL 130
1T43158 D04	4	1T43N406 AR 1T43N406 AS 1T43N406 AT 1T43N406 AU 1T43N406 AV 1T43N406 AW 1T43N406 AX 1T43N406 AY	A		E WATER CURTAIN EL 158

*Alison Panel is abbreviated as ALIS.
**Protectowire Panel is abbreviated as PROT

ZONE	MINIMUM NO ROD	INSTRUMENT	SLAVE	SUB SLAVE	DESCRIPTION
1T43164 D02	1	1T43N411 AD	A	ALIS	HVAC ROOM ZONE
1U43130 D02	6	1U43N406 AA 1U43N406 AB 1U43N406 AC 1U43N406 AD 1U43N406 AE 1U43N406 AF 1U43N406 AG 1U43N406 AH 1U43N406 AJ 1U43N406 AK 1U43N406 AL 1U43N406 AM	A		EAST CABLEWAY
1X43130C07	2 1	1X43N409 AK 1X43N409 AL 1X43N409 AM 1X43N409 AN 1X43N410 AE	A		DIESEL GEN SWGR RM 1E
1X43130C08	2 1	1X43N409 AF 1X43N409 AG 1X43N409 AH 1X43N409 AJ 1X43N410 AD	A		DIESEL GEN SWGR RM 1F
1X43130C09	2 1	1X43N409 AE 1X43N409 AB 1X43N409 AC 1X43N409 AD 1X43N410 AC	A		DIESEL GEN SWGR RM 1G
1Y43111 D02	4	1Y43N410 AA 1Y43N410 AB 1Y43N410 AC 1Y43N410 AD 1Y43N410 AE 1Y43N410 AF 1Y43N410 AG 1Y43N410 AH	A		INTAKE STRUCTURE

ZONE	MINIMUM NO ROD	INSTRUMENT	SLAVE	SUB SLAVE	DESCRIPTION
1Z43112 D01	10	1Z43N406 AJ 1Z43N406 AK 1Z43N406 AL 1Z43N406 AM 1Z43N406 AN 1Z43N406 AP 1Z43N406 AQ 1Z43N406 AR 1Z43N406 AS 1Z43N406 AT 1Z43N406 AU 1Z43N406 AV 1Z43N406 AW 1Z43N406 AX 1Z43N406 AY 1Z43N406 AZ 1Z43N406 BA 1Z43N406 BB 1Z43N406 BC 1Z43N406 BD	A		WORKING FLOOR
1Z43112 D03	1	1Z43N406 AC 1Z43N406 AD	A		WEST STAT BAT ROOM 1A
1Z43112 D04	1	1Z43N406 AA 1Z43N406 AB	A		EAST STAT BAT ROOM 1B
1Z43112 D05	1	1Z43N406 AG	A		AC INVERTER UNIT 1
1Z43112 D06	2	1Z43N406 AE 1Z43N406 AF	A		RPS BATTERY UNIT 1
1Z43112 D07	1	1Z43N406 AH	A		ANNUN LOGIC CABINET
1Z43112 D14	3	1Z43N406 FK 1Z43N406FL 1Z43N406FM 1Z43N406FN 1Z43N406FP 1Z43N406FQ	A		EAST CORRIDOR
1Z43130 D02	1	1Z43N411 AA 1Z43N448 AA	A	ALIS PROT	CORRIDOR UNIT 1

ZONE	MINIMUM NO ROD	INSTRUMENT	SLAVE	SUB SLAVE	DESCRIPTION
1Z43130 D04	1	1Z43N406 FA 1Z43N406 FB	A		WEST SWGR ROOM 1C
1Z43130 D05	1	1Z43N406 FE 1Z43N406 FF	A		EAST SWGR ROOM 1D
1Z43130 D06	1	1Z43N406 FC	A		WEST CR SWGR ROOM 1A
1Z43130 D07	1	1Z43N406 FD	A		XFMR ROOM 1
1Z43130 D08	1	1Z43N406 FG	A		EAST CR SWGR ROOM 1B
1Z43130 D09	11	1Z43N406 EF 1Z43N406 EG 1Z43N406 EH 1Z43N406 EJ 1Z43N406 EK 1Z43N406 EL 1Z43N406 EM 1Z43N406 EN 1Z43N406 EP 1Z43N406 EQ 1Z43N406 ER 1Z43N406 ES 1Z43N406 ET 1Z43N406 EU 1Z43N406 EV 1Z43N406 EW 1Z43N406 EX 1Z43N406 EY 1Z43N406 EZ 1Z43N406 GM 1Z43N406 GN 1Z43N406 GP	A		HEALTH PHYSICS LAB
1Z43130 D10	1	1Z43N406 FH	A		ANNUNCIATOR ROOM 1
1Z43130 D11	1	1Z43N406 FJ	A		RPS ROOM UNIT 1
1Z43130 D13	1	1Z43N411 AB	A		VERTICAL CABLEWAY
1Z43147 D04	1	1Z43N411 AC	A	ALIS	CBL SPREAD ROOM 1 & 2

ZONE	MINIMUM NO ROD	INSTRUMENT	SLAVE	SUB SLAVE	DESCRIPTION
1Z43147 D08	4	1Z43N406 FV 1Z43N406 FW 1Z43N406 FX 1Z43N406 FY 1Z43N406 FZ 1Z43N406 GA 1Z43N406 GB 1Z43N406 GC 1Z43N406 GD	A		LPCI INVERTER ROOM
1Z43164 D01	30	1Z43N406 BE 1Z43N406 BF 1Z43N406 BG 1Z43N406 BH 1Z43N406 BJ 1Z43N406 BK 1Z43N406 BL 1Z43N406 BM 1Z43N406 BN 1Z43N406 BP 1Z43N406 BQ 1Z43N406 BR 1Z43N406 BS 1Z43N406 BT 1Z43N406 BU 1Z43N406 BV 1Z43N406 BW 1Z43N406 BX 1Z43N406 BW 1Z43N406 BZ 1Z43N406 CA 1Z43N406 CB 1Z43N406 CC 1Z43N406 CD 1Z43N406 CE 1Z43N406 CF 1Z43N406 CG 1Z43N406 CH 1Z43N406 CJ 1Z43N406 CK 1Z43N406 CL 1Z43N406 CM 1Z43N406 CN	A		MAIN CONTROL ROOM

ZONE	MINIMUM NO ROD	INSTRUMENT	SLAVE	SUB SLAVE	DESCRIPTION
1Z43164 D01	30	1Z43N406 CP 1Z43N406 CQ 1Z43N406 CR 1Z43N406 CS 1Z43N406 CT 1Z43N406 CU 1Z43N406 CV 1Z43N406 CW 1Z43N406 CX 1Z43N406 CW 1Z43N406 CZ 1Z43N406 DA 1Z43N406 DB 1Z43N406 CR 1Z43N406 DD 1Z43N406 DE 1Z43N406 DF 1Z43N406 DG 1Z43N406 DH 1Z43N406 DJ 1Z43N406 DK 1Z43N406 DL 1Z43N406 DM 1Z43N406 DN 1Z43N406 DP 1Z43N410 AA 1Z43N410 AB	A		MAIN CONTROL ROOM
2T43087 D02	1	2T43N411 AA	C	ALIS	WEST TORUS WTR CURT
2T43087 D04	1	2T43N411 AC	C	ALIS	EAST TORUS WTR CURT
2T43087 D07	1	2T43N411 AB	C	ALIS	NE RHR PUMP ROOM
2T43087 D08	1	2T43N411 AD	C	ALIS	SE RHR PUMP ROOM
2T43130 D02	1	2T43N411 BA 2T43N448 AA	C C	ALIS PROT	N RX BLDG CRD AREA

ZONE	MINIMUM NO ROD	INSTRUMENT	SLAVE	SUB SLAVE	DESCRIPTION
2T43130 D04	1	2T43N411 BB 2T43N448 AB	C C	ALIS PROT	S RX BLDG CRD AREA
2T43130 D05	7 1	2T43N406 BA 2T43N406 BB 2T43N406 BC 2T43N406 BD 2T43N406 BE 2T43N406 BF 2T43N406 BG 2T43N406 BH 2T43N406 BJ 2T43N406 BK 2T43N406 BL 2T43N406 BM 2T43N406 BN 2T43N406 BP 2T43N448 AC	C C	 PROT	WATER CURT AREA EL 130
2T43130 H06	2	2T43N409 BQ 2T43N409 BR	C		REMOTE SHUTDOWN PNL (2C82-P001)
2T43158 D04	2	2T43N406 DA 2T43N406 DB 2T43N406 CR 2T43N406 DD	C		E WATER CURTAIN EL 158
2T43164 D02	6	2T43N406 DE 2T43N406 DF 2T43N406 DG 2T43N406 DH 2T43N406 DJ 2T43N406 DK 2T43N406 DL 2T43N406 DM 2T43N406 DN 2T43N406 DP 2T43N406 DQ 2T43N406 DR 2T43N406 DS	C		CHILLER ROOM

ZONE	MINIMUM NO ROD	INSTRUMENT	SLAVE	SUB SLAVE	DESCRIPTION
2U43130 D02	5	2U43N406 BA 2U43N406 BB 2U43N406 BC 2U43N406 BD 2U43N406 BE 2U43N406 BF 2U43N406 BG 2U43N406 BH 2U43N406 BJ 2U43N406 BK 2U43N406 BL	C		EAST CABLEWAY
2X43130 C10	2	2X43N409 AB 2X43N409 AC 2X43N409 AD 2X43N409 AE	C		SWGR ROOM 2E
2X43130 C11	1 2	2X43N410 AA 2X43N409 AG 2X43N409 AH 2X43N409 AJ 2X43N409 AK	C		SWGR ROOM 2F
2X43130 C12	1 2	2X43N410 AB 2X43N409 AL 2X43N409 AM 2X43N409 AN 2X43N409 AP	C		SWGR ROOM 2G
2Z43112 D08	1	2Z43N406 AV	C		AC INVERTER UNIT 2
2Z43112 D09	2	2Z43N406 AT 2Z43N406 AU	C		RPS BATTERY UNIT 2
2Z43112 D10	2	2Z43N406 AK 2Z43N406 AL 2Z43N406 AM 2Z43N406 AN	C		W STA BATT 2A UNIT 2
2Z43112 D11	2	2Z43N406 AP 2Z43N406 AQ 2Z43N406 AR 2Z43N406 AS	C		E STA BATT 2B UNIT 2

ZONE	MINIMUM NO ROD	INSTRUMENT	SLAVE	SUB SLAVE	DESCRIPTION
2Z43112 D12	1	2Z43N411 AA 2Z43N448 AA	C	ALIS PROT	CORRIDOR & WORK AREA
2Z43130 D14	1	2Z43N406 AA	C		RPS ROOM UNIT 2
2Z43130 D15	1	2Z43N406 AB	C		ANNUNCIATOR RM UNIT 2
2Z43130 D17	1	2Z43N411 AB 2Z43N448 AB	C	ALIS PROT	SOUTH CORRIDOR UNIT 2
2Z43130 D18	1	2Z43N406 AD 2Z43N406 AE	C		WEST 600V SWGR RM 2C
2Z43130 D19	1	2Z43N406 AG 2Z43N406 AH	C		EAST 600V SWGR ROOM 2D
2Z43130 D20	1	2Z43N406 AC	C		WEST CR SWGR ROOM 2A
2Z43130 D21	1	2Z43N406 AJ	C		XFMR ROOM 2CD
2Z43130 D22	1	2Z43N406 AF	C		EAST CR SWGR ROOM 2B
2Z43130 D30	1	2Z43N406 AW	C		AC DIST EQUIP ENCL

AREA RADIATION MONITORS on 2H11-P600, 2D21-P600	Max Normal Operating Value mR/hr	Max Safe Operating Value mR/hr
REFUEL FLOOR AREA		
1 Reactor head laydown area (2D21-K601A)	50	1000
2 Dryer seperator pool (2D21-K601E)	50	1000
3 Spent Fuel Pool & New Fuel Storage (2D21-K601M)	50	1000
4 Reactor Vessel Refueling Floor (2D21-K611K)	50	1000
5 Reactor Vessel Refueling Floor (2D21-K611L)	50	1000
203' ELEVATION AREA (EAST)		
6 CRD repair area (2D21-K601T)	50	1000
203' ELEVATION AREA (WEST)		
7 HVAC Room West El. 203' (2D21-K600D)	50	100
185' ELEVATION AREA		
8 Spent fuel pool passageway (2D21-K601P)	50	1000
9 RB 185' operating floor (2D21-K601R)	50	1000
10 RB 185' sample panel area (2D21-K601S)	50	1000
11 RB 185' RWCU control panel (2D21-K601U)	50	1000
158' ELEVATION AREA (NORTH)		
12 RB 158' area N-E (2D21-K601C)	50	1000
13 RB 158' area N-W (2D21-K601D)	50	1000
158' ELEVATION AREA (SOUTH)		
14 RB 158' area S-E (2D21-K601B)	50	1000
15 Decant pump and equipment room area 158' (2D21-K601L)	50	1000
130' ELEVATION AREA (NORTHWEST)		
16 Tip area (2D21-K601F)	50	1000
130' ELEVATION AREA (NORTHEAST)		
17 RB 130' N-E working area (2D21-K601G)	50	1000
130' ELEVATION AREA (SOUTHEAST)		
18 South CRD HCU (2D21-K601N)	50	1000
130' ELEVATION AREA (SOUTHWEST)		
19 RB 130' S-W working area (2D21-K601H)	50	1000
NORTHWEST DIAGONAL AREA		
20 RCIC equipment N-W diagonal (2D21-K601V)	50	1000
SOUTHWEST DIAGONAL AREA		
21 CRD pump S-W diagonal (2D21-K601W)	50	1000
NORTHEAST DIAGONAL AREA		
22 CS & RHR N-E diagonal (2D21-K601X)	50	1000
SOUTHEAST DIAGONAL AREA		
23 CS & RHR S-E diagonal (2D21-K601Y)	150	1000