U.S. Nuclear Regulatory Commission

Site-Specific RO Written Examination

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

Instructions

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

Applicant Certification

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

_____
Applicant's Signature

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

1.

Unit 1 was operating at 100% power when APRM 1 failed upscale.

Subsequently, the 1A Recirc Pump tripped and the following conditions currently exist:

- Reactor power: 65%
- APRM 1 has NOT been bypassed

Which ONE of the following completes the statements below?

The OPRM TRIP ENABLED annunciator (1-9-5A, Window 30) __(1)__ in alarm.

If Cell #28 in OPRM 3 subsequently exceeds its trip setpoint, an automatic reactor scram signal __(2)__ occur.

A. (1) is
   (2) will

B. (1) is
   (2) will NOT

C. (1) is NOT
   (2) will

D. (1) is NOT
   (2) will NOT

2.

Unit 1 was operating at 100% power when a total loss of offsite power occurred (all three units).

- Diesel generators A, C, 3A and 3B started and tied to their respective boards.
- Only the A3 EECW pump is currently running.

Which ONE of the following completes the statements below in accordance with 0-AOI-57-1A, Loss of Offsite Power (161 and 500 KV)/Station Blackout?

Secure any Diesel Generator prior to ___(1)___ of operation without cooling water.

The second EECW Pump that should be started is the ___(2)___ Pump.

A. (1) eight minutes
(2) B3

B. (1) eight minutes
(2) C3

C. (1) ten minutes
(2) B3

D. (1) ten minutes
(2) C3

3.

A complete loss of power to Battery Board #3, Panel 11 has occurred.

Which ONE of the following describes how this affects the Unit 2 annunciator power supply to Panel 9-9 Cabinet 1?

A. No affect; the Unit 2 Panel 9-9 Cabinet 1 48VDC power supply remains the same.

B. The Unit 2 Panel 9-9 Cabinet 1 48VDC power supply is now from Battery Board #1, Panel 11.

C. The Unit 2 Panel 9-9 Cabinet 1 48VDC power supply is now from Battery Board #2, Panel 11.

D. The Unit 2 Panel 9-9 Cabinet 1 48VDC power supply to the annunciators is de-energized.

4.

Unit 1 is operating at 25% power with Auxiliary steam loads on Main Steam.

The following annunciator is alarming:

- TURBINE TRIP TIMER INITIATED (1-9-8A, Window 1)

The turbine has NOT yet tripped and turbine first stage pressure is 143 psig.

Which ONE of the following completes the statements below?

TURB CV FAST CLOSURE TURB SV CLOSURE SCRAM/RPT TRIP LOGIC BYPASS (1-9-5B, Window 16) is __(1)__ .

Bypass valve capacity is __(2)__ to preclude a high reactor pressure SCRAM after the turbine trips.

A. (1) NOT in alarm
   (2) sufficient

B. (1) NOT in alarm
   (2) NOT sufficient

C. (1) in alarm
   (2) sufficient

D. (1) in alarm
   (2) NOT sufficient

5.

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

Which ONE of the following predicts the FINAL recirc pump speed, including the reason that the recirc pumps go to this speed?

Assume no manual operator action is taken after the reactor scram.

A. 28%;
mitigates the level shrink from the scram

B. 28%;
prevent overheating of the recirc pumps or jet pump cavitation

C. 75%;
mitigates the level shrink from the scram

D. 75%;
prevent overheating of the recirc pumps or jet pump cavitation

6.

The Unit 1 Control Room is being abandoned in accordance with 1-AOI-100-2, "Control Room Abandonment." **ALL IMMEDIATE** Operator Actions have just been completed.

Which ONE of the following completes the statements below?

UNTIL control is established at the Backup Control Panel, Reactor Pressure will be controlled by the __**(1)**__.

BEFORE any Backup Control Panel transfers are performed, the reactor pressure value as indicated on Panel 1-25-32, for Reactor Pressure B, instrument 1-PI-3-79 __**(2)**__ a valid indication .

A. **(1)** SRVs in Safety Mode
(2) is NOT

B. **(1)** Turbine Bypass Valves
(2) is

C. **(1)** SRVs in Safety Mode
(2) is

D. **(1)** Turbine Bypass Valves
(2) is NOT

7.

Unit 3 is operating at 100% with the Unit 1 Spare RBCCW pump disassembled for maintenance.

One Unit 3 RBCCW pump trips and cannot be restarted.

Which ONE of the following completes the statements below?

The 3-FCV-070-48, RBCCW Sectionalizing Valve, will auto-close when the __(1)__.

An IMMEDIATE manual reactor scram __(2)__ in accordance with 3-AOI-70-1, Loss of RBCCW?

A. (1) supply header pressure reaches 57 psig.
   (2) is required

B. (1) suction header temperature reaches 95 deg.
   (2) is required.

C. (1) supply header pressure reaches 57 psig.
   (2) is NOT required

D. (1) suction header temperature reaches 95 deg.
   (2) is NOT required

8.

Unit 3 is operating at 100% power with all systems in their normal standby lineup.

Which ONE of the following describes how the HPCI standby lineup is affected following a loss of control air, in accordance with 3-AOI-32-2, Loss of Control Air?

A. 3-FCV-73-6A and 3-FCV-73-6B, HPCI STEAM LINE CNDS INBD & OUTBD DRAIN VLVs, fail CLOSED.

B. 3-FCV-73-17A and 3-FCV-73-17B, HPCI HOTWELL PUMP INBD & OUTBD CRW DISCH VLVs, fail OPEN.

C. 3-FCV-073-05, HPCI STEAM LINE STM TRAP BYP VLV, fails CLOSED.

D. 3-FCV-073-08, HPCI TURB EXH COND POT LCV, fails OPEN

9.

Unit 1 is in Mode 4. A loss of shutdown cooling has occurred.

The crew has placed RWCU in service in accordance with 1-AOI-74-1, Loss of Shutdown Cooling, with two demineralizers in service.

Which ONE of the following completes the statements below?

The reason why 1-AOI-74-1 directs maximizing RWCU blowdown flow is to ____.

The maximum allowed flow with two-pump operation in accordance with 1-OI-69, RWCU System is ____.

A. maintain reactor coolant temperature < 200 °F;
   320 gpm

B. establish natural circulation;
   320 gpm

C. maintain reactor coolant temperature < 200 °F;
   200 gpm

D. establish natural circulation;
   200 gpm

10.

A core reload is in progress on Unit 1 and is almost complete in accordance with 0-GOI-100-3C, Fuel Movement Operation During Refueling. A fuel assembly is being lowered into the core.

Subsequently the following conditions occur:

- SRM PERIOD (1-9-5A, Window 20) alarms
- Rising count rate observed on all SRMs
- REFUELING ZONE EXHAUST RADIATION HIGH (1-9-3A, Window 34) alarms

Which ONE of the following completes the statements below?

The main fuel grapple hoist downward motion __(1)__ automatically blocked due to these conditions.

The CONTROL ROD WITHDRAWAL BLOCK annunciator (1-9-5A Window 7) __(2)__ in alarm.

A. (1) is NOT
(2) is

B. (1) is NOT
(2) is NOT

C. (1) is
(2) is

D. (1) is
(2) is NOT

11.

A station blackout has occurred on Unit 3 and the following containment conditions currently exist:

- Drywell pressure: 28 psig
- Drywell temperature: 250 °F and rising
- Torus pressure: 25 psig
- Torus level: 16 ft

Which ONE of the following completes the statements below?

Drywell sprays __(1)__ at this time.

A subsequent condition that requires IMMEDIATE emergency depressurization in accordance with 3-EOI-2, Primary Containment Control, is __(2)__.

[REFERENCE PROVIDED]

A. are allowed
the ACTION REQUIRED region of Curve 8, RPV Saturation Temp, is entered.

B. are allowed
the ACTION REQUIRED region of Curve 6, Press Suppr Press, is entered.

C. are not allowed
the ACTION REQUIRED region of Curve 8, RPV Saturation Temp, is entered.

D. are not allowed
the ACTION REQUIRED region of Curve 6, Press Suppr Press, is entered.

12.

Unit 1 was operating at 100% power when a main turbine trip occurred, an ATWS exists. The following annunciators alarmed after the turbine tripped:

- REACTOR PRESS HIGH (1-9-5A, Window 1)
- MAIN STEAM RELIEF VALVE OPEN (1-9-3C, Window 25)

The Unit Operator observes that two MSRVs are cycling.

Which ONE of the following completes the following statement in accordance with 1-EOI-1,RPV Control RC/P leg?

Manually open __(1)__ using __(2)__ .

A. (1) The Turbine bypass valves to lower reactor pressure until no MSRVs are cycling
(2) 1-EOI Appendix-11H, Alternate RPV Pressure Control systems Main Condenser.

B. (1) MSRVs until RPV pressure drops to the pressure at which all Turbine bypass valves are fully open
(2) 1-EOI Appendix-11A, Alternate RPV Pressure Control systems MSRVs

C. (1) The Turbine bypass valves to lower reactor pressure until no MSRVs are cycling
(2) 1-EOI Appendix-11A, Alternate RPV Pressure Control systems MSRVs

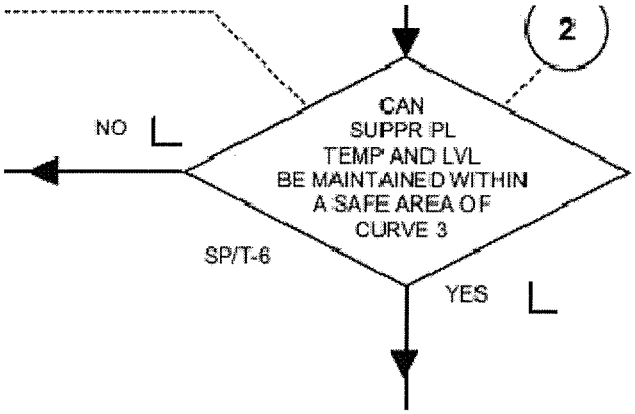
D. (1) MSRVs until RPV pressure drops to the pressure at which all Turbine bypass valves are fully open
(2) 1-EOI Appendix-11H, Alternate RPV Pressure Control systems Main Condenser.

13.

A LOCA has occurred on Unit 1 and the following conditions currently exist:

- Narrow Range Torus Level: (-)1"
- Suppression Pool Temperature: 190° F
- Torus Pressure: 20 psig
- RPV Pressure: 900 psig

Which ONE of the following identifies the answer to the following decision block and the subsequent required action in accordance with EOI-2, Primary Containment Control, SP/T leg?



[REFERENCE PROVIDED]

A. NO; lower reactor pressure and maintain it at 700 psig

B. NO; emergency depressurization is required

C. YES; rapidly depressurize the reactor to the main condenser

D. YES; operate all available loops in torus cooling

14.

Unit 3 was operating at 100% power with all drywell coolers in operation:

A LOCA and partial loss of AC power simultaneously occur and the following conditions currently exist:

- 3A DG is the sole source of power to 4 KV SD Board 3EA
- 4KV SD Board 3EA is supplying 480 V SD Board 3A
- All other 4KV SD Boards are being supplied from offsite power
- Core Spray has received an auto initiation signal

The crew is currently implementing the following step in EOI-2, Primary Containment Control:

Which ONE of the following completes the statements below?

The temperature value listed in step DW/T-2 is __(1)__ .

The number of drywell coolers that are operating 1 minute after the LOCA and partial loss of AC power is __(2)__.

[**ASSUME NO** drywell coolers are manually started.]

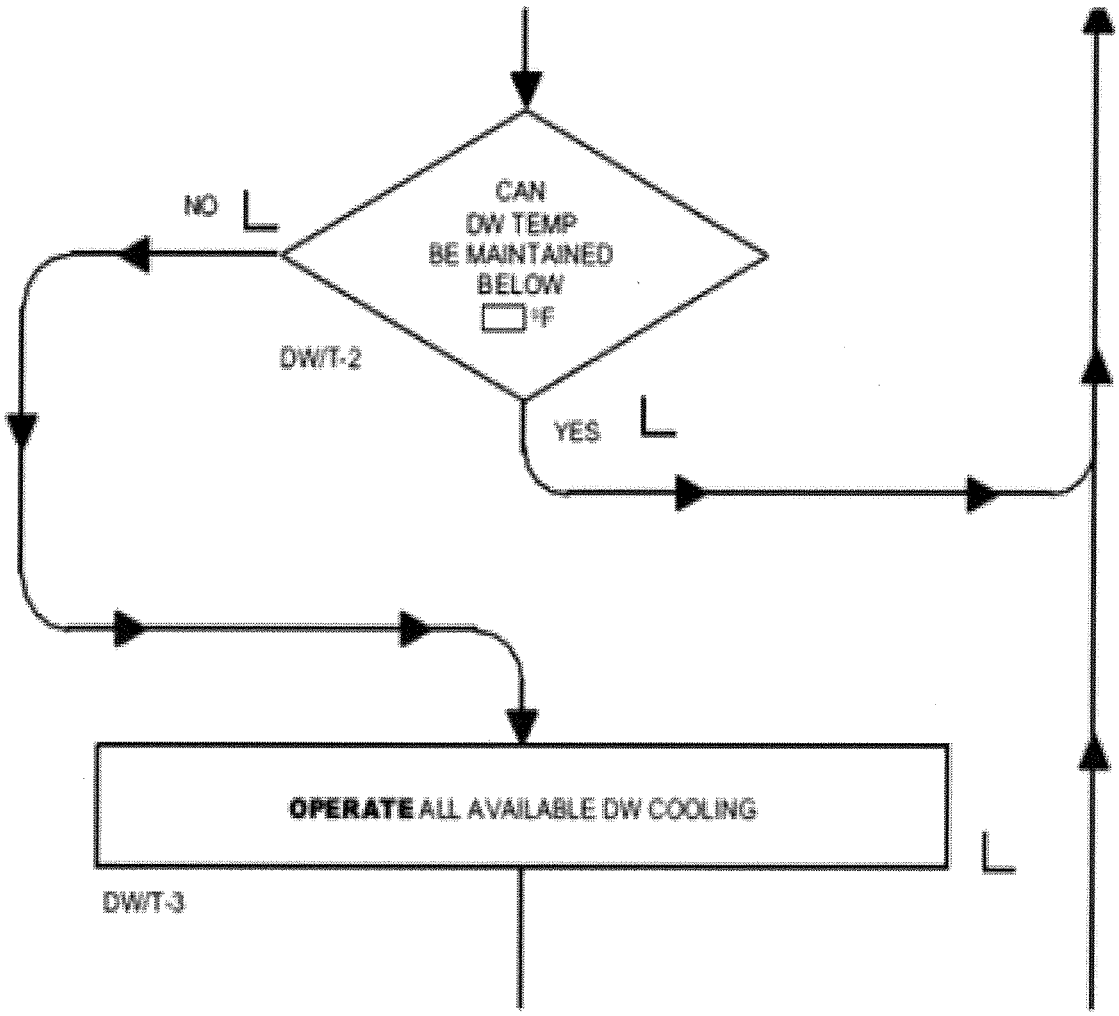
[See Diagram on next page]

A. (1) 280 °F
(2) four

B. (1) 280 °F
(2) six

C. (1) 160 °F
(2) four

D. (1) 160 °F
(2) six


CAN
DW TEMP
BE MAINTAINED
BELOW
°F
NO
YES
DW/T-2
OPERATE ALL AVAILABLE DW COOLING
DW/T-3

15.

Which ONE of the following completes the statements below?

The low torus water level entry condition value in 1-EOI-2, Primary Containment Control, is the __(1)__.

A system in 1-EOI Appendix 18, Suppression Pool Water Inventory Removal and Makeup, that will provide the HIGHEST make-up flow rate to the torus is __(2)__.

A. (1) Tech Spec 3.6.2.2, Suppression Pool Water Level LCO value
(2) HPCI

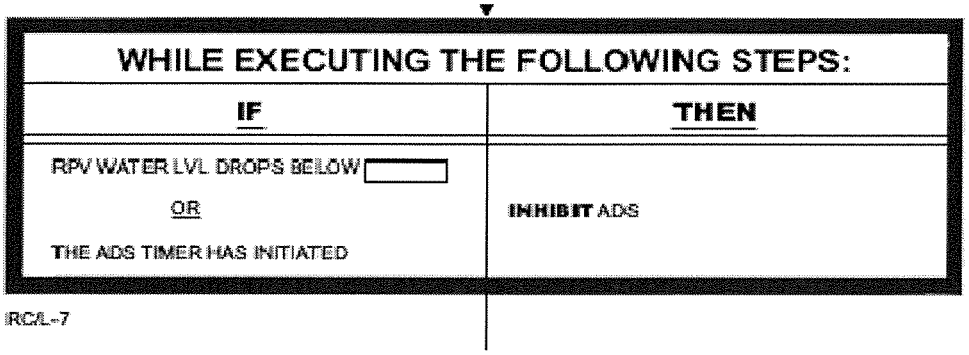
B. (1) alarm setpoint value for SUPPR CHAMBER WATER LEVEL ABNORMAL (1-9-3B, Window 15)
(2) HPCI

C. (1) Tech Spec 3.6.2.2, Suppression Pool Water Level LCO value
(2) RCIC

D. (1) alarm setpoint value for SUPPR CHAMBER WATER LEVEL ABNORMAL (1-9-3B, Window 15)
(2) RCIC

16.

While implementing 1-EOI-1, RPV Control, the Unit Supervisor (US) reaches the following override step:



WHILE EXECUTING THE FOLLOWING STEPS:	
IF	**THEN**
RPV WATER LVL DROPS BELOW ☐ OR THE ADS TIMER HAS INITIATED	**INHIBIT** ADS

RCIL-7

Which ONE of the following completes the statements below?

The RPV water level listed in this step is __(1)__.

The reason for inhibiting ADS at this value is that an auto ADS actuation __(2)__.

A. (1) (-)162"
(2) imposes a severe thermal transient on the RPV

B. (1) (-)162";
(2) provides positive reactivity

C. (1) (-)120"
(2) provides positive reactivity

D. (1) (-)120"
(2) imposes a severe thermal transient on the RPV

17.

Unit 1 was at 100% power.

The following conditions currently exist:

- REACTOR CHANNEL A(B) AUTO SCRAM (1-9-5B, Windows 1 & 2): alarming
- Reactor pressure: 1000 psig
- All 8 RPS lights at Panel 1-9-5 are illuminated
- Reactor level: (-) 26 " and slowly lowering

Which ONE of the following completes the statements below?

The current status of the ATWS AUTO INITIATE annunciator (1-9-4A, Window 10) is __(1)__.

The procedure required to insert control rods given the above conditions is __(2)__.

Note: 1-EOI Appendix-1A, Removal and Replacement of RPS Scram Solenoid Fuses
1-EOI Appendix-1F, Manual Scram

A. (1) in alarm
(2) 1-EOI Appendix-1A

B. (1) in alarm
(2) 1-EOI Appendix-1F

C. (1) NOT in alarm
(2) 1-EOI Appendix-1A

D. (1) NOT in alarm
(2) 1-EOI Appendix-1F

18.

A General Emergency has been declared on Unit 1. The control room crew is assisting the Radiation Protection Staff to perform EPIP-13, Dose Assessment.

The following conditions currently exist:

- Wind Direction: 225°
- Release is due to a damaged portion of the Turbine Building, elevation 617'

Which ONE of the following completes the statements below?

The plume direction is towards the __(1)__.

The release is required to be categorized as __(2)__.

A. (1) Northeast
(2) elevated

B. (1) Southwest
(2) elevated

C. (1) Northeast
(2) ground

D. (1) Southwest
(2) ground

19.

Which ONE of the following identifies a task that is performed outside the Main Control Room in accordance with 0-SSI-16, Control Building Fire EL 593 Through EL 617?

A. Align RHR in LPCI mode.

B. Bypass group1 isolations.

C. Close RFPT discharge valves.

D. Align RHR in suppression pool cooling mode

20.

Which ONE of the following completes both statements in accordance with 0-GOI-300-4, Switchyard Operations?

A __(1)__ MVAR maximum outgoing limit applies to all three units for both 500-kV and 161-kV offsite power source qualification.

If the outgoing MVAR limit is exceeded for a unit and is not corrected within __(2)__, the TOp must immediately inform BFN that both offsite power sources are disqualified for the unit that is exceeding the limit.

	(1)	(2)
A.	300	5 minutes
B.	150	5 minutes
C.	300	15 minutes
D.	150	15 minutes

21.

Unit 2 was operating at 100% when the Unit Operator (UO) noted main condenser vacuum degrading on the Hotwell Temperature and Pressure Recorder 2-XR-2-2.

The UO depressed the Recirc Mid-Power Runback Pushbutton.

Which ONE of the following completes the statements below?

Reactor Recirc Pump speeds will lower until total steam flow is less than __(1)__.

The Reactor Feed Pumps will trip if vacuum degrades to __(2)__.

	(1)	(2)
A.	90%	10 " Hg
B.	78.5%	10 " Hg
C.	90%	7 "Hg
D.	78.5%	7" Hg

22.

Unit 2 has been operating in Mode 1 for one year.

The crew has entered 2-AOI-64-1, Drywell Pressure and/or Temperature High, or Excessive Leakage Into Drywell.

Which ONE of the following completes the statements below?

A __(1)__ will result in rising Drywell pressure and/or temperature.

An actual leakage value that exceeds the Tech Spec 3.4.4, Operational Leakage, limit is an Unidentified Leakage __(2)__.

A. (1) leak from the Drywell Equipment Drain Sump Cooler
(2) increase of 3 gpm within the previous 24 hours

B. (1) leak from the Drywell Equipment Drain Sump Cooler
(2) rate at 4 gpm

C. (1) packing leak from 2-FCV-74-48, SHUTDOWN COOLING INBD SUCT ISOL
(2) rate at 4 gpm

D. (1) packing leak from 2-FCV-74-48, SHUTDOWN COOLING INBD SUCT ISOL
(2) increase of 3 gpm within the previous 24 hours

23.

A startup is being performed on Unit 3 and all IRMs are on Range 8.

Which ONE of the following completes the statements below?

3-TI-64-162, Suppression Pool Bulk Temperature, at Panel 3-9-3 is identified as a "post accident monitoring instrument" by a/an __(1)__.

3-TI-64-162 indicating __(2)__ requires entering an action statement in Tech Spec 3.6.2.1, Suppression Pool Average Temperature.

A. (1) orange label
(2) 103°F while RCIC is operating for a surveillance test

B. (1) black label
(2) 96°F with no testing in progress

C. (1) orange label
(2) 96°F with no testing in progress

D. (1) black label
(2) 103°F while RCIC is operating for a surveillance test

24.

Unit 2 is starting up with reactor pressure at 750 psig.

The 2A CRD Pump trips.

CRD ACCUM Press LOW/LEVEL HIGH (2-9-5A, Window 29) is in alarm

CRD Charging Water Header Pressure: 1000 psig and slowly lowering

Four Accumulator lights are illuminated on the full core display.

Which ONE of the following describes the required operator sequence of actions in accordance with 2-AOI-85-3, CRD System Failure?

A. Manually scram and immediately place the mode switch to shutdown; then place 1B CRD Pump in service

B. Immediately attempt to place 1B CRD Pump in service; do not manually scram

C. Immediately attempt to restart 2A CRD Pump; do not manually scram

D. Manually scram and immediately place the mode switch to shutdown and then attempt to restart 2A CRD Pump

25.

Which ONE of the following completes the statements below?

A VALID annunciator that requires entry into 3-EOI-3, Secondary Containment Control is __(1)__.

One radiation detector/monitor that triggers this annunciator is __(2)__.

A. (1) RX BLDG AREA RADIATION HIGH (3-9-3A, Window 22)
(2) Rx Zone HVAC Radiation Monitor 142

B. (1) RX BLDG AREA RADIATION HIGH (3-9-3A, Window 22);
(2) area radiation monitor on the 565' elevation of the Reactor Bldg

C. (1) RX BLDG, TURB BLDG, RF ZONE EXH RADIATION HIGH (3-9-3A, Window 4)
(2) Rx Zone HVAC Radiation Monitor 142

D. (1) RX BLDG, TURB BLDG, RF ZONE EXH RADIATION HIGH (3-9-3A, Window 4)
(2) area radiation monitor on the 565' elevation of the Reactor Bldg

26.

Which ONE of the following choices completes the following statements in accordance with the Updated Final Safety Analysis Report?

The reason that the main steam vault is equipped with blowout panels is to __(1)__ following a main steam line rupture between the outboard isolation valve and the secondary containment wall.

Following a main steam line rupture between the outboard isolation valve and the secondary containment wall, the main steam vault blowout panels will relieve the steam and the steam would flow to the __(2)__.

A. (1) ensure the steam release is routed via a pathway monitored for radioactivity;
(2) Refuel Floor

B. (1) ensure the steam release is routed via a pathway monitored for radioactivity;
(2) Turbine Building

C. (1) prevent overpressurization of the Reactor Building;
(2) Refuel Floor

D. (1) prevent overpressurization of the Reactor Building;
(2) Turbine Building

27.

Which ONE of the following completes the statements below?

Primary Containment hydrogen concentration above __(1)__ is an entry condition for 1-EOI-2, Primary Containment Control.

The method used to control hydrogen and oxygen concentration in accordance with 1-EOI-2, is to inject the __(2)__ in to containment.

A. (1) 4%
(2) "A" Nitrogen Storage Tank

B. (1) 4%
(2) "B" Nitrogen Storage Tank

C. (1) 2.4%
(2) "A" Nitrogen Storage Tank

D. (1) 2.4%
(2) "B" Nitrogen Storage Tank

28.

Current conditions on Unit 2:

- Reactor power is at 100%.
- 480V Shutdown Board 2B is de-energized
- 480 V RMOV Board 2A is de-energized

Which ONE of the following predicts how the Unit 2 Low Pressure Coolant Injection (LPCI) system is affected if a large break LOCA occurred and reactor pressure lowers to 120 psig?

A. Loop 1 and Loop 2 will inject.

B. Loop 1 will inject and Loop 2 will NOT inject.

C. Loop 1 and Loop 2 will NOT inject.

D. Loop 1 will NOT inject and Loop 2 will inject.

29.

Current conditions on Unit 1:

- Reactor is in Mode 3.
- 1A Recirculation Pump is running.
- The operator is placing RHR Loop 1 in Shutdown Cooling in accordance with 1-OI-74, Section 8.12.1, Initiation / Operation of RHR Loop I in Shutdown Cooling.
- The operator is at the step in the procedure for starting the 1A RHR pump.

Which ONE of the following completes the statements below?

IF the operator places the 1A RHR Pump control switch to START, AND performs NO further actions, flow indication on 1-FI-74-50, RHR SYS I FLOW, will __(1)__ AND flow indications on Jet Pumps 1 through 10 (Panel 1-9-4) will __(2)__.

A. (1) rise
(2) rise

B. (1) rise
(2) remain the same

C. (1) remain at zero
(2) remain the same

D. (1) remain at zero
(2) rise

30.

On Unit 1, HPCI has automatically started following a valid low water level initiation signal and is currently injecting to the RPV.

The following alarm is received while HPCI is operating:

- HPCI TURBINE BEARING OIL PRESSURE LOW (1-9-3F, Window 19)

Which ONE of the following completes the statements below?

The required operator action in accordance with the alarm response procedure, is to __(1)__.

SUBSEQUENTLY a complete loss of control oil pressure occurs, the final position of 1-FCV-73-18, HPCI Turbine Stop Valve and 1-FCV-73-19, HPCI Turbine Control Valve are __(2)__.

Assume the initiation signal remains present.

A. (1) start the Auxiliary Oil Pump
(2) open

B. (1) raise and maintain turbine speed above 2,400 RPM.
(2) closed

C. (1) start the Auxiliary Oil Pump.
(2) closed

D. (1) raise and maintain turbine speed above 2,400 RPM.
(2) open

31.

Unit 1 is starting up and the crew is performing 1-SR-3.5.1.7, HPCI Main and Booster Pump Set Developed Head and Flow Rate Test at Rated Reactor Pressure.

The following conditions currently exist:

- HPCI is operating with its flow controller in AUTO set at 5300 gpm
- Unit Operator (UO) is throttling 1-FCV-73-35, HPCI Pump CST Test Valve, to establish the discharge pressure required by the surveillance.

Which ONE of the following completes the statements below?

If the Unit Operator fully closes 1-FCV-73-35, then the 1-FCV-73-30, HPCI Pump Min Flow valve will __(1)__.

HPCI Turbine speed will __(2)__.

A. (1) auto open
(2) rise

B. (1) NOT auto open
(2) rise

C. (1) auto open
(2) lower

D. (1) NOT auto open
(2) lower

32.

Current conditions on Unit 2:

- All power has been lost to 'B' 4KV Shutdown Board.
- A reactor scram has occurred due to high drywell pressure.
- Reactor pressure is 85 psig.

Which ONE of the following describes the response of the Core Spray system and the action(s) that must be taken in accordance with 2-OI-75, Core Spray System?

A. Core Spray pumps A, C and D will auto start
Loop I Inboard Injection Valve, 2-FCV-75-25 must manually be throttled locally.

B. Core Spray pumps A, B and D will auto start
Loop II Inboard Injection Valve, 2-FCV-75-53 must be throttled.

C. Core Spray pumps A and C will auto start
Core Spray Pump D must be manually started and Loop II Inboard Injection Valve 2-FCV-75-53 must be throttled.

D. Core Spray pumps B and D will auto start
Core Spray Pump A must be manually started and Loop I Inboard Injection Valve 2-FCV-75-25 must be manually throttled locally.

33.

Which ONE of the following choices completes the following statement for how the Jet Pump Flow Indications at Panel 9-4 are developed at the SLC injection sparger?

The SLC injection sparger's __(1)__ tube is used to obtain a pressure signal for __(2)__.

A. (1) inner
(2) all 20 jet pumps

B. (1) inner
(2) only 16 jet pumps

C. (1) outer
(2) all 20 jet pumps

D. (1) outer
(2) only 16 jet pumps

34.

Which ONE of the following completes both statements for the Unit 1 "B" RPS MG set?

The normal power supply feed to the Unit 1 B RPS MG set is via the __(1)__.

The alternate power supply feed to the 1B RPS Bus is from the __(2)__.

A. (1) 4 KV SD Board C
(2) Unit Preferred Transformer

B. (1) 4 KV SD Board B
(2) 480 V RMOV Board 1B

C. (1) 4KV SD Board C
(2) 480 V RMOV Board 1B

D. (1) 4KV SD Board B
(2) Unit Preferred Transformer

35.

A startup is in progress on Unit 1 with the following conditions:

- Reactor Power is 6%
- RPV Pressure 750 psig
- IRM "D" failed upscale and annunciator procedure actions are complete
- IRM A 25 on Range 9
- IRM B 40 on Range 9
- IRM C 20 on Range 9
- IRM E 60 on Range 9
- IRM F 30 on Range 9
- IRM G 65 on Range 9
- IRM H 70 on Range 8

Which ONE of the following predicts the plant response if the Unit Operator places IRM B to Range 8?

A. No rod block or scram signals exist.

B. A rod block and half scram exist.

C. ONLY a rod block exists (no half scram exists).

D. A full scram exists.

36.

A startup is in progress on Unit 1 in accordance with 1-GOI-100-1A, Unit Startup.

The following conditions currently exist:

- SRM "D" failed upscale; actions in SRM HIGH/INOP (1-9-5A, Window ~~14~~ 13) have been taken
- IRM A 35 on Range 8
- IRM B 40 on Range 8
- IRM C 60 on Range 7
- IRM D 30 on Range 8
- IRM E 30 on Range 8
- IRM F 50 on Range 7
- IRM G 45 on Range 8
- IRM H 40 on Range 8

Which ONE of the following completes the statements below?

The required position of the SRMs A, B, and C at this point in the startup is fully __(1)__.

The CONTROL ROD WITHDRAWAL BLOCK (1-9-5A, Window 7) annunciator is __(2)__.

A. (1) inserted
(2) in alarm

B. (1) withdrawn
(2) in alarm

C. (1) inserted
(2) NOT in alarm

D. (1) withdrawn
(2) NOT in alarm

37.

A reactor startup is in progress on Unit 1 with the following conditions:

- All SRMs are reading between 100 and 130 cps
- All SRMs are fully inserted
- All IRMs are on Range 2 and reading 30 – 40
- Unit operator selects SRM D on the SRM withdrawal section of Panel 9-5

Which ONE of the following completes the statement below if the operator attempts to withdraw SRM D?

SRM D __(1)__ withdraw and a Control Rod Withdrawal Block __(2)__ occur.

A. (1) will
(2) will

B. (1) will
(2) will NOT

C. (1) will NOT
(2) will

D. (1) will NOT
(2) will NOT

38.

Which ONE of the following completes the statements below?

There are a total of __(1)__ LPRM detectors in the core.

LPRMs are located such that __(2)__ .

A. 185;
every core location or its symmetrical counterpart in another quadrant is monitored.

B. 172;
every core location or its symmetrical counterpart in another quadrant is monitored.

C. 185;
the "A" detectors are at the top of the core and the "D" detectors are at the bottom of the core.

D. 172;
the "A" detectors are at the top of the core and the "D" detectors are at the bottom of the core.

39.

Unit 2 was operating at 100% power when RCIC received a valid auto initiation signal.

RCIC STEAM LINE FLOW EXCESSIVE (2-9-3B, Window 21) annunciator was **SUBSEQUENTLY** received.

The following indications currently exist:

- 2-FCV-71-2, RCIC Steam Line Inboard Isolation Valve – **GREEN** light is illuminated
- 2-FCV-71-3, RCIC Steam Line Outboard Isolation Valve – **GREEN** light is illuminated
- 2-FCV-71-8, Steam Supply Valve – **RED** light is illuminated
- 2-FCV-71-34, RCIC Pump Min Flow Valve – **GREEN** light is illuminated
- 2-FCV-1-55, Main Steam Line Inboard Drain Valve – **GREEN** light is illuminated
- 2-FCV-1-56, Main Steam Line Outboard Drain Valve – **GREEN** light is illuminated
- RPV level is currently at -60 inches.

Which ONE of the following describes the automatic valve alignment?

ASSUME NO operator action has been taken

A. All valves are properly aligned.

B. 2-FCV-71-8 is misaligned.

C. 2-FCV-71-34 is misaligned.

D. 2-FCV-1-55 and -56 are misaligned.

40.

Unit 2 is operating at 100% power.

SR-3.5.3.3, RCIC System Rated Flow at Normal Operating Pressure, is in progress with RCIC operating to the CST.

A loss of 250 VDC RMOV Board 2B occurs.

Five minutes later, the following annunciator is received:

- RCIC STEAM LINE LEAK DETECTION TEMP HIGH (2-9-3D, Window 10)

Which ONE of the following completes the statements below if a RCIC isolation **SUBSEQUENTLY** occurs?

__(1)__ will auto close.

2- EOI-3, Secondary Containment Control is__(2)__ to be entered.

Note 2-FCV-71-2, RCIC Steam Line Inboard Isolation Valve
2-FCV-71-3, RCIC Steam Line Outboard Isolation Valve

A. (1) Only the 71-2
(2) NOT required

B. (1) Both 71-2 and 71-3
(2) NOT required

C. (1) Only the 71-2
(2) required

D. (1) Both 71-2 and 71-3
(2) required

41.

Unit 3 was operating at 100% power with HPCI tagged out for maintenance.

The following timeline of events subsequently occurred:

- T-0: Loss of Offsite Power on Unit 3; 3A and 3D EDGs failed to start
- T+5 minutes: Drywell pressure reached 2.45 psig slowly rising
- T+7 minutes: Level lowered to (+) 2 inches
- T+10 minutes: Level is currently at (-) 135 inches and slowly lowering with RCIC injecting

Which ONE of the following completes the statements below?

ADS will actuate __(1)__ after level reached the low low low level setpoint.

The ADS valves will __(2)__ if the operator depresses the XS-1-159/161, Hi DW Pressure / RX LO Level Logic A/B Reset pushbuttons AFTER ADS has actuated.

A. (1) 360 seconds
(2) remain open

B. (1) 95 seconds
(2) remain open

C. (1) 360 seconds
(2) close

D. (1) 95 seconds
(2) close

42.

Unit 3 was operating at 100% power when an MSIV closure and ATWS occurred. Reactor Pressure peaked at 1150 psig (maximum).

Which ONE of the following completes the statements below?

One of the MSRV's that initially auto cycled __(1)__ an ADS Valve.

With Reactor Power at 15% __(2)__ MSRV's are required to control Reactor Pressure

	(1)	(2)
A.	was	2
B.	was	3
C.	was NOT	2
D.	was NOT	3

43.

The following LOCA conditions exist on Unit 1:

- Drywell pressure is 2.2 psig
- Reactor water level is (-) 40 inches
- Main Steam Tunnel temperature is 180°F
- RCIC Pump Room temperature is 175 °F
- HPCI Pump room temperature is 175 °F

Which ONE of the following identifies whether PCIS Groups 4, 5, and 8 have received an automatic isolation signal?

A. Groups 4, 5, and 8 all have automatically isolated.

B. Only Groups 4 and 5 have automatically isolated.

C. Only Group 8 has automatically isolated.

D. Only Groups 5 and 8 have automatically isolated.

44.

Unit 3 is operating at 100% power when the following conditions are observed:

- MAIN STEAM RELIEF VALVE OPEN (3-9-3C, Window 25) Alarms
- GENERATOR LOAD recorder, 3-XR-57-57 indicates MWs lowering
- SRV 1-5 has several LEDs illuminated on the SRV Tailpipe Flow monitor
- Suppression Pool temperature is 85°F and rising
- A fire is reported in the Unit 3 Diesel Generator Building; SSI entry is NOT required

Which ONE of the following describes the required actions to take in accordance with 3-AOI-1-1, Relief Valve Stuck Open?

A. Immediately initiate a load reduction to 90%, **THEN** cycle the affected relief valve control switch several times as required in an attempt to close the valve.

B. Immediately cycle the affected relief valve control switch several times and if the MSRV does not close, **THEN** initiate a load reduction to 90% power.

C. Immediately insert a scram, **THEN** cycle the affected relief valve control switch several times.

D. Immediately cycle the affected relief valve control switch several times and if the MSRV does not close, **THEN** Immediately initiate a scram.

45.

Unit 2 is operating at 100% power with the following alarms due to a failure of the Turbine 1st stage pressure transmitter:

- RFWCS INPUT FAILURE (2-9-6C, Window 14)
- MAIN STEAM LINE VS STEAM FLOW MISMATCH (2-9-5B, Window 24)

FWLC is currently in 3 element control.

SUBSEQUENTLY the "A" main steam line flow signal slowly fails to ZERO over a 10 minute period.

Which ONE of the following completes the statements below?

As the main steam line flow signal fails, Reactor Water Level will __(1)__.

The final status of the Feedwater Level Control System will be __(2)__ control.

A. (1) lower
(2) single element

B. (1) lower
(2) three element

C. (1) remain constant
(2) single element

D. (1) remain constant
(2) three element

46.

Unit 3 is operating at 100% power with a small coolant leak in the drywell. Standby Gas Treatment (SGT) Train "C" was placed in service to vent the drywell. The following conditions currently exist:

- Drywell pressure has stabilized at 1.6 psig
- SGT "C" vent flow rate is 100 scfm

SUBSEQUENTLY the normal feeder breaker to 3ED 4KV Shutdown Board trips open and the board cannot be re-energized.

Which ONE of the following completes the statements below?

Drywell pressure will __(1)__.

The A and B SGTs __(2)__ immediately auto start.

A. (1) remain constant
(2) will

B. (1) remain constant
(2) will NOT

C. (1) rise
(2) will

D. (1) rise
(2) will NOT

47.

A LOCA with significant fuel failure has occurred on Unit 3.

The "A" and "B" Standby Gas Treatment (SGT) trains have been used several times to vent the drywell.

The "A" SGT train was shutdown in accordance with 0-OI-65, Standby Gas Treatment System.

Which ONE of the following completes the statements below?

The minimum temperature at which decay heat removal is required to be initiated due to iodine absorption in accordance with 0-OI-65, Standby Gas Treatment System is __(1)__.

If the annunciator SGT TRAIN A UNAVAILABLE (3-9-3B, Window 11) **SUBSEQUENTLY** alarms, the Unit 3 operator is required to contact __(2)__ to determine the cause.

A. (1) 150°F
(2) Unit 1 Control Room

B. (1) 150°F
(2) Unit 2 Control Room

C. (1) 270°F
(2) Unit 1 Control Room

D. (1) 270°F
(2) Unit 2 Control Room

48.

Which ONE of the following completes the statements below for Unit 1?

The transformer that is part of a required offsite power circuit in accordance with Technical Specification 3.8.1, "AC Sources-Operating" is __(1)__.

The shutdown bus that normally feeds 4KV SD Board B is Shutdown Bus __(2)__.

	(1)	(2)
A.	USST 1A	1
B.	USST 1A	2
C.	USST 1B	1
D.	USST 1B	2

49.

Which ONE of the following describes the normal and alternate power supplies to Battery Board 1, Panel 11?

A. Normal power is supplied by an inverter; alternate power is from the unit preferred transformer from 480 volt RMOV board 1A, or the Unit 3 MMG set.

B. Normal power is supplied by an inverter; alternate power is from the unit preferred transformer from 480 volt RMOV board 1A, or the Unit 2 MMG set.

C. Normal power is supplied by the unit preferred transformer; alternate power is from the Unit 3 MMG set.

D. Normal power is supplied by the unit preferred transformer; alternate power is from the Unit 2 MMG set.

50.

All three units are operating at 100% power with all battery chargers in normal operation.

Which ONE of the following completes both statements in accordance with 0-OI-31 Control Bay and Off-Gas Treatment Building Air Conditioning System, Section 7.11, Shutdown of Battery and Board Room Exhaust Fans?

Battery Room ventilation is required to be in operation __(1)__.

Obtain __(2)__ permission prior to shutting down the Battery Room Exhaust fan.

A. (1) in accordance with Tech Spec LCO 3.8.4, DC Systems Operating
(2) Electrical Maintenance

B. (1) to prevent buildup of explosive hydrogen
(2) Electrical Maintenance

C. (1) in accordance with Tech Spec LCO 3.8.4, DC Systems Operating
(2) Unit Supervisor

D. (1) to prevent buildup of explosive hydrogen
(2) Unit Supervisor

51.

Which ONE of the following completes the statements below?

The lube oil circulating pump __(1)__ provide oil to the turbocharger bearing area.

If the 3A diesel generator lube oil circulating pump is lost, the 3A D/G __(2)__ be able to start and load.

A. (1) does NOT
(2) will

B. (1) does NOT
(2) will NOT

C. (1) does
(2) will

D. (1) does
(2) will NOT

52.

The following plant conditions exist:

- G Air Compressor is in service
- 0-TCV-32-2945, Cooling System Heat Exchanger Bypass Valve, has failed such that the air compressor has lost its cooling

Which ONE of the following completes the statement below?

In accordance with 0-OI-32, Control Air System, the Compressor 'G' trip setpoint for __(1)__ is __(2)__.

A. (1) air discharge temperature
(2) 120°F

B. (1) lube oil temperature
(2) 130°F

C. (1) lube oil temperature
(2) 120°F

D. (1) air discharge temperature
(2) 130°F

53.

The Unit 2 crew is adjusting the RBCCW system flow in accordance with 2-OI-70, RBCCW System, Section 6.5, RBCCW Flow Control.

During the evolution, the following annunciator alarms:

- RBCCW 2-FCV-70-48 CLOSED (2-9-4C, Window 19)

Which ONE of the following:

1) identifies the required method for adjusting RBCCW system flow in accordance with 2-OI-70, Section 6.5

and

2) predicts another annunciator that will alarm as a result of the 2-FCV-70-48 closure?

A. (1) manually throttle the RBCCW HX 2A and 2B Outlet Valves, 2-ISV-70-607A and 2-ISV-70-607B locally
(2) RBCCW PUMP SUCT HDR TEMP HIGH (2-9-4C, Window 5)

B. (1) manually throttle the RBCCW HX 2A and 2B Outlet Valves, 2-ISV-70-607A and 2-ISV-70-607B locally
(2) RWCU NON-REGNERATIVE HX DISCH TEMP HIGH (2-9-4B, Window 17)

C. (1) manually adjust RBCCW HX A (B) temperature controller, 2-TIC-24-80 on Panel 25-196
(2) RBCCW PUMP SUCT HDR TEMP HIGH (2-9-4C, Window 5)

D. (1) manually adjust RBCCW HX A (B) temperature controller, 2-TIC-24-80 on Panel 25-196
(2) RWCU NON-REGNERATIVE HX DISCH TEMP HIGH (2-9-4B, Window 17)

54.

Unit 1 is at 80% power with the following plant conditions:

- 1-FIC-85-11, CRD System Flow Controller, is in automatic.
- The handswitch for 1-HS-85-23, Drive Water Pressure Control Valve, has been throttled in the CLOSE direction for ONE second.

Which ONE of the following completes the statements below?

After conditions have stabilized, CRD Drive Water Header DP, as indicated on 1-PDI-85-17A will __(1)__ and CRD Cooling Water Header Flow, as indicated on 1-FI-85-25A will __(2)__.

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

55.

Unit 2 is operating at 100% power and the following alarm is received:

- CONTROL ROD DRIVE UNIT TEMP HIGH (2-9-5A, Window 17)

Which ONE of the following completes both statements below?

The set point for this alarm is __(1)__ .

One cause of this alarm is a leaking scram __(2)__ valve.

A. (1) 250 °F
(2) inlet

B. (1) 350 °F
(2) inlet

C. (1) 250 °F
(2) outlet

D. (1) 350 °F
(2) outlet

56.

Which ONE of the following completes both statements below?

The function of 2-FCV-69-94, RWCU Appendix R Isolation Valve, is to mitigate the spurious opening of __(1)__.

2-FCV-69-94 is located on the __(2)__ of the RWCU Pumps.

A. (1) RWCU Inboard/Outboard Suction Isolation Valves 2-FCV-69-1/2
(2) suction side

B. (1) RWCU Inboard/Outboard Suction Isolation Valves 2-FCV-69-1/2
(2) discharge side

C. (1) RWCU Blowdown valve 2-FCV-69-15
(2) suction side

D. (1) RWCU Blowdown valve 2-FCV-69-15
(2) discharge side

57.

Unit 3 plant conditions are as follows:

- Reactor Power is at 75%
- Traversing In-core Probe (TIP) scans are in progress
- B TIP Drive Control Unit Mode Switch (S-7) is in MANUAL

A valid group 8 isolation signal is received.

Which ONE of the following predicts the FINAL status of the B TIP Purge Valve and Ball Valve?

	Purge Valve	Ball Valve
A.	Closed	Open
B.	Open	Closed
C.	Open	Open
D.	Closed	Closed

58.

Which ONE of the following completes both statements regarding the APRM and Voter power supply arrangement?

Each APRM chassis is powered from __(1)__ .

A. only one RPS bus

B. a 0 – 200 VDC High Voltage Power Supply (HVPS)

C. only one Quadruple Low Voltage Power Supply (QLVPS)

D. its associated 2 out of 4 voter chasis

59.

Unit 1 is operating at 100% power with the following conditions:

- Surveillance in progress on 1-LIS-3-203A, Reactor Water Level Low
- RX VESSEL WTR LEVEL LOW HALF SCRAM (1-9-4A, Window 2) is in alarm

Before the half scram is reset, 1-LT-3-203C fails downscale.

Which ONE of the following predicts the status of the Group 3 PCIS valves?

A. RWCU remains in service

B. ONLY 1-FCV-69-1, RWCU Inboard Isolation Valve, auto closes

C. ONLY 1-FCV-69-2, RWCU Outboard Isolation Valve, auto closes

D. BOTH 1-FCV-69-1 and 2, RWCU Inboard and Outboard Valves auto close

60.

Which ONE of the following completes both statements pertaining to the Drywell D/P Air Compressor?

The air compressor will auto start when TORUS pressure is __(1)__ DRYWELL pressure.

The air compressor will stop when TORUS pressure is __(2)__ DRYWELL pressure.

	(1)	(2)
A.	1.30 psid lower than	1.15 psid lower than
B.	1.15 psid lower than	1.30 psid lower than
C.	1.30 psid higher than	1.15 psid higher than
D.	1.15 psid higher than	1.30 psid higher than

61.

A LOCA has occurred on Unit 2, Drywell and Torus Sprays are in service in accordance with the PC/P leg of EOI-2, Primary Containment Control, 2-EOI Appendix-17B, RHR System Operation Drywell Sprays, and 2-EOI-Appendix-17C, RHR System Operation – Suppression Chamber Sprays.

After sprays were initiated, the following conditions are noted:

- Torus pressure: 1.5 psig and lowering
- Drywell pressure: 1.0 psig and lowering
- Suppression Pool Water Level : 17 ft

Which ONE of the following completes both statements below?

A concern with the automatic operation of the Reactor-Building-to-Torus Vacuum Breakers is __(1)__.

When Suppression Pool Water Level cannot be maintained below __(2)__, 2-EOI-2 requires Drywell Sprays to be secured.

A. (1) ECCS Pump NPSH Limits
(2) 19.0 ft

B. (1) ECCS Pump NPSH Limits
(2) 18.0 ft

C. (1) Oxygen Concentration
(2) 19.0 ft

D. (1) Oxygen Concentration
(2) 18.0 ft

62.

Unit 1 was operating at 100% power when the Main Hydrogen Seal Oil Pump tripped and seal oil pressure initially dropped to 105 psig.

Which ONE of the following completes both statements below?

The Seal Oil Vacuum Pump will __(1)__.

Hydrogen Purity will __(2)__.

A. (1) trip
(2) lower

B. (1) trip
(2) remain unchanged

C. (1) NOT trip
(2) lower

D. (1) NOT trip
(2) remain unchanged

63.

Unit 2 is operating at 100% power:

- Master Level Controller in AUTO set at 33 inches
- 2A Reactor Feedwater Controller in AUTO
- 2B Reactor Feedwater Controller in AUTO
- 2C Reactor Feedwater Controller in MANUAL

Operator depresses the Column Selector pushbutton, selects Column 3, and then depresses the Ramp Up Pushbutton on Reactor Feed Pump Turbine 2C.

Which ONE of the following completes both statements below?

Reactor Feed Pump Turbine 2C speed will __(1)__.

Reactor Feed Pump Turbines 2A and 2B speed will __(2)__.

[REFERENCE PROVIDED]

A. (1) rise
(2) lower

B. (1) lower
(2) rise

C. (1) remain the same
(2) rise

D. (1) remain the same
(2) remain the same

64.

Which ONE of the following completes both statements below?

In a NORMAL standby lineup the FIRST CREV train that will auto start on a valid initiation signal is __(1)__.

IF CREV fails to initiate on a valid initiation signal the procedure(s) that contains the required steps to be used to start a CREV Fan is __(2)__.

NOTE: 0-OI-31, Control Bay and Off-Gas Treatment Building Air Conditioning System
0-AOI-31-1, Control Bay Isolation (High Radiation)

A. (1) Train A
(2) ONLY 0-OI-31

B. (1) Train A
(2) either 0-OI-31 or 0-AOI-31-1

C. (1) Train B
(2) ONLY 0-OI-31

D. (1) Train B
(2) either 0-OI-31 or 0-AOI-31-1

65.

Which ONE of the following completes both statements regarding the design basis (DBA) LOCA analysis?

The DBA LOCA analysis is based on the double-ended break of one of the recirculation loop's __(1)__.

IF another break at the __(2)__ exists, THEN reactor water level will NOT be maintained above two-thirds core height, without injection.

A. (1) suction piping
(2) jet pump inlet riser

B. (1) suction piping
(2) jet pump diffuser

C. (1) ring header
(2) jet pump inlet riser

D. (1) ring header
(2) jet pump diffuser

66.

Unit 2 is operating at 100% power.

An annunciator alarmed because one of its inputs had failed downscale, i.e.; NOT a valid indication.

The invalid input was subsequently disabled in accordance with OPDP-4, Annunciator Disablement.

Which ONE of the following completes both statements below in accordance with OPDP-4?

The annunciator window is required to be flagged with a __(1)__ magnetic border.

The associated ESOMs narrative log entry shall include the __(2)__.

A. (1) blue
(2) method used to disable annunciator

B. (1) blue
(2) reactor power and generator output at the time the annunciator was disabled

C. (1) white
(2) method used to disable annunciator

D. (1) white
(2) reactor power and generator output at the time the annunciator was disabled

67.

Unit 2 turbine generator is operating as follows:

- GENERATOR LOAD RECORDER: 1000 MW.
- GENERATOR MVAR, 2-EI-57-51: 200 MVARs outgoing.
- GENERATOR HYDROGEN PRESSURE, 2-PI-35-17A: 60 psig and lowering at a rate of 15 psig per hour.

Which ONE of the following identifies the MAXIMUM time the generator can be operated without exceeding the limits of the Estimated Reactive Capability Curves?

(**ASSUME NO** operator action.)

[REFERENCE PROVIDED]

A. 1 hour

B. 2 hours

C. 3 hours

D. 4 hours

68.

Unit 2 is in Mode 2 with single notch rod withdrawal in progress per 2-GOI-100-1A, Unit Startup and Power Operation.

When the Unit Operator withdrew the next rod, it moved from "00" to "04" and the following indications were observed:

- CHANNEL A PERIOD, 2XI-92-7/44A – 25 seconds
- CHANNEL B PERIOD, 2XI-92-7/44B – 25 seconds
- CHANNEL C PERIOD, 2XI-92-7/44C – 25 seconds
- CHANNEL D PERIOD, 2XI-92-7/44D – 25 seconds

WHICH ONE of the following completes both statements below?

The required operator action in accordance with 2-GOI-100-1A, Unit Startup and Power Operation is to __(1)__.

In accordance with 2-AOI-85-7, Mispositioned Control Rod, the control rod __(2)__ considered "mispositioned."

A. (1) make the reactor subcritical
(2) is

B. (1) make the reactor subcritical
(2) is NOT

C. (1) reinsert the last control rod pulled to obtain a stable period greater than 60 seconds
(2) is

D. (1) reinsert the last control rod pulled to obtain a stable period greater than 60 seconds
(2) is NOT

69.

Which ONE of the following meets the requirements of a "Complex Infrequently Performed Test or Evolution" (CIPTE) per NPG-SPP-06.9.1, Conduct of Testing?

A. Switching Order to remove the West Point 500KV line in accordance with 0-GOI-300-4, Switchyard Manual.

B. 1-SR-3.5.1.7(COMP), HPCI Comprehensive Pump Test.

C. 0-SR-3.8.1.9(A) Diesel Generator A Emergency Unit 1 Load Acceptance Test.

D. 1-SR-3.5.1.6(RHR I) Quarterly RHR System Rated Flow Test Loop I.

70.

Unit 2 is critical in Mode 2 with a Reactor Coolant System heatup in progress.

Which ONE of the following completes both statements below?

The maximum heatup rate allowed by 2-SR-3.4.9.1(1), Reactor Heatup and Cooldown Rate Monitoring and Tech Spec 3.4.9 RCS Pressure and Temperature (P/T) Limits, is __(1)__ °F in any one hour period.

The LOWEST level of permission/authorization required to perform 2-SR-3.4.9.1(1), is from the __(2)__.

A. (1) 90
(2) Unit Supervisor

B. (1) 90
(2) Shift Manager

C. (1) 100
(2) Unit Supervisor

D. (1) 100
(2) Shift Manager

71.

Unit 3 has entered the EOIs and immediate entry into a High Radiation Area by an Assistant Unit Operator (AUO) is required. NO RWP currently exists for this entry.

Which ONE of the following completes both statements below in accordance with RCI-9.1, Radiation Work Permits?

This High Radiation Area entry, without an RWP, must be authorized by the __(1)__.

A Radiation Protection individual __(2)__.

A. (1) Shift Manager
(2) equipped with a dose rate monitoring device must escort the AUO.

B. (1) Radiation Protection Shift Supervisor
(2) equipped with a dose rate monitoring device must escort the AUO.

C. (1) Shift Manager
(2) escort is not required.

D. (1) Radiation Protection Shift Supervisor
(2) escort is not required.

72.

Unit 3 initial drywell entry is in progress in accordance with 3-GOI-200-2, Primary Containment Initial Entry and Closeout.

The entry will be made by a team consisting of a Rad Protection Technician, a maintenance mechanic, laborer, and an Assistant Unit Operator (AUO). All of these personnel will inspect all accessible elevations in the drywell.

The following conditions currently exist:

- All control rods have been inserted
- Reactor Pressure is 50 psig
- The Mode Switch is in the Shutdown position

Which ONE of the following completes both statements below?

The minimum required Oxygen concentration that allows entry without a Self Contained Breathing apparatus (SCBA) is at least __(1)__.

An additional member of __(2)__ is required to remain at the Personnel Airlock Door while the team is inspecting the drywell.

A. (1) 20.8%
(2) Maintenance

B. (1) 19.5%
(2) Maintenance

C. (1) 20.8%
(2) Operations

D. (1) 19.5%
(2) Operations

73.

Which ONE of the following identifies a plant parameter value that is listed as an entry condition on 3-EOI-3, Secondary Containment Control, and will also cause an automatic Secondary Containment isolation signal?

A. Reactor Vessel Water Level at 0"

B. Drywell Pressure at 3 psig

C. Refueling Floor Exhaust Radiation at 50 mR/hr

D. Reactor Zone Exhaust Radiation at 100 mR/hr

74.

Unit 2 is operating at 100% RTP and the following valid alarms are received:

- OG POST TRTMT RADIATION HIGH (2-9-4C, Window 33)
- OG POST TRTMT RADIATION HIGH - HIGH, (2-9-4C, Window 34)

Which ONE of the following completes both statements below?

The current status of the Offgas System Isolation Valve, 2-FCV-66-28 with the above listed alarms is __(1)__.

SUBSEQUENTLY the OG POST TRTMT RADIATION HI–HI-HI/INOP (2-9-4C, Window 35) is in alarm, the alarm is verified valid and the required operator action would be to reduce __(2)__.

A. (1) closed
(2) power to maintain off-gas radiation within ODCM limits (Scram not required)

B. (1) closed
(2) core flow to between 50-60% and manually scram the reactor if a scram has not already occurred

C. (1) open
(2) power to maintain off-gas radiation within ODCM limits (Scram not required)

D. (1) open
(2) core flow to between 50-60% and manually scram the reactor if a scram has not already occurred

75.

Unit 1 has experienced an ATWS and RPS cannot immediately be de-energized.

The US has dispatched an AUO to perform 1-EOI Appendix-1B, Vent and Depressurize the Scram Pilot Air Header.

Which ONE of the following completes both statements below?

The AUO will perform 1-EOI Appendix-1B __(1)__.

The AUO will vent the scram header at __(2)__.

A. (1) at the CRD catwalk above Hydraulic Control Units
(2) the pressure switch used for the SCRAM PILOT AIR HEADER PRESS LOW (1-9-5B, Window 28) annunciator.

B. (1) at the 565' elevation north east at the CRD station
(2) one of the 3-way Alternate Rod Insertion (ARI) solenoid valves.

C. (1) at the 565' elevation north east at the CRD station
(2) the pressure switch used for the SCRAM PILOT AIR HEADER PRESS LOW (1-9-5B, Window 28) annunciator.

D. (1) at the CRD catwalk above Hydraulic Control Units
(2) one of the 3-way Alternate Rod Insertion (ARI) solenoid valves.

RO Exam Reference Packet

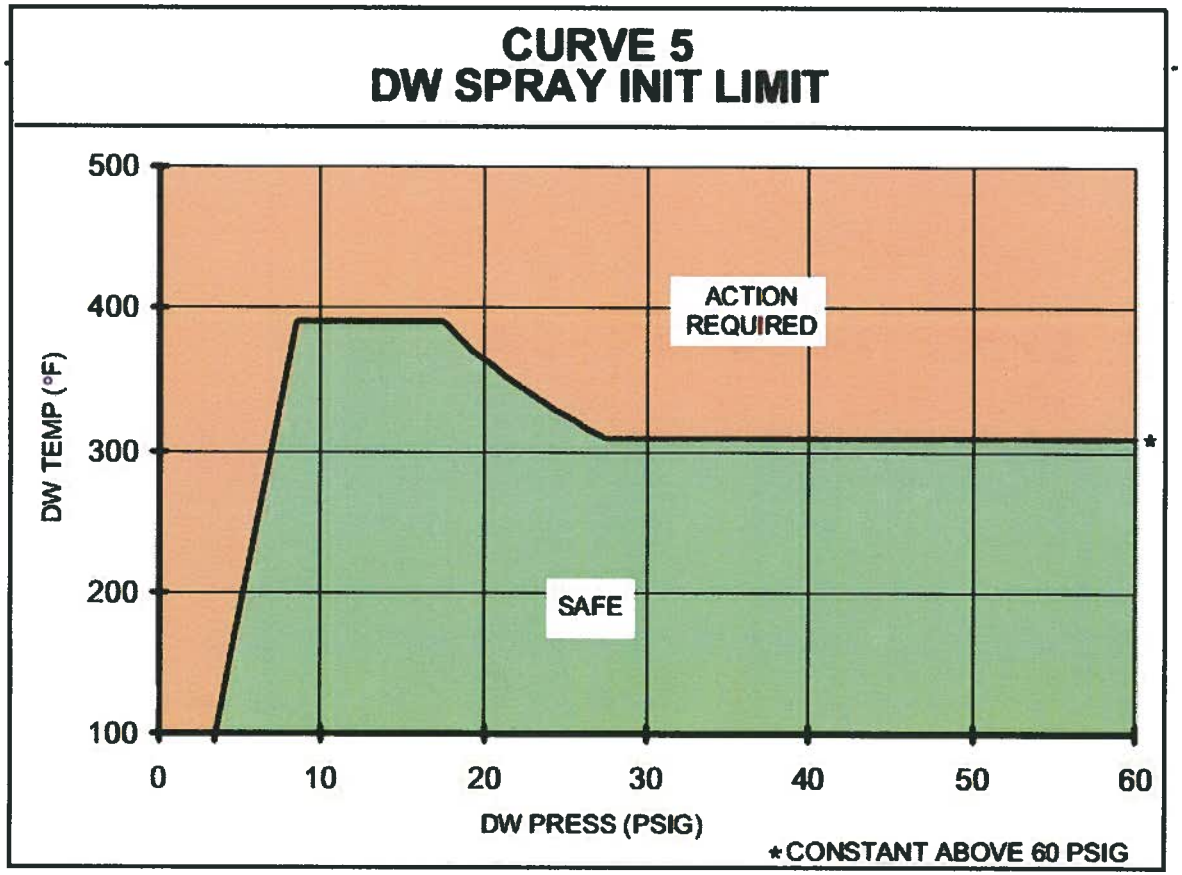
- Q#11: Curve 5 (DWSIL Curve: Unit 3) and Curve 8
- Q#13: Curve 3 (HCTL Curve: Unit 1)
- Q#63: 2-OI-3, Illustration 2 (Only Page 1 of 4)
- Q#67: 2-OI-47, Illustration 6 w/ notes extracted; curve only (Generator Capability Curve)

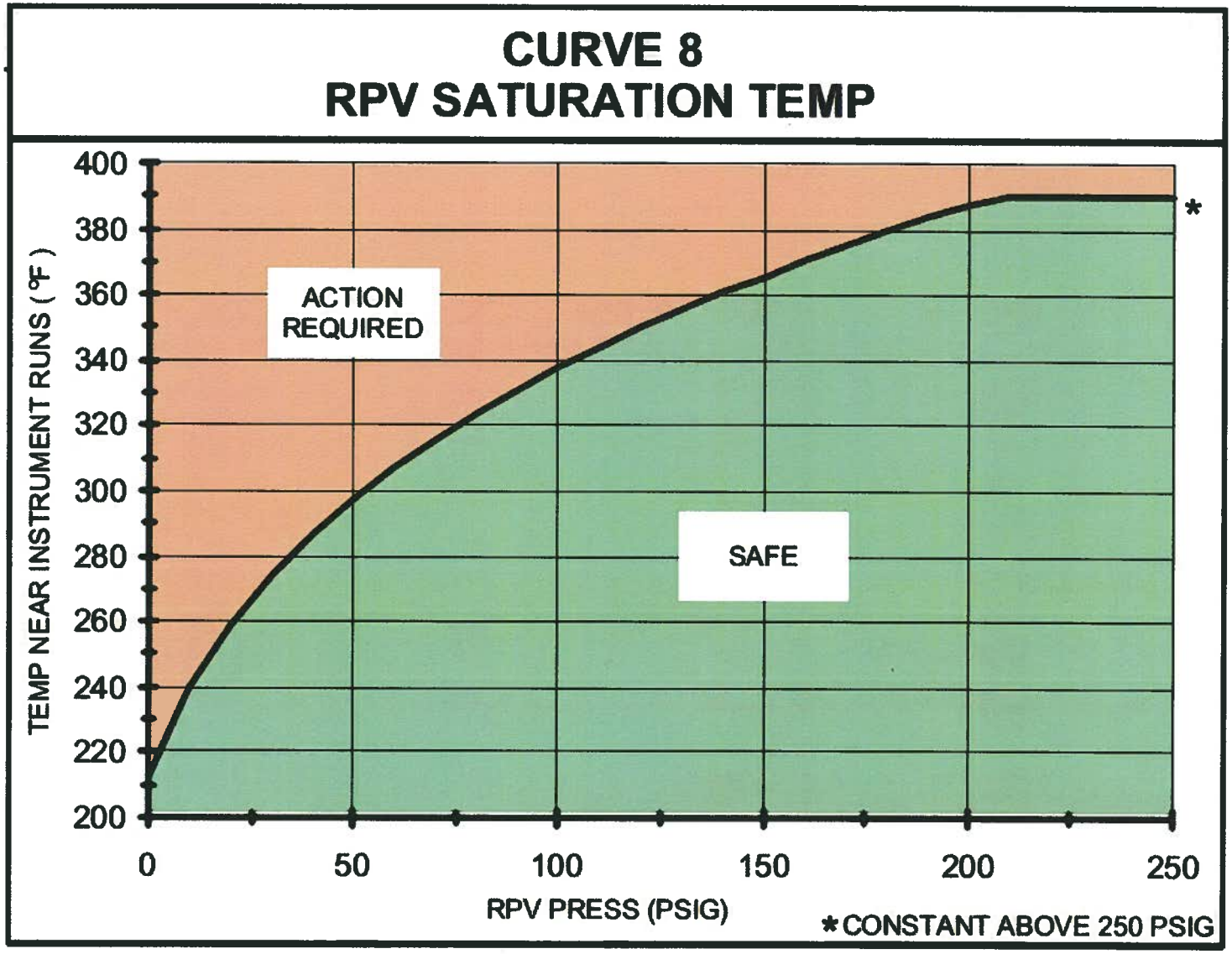
#11 – Curve 5 (DWSIL Curve) and Curve 8 (RPV Saturation) Unit 3

#13 – Curve 3 (HCTL) Unit 1

#63 – 2-OI-3 Illustration 2 page 1 of 4

#67 – 2-OI-47 Illustration 6 (Generator Capability Curve), with notes extracted.


CURVE 5
DW SPRAY INIT LIMIT
500
400
300
200
100
DW TEMP (°F)
ACTION
REQUIRED
SAFE
*
0
10
20
30
40
50
60
DW PRESS (PSIG)
*CONSTANT ABOVE 60 PSIG


CURVE 8
RPV SATURATION TEMP
TEMP NEAR INSTRUMENT RUNS (°F)
400
380
360
340
320
300
280
260
240
220
200
ACTION REQUIRED
SAFE
*
0
50
100
150
200
250
RPV PRESS (PSIG)
*CONSTANT ABOVE 250 PSIG

CURVE 3
HEAT CAPACITY TEMP LIMIT

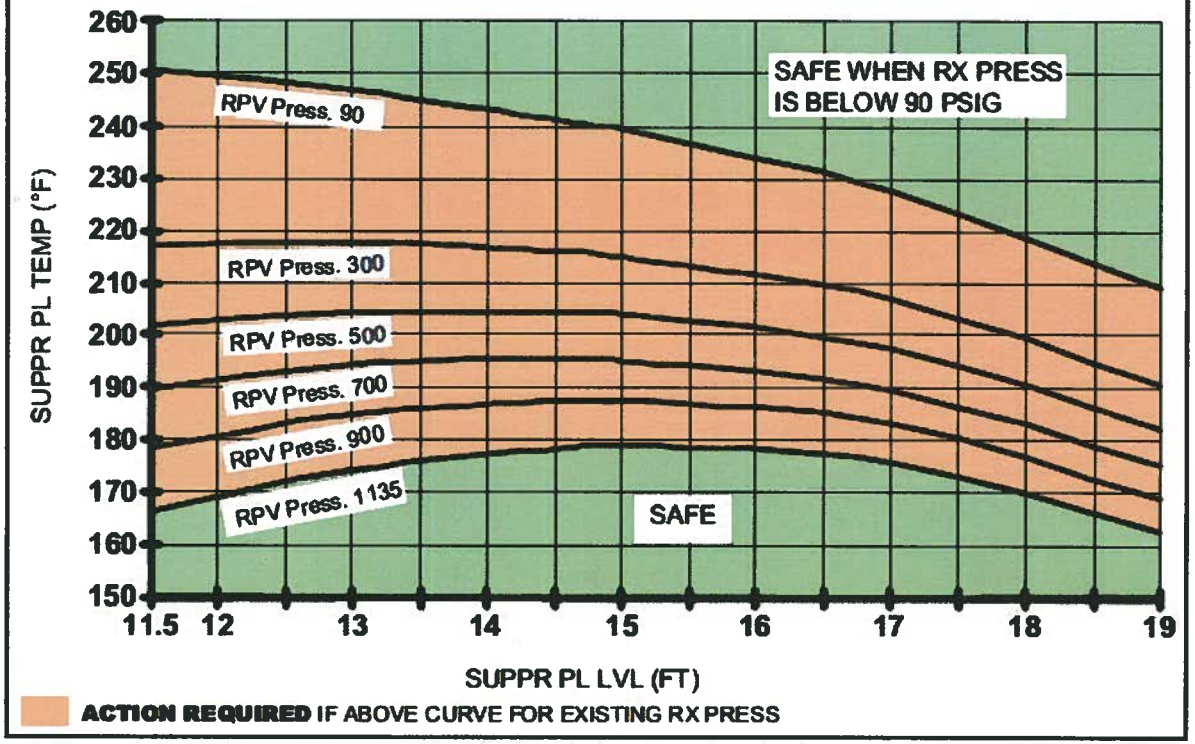


Illustration 2
(Page 1 of 4)
RFPT Speed Control Panel Display Station

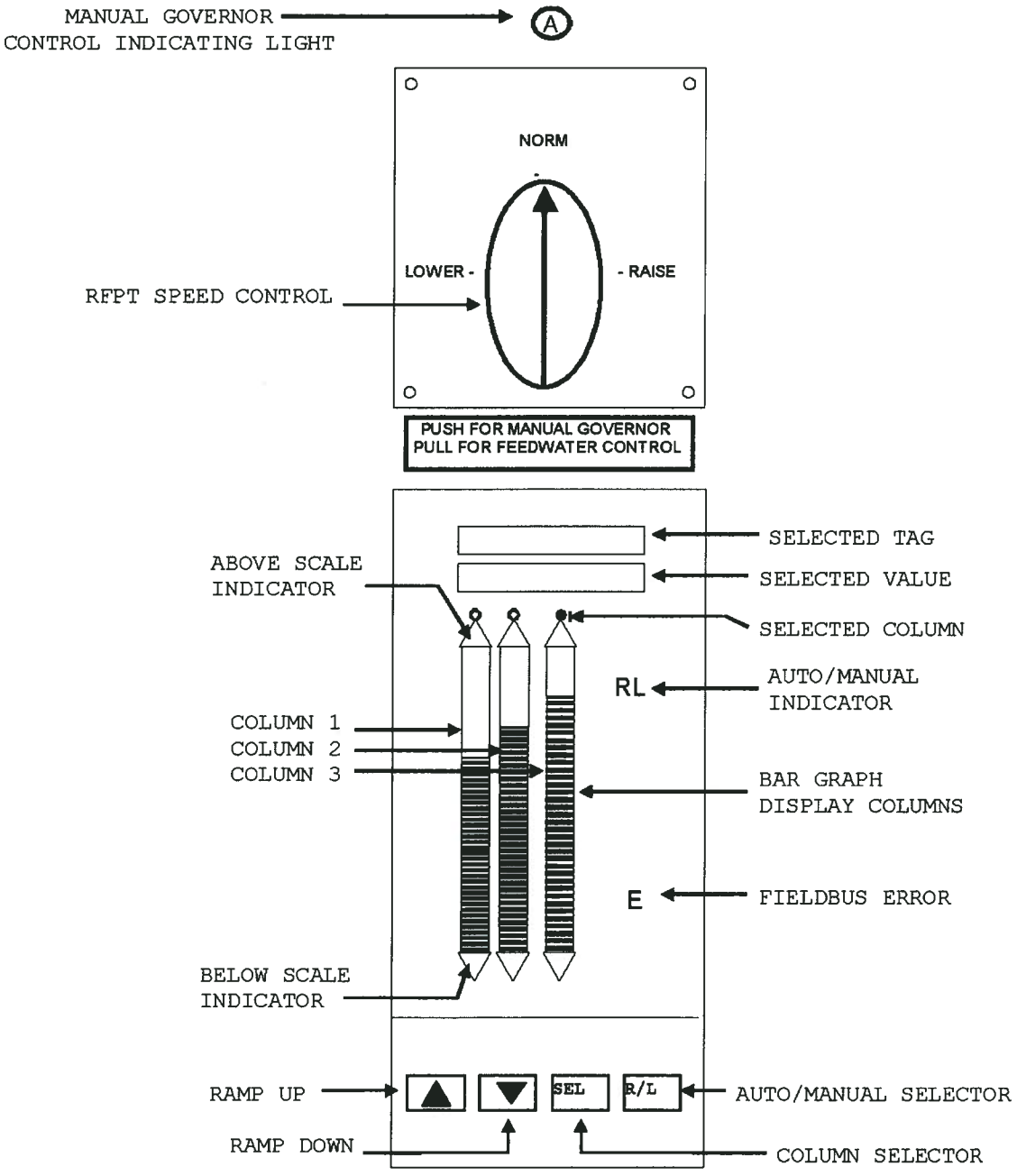
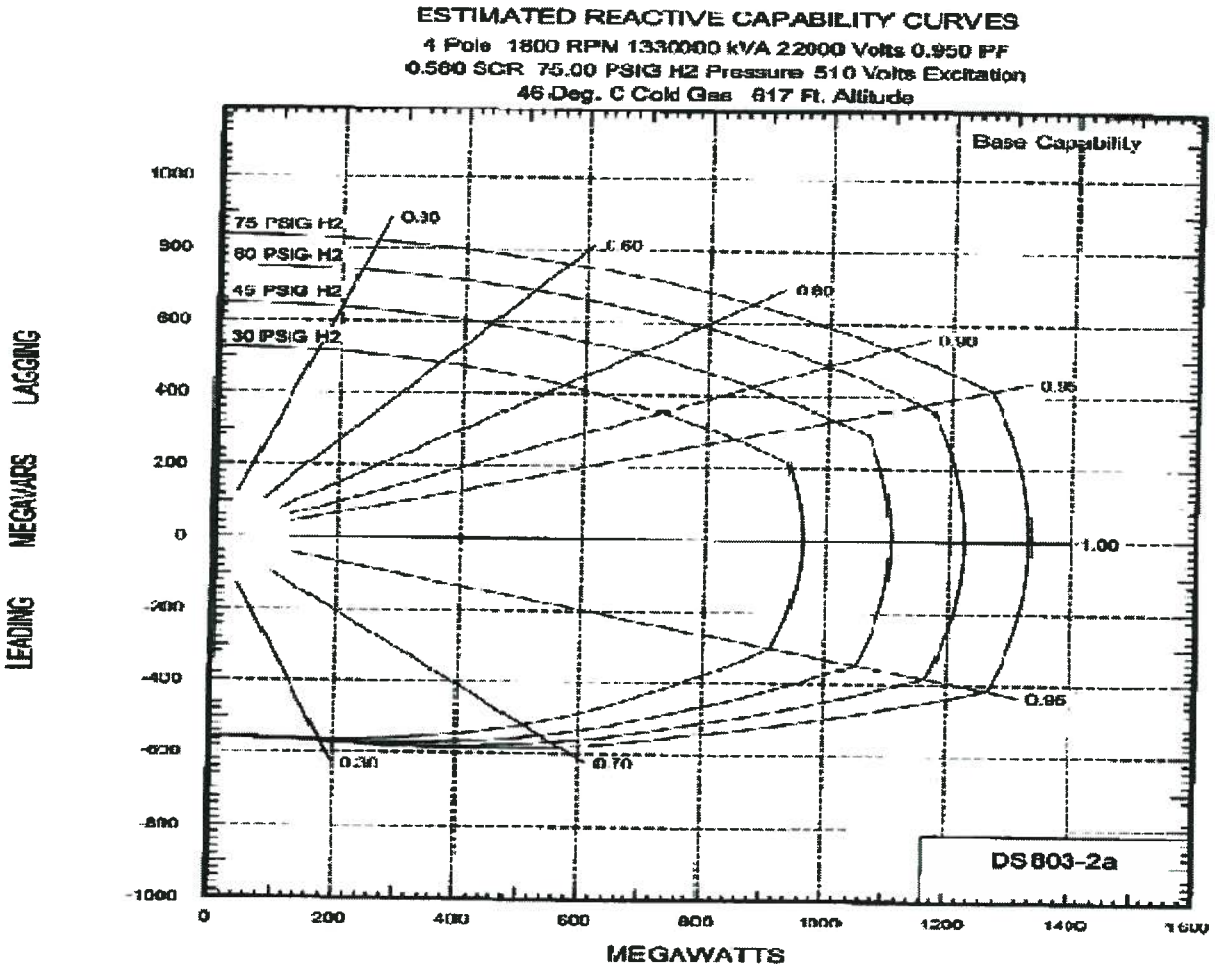


Figure 2


ESTIMATED REACTIVE CAPABILITY CURVES
4 Pole 1800 RPM 1330000 kVA 22000 Volts 0.950 PF
0.560 SCR 75.00 PSIG H2 Pressure 510 Volts Excitation
46 Deg. C Cold Gas 617 Ft. Altitude
Base Capability
75 PSIG H2
60 PSIG H2
45 PSIG H2
30 PSIG H2
0.30
0.60
0.80
0.90
0.95
1.00
0.95
0.30
0.70
DS803-2a
LEADING MEGAVARS LAGGING
1000
900
600
400
200
0
-200
-400
-600
-800
-1000
0
200
400
600
800
1000
1200
1400
1600
MEGAWATTS

Pearson NCS Test Sheet 100/W

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KEY ID (A) (B) (C) (D)

SCORING & PRINTING OPTIONS: ○ RESCORE ○ MULTIPLE ANSWER SCORING ○ CORRECT ANSWER ○ MARK X ○ TOTAL ONLY
MARK ONLY ONE

FEED IN THIS DIRECTION

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

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

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

	T	F
76		D
77		D
78		D
79		D
80		D
81		D
82		D
83		D
84		D
85		D
86		D
87		D
88		D
89		D
90		D
91		D
92		D
93		D
94		D
95		D
96		D
97		D
98		D
99		D
100		D

ANSWER KEY INFO.
OF KEYS
ITEM COUNT
0 0 0 2
1 1 1 3
2 2 4
3 3
4 4
5 5
6 6
7 7
8 8
9 9

PERFORMANCE ASSESSMENT
% OF TOTAL SCORE
00 = 100%
EQUAL PT VALUE
0 0 0
1 1 1
2 2 2
3 3 3
4 4 4
5 5 5
6 6 6
7 7 7
8 8 8
9 9 9

POINTS EARNED
0 0 0
1 1 1
2 2 2
3 3 3
4 4 4
5 5 5
6 6 6
7 7 7
8 8 8
9 9 9

RO Exam Answer Key

Bar Code

FEED IN THIS DIRECTION

NUMBER CORRECT
PERCENT CORRECT
ROSTER NUMBER
SCORE
RESCORE

PEARSON NCS

COMBINED POINTS EARNED
COMBINED PERCENT CORRECT
LETTER GRADE
SCORE
RESCORE

100 ITEM

NAME RO MASTER KEY
SUBJECT 1108 ILT EXAM
PERIOD ____ DATE 8/16/2011

MARKING INSTRUCTIONS

Use a No. 2 Pencil

(A) ● (C) (D) (E)
Fill oval completely

(A) (B) (C) (D) (E)
Erase cleanly

STUDENT ID NUMBER
0 0 0 0 0 0 0 0 0 0
1 1 1 1 1 1 1 1 1 1
2 2 2 2 2 2 2 2 2 2
3 3 3 3 3 3 3 3 3 3
4 4 4 4 4 4 4 4 4 4
5 5 5 5 5 5 5 5 5 5
6 6 6 6 6 6 6 6 6 6
7 7 7 7 7 7 7 7 7 7
8 8 8 8 8 8 8 8 8 8
9 9 9 9 9 9 9 9 9 9

RO Exam

QUESTION K/A STATEMENTS

#	ID
1	295001AA2.02 1
2	295003G2.1.23 1
3	295004AK1.02 1
4	295005AK2.01 1
5	295006AK3.06 1
6	295016AA1.08 1
7	295018AK1.01 1
8	295019AK2.17 9
9	295021AK3.04 1
10	295023AA1.05 1
11	~~295024EA2.01 1~~ 295024 EA2.01
12	295025G2.4.47 1
13	295026EK2.06 1
14	295028EA1.03 1
15	295030EA2.01 1
16	295031EK3.01 1
17	295037G2.4.46 1
18	295038EK1.03 1
19	600000G2.4.34 1
20	700000AK1.02 1
21	295002AA1.08 1
22	~~295010AA2.01 1~~ 295010 AA2.01
23	295013G2.4.3 1
24	295022AK1.02 1
25	295033EK2.02 1
26	295035EK3.01 1
27	500000EK1.01 1
28	203000K6.01 1
29	205000A1.02 1
30	206000A2.15 1
31	206000A3.06 1
32	209001A4.05 1
33	211000K1.07 1
34	212000K2.01 1
35	215003K3.01 1
36	215004K4.06 1
37	215004K5.03 1
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41	~~218000A3.01 1~~ 218000 A3.01
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44	239002G2.1.20 1
45	259002K1.02 1
46	261000K3.03 1
47	~~261000A1.07 1~~ 261000 A1.07

RO Exam

QUESTION K/A STATEMENTS

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51	264000K6.03 1
52	300000K4.03 1
53	400000A1.01 1
54	201001A3.04 1
55	201003A4.01 1
56	204000G2.1.28 1
57	215001K1.05 1
58	215002K2.03 1
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64	~~290003A2.04 1~~ 290003 A2.01
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68	G2.1.37 3
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70	G2.2.12 3
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72	G2.3.12 4
73	G2.4.2 3
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92	202001G2.2.44 1
93	214000A2.01 1
94	G2.1.5 1

N/A for RO exam

RO Exam

QUESTION K/A STATEMENTS

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97	G2.2.25 1
98	G2.3.15 1
99	G2.4.5 1
100	G2.4.38 1

N/A for RO Exam