Date: Wednesday, June 08, 2016 Time: 3:43:26 PM

TEST REPORT

Question file: ILT 10 NRC EXAM BANK

Test Date: 7/7/2016

Test Name: ILT-10 SRO NRC EXAM

Test Form: 0

Test Version: 0

Test Points: 100.00

Test File: ILT 10 SRO NRC EXAM

Test Path: O:\ILT 10\NRC EXAM\Written Exam\ILT 10 SRO NRC EXAM.LXRTest

1. 201001K6.06 001

Unit 2 was operating at 100% RTP when a loss of RBCCW occurs.

A manual scram is inserted which results in the following:

- Reactor power is 6% RTP
- None of the RBCCW pumps can be started

Based on the above conditions and IAW 34AB-P42-001-2, Loss of RBCCW,

The CRD pumps _____ .

A. are NOT allowed to operate because the CRD Pump Seal Coolers have lost their cooling medium

B. are NOT allowed to operate because the CRD Pump Room Area Coolers have lost their cooling medium

C. can be operated with a MAXIMUM allowable pumping medium temperature of 104°F

D. ✓ can be operated with a MAXIMUM allowable pumping medium temperature of 249°F

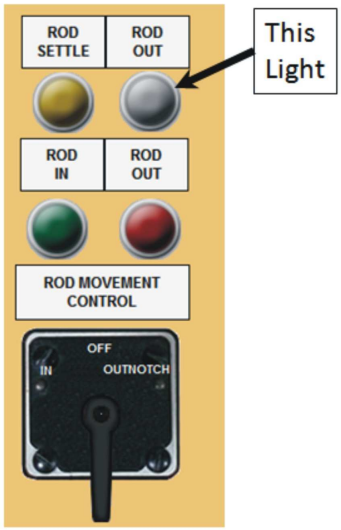
2. 201002A2.04 001

Unit 1 is operating at 15% RTP and is performing a reactor startup.

All control rods in the currently latched RWM step are at their Insert Limit of position 04.

- o The Withdraw Limit for the latched step is position 08
- o Control rod 30-31 is currently selected

When Control rod 30-31 is withdrawn, the rod DOUBLE NOTCHES to position 10.



Based on the above conditions,

When Control rod 30-31 reaches position 10, the Rod Movement Control "Rod Out" white light will be _____ .

IAW 34GO-OPS-065-0, Control Rod Movement, the RWM _____ REQUIRED to be BYPASSED to correct the Control rod 30-31 mis-position.

A. ILLUMINATED;
is

B. ILLUMINATED;
is NOT

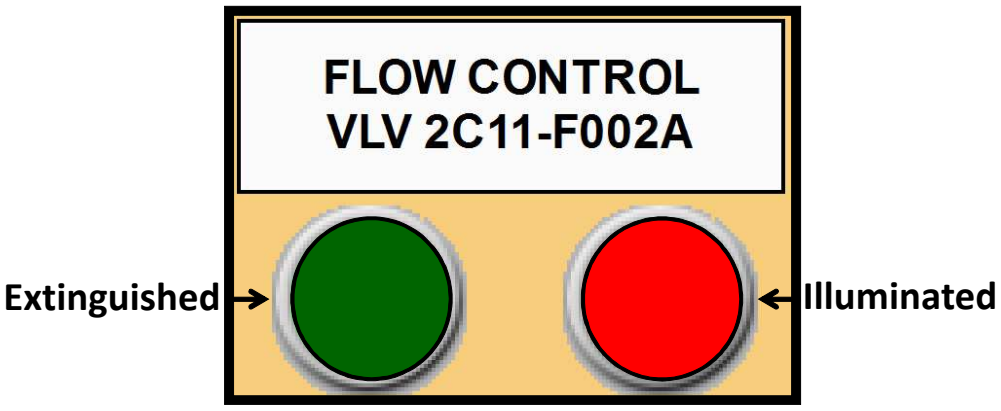
C. EXTINGUISHED;
is

D. EXTINGUISHED;
is NOT

3. 201003G2.1.30 001

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

Subsequently, Drywell pressure increases to 2.5 psig.



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

4. 203000K5.01 001

Unit 2 has experienced a LOCA.

- o RHR Loop 2B is injecting in the LPCI mode to maintain RWL
- o A leak develops on 2E11-F015B, RHR Inboard Injection valve

Subsequently, all RHR Loop 2B pumps are secured.

Based on the above conditions,

The water leaking from 2E11-F015B will be leaking into _____ Containment.

The water leaking from 2E11-F015B _____ be isolated by operation of 2E11-F050B, RHR Injection Check valve.

A. Secondary;
will NOT

B. ✔ Secondary;
will

C. Primary;
will NOT

D. Primary;
will

5. 204000K4.07 001

The automatic closure setpoint for 2G31-FCV-F033, RWCU Blowdown Flow Control Valve, is met if _____ .

A. RWCU pump flow decreases to 50 gpm

B. RWCU Dump flow increases to 150 gpm

C. ✔ 2G31-F033 upstream pressure decreases to 5 psig

D. 2G31-F033 downstream pressure increases to 120 psig

6. 205000K3.02 001

Unit 1 is in Mode 4 with both Recirc pumps off.

RHR Loop B is operating in Shutdown Cooling with a flowrate of 7300 gpm.

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 corrected RWL that must be maintained by the OATC is _____ .

A. UP;
34 inches

B. ✔ UP;
54 inches

C. DOWN;
34 inches

D. DOWN;
54 inches

7. 205000K6.04 001

Unit 1 is in Mode 3 with RHR pump 1A in Shutdown Cooling (SDC).

Subsequently, RWL lowers to -10 inches and stabilizes.

Three (3) minutes later and based on the above conditions,

1E11-F015A, RHR Injection Valve, will be _____ .

RHR pump 1A _____ be running.

A. closed;
will

B. ✔ closed;
will NOT

C. open;
will

D. open;
will NOT

8. 206000G2.4.50 001

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

- o TORUS WATER LEVEL HIGH/LOW, 602-235, is ILLUMINATED
- o Torus water level 151.0 inches and stable

Based on the above conditions and one (1) minute later,

HPCI pump suction will be aligned to the _____ .

RCIC pump suction will be aligned to the _____ .

A. ✔ CST;
Torus

B. CST;
CST

C. Torus;
Torus

D. Torus;
CST

9. 209001A3.02 001

Unit 2 is operating at 100% RTP.

At 13:01, a Loss of Offsite Power occurs to BOTH Units.

At 13:10, RWL is -101 inches and slowly lowering.

Based on the above conditions,

The EARLIEST listed time that Core Spray pump 2A will be in operation is _____ .

A. 13:01

B. twelve (12) seconds after 13:01

C. ✔ 13:10

D. twelve (12) seconds after 13:10

10. 211000G2.2.36 001

Unit 1 is operating at 100% RTP with the following:

- o 1C41-C001B, SBLC pump 1B, is DANGER Tagged out of service for a pump leak

Based on the above status of SBLC pump 1B,

If a troubleshooting activity resulted in tripping the feeder breaker to _____ , an additional LCO entry would be required for the SBLC System.

A. ✔ 1R24-S011, Rx. Bldg. MCC 1C

B. 1R24-S012, Rx. Bldg. MCC 1B

C. 1R24-S013, Rx. Bldg. MCC 1A

D. 1R24-S014, Rx. Bldg. MCC 1D

11. 212000K1.03 001

Unit 2 is operating at 75% RTP.

The following occurs at the listed time:

- o 12:01 RPS MG Set 2A trips
- o 12:03 The Power Source Select switch (2H11-P610) is placed in the "ALT B" position

Based on the above conditions,

At 12:02, 2B31-R614, Recirc Drive Flow, recorder _____ indicate accurate flow.

At 12:05, Recirc Pump 2A Drive Flow will be _____ the Recirc Pump 2A Drive Flow at 12:00.

A. will NOT;
less than

B. will NOT;
approximately the same as

C. will continue to;
less than

D. will continue to;
approximately the same as

12. 215002K1.06 001

Unit 2 is operating at 50% RTP.

A central control rod has just been selected for withdrawal.

Based on the above conditions,

When the central control rod was selected, the RBM indication immediately went _____ .

After the RBM nulling sequence is complete, the RBM reading will be _____ .

A. downscale;
50%

B. ✔ downscale;
100%

C. to 100%;
50%

D. to 100%;
100%

13. 215003K2.01 001

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

24/48 VDC Cabinet 2A, 2R25-S015, de-energizes and can NOT be restored.

Based on the above conditions,

IRM Channels _____ will have lost their power supply.

A. 2A & 2C

B. 2A & 2D

C. 2B & 2C

D. 2B & 2D

14. 215004K3.04 001

Unit 2 is in a Refueling outage (NO fuel removed yet).

The following conditions exist:

- Reactor Mode Switch REFUEL
- SRM Shorting Links REMOVED

A Control rod located adjacent to SRM 2A is fully WITHDRAWN resulting in the following SRM indications:

- SRM 2A 20 CPS
- SRM 2B 7 CPS
- SRM 2C 8 CPS
- SRM 2D 7 CPS

Subsequently, a detector failure results in SRM 2D indication reading UPSCALE.

Based on the above conditions,

SRM 2A reactor power indication will _____ .

The SRM RPS SCRAM Setpoint is _____ .

A. reduce to a lower value;
$7x10^4$ CPS

B. ✔ reduce to a lower value;
$3x10^5$ CPS

C. remain approximately the same;
$7x10^4$ CPS

D. remain approximately the same;
$3x10^5$ CPS

15. 215005K1.08 001

Unit 2 is operating at 100% RTP with the following;

- o APRM 2B INOP and BYPASSED

Subsequently, APRM 2C fails INOP.

Based on the above conditions,

The "background" for Reactor power on the SPDS "Primary Display" will be _____ .

A. green

B. ✔ yellow

C. orange

D. magenta

16. 217000K6.01 001

RCIC is injecting into **Unit 2** following a transient.

Subsequently, 2R24-S021, 250V DC RX BLDG ESSEN. MCC 2A, DE-ENERGIZES.

Based on the above conditions,

RCIC will _____ injecting into the RPV.

2E51-F008, Outboard Isolation Valve, _____ LOST power.

A. ✔ continue;
has

B. continue;
has NOT

C. stop;
has

D. stop;
has NOT

17. 218000A2.06 001

Unit 1 is operating at 100% RTP when the ADS timer associated with the SPDS "Primary" Display screen INADVERTENTLY actuates.

The OATC reports ALL Key Parameters are NORMAL

Based on the above conditions,

The ADS timer that is counting down is the _____ .

IAW 34AB-E10-001-1, Inadvertent Initiation Of ECCS/RCIC, the Immediate Operator Action is to _____ .

A. ADS Low Water Level Timer;
shutdown ADS per the system operating procedure

B. ADS Low Water Level Timer;
place the ADS INHIBIT switches to the INHIBIT position

C. ADS Logic Timer;
shutdown ADS per the system operating procedure

D. ADS Logic Timer;
place the ADS INHIBIT switches to the INHIBIT position

18. 218000A3.09 001

A LOCA has occurred on **Unit 2**.

AUTO BLOWDOWN TIMERS INITIATED, 602-306, has just ILLUMINATED.

Based on the above conditions,

One (1) minute later, the AUTO BLOWDOWN TIMERS INITIATED, 602-306, will AUTOMATICALLY reset (turn GREEN) if _____ .

A. RWL increases to -90 inches

B. Drywell pressure decreases to 1.5 psig

C. ALL of the RHR and CS pumps are secured

D. the ADS Inhibit Switches are placed in the "INHIBIT" position

19. 223002A1.04 001

Unit 2 is operating at 20% RTP when the following occurs:

At 10:00, 2B21-F022A, Inboard MSIV fully closes
At 10:02, 2B21-F028B, Outboard MSIV fully closes
At 10:04, 2B21-F022C, Inboard MSIV fully closes

Based ONLY on the above conditions with respect to MSIV position input to the RPS Logic,

At 10:03, the TOTAL number of 2C71-K14, RPS Scram Relays, that are ENERGIZED is _____ .

At 10:05, the TOTAL number of 2C71-K14, RPS Scram Relays, that are ENERGIZED is _____ .

A. four (4);
zero (0)

B. four (4);
four (4)

C. eight (8);
zero (0)

D. eight (8);
four (4)

20. 223002A4.04 001

RCIC ISOLATION VLV F007/F008 NOT FULLY OPEN, 602-336, will ILLUMINATE based on exceeding the _____ setpoint, followed by a _____ minute time delay.

A. RCIC Equipment Room Temp High;
14

B. RCIC Equipment Room Temp High;
29

C. Suppression Chamber Area Air Temp High;
14

D. ✔ Suppression Chamber Area Air Temp High;
29

21. 234000A3.01 001

Unit 2 is in a refueling outage with the following conditions.

- Rx Mode Switch ..... Locked in the REFUEL position
- Control rods ..... One control rod is fully WITHDRAWN
- Main Fuel Grapple ..... Lowered, but verified to be able to clear the cattle chute by 3 ft. (Empty grapple move)
- NO rod is selected

The Refuel Bridge is over the Spent Fuel Pool and is moving toward the core to pick up the fuel bundle at position 17-42.

Based on the above conditions,

The Refuel Bridge _____ move to the intended core location.

When the Refuel Bridge stops, if the Grapple Raise/Lower switch is placed in the "LOWER" position, the Main Grapple _____ lower.

A. will;
will

B. will;
will NOT

C. will NOT;
will

D. ✔ will NOT;
will NOT

22. 239002A2.06 001

Unit 2 experienced a Main Turbine trip, resulting in a RPV Pressure INCREASE to 1135 psig.

The following conditions currently exist:

o Reactor Pressure	940 psig
o Torus temp	96°F and steady

Based on the above conditions,

The MAXIMUM number of SRV's that will have automatically opened is _____ .

IAW 34SO-E11-010-2, RHR Sytem, the MINIMUM number of loop(s) of RHR REQUIRED to be placed in Torus Cooling is _____ .

A. ✔ eight (8);
one (1)

B. eight (8):
two (2)

C. four (4);
one (1)

D. four (4);
two (2)

23. 241000A4.08 001

Unit 2 is operating at 25% RTP.

- o Main Generator load is 150 MWE

Based on the above plant conditions and IAW 34SO-N30-001-2, Main Turbine Operation,

Turbine Control Valve (TCV) number 4 will be _____ .

If the "CLOSE VALVES" button on the "Control" →"Speed" Screen is DEPRESSED, _____ of the TCVs will CLOSE.

A. throttled open;
NONE

B. throttled open;
ALL

C. closed;
NONE

D. closed;
ALL

24. 259001A1.04 001

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

- o 2C32-R606A, GEMAC, indication: +36.9 inches
- o 2C32-R606B, GEMAC, indication: +36.0 inches
- o 2C32-R606C, GEMAC, indication: +37.9 inches

Subsequently, the REFERENCE leg for RWL instrument 2C32-R606A develops a leak equivalent to a 5 inch per minute change on 2C32-R606A.

Based on the above conditions,

INITIALLY, RFPT speeds will _____ .

Five (5) minutes later, FINAL RFPT speed will be equivalent to _____ .

A. ✔ DECREASE;
windmilling speed

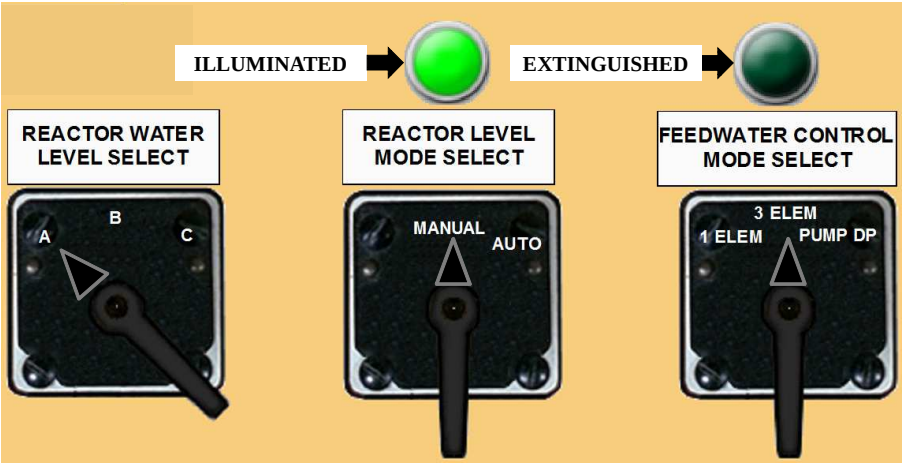
B. DECREASE;
turning gear speed

C. INCREASE;
windmilling speed

D. INCREASE;
turning gear speed

25. 259002K4.14 001

Unit 2 is at 75% RTP with the following RWLC System indications:



NOTE: 2C32-R600, FW Master Controller, is operating in AUTOMATIC.

Based on the above conditions,

2C32-R600, FW Master Controller, is currently using the _____ as its value for RWL.

The FW Master Controller is currently operating in _____ Control.

A. instrument selected from the Reactor Water Level Select switch;
Single Element

B. instrument selected from the Reactor Water Level Select switch;
Three Element

C. ✔ Median Level Signal Processor, 2C32-K648 output;
Single Element

D. Median Level Signal Processor, 2C32-K648 output;
Three Element

26. 261000A4.01 001

BOTH Units are operating at 100% RTP when a RWCU System break occurs in the Unit 2 Reactor Building.

At 10:05: 2D11-K609A-D, Rx. Bldg. Contaminated Area Radiation, monitors indicate 20 mR/hr

Based on the above conditions and IAW 34SO-T46-001-1/2, Standby Gas Treatment System,

The EARLIEST listed time that the _____ SBGT fan will have automatically shutdown is _____ .

A. 1B;
10:15

B. ✔ 1B;
10:10

C. 2B;
10:15

D. 2B;
10:10

27. 262001A1.04 001

Unit 2 is at 70% RTP with an operator transferring 4160 VAC Bus 2D to its NORMAL supply. The following conditions currently exist:

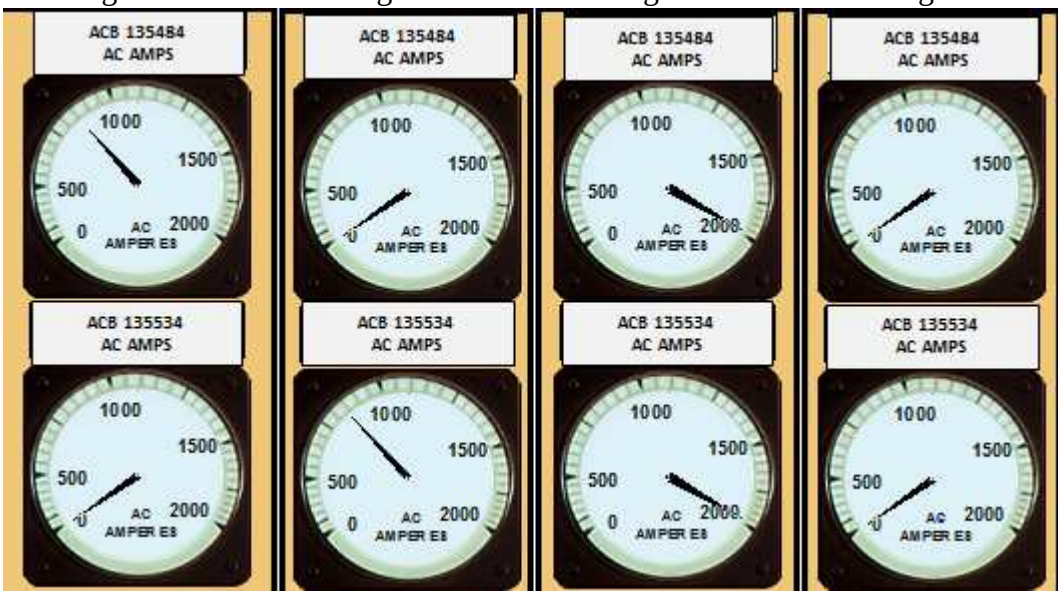
- Voltages are matched
- Sync switch for the 4160 VAC 2D Normal breaker is in the ON position
- Sync light is at its dimmest (12 O'Clock position and steady)
- Station SVC Interlock Cutout switch for ACB 135484-135534 is in the OFF-(DOWN) position

Subsequently, the operator places the control switch for 135484 (Normal supply breaker) in the close position for one (1) second and then releases the switch.

Based on the above conditions,

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

28. 262002K4.01 001

Unit 2 was operating at 100% RTP when the following occured:

- o Loss of Off-Site Power (LOSP)
- o EDG 2A fails to start

Based on the above conditions and without any operator actions,

After the LOSP, the Unit 2 Vital AC Bus will INITIALLY receive power from _____ .

Subsequently, if this power supply is lost, the Vital AC Bus _____ automatically transfer to ANOTHER power source.

A. the Vital AC batteries;
will

B. ✔ the Vital AC batteries;
will NOT

C. 600 V Bus 2D via Vital AC battery charger;
will

D. 600 V Bus 2D via Vital AC battery charger;
will NOT

29. 263000A1.01 001

Unit 2 Division 1 125VDC Station Service Battery Chargers are being operated in the EQUALIZE Mode.

Based on the above conditions and IAW 34SO-R42-001-2, 125 VDC And 125/250 VDC System,

In EQUALIZE Mode, the charger output voltage to the battery will be _____ than when the charger is operating in the FLOAT Mode.

Without re-charging, the 125 VDC Station Service batteries are sized to have adequate storage capacity to carry the required load for approximately _____ .

A. equal;
2 hours

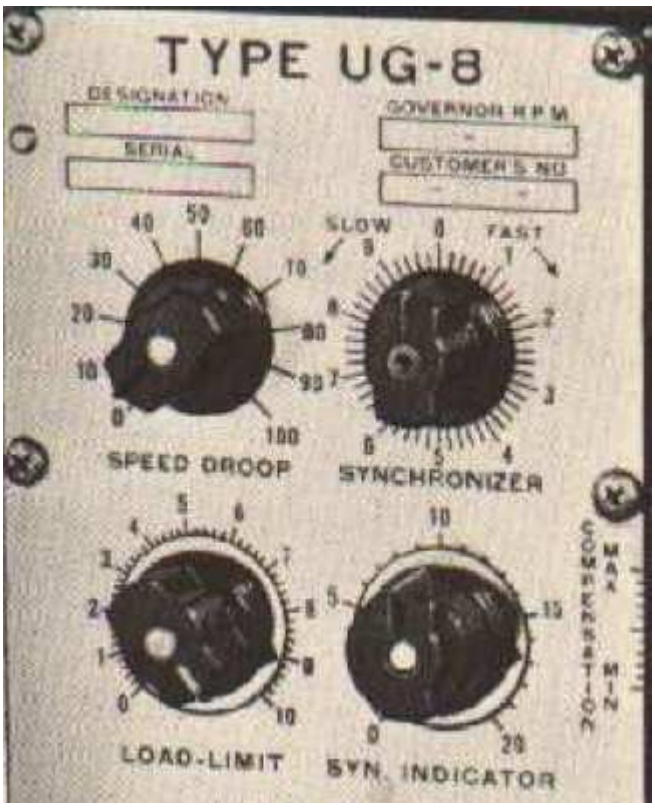
B. equal;
8 hours

C. ✔ higher;
2 hours

D. higher;
8 hours

30. 264000K1.05 001

Which ONE of the following knobs can be used to completely shut off the fuel supply to a running Plant Hatch Emergency Diesel Generator?



A. LOAD LIMIT

B. SYN INDICATOR

C. SPEED DROOP

D. SYNCHRONIZER

31. 264000K5.05 001

IAW 34SO-R43-001-2, Diesel Generator Standby AC System, Section 7.2.1.2, Synchronizing Diesel Generator 2A to an Energized Bus,

When manually synchronizing EDG 2A to an energized bus, the synchroscope is REQUIRED to be rotating in a direction which will REDUCE the probability of causing a _____ trip.

After EDG 2A output breaker is closed, exceeding the Crankcase pressure setpoint _____ automatically trip EDG 2A.

A. differential current;
will

B. differential current;
will NOT

C. ✔ reverse power;
will

D. reverse power;
will NOT

32. 272000K5.01 001

Unit 2 is at 50% RTP increasing power to 100% RTP.

The following conditions exist:

- o The Hydrogen Injection System controller is in AUTOMATIC/EXTERNAL
- o The Hydrogen flow setpoint is set at 5 SCFM

At 10:00, Reactor Power is 100% RTP.

At 10:30, Hydrogen flow is ISOLATED.

Based on the above conditions,

As reactor power is increased, the Hydrogen flow rate will _____ .

At 10:35, the Main Steam Line radiation levels will have _____ .

A. INCREASE;
DECREASED

B. INCREASE;
INCREASED

C. REMAIN the SAME;
DECREASED

D. REMAIN the SAME;
INCREASED

33. 286000K2.02 001

IAW 34SO-X43-001-1, Fire Pumps Operating Procedure,

The power supply to 1X43-C001, Electric Fire Pump, is _____ .

A. ✔ 4160 VAC 1E, 1R22-S005

B. 4160 VAC 1F, 1R22-S006

C. 600 VAC 1A, 1R25-S051

D. 600/208 VAC 1A, 1R24-S028

34. 290002K5.01 001

Unit 2 is operating at 100% RTP. The following information was obtained from a 3D MONICORE Monitor Case printout:

MFLCPR	LOC	MFLPD	LOC
1.011	11-26	0.974	29-42-20

Based on the above conditions,

At this time, the _____ thermal limit has been EXCEEDED.

The basis for the thermal limit identified above is to avoid the potential for _____ .

A. MFLPD;
fuel rod transition boiling

B. MFLPD;
fuel cladding plastic strain

C. MFLCPR;
fuel rod transition boiling

D. MFLCPR;
fuel cladding plastic strain

&Rcp k q npmtgbcb ncp _nnjga_lr oscqrgml during exam administration'
KDJNB + K_vgk s k Dp_argml md Jgkgrgle Nmucp Bclqgrw
KDJANP + K_vgk s k Dp_argml md Jgkgrgle Apgrga_j Nmucp P_rgm

35. 290003K3.02 001

Unit 1 is in Mode 3.
Unit 2 is in Mode 4, moving irradiated fuel in the Unit 2 Fuel Pool.

Subsequently, the following occurs;

- o 600 VAC Bus 1C DE-ENERGIZES
- o 600 VAC Bus 1D DE-ENERGIZES

Based on the above conditions,

LCO 3.7.5, Control Room Air Conditioning (AC) System, _____ currently applicable to BOTH Units.

Main Control Room instrumentation cooling _____ been lost.

A. is NOT;
has

B. is NOT;
has NOT

C. is;
has

D. is;
has NOT

36. 295001AK3.04 001

Unit 2 is operating at 60% RTP.

Subsequently, ONE Recirc Pump trips.

Unit 2 stabilizes inside the Region of Potential Instabilities on the power to flow map.

APRM bandwidth oscillations are observed and are INCREASING.

Based on the above conditions,

The LOWEST listed APRM peak to peak oscillation that REQUIRES a reactor scram is _____ .

The reason for the reactor scram is to avoid EXCEEDING the Limit for _____ .

A. 3%;
MCPR

B. 3%;
MAPRAT

C. ✔ 7%;
MCPR

D. 7%;
MAPRAT

37. 295003AK2.03 001

Unit 1 is operating at 100% RTP when 1R25-S036, Essential Cabinet 1A, de-energizes and CANNOT be re-energized.

The SRO directs a NPO to cross connect Instrument Buses IAW 34AB-R25-002-1, Loss Of Instrument Buses.

Based on the above conditions and IAW 34AB-R25-002-1,

To energize 1R25-S064, Instrument Bus 1A, from 1R25-S065, Instrument Bus 1B, the NPO must utilize _____ .

Once power is restored to 1R25-S064, 1N62-F527, Off Gas Stack Inlet Valve, _____ .

A. breakers ONLY;
will automatically open

B. ✔ breakers ONLY;
must be manually opened

C. breakers and disconnects;
will automatically open

D. breakers and disconnects;
must be manually opened

38. 295004AA1.03 001

Unit 2 is operating at 100% RTP.

- o A loss of 2R22-S016, 125/250VDC Switchgear 2A, occurs
- o Subsequently, a Main Turbine trip occurs

Based on the above conditions and IAW 34AB-R22-001-2, Loss Of DC Buses,

The Main Generator output breakers _____ .

The 4160 VAC Station Service Buses _____ automatically transfer to their alternate supply.

A. will automatically open;
will

B. will automatically open;
will NOT

C. must be manually opened;
will

D. ✔ must be manually opened;
will NOT

39. 295005G2.2.37 001

Unit 2 was operating at 100% RTP with 4160 VAC 2G Emergency Bus on Alternate Supply.

Subsequently, the Unit 2 Main Turbine trips on Generator Differential Overcurrent.

Based on the above conditions and one (1) minute after the Main Turbine trips,

The Recirc pumps _____ be operating.

4160 VAC 2C _____ to its Startup Auxiliary Transformer.

A. will;
must be manually transferred

B. will;
will automatically transfer

C. ✔ will NOT;
must be manually transferred

D. will NOT;
will automatically transfer

40. 295006AK1.02 001

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

ALL Control Rods fully inserted with the following EXCEPTIONS:

Control Rod	Position	Control Rod	Position
26-31	02	10-27	02
26-23	02	30-11	02
22-35	02	30-47	02
22-27	02	46-19	02
50-27	02	02-31	02

Based on the above conditions,

Based ONLY on the current rod positions, the reactor _____ in a Cold Shutdown Rod Configuration.

IAW Plant Procedures, ALL automatic scram signals _____ ALLOWED to be BYPASSED.

A. is;
are

B. ✔ is;
are NOT

C. is NOT;
are

D. is NOT;
are NOT

41. 295007AA2.02 001

Unit 2 has experienced a transient.

The following conditions exist at the given time:

At 10:05, RPV pressure is 1056 psig
At 10:08, RPV pressure is 1075 psig

At 10:11, LLS is controlling RPV pressure with the following:

- 2B LLS valve continuously OPEN
- 2G LLS valve cycling on LLS setpoint

Based on the above conditions,

IAW 34AB-C71-001-2, Scram Procedure, the EARLIEST listed time that LLS is ALLOWED to be manually ARMED is _____ .

At 10:11, based on SRV positions, Reactor Power is approximately _____ .

A. 10:05;
6% RTP

B. 10:05;
11% RTP

C. 10:08;
6% RTP

D. ✓ 10:08
11% RTP

42. 295010AK3.01 001

Unit 1 is operating at 100% RTP when Drywell pressure starts slowly INCREASING.

Drywell venting is placed in service using:

- o 1T48-R615A, Drwl Flow Controller
- o 1T48-F336A, Drywell Vent Flow Cntl Valve

Based on the above conditions,

The bases for placing Drywell venting in service _____ to prevent a high Drywell pressure reactor scram.

IAW 34SO-T48-002-1, Containment Atmospheric Control and Dilution Systems,
DO NOT EXCEED 100% demand on Controller, 1T48-R615A,
to prevent damaging _____ .

A. is NOT;
1T48-R615A

B. is NOT;
1T48-F336A

C. is;
1T48-R615A

D. ✔ is;
1T48-F336A

43. 295014G2.1.28 001

Unit 2 is operating at 75% RTP when HPCI inadvertently starts.

34SO-E41-001-2, High Pressure Coolant Injection (HPCI) System, has been entered.

- o HPCI Initiation signal WHITE light will NOT reset
- o A NPO has just depressed the HPCI Trip Pushbutton

Based on the above conditions and IAW 34SO-E41-001-2,

The HPCI Trip Pushbutton will be RELEASED _____ .

The purpose for this action is to _____ on a subsequent initiation signal.

A. WHEN the 2E41-F001, HPCI Turb Steam Supply valve, indicates full CLOSED; prevent HPCI from automatically restarting

B. WHEN the 2E41-F001, HPCI Turb Steam Supply valve, indicates full CLOSED; allow HPCI to automatically restart

C. ONLY after HPCI TURBINE BRG OIL PRESS LOW, 601-112, alarm is received; prevent HPCI from automatically restarting

D. ONLY after HPCI TURBINE BRG OIL PRESS LOW, 601-112, alarm is received; allow HPCI to automatically restart

44. 295016AA2.01 001

The Main Control Room has been evacuated.

The **Unit 2** reactor was NOT shutdown prior to leaving the Control Room.

- o Local actions have been taken to scram the reactor
- o ALL RSDP transfer switches have been placed in the EMERGENCY position

Based on the above conditions and IAW 31RS-OPS-001-2, Shutdown From Outside Control Room,

From the Remote Shutdown Panel, _____ can be started.

An operator stationed in the TSC will utilize _____ to verify automatic actions, isolations and initiations will occur.

A. ONLY one CRD pump;
the Plant Process Computer

B. ✔ ONLY one CRD pump;
SPDS

C. BOTH CRD pumps;
the Plant Process Computer

D. BOTH CRD pumps;
SPDS

45. 295017AA1.05 001

A Site Area Emergency has just been declared on **Unit 2** due to a leak into secondary containment. A Prompt Offsite Dose Assessment is in progress but results are unavailable at this time.

SPDS "MIDAS" Screen is attached on the next page.

The following Table is from NMP-EP-111-002, Emergency Notification Network Communicator Instructions - Hatch:

Wind Direction From	Rally Point	Site Exit Route	Evacuation Route/ State Reception Center
340º - 60º	Gate 17	Main Access Road	U.S. Hwy. 1 - North to Toombs Co. High School/ Lyons
61º - 110º	PESB	Road behind Low Level Radwaste Building	U.S. Hwy. 1 - South to Appling Co. High School/ Baxley
111º - 225º	PESB	Main Access Road	U.S. Hwy. 1 - South to Appling Co. High School/ Baxley
226º - 339º	PESB	Main Access Road	EITHER direction on U.S. Hwy. 1 to Toombs Co. High School/ Lyons OR Appling Co. High School/ Baxley

Based on the above conditions,

Radiation levels in the Main Stack _____ exceeded the HI-HI setpoint.

IAW NMP-EP-111-002, the site evacuation route is _____ .

A. have;
US #1 North

B. have;
US #1 South

C. have NOT;
US #1 North

D. have NOT;
US #1 South

MIDAS INFORMATION

METEOROLOGICAL

10M WIND SPD 1Y33-R601 **5.0**	100M WIND SPD 1Y33-R603 **4.0**	10M WIND DIR 1Y33-R601 **65**	100M WIND DIR 1Y33-R603 **50**
AMBIENT TEMP **(F) 10M** **55**	DELTA T **60-10** **-0.5**	DELTA T **100-10** **-1.0**	RAINFALL **15 MIN. AVG** **.000**

RADIOLOGICAL

MAIN STACK		U1 RX. BLDG. VENT		U2 RX. BLDG. VENT	
NORMAL RANGE	KAMAN	NORMAL RANGE	KAMAN	NORMAL RANGE	KAMAN
	4.0E-02	**6.7E01**		**5.4E01**	
		6.7E01		**5.4E01**	

STABILITY CLASS
D

FIGURE 1

46. 295018AA1.01 001

Unit 2 is operating at 50% RTP.

Subsequently, one (1) RBCCW pump and one (1) PSW pump trips.

Both RBCCW Header and PSW Header pressures stabilize at 93 psig.

Based on the above conditions and IAW 34AB-P42-001-2, Loss Of Reactor Building Closed Cooling Water, the NPO will _____ the Standby RBCCW pump.

A Standby RBCCW pump automatic start signal _____ when the condition clears.

A. confirm the automatic start of;
will automatically reset

B. confirm the automatic start of;
must be manually reset

C. manually start;
will automatically reset

D. manually start;
must be manually reset

47. 295019G2.1.32 001

On **Unit 2**, IAW 34AB-P51-001-2, Loss of Instrument And Service Air System Or Water Instrusion Into the Service Air System,

2P52-F565, Rx Bldg Inst N_2 To Non-Int Air El. 185 Isol Vlv, will FIRST open when Non-Interruptible Essential Air Pressure DECREASES to _____ .

IF 2P52-F565 is continuously cycling, THEN 2P52-F565 is OPENED and the supply breaker is turned OFF to _____ .

A. 90 psig;
stabilize nitrogen system pressure

B. 90 psig;
prevent failure of the valve motor

C. 80 psig;
stabilize nitrogen system pressure

D. ✔ 80 psig;
prevent failure of the valve motor

48. 295020AK2.01 001

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

2R22-S017, 125/250 VDC Batt Swgr 2B, DE-ENERGIZES.

Based on the above electrical loss,

A loss of _____ would result in an inadvertent _____ Group 1 Isolation.

A. RPS Bus 2A;
Outboard

B. RPS Bus 2A;
Inboard

C. ✔ RPS Bus 2B;
Outboard

D. RPS Bus 2B;
Inboard

49. 295021AA1.06 001

Unit 2 is shutdown with RHR Loop A aligned for Shutdown Cooling with the following conditions:

o Reactor Shutdown	Two (2) days ago
o The Drywell is open and available for access	
o 2B21-F003, Reactor Head Vent Valve	OPEN
o 2B21-F004, Reactor Head Vent Valve	OPEN
o 2B21-F005, Reactor Manual Head Vent Valve	CLOSED

Subsequently, a loss of SDC occurs.

Based on the above conditions and with NO Operator actions,

IAW 34AB-E11-001-2, Loss of Shutdown Cooling, Reactor bulk coolant temperature is expected to reach 212°F in approximately _____ .

If Reactor bulk coolant temperature reaches 250°F, Drywell temperature indications will _____ .

REFERENCE PROVIDED

A. ✔ 1 hour 5 minutes;
be slowly increasing

B. 1 hour 5 minutes;
still be approximately the same

C. 5 hours 54 minutes;
be slowly increasing

D. 5 hours 54 minutes;
still be approximately the same

50. 295023AK1.01 001

Both Units are operating at 100% RTP with the following activities in progress:

- o Irradiated fuel movement in progress between the Fuel Pools
- o **Unit 1** Normal Drywell venting in progress
- o **Unit 2** Normal Drywell venting in progress

At 13:00, the Refuel Bridge reports that a bundle has been bent and visible gas bubbles are rising from the currently latched fuel bundle.

In the Main Control Room there are NO lit annunciators from this malfunction.

At 13:03, the following indications are observed in the Main Control Room:

o ALL Refueling Floor (RF) ARMs	30 mR/hr
o 1D11-K611 A-D, RF Vent Exhaust Radiation	17 mR/hr
o 2D11-K611 A-D, RF Vent Exhaust Radiation	15 mR/hr
o 2D11-K634 A-D, RF Vent Exhaust Radiation	7 mR/hr
o 2D11-K635 A-D, RF Vent Exhaust Radiation	7 mR/hr

Based on the above conditions,

Normal Drywell venting _____ isolated on BOTH Units.

The EARLIEST listed time that entry into 34AB-J11-001-2, Irradiated Fuel Damage During Handling, is REQUIRED is _____ .

A. has;
13:00

B. has;
13:03

C. ✔ has NOT;
13:00

D. has NOT;
13:03

51. 295024EK2.13 001

Unit 2 is operating at 75% RTP. Reactor power is being reduced due to a leaking SRV.

The following conditions exist:

- o Drywell pressure 0.4 psig
- o Torus pressure 0.2 psig
- o RHR pump 2A operating
- o Torus Cooling in service
- o Torus Spray in service

At 13:00, Drywell pressure starts increasing at 0.3 psig/minute.

At 13:03, DRYWELL PRESS HIGH, 602-210, ILLUMINATED.

Based on the above conditions,

The EARLIEST listed time that RHR Loop A in Torus Spray will automatically isolate is _____ .

At 13:10, to return Torus Spray to service, the Containment Spray Vlv Control switch _____ REQUIRED to be placed in the MANUAL position.

A. 13:05;
is

B. 13:05;
is NOT

C. 13:03;
is

D. 13:03;
is NOT

52. 295025EA2.01 001

31EO-EOP-107-2, Altenate RPV Pressure Control, is in progress.

- o RPV pressure 1060 psig and slowly rising
- o HPCI system is aligned in Pressure Control Mode
- o 2E41-R612, HPCI flow controller is in AUTOMATIC with the setpoint at 2500 gpm

Based on the above conditions and IAW 31EO-EOP-107-2,

To stabilize RPV pressure, the operator will _____ .

A. RAISE the setpoint on 2E41-R612, HPCI flow controller

B. LOWER the setpoint on 2E41-R612, HPCI flow controller

C. throttle 2E41-F011, Test to CST VLV, in the CLOSE direction

D. throttle 2E41-F011, Test to CST VLV, in the OPEN direction

53. 295026EK3.05 001

Unit 2 is operating at 100% RTP with a SRV experiencing leakage.

31EO-EOP-012-2, PC Primary Containment Control, is in progress.

Based on the above conditions and IAW 31EO-EOP-012-2,

The LOWEST listed Torus temperature REQUIRING a reactor scram is _____ .

The reason for the reactor scram is to ensure the reactor is shutdown before Torus temperature reaches _____ limit.

A. 106°F;
the BIIT Curve

B. 106°F;
any ECCS NPSH

C. ✔ 111°F;
the BIIT Curve

D. 111°F;
any ECCS NPSH

54. 295028G2.4.31 001

Unit 2 is operating at 100% RTP when a small pipe break in the Drywell occurs.

- o Drywell Pressure has increased to 2.5 psig
- o Drywell Temperature has increased to 130°F

Based on the above conditions and IAW 31EO-EOP-100-2, Miscellaneous Emergency Overrides,

The HIGHEST listed Drywell temperature point at which the Drywell Chillers are allowed to be restarted is _____ .

A. 149°F

B. ✔ 249°F

C. 279°F

D. 339°F

55. 295030EK3.01 001

Unit 1 has experienced a leak resulting in Torus water level decreasing.

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

If the leak <u>is isolated</u>, to restore Torus water level, the _____ System suction piping from the CST can be used.

If the leak <u>can NOT</u> be isolated, the reason for performing an Emergency Depressurization on low Torus water level is to prevent _____ .

A. ✔ Core Spray;
direct pressurization of the Torus air space

B. Core Spray;
excessive loading of the SRV tail pipes and supports

C. HPCI;
direct pressurization of the Torus air space

D. HPCI;
excessive loading of the SRV tail pipes and supports

56. 295031EK2.11 001

Unit 1 is operating at 100% RTP.

An event occurs causing RWL to decrease and results in the following 1C32-R606A-C GEMAC, indications:

Time	**RWL**
10:00	+40 inches and steady
10:01	+5 inches and decreasing
10:02	-5 inches and decreasing
10:15	+35 inches and steady

Based on the above conditions and ONLY on plant automatic response,

The NPO is first REQUIRED to perform RWL control actions per Placard RC-2 at _____ .

At 10:15, alarm, REACTOR VESSEL WATER LEVEL HIGH/LOW, 603-141, will be _____ .

A. 10:01;
ILLUMINATED (Revised to FLASHING WHITE)

B. 10:01;
EXTINGUISHED (Revised to SOLID GREEN)

C. 10:02;
ILLUMINATED (Revised to FLASHING WHITE)

D. ✔ 10:02;
EXTINGUISHED (Revised to SOLID GREEN)

(Answer revisions provided per applicant question during exam administration)

57. 295032EA2.01 001

Unit 2 is operating at 100% RTP with the following HPCI Pump Room Cooler alignment:

- o HPCI Pump Room Cooler "A" (2T41-B005A) is operating with its control switch in the "RUN" position
- o HPCI Pump Room Cooler "B" (2T41-B005B) is NOT running with its control switch in the "AUTO" position

Subsequently, a steam leak develops in the HPCI Room causing HPCI Area temperatures to increase.

Time	**HPCI Room Temp**
01:00	95°F
01:05	105°F
01:15	135°F
01:20	170°F

Based on the above conditions,

The EARLIEST listed time that HPCI Pump Room Cooler B, (2T41-B005B), will automatically start is _____ .

The EARLIEST listed time that HPCI will have RECEIVED an automatic isolation signal is _____ .

A. 01:00;
01:15

B. 01:00;
01:20

C. 01:05;
01:15

D. ✔ 01:05;
01:20

58. 295037EA1.10 001

Unit 2 was operating at 100% RTP when an ATWS results in the following:

- o SBLC System fails to initiate from the Control Room
- o An Operator attempts to locally initiate SBLC, but SBLC fails to initiate

Based on the above conditions and IAW 31EO-EOP-109-2, Alternate Boron Injection,

To inject Boron into the RPV using the CRD System , the operator will DIRECTLY connect hoses to _____ .

When boron is being injected, 2C11-F015A & F015B, CRD Pump Minimum Flow valves, are REQUIRED to be in the _____ position.

A. ✔ 2C41-F034, SBLC Combined Drain Valve; closed

B. 2C41-F034, SBLC Combined Drain Valve; open

C. 2C41-F015, SBLC Suction Line Drain Valve; closed

D. 2C41-F015, SBLC Suction Line Drain Valve; open

59. 295038EK1.02 001

Unit 2 was operating at 100% RTP when a radiological event occurred resulting in an automatic start of the SBGT system.

An emergency is declared based on a radiological release at the following times:

At 09:00, Alert (RA1)
At 10:00, Site Area (RS1)

Based on the above conditions,

The EARLIEST listed time that an entry condition into the RR portion of 31EO-EOP-014-2, SC-Rad Release Control, EOP Flowchart, will exist is _____ .

IAW 34SO-T46-001-2, SBGT System Operation, operation of _____ normally REQUIRED to maintain adequate negative Reactor Building dP.

A. ✔ 09:01;
ONLY one (1) SBGT Train is

B. 09:01;
BOTH SBGT Trains are

C. 10:01;
ONLY one (1) SBGT Train is

D. 10:01;
BOTH SBGT Trains are

60. 300000K2.01 001

The power supply for **Unit 2** Station Service Air Compressor (SSAC) 2A is _____ .

The power supply for **Unit 2** SSAC 2C is _____ .

A. ✔ 600VAC Bus 2C;
600VAC Bus 2A

B. 600VAC Bus 2C;
600VAC Bus 2BB

C. 600VAC Bus 2D;
600VAC Bus 2A

D. 600VAC Bus 2D;
600VAC Bus 2BB

61. 400000A2.04 001

The following annunciator on **Unit 1** is in the alarm condition:

- SERVICE WATER EFFLUENT RADIATION HIGH, 601-407

Based on the above condition,

The flowpath containing this alarm _____ AUTOMATICALLY isolate.

IAW 601-407, the NPO will notify _____ .

A. will;
Chemistry to sample Circulating Water to determine if effluent limits have been exceeded

B. will;
the Radwaste Operator to confirm closed / close this discharge flowpath

C. ✔ will NOT;
Chemistry to sample Circulating Water to determine if effluent limits have been exceeded

D. will NOT;
the Radwaste Operator to confirm closed / close this discharge flowpath

62. 400000K3.01 001

Unit 1 was operating at 100% RTP when a total loss of Reactor Building Closed Cooling Water (RBCCW) occurred.

Based on the above conditions,

The LOWEST RWCU Non-Regenerative Heat Exchanger outlet temperature which will result in a RWCU system isolation is _____ .

This isolation signal will result in automatic closure of ONLY the _____ ,
Rx Water Cleanup Valve.

A. 130°F;
1G31-F001

B. 130°F;
1G31-F004

C. 140°F;
1G31-F001

D. ✔ 140°F;
1G31-F004

63. 500000EK1.01 001

The LOWEST listed Hydrogen concentration that will REQUIRE entry into 31EO-EOP-012-1, PC Primary Containment Control, is _____ .

IAW 31EO-EOP-104-1, Primary Containment Venting for Hydrogen/Oxygen Control, the PREFERRED method to vent containment is to align the CAD System vent valves to the _____ .

A. ✔ 1.6%;
Torus

B. 1.6%;
Drywell

C. 1.9%;
Torus

D. 1.9%;
Drywell

64. 600000AA2.14 001

Unit 1 is shutdown with RPV pressure at 100 psig.

Subsequently, a fire has started in Fire Zone 1408, Switchgear Room 1F.

The fire brigade has requested all electrical switchgear located in the room to be de-energized to aid in suppressing the fire.

Based on the above conditions,

Shutdown Cooling can be placed into service using _____ to achieve and maintain a Cold Shutdown condition.

A. RHR pump 1B and RHRSW pump 1C

B. ✔ RHR pump 1B and RHRSW pump 1D

C. RHR pump 1C and RHRSW pump 1C

D. RHR pump 1C and RHRSW pump 1D

65. 700000G2.4.45 001

Unit 1 is operating at 100% RTP when a grid disturbance results in all 4160 VAC Emergency Buses indicating 3700 VAC.

The load dispatcher reports that these conditions will exist for 4 hours.

Based on the above conditions,

IAW 34AB-S11-001-0, Operation With Degraded Voltage, one (1) hour later, 4160 VAC Bus _____ is REQUIRED to be powered by its associated EDG on **Unit 1**.

When transferring the 4160 VAC Emergency Bus to its associated EDG, the respective LOSS OF OFF SITE POWER alarm on 1H11-P652 _____ be RECEIVED.

A. 1E;
will

B. 1E;
will NOT

C. 1G;
will

D. 1G;
will NOT

66. G2.1.5 001

Both Units are operating at 100% RTP.

Based on the above conditions and IAW NMP-AD-016-003, Scheduling and Calculating Work Hours,

The MAXIMUM number of hours that a Nuclear Plant Operator may work in any **24 hour** period is _____ .

The MAXIMUM number of hours that a Nuclear Plant Operator may work in any **7-day/168-hour** period is _____ .

A. 14 hours;
84 hours

B. 14 hours;
72 hours

C. 16 hours;
84 hours

D. ✔ 16 hours;
72 hours

67. G2.1.44 001

Unit 1 is in REFUEL with a core shuffle currently in progress.

Based on the above conditions and IAW 34FH-OPS-001-0, Fuel Movement Operation,

The individual in the Main Control Room on the headset with the Refueling SRO _____ REQUIRED to have a NRC License.

The Reactor Mode Switch _____ REQUIRED to be locked in the REFUEL position.

A. is;
is

B. is;
is NOT

C. is NOT;
is

D. is NOT;
is NOT

68. G2.2.38 001

IAW the **Unit 1** Facility Operating License, Southern Nuclear is authorized to operate Plant Hatch at a MAXIMUM steady-state reactor core power level of _____ .

A. 2777 MWth

B. 2790 MWth

C. 2800 MWth

D. ✔ 2804 MWth

69. G2.2.40 001

Unit 2 is shutdown with the following conditions:

- o RPV pressure 134 psig
- o Recirculation pump 2A OFF
- o Recirculation pump 2B Running

Based on the above conditions and IAW Tech Spec 3.4.7, Residual Heat Removal (RHR) Shutdown Cooling System - Hot Shutdown,

The MINIMUM number of RHR Shutdown Cooling (SDC) subsystems required to be operable, without requiring entry into a Required Action Statement (RAS), is _____ .

A RHR SDC subsystem _____ REQUIRED to be in operation.

A. one (1);
is

B. one (1);
is NOT

C. two (2);
is

D. ✔ two (2);
is NOT

70. G2.2.43 001

On **Unit 2** the annunciator card for the following has been PULLED and DE-ACTIVATED:

- o TURBINE TROUBLE, 650-105

Based on the above condition and IAW 31GO-OPS-014-0,

With 650-105 de-activated, a _____ magnetic tile will be installed beside the annunciator number label under the annunciator window.

The installed magnetic tile will be _____ .

A. yellow;
labeled with a "P"

B. yellow;
blank

C. white;
labeled with a "P"

D. white;
blank

71. G2.3.7 001

Unit 2 is operating at 100% RTP with a steam leak in the 2A SJAE room. A SO has been assigned to investigate. RP reports that the general area radiation levels are 120 mR/hr.

Based on the above conditions,

A _____ RWP will be used to enter the SJAE room and _____ is the type of information you would expect to find on this type of RWP.

A. Specific;
the current Reactor Mode

B. ✔ Specific;
Digital Alarming Dosimeter (DAD) settings

C. General;
the current Reactor Mode

D. General;
Digital Alarming Dosimeter (DAD) settings

72. G2.3.11 001

Unit 2 Radwaste is discharging Waste Sample Tank A to the canal.

Subsequently, the following indication is received:

- 2G11-R045, Total Plant Dilution Flow, recorder indicates 9500 gpm

Based on the above conditions,

The Radwaste discharge to the canal _____ .

With the existing Specific Release Permit, _____ permitted to restart the discharge of Waste Sample Tank A to the canal.

A. ✔ will automatically terminate;
ONLY one (1) restart is

B. will automatically terminate;
NO restarts are

C. must be manually terminated;
ONLY one (1) restart is

D. must be manually terminated;
NO restarts are

73. G2.3.15 001

The power supplies for the **Unit 1** Post-Treatment Radiation monitors, 1D11-K615A & K615B, is _____ .

The location of the **Unit 1** Post-Treatment Radiation detectors NORMAL sample point is just prior to _____ .

A. RPS Bus B & Instrument Bus 1A;
EXITING the Main Stack

B. RPS Bus B & Instrument Bus 1A;
ENTERING the Main Stack

C. 24/48 VDC Cabinet 1A & 1B
EXITING the Main Stack

D. ✔ 24/48 VDC Cabinet 1A & 1B
ENTERING the Main Stack

74. G2.4.17 001

An ATWS exists on **Unit 1**.

- o Reactor Power is slowly DECREASING
- o Boron has NOT been injected into the RPV
- o All SRMs and IRMs have been fully inserted

The following conditions occur:

Time	**Reactor Power**
01:00	APRMs indicate 4% RTP
01:10	IRMs on Range 7
01:20	IRMs on Range 5
01:30	SRMs indicate 6.0 x 10^4 CPS

Based on the above conditions and IAW the EOPs,

The EARLIEST time the reactor can be declared SHUTDOWN with the reactor SUBCRITICAL is at _____ .

A. 01:00

B. 01:10

C. ✔ 01:20

D. 01:30

75. G2.4.42 001

An emergency has been declared at Plant Hatch.

Based on the above conditions,

The LOWEST listed emergency classification that will REQUIRE activation of the Technical Support Center (TSC) is _____ .

The ALTERNATE location for the TSC is _____ .

A. an Alert Emergency;
Classroom 172, Simulator Building

B. ✔ an Alert Emergency;
the Main Control Room

C. a Notification of Unusual Event;
Classroom 172, Simulator Building

D. a Notification of Unusual Event;
the Main Control Room

76. 206000A2.11 001

Unit 2 has experienced a non-isolable RCIC pipe break in the Main Steam Tunnel (Chase) resulting in the following conditions:

- o MSIVs CLOSED
- o RWL -25 inches and lowering
- o HPCI ISOL TIMER INITIATED, 601-105, ILLUMINATED

Based on the above conditions,

The HIGHEST listed RWL value that HPCI will receive an automatic start signal is _____ .

To maintain HPCI for RWL control, the Shift Supervisor will direct bypassing the HPCI High Area Temperature Isolation using _____ .

A. ✔ -36 inches;
31EO-EOP-100-2, Miscellaneous Emergency Overrides

B. -36 inches;
31EO-EOP-110-2, Alternate RPV Water Level Control

C. -48 inches;
31EO-EOP-100-2, Miscellaneous Emergency Overrides

D. -48 inches;
31EO-EOP-110-2, Alternate RPV Water Level Control

77. 212000A2.05 001

Unit 1 is in Mode 2 making preparations to enter Mode 1.

At 08:00, I & C reports the following instruments have failed high:

- o 1B21-N080A, Narrow Range RWL
- o 1B21-N080C, Narrow Range RWL

At 08:30, the Channel associated 1B21-N080A has been placed in the TRIPPED condition.

Based on the above conditions,

At 08:01, if RWL decreases to the RPS setpoint, a FULL Reactor Scram _____ automatically occur.

At 09:01, IAW TS 3.0.4, WITHOUT performing a Risk Evaluation,
Tech Specs _____ ALLOW the Reactor Mode switch to be placed in the RUN position.

REFERENCE PROVIDED

A. will;
does

B. will;
does NOT

C. ✔ will NOT;
does

D. will NOT;
does NOT

78. 214000A2.03 001

Unit 2 is at 90% RTP, performing fully withdrawn control rod exercises.

- o Control rod 26-27 is inop with all required TS actions complete
- o Control rod 18-19 has just been withdrawn to position 48

A coupling check on control rod 18-19 results in the following:

- o 18-19 four rod display position BLANK
- o 18-19 Full-Out light EXTINGUISHED
- o ROD OVERTRAVEL, 603-248, ILLUMINATED

Based on the above conditions,

With NO operator action, one (1) minute later, control rod 18-19 four rod display position indication will _____ .

IAW TS 3.1.3, Control Rod Operability, if control rod 18-19 can NOT be re-coupled, the EARLIEST REQUIRED action is to _____ .

A. ✔ remain BLANK;
fully insert and disarm the control rod

B. remain BLANK;
place the reactor in hot shutdown

C. have returned to position 48;
fully insert and disarm the control rod

D. have returned to position 48;
place the reactor in hot shutdown

79. 233000G2.2.22 001

IAW TS Bases 3.7.8, Spent Fuel Pool Water Level,

The LOWEST listed Spent Fuel Pool water level that will still meet the LCO 3.7.8 requirements WITHOUT entering a Required Action Statement (RAS) is _____ .

The MINIMUM water level in the Spent Fuel Pool is REQUIRED to _____ .

A. 21.1 feet;
remove decay heat from irradiated fuel assemblies

B. ✔ 21.1 feet;
provide for absorption and transport delay of fission product gases

C. 22.1 feet;
remove decay heat from irradiated fuel assemblies

D. 22.1 feet;
provide for absorption and transport delay of fission product gases

80. 239002G2.4.31 001

Unit 2 is operating at 90% RTP when SRV 2B21-F013B inadvertently OPENS.

The following conditions occur:

- Torus water temperature INCREASES to 85°F

Five (5) seconds after opening and with NO operator action, the SRV goes CLOSED.

Based on the above conditions and IAW 34AB-B21-003-2, Failure of Safety/Relief Valves,

Tech Spec surveillance requirement _____ is REQUIRED to be performed.

A. SR 3.6.2.1, verify Torus average temperature is within the applicable limits

B. SR 3.4.4.1, verify RCS unidentified & total leakage and unidentified leakage increase are within limits

C. SR 3.6.1.6.2, verify the LLS system actuates on an actual or simulated automatic initiation signal

D. SR 3.6.1.8.2, perform a functional test of each required vacuum breaker

81. 262002G2.2.36 001

Unit 1 is operating at 100% RTP.

Maintenance is troubleshooting a burnt smell coming from the 1R25-S067, Critical Instrument Bus 1B.

Subsequently, at Maintenance request, 1R25-S067 is DE-ENERGIZED.

Based on the above conditions,

IAW U1 TS Bases, a LCO Required Action Statement (RAS) _____ REQUIRED to be entered for each TS supported load on 1R25-S067, Critical Instrument Bus 1B.

IAW TS 3.8.7, the MAXIMUM amount of time 1R25-S067, Critical Instrument Bus 1B, can remain de-energized without requiring entry into a Shutdown RAS is _____ .

A. is;
two (2) hours

B. is;
eight (8) hours

C. is NOT;
two (2) hours

D. ✓ is NOT;
eight (8) hours

82. 290001A2.04 001

Unit 1 was operating at 100% RTP when an unisolable steam line break occurred in the Main Steam Tunnel (Chase) area resulting in a Secondary Containment isolation signal.

Based on the above conditions,

A Secondary Containment isolation signal will be received on _____ .

IAW 31EO-EOP-014-1, SC EOP flowchart, exceeding the Max Safe Operating Value in one area requires shutdown IAW _____ .

A. Unit 1 ONLY;
34GO-OPS-014-1, Fast Reactor Shutdown

B. Unit 1 ONLY;
31EO-EOP-010-1, RPV Control (Non-ATWS)

C. Unit 1 AND Unit 2;
34GO-OPS-014-1, Fast Reactor Shutdown

D. ✔ Unit 1 AND Unit 2;
31EO-EOP-010-1, RPV Control (Non-ATWS)

83. 295001AA2.02 001

Unit 2 is operating at 90% RTP when Recirc Pump 2A trips.

Based on the above conditions,

The APRM _____ setpoint is REQUIRED to be adjusted for Single Loop operation IAW LCO 3.4.1.

IAW TS Bases, the OPRM Upscale Function OPERABILITY for Technical Specifications purposes is based ONLY on the _____ Based Algorithm.

A. Simulated Thermal Power - High;
Period

B. Simulated Thermal Power - High;
Amplitude

C. Neutron Flux - High;
Period

D. Neutron Flux - High;
Amplitude

84. 295003AA2.04 001

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

- o Upstream power supply to Instrument Bus 2A is lost and cannot be recovered
- o 34AB-R25-002-2, Loss of Instrument Buses, is entered by the crew
- o Subsequently, the Instrument Buses are cross-tied

Based on the above conditions and after power is restored,

Instrument Bus 2A _____ OPERABLE, IAW TS 3.8.7 Bases.

Operator action will be directed to transfer RFPT _____ to the M/A station.

A. is;
2A

B. is;
2B

C. ✔ is NOT;
2A

D. is NOT;
2B

85. 295004G2.1.20 001

Unit 2 is operating at 100% RTP.

- o 2R22-S016, 125/250VDC Switchgear 2A, de-energizes and can NOT be restored
- o 34AB-R22-001-2, Loss of DC Buses, is entered by the crew

Based on the above conditions,

A 34GO-OPS-014-2, Fast Reactor Shutdown, _____ REQUIRED.

Upon a trip of the Main Turbine and after TC-1 is complete, to trip the RFPTs, the trip pushbuttons are REQUIRED to be depressed _____ .

A. is;
locally at the RFP front standard

B. is;
on panel 2H11-P650

C. is NOT;
locally at the RFP front standard

D. is NOT;
on panel 2H11-P650

86. 295005G2.2.44 001

Unit 2 has experienced an ATWS.

- o MSIVs Open
- o Main Generator 135 MWe

The following conditions occur:

Time	**Event**
07:45	Main Generator load is 115 MWe
08:00	Main Generator load is 75 MWe

Based on the above conditions,

The EARLIEST listed time that the Main Turbine is procedurally REQUIRED to be tripped is _____ .

IAW 31EO-EOP-011-2, RCA EOP flow chart, following the Main Turbine trip, RPV Pressure is REQUIRED to be stabilized below a MAXIMUM value of _____ .

A. 07:45;
845 psig

B. 07:45;
1074 psig

C. ✔ 08:00;
845 psig

D. 08:00;
1074 psig

87. 295008AA2.01 001

Unit 2 was operating at 100% RTP when a scram occurred. The following conditions exist:

- o RPV Pressure 950 psig, slowly decreasing
- o RWL 72 inches, slowly increasing
- o SPDS Unavailable
- o HPCI injecting into the RPV 4000 gpm

Based on the above conditions,

IAW 34AB-B21-002-2, RPV Water Level Corrections, RWL indication _____ REQUIRED to be corrected.

Steps containing the operator actions to terminate ALL RPV injection, except CRD, are located in _____ .

A. is;
34AB-C71-001-2, Scram Procedure

B. is;
34AB-C32-001-2, Reactor Water Level Above +60 Inches

C. is NOT;
34AB-C71-001-2, Scram Procedure

D. ✔ is NOT;
34AB-C32-001-2, Reactor Water Level Above +60 Inches

88. 295009G2.4.30 001

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

Time	**RWL**
11:30	-36 inches
12:00	-102 inches
12:30	-156 inches
13:00	-194 inches

Based on the above conditions and IAW NMP-EP-111, Emergency Notifications,

The EARLIEST listed time that a condition exists which requires a notification to State and Local Governments is _____ .

A. 11:30

B. 12:00

C. ✔ 12:30

D. 13:00

89. 295012AA2.01 001

Unit 2 is operating at 100% RTP when a loss of Drywell Cooling occurs.

- o Drywell pressure is being manually controlled between 0.5 psig and 1.2 psig
- o 34AB-T47-001-2, Complete Loss of Drywell Cooling, is in progress

At 13:00, Drywell temperatures are as follows:

2T47-N002	279°F, increasing 0.5°F/minute
2T47-N003	200°F, increasing 0.5°F/minute

Based on the above conditions,

IAW 34AB-T47-001-2, the EARLIEST listed time that Drywell temperatures REQUIRE entry into 34GO-OPS-014-2, Fast Reactor Shutdown, is _____ .

REFERENCE PROVIDED

A. 13:43

B. ✔ 14:14

C. 14:21

D. 14:52

90. 295031EA2.01 001

Unit 1 was operating at 100% RTP when a transient resulted in the following conditions:

- Reactor power 18% RTP
- RWL 9 inches
- MSIVs CLOSED
- Torus temperature is above BIIT
- RPV Pressure controlled by LLS

Based on the above conditions and IAW 31EO-EOP-017-1, CP-3, ATWS Level Control,

The SS will direct the operator to _____ .

Once a RWL band is established, if reactor power remained above 10% RTP throughout the RWL decrease, the SS will order an UPPER RWL band of _____ .

A. lower RWL to maintain between -60 inches and -90 inches with Table L-3 Systems; -60 inches

B. lower RWL to maintain between -60 inches and -90 inches with Table L-3 Systems; -155 inches

C. perform 31EO-EOP-113-1, Terminating and Preventing Injection Into The RPV; -60 inches

D. ✔ perform 31EO-EOP-113-1, Terminating and Preventing Injection Into The RPV; -155 inches

91. 295037G2.4.41 001

An ATWS is in effect on **Unit 1**.

Reactor Power remains at 33% RTP.

Subsequently, initiation of Alternate Rod Insertion (ARI) results in an ALL RODS IN condition.

Based on the above conditions and IAW NMP-EP-110-GL02 - HNP EALs - ICs, Threshold Values and Basis,

Initiating ARI from the Main Control Room _____ considered a Manual Scram.

An EAL Threshold value _____ been EXCEEDED.

A. is;
has

B. is;
has NOT

C. is NOT;
has

D. is NOT;
has NOT

92. 295030EA2.03 001

Unit 1 was operating at 100% RTP when an event occurred causing Torus Water level to begin decreasing.

At 10:00, the following conditions exist:

- o Torus water level 130 inches decreasing 2 inches/minute
- o MSIVs Closed
- o RPV Pressure controlled between 800 - 1074 psig
- o RWL -65 inches increasing 1 inch/minute
- o RCIC Danger Tagged out of service
- o HPCI System injecting

ALL Low Pressure Injection Systems are available.

At 10:15, Maintenance isolates the leak and Torus level stabilizes at 100 inches.

Based on the above conditions,

At 10:08, HPCI is REQUIRED to be _____ .

At 10:15, RPV pressure is REQUIRED to be controlled using EOP flowchart _____ .

A. injecting to maintain Reactor water level;
RC

B. injecting to maintain Reactor water level;
CP-1 Point G

C. shutdown and prevented from operating;
RC

D. ✔ shutdown and prevented from operating;
CP-1 Point G

93. 300000A2.01 001

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

- o INSTR AIR PREFLTR D103A DIFF PRESS HIGH, 700-225, ILLUMINATED
- o INSTR AIR DRYERS SYS PRESS LOW, 700-219, ILLUMINATED
- o Prefilter D103A Differential pressure is 15 PSID
- o Non-Essential Instrument Air Header pressure is 55 psig

The following procedures are entered:

- o 34AR-700-225-2, INSTR AIR PREFLTR D103A DIFF PRESS HIGH
- o 34AB-P51-001-2, Loss Of Instrument And Service Air System Or Water Intrusion Into The Service Air System

Based on the above conditions,

The Non-Essential Instrument Air Header Isolation Valve, 2P52-F015, will _____ .

The procedure that contains detailed guidance on how to place Prefilter D103B in service and remove Prefilter D103A from service is _____ .

A. remain open;
34AB-P51-001-2

B. ✔ remain open;
34AR-700-225-2

C. close and remain closed;
34AB-P51-001-2

D. close and remain closed;
34AR-700-225-2

94. G2.1.3 001

The following Modes exist for both units at the given time:

Time	Unit 1	Unit 2
10:00	Mode 4	Mode 3
11:00	Mode 4	Mode 4
17:00	Mode 5	Mode 4
20:00	Mode 5	Mode 5

Based on the above conditions and IAW Tech Specs,

The EARLIEST listed time that an extra (Licensed) Reactor Operator (RO) can assume the Control Room Command Function is _____ .

A. 10:05

B. ✔ 11:05

C. 17:05

D. 20:05

95. G2.2.5 001

A proposed plant modification must ALWAYS have prior approval from the NRC if it involves any _____ .

A. system that requires a 50.59 screening

B. change to any system included in Tech Specs

C. design basis limit for Primary Containment being altered

D. change to the Technical Requirements Manual (TRM) Bases

96. G2.2.20 001

Operations has identified an issue that needs troubleshooting activities to be performed in an area posted as "PROTECTED EQUIPMENT AREA".

Based on the above conditions and IAW NMP-OS-010, Protected Train/Division and Protected Equipment Program,

The MINIMUM level of authorization REQUIRED to enter the area near the "PROTECTED" equipment to perform troubleshooting activities is the _____ .

A. Shift Manager

B. Shift Supervisor

C. Shift Support Supervisor

D. Shift Operations Manager

97. G2.3.4 001

During a Radiological Emergency, an Operator is needed to enter an area to protect valuable equipment. The Operator will exceed their Federal exposure limit during this entry.

Based on the above conditions,

IAW 73EP-EIP-017-0, Emergency Exposure Control, the MAXIMUM Dose Limit allowed to protect valuable property is _____ .

IAW NMP-EP-110, Emergency Classification Determination and Initial Action, the Emergency Director _____ REQUIRED to authorize exceeding this exposure limit.

A. ✔ 10 Rem
is

B. 10 Rem
is NOT

C. 25 Rem
is

D. 25 Rem
is NOT

98. G2.3.13 001

Unit 2 is operating at 100% RTP.

The RB 130' N-E working area radiation levels UNEXPECTEDLY begin increasing from 2 mR/hr to the following:

Time	**Rad Level**
11:00	7 mR/hr
11:30	25 mR/hr
12:00	70 mR/hr
12:30	125 mR/hr

IAW 73EP-RAD-001-0, Radiological Event,

The EARLIEST listed time that a Radiological Event will be declared is _____ .

A. 11:00

B. ✔ 11:30

C. 12:00

D. 12:30

99. G2.4.5 001

An event occurs on **Unit 2** resulting in the need to Anticipate an Emergency Depress of the RPV.

Subsequently, the event degrades to where the Severe Accident Guidelines (SAGs) are entered.

Based on the above conditions,

IAW the EOPs, to Anticipate the Emergency Depress, the Main Turbine Bypass Valves will be opened using _____ .

After the SAGs are entered, the EOP Flowcharts will be _____ .

A. 34SO-N30-001-2, Main Turbine Operation; performed concurrently

B. ✔ 34SO-N30-001-2, Main Turbine Operation; exited

C. 31EO-EOP-107-2, Alternate RPV Pressure Control; performed concurrently

D. 31EO-EOP-107-2, Alternate RPV Pressure Control; exited

100. G2.4.27 001

Unit 2 is operating at 100% RTP when a fire occurs on Startup Auxillary Transformer (SAT) 2D resulting in a large amount of smoke.

While the fire is burning, the SS will direct an operator to align the Main Control Room Enviromental Control (MCREC) System to the _____ .

34AB-X43-001-2, Fire Procedure, does contain guidance to startup and tie an Emergency Diesel Generator to an affected Emergency Bus in the event of a loss of a _____ .

A. ✔ Isolation Mode;
Startup Auxiliary Transformer (SAT)

B. Isolation Mode;
Unit Auxiliary Transformer (UAT)

C. Pressurization Mode;
Startup Auxiliary Transformer (SAT)

D. Pressurization Mode;
Unit Auxiliary Transformer (UAT)

You have completed the test!

NRC SRO REFERENCES

SRO EXAM

1. 34AB-E11-001-2, Loss Of Shutdown Cooling, Page 15 (Attachment 1)
2. U1 TS 3.3.1.1 RPS Instrumentation, Pages 3.3-1 – 3.3-3
3. U1 TS Table 3.3.1.1-1, RPS Instrumentation
4. 34AB-T47-001-2, Complete Loss of Drywell Cooling, Att. 1

Case 1 : CORE FUEL in UNFLOODED RPV

Days After Shutdown	Heat Load (MBTU/hr)	Saturation Time	Evaporation Time	Boil-Off Time
1.0	57.275	**52** min	**4** hr **50** min	**5** hr **42** min
2.0	47.051	**1** hr **4** min	**5** hr **53** min	**6** hr **57** min
3.0	40.644	**1** hr **14** min	**6** hr **48** min	**8** hr **3** min
4.0	36.112	**1** hr **23** min	**7** hr **40** min	**9** hr **3** min
5.0	32.822	**1** hr **32** min	**8** hr **26** min	**9** hr **58** min
6.0	30.372	**1** hr **39** min	**9** hr **6** min	**10** hr **46** min
7.0	28.494	**1** hr **45** min	**9** hr **42** min	**11** hr **29** min
8.0	27.011	**1** hr **51** min	**10** hr **14** min	**12** hr **6** min
9.0	25.806	**1** hr **57** min	**10** hr **43** min	**12** hr **40** min
10.0	24.799	**2** hr **1** min	**11** hr **9** min	**13** hr **11** min
11.0	23.935	**2** hr **6** min	**11** hr **34** min	**13** hr **40** min
12.0	23.177	**2** hr **10** min	**11** hr **56** min	**14** hr **7** min
13.0	22.501	**2** hr **14** min	**12** hr **18** min	**14** hr **32** min
14.0	21.887	**2** hr **18** min	**12** hr **38** min	**14** hr **57** min
15.0	21.323	**2** hr **21** min	**12** hr **59** min	**15** hr **20** min
16.0	20.800	**2** hr **25** min	**13** hr **18** min	**15** hr **44** min
17.0	20.310	**2** hr **28** min	**13** hr **37** min	**16** hr **6** min
18.0	19.850	**2** hr **32** min	**13** hr **56** min	**16** hr **29** min
19.0	19.415	**2** hr **35** min	**14** hr **15** min	**16** hr **51** min
20.0	19.002	**2** hr **39** min	**14** hr **34** min	**17** hr **13** min
21.0	18.610	**2** hr **42** min	**14** hr **52** min	**17** hr **35** min
22.0	18.235	**2** hr **45** min	**15** hr **10** min	**17** hr **56** min
23.0	17.877	**2** hr **49** min	**15** hr **29** min	**18** hr **18** min
24.0	17.535	**2** hr **52** min	**15** hr **47** min	**18** hr **39**min
25.0	17.207	**2** hr **55** min	**16** hr **5** min	**19** hr **1** min

3.3 INSTRUMENTATION

3.3.1.1 Reactor Protection System (RPS) Instrumentation

LCO 3.3.1.1 The RPS instrumentation for each Function in Table 3.3.1.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.1.1-1.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more required channels inoperable.	A.1 Place channel in trip. OR A.2 ----------NOTE---------- Not applicable for Functions 2.a, 2.b, 2.c, 2.d, and 2.f. ---------- Place associated trip system in trip.	12 hours 12 hours
B. ----------NOTE---------- Not applicable for Functions 2.a, 2.b, 2.c, 2.d, and 2.f. ---------- One or more Functions with one or more required channels inoperable in both trip systems.	B.1 Place channel in one trip system in trip. OR B.2 Place one trip system in trip.	6 hours 6 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One or more Functions with RPS trip capability not maintained.	C.1 Restore RPS trip capability.	1 hour
D. Required Action and associated Completion Time of Condition A, B, or C not met.	D.1 Enter the Condition referenced in Table 3.3.1.1-1 for the channel.	Immediately
E. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	E.1 Reduce THERMAL POWER to < 27.6% RTP.	4 hours
F. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	F.1 Be in MODE 2.	6 hours
G. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	G.1 Be in MODE 3.	12 hours
H. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	H.1 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
I. As required by Required Action D.1 and referenced in Table 3.3.1.1-1.	I.1	Initiate alternate method to detect and suppress thermal-hydraulic instability oscillations.	12 hours
	AND		
	I.2	Restore required channels to OPERABLE.	120 days
J. Required Action and associated Completion Time of Condition I not met.	J.1	Be in MODE 2.	4 hours

SURVEILLANCE REQUIREMENTS

----------NOTES----------

1. Refer to Table 3.3.1.1-1 to determine which SRs apply for each RPS Function.

2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains RPS trip capability.

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.1	Perform CHANNEL CHECK.	In accordance with the Surveillance Frequency Control Program

(continued)

Table 3.3.1.1-1 (page 2 of 3)
Reactor Protection System Instrumentation

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION D.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2.	Average Power Range Monitor (continued)					
	e. Two-out-of-Four Voter	1, 2	2	G		
	f. OPRM Upscale	1	3(c)	I		
3.	Reactor Vessel Steam Dome Pressure - High	1, 2	2	G		
4.	Reactor Vessel Water Level - Low, Level 3	1, 2	2	G		
5.	Main Steam Isolation Valve - Closure	1	8	F		
6.	Drywell Pressure - High	1, 2	2	G		
7.	Scram Discharge Volume Water Level - High					
	a. Resistance Temperature Detector	1, 2	2	G		
		5(a)	2	H		
	b. Float Switch	1, 2	2	G		I
		5(a)	2	H		I

(continued)

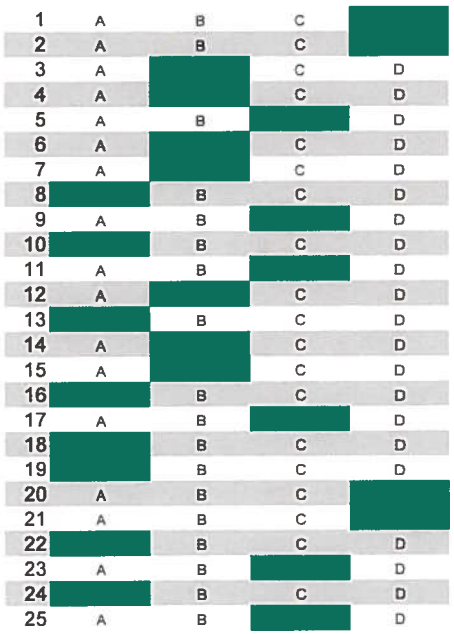
(a) With any control rod withdrawn from a core cell containing one or more fuel assemblies.

(c) Each APRM channel provides inputs to both trip systems.

PEAK DRYWELL TEMPERATURES

Drywell Elevation	*Temperature Elements	(°F)
Upper	2T47-N002 2T47-N010 2T47-N001A 2T47-N001K	300°F
Middle	2T47-N003 2T47-N009	240°F
Lower	2T47-N001L 2T47-N004 2T47-N007 2T47-N008	200°F

* IF desired, use SPDS Drywell Temperature Diagnostic Display instruments/values for the upper, middle, and lower drywell sections.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3 A C D
4 A C D
5 A B D
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7 A C D
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9 A B D
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12 A C D
13 B C D
14 A C D
15 A C D
16 B C D
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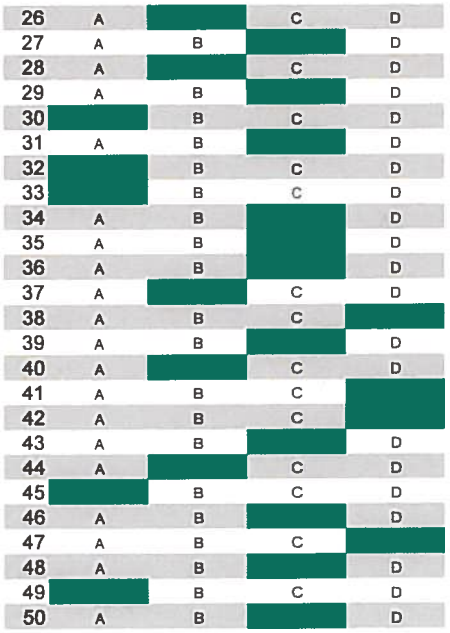
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37 A C D
38 A B C
39 A B D
40 A C D
41 A B C
42 A B C
43 A B D
44 A C D
45 B C D
46 A B D
47 A B C
48 A B D
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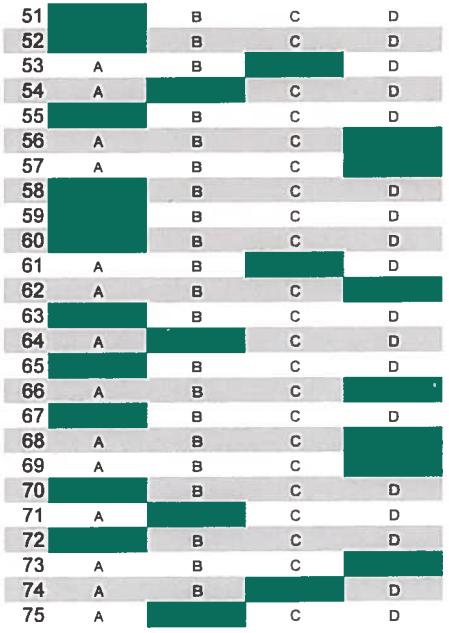
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62 A B C
63 B C D
64 A C D
65 B C D
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72 B C D
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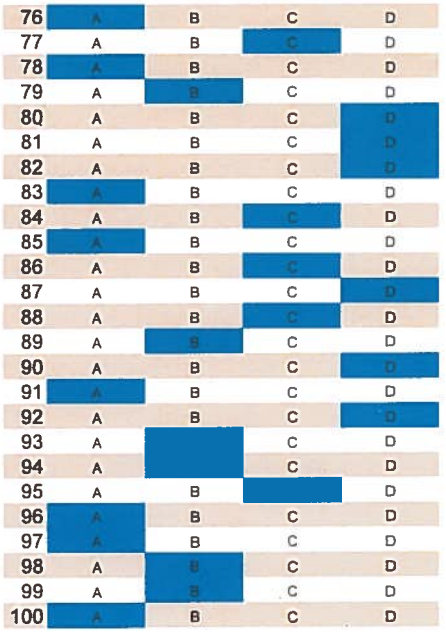
75 A C D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85 A B C D
86 A B C D
87 A B C D
88 A B C D
89 A B C D
90 A B C D
91 A B C D
92 A B C D
93 A C D
94 A C D
95 A B D
96 A B C D
97 A B C D
98 A B C D
99 A B C D
100 A B C D