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TEST REPORT

Question file: ILT 10 NRC EXAM BANK

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Test Name: ILT-10 RO NRC EXAM

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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:

- o Reactor power is 6% RTP
- o 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
- DY 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When Control rod 30-31 is withdrawn, the rod DOUBLE NOTCHES to position 10.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**Y** 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**Y** 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
- CY 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**Y** 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**Y** 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**Y** 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
- CY 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 <u>12:01</u> RPS MG Set 2A trips
- o <u>12:03</u> 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**Y** 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**Y** 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:

0	Reactor Mode Switch	REFUEL
0	SRM Shorting Links	REMOVED

A Control rod located adjacent to SRM 2A is fully WITHDRAWN resulting in the following SRM indications:

o SRM 2A	20 CPS
o SRM 2B	7 CPS
o SRM 2C	8 CPS
o 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
- BY reduce to a lower value; 3x10⁵ 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**Y** 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**Y** 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:

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

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

<u>At 10:03</u>, the TOTAL number of 2C71-K14, RPS Scram Relays, that are ENERGIZED is ______.

<u>At 10:05</u>, the TOTAL number of 2C71-K14, RPS Scram Relays, that are ENERGIZED is ______.

A**Y** four (4); zero (0)

- B. four (4);
 - four (4)
- C. eight (8); zero (0)
- D. eight (8); four (4)

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**Y** Suppression Chamber Area Air Temp High; 29

21. 234000A3.01 001

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

- o Rx Mode Switch Locked in the REFUEL position
- o Control rods One control rod is fully WITHDRAWN
- o Main Fuel Grapple Lowered, but verified to be able to clear the cattle chute by 3 ft. (Empty grapple move)
- o 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:

0	Reactor Pressure	940 psig
0	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**Y** 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" \rightarrow "Speed" Screen is DEPRESSED, ______ of the TCVs will CLOSE.

- A. throttled open; NONE
- B. throttled open; ALL
- CY 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 ______.

- AY DECREASE; windmilling speed
- B. DECREASE; turning gear speed
- C. INCREASE; windmilling speed
- D. INCREASE; turning gear speed

25. 259002K4.14 001

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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

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

<u>At 10:05</u>: 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**Y** 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:

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



- A. Figure 1
- B. Figure 2
- C**Y** 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
- BY 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

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
- CY higher; 2 hours
- D. higher; 8 hours

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



AY 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
- CY 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

<u>At 10:00</u>, 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 ______.

<u>At 10:35</u>, the Main Steam Line radiation levels will have ______.

- A**Y** 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:

MFLCPRLOCMFLPDLOC1.01111-260.97429-42-20

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
- CY MFLCPR; fuel rod transition boiling
- D. MFLCPR; fuel cladding plastic strain

(Terms provided per applicant question during exam administration) MFLPD - Maximum Fraction of Limiting Power Density MFLCPR - Maximum Fraction of Limiting Critical Power Ratio

35. 290003K3.02 001

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

Subsequently, the following occurs;

0	600 VAC Bus 1C	DE-ENERGIZES
0	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**Y** 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**Y** 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
- BY 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 <u>Alternate</u> 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
- CY 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**Y** 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:

<u>At 10:05</u>, RPV pressure is 1056 psig <u>At 10:08</u>, RPV pressure is 1075 psig

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

o 2B LLS valve continuously OPEN

o 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 ______.

<u>At 10:11</u>, based on SRV positions, Reactor Power is approximately ______.

- A. 10:05; 6% RTP
- B. 10:05; 11% RTP
- C. 10:08; 6% RTP
- D**Y** 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 Controllero 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
- CY 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**Y** have; US #1 North
- B. have; US #1 South
- C. have NOT; US #1 North
- D. have NOT; US #1 South

Wednesday, June 08	, 2016 3:49:35 PM
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METEOROLOGICAL	2	IIDAS	INFO	RMAT	NO	
10M WIND SPD 1Y33-R601 5.0	100M WIN 1Y33-R4 4.0	D SPD	10M WIN 1Y33-F	ND DIR 8601	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		UI RX.	BLDG. VEN	E	U2 RX. BLDG. VI	ENT
NORMAL RANGE	KAMAN	NORMA	L RANGE	KAMAN	NORMAL RANGE	KAMAN
	4.0E-02	6.7E	10		5.4E01	
		6.7E	10		5.4E01	
STABILITY CLASS D		FIGL	JRE 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 <u>start signal</u> when the condition clears.

- A. confirm the automatic start of; will automatically reset
- B. confirm the automatic start of; must be manually reset
- CY 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 **Unit 2** is shutdown with RHR Loop A aligned for Shutdown Cooling with the following conditions:

0	Reactor Shutdown	Two (2) days ago
0	The Drywell is open and available for access	
0	2B21-F003, Reactor Head Vent Valve	OPEN
0	2B21-F004, Reactor Head Vent Valve	OPEN
0	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

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

<u>At 13:00</u>, 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:

0	ALL Refueling Floor (RF) ARMs	30 mR/hr
0	1D11-K611 A-D, RF Vent Exhaust Radiation	17 mR/hr
0	2D11-K611 A-D, RF Vent Exhaust Radiation	15 mR/hr
0	2D11-K634 A-D, RF Vent Exhaust Radiation	7 mR/hr
0	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**Y** 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 ______.

<u>At 13:10</u>, to return Torus Spray to service, the Containment Spray Vlv Control switch ______ REQUIRED to be placed in the MANUAL position.

A**Y** 13:05; is

- B. 13:05; is NOT
- C. 13:03; is
- D. 13:03; is NOT

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
- CY 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
- **BY** 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 ______.

- AY 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:

<u>Time</u>	<u>RWL</u>
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 ______.

<u>At 10:15</u>, 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)
- DY 10:02;

EXTINGUISHED (Revised to SOLID GREEN)

(Answer revisions provided per applicant question during exam administration)

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**Y** 01:05; 01:20

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:

<u>At 09:00</u>, Alert (RA1) <u>At 10:00</u>, Site Area (RS1)

Based on the above conditions,

The EARLIEST listed time that an entry condition into the <u>RR portion</u> 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

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:

o 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**Y** 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

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**Y** 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**Y** 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
- BY 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**Y** 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**Y** 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**Y** is; is

B. is; is NOT

- C. is NOT; is
- D. is NOT; is NOT

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

- A. 2777 MWth
- B. 2790 MWth
- C. 2800 MWth
- DY 2804 MWth

Unit 2 is shutdown with the following conditions:

0	RPV pressure	134 psig
0	Recirculation pump 2A	OFF
0	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**Y** 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**Y** yellow; labeled with a "P"
- B. yellow; blank
- C. white; labeled with a "P"
- D. white; blank
ILT-10 RO NRC EXAM

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
- BY Specific; Digital Alarming Dosimeter (DAD) settings
- C. General; the current Reactor Mode
- D. General; Digital Alarming Dosimeter (DAD) settings

ILT-10 RO NRC EXAM

72. G2.3.11 001

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

Subsequently, the following indication is received:

o 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

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
- DY 24/48 VDC Cabinet 1A & 1B ENTERING the Main Stack

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:

<u>Time</u>	<u>Reactor Power</u>
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
- CY 01:20
- D. 01:30

ILT-10 RO NRC EXAM

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
- BY 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

NRC RO REFERENCES RO EXAM

1. 34AB-E11-001-2, Loss Of Shutdown Cooling, Page 15 (Attachment 1)

SNC PLA	Pg 15 of 34		
DOCUME	ENT TITLE:	DOCUMENT NUMBER:	Ver No:
	LOSS OF SHUTDOWN COOLING	34AB-E11-001-2	6.15
	Att. Pg.		
TITLE:	CORE FUEL IN UNFLOODED RPV		1 of 2

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 39min
25.0	17.207	2 hr 55 min	16 hr 5 min	19 hr 1 min







