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QUESTION: 1 **QID:** 1822 **Rev:** 1

The reason for verifying the main turbine governor and the main turbine stop valves are closed after a reactor trip is to prevent _____.

A. motoring of the Main Turbine Generator

B. over pressurization of the Main Condenser

C. overspeeding of the Main Turbine Generator

D. a "Stall-Flutter" condition of the Low Pressure Turbine blading

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QUESTION: 2 **QID:** 1823 **Rev:** 1

REFERENCE PROVIDED

Consider the following:

- Unit 2 is operating at 100% power
- Annunciator 2K10 B4 PZR RELIEF TAILPIPE TEMP HI is in alarm
- The ATC reports Quench Tank (2T-42) level is trending up
- Initial Quench Tank level 77.5%
- 10 minutes later Quench Tank level 79%

What is the RCS leakrate, and per ACA OP-2203.012-J, what action is required to RESEAT the Code Safety valve?

A. 26.4 gpm, Lower RCS pressure

B. 2.64 gpm, Lower RCS pressure

C. 26.4 gpm, Raise RCS pressure

D. 2.64 gpm, Raise RCS pressure

QUESTION: 3 **QID:** 1824 **Rev:** 1

REFERENCE PROVIDED

Consider the Following:

- Unit 2 is operating at 100% power

ATC reports:
- Containment Humidity is trending up slowly
- Reactor Coolant System (RCS) Temperature is stable

CRS directs the ATC to perform a RCS Mass Balance

- Initial Data:
  - Pressurizer level 59.75%
  - Volume Control Tank (VCT) level 68%
  - Containment sump level 22%
- Data 15 minutes later:
  - Pressurizer level 59.5%
  - Volume Control Tank (VCT) level 67.6%
  - Containment sump level 22%

The RCS mass loss is _____ and the RCS Leakage limits, per Technical Specification 3.4.6.2, _____ been exceeded?

A. 0.45 gpm, have not

B. 0.9 gpm, have not

C. 1.8 gpm, have

D. 18 gpm, have

QUESTION: 4 **QID:** 1825 **Rev:** 1

Consider the following:

- Unit 2 has experienced a large break LOCA
- Refueling Water Tank [RWT] level is 5 %
- All equipment has responded as designed

Considering the above conditions, the Spray Pumps function is to_____ and flow through the reactor core is being provided by the _____ pumps.

A. maintain temperature of the water being used for core cooling; Low Pressure Safety Injection [LPSI]

B. maintain temperature of the water being used for core cooling; High Pressure Safety Injection [HPSI]

C. provide mixing of Boron in the containment sump for pH control; Low Pressure Safety Injection [LPSI]

D. provide mixing of Boron in the containment sump for pH control; High Pressure Safety Injection [HPSI]

QUESTION: 5 **QID:** 1826 **Rev:** 1

Consider the following:

- Loss of Offsite Power has occurred
- OP-2202.007, Loss of Offsite Power EOP, has been entered

15 minutes, post trip, plant conditions are:
- Pressurizer level is 45% and trending up
- Pressurizer pressure is 2150 psia and trending up
- T-hot is 581°F and trending up
- Average CET temperature is 585°F and trending up
- T-cold is 550°F and trending up
- Steam Generator levels are 18% NR and trending up
- 2P7A and 2P7B are feeding each Steam Generator at 300 gpm

Which of the following diagnosis should be made concerning Natural Circulation heat removal?

A. Natural Circulation heat removal is inadequate due to rising RCS temperatures

B. Natural Circulation heat removal is adequate because loop Delta-T is adequate

C. Natural Circulation heat removal is inadequate due to inadequate feed water flow

D. Natural Circulation is in the process of being established, based on Margin to Sat (MTS)

QUESTION: 6 **QID:** 1827 **Rev:** 0

Consider the following:

- Unit 2 is operating at 100% power
- "A" Coolant Charging Pump [2P-36A] is running
- Charging Header Flow (2FI-4863) is reading 36 gpm and fluctuating
- Charging Header Pressure (2FI-4870) is reading 2150 psig and fluctuating
- Letdown flow (2FI-4801) is lowering
- ATC notes amperage on 2B5 fluctuating more than normal
- OP-2203.036, The Loss of Charging AOP, has been entered

What actions are required per OP-2203.036, Loss of Charging AOP?

A. Take Manual Control of the Letdown Flow Controller and restore Letdown flow

B. Manually start the Backup Charging Pump and restore Charging Header Pressure

C. Secure all Charging Pumps, Isolate Letdown, and close the charging header isolation valve

D. Trip the Reactor, actuate SIAS and CCAS and GO TO OP-2202.001 Standard Post Trip Actions

QUESTION: 7 **QID:** 1828 **Rev:** 1

Consider the following:

- Unit 2 is operating at 100% power
- "B" CCW is OOS for maintenance
- "C" CCW pump Tripped on Thermal overload
- "A" CCW pump was MANUALLY started as directed by OP-2203.025, RCP Emergencies AOP
- Annunciator 2K12-C6, SURGE TK 2T37A LEVEL HI/LO, is in alarm
- "A" and "B" CCW surge tank levels are 12% and trending down

The REQUIRED Action(s) as directed by OP-2203.025, RCP Emergencies AOP, is(are):

A. Un-cross tie the CCW surge tanks and verify at least one tank level is restoring

B. Trip the Reactor, secure the Reactor Coolant Pumps, isolate Controlled Bleedoff

C. Verify Loop II cross over valves are open and start "B" CCW pump to supply Loop II

D. Verify a Reactor Makeup Water Pump (2P-109A/B) is running to supply surge tank makeup

QUESTION: 8 **QID:** 1829 **Rev:** 1

Consider the following:

- Unit 2 is operating at 80% power
- The Main Turbine has tripped off line
- Reactor Protection System [RPS] has failed to automatically actuate
- The Reactor did trip at the Diverse Scram System [DSS] setpoint

With these conditions, the time to reach the DSS setpoint will be longer at _____ of core life based on Moderator Temperature Coefficient [MTC] being _____ .

A. end; more significant

B. end; less significant

C. beginning; more significant

D. beginning; less significant

QUESTION: 9 **QID:** 1830 **Rev:** 1

Consider the following:

- Unit 2 has experienced a Steam Generator Tube Rupture (SGTR) on "A" SG
- A 500 gpm RCS leak rate has been calculated
- OP-2202.004, Steam Generator Tube Rupture EOP, has been entered

The ATC reports:
- RCS pressure is 1400 psia
- RCS temperature is 570°F
- All 4 Reactor Coolant Pumps (RCP) are running

OP-2202.004, Steam Generator Tube Rupture EOP, should direct securing _____ RCPs and the reason the EOP directs this action is _____.

A. 2; due to concerns with core lift

B. 2; to prevent voiding in "A" SG

C. 4; to minimize break flow in "A" SG

D. 4; due to low margin to saturation (MTS)

QUESTION: 10 **QID:** 1831 **Rev:** 1

Consider the following:

- Unit 2 has tripped from 100% power

The ATC reports:
- RCS temperature is lowering
- Containment pressure, temperature and dew point are rising
- "A" Steam Generator pressure is 750 psia and lowering at 10 psia per minute
- All plant systems responded as designed

With NO operator action, what feed water source and flowpath should be available due to the above conditions?

A. "A" MFW Pump (2P-1A), through the main feed header

B. Condensate Pump (2P-2A), through the main feed header

C. AFW Pump (2P-75), through the emergency feed header

D. "B" EFW Pump (2P-7B), through the emergency feed header

QUESTION: 11 **QID:** 1832 **Rev:** 0

Consider the following:

- Unit 2 has tripped due to a Grid disturbance
- OP-2202.001, Standard Post Trip Actions (SPTAs), have been completed
- OP-2202.008, Station Blackout EOP, has been entered

Reactor Coolant System (RCS) Heat Removal should be initially accomplished by manually OPENING the_____ .

A. UPSTREAM atmospheric dump valve

B. UPSTREAM atmospheric dump valve isolation valve

C. DOWNSTREAM atmospheric dump valve

D. DOWNSTREAM atmospheric dump valve isolation valve

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QUESTION: 12 **QID:** 1833 **Rev:** 0

Reg Guide 1.97 post-accident Instrumentation is identified on the control panels by a _____on the instrument face plate and _____ be available during a Loss of Offsite Power condition.

A. "Green Dot" sticker, would

B. "Green Dot" sticker, would not

C. 2C-80 plaque, would

D. 2C-80 plaque, would not

QUESTION: 13 **QID:** 1834 **Rev:** 0

Consider the following:

- Unit 2 tripped due to a Loss of Offsite Power
- Annunciator 2K08-B3, 2A3 LO RELAY TRIP, comes into alarm on the Reactor trip
- #1 EDG is secured due to lack of cooling
- The CRS directs the IAO to perform a dead bus crosstie of 2Y1 with 2Y2 supplying using OP-2107.003, 120 VAC Distribution Operations, exhibit 13

Per OP-2107.003, 120 VAC Distribution Operations exhibit 13, which action below is the correct sequence for performing a dead bus crosstie of 2Y1and 2Y2 with 2Y2 supplying?

A. The 2Y1 Main Feeder Breaker MANUAL TRIP button must be pushed in to remove the Kirk Key from the 2Y1 Feeder Breaker to allow obtaining the crosstie breaker Kirk Keys

B. The 2Y2 Main Feeder Breaker MANUAL TRIP button must be pushed in to remove the Kirk Key from the 2Y2 Feeder Breaker to allow obtaining the crosstie breaker Kirk Keys

C. The 2Y1 Main Feeder Breaker MANUAL CLOSE button must be pushed in to remove the Kirk Key from the 2Y1 Feeder Breaker to allow obtaining the crosstie breaker Kirk Keys

D. The 2Y2 Main Feeder Breaker MANUAL CLOSE button must be pushed in to remove the Kirk Key from the 2Y2 Feeder Breaker to allow obtaining the crosstie breaker Kirk Keys

QUESTION: 14 **QID:** 1835 **Rev:** 1

Consider the following:

- Unit 2 is operating at 40% power
- Battery charger (2D32A) that was supplying 2D02 has failed
- The IAO is in the process of placing the swing charger (2D32B) in service
- Annunciator 2K01-D11, BATTERY 2D12 NOT AVAIL, comes into alarm
- The Green Battery, 2D12, has been inadvertently disconnected from the bus, 2D02

With the above conditions the Unit 2 reactor _____ trip and the Green 4160 vital AC electrical buses _____ be able to automatically transfer to an alternate supply.

A. will; will

B. will not; will not

C. will; will not

D. will not; will

QUESTION: 15 **QID:** 1836 **Rev:** 0

Consider the following:

- Unit 2 has tripped from 100% power
- The Steam supply to "A" EFW pump has ruptured upstream of 2CV-1000-1
- "A" Steam Generator pressure 740 psia and trending down
- No Operator actions have been taken

Due to the conditions above, the Service Water (SW) to Component Cooling Water (CCW) System supply header isolation valves (2CV-1530-1 and 2CV-1531-2) should be _____ to _____.

A. open; provide cooling to CCW components

B. closed; prevent over pressurizing of CCW components

C. open; provide cooling to ESF components

D. closed; isolate seismic boundaries

QUESTION: 16 **QID:** 1837 **Rev:** 1

Consider the following:

- Unit 2 is operating at 100% power and has experienced a Total Loss of Instrument Air
- OP-2203.021, Loss of Instrument Air AOP, has been entered
- Actions have been taken and the ruptured air line has been isolated
- System pressure has been restored

Per OP-2202.021, Loss of Instrument Air AOP, with the restoration of Instrument Air, what action(s) is(are) required to restore plant system(s) back to a normal 100% power lineup?

A. Realign Component Cooling Water flow to the Reactor Coolant Pumps

B. Restore Letdown using OP-2104.002 Chemical and Volume Control

C. Verify the UPSTREAM Atmospheric dump valves are open

D. Restore purge on the Holdup Tanks (2T-12s)

QUESTION: 17 **QID:** 1838 **Rev:** 1

Consider the following:

- Unit 2 is operating at 100% power
- OP-2203.008, Natural Emergencies AOP, has been entered due to severe weather in the area
- Grid Voltage is lowering
- Dispatcher has been contacted and reports he has lost generation capacity due to the weather

- 1 minute later the negitive sequence relay actuates causing Annunciator 2K02-C3 NEG SEQ HIGH,
to come into alarm

Based on the above conditions, Turbine load should be reduced to prevent Main Generator _____ .

A. pole slippage

B. stator winding overheating

C. rotor winding overheating

D. reverse power

QUESTION: 18 **QID:** 1839 **Rev:** 0

Consider the following:

- Unit 2 is operating at 100% power
- "A" EFW pump is OOS for repairs
- Both Main Feed Pumps trip due to a failure of the MFP lube oil system
- CRS directs a Reactor trip
- Upon the trip, annunciator 2K08-B3, 2A3 L.O. RELAY TRIP, comes into alarm
- OP-2202.001, Standard Post Trip Actions (SPTAs) EOP, have been completed
- OP-2202.006, Loss of Feedwater EOP, has been implemented

Considering the above conditions, RCS Core Heat is being removed by _____ circulation and feedwater to the Steam Generators will be provided by _____ pump.

A. natural; AFW (2P-75)

B. natural; "B" EFW (2P7B)

C. forced,; AFW (2P-75)

D. forced; "B" EFW (2P7B)

QUESTION: 19 **QID:** 1840 **Rev:** 1

Consider the following:

- Unit 2 is operating at 100% power
- All CEA's at the UEL (Upper Electrical Limit)
- Control Element Assembly (CEA) exercise is in progress
- The ATC has selected CEA #22
- When rod motion is initiated, CEA #22 dropped partially into the core

At this point, the Reed Switch Position Transmitters [RSPT's] for CEA #22 should indicate _____ rod position and the pulse counting computer indication for CEA #22 should indicate _____rod position.

A. actual; actual

B. 150" withdrawn; actual

C. 150" withdrawn; 150" withdrawn

D. actual; 150" withdrawn

QUESTION: 20 **QID:** 1841 **Rev:** 1

Consider the following:

- Unit 2 is operating at 100% power
- CEA exercise is in progress
- It has been determined that CEA #42 is IMMOVABLE
- The CRS has entered OP-2203.003, CEA Malfunction AOP
- I&C has verified CEDMCS is OPERABLE

CEA #42 should be considered _____ and _____.

A. TRIPPABLE; OPERABLE

B. TRIPPABLE; INOPERABLE

C. UNTRIPPABLE; OPERABLE

D. UNTRIPPABLE; INOPERABLE

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QUESTION: 21 **QID:** 1842 **Rev:** 1

Consider the following:

- An event has occurred that requires Emergency Boration

To achieve the highest rate of change in Reactor Power due to Emergency Boration, the ATC should align Coolant Charging Pump (CCP) suction to the _____ .

A. Volume Control Tank

B. On Line Holdup Tank

C. Refueling Water Tank

D. Boric Acid Makeup Tank

QUESTION: 22 **QID:** 1843 **Rev:** 0

Consider the following:

- Unit 2 is operating at 100% power
- Pressurizer Level Control System master controller is in AUTO REMOTE
- Pressurizer Level Control is selected to "CH-4627-A" position
- Pressurizer Heater Low Level Cutout is selected to "A & B" position
- Charging Pump Selector Switch, 2HS-4868, is in "A & B" position
- Pressurizer Reference leg for level transmitter 2LT-4627-1 develops a leak
- NO OPERATOR ACTION IS TAKEN

With the above conditions, there should be ____ Coolant Charging Pump(s) running, and letdown flowrate should go to _____ flow.

A. 3; minimum

B. 3; maximum

C. 1; minimum

D. 1; maximum

QUESTION: 23 **QID:** 1844 **Rev:** 0

Consider the following:

- Unit 2 is in Mode 6
- 2D01 disconnect has been tagged open for a battery cell replacement
- 2B5 Feeder Breaker from 2A3 [2A301] has tripped open and can not be reclosed due to a internal failure
- The ATC reports the channel 1 Boron Dilution Monitor has no indication due to a power loss

Channel 1 Boron Dilution Monitor is powered from _____ and restoring power to 2D01 should be accomplished by _____.

A. 2Y1; aligning the AACDG to supply the Red vital bus

B. 2RS-1; aligning the swing battery charger, 2D31B, from Green power to 2D01

C. 2Y1; performing a dead bus cross tie of 2Y1 and 2Y2 with 2Y2 supplying

D. 2RS-1; aligning the AACDG to supply the Red vital bus

QUESTION: 24 **QID:** 1845 **Rev:** 1

Procedure OP-2203.038, Primary to Secondary Leakage AOP, directs securing 2 Reactor Coolant Pumps (RCPs) after the initial Reactor Coolant System (RCS) cooldown for Steam Generator (SG) isolation.

What is the bases for securing the two (2) RCPs in OP-2203.038, Primary to Secondary Leakage AOP?

A. To minimize RCP differential pressure to reduce Primary to Secondary Leakage

B. To prevent violating the RCPs minimum NPSH requirements

C. To aid in inventory backflow from the SG to the RCS

D. To minimize heat input to the RCS

QUESTION: 25 **QID:** 1846 **Rev:** 0

Consider the following :

- Unit 2 is operating at 100% power
- A fire is reported in the Cable Spreading Room
- OP-2203.014, Alternate Shutdown AOP, has been entered

During the performance of OP-2203.014, Alternate Shutdown AOP, vital equipment should be monitored by the Shift Manager using the _____ computer and the preferred source of feedwater to maintain and control Steam Generator levels is the _____ pump .

A. SPDS; "A" EFW

B. PMS; "A" EFW

C. SPDS; "B" EFW

D. PMS; "B" EFW

QUESTION: 26 **QID:** 1847 **Rev:** 1

Consider the following:

- Unit 2 is operating at 100% power
- A Fire breaks out in Unit 1 control room
- Heavy smoke and fumes are rapidly filling Unit 2 control room
- OP-2203.030, Remote Shutdown AOP, has been entered
- The CRS orders a control room evacuation after initial actions of OP-2203.030, Remote Shutdown AOP, have been completed

As directed by OP-2203.030, Remote Shutdown AOP, which of the following describes the method used to shutdown the reactor?

A. CBOT will commence emergency boration locally

B. ATC will manually trip the reactor from the control room

C. CRS will open Reactor Trip Circuit Breakers 1 through 8 locally

D. Auxiliary Operator will open Load Center 2B7 and 2B8 feeder breakers

QUESTION: 27 **QID:** 1848 **Rev:** 1

OP-2203.020, High Activity in the RCS AOP, step 9 directs isolating Letdown flow when Auxiliary Building Radiation Levels reach >0.1 R/hr and RCS Gross monitor (2RITS-4806A) activity is stable or lowering.
The reason for this action is to _____ .

A. prevent limiting access to vital areas in the Auxiliary Building

B. prevent the control room operators from exceeding their dose limits

C. minimize potential damage of the Letdown DIs resin due to the high RCS activity

D. minimize the background readings for the RCS Gross radiation monitor (2RITS- 4806A)

QUESTION: 28 **QID:** 1849 **Rev:** 0

Consider the following:

- Unit 2 is operating at 100% power
- "B" Reactor Coolant Pump (RCP) Shaft shears

The Reactor Trip is caused by _____.

A. Variable Overpower Trip (VOPT)

B. Low Linear Power Density (LPD)

C. High Departure Nucleate Boiling Ratio (DNBR)

D. Asymmetric Steam Generator Transient (ASGT)

QUESTION: 29 **QID:** 1850 **Rev:** 1

Which of the following is NOT a purpose and/or function of the Chemical and Volume Control (CVCS) System?

A. Provides a method to control RCS pressure

B. Collects controlled bleed-off flow from the RCP seals

C. Provides continuous measurement of fission product activity

D. Provides water for resin transfer for the Letdown Demineralizers

QUESTION: 30 **QID:** 1851 **Rev:** 0

The "A" Low Pressure Safety Injection (LPSI) Pump (2P-60A), when used to support/supply Shutdown Cooling (SDC) is powered by electrical bus _____.

A. 2A1

B. 2A2

C. 2A3

D. 2A4

QUESTION: 31 **QID:** 1852 **Rev:** 1

Consider the following:

- Unit 2 has entered mode 5 after completing a 500 day operating cycle
- SDC in service with the "A" LPSI pump through the "A" SDC Hx
- RCS Temperature 185°F
- RCS pressure 275 psia
- "A" LPSI pump has tripped

If RCS pressure reaches a MINIMUM of _____ psia it should _____ the Shutdown Cooling suction MOVs (2CV-5084-1 and 2CV-5086-2) isolation valve.

A. 300, prevent opening

B. 300, automatically close

C. 350, prevent opening

D. 350, automatically close

QUESTION: 32 **QID:** 1853 **Rev:** 1

Consider the following:

- Unit 2 is operating at 100% power
- An event has occured that caused a reactor trip
- Upon the Reactor trip, Annunciator 2K08-A3, LOAD CENTER 2B5 UNDERVOLT comes into alarm
- The ATC reports breaker 2A-301, 2B5 bus feeder from 2A3 is open
- A LOCA has occurred
- RCS pressure is now 1400 psia and trending down
- All other systems are operating as designed
- OP-2202.001, Standard Post Trip Actions (SPTAs), have been completed

Based on the above conditions, RCS MAKEUP will be supplied by _____ HPSI train(s).

A. ONLY 2P-89A

B. ONLY 2P-89B

C. BOTH 2P-89A and 2P-89B

D. NEITHER 2P-89A or 2P-89B

QUESTION: 33 **QID:** 1854 **Rev:** 0

Consider the following:

- Unit 2 has completed a refueling outage
- Pressurizer Steam Bubble formation is in progress

Which of the following parameter changes, during the Pressurizer Steam Bubble formation, should indicate that all of the non-condensable gases have been removed from the Pressurizer?

A. Pressurizer pressure lowering with Pressurizer water temperature above saturation

B. Pressurizer pressure rising with Pressurizer water temperature below saturation

C. Quench Tank pressure rising continuously with Quench Tank level stable

D. Quench Tank pressure rising slowly with Quench Tank level rising slowly

QUESTION: 34 **QID:** 1855 **Rev:** 1

Consider the following:

- Unit 2 is operating at 100% power
- Lake temperature is 45°F
- Letdown Flow control valves [2CV-4816 and 2CV-4817] have failed closed
- NO operator actions have been taken

Due to the above conditions, Component Cooling Water (CCW) temperature should _____ and per the Limits and Precautions of OP-2104.028, Component Cooling Water, if actions were taken to RAPIDLY return CCW temperature to the middle of its normal control band, the _____ could be adversely impacted.

A. rise; RCP seals

B. lower; RCP seals

C. rise; Isophase duct system

D. lower; Isophase duct system

QUESTION: 35 **QID:** 1856 **Rev:** 1

The purpose of the Component Cooling Water [CCW] surge tanks [2T-37A/B] is to provide net positive suction head [NPSH] to the CCW pumps and in the event of a high radiation condition in the CCW system, the CCW surge tank vents should be _____ aligned to _____ .

A. manually; atmosphere

B. automatically; atmosphere

C. manually; the Auxiliary Building exhaust fan suction [2VEF-8A/B]

D. automatically; the Auxiliary Building exhaust fan suction [2VEF-8A/B]

QUESTION: 36 **QID:** 1857 **Rev:** 0

Consider the following:

- Unit 2 has tripped from 100%
- An RCS pressure transient has occurred
- Pressurizer Code Safeties are lifting
- Quench Tank pressure is 30 psig and trending up

What is the condition of the fluid entering the Quench Tank?

A. wet steam

B. dry steam

C. subcooled liquids

D. superheated steam

QUESTION: 37 **QID:** 1858 **Rev:** 1

Consider the following:

- Unit 2 is operating at 100% power
- Annunciator 2K10-E6, CNTRL CH 1 Pressure HI/LO, is in alarm
- Annunciator 2K10-E7, CNTRL CH 2 Pressure HI/LO, is in alarm
- OP-2203.028, Pressurizer Malfunctions AOP, has been entered

As directed by OP-2203.028, Pressurizer Malfunctions AOP, the FIRST action the CRS directs should be to:

A. Place SDBCS Master controller in Auto local and adjust the controller setpoint to 1010 psia

B. Manually control Pressurizer Heater and Spray Valves and restore RCS pressure to 2025 to 2275 psia

C. Verify ONE 11 1/2% SDBCS Bypass OR Downstream ADV Permissive switch in MANUAL

D. Place non selected control channel in service and verify automatic control of Pressurizer Heater and Spray Valves are restoring RCS pressure

QUESTION: 38 **QID:** 1859 **Rev:** 0

Consider the following:

- Unit 2 is operating at 100% power
- A loss of 120v Vital AC to 2RS-4 has occurred

Which of the following Reactor Trip Circuit Breakers (TCBs) should be open?

A. Breakers 1 and 5

B. Breakers 2 and 6

C. Breakers 3 and 7

D. Breakers 4 and 8

QUESTION: 39 **QID:** 1860 **Rev:** 0

Consider the following:

- Unit 2 is operating at 80% power
- Pressurizer Pressure Wide Range Pressure Transmitter, 2PT-4624-1, has failed low
- CRS directs placing Low Pressurizer Pressure bistable #6 in 2C-23A in Trip Channel Bypass

After the above actions are completed, which Engineered Safety Features Actuation System (ESFAS) function's Logic Matrixes are operating in "2 out of 3" logic?

A. Containment Spray Actuation Signal (CSAS); Containment Cooling Actuation Signal (CCAS)

B. Safety Injection Actuation Signal (SIAS); Containment Isolation Actuation Signal (CIAS)

C. Containment Isolation Actuation Signal (CIAS); Containment Cooling Actuation Signal (CCAS)

D. Safety Injection Actuation Signal (SIAS); Containment Cooling Actuation Signal (CCAS)

QUESTION: 40 **QID:** 1861 **Rev:** 0

Consider the following:

- Unit 2 has tripped from 100% power
- RCS Pressure is trending down
- Containment pressure is 19.3 psia and rising

The Control Room Operator, when checking Containment Cooling fan operations, should expect _____ Water to be aligned to Containment Coolers and the Containment Coolers bypass dampers to be _____.

A. Chilled, open

B. Chilled, closed

C. Service, open

D. Service, closed

QUESTION: 41 **QID:** 1862 **Rev:** 1

Consider the following:

- A large break LOCA has occurred on Unit 2
- RCS Pressure is 1250 psia and trending down
- Containment pressure is 47 psia and slowly trending down
- RWT level 5.5%
- OP-2202.001, Standard Post Trip Actions (SPTAs), have been completed
- OP-2202.003, Loss of Coolant Accident EOP, is being implemented
- Approximately 35 minutes have past since the LOCA began
- Containment HIGH Range Rad Monitors are trending up

OP-2202.003, Loss of Coolant Accident EOP should direct the ATC to secure a MINIMUM of _____ Reactor Coolant Pumps [RCPs] and verify a MINIMUM required Containment Spray Header flow of _____ .

A. 2; 2000 gpm

B. 2; 1875 gpm

C. all; 2000 gpm

D. all; 1875 gpm

QUESTION: 42 **QID:** 1863 **Rev:** 1

Considering the operation of the Steam Dump & Bypass Control System (SDBCS):

ALL of the SDBCS Atmosphere DUMP valves and Condenser BYPASS valves should receive a Quick Open BLOCK signal based on a Reactor Trip with _____ .

A. rising RCS pressure

B. lowering RCS pressure

C. high RCS Average Coolant Temperature

D. low RCS Average Coolant Temperature

QUESTION: 43 **QID:** 1864 **Rev:** 1

Consider the following:

- Unit 2 is operating at 60% power
- The Auto signal/demand on "A" Main Feed Pump (MFP) speed demand controller, (2HIC- 0321), fails high and automatically ramps "A" MFP speed to 100%

With the above conditions, the "B" MFP speed should _____and per the ACA response, the FIRST action the CRS should direct is _____.

A. rise; taking manual control of "A" MFP speed

B. rise; tripping the "A" MFP

C. lower; taking manual control of "A" MFP speed

D. lower; tripping the "A" MFP

QUESTION: 44 **QID:** 1865 **Rev:** 1

Consider the following sequence of events:

- Unit 2 is operating at 100% power
- "A" Stator Water Cooling pump trips and the standby pump did not start
- Main Turbine Runback is in progress
- RCS pressure is 2450 psia and rising
- The Reactor automatically trips
- "A" and "B" Steam Generator levels are 14% and trending down
- EFAS 1 and EFAS 2 have failed to actuate
- NO operator action is taken

The Automatic Reactor Scram was caused by _____and the Emergency Feedwater Pumps _____ automatically start on a DEFAS signal.

A. CPC Auxiliary trip; will

B. CPC Auxiliary trip; will not

C. DSS trip; will

D. DSS trip; will not

QUESTION: 45 **QID:** 1866 **Rev:** 1

Consider the following:

- Unit 2 is operating at 100% power
- #2 Emergency Diesel Generator (EDG) monthly surveillance, OP-2104.036, Emergency Diesel Generator Operations, Supplement 2A, is in progress
- #2 EDG is being unloaded in preparation for securing

When preparing to divorce the #2 EDG from offsite power (opening #2 EDG output breaker 2A408), the EDG Kilowatt output is lowered to approximately _____ kW and 2A408 is opened promptly to prevent an _____ trip of the EDG.

A. 700; Anti-Motoring

B. 700; Overspeed

C. 100; Anti-Motoring

D. 100; Overspeed

QUESTION: 46 **QID:** 1867 **Rev:** 1

Consider the following:

- Unit 2 is operating at 100% power
- A Loss of Offsite Power occurs
- Neither EDG starts
- The AACDG is unavailable
- ATC reports CEA #3 not fully inserted
- Reactor power is lowering
- all other plant components operate as designed
- SPTAs are complete

When the appropriate EOP is entered, the _____ safety function is the greatest concern because _____.

A. Reactivity; there is no means to Emergency Borate

B. Maintenance of Vital Auxiliaries; of the discharge rate on the vital batteries

C. RCS Heat Removal; the Steam Generator safeties are lifting

D. Core Heat Removal; there are no Reactor Coolant Pumps running

QUESTION: 47 **QID:** 1868 **Rev:** 1

Consider the following:

- Unit 2 is operating at 70% power
- The 2D01 Battery fuses, in cabinet 2D-41, have blown due to degradation

The _____Annunciator should come into alarm and the battery charger output supplying 2D01 should _____.

A. Battery NOT Available; rise significantly

B. Battery NOT Available; stay approximately the same

C. 2D01 undervoltage; rise significantly

D. 2D01 undervoltage; stay approximately the same

QUESTION: 48 **QID:** 1869 **Rev:** 1

Consider the following:

- #2 EDG is tied to the grid for a 24 hour run
- Full load was reached 6 hours ago
- Lube oil pressure at 1700 was logged at 37 psig
- Lube oil pressure at 2300 was logged at 32 psig
- Lube oil temperature at 1700 was logged at 109°F
- Lube oil temperature at 2300 was logged at 135°F

At the current rate of change, with NO operator actions taken, what is the MAXIMUM amount of time, from the last log reading, the #2 EDG will run before an automatic trip should occur?

A. 10.8 hours

B. 12.0 hours

C. 19.6 hours

D. 20.8 hours

QUESTION: 49 **QID:** 1870 **Rev:** 1

Consider the following:

- 2T-18C, Waste Gas Decay Tank, release is in progress
- Rad Monitor, 2RE-2429, is trending up
- Annunciator 2K11-D10, Process Gas Radiation HI/LO, has came into alarm

The Waste Gas Decay Tank release should be terminated by 2CV-2428, waste gas decay tank discharge valve _____ closing and the release_____ a new dump permit submitted.

A. automatically; will remain terminated until

B. automatically; may be re-established without

C. manually; will remain terminated until

D. manually; may be re-established without

QUESTION: 50 **QID:** 1871 **Rev:** 1

Consider the following:

- Unit 2 has been shutdown for outage
- Chemicals have been added to commence acid reducing shutdown chemistry

The Letdown Process Radiation Monitor system uses _____ detectors for indications of RCS Activity and, with the above conditions, RCS _____ activity indications should increase.

A. Geiger-Mueller; Iodine 131

B. Geiger-Mueller; Gross

C. scintillation; Iodine 131

D. scintillation; Gross

QUESTION: 51 **QID:** 1872 **Rev:** 1

Consider the following:

- Unit 2 is in mode 6 with refueling operations in progress
- The "A" LPSI pump (2P-60A) through the "A" SDC Heat Exchanger (2E35A) is in service
- 2A4 bus outage is in progress
- RCS temperature is being maintained at 145°F
- 2RITS-1453, 2E35A Outlet Radiation monitor, is in alarm
- The ATC notes that RCS level is trending down very slowly
- OP-2203.029, Loss of Shutdown Cooling AOP has been entered

The CRS, IAW OP-2203.029, Loss of Shutdown Cooling AOP, should direct:

A. placing the "B" SDC Heat Exchanger in service and isolating the "A" SDC Heat Exchanger

B. placing the "B" SDC Train (pump and Heat Exchanger) in service and isolating the "A" SDC Train (pump and Heat Exchanger)

C. isolate the "A" SDC Train (pump and Heat Exchanger) from the RCS by closing the SDC suction isolation valves

D. initiate emergency makeup to the RCS by starting an available HPSI pump

QUESTION: 52 **QID:** 1873 **Rev:** 0

Consider the following:

- Unit 2 is operating at 100% power
- 2P-4B and 2P-4C Service Water pumps are in operation
- 2P-4A Service Water pump is in standby
- The Reactor tripped due to a Loss of Offsite Power
- All plant equipment/components have operated as designed

Given these conditions, 2P-4B Service Water pump should be _____ and 2P-4C Service Water pump should be _____ .

A. running; running

B. secured; secured

C. running; secured

D. secured; running

QUESTION: 53 **QID:** 1874 **Rev:** 1

Consider the following:

- Unit 2 is operating at 100% power
- The "A" Instrument Air Compressor [2C-27A] is the LAG compressor
- The "B" Instrument Air Compressor [2C-27B] is the LEAD compressor
- Annunciator 2K12 A-8, Instrument Air Pressure HI/LO, is in alarm
- Instrument Air Header pressure is reading 78 psig and trending down
- OP-2203.021, Loss of Instrument Air AOP, has been entered
- The IAO has been dispatched to locally investigate the IA system
- The IAO reports local Instrument Air Receiver pressure is reading 80 psig

With the above conditions, the IAO should report Instrument Air Compressor status as:

The "A" Instrument Air Compressor [2C-27A] is running _____ and the "B" Instrument Air Compressor [2C-27B] is running _____ .

A. loaded; loaded

B. loaded; unloaded

C. unloaded; loaded

D. unloaded; unloaded

QUESTION: 54 **QID:** 1875 **Rev:** 0

Consider the following:

- A total loss of Instrument Air [IA] event has occurred on Unit 2
- The CRS directs tripping the Unit
- IA header pressure is 0 psig
- NO other operator actions are taken

15 minutes post trip, the Main Steam Isolation Valves [MSIVs] should be _____ and the Reactor Coolant System [RCS] heat should be removed by _____ .

A. closed; Steam Dump Bypass Control System

B. closed; Main Steam Safety Valves

C. open; Steam Dump Bypass Control System

D. open; Main Steam Safety Valves

QUESTION: 55 **QID:** 1876 **Rev:** 0

Consider the following:

- Unit 2 is operating at 100% power
- A Containment entry has been made for I&C maintenance
- Upon exiting the Containment Building the Personnel Hatch air lock door interlocks fail allowing both doors to be opened at the same time

Based on Technical Specifications, which action is required to be taken in 1 hour?

A. Commence placing the plant in Hot Standby and Cold Shutdown

B. Verify BOTH Personnel Hatch air lock doors are Closed and locked

C. Verify ONE Personnel Hatch air lock door is Operable and Closed

D. Start the Containment Purge system to create a negative pressure in Containment

QUESTION: 56 **QID:** 1877 **Rev:** 0

Consider the following:

- Unit 2 is operating at 100% power
- "A" Heater Drain Pump has tripped

Reactor power should _____ due to the loss of the "A" Heater Drain Pump due to the _____.

A. lower; higher steam demand to the Main Feed Pumps

B. lower; loss of feedwater preheat

C. raise; higher steam demand to the Main Feed Pumps

D. raise; loss of feedwater preheat

QUESTION: 57 **QID:** 1878 **Rev:** 0

The Incore Neutron Flux Detectors are powered from the _____.

A. 120vac vital bus

B. 120vac instrument buses

C. Cesium decay inside the detector

D. Rhodium decay inside the detector

QUESTION: 58 **QID:** 1879 **Rev:** 1

Considering the availability of Core Exit Thermocouples (CETs) during Post Accident conditions, Tech Spec 3.3.3.6, Post Accident Instrumentation, requires as a MINIMUM_____ .

A. 1 CET per core quadrant

B. 2 CETs per core quadrant

C. 4 CETs total in the core

D. 8 CETs total in the core

QUESTION: 59 **QID:** 1880 **Rev:** 0

Consider the following:

- Unit 2 has tripped due to a large Steam Leak inside the Containment Building
- Containment Building pressure is 19.7 psia and trending up

As a result of the event, Spent Fuel Pool temperature should be _____ and level should be _____.

A. trending up; unchanged

B. trending up; trending up

C. unchanged; trending up

D. unchanged; unchanged

QUESTION: 60 **QID:** 1881 **Rev:** 1

Consider the following:

- Unit 2 is operating at 30% power
- Annunciator 2K11-K8, Trouble/LKRT HI, is in alarm
- "A" Steam Generator N-16 monitor (2RITS-0200) is reading 0.09 gpm and trending up
- "B" Steam Generator N-16 monitor (2RITS-0201) is reading <.01gpm and steady

What action(s) is(are) required due to the above conditions?

A. T.S. leakage has not been exceeded, the N-16 monitors do not calculate a leakrate at this power

B. T.S. leakage has been exceeded, Trip the Unit and enter Steam Generator Tube Rupture EOP

C. T.S. SG Leakage has not been exceeded, enter Primary to Secondary Leakage AOP

D. T.S. SG Leakage has not been exceeded, adjust N-16 setpoint and monitor

QUESTION: 61 **QID:** 1882 **Rev:** 1

Consider the following:

- Unit 2 has completed forced outage and is performing a plant startup
- Power is being maintained at 10% in preparations to place the Main Turbine Generator [MTG] on line
- Steam Dump Bypass Valve, 2CV-0303, is in AUTO
- Steam Dump Bypass Valve, 2CV-0302, is in MANUAL
- Rolling of the Main Turbine Generator [MTG] is in progress

When the Main Turbine Generator (MTG) speed reaches 1800 rpm, steam header pressure should be _____and Reactor Power should be _____ than before the Main Turbine Generator (MTG) roll was started.

A. higher; higher

B. lower; higher

C. the same; the same

D. higher; lower

QUESTION: 62 **QID:** 1883 **Rev:** 0

The condenser off-gas rad monitor [2RE-0645] is used to detect _____ and discharges to the _____ .

A. a primary to secondary RCS leak; suction of the Aux Building Exhaust Fans [2VEF-8A/B]

B. high RCS activity; suction of the Aux Building Exhaust Fans [2VEF-8A/B]

C. a primary to secondary RCS leak; suction of the Aux Extension Building Exhaust Fans [2VEF-51A/B]

D. high RCS activity; suction of the Aux Extension Building Exhaust Fans [2VEF-51A/B]

QUESTION: 63 **QID:** 1884 **Rev:** 1

Consider the following:

- Unit 2 is operating at 100% power
- Waste Gas Decay Tank [2T-18A] is being filled
- 2T-18A pressure is 350 psig

With the above conditions, if a hydrogen burn were to occur, which one (1) of the following describes the results on the Waste Gas System?

A. A rupture disc will relieve pressure directly to the on Line Holdup Tank [2T-12]

B. A rupture disc will relieve pressure directly to the Waste Gas Surge Tank [2T-17]

C. A rupture disc will unisolate a relief valve and relieve pressure directly to the on Line Holdup Tank [2T-12]

D. A rupture disc will unisolate a relief valve and relieve pressure directly to the Waste Gas Surge Tank [2T17]

QUESTION: 64 **QID:** 1885 **Rev:** 1

Consider the following:

- Unit 2 is operating at 100% power
- All Equipment is Operable and in a normal 100% power lineup
- Unit 1 Area Rad Monitor, RI-8001, has failed and comes into high alarm

The required actions per OP-2104.007, Control Room Emergency Air Conditioning And Ventilation system, should be:

A. Check Unit 2 emergency ventilation supply fan [2VSF-9] has Auto started and verify proper response of emergency ventilation equipment

B. Check Unit 1 emergency ventilation supply fan [VSF-9] has Auto started and verify proper response of emergency ventilation equipment

C. Start either Unit 1 emergency ventilation supply fan [VSF-9] or Unit 2 emergency ventilation supply fan [2VSF-9] to maintain control room habitability limits

D. Secure either Unit 1emergency ventilation supply fan [VSF-9] or Unit 2 emergency ventilation supply fan [2VSF-9] to prevent exceeding control room habitability limits

QUESTION: 65 **QID:** 1886 **Rev:** 1

Consider the following:

- Unit 2 is operating at 60% power
- The ATC has been directed to secure the "B" Circulating Water Pump (2P-3B)

The securing sequence for a Circ Water Pump, as described in OP-2104.008, Circulating Water System Operation NOP section 13.0, is based on:

A. Preventing loss of cooling flow to the Main Condenser

B. Minimizing differential pressure across the discharge valve 2CV-1215

C. Minimizing hydraulic forces on Circ Water Piping Expansion joints

D. Preventing "A" Circulating Water Pump (2P-3A) from running at shutoff head

QUESTION: 66 **QID:** 1887 **Rev:** 0

Bulleted procedural steps _____ .

A. should only be performed if conditions are met

B. are required to be performed in order as written

C. should be performed in any sequence or in parallel

D. should be performed at anytime the procedure is in use

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QUESTION: 67 **QID:** 1888 **Rev:** 0

As the off going (watchstander that is being relieved) watchstander, as a minimum, you are required to perform/verify all of the following EXCEPT:

A. Inform your relief of any evolutions that are in progress

B. Inform your relief of LCO entered and exited during your shift

C. Ensure your relief is physically and mentally fit to assume the watch

D. Verify the on coming watchstander "Active Status" is in good standing

QUESTION: 68 **QID:** 1889 **Rev:** 1

Consider the following:

- Unit 2 has completed a plant shutdown due to a Primary to Secondary leak in "A" Steam Generato

Regarding plant configuration controls, which of the following describes the method used for maintaining component configuration control?

A. The Primary to Secondary Leakage AOP, 2203.038, is reviewed by the CRS after the event to ensure any equipment operated is returned to normal or documented in the proper log.

B. The CRS keeps a handwritten list of components placed out of position and enters them in the COOP Log as time allows during the event.

C. The Primary to Secondary Leakage AOP, 2203.038, has proper restoration steps in it to return all manipulated components to a normal configuration.

D. Complete valve lineups for the affected systems are required to be performed after the event.

QUESTION: 69 **QID:** 1890 **Rev:** 1

Consider the following:

- Unit 2 is operating at 3% power
- The ATC reports RCS Tavg 532°F

The MAXIMUM amount of time allowed by T.S. to return RCS Tavg to within its limits is:

A. 1 hour

B. 15 minutes

C. 5 minutes

D. 1 minute

QUESTION: 70 **QID:** 1891 **Rev:** 0

Consider the following:

- Unit 2 is operating at 100% power
- A Containment power entry is planned inside the "D" Rings

All of the following are required to enter into a Very High Radiation Area (VHRA) EXCEPT:

A. Have RP manager/or designee and Shift Manager approval

B. At least 2 persons for the entry, one must be an Operator

C. Special RWP for entry into a VHRA

D. Continuous RP coverage

QUESTION: 71 **QID:** 1892 **Rev:** 0

Containment High Range Radiation monitors (2RE-8925-1 and 2RE-8925-2) are _____ type detectors and if a large temperature change occurred inside the Containment Building (example, Main Steam Line Break) the Radiation monitors would initially read _____.

A. Scintillation; high

B. Scintillation; low

C. Geiger-Mueller; high

D. Geiger-Mueller; low

QUESTION: 72 **QID:** 1893 **Rev:** 1

The WCO is assigned a task to verify a valve label inside a satellite, non contaminated, Radiological Controlled Area (RCA) located outside of the Auxiliary Building. There is NOT a Whole Body Contamination Monitor (WBCM) in the area of the satellite RCA. Upon exiting, EN-RP-100 REQUIRES at a MINIMUM, the WCO should perform a _____ frisk and ensure she uses a WCBM _____ .

A. whole body; before she leaves site

B. hand and foot; before she leaves site

C. whole body; as soon as possible

D. hand and foot; as soon as possible

QUESTION: 73 **QID:** 1894 **Rev:** 1

Consider the following:

- Unit 2 is operating at 100% power
- A valid RPS setpoint has been exceeded
- The ATC depressed both reactor trip pushbuttons on 2C03
- The reactor did not trip

Per OP-2202.001, Standard Post Trip Actions (SPTAs), the required immediate actions to trip the reactor (in order) are:

A. Depress DSS pushbutton, Depress the Reactor Trip pushbuttons on 2C14, De-energize the MG sets by opening the 480v Load Center supply Breakers (2B712 and 2B812) on 2C10

B. Depress the Reactor Trip pushbuttons on 2C14, Depress DSS pushbutton, De-energize the MG sets by opening the 4160v Load Center supply Breakers (2A104 and 2A204) on 2C10

C. Depress the Reactor Trip pushbuttons on 2C14, De-energize the MG sets by opening the 480v Load Center supply Breakers (2B712 and 2B812) on 2C10, Depress DSS pushbutton

D. Depress DSS pushbutton, De-energize the MG sets by opening the 4160v Load Center supply Breakers (2A104 and 2A204) on 2C10, Depress the Reactor Trip pushbuttons on 2C14

QUESTION: 74 **QID:** 1895 **Rev:** 1

Consider the following:

- Unit 2 has tripped due to a large break LOCA
- Chemistry reports indications of an on going radiation release offsite
- A General Emergency (GE) has been declared
- Emergency Response Organization (ERO) is fully staffed

The _____ directs recovery and re-entry team activities and the _____ is responsible for Emergency Direction and Control.

A. Emergency Operations Facility (EOF); Operational Support Center (OSC)

B. Operational Support Center (OSC); Emergency Operations Facility (EOF)

C. Technical Support Center (TSC); Operational Support Center (OSC)

D. Operational Support Center (OSC); Technical Support Center (TSC)

QUESTION: 75 **QID:** 1896 **Rev:** 1

Consider the following:

- A Grid disturbance has occurred de-energizing the off site power supplies
- Pressurizer pressure is 2140 psia and lowering
- Reactor Coolant temperature is 554°F and slowly lowering
- Margin To Saturation is 66°F and slowly raising
- Steam Generator pressures are 948 psia and slowly lowering
- Steam Generator levels are 32% and slowly lowering
- Containment due point is slowly trending up
- Containment low range radiation monitors are stable
- SPTAs have been completed

Based on the above parameters and trends, the CRS should enter _____ .

A. Excess RCS Leakage AOP

B. Loss of Coolant Accident EOP

C. RCS Overcooling AOP

D. Excess Steam Demand EOP

QUESTION: 76 **QID:** 1897 **Rev:** 1

Consider the following:

- Unit 2 is operating at 100% power
- An event has occurred
- PZR Level is 63% and rising
- RCS pressure is 2424 psia and trending up rapidly
- All available SDBCS Dump valve are OPEN
- No operator actions have been taken

The event in progress is a (an) _____ , AND based on the event, the action(s) required to be performed is (are) _____ .

A. Excess Steam Demand; Take Manual control of the Pressurizer Spray valves and lower RCS pressure

B. Excess Steam Demand; Take Manual control and close the SDBCS Valves

C. Loss of Turbine Load; Commence Emergency Boration from a Boric Acid Makeup Tank

D. Loss of Turbine Load; Manually Trip the Reactor and verify reactivity

QUESTION: 77 **QID:** 1898 **Rev:** 1

Consider the following:

- Unit 2 is in Mode 6
- GREEN TRAIN is protected
- "B" Shutdown Cooling train is in service
- Core reload is in progress
- The breaker heaters have been removed from "A" and "C" Coolant Charging Pump (CCPs) for testing
- "B" CCP is available
- "B" HPSI pump is aligned as a makeup source
- WCO reports "B" CCP Feeder Breaker, 2B62-A5, is in the trip free condition

Which of the following actions should be performed FIRST:

A. Secure testing and replace the breaker heaters in "A" and "C" CCP

B. Start "B" HPSI pump and adjust flow for RCS makeup

C. Suspend loading irradiated fuel in the core

D. Have the WCO reset and close 2B62-A5

QUESTION: 78 **QID:** 1899 **Rev:** 0

Consider the following:

- Unit 2 is operating at 100% power
- RCS pressure is 2200 psia
- RCS temperature is 580.23°F
- The "A" spray valve [2CV-4651] has been cycled open and closed for maintenance
- 5 minutes later the ATC reports RCS pressure is 2175 psia and trending down

Considering the current RCS pressure and rate of change, the MINIMUM Tech Spec limit for Pressurizer Pressure should be reached in _____ minutes and the FIRST course of action directed by OP-2203.028, Pressurizer System Malfunction AOP, should be to _____ .

A. 30; close the "A" spray valve block valves

B. 30; place "A" Spray valve in manual and closed

C. 35; close the "A" spray valve block valves

D. 35; place "A" Spray valve in manual and closed

QUESTION: 79 **QID:** 1900 **Rev:** 1

REFERENCE PROVIDED

Consider the following:

- Unit 2 is operating at 100% power
- 2D31A battery charger is being placed on an equalize charge to restore 2D01 battery voltage
- 2K01, E-10, Bus 2D01 Charger Trouble, is in alarm
- The IAO reports there is no output from the online Battery Charger 2D31A
- Electricians report 2D01 pilot cell voltage has dropped 0.2 volts in the last 45 minutes
- Current 2D01 pilot cell voltage is 2.36 volts

At the current rate of discharge, the MAXIMUM amount of time that can elapse before the RED BATTERY MUST be declared inoperable is _____ minutes.

A. 54

B. 60

C. 65

D. 120

QUESTION: 80 **QID:** 1901 **Rev:** 1

[REFERENCE PROVIDED]

Consider the following:

- Unit 2 is operating at 100% power
- "A" and "B" Service Water (SW) pumps are on line
- Annunciator 2K06-E5, 2P4A Strainer DP HI, is in alarm
- Annunciator 2K05-E4, 2P4B Strainer DP HI, is in alarm
- ACW bypass valve, 2CV-1650, has been verified closed

OAO reports:
- "A" SW pump strainer DP is 10 psid
- "B" SW pump strainer DP is 11 psid
- Loop 1 SW flow is 7650 gpm
- Loop 2 SW flow is 3760 gpm
- ACW flow is 4925 gpm

Based on the above conditions, Loop 1 Service Water should be declared _____ and Loop 2 Service Water should be declared _____ .

A. inoperable; inoperable

B. operable; inoperable

C. inoperable; operable

D. operable; operable

QUESTION: 81 **QID:** 1902 **Rev:** 0

Consider the following:

- Unit 2 is in Mode 4
- OP-2104.004, Shutdown Cooling System section 8.0 (establishing SDC), has JUST been completed
- The manual valves for 2CV-5091 and 2CV-5093 have not been throttled as directed by OP-1015.008, Unit 2 SDC control, Attachment B
- A Loss of Instrument Air occurs

The CRS should enter _____ and the entry conditions for Tech Spec 3.1.1.3 (RCS Flow Rate) _____been met.

A. OP-2203.029, Loss of Shutdown Cooling AOP; have

B. OP-2202.011 Lower Mode Functional Recovery EOP; have

C. OP-2203.029, Loss of Shutdown Cooling AOP; have not

D. Op-2202.011, Lower Mode Functional Recovery EOP; have not

QUESTION: 82 **QID:** 1903 **Rev:** 2

Consider the following:

- Unit 2 is operating at 100% power
- Annunciator 2K04-J5, CEAC 1 CEA Deviation, is in alarm
- Annunciator 2K04-J6, CEAC 2 CEA Deviation, is in alarm

The ATC reports:
- CEA #46 is indicating 110" withdrawn
- CEA # 1 Rod Bottom Light is lit

Which of the following actions should be taken based on these conditions?

A. Continue the power reduction to 60% power and realign the CEAs

B. Continue the power reduction to be in HOT STANDBY conditions in 6 hours

C. Manually trip the Reactor and go to OP-2202.001, Standard Post Trip Actions

D. Stabilize the plant by adjusting turbine load to match T-REF within 2°F of T-AVE

QUESTION: 83 **QID:** 1904 **Rev:** 1

Consider the following:

- Unit 2 is operating at 30% power
- Planned Electrical maintenance is in progress on 2B61 Vital Load center
- The ATC reports he has indication of a loss of power to 2B61

Letdown flow should _____ due to the loss of power and the CRS should direct entry into _____ AOP.

A. go to minimum flow; OP-2203.036, Loss of Charging

B. go to minimum flow; OP-2203.045, Loss of 480 Volt Vital Bus

C. be isolated; OP-2203.036, Loss of Charging

D. be isolated; OP-2203.048, Loss of 480 Volt Vital Bus

QUESTION: 84 **QID:** 1905 **Rev:** 1

Consider the following:

- Unit 2 is in mode 6
- Core Reload is in progress
- Refueling Boron concentration is 2825 ppm
- #2 source range neutron flux monitor has failed low

What action(s) is(are) required due to the above conditions?

A. Immediately commence Emergency Boration to the RCS

B. Immediately suspend all operations involving CORE ALTERATIONS

C. Verify Audible count rate on the refueling bridge and continue with fuel movement

D. Restore the source range monitor to OPERABLE status within 1 hour, or suspend CORE ALTERATIONS

QUESTION: 85 **QID:** 1906 **Rev:** 1

Consider the following:

- Unit 2 is in Mode 6
- Refueling is in progress
- A fuel assembly has been dropped in the Spent Fuel Pool (SFP)
- Bubbles are emerging from the dropped fuel assembly

Which of the following actions, per OP-2502.001 Refueling Shuffle, should be performed for the given conditions?

A. Perform a local evacuation of the Unit 2 SFP area

B. Commence adding Boric acid to the SFP for Shutdown Margin

C. Refueling SRO Directs immediate recovery of dropped fuel assembly

D. Secure the SFP area ventilation exhaust fans to prevent an offsite release

QUESTION: 86 **QID:** 1907 **Rev:** 1

Given the following:

- Unit 2 is operating at 100% power
- The ATC reports 2CV-4847-2, RCP Bleedoff to VCT, indicates closed
- WCO reports the Instrument Air line to 2CV-4847-2 has ruptured

Given the above conditions, RCP controlled Bleedoff flow should be directed to the _____ and, using the ACA, the CRS should direct relieving the tank pressure to the _____ .

A. Quench Tank; Containment sump

B. Reactor Drain Tank; Gas Collection Header

C. Quench Tank; Reactor Drain Tank

D. Reactor Drain Tank; Online Holdup Tank

QUESTION: 87 **QID:** 1908 **Rev:** 0

Consider the following:

- Unit 2 is operating at 100% power
- Quarterly surveillance for the "B" Spray pump is scheduled (Containment Spray procedure OP-2105.005, Supplement 2)

During the performance of the "B" Spray pump quarterly surveillance, the Containment Spray system Tech Spec (3.6.2.1) _____ required to be entered and a flowpath _____ established through the "B" Shutdown Cooling Heat Exchanger (2E-35B).

A. is; is

B. is; is not

C. is not; is

D. is not; is not

QUESTION: 88 **QID:** 1909 **Rev:** 1

Consider the following:

- Unit 2 is operating at 50% power
- "A" Main Feed Pump (MFP) is in operation
- "B" MFP is idling for oxygen control
- Annunciator 2K03-D8, Turb BRG Oil Temp HI, for "A" MFP is in alarm
- the CBOT reports the MFP lube oil temperature controller, 2TIC-5283, is in manual and will not control temperature

Per ACA 2K03-D8, the CRS should direct the AO to the _____Turbine Building elevation and take manual control of MFP lube oil temperature by adjusting _____ flow to the MFP lube oil cooler.

A. 335'; component cooling water

B. 335'; MFP lube oil

C. 372'; component cooling water

D. 372'; MFP lube oil

QUESTION: 89 **QID:** 1910 **Rev:** 1

Consider the following:

- Unit 2 is operating at 100% power
- Annunciator 2K09-B5, Battery RM Exhaust Fan 2VEF-49 Air Flow LO is in alarm
- IAO reports 2VEF-49 supply Breaker, 2B64-K4, is tripped free

The CRS, as directed by ACA 2K09 B-5, should direct _____ due to a concern for high _____ in the room caused by the loss of ventilation.

A. establishing alternate room ventilation; humidity

B. establishing alternate room ventilation; hydrogen concentrations

C. resetting breaker 2B64-K4 and start 2VEF-49; humidity

D. resetting breaker 2B64-K4 and start 2VEF-49; hydrogen concentrations

QUESTION: 90 **QID:** 1911 **Rev:** 2

Consider the following:

- Unit 2 is operating at 100% power
- AACDG is OOS for generator repairs
- A Grid disturbance has occurred de-energizing the 500KV and 161KV lines

Post trip the ATC reports:

- Annunciator 2K08-H3, 2A3 L.O. Relay Failure, is in alarm
- Annunciator 2K09-A3, Load Center 2B6 Undervolt, is in alarm
- #1and #2 EDGs are running with normal voltage and frequency with their output breakers open

All actions of OP-2202.001, SPTAs have been completed and after performing OP-2202.010, Standard Attachments exhibit 8, the CRS should direct entry into _____ .

A. OP-2202.008, Station Blackout EOP

B. OP-2202.009, Functional Recovery EOP

C. OP-2202.007, Loss of Offsite Power EOP

D. OP-2203.013, Natural Circulation Operations AOP

QUESTION: 91 **QID:** 1912 **Rev:** 0

REFERENCE PROVIDED:

Consider the following:

- Unit 2 is operating at 100% power
- A large break LOCA has occurred
- OP-2202.003, Loss of Coolant Accident EOP, is being implemented

20 minutes into the event the ATC reports:

- RCS pressure 1300 psia and trending down
- RVLMS level 8 and above indicates DRY
- Average CET temperature is 590°F and rising
- Containment pressure is 25 psia and rising
- Standard Attachments exhibit 9, ESFAS actuation, has been completed

The Reactor Core is _____ and based on this information the CRS should _____.

A. subcooled; remain in OP-2202.003, Loss of Coolant Accident EOP

B. subcooled; go to OP-2202.009, Functional Recovery EOP

C. superheated; Remain in OP-2202.003, Loss of Coolant Accident EOP

D. superheated; go to OP-2202.009, Functional Recovery EOP

QUESTION: 92 **QID:** 1913 **Rev:** 1

REFERENCE PROVIDED

Consider the following:

- Unit 2 is in mode 6
- Defueling the Reactor to the Spent Fuel Pool (SFP) is in progress
- Service Water temperature is 82°F
- Service Water flow to the SFP Heat Exchanger is 4800 gpm
- "A" and "B" SFP cooling pumps (2P-40A and B) are in service
- Reactor Engineering reported current heat load in the SFP is 40 MBTU/hr
- WCO reports the "A" SFP cooling pump (2P-40A) has tripped

SFP cooling _____ adequate for the given condition and Fuel movement _____ to continue.

A. is; is allowed

B. is; is not allowed

C. is not; is allowed

D. is not; is not allowed

ANO UNIT 2 - 2012 INITIAL SRO NRC EXAM

QUESTION: 93 **QID:** 1914 **Rev:** 0

Consider the following:

- Unit 2 is in mode 4
- Fire panel 2C-343 has been discovered to be deenergized

With Fire panel 2C-343 de-energized, the CRS should enter _____ , and _____ is (are) required to be filled out.

A. OP-2203.009, Fire Protection System ACA; multiple fire impairment forms, one for each affected fire zone area,

B. OP-2203.009, Fire Protection System ACA; one fire impairment form, which will cover all the affected fire zone areas,

C. OP-2203.012K, 2K-11 C-9 Fire System Trouble ACA; multiple fire impairment forms, one for each affected fire zone area,

D. OP-2203.012K, 2K-11 C-9 Fire System Trouble ACA; one fire impairment form, which will cover all the affected fire zone areas,

QUESTION: 94 **QID:** 1915 **Rev:** 1

Consider the following:

- Unit 2 is operating at 100% power
- The on watch ATC operator had to leave due to an emergency at home

With the watchstander leaving due to an emergency, the Shift Manager has a MAXIMUM of _____ hours to replace the ATC.

A. 1

B. 2

C. 4

D. 6

QUESTION: 95 **QID:** 1916 **Rev:** 1

Consider the following:

- Unit 2 has completed a plant shutdown to commence a refueling outage
- Plant cooldown is in progress
- Preparation to commence SDC are in progress
- RCS Pressure is being held steady at 270 psia
- RCS Temperature is 220°F and slowly being lowered
- Preparations to commence Containment Purge are in progress
- An Off Shift RO has asked permission to perform the alarm and interlock function of 2RITS-8233 test for the Containment Purge Isolation valves, one at a time

The Control Room Supervisor [CRS] _____ allow the Containment Purge Isolation valve testing based on RCS _____.

A. should; temperature

B. should not; temperature

C. should; pressure

D. should not; pressure

QUESTION: 96 **QID:** 1917 **Rev:** 1

One of the three methods for controlling an activity that has been determined to be a Temporary Modification is with _____ and the _____ owns the overall Temporary Modification process.

A. a work order; Shift Manager

B. a work order; System Engineering Manager

C. shift relief sheet; Shift Manager

D. shift relief sheet; System Engineering Manager

QUESTION: 97 **QID:** 1918 **Rev:** 1

Consider the following:

- Unit 2 is in Mode 6
- Core reload is complete
- Refueling canal is Flooded to 401' 6"
- "A" SDC train is in standby
- "B" SDC train is in service
- "B" Service Water pump is OOS
- Draindown to LOWERED INVENTORY is scheduled
- Work Management informs the Control room that "A" Service Water pump is being taken out of service for 24 hours

With the "A" Service Water pump out of service, the "A" SDC train _____ be considered available and the draindown to LOWERED INVENTORY _____ be allowed.

A. should; should

B. should not; should

C. should; should not

D. should not; should not

QUESTION: 98 **QID:** 1919 **Rev:** 1

Consider the following:

- Unit 2 is operating at 100% power
- Unit 1 is operating at 40% power with 3 Circ Water pumps running
- 2T-69A, Boric Acid Condensate Tank, is on recirc and is ready for release
- BMS Liquid Discharge Radiation Monitor, 2RITS-2330, is Out of Service
- OP-2104.014, LRW and BMS Operations supplement 3, is in progress

To perform the release of 2T-69A:

A. Have Unit 1 start ONE Circ Water pump

B. Have Unit 1 secure ONE Circ Water pump

C. 2 independent discharge valve lineups are required to be performed

D. Return 2RITS-2330, BMS Liquid Discharge Radiation Monitor, to service

QUESTION: 99 **QID:** 1920 **Rev:** 1

Considering the general guidelines for the Functional Recovery EOP and ANO-2 EOP/AOP Users Guide, OP-1015.021:

The actions which the CRS should implement after all success paths for a safety function have been attempted and all safety function acceptance criteria are NOT met (Safety Function NOT Satisfied) are _____, and the actions which are implemented once all safety function acceptance criteria have been met (Safety Function IS Satisfied) are _____

A. Continuing Actions; Long Term Actions

B. Contingency Actions; Continuous Actions

C. Continuous Actions; Contingency Actions

D. Contingency Actions; Long Term Actions

QUESTION: 100 **QID:** 1921 **Rev:** 1

Consider the following:

- A 15 gpm Steam Generator Tube leak has been confirmed in "A" SG
- OP-2203.038,Primary to Secondary Leakage AOP, is in use
- A plant shutdown has been commenced
- Annunciator 2K12-A8, INSTR AIR PRESS HI/LO, is in alarm
- OP-2203.021, Loss of Instrument Air AOP, is being implemented
- Instrument Air header pressure is 34 psig and trending down
- CRS directs the ATC to trip the Reactor
- OP-2202.001, Standard Post Trip Actions (SPTAs), has been entered

OP-2203.021, Loss of Instrument Air AOP, should be performed _____ SPTAs and OP-2203.038, Primary to Secondary Leakage AOP, should be performed _____ SPTAs.

A. after completion of; in conjunction with

B. after completion of; after completion of

C. in conjunction with; after completion of

D. in conjunction with; in conjunction with

2012 SRO NRC Initial Exam Student Name: _____

Region: IV Reactor Type: CE Date : _____

ANO Unit 2

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

Reference Material

for

Reactor Operator

Test

2305.002 EXHIBIT 1 REVISED 08/28/06

COMPONENT VOLUME VS LEVEL

PRESSURIZER	53.5 gal/%
VCT	33.8 gal/%
CNTMT SUMP	39.0 gal/%
QUENCH TANK & RDT	17.6 gal/%
CCW SURGE TANK (CCW Loops Split)	9.3 gal/%
CCW SURGE TANK (CCW Loops Cross-Connected)	18.6 gal/%
SIT	120.6 gal/%
RWT	4787.8 gal/%
ABS	9.48 gal/%
2T-20	57.0 gal/%
2T-12	425 gal/%

Reference Material

for

Senior Reactor Operator

Test

2305.002 EXHIBIT 1 REVISED 08/28/06

COMPONENT VOLUME VS LEVEL

PRESSURIZER	53.5 gal/%
VCT	33.8 gal/%
CNTMT SUMP	39.0 gal/%
QUENCH TANK & RDT	17.6 gal/%
CCW SURGE TANK (CCW Loops Split)	9.3 gal/%
CCW SURGE TANK (CCW Loops Cross-Connected)	18.6 gal/%
SIT	120.6 gal/%
RWT	4787.8 gal/%
ABS	9.48 gal/%
2T-20	57.0 gal/%
2T-12	425 gal/%

4.2 Align SW Flow instrument (2FI-1402) at Three Valve manifold as follows:

4.2.1 Verify equalizing valve open

4.2.2 Open high side isolation valve

4.2.3 Open low side isolation valve

4.2.4 Close equalizing valve

4.3 Record Loop 2 SW Flow: _____ gpm

5.0 Obtain ACW Flow as follows:

5.1 Blowdown ACW Flow instrument (2FI-1601) sensing lines.

- Cycle high side valve until clean water obtained.
- Cycle low side valve until clean water obtained.

5.2 Align ACW Flow instrument (2FI-1601) at Three Valve manifold as follows:

5.2.1 Verify equalizing valve open

5.2.2 Open high side isolation valve

5.2.3 Open low side isolation valve

5.2.4 Close equalizing valve

5.3 Record ACW Flow: _____ gpm

6.0 IF ACW in service,
THEN combine ACW Flow with SW Loop flow to which ACW aligned.

7.0 Record SW flows and DPs in Table 1:

TABLE 1		
SW Loop	**Strainer DP**	**Total Flow**
Loop 1	psid	gpm
Loop 2	psid	gpm

8.0 Compare each loop flow to strainer DP in Table 2 to determine loop operability:

TABLE 2		
DP psid	**Loop 1 Min Flow gpm**	**Loop 2 Min Flow gpm**
10	≥ 7405	≥ 8249
11	≥ 7767	≥ 8652
12	≥ 8112	≥ 9037

ELECTRICAL POWER SYSTEMS

D.C. DISTRIBUTION – OPERATING

LIMITING CONDITION FOR OPERATION

3.8.2.3 As a minimum, the following D.C. electrical sources shall be OPERABLE:

TRAIN "A" consisting of 125-volt D.C. bus No. 1, 125-volt D.C. battery bank No. 1 and a full capacity charger.

TRAIN "B" consisting of 125-volt D.C. bus No. 2, 125-volt D.C. battery bank No. 2 and a full capacity charger.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

a. With one of the required battery banks inoperable, restore the inoperable battery bank to OPERABLE status within 2 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With one of the required full capacity chargers inoperable, demonstrate the OPERABILITY of its associated battery bank by performing Surveillance Requirement 4.8.2.3.a.1 within one hour and at least once per 8 hours thereafter. If any Category A limit in Table 4.8-2 is not met, declare the battery inoperable.

SURVEILLANCE REQUIREMENTS

4.8.2.3. Each 125-volt battery bank and charger shall be demonstrated OPERABLE:

a. At least once per 7 days by verifying that:

1. The parameters in Table 4.8-2 meet the Category A LIMITS, and

2. The total battery terminal voltage is greater than or equal to 129 volts on float charge for a 60 cell battery bank and greater than or equal to 124.7 volts on float charge for a 58 cell battery bank.

b. At least once per 92 days and within 7 days after a battery discharge with battery terminal voltage below 110 volts, or battery overcharge with battery terminal voltage above 150 volts, by verifying that:

1. The parameters in Table 4.8-2 meet the Category B LIMITS,

SURVEILLANCE REQUIREMENTS (Continued)

2. There is no visible corrosion at battery terminals and connectors, or the connection resistance of these items is $\leq 150 \times 10^{-6}$ ohm, and

3. The average electrolyte temperature of 12 of the connected cells is above 60°F.

c. At least once per 18 months by verifying that:

1. The cells, cell plates, and battery racks show no visual indication of physical damage or abnormal deterioration,

2. The cell-to-cell and terminal connections are clean, tight, and coated with anti-corrosion material,

3. The resistance of each cell-to-cell and terminal connection is less than or equal to 150×10^{-6} ohm, and

4. The battery charger will supply ≥ 300 amperes at ≥ 125 volts for ≥ 8 hours.

d. At least once per 18 months, during shutdown, by verifying that the battery capacity is adequate to supply and maintain in OPERABLE status all of the actual or simulated emergency loads for the design duty cycle when the battery is subjected to a battery service test.

e. At least once per 60 months, during shutdown, by verifying that the battery capacity is at least 80% of the manufacturer's rating when subjected to a performance discharge test. Once per 60-month interval this performance discharge test may be performed in lieu of the battery service test.

f. At least once per 18 months, during shutdown, performance discharge tests of battery capacity shall be given to any battery that shows signs of degradation or has reached 85% of the service life expected for the application. Degradation is indicated when the battery capacity drops more than 10% of rated capacity from its average on previous performance tests, or is below 90% of the manufacturer's rating.

TABLE 4.8-2

BATTERY SURVEILLANCE REQUIRMENTS

	CATEGORY A[1]	CATEGORY B[2]	
Parameter	LIMITS for each designated pilot cell	LIMITS for each connected cell	ALLOWABLE[3] VALUE for each connected cell
Electrolyte	> Minimum level indication mark, and ≤ ¼" above maximum level indication mark	> Minimum level indication mark, and ≤ ¼" above maximum level indication mark	Above top of plates, and not overflowing
Float Voltage	≥ 2.13 volts	≥ 2.13 volts[c]	> 2.07 volts
Specific Gravity[a]	≥ 1.195[b]	≥ 1.190 Average of all connected cells > 1.200	Not more than .020 below the average of all connected cells Average of all connected cells ≥ 1.190[b]

(a) Corrected for electrolyte temperature and level.

(b) Or battery charging current is less than 2 amps when on charge.

(c) Corrected for average electrolyte temperature.

(1) For any Category A parameter(s) outside the LIMIT(S) shown, the battery may be considered OPERABLE provided that within 24 hours all the Category B measurements are taken and found to be within their ALLOWABLE VALUES, and provided all Category A and B parameter(s) are restored to within LIMITS within the next 6 days.

(2) For any Category B parameter(s) outside the LIMIT(S) shown, the battery may be considered OPERABLE provided that the Category B parameters are restored to within LIMITS within 7 days.

(3) Any Category B parameter not within its ALLOWABLE VALUE indicates an inoperable battery.

SAFETY FUNCTION STATUS CHECK

SAFETY FUNCTION **ACCEPTANCE CRITERIA**

NOTE

Parameters in brackets [ ] reflect normal values corrected for harsh CNTMT environment with CNTMT temperature greater than 200°F or CNTMT radiation greater than 10^5 R/hr.

Major Recovery Strategies for LOCA

- Maximize SI flow and attempt to isolate leak.
- Restore RCS pressure and inventory control and maintain RCS Heat Removal after LOCA isolated.
- Perform controlled cooldown to SDC after LOCA isolated.
- Perform cooldown to remove Core heat during unisolated LOCA.
- Initiate Hot and Cold leg injection during unisolated LOCA.
- Maintaining Long Term Core cooling during unisolated LOCA.

TIME: ___ ___ ___ ___

1.	Reactivity Control	1. A.	1)	Reactor power lowering.
				OR
			2)	Reactor power less than 10^{-1}% AND stable or lowering.
		B.	1)	Maximum of ONE CEA NOT fully inserted.
				OR
			2)	Emergency Boration in progress or completed.

SAFETY FUNCTION STATUS CHECK

SAFETY FUNCTION	ACCEPTANCE CRITERIA

2. Maintenance of Vital Auxiliaries (AC and DC Power)

2. A. At least ONE 4160v Vital bus (2A3/2A4) energized.

B. At least ONE 125v Vital DC bus energized:

- 2D01 – SPDS point E2D01
- 2D02 – SPDS point E2D02

C. At least ONE 120v Vital AC bus energized:

- 2RS1 – SPDS point E2RS1 or E2RS1RS3
- 2RS2 – SPDS point E2RS2 or E2RS2RS4
- 2RS3 – SPDS point E2RS3 or E2RS1RS3
- 2RS4 – SPDS point E2RS4 or E2RS2RS4

SAFETY FUNCTION STATUS CHECK

SAFETY FUNCTION **ACCEPTANCE CRITERIA**

NOTE

Meeting the provisions of Condition 1 or Condition 2 will satisfy the Safety Function.

3. RCS Inventory Control

CONDITION 1

A. PZR level greater than or equal to 10% [40%]. | | | | |

B. RCS MTS 30°F or greater | | | | |

C. RVLMS LVL 03 or higher elevation indicates WET. | | | | |

(Step 3 continued on next page)

SAFETY FUNCTION STATUS CHECK

SAFETY FUNCTION	ACCEPTANCE CRITERIA

3. (continued)

3.	RCS Inventory Control	CONDITION 2

A. All available Charging pumps operating.

OR

HPSI termination/throttle criteria satisfied.

B. HPSI injection flow acceptable, refer to 2202.010 Exhibit 2, HPSI Flow Curve.

OR

HPSI termination/throttle criteria satisfied.

C. LPSI injection flow acceptable, refer to 2202.010 Exhibit 3, LPSI Flow curve.

OR

LPSI termination criteria satisfied.

OR

RAS actuated.

D. RVLMS LVL 06 or higher elevation indicates WET

SAFETY FUNCTION STATUS CHECK

SAFETY FUNCTION **ACCEPTANCE CRITERIA**

NOTE

Meeting the provisions of Condition 1 or Condition 2 will satisfy the Safety Function.

4. RCS Pressure Control

CONDITION 1

A. RCS pressure within limits of 2202.010 Attachment 1, P-T Limits. | | | | |

CONDITION 2

A. All available Charging pumps operating.

OR | | | | |

HPSI termination/throttle criteria satisfied.

B. HPSI injection flow acceptable, refer to 2202.010 Exhibit 2, HPSI Flow Curve.

OR | | | | |

HPSI termination/throttle criteria satisfied.

C. LPSI injection flow acceptable, refer to 2202.010 Exhibit 3, LPSI Flow curve.

OR

LPSI termination criteria satisfied. | | | | |

OR

RAS actuated.

SAFETY FUNCTION STATUS CHECK

SAFETY FUNCTION	ACCEPTANCE CRITERIA

5. Core Heat Removal

5. A. RCS T_H and average CET temperatures less than superheated.

OR

B. 1) RCS T_H and average CET temperatures less than 10°F superheat.

2) RVLMS LVL 06 or higher elevation indicates WET.

OR

C. 1) BOTH RVLMS channels inoperable.

2) RCS T_H and average CET temperatures less than 10°F superheat.

3) RCS temperatures NOT rising.

4) CET temperatures less than 700°F.

6. RCS Heat Removal

6. A. 1) At least ONE SG level maintained 10% to 90% [20% to 90%] with FW available.

OR

2) SG level being restored by total FW flow greater than 485 gpm.

B. RCS T_C stable or lowering.

SAFETY FUNCTION STATUS CHECK

SAFETY FUNCTION **ACCEPTANCE CRITERIA**

NOTE

Meeting the provisions of Condition 1 or Condition 2 will satisfy the Safety Function.

7. CNTMT Isolation

CONDITION 1

A. Secondary systems Radiation alarms clear or NO unexplained rise:

- SG Sample (2C25)
  - 2RITS-5854
  - 2RITS-5864
- Condenser Off Gas (2C25)
  - 2RITS-0645
- Steamline Monitors (2C336-2)
  - 2RI-1007
  - 2RI-1057

B. CNTMT pressure less than 18.3 psia.

C. CNTMT Area Radiation High Range monitors less than 1000 R/hr:

(2C336-1, 2)

- 2RITS-8925-1
- 2RITS-8925-2

(Step 7 continued on next page)

SAFETY FUNCTION STATUS CHECK

SAFETY FUNCTION	ACCEPTANCE CRITERIA

7. (continued)

7.	CNTMT Isolation	CONDITION 2	
		A. Secondary systems Radiation alarms clear or NO unexplained rise: • SG Sample (2C25) - 2RITS-5854 - 2RITS-5864 • Condenser Off Gas (2C25) - 2RITS-0645 • Steamline Monitors (2C336-2) - 2RI-1007 - 2RI-1057	
		B. CIAS present or manually initiated.	

SAFETY FUNCTION STATUS CHECK

SAFETY FUNCTION **ACCEPTANCE CRITERIA**

NOTE

Meeting the provisions of Condition 1 or Condition 2 will satisfy the Safety Function.

8. CNTMT Temperature and Pressure Control

CONDITION 1

A. CNTMT temperature less than 235°F. | | | | |

B. CNTMT pressure less than 23.3 psia. | | | | |

C. Hydrogen less than minimum detectable concentration (1). | | | | |

CONDITION 2

A. At least ONE of the following: | | | | |

1) Two available CNTMT Cooling fans operating in Emergency Mode.

2) ONE CNTMT Spray header with flow 1875 gpm or greater.

3) Required combination of CNTMT Spray Systems and CNTMT Cooling Fans running in EMERGENCY MODE.

B. CNTMT pressure less than 73.7 psia. | | | | |

C. Hydrogen less than lower flammability concentration (1). | | | | |

(1) Hydrogen concentration acceptance criteria may be omitted until Hydrogen Analyzers are in service and providing data.

REFUELING OPERATIONS

DECAY TIME AND SPENT FUEL STORAGE

TECHNICAL REQUIREMENT FOR OPERATION

3.9.3 The total heat load in the Spent Fuel Pool (SFP) shall remain within the limits specified in TRM Figure 3.9.3-1 or TRM Figure 3.9.3-2, as appropriate.

APPLICABILITY: During movement of irradiated fuel to the SFP.

ACTION:

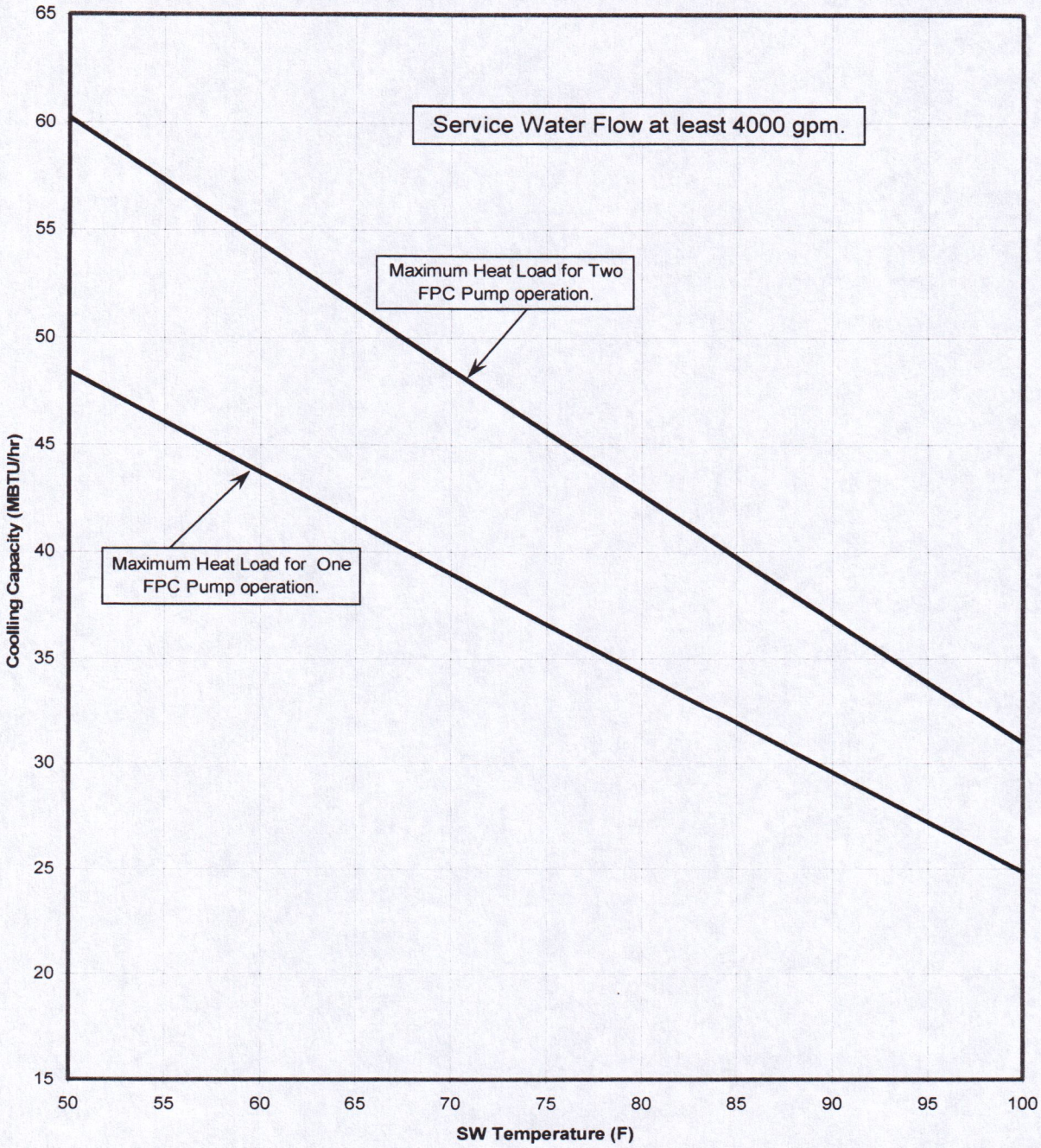
With the total heat load exceeding the requirements in TRM Figure 3.9.3-1 or TRM Figure 3.9.3-2, as appropriate, or with no SFP cooling pump in operation, suspend all transfer of irradiated fuel to the SFP until the limits are restored.

TEST REQUIREMENTS

4.9.3 The total heat load in the pool shall be determined to be less than the limits specified in TRM Figure 3.9.3-1 or TRM Figure 3.9.3-2, as appropriate, when transferring irradiated fuel to the SFP.

TRM Figure 3.9.3-1

Spent Fuel Pool Cooling Capacity



TRM Figure 3.9.3-2

Spent Fuel Pool Cooling Capacity